



**CLEMONS,
RUTHERFORD
& ASSOCIATES, INC.**

ARCHITECTS

▪

PLANNERS

▪

INTERIOR DESIGNERS

▪

CONSTRUCTION MANAGERS

2027 Thomasville Road
Tallahassee, FL 32308
p: 850-385-6153
f: 850-386-8420
www.craarchitects.com

PROJECT MANUAL

BAY DISTRICT SCHOOLS

DEANE BOZEMAN SCHOOL

**TORNADO SAFE ROOM
CLASSROOM ADDITION**

PANAMA CITY, FLORIDA

CRA PROJECT NUMBER: 21070

DECEMBER 5, 2024

CONSTRUCTION DOCUMENTS

VOLUME: 1

SET NUMBER:

“To the best of my knowledge, these drawings and the project manual are complete and comply with the “State Requirements for Educational Facilities”

CLEMONS, RUTHERFORD & ASSOCIATES, INC.

The Drawings, Specifications and other documents prepared by Clemons, Rutherford & Associates, Inc for this project are instruments of Clemons, Rutherford & Associates, Inc. for use solely with respect to this project and, unless otherwise provided, Clemons, Rutherford & Associates, Inc. shall be deemed the author of these documents and shall retain all common law, statutory and other reserved rights, including the copyright. The Owner shall be permitted to retain copies, including reproducible copies, of Clemons, Rutherford & Associates, Inc's Drawings, Specifications and other documents for information and reference in connection with the Owner's use and occupancy of the Project. Clemons, Rutherford & Associates, Inc's Drawings, Specifications or other documents shall not be used by the Owner or others on other projects, for additions to this Project or for completion of this Project by others, unless the Architect is adjudged to be in default under this Agreement, except by agreement in writing and with appropriate compensation to Clemons, Rutherford & Associates, Inc.

TABLE OF CONTENTS
DEANE BOZEMAN SCHOOL
TORNADO/HURRICANE SAFE CLASSROOM ADDITION

VOLUME 1

BIDDING CONDITIONS

SECTION 000020 - INVITATION TO BID.....000020-1
SECTION 000100 - INSTRUCTION TO BIDDERS (W/ TWO ATTACHMENTS) 000100-1 - 000100-6
SECTION 000300 - BID FORM..... 000300-1 - 000300-3
SECTION 000420 - PUBLIC ENTITY CRIME, DRUG FREE WORKPLACE, MATERIAL SAFETY
(W/ATTACHED FORMS)000420-1
SECTION 000430 - LIST OF SUBCONTRACTORS 000430-1 - 000430-2

CONDITIONS OF THE CONTRACT

SECTION 000500 - AGREEMENT FORMS (W/ ATTACHED FORM).....000500-1
SECTION 000610 - PERFORMANCE BOND AND PAYMENT BOND (W/ ATTACHED FORMS)000610-1
SECTION 000625 - ACCEPTABLE SURETY COMPAINES 000625-1 - 000625-2
SECTION 000700 - GENERAL CONDITIONS (W/ ATTACHED FORM)000700-1
SECTION 000800 - SUPPLEMENTARY CONDITIONS..... 000800-1 - 000800-14
SECTION 000820 - SPECIAL CONDITIONS..... 000820-1 - 000820-12
SECTION 000950 - DIRECT PURCHASE BY OWNER.....000950-1
SECTION 000951 - DIRECT MATERIAL PURCHASE PROCEDURE..... 000951-1 - 000951-3

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 011000 - SUMMARY OF WORK 011000-1 - 011000-3
SECTION 012150 - THRESHOLD INSPECTION 012150-1 - 012150-7
SECTION 012500 - SUBSTITUTIONS PROCEDURES..... 012500-1 - 012500-2
SECTION 012900 - PAYMENT PROCEDURES 012900-1 - 012900-3
SECTION 013100 - PROJECT COORDINATION..... 013100-1 - 013100-2
SECTION 013200 - PROJECT MEETINGS 013200-1 - 013200-2
SECTION 013300 - SUBMITTALS 013300-1 - 013300-6
SECTION 014000 - QUALITY REQUIREMENTS..... 014000-1 - 013300-2
SECTION 014200 - DEFINITIONS AND STANDARDS 014200-1 - 014200-2
SECTION 015000 - TEMPORARY FACILITIES 015000-1 - 015000-4
SECTION 015500 - MATERIALS AND EQUIPMENT 015500-1 - 015500-4
SECTION 015719 - EROSION CONTROL AND ENVIRONMENTAL PROTECTION 015719-1 - 015719-5
SECTION 017700 - CLOSEOUT PROCEDURES 017700-1 - 017700-6
SECTION 017800 - WARRANTIES AND BONDS 017800-1 - 017800-2
SECTION 018113 - SUSTAINABLE DESIGN REQUIREMENTS.....018113-1
SECTION 019113 - GENERAL COMMISSIONING REQUIREMENTS..... 019113-1 - 019113-20

TABLE OF CONTENTS (continued):

DIVISION 2 – EXISTING CONDITIONS.....

SECTION 023000 - GEOTECHNICAL DATA (w/ATTACHED REPORT)023000-1
SECTION 024119 - DEMOLITION 024119-1 - 024119-3

DIVISION 3 - CONCRETE

SECTION 033000 - BUILDING CONCRETE WORK..... 033000-1 - 033000-13
SECTION 034700 – SITE CAST TILT-UP CONCRETE 034700-1 - 034700-12

DIVISION 4 – MASONRY N/A

DIVISION 5 - METALS

SECTION 051200 - STRUCTURAL STEEL051200-1 - 051200-6
SECTION 052100 - STEEL JOIST FRAMING052100-1 - 052100-3
SECTION 053100 - STEEL DECKING053100-1 - 053100-3
SECTION 054000 - COLD FORMED METAL FRAMING.....054000-1 - 054000-4
SECTION 055000 - METAL FABRICATIONS 055000-1 -055000-9
SECTION 055113 - METAL PAN STAIRS.....055113-1 - 055113-7

DIVISION 6 – WOOD, PLASTICS, AND COMPOSITES

SECTION 061000 - ROUGH CARPENTRY061000-1 - 061000-2
SECTION 064000 - PLASTIC LAMINATE CLAD CABINETS064000-1 - 064000-3
SECTION 066510 - SOLID SURFACE FABRICATIONS.....066510-1 - 066510-5

DIVISION 7 - MOISTURE PROTECTION

SECTION 071113 - BITUMINOUS DAMPPROOFING.....071113-1 - 071113-2
SECTION 071326 - WATERPROOFING 071326-1 - 071326-3
SECTION 072100 - BUILDING INSULATION.....072100-1 - 072100-3
SECTION 074113 - PREFORMED WALL AND ROOF PANELS.....074113-1 - 074113-9
SECTION 075419 - POLYVINYL-CHLORIDE (PVC) ROOFING075419-1 - 075419-10
SECTION 076200 - FLASHING & SHEET METAL076200-1 - 076200-2
SECTION 078400 - FIRESTOPPING078400-1 - 078400-5
SECTION 079200 - JOINT SEALERS.....079200-1 - 079200-2

DIVISION 8 - OPENINGS

SECTION 080500 - DOOR SCHEDULE080500-1 - 080500-5
SECTION 081113 - HOLLOW METAL DOORS AND FRAME081113-1 - 081113-2
SECTION 081416 - FLUSH WOOD DOORS.....081416-1 - 081416-2
SECTION 083113 - ACCESS DOORS AND FRAMES083113-1
SECTION 085113 - ALUMINUM WINDOWS085113-1 - 085113-3
SECTION 087100 - DOOR HARDWARE087100-1 - 087100-26
SECTION 088000 - GLASS AND GLAZING088000-1 - 088000-3

DIVISION 9 - FINISHES

SECTION 092900 - GYPSUM DRYWALL.....092900-1 - 092900-3
SECTION 095100 - ACOUSTICAL CEILINGS095100-1 - 095100-3
SECTION 096500 - RESILIENT WALL BASE AND STAIR TREADS.....096500-1 - 096500-5
SECTION 096519 - LUXURY VINYL TILE.....096519-1 - 096519-5
SECTION 096700 - SPECIAL COATING FOR CONCRETE096700-1 - 096700-4
SECTION 096723 - RESINOUS FLOORING.....096723-1 - 096723-6
SECTION 096816 - CARPETING.....096816-1 - 096816-3
SECTION 099100 - PAINTING099100-1 - 099100-5

TABLE OF CONTENTS (continued):

SECTION 099600 – FIBERGLASS MAT REINFORCED EPOXY WALL COATING.....099600-1 – 099600-3
SECTION 099601 – HIGH PERFORMANCE COATINGS FOR
EXTERIOR EXPOSED CONCRETE..... 099601-1 - 099601-6

DIVISION 10 - SPECIALTIES

SECTION 101000 - MARKERBOARDS AND TACKBOARDS 101000-1 - 101000-2
SECTION 101440 – SIGNAGE (W/ATTACHMENTS)..... 101440-1 - 101440-5
SECTION 101600 - TOILET PARTITIONS 101600-1 - 101600-3
SECTION 102800 - TOILET AND BATH ACCESSORIES 102800-1 - 102800-4
SECTION 104416 - FIRE EXTINGUISHERS, CABINETS AND ACCESSORIES..... 104416-1 - 104416-2
SECTION 105310 - ALUMINUM WALKWAY CANOPY SYSTEM 105310-1 - 105310-3
SECTION 109900 - MISCELLANEOUS SPECIALTIES 109900-1 - 109900-2

DIVISION 11 - EQUIPMENT– N/A

DIVISION 13 - SPECIAL CONSTRUCTION– N/A

DIVISION 14 - CONVEYING SYSTEMS – N/A

SECTION 142400 – HYDRAULIC ELEVATOR 142400-1 - 142400-11

DIVISION 21- FIRE PROTECTION

21 13 13 BUILDING SPRINKLER SYSTEM

DIVISION 22 – PLUMBING

22 01 00 PLUMBING GENERAL
22 07 00 INSULATION FOR PLUMBING PIPE AND EQUIPMENT
22 11 13 POTABLE WATER SYSTEM
22 13 16 SOIL, WASTE, AND VENT SYSTEM
22 16 00 GAS SYSTEM
22 30 00 PLUMBING FIXTURES, EQUIPMENT, TRIM & SCHEDULE

TABLE OF CONTENTS (continued):

VOLUME 2

DIVISION 23 – MECHANICAL

23 01 00	MECHANICAL GENERAL
23 05 13	ELECTRIC MOTORS
23 05 19	METERS AND GAUGES
23 05 20	PIPES AND PIPE FITTINGS
23 05 21	PIPING SPECIALTIES
23 05 23	VALVES
23 05 29	SUPPORTS, ANCHORS, AND SEALS
23 05 48	VIBRATION ISOLATION
23 05 53	MECHANICAL IDENTIFICATION
23 05 56	ACCESS DOORS
23 05 73	EXCAVATION AND BACKFILL
23 05 90	START-UP REQUIREMENTS FOR HVAC SYSTEMS
23 05 91	TESTING, CLEANING, AND STERILIZATION OF PIPING SYSTEMS
23 05 93	TESTING AND BALANCING OF MECHANICAL SYSTEMS
23 07 13	EXTERIOR INSULATION FOR DUCTWORK
23 07 16	INSULATION FOR HVAC EQUIPMENT AND PIPING
23 08 00	HVAC SYSTEM COMMISSIONING
23 09 13	VARIABLE FREQUENCY DRIVES
23 09 23	DIRECT DIGITAL CONTROLS
23 21 13	HEATING HOT WATER AND CHILLED WATER SYSTEMS
23 21 16	HYDRONIC SPECIALTIES
23 21 23	HVAC PUMPS
23 31 13	HVAC METAL DUCTWORK
23 33 00	DUCTWORK ACCESSORIES
23 34 00	FANS
23 36 16	VARIABLE AIR VOLUME TERMINAL UNITS
23 37 13	GRILLES, REGISTERS, AND CEILING DIFFUSERS
23 37 26	WALL LOUVERS
23 52 16	CONDENSING BOILERS
23 64 30	PACKAGED AIR-COOLED CHILLERS
23 73 23	CUSTOM AIR HANDLING UNITS
23 81 28	DUCTLESS SPLIT SYSTEM AIR CONDITIONING UNITS
23 82 19	FAN COIL UNITS

DIVISION 26 - ELECTRICAL

260100	GENERAL PROVISIONS FOR ELECTRICAL
260519	LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
260523	CONTROL-VOLTAGE ELECTRICAL POWER CABLES
260525	OPTICAL FIBER BACKBONE CABLING
260526	GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
260529	HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS
260533	RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS
260544	SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING
260553	IDENTIFICATION FOR ELECTRICAL SYSTEMS
260573.13	SHORT-CIRCUIT STUDIES
260573.16	COORDINATION STUDIES
260573.19	ARC-FLASH HAZARD ANALYSIS
260923	LIGHTING CONTROL DEVICES
260943.23	RELAY-BASED LIGHTING CONTROLS
262213	LOW-VOLTAGE DISTRIBUTION TRANSFORMERS

TABLE OF CONTENTS (continued):

262416	PANELBOARDS
262726	WIRING DEVICES
262813	FUSES
262816	ENCLOSED SWITCHES AND CIRCUIT BREAKERS
263213.13	DIESEL-ENGINE-DRIVEN GENERATOR SETS
263600	TRANSFER SWITCHES
264113	LIGHTNING PROTECTION FOR STRUCTURES
264313	SURGE PROTECTIVE DEVICES FOR LOW-VOLTAGE ELECTRICAL POWER CIRCUITS
265119	LED INTERIOR LIGHTING
265619	LED EXTERIOR LIGHTING

DIVISION 27 – COMMUNICATIONS

270000	COMMUNICATIONS STRUCTURED CABLING SYSTEM
275000	INTERCOM/PA SYSTEM
278000	IP SECURITY CAMERA SYSTEM

DIVISION 28 – ELECTRONIC SAFETY & SECURITY

281000	ELECTRONIC ACCESS CONTROL SYSTEM
--------	----------------------------------

DIVISION 29 – FIRE SAFETY AND EMERGENCY COMMUNICATIONS

290100	GENERAL PROVISIONS FOR FIRE SAFETY AND EMERGENCY COMMUNICATIONS
290523	CONTROL-VOLTAGE ELECTRICAL POWER CABLES
294621.11	ADDRESSABLE FIRE-ALARM SYSTEMS

DIVISION 31 - EARTHWORK- PESTICIDES

SECTION 311000 - TRENCH SAFETY ACT	311000-1
SECTION 312000 - EARTHWORK.....	312000-1 - 312000-8
SECTION 313116 - TERMITE CONTROL	313116-1 - 313116-2

DIVISION 32 - EXTERIOR

SECTION 323113 - CHAIN LINK FENCES AND GATES.....	323113-1 - 323113-3
SECTION 329200 - TURF AND GRASSES.....	329200-1 - 329200-9

DIVISION 33 - UTILITIES

SECTION 331000 – WATER DISTRIBUTION SYSTEMS.....	331000-1 - 331000-11
SECTION 333000 – SANITARY SEWERAGE.....	333000-1 - 333000-11

SECTION 000020 - INVITATION TO ENTER INTO CONTRACT NEGOTIATIONS

**BAY DISTRICT SCHOOL BOARD
DEANE BOZEMAN SCHOOL
CLASSROOM ADDITION &
SITE IMPROVEMENTS**

CLEMONS, RUTHERFORD & ASSOCIATES, INC.
949 JENKS AVE, SUITE 12 & 13
PANAMA CITY, FL 32401
850-385-6153

The Bay District School Board is extending an invitation to **Lord & Son Construction Inc.** to submit a Contract and GMP to perform all work associated with the construction of a **2 story Tornado Safe Classroom Building which includes a Tornado Safe Room on the 1st floor and a parent drop & drives.**

The Construction Management firm must submit, along with a preliminary AIA Contract, a properly executed "Contractor's Qualification Statement" AIA Document A-305 which is to include a current financial statement, an experience, competence and performance report, and references from at least three prior projects similar in size and scope, along with the name of a contact person on each of those projects. The CM must be a Pre-Qualified Contractor in order to submit a GMP and work for the Bay County School Board.

Performance and Labor and Material Bonds will be required for this project. Workman's Compensation Insurance and other Insurance as detailed in the specifications will be required as well.

The Bay District School Board needs the above referenced Classroom Building Substantially completed by June 2026.

Electronic documents are available from the Architect's office: Clemons, Rutherford & Associates, Inc., 949 Jenks Ave, Suite 12, Panama City, FL 32401. Contact Melinda Lindsey at 850-385-6153 to obtain documents.

Before the GMP is considered for award, the Construction Manager may be requested by the Owner to submit additional statements regarding previous experience in performing comparable work, business and technical organization, financial resources and plant available to be used in performing the work. The Bay District Schools reserves the right to waive irregularities and to reject any, and all Bids.

END OF SECTION 000020

SECTION 000100 - INSTRUCTIONS TO CONSTRUCTION MANAGERS

1.0 **GENERAL:**

1.1 The Drawings and Project Manual cover the following new construction and associated improvements at the Deane Bozeman School in Panama City, FL:

A. 2 Story Tornado Safe Classroom Building which includes a Tornado Safe building/area.

1.2 Contractor shall be fully responsible for all labor, materials, and equipment necessary for the complete construction of the work as required in the Contract Documents.

2.0 **PROCUREMENT OF BIDDING DOCUMENTS:**

2.1 The Construction Manager may obtain a complete electronic set of Documents from Clemons, Rutherford & Associates, Inc. See the 'Invitation to Enter into Contract Negotiations' for the Architect's Address & Phone information.

2.2 The Contractor shall use complete sets of Bidding Documents in preparing bids; neither the Owner or the Architect assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets.

3.0 **EXAMINATION OF BIDDING DOCUMENTS AND SITE:**

3.1 Prior to submitting a GMP, the Construction Manager shall carefully examine the Bidding Documents and the construction site. The CM shall fully inform him/herself prior to providing a GMP as to all existing conditions and limitations under which the work is to be performed and shall include in his/her bid a sum to cover the costs of all items necessary to perform the work as set forth in the Contract Documents.

3.2 Site visits shall be coordinated with Bay District School's Facilities Department (850) 767-4139.

3.3 No allowance will be made to any CM/Bidder because of lack of such examination or knowledge. The submission of a Bid will be construed as conclusive evidence that the Bidder has made such an examination. The CM/Bidder shall be responsible for verifying all dimensions which may affect the work.

3.4 No claim for additional compensation shall be entertained on behalf of or paid to Contractor or any Subcontractor on account of his/her failure to be fully informed of all requirements of all parts of the Specifications, Addenda or Drawings. They are part of the Contract Documents and of the Contract and all Bidders should be thoroughly familiar with the content and requirements before submitting proposals.

3.5 There will be a Mandatory Pre-Bid Conference.

4.0 **INTERPRETATIONS AND ADDENDA:**

4.1 The CM/Bidder shall carefully examine and compare the Bidding Documents, project site and local conditions with each other. No later than seven (7) days prior to the date for receipt of Bids, Bidder shall make a written request to the Architect for interpretation or correction of any errors, ambiguities or inconsistencies found during his examination, using the "Request for Clarification" form at the end of this section (Attachment 00100-1).

"Request for Clarification" forms shall also be used to present any questions and/or clarifications about the project at the Pre-Bid Conference. Questions not presented on Clarification Form may not be addressed. Verbal responses from the Architects office are not to be considered official.

4.2 Interpretations, corrections and changes to the Bidding Documents will be made by Addendum. Addendums will be e-mailed or made available electronically to the Construction Manager. The Architect and the Owner will not be responsible for interpretations, corrections or changes made in any other manner, and the Bidder shall not rely on them.

4.3 Any item, material, condition, service, etc. that may be referenced to in the drawings or specifications, and that is not clearly understood by the bidder as to the Architects intent, shall be clarified by the bidder prior

SECTION 000100 - INSTRUCTIONS TO BIDDERS (continued):

to the Bid. Failure to clarify any ambiguity shall not relieve the bidder from supplying the intent of the Architect as part of the base contract.

5.0 **SUBSTITUTIONS (prior to bidding):**

Substitutions will be considered prior to receipt of Bids only if a written request for approval is submitted to the Architect no later than ten (10) days prior to the date for receipt of Bids. Each request shall include a complete description of the proposed substitution, along with drawings, performance and test data, and any other information required for a complete evaluation. The Architect's decision of approval or disapproval will be final.

If the Architect approves the proposed substitution, such approval will be set forth in addenda. Bidders shall not rely on approvals made in any other manner.

Substitutions will be considered after the Contract award only if they are in compliance with the conditions set in Section 012500 – Substitution Procedures.

6.0 **Value Engineering Statement:** Bidders may submit Value Engineering changes to the bid documents that ***may or may not*** be accepted by the Owner. Such Value Engineering changes must maintain the intent of the construction documents and meet all code requirements. Bidders must provide a bid price for the construction as designed (per Construction Documents) so that Value Engineering changes may be ***added or deducted*** from that total (Base Bid) to arrive at the projects low bid amount.

6.0 **FAMILIARITY WITH LAWS:**

6.1 The Bidder shall be familiar with all Federal, State and local laws, ordinances, rules and regulations affecting the work. Ignorance of them on the part of Bidder shall in no way relieve the Bidder from responsibility.

6.2 **EQUAL OPPORTUNITY**

- .1 The Contractor and all subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin or age. The Contractor shall take affirmative actions to ensure that applicants are employed, and that employees are treated during employment without regard to their race, religion, color, sex, national origin or age. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertisement; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous place, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.
- .2 The Contractor and all subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, national origin or age.

6.3 **JESSICA LUNSFORD ACT**

- .1 All personnel on the referenced project must comply with “The Jessica Lunsford Act” (Florida Statute 1012.465). In addition, Bay District Schools requires a level two background screening. The screening process and I.D. badges are available from The Safety and Security Office of Bay District Schools, located at 1120 W. 17th Street, Panama City, Florida at a cost to the Contractor. Identification badges issued by the Bay County School Board shall be displayed by all Contractors’ and subcontractors’ employees when on school property. The badges must be renewed in June of each year at a cost to the Contractor. The State-Wide Florida Contractor I. D. badge issued by DOE is also accepted.
- .2 The Owner reserves the right to restrict access to a higher standard than the threshold set forth in the revised Jessica Lunsford Act Statute. Screening shall be commensurate with the screening standards in Level 2 as defined by Section 435.04.F.S.
- .3 In cases where non-instructional contractors who under Section 1012.467(2)(a), F.S., would be

SECTION 000100 - INSTRUCTIONS TO BIDDERS (continued):

subject to reduced screening standards are denied access as a result of Level 2 screening, the contractor may appeal the decision in writing within 10 days of notification of denial. The Superintendent shall act upon the appeal within 30 days of receipt of the appeal. In the review of all appeals a reasonable basis shall apply.

- .4 The JLA Section 1012.468(2)(a), F.S., as amended, allows contractors who have not passed background screening to work on school grounds as long as they are under direct line of sight supervision of a screened supervisor or District employee. Except as outlined in (b) and (c) of this rule, the Owner does not grant this degree of latitude due to the possibility that the screened supervisor may be called away by an emergency or lose sight of an employee.
- .5 Line-of-sight provisions may be used for individual contractors providing training or educational resource presentations provided they are escorted by responsible District administrative staff to and from the delivery venues and remain under constant supervision throughout their lecture/training delivery obligation. Departments utilizing such individual contractors must notify the District Safety and Security Office in writing prior to their arrival. These exempted individual contractors must be checked against the national sexual offender database by the responsible District administrative staff member.
- .6 Line-of sight provisions may be used for contractors responding to time sensitive critical emergencies provided they are escorted by responsible District administrative staff to and from the work site and remain under constant supervision throughout their service/repair obligation. Departments utilizing such individual contractors should coordinate with the District Safety & Security Office. These exempted individual contractors must be checked against the national sexual offender database by the responsible District administrative staff.
- .7 The JLA Section 1012.468(2)(e), F.S., as amended, allows personnel who have not passed background screening to work on a school campus if there is a barrier in place configured so as to ensure reasonable physical separation from normal student activity. This requires a 6-foot chain link fence, with a single ingress/egress point allowing access only from off-campus/public right-of-way. The physical barrier provision is allowed. However, the fence must also include a visual fabric screen and remain intact throughout the time workers are on campus. Should the fence be damaged, repairing it shall be the contractor's immediate priority. If the fence is not repaired, all unscreened workers will be required to leave the jobsite.

All workers entering an enclosed work area under the conditions set forth in this spec section will be required to be screened through the "raptor system" on campus and will be required to maintain and display a project specific credential showing that they have the required raptor clearance. It is the intent of BDS facilities that this will be in the form of a hard hat sticker and a project record consisting of a registry of workers names and copies of identification used to obtain raptor clearance. The credential shall be numbered and the unique number assigned to each person shall be recorded. The registry shall be held on site and maintained by the contractor at all times and made available for owner review at anytime. Any worker who will engage in activities outside the project barrier as described in this section, will be required to obtain and display JLA badging as set forth in other sections of this specification. It shall be the responsibility of the prime contractor and/or CM to ensure adherence to these requirements is maintained at all times.

- .8 Section 1012.468(2)(f), F.S., allowing exemption for delivery personnel is reasonable and shall be applied. Contractor personnel who enter campuses only briefly to pick up or deliver materials, commodities, or property and who are under supervision of school employees their entire time on campus will be exempt from screening. This does not include service technicians who make more lengthy visits to work on equipment on campuses.
- .9 District properties where students are not present during the course of the normal education process are exempt from the requirements of JLA screening. District facilities employing student workers are not exempt.
- .10 Background checks, where required, are to be done at least every five (5) years. However, the

SECTION 000100 - INSTRUCTIONS TO BIDDERS (continued):

Owner reserves the right to limit some credentials to a shorter term and can require more frequent background checks for renewal as deemed necessary.

.11 Screening information will be shared with other districts as provided by Section 1012.467(7)(a), F.S.

7.0 **FLORIDA PRODUCTS AND LABORS:**

7.1 The Bidder's attention is called to Section 255.04 of the Florida Statutes which requires that on public building contracts, Florida products and labor shall be used wherever price and quality are the same as products and labor specified.

8.0 **TIME OF COMPLETION:**

8.1 The project will have completion dates and liquidated damages as stated in Sections 000300, 000800 and in the "Standard Form of Agreement Between Owner and Construction Manager".

8.2 The Contractor shall begin the work at each site no later than 48 hours after the effective date of the notice to proceed. Work shall commence and continue unimpeded in pursuit of complying with the project schedule requirements.

9.0 **PREPARATION AND SUBMISSION OF BIDS:**

9.1 All bids submitted shall be prepared in duplicate in conformity with all requirements of the Project Manual, Drawings, and Addenda. Bid documents shall be enclosed in a sealed envelope and shall be clearly labeled "Bid Documents" so as to guard against opening prior to the time set thereof.

9.2 The Construction Manager shall require the subcontractors to submit their legal name and business address, stated in full, along with their state license number and the job number of the project on their bid submission. Bidders shall be licensed to do business in the State of Florida at the time of submitting proposal.

9.3 If email bids are accepted, the following process must be followed:
Subcontractor bids to be emailed to the Construction Manager and the Architect jointly.
Bid must be submitted on the Construction Manager's Bid form
Header must show Project number, name & Bid Trade type.
The date & time of receipt of the email should be clear in the email header.
Construction Manager to print and place the Bid in a sealed envelope.

9.4 No verbal, telegraphic, or telephonic bid modifications or cancellations will be considered.

9.5 The Construction Manager guarantees there shall be no revisions or withdrawal of the bid amount for a period of 45 days after notice to proceed.

9.6 Signatures shall be in longhand and executed by a Principal duly authorized to make contracts.

9.7 The Construction Manager's GMP proposal shall reflect the cost of all work required by the bidding documents, plus additions, deletions, or modifications required by addenda issued prior to bid opening.

9.8 It is understood that the Construction Manager shall provide and pay for all required materials, labor, tools, transportation, superintendence, temporary construction of any nature, and all other services and facilities whatsoever necessary to execute, complete and deliver the work within the specified time. Any work which must be carried on after regular hours, on weekends or legal holidays shall be performed without additional expense to the Owner.

9.9 It is Bidder's sole responsibility to see that his Bid is received at the proper time. Any Bid received after scheduled bid opening time shall be returned to Bidder unopened.

9.10 All taxes imposed by city, state, or federal government, as specified in Division 01, shall be included in the

SECTION 000100 - INSTRUCTIONS TO BIDDERS (continued):

bid sum.

10.0 (Not Used)

11.0 LISTING OF SUBCONTRACTORS:

11.1 In order that the Owner may be assured that only qualified and competent Subcontractors will be employed on this project, the Construction Manager shall submit with his/her GMP a list of the Subcontractors who will perform the work for each division of the specifications, as indicated by the "List of Subcontractors" form contained in these specifications. The Construction Manager shall have determined to his/her own complete satisfaction that a listed subcontractor has been successfully engaged in this particular type of business for a reasonable length of time, has successfully completed installations comparable to that which is required by this agreement and is qualified both technically and financially to perform that pertinent phase of the work for which he is listed. Only one subcontractor shall be listed for each phase of work.

11.2 After public opening and reading of proposals, the listing of subcontractors submitted by the Construction Manager's Bid Tab will be reviewed by the Owner, **privately**.

11.3 It is also specified in a Division-1 Section that, in addition to the above, The Owner reserves the right to approve all subcontractors before work is started and that a complete list of all subcontractors shall be submitted.

12.0 POSTING OF BID TABULATIONS: The Construction Manager will post Bid tabulations with recommended awards at the location where bids are opened, and forward a copy to the Facilities Department so it can be posted on the District's website. The Bid Tabulations will remain posted for a period of 72 hours. Failure to file a protest of either the specifications or intended awards within the time described in and in accordance with Section 120.57(3) Florida Statutes and School Board Policies, or failure to post bond, shall constitute a waiver of proceedings under Chapter 120, Florida Statutes.

13.0 Not used:

14.0 OPENING OF BIDS:

14.1 Bids will be opened publicly and read aloud at the time and date indicated in the Invitation to Bid. The person opening the Bids will determine when the specified time has arrived, and Bids received after this time will not be considered.

14.2 A representative from Bay County District Schools must be present at all bid openings.

15.0 Not used::

16.0 EVALUATION AND CONSIDERATION OF BIDS:

16.1 It is the intent of the Owner to award the Contract to the lowest responsible Bidder provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The Owner shall have the right to waive informalities or irregularities in a Bid received and to accept the Bid, which in the Owner's judgement, is in the best interest of the Owner.

16.2 The Owner shall have the right to accept Alternates in any order and to determine the low Bidder on the basis of the sum of the base bid and Alternates accepted.

16.3 The Construction Manager will award the Bids per the Owner's direction.

17.0 REJECTION OF BIDS:

17.1 The Owner reserves the right to reject any or all Bids when such rejection is in the best interest of the Owner, to reject a Bid not accompanied by a Bid Security, or to reject a Bid which is in any way irregular or incomplete.

SECTION 000100 - INSTRUCTIONS TO BIDDERS (continued):

18.0 OWNER'S FINANCIAL CAPACITY:

18.1 The Owner shall furnish evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract to the Construction Manager under consideration for award of the Contract, if requested, no later than seven days prior to the expiration of the time for withdrawal of bids. If reasonable evidence is not furnished, the Construction Manager will not be required to execute the Agreement between the Owner and the Construction Manager.

19.0 SUBMITTAL:

19.1 The Construction Manager shall furnish to the Owner, through the Architect, in writing a designation of work to be done by his/her own forces, names of the manufacturers, products and suppliers of principal items or systems of materials and equipment proposed for the work, names of persons or entities proposed for the principal portions of the work. Before entering a Bid of self-performance, the Construction Manager must get prior Owner Approval and must still Bid out the Scope of work.

19.2 Prior to Approval of the GMP, the Architect will notify the Construction Manager in writing if either the Owner or the Architect, after due investigation, has reasonable objection to any person or entity proposed by the Construction Manager. The Construction Manager may, at his/her option, withdraw the bid or submit a substitute with an adjustment in the GMP. In either event, the bid security will not be forfeited.

19.3 Persons and entities proposed for the work of which the Owner and the Architect have no objection shall not be changed except with the written consent of the Owner and the Architect.

20.0 (Not Used)

21.0 COST BREAKDOWN:

21.1 The successful bidder will be required to submit, at the start of the job, and prior to the first application for payment, a breakdown of construction costs (Schedule of Values), itemized, to be used for accounting purposes.

22.0 BAY DISTRICT SCHOOL BOARD PURCHASES:

22.1 The Construction Manager shall include in their Bid the cost of all equipment, materials, labor and applicable taxes. The Bay District Schools however, shall be allowed to purchase any number of items it chooses, always per owner direct purchase requirements, or per other circumstance as required by owner and mutually agreed by and between affected parties. The Contract, in such cases, shall be amended by change order.

22.2 Coordination of this process shall be worked out between the Owner and the Contractor who is awarded the Contract.

23.0 OWNERS RIGHTS:

23.1 The Owner reserves the right to reject any or all Bids when such rejection is in the best interest of the Owner, to reject a Bid not accompanied by a Bid Security, to reject a Bid which is in any way irregular or incomplete, or to withdraw the request for Bids.

23.2 At the discretion of the owner, the owner reserves the right to amend, alter, or remove a bid scope or any part of a bid scope at any time after bids are received but prior to the bid award. This may be applicable for any scope within any project

24.0 ADDITIONAL REQUIREMENTS:

24.1 Refer to Section 011000 - SUMMARY OF THE WORK for additional requirements.

END OF SECTION 000100

**UNIFORM FEDERAL CONTRACT PROVISIONS RIDER
FOR FEDERALLY FUNDED PROCUREMENT CONTRACTS**
(Version 02.16.2018)

[Instructions to Agencies: This Uniform Federal Contract Provisions Rider for Federally Funded Procurement Contracts (“Rider”) must be attached to all federally funded procurement contracts (of any dollar amount) that are subject to 2 CFR Part 200 (Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards). This Rider does not apply to subrecipient or subaward agreements. Procurement contracts funded by the U.S. Department of Housing and Urban Development CDBG Program or CDBG-DR Program must also include the CDBG or CDBG-DR Rider, as applicable.]

A. *Definitions.* As used in this Rider:

- (1) “Awarding Entity” means the entity awarding the Contract. The Awarding Entity may be the City or a contractor at any tier.
- (2) “City” means the City of Panama City Beach.
- (3) “Owner” means the Project Manager of the City entering into this Contract.
- (4) “Construction” means the building, rehabilitation, alteration, conversion, extension, demolition, painting or repair of any improvement to real property.
- (5) “Contract” refers to the contract or the agreement between the Awarding Entity and the Contractor.
- (6) “Contractor” means the entity performing the services pursuant to a Contract.
- (7) “Federal Agency” means the U.S. agency or agencies funding this Contract in whole or in part.
- (8) “Government” means the U.S. government.
- (9) “Rider” means this Uniform Federal Contract Provisions Rider.

B. *Termination and Remedies for Breach of Contract.* The following provisions concerning remedies for breach of contract and termination apply to Contracts between the City and their Contractor.

- (1) **Remedies for Breach of Contract.** If the Contractor violates or breaches the Contract, the City may avail itself of any or all of the remedies provided for elsewhere in this Contract. If there are no remedies provided for elsewhere in this Contract, the City may avail itself of any or all of the following remedies.

After declaring the Contractor in default pursuant to the procedures in paragraph (a) of subdivision (2) of this section (B) below, the City may (i) withhold payment for unsatisfactory services, (ii) suspend or terminate the Contract in whole or in part; and/or

(iii) have the services under this Contract completed by such means and in such manner, by contract procured with or without competition, or otherwise, as the City may deem advisable in accordance with all applicable Contract provisions and law. After completion of the services under this Contract, the Primary Entity shall certify the expense incurred in such completion, which shall include the cost of procuring that contract. Should the expense of such completion, as certified by the City, exceed the total sum which would have been payable under the Contract if it had been completed by the Contractor, any excess shall be promptly paid by the Contractor upon demand by the City. The excess expense of such completion, including any and all related and incidental costs, as so certified by the City may be charged against and deducted out of monies earned by the Contractor.

(2) **Termination.** The City shall have the right to terminate the Contract in whole or in part for cause, for convenience, due to force majeure, or due to reductions in federal funding. If the Contract does not include termination provisions elsewhere, the following termination provisions apply:

a. **Termination for Cause.** The City shall have the right to terminate the Contract, in whole or in part, for cause upon a determination that the Contractor is in default of the Contract. Unless a shorter time is determined by the City to be necessary, the City shall effect termination according to the following procedure:

i. *Notice to Cure.* The City shall give written notice of the conditions of default signed by the Superintendent, setting forth the ground or grounds upon which such default is declared (“Notice to Cure”). The Contractor shall have ten (10) days from receipt of the Notice to Cure or any longer period that is set forth in the Notice to Cure to cure the default. The Superintendent may temporarily suspend services under the Contract pending the outcome of the default proceedings pursuant to this section.

ii. *Opportunity to be Heard.* If the conditions set forth in the Notice to Cure are not cured within the period set forth in the Notice to Cure, the Superintendent may declare the Contractor in default. Before the Superintendent may exercise his or her right to declare the Contractor in default, the Contractor must be given an opportunity to be heard upon not less than five (5) business days’ notice. The Superintendent may, in his or her discretion, provide for such opportunity to be in writing or in person. Such opportunity to be heard shall not occur prior to the end of the cure period but notice of such opportunity to be heard may be given prior to the end of the cure period and may be given contemporaneously with the Notice to Cure.

iii. *Notice of Termination.* After an opportunity to be heard, the Superintendent may terminate the Contract, in whole or in part, upon finding the Contractor in default. The Superintendent shall give the Contractor written notice of

such termination (“Notice of Termination”), specifying the applicable provision(s) under which the Contract is terminated and the effective date of termination. If no date is specified in the Notice of Termination, the termination shall be effective either 10 calendar days from the date the notice is personally delivered or 15 calendar days from the date Notice of Termination is sent by another method. The Notice of Termination shall be personally delivered, sent by certified mail return receipt requested, or sent by fax and deposited in a post office box regularly maintained by the United States Postal Service in a postage pre-paid envelope.

iv. *Grounds for Default.* The City shall have the right to declare the Contractor in default:

1. Upon a breach by the Contractor of a material term or condition of this Contract, including unsatisfactory performance of the services;

2. Upon insolvency or the commencement of any proceeding by or against the Contractor, either voluntarily or involuntarily, under the Bankruptcy Code or relating to the insolvency, receivership, liquidation, or composition of the Contractor for the benefit of creditors;

3. If the Contractor refuses or fails to proceed with the services under the Contract when and as directed by the Commissioner;

4. If the Contractor or any of its officers, directors, partners, five percent (5%) or greater shareholders, principals, or other employee or person substantially involved in its activities are indicted or convicted after execution of the Contract under any state or federal law of any of the following:

a. a criminal offense incident to obtaining or attempting to obtain or performing a public or private contract;

b. fraud, embezzlement, theft, bribery, forgery, falsification, or destruction of records, or receiving stolen property;

c. a criminal violation of any state or federal antitrust law;

d. violation of the Racketeer Influence and Corrupt Organization Act, 18 U.S.C. § 1961 et seq., or the Mail Fraud Act, 18 U.S.C. § 1341 et seq., for acts in connection with the submission of bids or proposals for a public or private contract;

e. conspiracy to commit any act or omission that would constitute grounds for conviction or liability under any statute described in subparagraph (d) above; or

f. an offense indicating a lack of business integrity that seriously and directly affects responsibility as a City vendor.

5. If the Contractor or any of its officers, directors, partners, five percent (5%) or greater shareholders, principals, or other employee or person substantially involved in its activities are subject to a judgment of civil liability under any state or federal antitrust law for acts or omissions in connection with the submission of bids or proposals for a public or private contract; or

6. If the Contractor or any of its officers, directors, partners, five percent (5%) or greater shareholders, principals, or other employee or person substantially involved in its activities makes or causes to be made any false, deceptive, or fraudulent material statement, or fail to make a required material statement in any bid, proposal, or application for City or other government work.

v. *Basis of Settlement.* The City shall not incur or pay any further obligation pursuant to this Contract beyond the termination date set by the District in its Notice of Termination. The City shall pay for satisfactory services provided in accordance with this Contract prior to the termination date. In addition, any obligation necessarily incurred by the Contractor on account of this Contract prior to receipt of notice of termination and falling due after the termination date shall be paid by the City in accordance with the terms of this Contract. In no event shall such obligation be construed as including any lease or other occupancy agreement, oral or written, entered into between the Contractor and its landlord.

b. **Termination for Convenience.** The City shall have the right to terminate the Contract for convenience, by providing written notice (“Notice of Termination”) according to the following procedure. The Notice of Termination shall specify the applicable provision(s) under which the Contract is terminated and the effective date of termination, which shall be not less than 10 calendar days from the date the notice is personally delivered or 15 days from the date the Notice of Termination is sent by another method. The Notice of Termination shall be personally delivered, sent by certified mail return receipt requested, or sent by fax and deposited in a post office box regularly maintained by the United States Postal Service in a postage pre-paid envelope. The basis of settlement shall be as

provided for in subparagraph (iv) of paragraph (a) of subdivision (2) of this section (B), above.

c. Termination due to Force Majeure

- i. For purposes of this Contract, a force majeure event is an act or event beyond the control and without any fault or negligence of the Contractor (“Force Majeure Event”). Force Majeure Events may include, but are not limited to, fire, flood, earthquake, storm or other natural disaster, civil commotion, war, terrorism, riot, and labor disputes not brought about by any act or omission of the Contractor.
- ii. In the event the Contractor cannot comply with the terms of the Contract (including any failure by the Contractor to make progress in the performance of the services) because of a Force Majeure Event, then the Contractor may ask the Superintendent to excuse the nonperformance and/or terminate the Contract. If the Superintendent, in his or her reasonable discretion, determines that the Contractor cannot comply with the terms of the Contract because of a Force Majeure Event, then the Superintendent shall excuse the nonperformance and may terminate the Contract. Such a termination shall be deemed to be without cause.
- iii. If the City terminates the Contract due to a Force Majeure Event, the basis of settlement shall be as provided for in subparagraph (iv) of paragraph (a) of subdivision (2) of this section (B), above.

d. Termination due to Reductions in Federal Funding

- i. This Contract is funded in whole or in part by funds secured from the Federal government. Should the Federal government reduce or discontinue such funds, the City shall have, in its sole discretion, the right to terminate this Contract in whole or in part, or to reduce the funding and/or level of services of this Contract caused by such action by the Federal government, including, in the case of the reduction option, but not limited to, the reduction or elimination of programs, services or service components; the reduction or elimination of contract-reimbursable staff or staff-hours, and corresponding reductions in the budget of this Contract and in the total amount payable under this Contract. Any reduction in funds pursuant to this paragraph shall be accompanied by an appropriate reduction in the services performed under this Contract.

- ii. In the case of the reduction option referred to in subparagraph (i), above, any such reduction shall be effective as of the date set forth in a written notice thereof to the Contractor, which shall be not less than 30 calendar days from the date of such notice. Prior to sending such notice of reduction, the City shall advise the Contractor that such option is being exercised and afford the Contractor an opportunity to make within seven calendar days any suggestion(s) it may have as to which program(s), service(s), service component(s), staff or staff-hours might be reduced or eliminated, provided, however, that the City shall not be bound to utilize any of the Contractor's suggestions and that the City shall have sole discretion as to how to effectuate the reductions.
- iii. If the City reduces funding pursuant to this paragraph (c), the basis of settlement shall be as provided for in subparagraph (iv) of paragraph (a) of subdivision (2) of this section (B), above.

C. Standard Provisions. The Contractor shall comply with, include in its subcontracts, and cause its subcontractors to comply with the following provisions, as applicable:

- (1) *Reporting.* Contractor shall be required to produce and deliver such reports relating to the services performed under the Contract as may be required by the Awarding Entity, City or any other State or Federal governmental agency with jurisdiction.
- (2) *Non-Discrimination.* Contractor shall not violate any Federal, State, or City law prohibiting discrimination concerning employment, the provision of services, and, if applicable, housing, funded by this Contract.
- (3) *Environmental Protection.* If the Contract is in excess of \$150,000, the Contractor shall comply with all applicable standards, orders, or regulations issued under the Clean Air Act (42 U.S.C. § 7401-7671q), Federal Water Pollution control Act (33 U.S.C. §§ 1251-1387) Section 508 of the Clean Water Act (33 U.S.C. § 1368), Executive Order 11738, and Environmental Protection Agency regulations (provisions of 40 CFR Part 50 and 2 CFR Part 1532 related to the Clean Air Act and Clean Water Act). Violations must be reported to the Federal Agency and the Regional Office of the Environmental Protection Agency (EPA). The Contractor shall include this provision in all subcontracts.
- (4) *Energy Efficiency.* The Contractor shall comply with mandatory standards and policies relating to energy efficiency that are contained in the New York State energy conservation plan issued in compliance with the Energy Policy Conservation Act (Pub. L. 94-163).
- (5) *Debarment.* The Contractor certifies that neither it nor its principals is currently in a state of debarment, suspension, or other ineligible status as a result of prior performance, failure, fraud, or violation of City laws. The Contractor further certifies that neither it nor its principals is debarred, suspended, otherwise excluded from or ineligible for participation in Federal assistance programs. The City reserves the right to terminate this Contract if knowledge of debarment, suspension or other ineligibility has been withheld by the Contractor.
- (6) *Lobbying.* The Contractor certifies, to the best of its knowledge and belief, that:

- (a) No Federal appropriated funds have been paid or will be paid, by or on behalf of it, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement;
 - (b) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, it will complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," (which is available on the HUD website or here: <https://www.hudexchange.info/resources/documents/HUD-Form-Sflll.pdf>) in accordance with its instructions; and
 - (c) It will require that the language of this Section (C)(6) be included in the award documents for all subcontracts at all tiers.
 - (d) This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. § 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.
- (7) *Solid Waste Disposal Act.* Pursuant to 2 CFR § 200.322, Contractor must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (codified at 42 USC § 6962). The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$ 10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$ 10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.
- (8) *Documentation of Costs.* All costs shall be supported by properly executed payrolls, time records, invoices, or vouchers, or other official documentation evidencing in proper detail the nature and propriety of the charges. All checks, payrolls, invoices, contracts, vouchers, orders or other accounting documents, pertaining in whole or in part to the Agreement, shall be clearly identified and regularly accessible.
- (9) *Records Retention.* The Contractor shall retain all books, documents, papers, and records relating to the services performed under the Contract for five years after final payment under the Contract is made and all other pending matters are closed.

(10) *Records Access.* The Contractor shall grant access to the City, State or any other pass-through entity, the Federal Agency, Inspectors General, and/or the Comptroller General of the United States, or any of their duly authorized representatives, to any books, documents, papers, and/or records of the Contractor that are pertinent to the Contract for the purpose of making audits, examinations, excerpts, and transcripts. The right also includes timely and reasonable access to the Contractor's personnel for the purpose of interview and discussion related to such documents. The rights of access in this section are not limited to the required retention period but last as long as the records are retained.

(11) *Small Firms, M/WBE Firms, and Labor Surplus Area Firms.* Contractor shall take the following affirmative steps in the letting of subcontracts, if subcontracts are to be let, in order to ensure that minority firms, women's business enterprises, and labor surplus area firms are used when possible:

- a. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
- b. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
- c. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
- d. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises; and
- e. Using the services and assistance of the Small Business Administration, and the Minority Business Development Agency of the Department of Commerce.

(12) *Intangible Property.*

- a. Pursuant to 2 CFR § 200.315(d), the Government reserves a royalty-free, non-exclusive, and irrevocable right to obtain, reproduce, publish, or otherwise use, and to authorize others to use, for Government purposes: (a) the copyright in any work developed under the Contract or subcontract; and (b) any rights of copyright to which a Contractor purchases ownership with grant support.
- b. Any reports, documents, data, photographs, deliverables, and/or other materials produced pursuant to the Contract ("Copyrightable Materials"), and any and all drafts and/or other preliminary materials in any format related to such items produced pursuant to the contract, shall upon their creation become the exclusive property of the City. The Copyrightable

Materials shall be considered “work-made-for-hire” within the meaning and purview of Section 101 of the United States Copyright Act, 17 U.S.C. § 101, and the City shall be the copyright owner thereof and of all aspects, elements and components thereof in which copyright protection might exist. To the extent that the Copyrightable Materials do not qualify as “work-made-for-hire,” the Contractor hereby irrevocably transfers, assigns and conveys exclusive copyright ownership in and to the Copyrightable Materials to the City, free and clear of any liens, claims, or other encumbrances. The Contractor shall retain no copyright or intellectual property interest in the Copyrightable Materials. The Copyrightable Materials shall be used by the Contractor for no purpose other than in the performance of this Contract without the prior written permission of the City. The City may grant the Contractor a license to use the Copyrightable Materials on such terms as determined by the City and set forth in the license.

- c. The Contractor acknowledges that the City may, in its sole discretion, register copyright in the Copyrightable Materials with the United States Copyright Office or any other government agency authorized to grant copyright registrations. The Contractor shall fully cooperate in this effort, and agrees to provide any and all documentation necessary to accomplish this.
- d. The Contractor represents and warrants that the Copyrightable Materials: (i) are wholly original material not published elsewhere (except for material that is in the public domain); (ii) do not violate any copyright law; (iii) do not constitute defamation or invasion of the right of privacy or publicity; and (iv) are not an infringement, of any kind, of the rights of any third party. To the extent that the Copyrightable Materials incorporate any non-original material, the Contractor has obtained all necessary permissions and clearances, in writing, for the use of such non-original material under this Contract, copies of which shall be provided to the City upon execution of this Contract.
- e. The Contractor shall promptly and fully report to the City any discovery or invention arising out of or developed in the course of performance of this Contract and the Contractor shall promptly and fully report to the Government to make a determination as to whether patent protection on such invention shall be sought and how the rights in the invention or discovery, including rights under any patent issued thereon, shall be disposed of and administered in order to protect the public interest.
- f. If the Contractor publishes a work dealing with any aspect of performance under this Agreement, or with the results of such performance, the City shall have a royalty-free, non-exclusive

irrevocable license to reproduce, publish, or otherwise use such work for City or governmental purposes.

D. Special Provisions for Construction Contracts. If this Contract involves Construction work, design for Construction, or Construction services, all such work or services performed by the Contractor and its subcontractors shall be subject to the following requirements in addition to those set forth above in paragraphs (A), (B), and (C):

(1) *Federal Labor Standards.* The Contractor will comply with the following:

- a. The Davis-Bacon Act (40 U.S.C. §§ 3141-3148): If required by the federal program legislation, in Construction contracts involving an excess of \$2000, and subject to any other federal program limitations, all laborers and mechanics must be paid at a rate not less than those determined by the Secretary of Labor to be prevailing for the City, which rates are to be provided by the City. These wage rates are a federally mandated minimum only, and will be superseded by any State or City requirement mandating higher wage rates. The Contractor also agrees to comply with Department of Labor Regulations pursuant to the Davis-Bacon Act found in 29 CFR Parts 1, 3, 5 and 7 which enforce statutory labor standards provisions.
- b. If required by the federal program legislation and subject to any other federal program limitations, Sections 103 and 107 of the Contract Work Hours and Safe Standards Act (40 U.S.C. §§ 3701-3708), which provides that no laborer or mechanic shall be required or permitted to work more than eight hours in a calendar day or in excess of forty hours in any workweek, unless such laborer or mechanic is paid at an overtime rate of 1½ times his/her basic rate of pay for all hours worked in excess of these limits, under any Construction contract costing in excess of \$2000. In the event of a violation of this provision, the Contractor shall not only be liable to any affected employee for his/her unpaid wages, but shall be additionally liable to the United States for liquidated damages.
- c. The Copeland “Anti-Kickback” Act (18 U.S.C. § 874), as supplemented by the regulations contained in 29 CFR Part 3, requiring that all laborers and mechanics shall be paid unconditionally and not less often than once a week, and prohibiting all but “permissible” salary deductions.
- d. If this Contract involves Construction work, design for Construction, or Construction services, a more complete detailed statement of Federal Labor Standards annexed hereto as FEDERAL EXHIBIT 2.

(2) *Equal Employment Opportunity.* Executive Order 11246, as amended by Executive Order 11375, and as supplemented in Department of Labor regulations (41 CFR chapter 60) for Construction contracts or subcontracts in excess of \$10,000. The Contractor shall include

the notice found at FEDERAL EXHIBIT I in all Construction subcontracts. For the purposes of the Equal Opportunity Construction Contract Specifications and Clause below, the term “Construction Work” means the construction, rehabilitation, alteration, conversion, extension, demolition or repair of buildings, highways, or other changes or improvements to real property, including facilities providing utility services. The term also includes the supervision, inspection, and other onsite functions incidental to the actual construction .

Standard Federal Equal Employment Opportunity Construction Contract Specifications for Contracts and Subcontracts in Excess of \$10,000.

1. As used in these specifications:
 - a. “Covered area” means the geographical area described in the solicitation from which this Contract resulted;
 - b. “Director” means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
 - c. “Employer identification number” means the Federal Social Security number used on the Employer’s Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
 - d. “Minority” includes:
 - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any Construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this Contract resulted.
3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or subcontractors toward a goal in an

approved Plan does not excuse any covered Contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7 a through p of these specifications. The goals set forth in the solicitation from which this Contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each Construction trade in which it has employees in the covered area. Covered Construction Contractors performing Construction Work in geographical areas where they do not have a Federal or federally assisted Construction contract shall apply the minority and female goals established for the geographical areas where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each Construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organization's responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not

employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where Construction Work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of Construction Work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female Construction contractors and suppliers, including circulation of solicitations to minority and female Contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a Contractor association, joint Contractor-union, Contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the Program are reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246 or suspended or is otherwise excluded from or ineligible for participation in federal assistance programs.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, Construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, Contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for hiring of local or other areas residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

- (3) **Equal Opportunity Clause** (for contracts for Construction Work) required by 41 CFR § 60-1.4(b).

During the performance of this contract, the Contractor agrees as follows:

(1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration

for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Contractor's legal duty to furnish information.

(4) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(8) The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

E. Rights to Inventions. [Special Provisions For Contracts Involving Experimental, Developmental, or Research Work.]

(1) If this Contract involves the performance of experimental, developmental, or research work by the Contractor or its subcontractors, and the entity performing such work is a Nonprofit Organization or Small Business Firm as defined below, the following provisions apply in addition to those set forth above in paragraphs (A), (B), and (C), unless the Contract specifically states that this provision is superseded:

a. Definitions. The following definitions apply to this section (D).

- i. “Invention” means any invention or discovery which is or may be patentable or otherwise protectable under Title 35 of the United States Code, or any novel variety of plant which is or may be protected under the Plant Variety Protection Act (7 U.S.C. § 2321 *et seq.*).
- ii. “Subject invention” means any invention of the Contractor conceived or first actually reduced to practice in the performance of work under this Contract, provided that in the case of a variety of plant, the date of determination (as defined in section 41(d) of the Plant Variety Protection Act, 7 U.S.C. 2401(d)) must also occur during the period of Contract performance.
- iii. “Practical Application” means to manufacture in the case of a composition or product, to practice in the case of a process or method, or to operate in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is being utilized and that its benefits are, to the extent permitted by law or government regulations, available to the public on reasonable terms.
- iv. “Made” when used in relation to any invention means the conception or first actual reduction to practice of such invention.
- v. “Small Business Firm” means a small business concern as defined at section 2 of Pub. L. 85-536 (15 U.S.C. 632) and implementing regulations of the Administrator of the Small Business Administration. For the purpose of this clause, the size standards for small business concerns involved in government procurement and subcontracting at 13 CFR 121.3-8 and 13 CFR 121.3-12, respectively, will be used.
- vi. “Nonprofit Organization” means a university or other institution of higher education or an organization of the type described in section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c) and exempt

from taxation under section 501(a) of the Internal Revenue Code (25 U.S.C. 501(a)) or any nonprofit scientific or educational organization qualified under a state nonprofit organization statute.

- b. *Allocation of Principal Rights.* The Contractor may retain the entire right, title, and interest throughout the world to each subject invention subject to the provisions of this clause and 35 U.S.C. 203. With respect to any subject invention in which the Contractor retains title, the Federal government shall have a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States the subject invention throughout the world.
- c. *Invention Disclosure, Election of Title and Filing of Patent Application by Contractor.*
 - i. The Contractor will disclose each subject invention to the City and the Federal Agency within two months after the inventor discloses it in writing to Contractor personnel responsible for patent matters. Such disclosure shall be in the form of a written report and shall identify the contract under which the invention was made and the inventor(s). It shall be sufficiently complete in technical detail to convey a clear understanding to the extent known at the time of the disclosure, of the nature, purpose, operation, and the physical, chemical, biological or electrical characteristics of the invention. The disclosure shall also identify any publication, on sale or public use of the invention and whether a manuscript describing the invention has been submitted for publication and, if so, whether it has been accepted for publication at the time of disclosure. In addition, after such disclosure, the Contractor will promptly notify the City and the Federal Agency of the acceptance of any manuscript describing the invention for publication or of any on sale or public use planned by the Contractor.
 - ii. The Contractor will elect in writing whether or not to retain title to any such invention by notifying the City and the Federal Agency within two years of disclosure to the City and the Federal Agency. However, in any case where publication, on sale or public use has initiated the one year statutory period wherein valid patent protection can still be obtained in the United States, the period for election of title may be shortened by the Federal Agency to a date that is no more than 60 days prior to the end of the statutory period.

- iii. The Contractor will file its initial patent application on a subject invention to which it elects to retain title within one year after election of title or, if earlier, prior to the end of any statutory period wherein valid patent protection can be obtained in the United States after a publication, on sale, or public use. The Contractor will file patent applications in additional countries or international patent offices within either ten months of the corresponding initial patent application or six months from the date permission is granted by the Commissioner of Patents and Trademarks to file foreign patent applications where such filing has been prohibited by a Secrecy Order.
- iv. Requests for extension of the time for disclosure, election, and filing under subparagraphs (1), (2), and (3) may be granted at the discretion of the Federal Agency.

d. Conditions When the Government May Obtain Title

The Contractor will convey to the Federal Agency, upon written request, title to any subject invention --

- i. If the Contractor fails to disclose or elect title to the subject invention within the times specified in (c), above, or elects not to retain title; provided that the Federal Agency may only request title within 60 calendar days after learning of the failure of the Contractor to disclose or elect within the specified times.
- ii. In those countries in which the Contractor fails to file patent applications within the times specified in (c) above; provided, however, that if the Contractor has filed a patent application in a country after the times specified in (c) above, but prior to its receipt of the written request of the Federal Agency, the Contractor shall continue to retain title in that country.
- iii. In any country in which the Contractor decides not to continue the prosecution of any application for, to pay the maintenance fees on, or defend in reexamination or opposition proceeding on, a patent on a subject invention.

e. Minimum Rights to Contractor and Protection of the Contractor Right to File

- i. The Contractor will retain a nonexclusive royalty-free license throughout the world in each subject invention to which the Government obtains title, except if the Contractor fails to disclose the invention within the

times specified in (c), above. The Contractor's license extends to its domestic subsidiary and affiliates, if any, within the corporate structure of which the Contractor is a party and includes the right to grant sublicenses of the same scope to the extent the Contractor was legally obligated to do so at the time the Contract was awarded. The license is transferable only with the approval of the Federal Agency except when transferred to the successor of that party of the Contractor's business to which the invention pertains.

- ii. The Contractor's domestic license may be revoked or modified by the funding Federal Agency to the extent necessary to achieve expeditious practical application of the subject invention pursuant to an application for an exclusive license submitted in accordance with applicable provisions at 37 CFR Part 404 and agency licensing regulations (if any). This license will not be revoked in that field of use or the geographical areas in which the Contractor has achieved practical application and continues to make the benefits of the invention reasonably accessible to the public. The license in any foreign country may be revoked or modified at the discretion of the funding Federal Agency to the extent the Contractor, its licensees, or the domestic subsidiaries or affiliates have failed to achieve practical application in that foreign country.
- iii. Before revocation or modification of the license, the funding Federal Agency will furnish the Contractor a written notice of its intention to revoke or modify the license, and the Contractor will be allowed thirty calendar days (or such other time as may be authorized by the funding Federal Agency for good cause shown by the Contractor) after the notice to show cause why the license should not be revoked or modified. The Contractor has the right to appeal, in accordance with applicable regulations in 37 CFR Part 404 and Federal Agency regulations (if any) concerning the licensing of Government-owned inventions, any decision concerning the revocation or modification of the license.

f. Contractor Action to Protect the Government's Interest

- i. The Contractor agrees to execute or to have executed and promptly deliver to the Federal Agency all instruments necessary to (i) establish or confirm the rights the Government has throughout the world in those subject inventions to which the Contractor elects to retain title, and (ii) convey title to the Federal Agency when requested under paragraph (d) above and to enable

the Government to obtain patent protection throughout the world in that subject invention.

- ii. The Contractor agrees to require, by written agreement, its employees, other than clerical and nontechnical employees, to disclose promptly in writing to personnel identified as responsible for the administration of patent matters and in a format suggested by the Contractor each subject invention made under contract in order that the Contractor can comply with the disclosure provisions of paragraph (c), above, and to execute all papers necessary to file patent applications on subject inventions and to establish the Government's rights in the subject inventions. This disclosure format should require, as a minimum, the information required by (c)(1), above. The Contractor shall instruct such employees through employee agreements or other suitable educational programs on the importance of reporting inventions in sufficient time to permit the filing of patent applications prior to U.S. or foreign statutory bars.
- iii. The Contractor will notify the Federal Agency of any decisions not to continue the prosecution of a patent application, pay maintenance fees, or defend in a reexamination or opposition proceeding on a patent, in any country, not less than thirty calendar days before the expiration of the response period required by the relevant patent office.
- iv. The Contractor agrees to include, within the specification of any United States patent applications and any patent issuing thereon covering a subject invention, the following statement, "This invention was made with government support under (identify the contract) awarded by (identify the Federal Agency). The government has certain rights in the invention."

g. Subcontracts

- i. The Contractor will include this clause, suitably modified to identify the parties, in all subcontracts, regardless of tier, for experimental, developmental or research work to be performed by a small business firm or domestic nonprofit organization. The subcontractor will retain all rights provided for the Contractor in this clause, and the Contractor will not, as part of the consideration for awarding the subcontract, obtain rights in the subcontractor's subject inventions.
- ii. The Contractor will include in all other subcontracts, regardless of tier, for experimental developmental or

research work the patent rights clause required by 2 CFR § 200.315(c) and Appendix II to 2 CFR Part 200.

- h. *Reporting on Utilization of Subject Inventions.* The Contractor agrees to submit on request periodic reports no more frequently than annually on the utilization of a subject invention or on efforts at obtaining such utilization that are being made by the Contractor or its licensees or assignees. Such reports shall include information regarding the status of development, date of first commercial sale or use, gross royalties received by the Contractor, and such other data and information as the Federal Agency may reasonably specify. The Contractor also agrees to provide additional reports as may be requested by the Federal Agency in connection with any march-in proceeding undertaken by the Federal Agency in accordance with paragraph (j) of this clause. As required by 35 U.S.C. § 202(c)(5), the Federal Agency agrees it will not disclose such information to persons outside the Government without permission of the Contractor.
- i. *Preference for United States Industry.* Notwithstanding any other provision of this clause, the Contractor agrees that neither it nor any assignee will grant to any person the exclusive right to use or sell any subject inventions in the United States unless such person agrees that any products embodying the subject invention or produced through the use of the subject invention will be manufactured substantially in the United States. However, in individual cases, the requirement for such an agreement may be waived by the Federal Agency upon a showing by the Contractor or its assignee that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible.
- j. *March-in Rights.* The Contractor agrees that with respect to any subject invention in which it has acquired title, the Federal Agency has the right in accordance with the procedures in 37 CFR § 401.6 and any supplemental regulations of the Federal Agency to require the Contractor, an assignee or exclusive licensee of a subject invention to grant a nonexclusive, partially exclusive, or exclusive license in any field of use to a responsible applicant or applicants, upon terms that are reasonable under the circumstances, and if the Contractor, assignee, or exclusive licensee refuses such a request the Federal Agency has the right to grant such a license itself if the Federal Agency determines that:

 - i. Such action is necessary because the Contractor or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention in such field of use.

- ii. Such action is necessary to alleviate health or safety needs which are not reasonably satisfied by the Contractor, assignee or their licensees;
 - iii. Such action is necessary to meet requirements for public use specified by Federal regulations and such requirements are not reasonably satisfied by the Contractor, assignee or licensees; or
 - iv. Such action is necessary because the agreement required by paragraph (i) of this clause has not been obtained or waived or because a licensee of the exclusive right to use or sell any subject invention in the United States is in breach of such agreement.
- k. *Special Provisions for Contracts with Nonprofit Organizations.*
If the Contractor is a nonprofit organization, it agrees that:
- i. Rights to a subject invention in the United States may not be assigned without the approval of the Federal Agency, except where such assignment is made to an organization which has as one of its primary functions the management of inventions, provided that such assignee will be subject to the same provisions as the Contractor;
 - ii. The Contractor will share royalties collected on a subject invention with the inventor, including Federal employee co-inventors (when the Federal Agency deems it appropriate) when the subject invention is assigned in accordance with 35 U.S.C. § 202(e) and 37 CFR § 401.10;
 - iii. The balance of any royalties or income earned by the Contractor with respect to subject inventions, after payment of expenses (including payments to inventors) incidental to the administration of subject inventions, will be utilized for the support of scientific research or education; and
 - iv. It will make efforts that are reasonable under the circumstances to attract licensees of subject invention that are Small Business Firms and that it will give a preference to a Small Business Firm when licensing a subject invention if the Contractor determines that the Small Business Firm has a plan or proposal for marketing the invention which, if executed, is equally as likely to bring the invention to practical application as any plans or proposals from applicants that are not Small Business Firms; provided, that the Contractor is also

satisfied that the Small Business Firm has the capability and resources to carry out its plan or proposal. The decision whether to give a preference in any specific case will be at the discretion of the Contractor. However, the Contractor agrees that the Secretary may review the Contractor's licensing program and decisions regarding Small Business Firm applicants, and the Contractor will negotiate changes to its licensing policies, procedures, or practices with the Secretary when the Secretary's review discloses that the Contractor could take reasonable steps to implement more effectively the requirements of this paragraph (k)(iv).

1. *Communication.* The central point of contact at the Federal Agency for communications on matters relating to this clause may be obtained from the City upon request.

NOTICE TO BIDDERS

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246, as amended) FOR ALL CONSTRUCTION CONTRACTS AND SUB-CONTRACTS IN EXCESS OF \$10,000.

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all Construction Work in the covered area, are as follows:

Goals and Timetables for Minorities

<u>Trade</u>	<u>Goal (percent)</u>	
Electricians	9.0 to	10.2
Carpenters	27.6 to	32.0
Steamfitters	12.2 to	13.5
Metal Lathers	24.6 to	25.6
Painters	28.6 to	26.0
Operating Engineers	25.6 to	26.0
Plumbers	12.0 to	14.5
Iron Workers (structural)	25.9 to	32.0
Elevator Constructors	5.5 to	6.5
Bricklayers	13.4 to	15.5
Asbestos Workers	22.8 to	28.0
Roofers	6.3 to	7.5
Iron Workers (ornamental)	22.4 to	23.0
Cement Masons	23.0 to	27.0
Glazers	16.0 to	20.0
Plasterers	15.8 to	18.0
Teamsters	22.0 to	22.5
Boilermakers	13.0 to	15.5
All Other	16.4 to	17.5

Goals and Timetables for Women

From April 1, 1980 until the present 6.9

These goals are applicable to all the Contractor's Construction Work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs Construction Work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and nonfederally involved Construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall made a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any Construction subcontract in excess of \$10,000 at any tier for Construction Work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

4. As used in this Contract, the "covered area" is the local Municipality.

FEDERAL EXHIBIT 2

EXHIBIT Federal Labor Standards Provisions (Non-Davis Bacon)¹ Federal Emergency Management Agency (10/27/2015)

Applicability: The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. Compliance with the Copeland “Anti-Kickback” Act.

1. **Contractor.** The contractor shall comply with 18 U.S.C. § 874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this contract.
2. **Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clause in paragraph 1 above and such other clauses as the FEMA may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses.
3. **Breach.** A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a contractor and subcontractor as provided in 29 C.F.R. § 5.12.

B. Compliance with the Contract Work Hours and Safety Standards Act. The provisions of this Section B are applicable where the amount of the prime contract exceeds \$100,000.

1. **Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

¹ This version of Exhibit 2 applies to contracts funded by FEMA Grant and Cooperative Agreement Programs, including the Public Assistance Program. Do not use this version of Exhibit 2 in connection with FEMA programs that are subject to the Davis-Bacon Act; such programs are the Emergency Management Preparedness Grant Program, the Homeland Security Grant Program, Nonprofit Security Grant Program, Tribal Homeland Security Grant Program, Port Security Grant Program, and Transit Security Grant Program.

2. **Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph (1) of this Section B the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this section.
 3. **Withholding for unpaid wages and liquidated damages.** The Municipality shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this section.
 4. **Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (1) through (4) of this Section B and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this section B.
- C. **Health and Safety.** The provisions of this paragraph C are applicable where the amount of the prime contract exceeds \$100,000.
1. No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.
 2. The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96). 40 USC 3701 et seq.
 3. The contractor shall include the provisions of this paragraph in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as FEMA or the Secretary of Labor shall direct as a means of enforcing such provisions.

**FEDERAL EMERGENCY MANAGEMENT AGENCY (“FEMA”) RIDER
(10/27/2015)**

**For use with contracts funded by the FEMA Grant and Cooperative Agreement Programs,
including the Public Assistance Program**

(This Rider should not be used with contracts funded by the following FEMA Programs: Emergency Management Preparedness Grant Program, Homeland Security Grant Program, Nonprofit Security Grant Program, Tribal Homeland Security Grant Program, Port Security Grant Program, and Transit Security Grant Program. This Rider should be accompanied by the Uniform Federal Contract Provisions Rider for Federally Funded Procurement Contracts.)

1. Suspension and Debarment. Section C(5) of the Uniform Federal Contract Provisions Rider for Federally Funded Procurement Contracts is supplemented with the following provisions:
 - (a) This contract is a covered transaction for purposes of 2 C.F.R. Parts 180 and 3000. As such the Contractor is required to verify that none of the Contractor, its principals (defined at 2 C.F.R. § 180.995), or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935). By entering into this contract, the Contractor certifies that it is in compliance with 2 C.F.R. Parts 180 and 3000.
 - (b) The Contractor must comply with 2 C.F.R. Part 180, subpart C and 2 C.F.R. Part 3000, subpart C during the term of this contract and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.
 - (c) The certification in paragraph (a), above, and section C(5) of the Uniform Federal Contract Provisions Rider for Federally Funded Procurement Contracts is a material representation of fact relied upon by the Municipality. If it is later determined that the Contractor did not comply with 2 C.F.R. Part 180, subpart C and 2 C.F.R. Part 3000, subpart C, in addition to remedies available to the Municipality and, if applicable, the State of Florida, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.
2. Davis-Bacon Act. For the purposes of Section D(1)(a) of the Uniform Federal Contract Provisions Rider, compliance with the Davis-Bacon Act (40 U.S.C. §§ 3141-3148) is not required of the Contractor pursuant to FEMA regulations. However, if this Contract is funded by another federal funding source (e.g., the U.S. Department of Housing and Urban Development CDBG or CDBG-DR programs), compliance with the Davis-Bacon Act is required to the extent required by law and as set forth in the contract documents.

3. Rights to Inventions Made Under a Contract or Agreement. Section E of the Uniform Federal Contract Provisions Rider for Federally Funded Procurement Contracts does not apply to the following FEMA Programs: Public Assistance Program, Hazard Mitigation Grant Program, Fire Management Assistance Grant Program, Crisis Counseling Assistance and Training Grant Program, Disaster Case Management Program, and Federal Assistance to Individuals and Households – Other Needs Assistance Grant Program.
4. Copeland “Anti-Kickback” Act. The Contractor shall comply with provisions of the Copeland “Anti-Kickback” Act (18 U.S.C. § 874) as delineated in the Uniform Federal Contract Provisions Rider, FEMA Exhibit 2, Section (A).
5. Contract Work Hours and Safety Standards Act. The Contractor shall comply with the provisions of the Contract Work Hours and Safety Standards Act as delineated in the Uniform Federal Contract Provisions Rider, FEMA Exhibit 2, Section (B).
6. Access to Records.
 - (a) The Contractor agrees to provide the Municipality, the FEMA Administrator, the Comptroller General of the United States, or any of their authorized representatives access to any books, documents, papers, and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts, and transcriptions.
 - (b) The Contractor agrees to permit any of the foregoing parties to reproduce said documents by any means or to copy excerpts and transcriptions as reasonably needed.
 - (c) The Contractor agrees to provide the FEMA Administrator or his/her authorized representative access to construction or other work sites pertaining to the work being completed under the contract.
7. Logos. The Contractor shall not use DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials without specific FEMA preapproval.
8. Compliance with Law. The Contractor acknowledges that FEMA financial assistance will be used to fund the contract only and agrees to comply with all applicable federal law, regulations, executive orders, FEMA policies, procedures, and directives.
9. Federal Government not a Party. The Contractor acknowledges and understands that the Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the Municipality, Contractor or any other party pertaining to any matter resulting from the contract.
10. False Claims. The Contractor acknowledges that 31 U.S.C. Chap. 38 applies to the Contractor’s actions pertaining to this contract.

BAY DISTRICT SCHOOLS

SECTION 000300 - BID FORM

PROJECT: **Bay District Schools – Deane Bozeman School: Classroom Addition**

DATE: _____

BIDDERS NAME: _____

STREET AND CITY: _____

TELEPHONE NO: _____

TO: Bay County School Board
 1311 Balboa Avenue
 Panama City, Florida 32405

In submitting the GMP, I agree:

1. To hold the GMP in full force and effect for a period of Sixty (60) calendar days after the date of submitting the GMP.
2. To abide by the provisions of the Instructions to Bidders regarding disposition of the Bid Security.
3. To enter into and execute a Contract within Thirty (30) calendar days after said Contract is delivered to me, if awarded said Contract on the basis of this Bid, and to furnish Performance Bonds and Labor and Material Payment Bonds in accordance with the General Conditions.
4. To accomplish the work in accordance with the Contract Documents and to commence such work on or before the date to be specified by the Architect in the written "Notice to Proceed" and to substantially complete the Classroom Building Project within Four Hundred and Twenty (**420**) **consecutive calendar days** and to final completion within thirty (**30**) **consecutive calendar days** thereafter and to final completion within thirty (**30**) **consecutive calendar days** thereafter.
5. To pay as liquidated damages, the sum of **\$500** for each consecutive calendar day after the date for substantial completion, as specified in the Contract.
6. To pay the sum of **one-fourth (1/4)** of the rate previously indicated for each consecutive calendar day beginning 30 days after substantial completion, and until final completion, as specified in the Contract.
7. To allow to be withheld three (3) times the installed market value of any item on punch list, as determined by the Architect, that has not been completed at the time of final completion.
8. To start construction on or about February 3, 2025; Notice to Proceed to be issued by Architect.

Also examined were the Contract provisions, and the conditions affecting the Work and Addenda including,

Addendum No.: _____; Dated: _____; Pages ___ of ____.
Addendum No.: _____; Dated: _____; Pages ___ of ____.
Addendum No.: _____; Dated: _____; Pages ___ of ____.
Addendum No.: _____; Dated: _____; Pages ___ of ____.

SECTION 000300 - BID FORM (continued):

The bidder, in compliance with your Advertisement for Bid and the Contract Documents, for the Deane Bozeman School Classroom Addition and Site Improvements, and having become thoroughly familiar with the terms and conditions affecting the performance and costs of the Work at the place where the Work is to be completed, and having fully inspected the site in all particulars, hereby proposes and agrees to fully perform the work within the time stated and in strict accordance with the Contract Documents, including furnishing any and all labor and materials, and to do all the work required to construct and complete said work in accordance with the Contract Documents, for the following sums of money; which include all labor, materials, labor, services, equipment tools, transportation, licenses, fees, permits, etc. necessary for completion of the work shown on the drawings and in the specifications.

_____ (\$_____)

SECTION 000300 - BID FORM (continued):

The names of all persons interested in the foregoing bid as principals are:

IMPORTANT NOTICE: If bidder or other interested person is a corporation, give legal name of corporation, state where incorporated, and names of president and secretary, if a partnership, give name of firm and names of all individual co-partners composing the firm; if bidder or other interested person is an individual, give first and last names in full.

Licensed in accordance with an act for the registration of contractors, and with license number:

_____.

SIGN HERE:

Signature of Bidder

Witness

NOTE: If bidder is a corporation, set forth the legal name of the corporation together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation. If bidder is a partnership, set forth the name of the firm together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership.

Business Address: _____

Telephone number: _____

Date of proposal: _____

ATTACHMENTS: List of Subcontractors
 Public Entity Crimes Form
 Drug Free Workplace Form
 Material Safety Data Form
 AIA Document A305- Contractor's Qualification Statement

END OF SECTION 000300

**SECTION 000420 - PUBLIC ENTITY CRIME, DRUG FREE WORK PLACE & MATERIAL SAFETY
DATA FORMS**

The following forms are included herein and shall be completed and submitted by all Bidders with their proposals in accordance with the Instructions to Bidders:

1. State of Florida Form, "Sworn Statement Under Section 287.133 (3)(a), Florida Statutes, On Public Entity Crimes"
2. State of Florida Form, "Sworn Statement Under Section 287.087 and 440.102, Florida Statutes, Drug Free Work Place Program"
3. State of Florida Form, "Sworn statement pursuant to Florida statutes, Material safety data form (MSDF)"
4. Bidder's Local Preference Request Form.

END OF SECTION 000420

1. I have executed and attached the following:

- a. SWORN STATEMENT UNDER SECTION 287.133(3)(a), FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES.
- b. Sworn Statement on Drug-Free Workplace Program.
- c. Sworn statement on Material Safety Data Form (MSDF).

COMPANY

DATE

BY (SIGNATURE)

TITLE
(SEAL – IF BID IS BY CORPORATION)

STATE OF _____

COUNTY OF _____

PERSONALLY APPEARED BEFORE ME, the undersigned authority,

_____ who, after first being sworn by me,
[name of individual signing]

affixed his/her signature in the space provided above on this _____ day
of _____, 20____.

NOTARY PUBLIC

My commission expires:
SEAL

SWORN STATEMENT PURSUANT TO SECTION 287.133(3)(a),
FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES

THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted to _____
[print name of the public entity]
by _____
[print individual's name and title]
for _____
[print name of entity submitting sworn statement]

whose business address is

and (if applicable) its Federal Employer Identification Number (FEIN) is _____.
(If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement: _____.)

2. I understand that a "public entity crime" as defined in Paragraph 287.133(1)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or of the United States, including, but not limited to, any bid or contract for goods or services to be provided to any public entity or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.
3. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.
4. I understand that an "affiliate" as defined in Paragraph 287.133(1)(a), Florida Statutes, means:
1. A predecessor or successor of a person convicted of a public entity crime; or
 2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

5. I understand that a "person" as defined in Paragraph 287.133(1)(e), Florida Statutes means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.
6. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. [Indicate which statement applies.]

_____ Neither the entity submitting this sworn statement, nor any of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, nor any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

_____ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989. However, there has been a subsequent proceeding before a Hearing Officer of the State of Florida, Division of Administrative Hearings and the Final Order entered by the Hearing Officer determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list. [attach a copy of the final order]

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1 (ONE) ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND, THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THE PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017, FLORIDA STATUTES FOR CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

[signature]

Sworn to and subscribed before me this ____ day of _____, 20____.

Personally known _____

OR Produced identification _____ Notary Public - State of _____

(Type of identification) My commission expires _____

(Printed typed or stamped commissioned name of notary public)

SWORN STATEMENT PURSUANT TO SECTION 287.087 AND 440.102,
FLORIDA STATUTES,

DRUG-FREE WORK PLACE PROGRAM

THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted to _____
by _____
(print individual's name and title)
for _____
(print name of entity submitting sworn statement)
whose business address is _____

and (if applicable) its Federal Employer Identification Number (FEIN) is _____.

2. It is my understanding that the Owner, Bay County School Board is encouraged by State Law to give preference to entities with DRUG-FREE WORK PLACE PROGRAMS authorized by Florida Statutes, Section 287.087 and that the entity is eligible for discounts to its Worker's Compensation Insurance Premiums under Florida Statute Section 440.102.

(signature)

Sworn to and subscribed before me this ____ day of _____, 20__.

Personally known _____

OR Produced Identification _____ Notary Public - State of _____

(Type of identification) My commission expires _____

(Printed, typed or stamped commissioned name of notary public)

SWORN STATEMENT PURSUANT TO
FLORIDA STATUTES,
MATERIAL SAFETY DATA FORM (MSDF)

THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted to Bay County School Board

by _____
(print individual's name and title)

for _____
(print name of entity submitting sworn statement)

whose business address is

and (if applicable) its Federal Employer Identification Number (FEIN) is _____.
(If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement: _____.)

2. It is my understanding that the Owner, The School Board of Bay County (BCSB) requires the Bidder to submit to the Owner within five (5) business days from Bid Date the following items:

- a. List of all chemicals and/or products that may emit, leak, evaporate, be dissolved from, or produced by the services that the Contractor is proposing;
- b. List shall include a clear deliberation of chemical content of product, containing all information required by Federal OSHA Hazard Construction Law and Florida's Right-to-Know Law; list shall have Bid number and Bid Item Number stated on Data Sheets.
- c. For building or construction materials, or building furnishings, the Contractor shall submit in writing any chemical emission or exposure data that the product contains.
- d. Safety and Health Precautions to be employed to protect Workers who will be doing the work;
- e. Safety and Health Precautions to be employed to protect the building occupants, general public and other nearby tradesmen;
- f. Safety and Health precautions to ensure that the work space, building, or School Board's properties are not contaminated as it may relate in any way to the services that are provided;

- g. Precautions to be employed to ensure that harmful exposures shall not occur after the services have been provided, and a detailed description of the steps to be used to ensure this condition is achieved;
 - h. Procedures for the disposal of wastes or by-products, and a statement that the Contractor shall dispose of all wastes in compliance with applicable regulatory agencies.
3. Contractor is projecting himself as an expert in these services, and as such should be very familiar with listed items (a) through (h); As a knowledgeable entity about these services and products, the Contractor shall also be held fully and solely responsible for any problems that result in injury, illness, property damage or loss, or contamination of the air, soil, or water, or fines imposed by any regulatory agency for failure to comply with the regulations or prudent actions, that result from his services and/or the products used in supplying these services.
 4. Submission of the Bid acknowledges and accepts the agreement to provide these services or materials and the Contractor agrees with all of the provisions listed above, and agrees to fully indemnify the BCSB for any and all costs to the BCSB that are the result of contamination, people exposures, damage to BCSB, Architect, and all personal property, or regulatory actions.
 5. Contractor understands and agrees, if any of these provisions are not agreed to or provided as required in the Bid Application, the Contractor may be disqualified on the basis of being unresponsive to the Bid Requirements.
 6. If after the contract has been secured, the Contractor fails to comply with any of these provisions, the work may be stopped immediately by the BCSB, and the contract may be terminated at no penalty to the BCSB. Should this occur, then the difference between this bid price and that of the next highest bidder shall be withheld as punitive damages for failing to comply with this agreement. The intent of this provision is for the Contractor to provide services and materials that shall not cause any harm to the students, staff, faculty, other tradesmen, school visitors or business invites, the indoor or outdoor environments, School Board of Bay County property, or neighboring properties, and to ensure that the Bidder complies fully with all applicable regulatory agency requirements.
 7. The BCSB reserves the right to request additional information from the Contractor and Supplier concerning the contents of the products submitted by the Contractor for the corresponding bid item.
 8. All questions concerning the requirements shall be submitted in writing to be forwarded to the School Board of Bay County.

(signature)

Sworn to and subscribed before me this _____ day of _____, 20____.

Personally known _____

OR Produced Identification _____ Notary Public - State of _____

_____ My commission expires _____
(Type of identification)

(Printed, typed or stamped commissioned name of notary public)

Bidder's Local Preference Request

I affirm that

Firm Name

Street Address

City

Zip Code

qualifies for 5% local preference by having the home office within Bay County, and meeting all of the criteria set forth in Board Policy 6.101 (VI) (a) 1.2.

qualifies for 3% local preference by having an office or distribution point located in Bay County, but, with home office located outside Bay County, and meeting all of the appropriate criteria set forth in Board Policy 6.101 (VI) (a) 1.2.

Name and title of requestor:

Signature

Printed

SECTION 000430 - LIST OF SUBCONTRACTORS

**BAY DISTRICT SCHOOLS
CONTRACTOR AND SUBCONTRACTOR LICENSE DECLARATION**

Facilities: _____ Date: _____

Project Title: _____ BDS Project Number: _____

The following information must be provided by the Contractor as part of their bid submittal.

Prime Contractor's Signature: _____

Contractor	Address	Phone Number	License Number
Prime			
Plumbing			
HVAC			
Electrical			
Utilities			
Fire Alarm			
Roofing			
Other			
Other			

Note: A total listing of subcontractors and suppliers is required to be executed within 72 hours of Bid Opening by apparent low bidder or if requested by Owner. If, due to alternate bids, more than one subcontractor or supplier must be considered, Contractor shall list each and state which is to be considered for base bid work and which is to be considered if a specific alternate is to be accepted.

SECTION 00430 - LIST OF SUBCONTRACTORS (continued):

Subcontractors listed in the Bid shall not be replaced without cause, once list has been opened and made public, in accordance with Section 255.0515, F.S.

The undersigned declares that he/she has fully investigated each subcontractor listed and has determined to his/her own complete satisfaction that such subcontractor maintains a fully equipped organization, capable, technically and financially, of performing the pertinent work, and that he/she has made similar installation in a satisfactory manner.

FIRM: _____
(Name of Firm)

BY: _____
(Signature of Bidder)

(Name of Bidder)

TITLE: _____
(Title of Bidder)

DATE: _____

END OF SECTION 000430

SECTION 000500 - AGREEMENT FORMS

The "Standard Form of Agreement Between Owner and Construction Manager as Constructor where the basis of payment is the Cost of the Work Plus a Fee with a Guaranteed maximum Price", The American Institute of Architect's (AIA) Document A133-2019, 2019 Edition, twenty-four (24) pages, is included herein and shall be used, as modified, on this Project as the Agreement Form.

END OF SECTION 000500

SECTION 000610 - PERFORMANCE BOND AND PAYMENT BOND

The "Performance Bond" and "Payment Bond", The American Institute of Architects' (AIA) Document A312-2010, 2010 Edition, four (4) pages each, is included herein and shall be used on this Project as the Performance Bond and Payment Bond.

END OF SECTION 000610



AIA[®] Document A312™ – 2010

Performance Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

CONSTRUCTION CONTRACT

Date:

Amount: \$

Description:

(Name and location)

BOND

Date:

(Not earlier than Construction Contract Date)

Amount: \$

Modifications to this Bond: None See Section 16

CONTRACTOR AS PRINCIPAL

Company: *(Corporate Seal)*

Signature: _____

Name and

Title:

(Any additional signatures appear on the last page of this Performance Bond.)

SURETY

Company: *(Corporate Seal)*

Signature: _____

Name and

Title:

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:**OWNER'S REPRESENTATIVE:**

(Architect, Engineer or other party:)

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

- .1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
- .2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
- .3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

- .1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
- .2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

- .1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
- .2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and
- .3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 **Balance of the Contract Price.** The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 **Construction Contract.** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 **Contractor Default.** Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 **Owner Default.** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 **Contract Documents.** All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

Company: _____ (Corporate Seal)

Signature: _____

Name and Title: _____

Address: _____

SURETY

Company: _____ (Corporate Seal)

Signature: _____

Name and Title: _____

Address: _____

Additions and Deletions Report for **AIA[®] Document A312[™] – 2010**

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 11:43:31 ET on 10/13/2020.

There are no differences.

Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, _____, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 11:43:31 ET on 10/13/2020 under Order No. 3994842707 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A312™ – 2010, Performance Bond, as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

(Signed)

(Title)

(Dated)



AIA[®] Document A312™ – 2010

Payment Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

CONSTRUCTION CONTRACT

Date:

Amount: \$

Description:

(Name and location)

BOND

Date:

(Not earlier than Construction Contract Date)

Amount: \$

Modifications to this Bond: None See Section 18

CONTRACTOR AS PRINCIPAL

Company: *(Corporate Seal)*

SURETY

Company: *(Corporate Seal)*

Signature: _____

Name and

Title:

(Any additional signatures appear on the last page of this Payment Bond.)

Signature: _____

Name and

Title:

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:**OWNER'S REPRESENTATIVE:**

(Architect, Engineer or other party:)

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

- .1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- .2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- .1 the name of the Claimant;
- .2 the name of the person for whom the labor was done, or materials or equipment furnished;
- .3 a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- .4 a brief description of the labor, materials or equipment furnished;
- .5 the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- .6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- .7 the total amount of previous payments received by the Claimant; and
- .8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 **Owner Default.** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 **Contract Documents.** All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

Company: _____ (Corporate Seal)

Signature: _____
Name and Title: _____
Address: _____

SURETY

Company: _____ (Corporate Seal)

Signature: _____
Name and Title: _____
Address: _____

Additions and Deletions Report for **AIA® Document A312™ – 2010**

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 11:44:39 ET on 10/13/2020.

There are no differences.

Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, _____, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 11:44:39 ET on 10/13/2020 under Order No. 3994842707 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A312™ – 2010, Payment Bond, as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

(Signed)

(Title)

(Dated)

SECTION 000625 - ACCEPTABLE SURETY COMPANIES

PART 1 - GENERAL

1.01 To be acceptable as Surety on Performance and Payment Bonds, a surety company shall comply with the following provisions:

- A. The Surety Company must be admitted to do business in the State of Florida.
- B. The Surety Company shall have been in business and have a record of successful continuous operations for at least five years.
- C. The Surety Company shall have at least a minimum 'A' rating, based on Best Ratings and Financial Performance Ratings from A.M. Best Company as follows:

BEST'S RATINGS	
A++, A+	Superior
A, A-	Excellent
B++, B+	Very Good
BEST'S FINANCIAL PERFORMANCE RATINGS	
9	Very Strong
8, 7	Strong
6, 5	Good

<u>CONTRACT AMOUNT</u>	<u>FINANCIAL SIZE CATEGORIES</u>
Less than 1,000,000	FSC I
1,000,000 to 2,000,000	FSC II
2,000,000 to 5,000,000	FSC III
5,000,000 to 10,000,000	FSC IV
10,000,000 to 25,000,000	FSC V
25,000,000 to 50,000,000	FSC VI
50,000,000 to 100,000,000	FSC VII

- 1. Best's Rating represents an opinion based on a comprehensive quantitative and qualitative evaluation of a company's balance sheet strength, operating performance and business profile or an equivalent rating from the Insurance Commissioner, if not rated by Best's.

SECTION 000625 - ACCEPTABLE SURETY COMPANIES (continued):

2. Best Financial Performance Rating represents an opinion based primarily on a quantitative evaluation of a company's balance sheet strength and operating performance for companies that do not meet the minimum size and/or operating experience requirements for a Best's Rating.
- 1.02 The Surety Company shall not expose itself to any loss on any one risk in an amount exceeding ten (10) percent of its surplus to policyholders, provided:
- A. Any risk or portion of any risk shall have been reinsured (in which case these minimum requirements contained herein also apply to the reinsuring carrier) in assuming insurer authorized or approved by the Insurance Commissioner to do such business in this State shall be deducted in determining the limitation of risk prescribed in this section.
 - B. In the case of a surety insurance company, there shall be deducted in addition to the deduction for reinsurance, the amount assumed by any co-surety, the value of any security deposited, pledged or held subject to the content of the Surety and for the protection of the Surety.

PART 2 - PRODUCTS N/A

PART 3 - EXECUTION N/A

END OF SECTION 000625

SECTION 000700 - GENERAL CONDITIONS

The "General Conditions of the Contract for Construction", The American Institute of Architects' (AIA) Document A201-2017, forty-one (41) pages, is included herein.

END OF SECTION 000700

 **AIA[®] Document A201[™] – 2017****General Conditions of the Contract for Construction**

for the following PROJECT:
(Name and location or address)

THE OWNER:
(Name, legal status and address)

THE ARCHITECT:
(Name, legal status and address)

TABLE OF ARTICLES

- 1 GENERAL PROVISIONS
- 2 OWNER
- 3 CONTRACTOR
- 4 ARCHITECT
- 5 SUBCONTRACTORS
- 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
- 7 CHANGES IN THE WORK
- 8 TIME
- 9 PAYMENTS AND COMPLETION
- 10 PROTECTION OF PERSONS AND PROPERTY
- 11 INSURANCE AND BONDS
- 12 UNCOVERING AND CORRECTION OF WORK
- 13 MISCELLANEOUS PROVISIONS
- 14 TERMINATION OR SUSPENSION OF THE CONTRACT
- 15 CLAIMS AND DISPUTES

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503[™], Guide for Supplementary Conditions.

Init.

/

INDEX

(Topics and numbers in bold are Section headings.)

Acceptance of Nonconforming Work

9.6.6, 9.9.3, **12.3**

Acceptance of Work

9.6.6, 9.8.2, 9.9.3, 9.10.1, 9.10.3, 12.3

Access to Work

3.16, 6.2.1, 12.1

Accident Prevention

10

Acts and Omissions

3.2, 3.3.2, 3.12.8, 3.18, 4.2.3, 8.3.1, 9.5.1, 10.2.5,

10.2.8, 13.3.2, 14.1, 15.1.2, 15.2

Addenda

1.1.1

Additional Costs, Claims for

3.7.4, 3.7.5, 10.3.2, 15.1.5

Additional Inspections and Testing

9.4.2, 9.8.3, 12.2.1, **13.4**

Additional Time, Claims for

3.2.4, 3.7.4, 3.7.5, 3.10.2, 8.3.2, **15.1.6**

Administration of the Contract

3.1.3, **4.2**, 9.4, 9.5

Advertisement or Invitation to Bid

1.1.1

Aesthetic Effect

4.2.13

Allowances

3.8

Applications for Payment

4.2.5, 7.3.9, 9.2, **9.3**, 9.4, 9.5.1, 9.5.4, 9.6.3, 9.7, 9.10

Approvals

2.1.1, 2.3.1, 2.5, 3.1.3, 3.10.2, 3.12.8, 3.12.9,

3.12.10.1, 4.2.7, 9.3.2, 13.4.1

Arbitration

8.3.1, 15.3.2, **15.4**

ARCHITECT

4

Architect, Definition of

4.1.1

Architect, Extent of Authority

2.5, 3.12.7, 4.1.2, 4.2, 5.2, 6.3, 7.1.2, 7.3.4, 7.4, 9.2,
9.3.1, 9.4, 9.5, 9.6.3, 9.8, 9.10.1, 9.10.3, 12.1, 12.2.1,
13.4.1, 13.4.2, 14.2.2, 14.2.4, 15.1.4, 15.2.1

Architect, Limitations of Authority and Responsibility

2.1.1, 3.12.4, 3.12.8, 3.12.10, 4.1.2, 4.2.1, 4.2.2, 4.2.3,
4.2.6, 4.2.7, 4.2.10, 4.2.12, 4.2.13, 5.2.1, 7.4, 9.4.2,
9.5.4, 9.6.4, 15.1.4, 15.2

Architect's Additional Services and Expenses

2.5, 12.2.1, 13.4.2, 13.4.3, 14.2.4

Architect's Administration of the Contract

3.1.3, 3.7.4, 15.2, 9.4.1, 9.5

Architect's Approvals

2.5, 3.1.3, 3.5, 3.10.2, 4.2.7

Architect's Authority to Reject Work

3.5, 4.2.6, 12.1.2, 12.2.1

Architect's Copyright

1.1.7, 1.5

Architect's Decisions

3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 4.2.14, 6.3,
7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4.1, 9.5, 9.8.4, 9.9.1,
13.4.2, 15.2

Architect's Inspections

3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 13.4

Architect's Instructions

3.2.4, 3.3.1, 4.2.6, 4.2.7, 13.4.2

Architect's Interpretations

4.2.11, 4.2.12

Architect's Project Representative

4.2.10

Architect's Relationship with Contractor

1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2,
3.5, 3.7.4, 3.7.5, 3.9.2, 3.9.3, 3.10, 3.11, 3.12, 3.16,
3.18, 4.1.2, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5,
9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3, 12, 13.3.2, 13.4, 15.2

Architect's Relationship with Subcontractors

1.1.2, 4.2.3, 4.2.4, 4.2.6, 9.6.3, 9.6.4, 11.3

Architect's Representations

9.4.2, 9.5.1, 9.10.1

Architect's Site Visits

3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4

Asbestos

10.3.1

Attorneys' Fees

3.18.1, 9.6.8, 9.10.2, 10.3.3

Award of Separate Contracts

6.1.1, 6.1.2

Award of Subcontracts and Other Contracts for Portions of the Work

5.2

Basic Definitions

1.1

Bidding Requirements

1.1.1

Binding Dispute Resolution

8.3.1, 9.7, 11.5, 13.1, 15.1.2, 15.1.3, 15.2.1, 15.2.5,
15.2.6.1, 15.3.1, 15.3.2, 15.3.3, 15.4.1

Bonds, Lien

7.3.4.4, 9.6.8, 9.10.2, 9.10.3

Bonds, Performance, and Payment

7.3.4.4, 9.6.7, 9.10.3, **11.1.2**, 11.1.3, **11.5**

Building Information Models Use and Reliance

1.8

Building Permit

3.7.1

Capitalization

1.3

Certificate of Substantial Completion

9.8.3, 9.8.4, 9.8.5

Init.

/

Certificates for Payment

4.2.1, 4.2.5, 4.2.9, 9.3.3, **9.4**, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1, 9.10.3, 14.1.1.3, 14.2.4, 15.1.4

Certificates of Inspection, Testing or Approval
13.4.4

Certificates of Insurance
9.10.2

Change Orders

1.1.1, 3.4.2, 3.7.4, 3.8.2.3, 3.11, 3.12.8, 4.2.8, 5.2.3, 7.1.2, 7.1.3, **7.2**, 7.3.2, 7.3.7, 7.3.9, 7.3.10, 8.3.1, 9.3.1.1, 9.10.3, 10.3.2, 11.2, 11.5, 12.1.2

Change Orders, Definition of

7.2.1

CHANGES IN THE WORK

2.2.2, 3.11, 4.2.8, 7, 7.2.1, 7.3.1, 7.4, 8.3.1, 9.3.1.1, 11.5

Claims, Definition of

15.1.1

Claims, Notice of
1.6.2, 15.1.3

CLAIMS AND DISPUTES

3.2.4, 6.1.1, 6.3, 7.3.9, 9.3.3, 9.10.4, 10.3.3, **15**, 15.4
Claims and Timely Assertion of Claims
15.4.1

Claims for Additional Cost

3.2.4, 3.3.1, 3.7.4, 7.3.9, 9.5.2, 10.2.5, 10.3.2, **15.1.5**

Claims for Additional Time

3.2.4, 3.3.1, 3.7.4, 6.1.1, 8.3.2, 9.5.2, 10.3.2, **15.1.6**

Concealed or Unknown Conditions, Claims for

3.7.4

Claims for Damages
3.2.4, 3.18, 8.3.3, 9.5.1, 9.6.7, 10.2.5, 10.3.3, 11.3, 11.3.2, 14.2.4, 15.1.7

Claims Subject to Arbitration
15.4.1

Cleaning Up

3.15, 6.3

Commencement of the Work, Conditions Relating to
2.2.1, 3.2.2, 3.4.1, 3.7.1, 3.10.1, 3.12.6, 5.2.1, 5.2.3, 6.2.2, 8.1.2, 8.2.2, 8.3.1, 11.1, 11.2, **15.1.5**

Commencement of the Work, Definition of

8.1.2

Communications

3.9.1, **4.2.4**
Completion, Conditions Relating to
3.4.1, 3.11, 3.15, 4.2.2, 4.2.9, 8.2, 9.4.2, 9.8, 9.9.1, 9.10, 12.2, 14.1.2, 15.1.2

COMPLETION, PAYMENTS AND

9

Completion, Substantial
3.10.1, 4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, 9.8, 9.9.1, 9.10.3, 12.2, 15.1.2
Compliance with Laws
2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14.1.1, 14.2.1.3, 15.2.8, 15.4.2, 15.4.3

Concealed or Unknown Conditions

3.7.4, 4.2.8, 8.3.1, 10.3

Conditions of the Contract

1.1.1, 6.1.1, 6.1.4

Consent, Written

3.4.2, 3.14.2, 4.1.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3, 13.2, 15.4.4.2

Consolidation or Joinder

15.4.4

CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

1.1.4, **6**

Construction Change Directive, Definition of

7.3.1

Construction Change Directives

1.1.1, 3.4.2, 3.11, 3.12.8, 4.2.8, 7.1.1, 7.1.2, 7.1.3, **7.3**, 9.3.1.1

Construction Schedules, Contractor's

3.10, 3.11, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2

Contingent Assignment of Subcontracts

5.4, 14.2.2.2

Continuing Contract Performance

15.1.4

Contract, Definition of

1.1.2

CONTRACT, TERMINATION OR SUSPENSION OF THE

5.4.1.1, 5.4.2, 11.5, **14**

Contract Administration

3.1.3, 4, 9.4, 9.5

Contract Award and Execution, Conditions Relating to

3.7.1, 3.10, 5.2, 6.1

Contract Documents, Copies Furnished and Use of
1.5.2, 2.3.6, 5.3

Contract Documents, Definition of

1.1.1

Contract Sum

2.2.2, 2.2.4, 3.7.4, 3.7.5, 3.8, 3.10.2, 5.2.3, 7.3, 7.4, **9.1**, 9.2, 9.4.2, 9.5.1.4, 9.6.7, 9.7, 10.3.2, 11.5, 12.1.2, 12.3, 14.2.4, 14.3.2, 15.1.4.2, **15.1.5**, **15.2.5**

Contract Sum, Definition of

9.1

Contract Time

1.1.4, 2.2.1, 2.2.2, 3.7.4, 3.7.5, 3.10.2, 5.2.3, 6.1.5, 7.2.1.3, 7.3.1, 7.3.5, 7.3.6, 7, 7.3.10, 7.4, 8.1.1, 8.2.1, 8.2.3, 8.3.1, 9.5.1, 9.7, 10.3.2, 12.1.1, 12.1.2, 14.3.2, 15.1.4.2, 15.1.6.1, 15.2.5

Contract Time, Definition of

8.1.1

CONTRACTOR

3

Contractor, Definition of

3.1, **6.1.2**

Contractor's Construction and Submittal Schedules

3.10, 3.12.1, 3.12.2, 4.2.3, 6.1.3, 15.1.6.2

Contractor's Employees
2.2.4, 3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2,
10.3, 11.3, 14.1, 14.2.1.1

Contractor's Liability Insurance

11.1

Contractor's Relationship with Separate Contractors
and Owner's Forces

3.12.5, 3.14.2, 4.2.4, 6, 11.3, 12.2.4

Contractor's Relationship with Subcontractors

1.2.2, 2.2.4, 3.3.2, 3.18.1, 3.18.2, 4.2.4, 5, 9.6.2, 9.6.7,
9.10.2, 11.2, 11.3, 11.4

Contractor's Relationship with the Architect

1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2,
3.5.1, 3.7.4, 3.10, 3.11, 3.12, 3.16, 3.18, 4.2, 5.2, 6.2.2,
7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6, 10.3,
11.3, 12, 13.4, 15.1.3, 15.2.1

Contractor's Representations

3.2.1, 3.2.2, 3.5, 3.12.6, 6.2.2, 8.2.1, 9.3.3, 9.8.2

Contractor's Responsibility for Those Performing the
Work

3.3.2, 3.18, 5.3, 6.1.3, 6.2, 9.5.1, 10.2.8

Contractor's Review of Contract Documents

3.2

Contractor's Right to Stop the Work

2.2.2, 9.7

Contractor's Right to Terminate the Contract

14.1

Contractor's Submittals

3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 9.2, 9.3, 9.8.2,
9.8.3, 9.9.1, 9.10.2, 9.10.3

Contractor's Superintendent

3.9, 10.2.6

Contractor's Supervision and Construction

Procedures

1.2.2, 3.3, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3,
7.3.4, 7.3.6, 8.2, 10, 12, 14, 15.1.4

Coordination and Correlation

1.2, 3.2.1, 3.3.1, 3.10, 3.12.6, 6.1.3, 6.2.1

Copies Furnished of Drawings and Specifications

1.5, 2.3.6, 3.11

Copyrights

1.5, **3.17**

Correction of Work

2.5, 3.7.3, 9.4.2, 9.8.2, 9.8.3, 9.9.1, 12.1.2, **12.2**, 12.3,
15.1.3.1, 15.1.3.2, 15.2.1

Correlation and Intent of the Contract Documents

1.2

Cost, Definition of

7.3.4

Costs

2.5, 3.2.4, 3.7.3, 3.8.2, 3.15.2, 5.4.2, 6.1.1, 6.2.3,
7.3.3.3, 7.3.4, 7.3.8, 7.3.9, 9.10.2, 10.3.2, 10.3.6, 11.2,
12.1.2, 12.2.1, 12.2.4, 13.4, 14

Cutting and Patching

3.14, 6.2.5

Damage to Construction of Owner or Separate
Contractors

3.14.2, 6.2.4, 10.2.1.2, 10.2.5, 10.4, 12.2.4

Damage to the Work

3.14.2, 9.9.1, 10.2.1.2, 10.2.5, 10.4, 12.2.4

Damages, Claims for

3.2.4, 3.18, 6.1.1, 8.3.3, 9.5.1, 9.6.7, 10.3.3, 11.3.2,
11.3, 14.2.4, 15.1.7

Damages for Delay

6.2.3, 8.3.3, 9.5.1.6, 9.7, 10.3.2, 14.3.2

Date of Commencement of the Work, Definition of

8.1.2

Date of Substantial Completion, Definition of

8.1.3

Day, Definition of

8.1.4

Decisions of the Architect

3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 6.3, 7.3.4,
7.3.9, 8.1.3, 8.3.1, 9.2, 9.4, 9.5.1, 9.8.4, 9.9.1, 13.4.2,
14.2.2, 14.2.4, 15.1, 15.2

Decisions to Withhold Certification

9.4.1, **9.5**, 9.7, 14.1.1.3

Defective or Nonconforming Work, Acceptance,
Rejection and Correction of

2.5, 3.5, 4.2.6, 6.2.3, 9.5.1, 9.5.3, 9.6.6, 9.8.2, 9.9.3,
9.10.4, 12.2.1

Definitions

1.1, 2.1.1, 3.1.1, 3.5, 3.12.1, 3.12.2, 3.12.3, 4.1.1, 5.1,
6.1.2, 7.2.1, 7.3.1, 8.1, 9.1, 9.8.1, 15.1.1

Delays and Extensions of Time

3.2, **3.7.4**, 5.2.3, 7.2.1, 7.3.1, **7.4**, **8.3**, 9.5.1, **9.7**,
10.3.2, **10.4**, 14.3.2, **15.1.6**, 15.2.5

Digital Data Use and Transmission

1.7

Disputes

6.3, 7.3.9, 15.1, 15.2

Documents and Samples at the Site

3.11

Drawings, Definition of

1.1.5

Drawings and Specifications, Use and Ownership of

3.11

Effective Date of Insurance

8.2.2

Emergencies

10.4, 14.1.1.2, **15.1.5**

Employees, Contractor's

3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2,
10.3.3, 11.3, 14.1, 14.2.1.1

Equipment, Labor, or Materials

1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1,
4.2.6, 4.2.7, 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3,
9.10.2, 10.2.1, 10.2.4, 14.2.1.1, 14.2.1.2

Execution and Progress of the Work

1.1.3, 1.2.1, 1.2.2, 2.3.4, 2.3.6, 3.1, 3.3.1, 3.4.1, 3.7.1,
3.10.1, 3.12, 3.14, 4.2, 6.2.2, 7.1.3, 7.3.6, 8.2, 9.5.1,
9.9.1, 10.2, 10.3, 12.1, 12.2, 14.2, 14.3.1, 15.1.4

Init.

/

Extensions of Time
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3, 7.4, 9.5.1, 9.7, 10.3.2,
10.4, 14.3, 15.1.6, **15.2.5**

Failure of Payment

9.5.1.3, **9.7**, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2

Faulty Work

(See Defective or Nonconforming Work)

Final Completion and Final Payment

4.2.1, 4.2.9, 9.8.2, **9.10**, 12.3, 14.2.4, 14.4.3

Financial Arrangements, Owner's

2.2.1, 13.2.2, 14.1.1.4

GENERAL PROVISIONS

1

Governing Law

13.1

Guarantees (See Warranty)

Hazardous Materials and Substances

10.2.4, **10.3**

Identification of Subcontractors and Suppliers

5.2.1

Indemnification

3.17, **3.18**, 9.6.8, 9.10.2, 10.3.3, 11.3

Information and Services Required of the Owner

2.1.2, **2.2**, 2.3, 3.2.2, 3.12.10.1, 6.1.3, 6.1.4, 6.2.5,

9.6.1, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2,

14.1.1.4, 14.1.4, 15.1.4

Initial Decision

15.2

Initial Decision Maker, Definition of

1.1.8

Initial Decision Maker, Decisions

14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5

Initial Decision Maker, Extent of Authority

14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5

Injury or Damage to Person or Property

10.2.8, 10.4

Inspections

3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3,

9.9.2, 9.10.1, 12.2.1, 13.4

Instructions to Bidders

1.1.1

Instructions to the Contractor

3.2.4, 3.3.1, 3.8.1, 5.2.1, 7, 8.2.2, 12, 13.4.2

Instruments of Service, Definition of

1.1.7

Insurance

6.1.1, 7.3.4, 8.2.2, 9.3.2, 9.8.4, 9.9.1, 9.10.2, 10.2.5, **11**

Insurance, Notice of Cancellation or Expiration

11.1.4, 11.2.3

Insurance, Contractor's Liability

11.1

Insurance, Effective Date of

8.2.2, 14.4.2

Insurance, Owner's Liability

11.2

Insurance, Property

10.2.5, 11.2, 11.4, 11.5

Insurance, Stored Materials

9.3.2

INSURANCE AND BONDS

11

Insurance Companies, Consent to Partial Occupancy

9.9.1

Insured loss, Adjustment and Settlement of

11.5

Intent of the Contract Documents

1.2.1, 4.2.7, 4.2.12, 4.2.13

Interest

13.5

Interpretation

1.1.8, 1.2.3, **1.4**, 4.1.1, 5.1, 6.1.2, 15.1.1

Interpretations, Written

4.2.11, 4.2.12

Judgment on Final Award

15.4.2

Labor and Materials, Equipment

1.1.3, 1.1.6, **3.4**, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1,

5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1,

10.2.4, 14.2.1.1, 14.2.1.2

Labor Disputes

8.3.1

Laws and Regulations

1.5, 2.3.2, 3.2.3, 3.2.4, 3.6, 3.7, 3.12.10, 3.13, 9.6.4,

9.9.1, 10.2.2, 13.1, 13.3.1, 13.4.2, 13.5, 14, 15.2.8,

15.4

Liens

2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8

Limitations, Statutes of

12.2.5, 15.1.2, 15.4.1.1

Limitations of Liability

3.2.2, 3.5, 3.12.10, 3.12.10.1, 3.17, 3.18.1, 4.2.6,

4.2.7, 6.2.2, 9.4.2, 9.6.4, 9.6.7, 9.6.8, 10.2.5, 10.3.3,

11.3, 12.2.5, 13.3.1

Limitations of Time

2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2.7,

5.2, 5.3, 5.4.1, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3,

9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15,

15.1.2, 15.1.3, 15.1.5

Materials, Hazardous

10.2.4, **10.3**

Materials, Labor, Equipment and

1.1.3, 1.1.6, 3.4.1, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1,

5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2,

10.2.1.2, 10.2.4, 14.2.1.1, 14.2.1.2

Means, Methods, Techniques, Sequences and

Procedures of Construction

3.3.1, 3.12.10, 4.2.2, 4.2.7, 9.4.2

Mechanic's Lien

2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8

Mediation

8.3.1, 15.1.3.2, 15.2.1, 15.2.5, 15.2.6, **15.3**, 15.4.1,

15.4.1.1

Minor Changes in the Work

1.1.1, 3.4.2, 3.12.8, 4.2.8, 7.1, **7.4**

Init.

/

MISCELLANEOUS PROVISIONS

13

Modifications, Definition of

1.1.1

Modifications to the Contract

1.1.1, 1.1.2, 2.5, 3.11, 4.1.2, 4.2.1, 5.2.3, 7, 8.3.1, 9.7, 10.3.2

Mutual Responsibility

6.2

Nonconforming Work, Acceptance of

9.6.6, 9.9.3, **12.3**

Nonconforming Work, Rejection and Correction of
2.4, 2.5, 3.5, 4.2.6, 6.2.4, 9.5.1, 9.8.2, 9.9.3, 9.10.4,
12.2

Notice

1.6, 1.6.1, 1.6.2, 2.1.2, 2.2.2., 2.2.3, 2.2.4, 2.5, 3.2.4,
3.3.1, 3.7.4, 3.7.5, 3.9.2, 3.12.9, 3.12.10, 5.2.1, 7.4,
8.2.2, 9.6.8, 9.7, 9.10.1, 10.2.8, 10.3.2, 11.5, 12.2.2.1,
13.4.1, 13.4.2, 14.1, 14.2.2, 14.4.2, 15.1.3, 15.1.5,
15.1.6, 15.4.1

Notice of Cancellation or Expiration of Insurance

11.1.4, 11.2.3

Notice of Claims

1.6.2, 2.1.2, 3.7.4, 9.6.8, 10.2.8, **15.1.3**, 15.1.5, 15.1.6,
15.2.8, 15.3.2, 15.4.1

Notice of Testing and Inspections

13.4.1, 13.4.2

Observations, Contractor's

3.2, 3.7.4

Occupancy

2.3.1, 9.6.6, 9.8

Orders, Written

1.1.1, 2.4, 3.9.2, 7, 8.2.2, 11.5, 12.1, 12.2.2.1, 13.4.2,
14.3.1

OWNER

2

Owner, Definition of

2.1.1

Owner, Evidence of Financial Arrangements

2.2, 13.2.2, 14.1.1.4

Owner, Information and Services Required of the

2.1.2, **2.2**, 2.3, 3.2.2, 3.12.10, 6.1.3, 6.1.4, 6.2.5, 9.3.2,
9.6.1, 9.6.4, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2,
14.1.1.4, 14.1.4, 15.1.4

Owner's Authority

1.5, 2.1.1, 2.3.32.4, 2.5, 3.4.2, 3.8.1, 3.12.10, 3.14.2,
4.1.2, 4.2.4, 4.2.9, 5.2.1, 5.2.4, 5.4.1, 6.1, 6.3, 7.2.1,
7.3.1, 8.2.2, 8.3.1, 9.3.2, 9.5.1, 9.6.4, 9.9.1, 9.10.2,
10.3.2, 11.4, 11.5, 12.2.2, 12.3, 13.2.2, 14.3, 14.4,
15.2.7

Owner's Insurance

11.2

Owner's Relationship with Subcontractors

1.1.2, 5.2, 5.3, 5.4, 9.6.4, 9.10.2, 14.2.2

Owner's Right to Carry Out the Work

2.5, 14.2.2

Owner's Right to Clean Up

6.3

Owner's Right to Perform Construction and to Award Separate Contracts

6.1

Owner's Right to Stop the Work

2.4

Owner's Right to Suspend the Work

14.3

Owner's Right to Terminate the Contract

14.2, 14.4

Ownership and Use of Drawings, Specifications and Other Instruments of Service

1.1.1, 1.1.6, 1.1.7, **1.5**, 2.3.6, 3.2.2, 3.11, 3.17, 4.2.12,
5.3

Partial Occupancy or Use

9.6.6, **9.9**

Patching, Cutting and

3.14, 6.2.5

Patents

3.17

Payment, Applications for

4.2.5, 7.3.9, 9.2, **9.3**, 9.4, 9.5, 9.6.3, 9.7, 9.8.5, 9.10.1,
14.2.3, 14.2.4, 14.4.3

Payment, Certificates for

4.2.5, 4.2.9, 9.3.3, **9.4**, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1,
9.10.3, 14.1.1.3, 14.2.4

Payment, Failure of

9.5.1.3, **9.7**, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2

Payment, Final

4.2.1, 4.2.9, **9.10**, 12.3, 14.2.4, 14.4.3

Payment Bond, Performance Bond and

7.3.4.4, 9.6.7, 9.10.3, **11.1.2**

Payments, Progress

9.3, **9.6**, 9.8.5, 9.10.3, 14.2.3, 15.1.4

PAYMENTS AND COMPLETION

9

Payments to Subcontractors

5.4.2, 9.5.1.3, 9.6.2, 9.6.3, 9.6.4, 9.6.7, 14.2.1.2

PCB

10.3.1

Performance Bond and Payment Bond

7.3.4.4, 9.6.7, 9.10.3, **11.1.2**

Permits, Fees, Notices and Compliance with Laws

2.3.1, **3.7**, 3.13, 7.3.4.4, 10.2.2

PERSONS AND PROPERTY, PROTECTION OF

10

Polychlorinated Biphenyl

10.3.1

Product Data, Definition of

3.12.2

Product Data and Samples, Shop Drawings

3.11, **3.12**, 4.2.7

Progress and Completion

4.2.2, **8.2**, 9.8, 9.9.1, 14.1.4, 15.1.4

Progress Payments

9.3, **9.6**, 9.8.5, 9.10.3, 14.2.3, 15.1.4

Init.

/

Project, Definition of
1.1.4
Project Representatives
4.2.10
Property Insurance
10.2.5, **11.2**
Proposal Requirements
1.1.1
PROTECTION OF PERSONS AND PROPERTY
10
Regulations and Laws
1.5, 2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 9.9.1,
10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14, 15.2.8, 15.4
Rejection of Work
4.2.6, 12.2.1
Releases and Waivers of Liens
9.3.1, 9.10.2
Representations
3.2.1, 3.5, 3.12.6, 8.2.1, 9.3.3, 9.4.2, 9.5.1, 9.10.1
Representatives
2.1.1, 3.1.1, 3.9, 4.1.1, 4.2.10, 13.2.1
Responsibility for Those Performing the Work
3.3.2, 3.18, 4.2.2, 4.2.3, 5.3, 6.1.3, 6.2, 6.3, 9.5.1, 10
Retainage
9.3.1, 9.6.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3
Review of Contract Documents and Field
Conditions by Contractor
3.2, 3.12.7, 6.1.3
Review of Contractor's Submittals by Owner and
Architect
3.10.1, 3.10.2, 3.11, 3.12, 4.2, 5.2, 6.1.3, 9.2, 9.8.2
Review of Shop Drawings, Product Data and Samples
by Contractor
3.12
Rights and Remedies
1.1.2, 2.4, 2.5, 3.5, 3.7.4, 3.15.2, 4.2.6, 5.3, 5.4, 6.1,
6.3, 7.3.1, 8.3, 9.5.1, 9.7, 10.2.5, 10.3, 12.2.1, 12.2.2,
12.2.4, **13.3**, 14, 15.4
Royalties, Patents and Copyrights
3.17
Rules and Notices for Arbitration
15.4.1
Safety of Persons and Property
10.2, 10.4
Safety Precautions and Programs
3.3.1, 4.2.2, 4.2.7, 5.3, **10.1**, 10.2, 10.4
Samples, Definition of
3.12.3
Samples, Shop Drawings, Product Data and
3.11, **3.12**, 4.2.7
Samples at the Site, Documents and
3.11
Schedule of Values
9.2, 9.3.1
Schedules, Construction
3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2

Separate Contracts and Contractors
1.1.4, 3.12.5, 3.14.2, 4.2.4, 4.2.7, 6, 8.3.1, 12.1.2
Separate Contractors, Definition of
6.1.1
Shop Drawings, Definition of
3.12.1
Shop Drawings, Product Data and Samples
3.11, **3.12**, 4.2.7
Site, Use of
3.13, 6.1.1, 6.2.1
Site Inspections
3.2.2, 3.3.3, 3.7.1, 3.7.4, 4.2, 9.9.2, 9.4.2, 9.10.1, 13.4
Site Visits, Architect's
3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4
Special Inspections and Testing
4.2.6, 12.2.1, 13.4
Specifications, Definition of
1.1.6
Specifications
1.1.1, **1.1.6**, 1.2.2, 1.5, 3.12.10, 3.17, 4.2.14
Statute of Limitations
15.1.2, 15.4.1.1
Stopping the Work
2.2.2, 2.4, 9.7, 10.3, 14.1
Stored Materials
6.2.1, 9.3.2, 10.2.1.2, 10.2.4
Subcontractor, Definition of
5.1.1
SUBCONTRACTORS
5
Subcontractors, Work by
1.2.2, 3.3.2, 3.12.1, 3.18, 4.2.3, 5.2.3, 5.3, 5.4, 9.3.1.2,
9.6.7
Subcontractual Relations
5.3, 5.4, 9.3.1.2, 9.6, 9.10, 10.2.1, 14.1, 14.2.1
Submittals
3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 7.3.4, 9.2, 9.3, 9.8,
9.9.1, 9.10.2, 9.10.3
Submittal Schedule
3.10.2, 3.12.5, 4.2.7
Subrogation, Waivers of
6.1.1, **11.3**
Substances, Hazardous
10.3
Substantial Completion
4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, **9.8**, 9.9.1, 9.10.3, 12.2,
15.1.2
Substantial Completion, Definition of
9.8.1
Substitution of Subcontractors
5.2.3, 5.2.4
Substitution of Architect
2.3.3
Substitutions of Materials
3.4.2, 3.5, 7.3.8
Sub-subcontractor, Definition of
5.1.2

Subsurface Conditions
3.7.4

Successors and Assigns
13.2

Superintendent
3.9, 10.2.6

Supervision and Construction Procedures
1.2.2, **3.3**, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3,
7.3.4, 8.2, 8.3.1, 9.4.2, 10, 12, 14, 15.1.4

Suppliers
1.5, 3.12.1, 4.2.4, 4.2.6, 5.2.1, 9.3, 9.4.2, 9.5.4, 9.6,
9.10.5, 14.2.1

Surety
5.4.1.2, 9.6.8, 9.8.5, 9.10.2, 9.10.3, 11.1.2, 14.2.2,
15.2.7

Surety, Consent of
9.8.5, 9.10.2, 9.10.3

Surveys
1.1.7, 2.3.4

Suspension by the Owner for Convenience
14.3

Suspension of the Work
3.7.5, 5.4.2, 14.3
Suspension or Termination of the Contract
5.4.1.1, 14

Taxes
3.6, 3.8.2.1, 7.3.4.4

Termination by the Contractor
14.1, 15.1.7

Termination by the Owner for Cause
5.4.1.1, **14.2**, 15.1.7

Termination by the Owner for Convenience
14.4

Termination of the Architect
2.3.3
Termination of the Contractor Employment
14.2.2

**TERMINATION OR SUSPENSION OF THE
CONTRACT**

14
Tests and Inspections

3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3,
9.9.2, 9.10.1, 10.3.2, 12.2.1, **13.4**

TIME
8

Time, Delays and Extensions of
3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3.1, 7.4, **8.3**, 9.5.1, 9.7,
10.3.2, 10.4, 14.3.2, 15.1.6, 15.2.5

Time Limits

2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2,
5.2, 5.3, 5.4, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3, 9.4.1,
9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15.1.2,
15.1.3, 15.4

Time Limits on Claims
3.7.4, 10.2.8, 15.1.2, 15.1.3

Title to Work
9.3.2, 9.3.3

UNCOVERING AND CORRECTION OF WORK
12

Uncovering of Work
12.1

Unforeseen Conditions, Concealed or Unknown
3.7.4, 8.3.1, 10.3

Unit Prices
7.3.3.2, 9.1.2

Use of Documents
1.1.1, 1.5, 2.3.6, 3.12.6, 5.3

Use of Site
3.13, 6.1.1, 6.2.1

Values, Schedule of
9.2, 9.3.1

Waiver of Claims by the Architect
13.3.2

Waiver of Claims by the Contractor
9.10.5, 13.3.2, **15.1.7**

Waiver of Claims by the Owner
9.9.3, 9.10.3, 9.10.4, 12.2.2.1, 13.3.2, 14.2.4, **15.1.7**

Waiver of Consequential Damages
14.2.4, 15.1.7

Waiver of Liens
9.3, 9.10.2, 9.10.4

Waivers of Subrogation
6.1.1, **11.3**

Warranty
3.5, 4.2.9, 9.3.3, 9.8.4, 9.9.1, 9.10.2, 9.10.4, 12.2.2,
15.1.2

Weather Delays
8.3, 15.1.6.2

Work, Definition of
1.1.3

Written Consent
1.5.2, 3.4.2, 3.7.4, 3.12.8, 3.14.2, 4.1.2, 9.3.2, 9.10.3,
13.2, 13.3.2, 15.4.4.2

Written Interpretations
4.2.11, 4.2.12

Written Orders
1.1.1, 2.4, 3.9, 7, 8.2.2, 12.1, 12.2, 13.4.2, 14.3.1

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document

G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and

delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely

Init.

/

upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

Init.

/

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;

Init.

- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

Init.

/

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will

promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or

expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 **Failure to Purchase Required Property Insurance.** If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 **Notice of Cancellation or Expiration of Owner's Required Property Insurance.** Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during

that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;

- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

SECTION 008000 – SUPPLEMENTARY GENERAL CONDITIONS

SUPPLEMENTS TO A.I.A. DOCUMENT A201, 2017 EDITION
GENERAL CONDITIONS FOR THE CONTRACT FOR CONSTRUCTION

TABLE OF CONTENTS:

ARTICLE 1:	General Provisions
ARTICLE 2:	Owner
ARTICLE 3:	Contractor
ARTICLE 4:	Architect
ARTICLE 5:	Subcontractors
ARTICLE 6:	Construction by Owner or By Separate Contractors
ARTICLE 7:	Changes in The Work
ARTICLE 8:	Time
ARTICLE 9:	Payments and Completion
ARTICLE 10:	Protection of Person and Property
ARTICLE 11:	Insurance and Bonds
ARTICLE 12:	Uncovering and Correction of Work
ARTICLE 13:	Miscellaneous Provisions
ARTICLE 14:	Termination or Suspension of the Contract
ARTICLE 15:	Claims and Disputes
ARTICLE 16:	Equal Opportunity

GENERAL

These Supplementary General Conditions modify, change, delete from, or add to the "General Conditions of the Contract for Construction," A.I.A. Document A201, 2017 Edition. The A.I.A Document A201, 2017 Edition is hereby made a part of every Section of these Specifications and shall be binding upon each Contractor, Subcontractor, and Material Supplier. Where any Article of the General Conditions is modified, or any Paragraph, Subparagraph, or Sub-Subparagraph thereof is modified or deleted by these Supplementary General Conditions, the unaltered provisions of the Article, Paragraph, Subparagraph, or Sub-Subparagraph shall remain in effect.

ARTICLE 1 - GENERAL PROVISIONS:

1.1 BASIC DEFINITIONS:

1.1 Supplement Paragraph 1.1 as follows:

“1.1.1.1 The General Contractor’s and Subcontractor's Proposal Forms as accepted by the Owner shall be a part of the Contract Documents.

1.1.9 "Provide", as used in the Contract Documents, includes furnishing all labor, supervision, tools, materials, supplies, equipment, shop drawings, product data and samples, together with all services, accessories and costs associated with performance of the work, or production or installation of an item or system usable in the complete project.

1.1.10 “Diagrammatic”, as used in the Contract Documents, shall mean to outline in schematic form or an illustration to be used as a guide only.

1.1.11 “Product”, as used in these Contract Documents, includes materials, systems and equipment.”

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS:

1.2.1 Delete subsection entirely and substitute the following:

“1.2.1 The intent of the Contract Documents is to include all items necessary for the execution and completion of the work by the Contractor. The Contract Documents are complementary, and what is required by anyone shall be as binding as if required by all. Performance by the Contractor and Subcontractors shall be required to produce the intended results. In cases of discrepancies between the Contract Documents, the Agreement shall take precedence over the Drawings and Specifications, and the Specifications shall take precedence over the Drawings, except as

SECTION 008000 – SUPPLEMENTARY GENERAL CONDITIONS (continued)

listed. Large scale plans, sections, and details take precedence over smaller scaled items. Plan schedules shall control over general plans. Addenda and Change Orders supersede only affected portions of the Documents.

1.2.1.1 The Contractor/Subcontractor, however, shall be held to providing completed work, according to the meaning and intent of the Drawings and Specifications whether all the items involved under any trade are mentioned in one or several sections or on one or several drawings.

1.2.1.2 Should any item to be furnished or labor to be performed as specified under more than one Section of the Specification, it will be premised that Subcontractors have included said product and/or labor in more than one Section, unless he shall have obtained a written decision from the Construction Manager prior to the bid. The Construction Manager will decide who shall provide such items. Proper credit shall be given to the Owner when the cost has been included more than once.

1.2.1.3 Should any item or equipment required to be furnished within the drawings or specifications fail to have any or all of its connections or utilities indicated, the Contractor and Subcontractors shall provide (as a minimum) services, utilities and connections to ensure the permanent, proper, code compliant operation of the item or equipment; unless such condition shall have been brought to the attention of the Architect prior to the Bid and a decision rendered through the issuance of addenda or other items of clarification.

1.2.1.4 The Contractor, and Subcontractors shall not take advantage of errors or omissions on Drawings or Specifications.

1.2.1.5 If any errors or omissions appear in Drawings, Specifications, or other Contract Documents, the Subcontractors shall notify the Contractor before time of submitting bid. The Contractor will notify and resolve the issues with the Architect prior to submitting a guaranteed maximum price or Bid Proposal to the Owner. Should conflict occur in or between Drawings and Specifications; Contractor and Subcontractors are deemed to have estimated on the more expensive product, method of installation, and/or the greater quantity, unless he has requested and obtained a written decision before submission of bid proposals as to which method, product, or quantity will be required.

1.2.1.6 References to known standard specifications shall mean the latest edition of such specifications adopted and published at date of invitation to submit proposal. Words which have well-known technical or trade meanings are used herein accordance with such recognized meanings.

1.2.1.7 When dimensions as shown on the Drawings are affected by conditions already established, the Subcontractor shall take measurements to verify the given scale or figure dimensions in the Drawings.

1.2.1.8 The Specifications, detailed description or omission of it, concerning any work to be provided shall be regarded as meaning that only the best general practice of the trade is to prevail and that only materials and workmanship of the first quality are to be used. All interpretations of these Specifications shall be made upon this basis and all interpretations shall be made by the Architect.

1.2.1.9 Execute work as per Contract Documents. Make no changes without having first received written permission from the Architect. Where detailed information is lacking, before proceeding with work, refer matter to the Architect for additional information.

1.2.1.10 THE MECHANICAL AND ELECTRICAL SYSTEM DRAWINGS ARE DIAGRAMMATIC IN NATURE AND THE FIELD CONDITIONS MAY ARISE THAT WILL PREVENT THEIR BEING INSTALLED AS PER DRAWING (EX.), SUCH AS PIPE AND CONDUIT RUNS, CROSSOVERS, RISERS, DOORS, FLOOR, WALLS AND CEILING PATTERN COVERING LAYOUTS, ETC. THEREFORE, IT SHALL BE THE RESPONSIBILITY OF EACH AND ALL SUBCONTRACTORS, FOR THE COORDINATION, TIMING AND PROTECTION OF ALL CONDITIONS; AND IN EACH CASE WHERE THERE IS ANY QUESTION OR PROBLEM AS TO CONDITIONS OR LOCATIONS OF THESE ITEMS, SUBMIT A WORKABLE SOLUTION TO THE CONSTRUCTION MANAGER/GENERAL CONTRACTOR AND THE ARCHITECT FOR REVIEW AND WRITTEN APPROVAL BEFORE COMMENCING WITH QUESTIONABLE WORK. IF SUCH ADJUSTMENT SHALL BE MADE BY THE SUBCONTRACTOR WITHOUT WRITTEN APPROVAL, IT SHALL BE AT THEIR OWN RISK AND EXPENSE. ANY REMOVAL OF NON-APPROVED AREAS SHALL BE THE RESPONSIBILITY AND EXPENSE OF THE SUBCONTRACTORS.

1.2.1.11 Where there is conflict between the Drawings, or between Drawings and Specifications, or doubt as to meaning, the Contractor and Subcontractors shall obtain a written decision from the Architect, except where the Contractor deems that there could be immediate damages to life or property. He shall not proceed in uncertainty in any instance.

1.2.1.12 In the case of discrepancies between the INFORMATION TO BIDDERS, CONDITIONS OF THE CONTRACT, DRAWINGS, SPECIFICATIONS, OR ADDENDA as it relates to each Subcontractor's Work Category responsibilities, the most stringent and/or most expensive case applies as determined by the Architect.”

SECTION 008000 – SUPPLEMENTARY GENERAL CONDITIONS (continued)

1.2.2 Add the following:

“1.2.2.1 Construction Specifications Institute (C.S.I. Uniform System): To assist the Contract, the Specifications are divided into Divisions and Section numbers generally conforming to "Uniform System for Construction Specifications.”

ARTICLE 2 - OWNER:

2.1 GENERAL:

2.1.1 Add the following subparagraphs:

“2.1.1.1 THE TERM "ARCHITECT" AS USED IN THE GENERAL CONDITIONS SHALL MEAN ‘Clemons, Rutherford & Associates, Inc.’ WHERE THE TERM "A/E", "ARCHITECT/ENGINEER", OR "ENGINEER" IS USED IN THE DOCUMENTS, IT SHALL BE CONSIDERED AS BEING SYNONYMOUS WITH THE TERM "ARCHITECT" AS DEFINED IN THE GENERAL CONDITIONS.

2.1.1.2 The use of phrases "as directed", "as instructed", "reviewed", "authorized", "accepted", and similar terms implies that such action will be taken by the Architect unless specifically stated otherwise.”

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER:

2.2.5.1 Add the following:

“2.2.5.1 The Contractor will be furnished with ONE (1) reproducible digital (PDF format) set of Drawings and Specifications by the Owner (other sets may be furnished but are not a requirement under this contract). A complete set of portable document format (.pdf) documents (plans and specifications) will be made available to the Contractor for the printing processes. The Contractor will make the portable document format documents available to the Subcontractors. The Architect will provide the Contractor with the original digital BIM Revit Model and/or AutoCAD files of the building and site for the Contractor’s and Subcontractor’s use to prepare Shop Drawings, Coordination Drawings, and Submittals upon receipt of accepted AIA Documents E203-2013 and G201-2013 Digital Protocol Agreements and the Architect’s Digital File Release Forms from all users.”

2.4 OWNERS RIGHT TO CARRY OUT THE WORK:

2.4.1 Add the following:

“2.4.1 The Owner will assist the Architect and Contractor in determining in general that the Work of the Subcontractors is being performed in accordance with the Contract Documents and will endeavor to guard the Owner against defects and deficiencies in the Work of the Contractor and Subcontractors.”

ARTICLE 3 - CONTRACTOR:

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR:

3.2.1 Add the Following:

“3.2.1.1 Examination of site shall include determination of the nature and scope of the work and all difficulties that accompany its execution. The Contractor shall be responsible for coordinating with the owner to inspect and locate existing site conditions and providing existing as built drawings for the following existing site items documented by GPS coordinates:

Valve and Valve Boxes, Main Water and Sewer tie-ins, Clean outs and Junction Boxes

Chilled Water Lines, main water lines, main gas lines and electrical conduits.

Existing change of directions for chilled water lines, main water lines, main gas lines, irrigation lines and electrical conduits.

Electrical Transformers.

3.2.3 Add the following:

“3.2.3.1 The Contractor, Subcontractors and material suppliers shall examine the Architectural, Structural, Mechanical, Plumbing, and Electrical Drawings and Specifications, and verify all measurements and requirements before ordering materials or performing any work to avoid problems during construction.

SECTION 008000 – SUPPLEMENTARY GENERAL CONDITIONS (continued)

3.2.3.2 Before ordering materials or doing any work, the Contractor and Subcontractors shall verify all measurements at the project site and shall be responsible for their correctness. No extra compensation will be allowed on account of differences between actual dimensions and those indicated on the Drawings. Any decided difference which may be found shall be reported to the Architect in writing, for consideration before proceeding with the Work.”

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES:

Add the following Subparagraph 3.3.2.1 through 3.3.2.7:

3.3.2.1 The Contractor and/or subcontractor and their employees shall refrain from use of vulgarities around students, staff and faculty.

3.3.2.2 Clothing shall have no vulgarities or sexually suggestive graphics.

3.3.2.3 Direct contact with students, faculty or staff is strictly prohibited.

3.3.2.4 Violation of Special Conditions may result in immediate termination of that employee, Contractor or Subcontractor.

3.3.2.5 State regulations prohibit alcohol, drugs, and firearms from being brought onto school property. Violators will be prosecuted under State Law.

3.3.2.6 Bay County School Board Policy states that there shall be no smoking or use of tobacco products which include e-cigarettes, allowed in any facility or on any real or personal property owned by or under the control of the Bay County School System. Contractor and Subcontractor employees are required to leave the school campus for tobacco use. Job-site trailers are not exempt from this requirement.

3.3.2.7 The Contractor shall present a plan, for approval by the Owner, showing all areas for safety fencing staging, storage, job office, ingress and egress to the site. No work shall be done until this is approved.

3.4 LABOR AND MATERIALS:

3.4.1 Add the following:

“3.4.1.1 Material Standards - Unless otherwise specifically provided in this Contract, reference to any equipment, material, article, or patented process, by trade name, make, or catalog number, shall establish a standard of quality and the Base Bid shall include only materials and items exactly as specified or called for by name. Architect to list at least three acceptable manufacturers in the Specifications, where possible, however each manufacturer shall meet the basis-of-design requirements.”

3.4.2 Delete subparagraph 3.4.2 and substitute the following:

“3.4.2 Substitutions During Bidding Period - Requests for Substitutions during the bidding period will be considered and treated only as stated in Specification Section 008200, Special Conditions, Article 15, Substitution of Materials and Equipment. Once bids have been received, the Owner and Architect will prepare the Contract on the basis that all items are those specified in the Specifications, shown on the Drawings, or approved in Addenda during the bidding period. The approval of a product during the bid period does not negate the requirement for the submission of complete data during the construction in accordance with the Section 013300, Submittals, nor does it negate the burden of complying with all specification requirements. Should further investigation of a product approved during the bid period indicate that the product does not meet the essential requirements of the project the Contractor and Subcontractors shall make such modifications as are necessary to meet these essential requirements.

3.4.2.1 Approval After Bids are Opened - Substitutions or approval of products will be considered after bids are opened only under the following conditions:

.1 The Subcontractor shall place orders for specified materials and equipment promptly upon award of Contract. No excuses or proposed substitutions will be considered for materials and equipment due to unavailability, unless proof is submitted that firm orders were promptly placed for the item listed in the Specifications.

.2 The reason for the unavailability shall be beyond the control of the Subcontractor, such as strikes, lockouts, bankruptcy, discontinuance of the manufacturer or a product, or acts of god, and shall be made known in writing to the Architect within ten (10) days of the date that the Subcontractor ascertains that he cannot obtain the material or equipment specified. Requests shall be accompanied by a complete description of the materials or equipment which the Subcontractor wishes to use as a substitute.”

3.5 WARRANTY:

SECTION 008000 – SUPPLEMENTARY GENERAL CONDITIONS (continued)

Add the following:

“3.5.1 Under this warranty for a period of one (1) year from date of Completion, as evidenced by the date of "Substantial Completion" of the Work, the Contractor and Subcontractors shall remedy, at his own expense, any such failure to conform on any such defects. Where warranties are written in any Section for longer than one (1) year, such terms will apply.

3.5.2 Nothing in the above intends or implies that this warranty shall apply to work which has been abused or neglected by the Owner.”

3.6 TAXES:

3.6 Add the following:

“3.6.1 Unless otherwise specified, the Bid price includes all Federal, State and local taxes imposed prior to the execution of the Agreement and which are applicable to the Work. If any new privilege, sales gross receipt or other excise tax, exclusive of taxes and net income or undistributed profit applicable to the Work and payable by the Subcontractor is imposed by the State of Florida, or such present tax be increased as of the date thereof, then the Contract price will be adjusted accordingly and the Owner will reimburse the Contractor therefore without any allowance for overhead or profit upon separate payment application containing such pertinent details as the Owner may require. The Contractor will organize, implement and manage the Owner’s direct purchase tax recovery program. Direct purchases shall be for orders of five-thousand dollars (\$5,000) or more for any single item.”

3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS:

3.7 Delete paragraph 3.7.1 and substitute the following:

“3.7.1 A local building permit will NOT be required for this project. The "Florida Building Code 2020 shall govern. The Owner will engage a qualified Building Department to facilitate the document review and building permit process, as well as, related inspection services in accordance with the FBC. The Owner is exempt from all other county, district, municipal, and local building codes, ordinances, interpretations, building permits and assessments of fees for building permits, impact fees and service availability fees other than those defined within the Florida Building Code 2020, the Florida Statutes and the Florida Administrative Code. The Contractor and Subcontractors shall secure all required permits, governmental fees, anti-pollution fees, and licenses necessary for the proper execution and completion of his Work, which are applicable at the time the bids are received. The Contractor and Subcontractors shall be familiar with all Federal, State, and local laws, codes, ordinances, and regulations which in any manner effect those engaged or employed in the Work and any material or equipment used in the conduct of the Work.

3.7.1.1 Before proceeding with the Work, securing permits or necessary licenses, the Contractor and Subcontractors shall carefully study and compare the Drawings and Specifications and shall at once report in writing, to the Architect/Engineer, any error or omission he may discover that is in variance with applicable laws, statutes, building codes, and regulations.”

3.7.2 Add the following:

“3.7.2.1 The Contractor and Subcontractors at all times shall comply with the Florida Building Code 2020 installation requirements (including amendments and supplements), and all Federal, State and local laws, codes, ordinances and regulations as applicable, which in any manner affects the Work, and he and his surety shall indemnify and hold harmless the Owner, and Architect/Engineer, to the extent allowable by law, against any claim or liability arising from or based on the violation of such law or decree, whether by himself or his employees.”

3.10 CONTRACTOR’S CONSTRUCTION AND SUBMITTAL SCHEDULES:

Add the following Subparagraphs 3.10.5 through 3.10.7:

3.10.5 The Contractor shall furnish sufficient forces, construction plant and equipment, and shall work such hours, including night shifts and overtime operations, as may be necessary to insure the prosecution of the Work in accordance with the approved progress schedule. If the Contractor falls behind the progress schedule, the Contractor shall take such steps as may be necessary to improve the progress by increasing the number of shifts, overtime operations, days of work and the amount of construction plant, all without additional cost to the Owner.

3.10.6 Failure of the Contractor to comply with the requirements under this provision shall be grounds for determination by the Engineer that the Contractor is not prosecuting the work with such diligence as will insure

SECTION 008000 – SUPPLEMENTARY GENERAL CONDITIONS (continued)

completion within the time specified and such failure constitutes a substantial violation of the conditions of the Agreement.

3.10.7 Upon such determination, the Owner may terminate the Contractor's right to proceed with the work, or any separable part thereof, in accordance with Article 14 of the General Conditions, or may withhold further payments as indicated in Article 9.5.1.

3.11 DOCUMENTS AND SAMPLES AT THE SITE:

3.11.1 Add the following:

“3.11.1 At the completion of the Work, each Subcontractor shall submit "Record Drawings" to the Contractor on digital media, and the Contractor in turn will produce (or cause to have produced) As-Built Drawings on ELECTRONIC MEDIA on Autodesk AutoCAD Architectural Desktop (2019 Version). The Architect will provide the Contractor with the digital related AutoCAD files of the project for the Contractor's and Subcontractor's use to prepare Shop Drawings, Coordination Drawings, and As-Built (Record) Drawings upon receipt of accepted AIA Documents E203-2013 and G201-2013 Digital Protocol Agreements and the Architect's Digital File Release Forms from all users. Said Record Drawings shall be delivered to the Architect for review. The Architect will forward reviewed Final As-Built Drawings to the Owner for their future use.

3.11.1.1 Pipelines and ducts which are installed in furred spaces, pipe chases, or other spaces which can be readily inspected using access panels or other means of access will not be considered as being concealed. With reference to electrical and mechanical work the exact (not diagrammatic) conduit, pipe, and duct runs shall be shown on these drawings.

3.11.1.2 Record Drawings” shall be the daily in-use set of contract documents at the job site. At the end of each day, the foreman of each trade shall mark and date any and all changes that occurred during the day's work. Lines shall be located by dimension and equipment shall be noted and located. These documents will be delivered to the Contractor as noted in 3.11.1 above.

3.11.1.3 Upon completion of the work this data shall be recorded to scale, by a competent draftsman on electronic media copies of the contract drawings. Where changes and actual locations are to be recorded, the electronic media shall be erased before the changes are made. The work shall be shown as installed and the Contractor shall deliver the black line drawing prints and electronic media files with every drawing marked "As-Built". In showing the changes the same legend shall be used to identify piping, etc., as was used on the contract drawings. A separate set of drawings shall be prepared for electrical, plumbing, heating, air conditioning, and ventilating work, and A/V & Data, unless two (2) or more divisions are shown on the same sheets of the contract drawings. Each change of the original Contract Documents shall be “clouded” and referenced, except pipe runs may be noted, and each sheet shall bear the date and name of the Subcontractor submitting the changes to the drawings.

In addition, Contractor shall provide the following upon completion of the project:

- Electrical:
 - o Panel schedule to be verified by Engineer of Record
 - o On the Receptacle show label with Panel and Breaker
 - o On Main Panel label phase rotation
 - o Provide permanent Tag on Transformer for every main panel going to Transformer.
 - o Provide on every Panel and switchgear paired Transformer
 - o Provide the following standard color coding on J-Boxes:
 - Red – Fire Alarm
 - Yellow – 120/208/240 low voltage
 - Orange – 277/480 high voltage
 - Green – Camera
 - Blue – Communication/AV
- Plumbing:
 - o For Valve Boxes above Ceiling locations, provide orange/blue stencil at grid intersection nearest to Valve Box
- Mechanical:
 - o For Fire Damper, Air Damper locations provide pop-rivet sign
- Site As-Built drawings shall include the following:
 - o location of all existing valves and valve boxes by GPS coordinates
 - o location of all new valves and valve boxes by GPS coordinates.

SECTION 008000 – SUPPLEMENTARY GENERAL CONDITIONS (continued)

- location of main sewer service tie in points by GPS coordinates.
- location of main water tie in points by GPS coordinates.
- location of clean outs and junction boxes by GPS coordinates.
- line drawings for chilled water lines, main water lines, main gas lines, Electrical lines.
- change of direction for chilled water lines, main water lines, main gas lines, electrical lines.
- Electrical Transformer location by GPS coordinates.

3.11.1.4 The Contractor shall review the complete as-built drawings. He shall ascertain and certify that all data furnished on the drawings are accurate and truly represent the work as actually installed. When manholes, boxes, underground conduits, plumbing, hot or chilled water lines, inverts, etc. are involved as part of the work, the Subcontractor shall furnish true elevations and locations, all properly referenced by using the original benchmark for the project. The “Record Drawings” from each Subcontractor, including those unchanged and changed, shall be submitted to the Architect, when completed, together with three (3) sets of black line prints (produced from the As-Built Electronic Media) with the Contractor’s stamp and each Subcontractor’s certification for forwarding to the Owner, at the time of Substantial Completion. Final payment shall not be made until said “As-Built” documents have been received by the Architect, reviewed and accepted as complete, and in accordance with the contract documents.

3.11.1.5 The Contractor shall be responsible for collecting, identifying, indexing and collating the specified Close-Out Documents including the following materials from the Subcontractors, and will deliver three (3) copies of the finished documents to the Architect. Complete equipment diagrams, operating instructions, maintenance manuals, parts lists, wiring diagrams, pneumatic and/or electrical control diagrams, test and balance reports, inspection reports, guarantee and warranties, as applicable for each and every piece of fixed equipment furnished under this contract to be supplied in a three ring binder, hard-cover book, properly indexed for ready reference. Also, specific information regarding manufacturer’s name and address, nearest distributor and service representative’s name and address, office and home phone numbers, make and model numbers, operating design and characteristics, etc. will be required. All information submitted shall be updated to reflect existing conditions. Final payment shall not be made until said documents have been received by the Architect/Engineer, reviewed and accepted as complete and in accordance with the contract documents. Also refer to Section 01 77 00, Close-Out Procedures.”

3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES:

3.12.11 Add the following Subparagraph:

“3.12.11 The requirements of Article 3.12 are supplemented by a separate Section, Submittals in Division One, Section 013300.”

3.14 CUTTING AND PATCHING OF WORK:

3.14 Add the following Subparagraphs:

“3.14.3 The Subcontractor shall do all cutting required for installation of his work. Patching required because of such cutting shall be performed as follows:

3.14.3.1 Wherever cutting occurs within unexposed materials, or in materials which are to remain unfinished when completed, patching shall be performed by the Subcontractor who did the cutting. This includes all concrete and masonry other than listed below.

3.14.3.2 Wherever cutting occurs in finished surfaces, patching shall be performed by the Subcontractor specializing in that particular trade, and paid for by the Subcontractor who did the cutting. This includes, but is not limited to, roofing, painting of plaster and finished surfaces, ceramic tile, structural facing tile, marble, concrete block in finished areas, metal lath and plaster, acoustical materials and their supports.”

ARTICLE 4 - ARCHITECT:

4.1 GENERAL:

4.1 Add the following paragraph:

“4.1.4 Disputes arising under Subparagraph 4.1.2 and 4.1.3 shall be subject to litigation.”

SECTION 008000 – SUPPLEMENTARY GENERAL CONDITIONS (continued)

ARTICLE 5 - SUBCONTRACTORS:

5.1 DEFINITIONS:

5.1. Add the following:

“5.1.3 Material Supplier is a person or organization who has furnished materials to the General Contractor, Subcontractor, Sub-subcontractor or Owner to be used in the construction of the Work, a building or structure, but has not performed any on or off site work other than delivering construction materials, and shall not have or created any contractual relation between the Owner or the Architect/Engineer.

5.1.4 The Contractor, and all Subcontractors, Sub-Subcontractors and Material Suppliers shall be responsible for reading, studying, and understanding the Conditions of the Contract, Drawings and Specifications.”

ARTICLE 6 - CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS:

6.4 Add the following paragraph:

“6.4 INSTALLATION OF EQUIPMENT:

6.4.1 The Contractor and Subcontractors shall allow the Owner to take possession of the use of any completed portions of this structure or Work, or to place and install as much equipment and machinery during the progress of the Work, as is possible without interference before its entire completion. Such possession and use of structure of work or such placing and installation of equipment, or both, shall not in any way evidence the completion of the Work or any portion of it, or signify the Owner's acceptance of the Work or any portion of it.”

ARTICLE 7 -CHANGES IN THE WORK:

7.2 CHANGE ORDERS:

7.2 Add the following:

“7.2.2 The Contractor is responsible for all affected work that is a result of an approved Change Order. Any changes required as a result of a Change Order shall be reflected in the price of the Change Order. Any additional work that becomes necessary after the Change Order has been approved will be made at the Contractor's expense.”

7.3 CONSTRUCTION CHANGE DIRECTIVES:

7.3.3 Delete paragraph and substitute the following:

“7.3.3 The cost or credit to the Owner resulting from a change in the Work shall be determined as follows:

1. By Unit Prices stated in the Contract Documents or subsequently agreed upon; or for changes not covered by Unit Prices;

2. By mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation; or if no agreement can be reached,

3. By the method provided in Subparagraph 7.3.6.

The lump sum proposals shall be based upon:

1. Estimate of Labor.

2. Estimate of Materials.

3. Estimate of Applicable Taxes.

4. Estimate of Equipment Rentals.

5. Estimate of Subcontractor Costs.

6. Estimate of Contractor Costs.

7. Estimate of Field Supervision (directly attributed to change) shall be included in labor breakdown.

8. Cost of Bond Premium.

9. Contractor and Subcontractor overhead and profit applied to the above items shall not exceed fifteen percent (15%) percent in total. Subcontractor overhead and profit shall not exceed ten percent (10%). Contractor overhead and profit shall not exceed five percent (5%) plus the cost for related bond premium. All lump sum proposals shall include a detailed cost breakdown for each component of work indicating both quantities and unit prices shall be submitted to the Architect within seven (7) calendar days after receipt of the proposal request.”

7 3.7 Add the following:

SECTION 008000 – SUPPLEMENTARY GENERAL CONDITIONS (continued)

“7.3.7.1.1 All labor, material, and equipment expenditures for work performed at actual cost shall be approved daily by the Construction Manager. Material invoices shall be presented to the Owner and Architect with all payment requests.

7.3.7.1.2 No amount or percentage of overhead and profit will be allowed on items of perks, fringe benefits, bonuses, retirement benefits (other than social security withholdings), or health and life insurances.”

ARTICLE 8 - TIME:

8.2 PROGRESS AND COMPLETION

8.2 Add the following paragraph:

“8.2.4 Work shall be commenced by the date established in the Notice to Proceed, but in no case more than ten (10) consecutive calendar days after such date, and shall proceed in accordance with a schedule to be developed by the Contractor and presented to the Architect and the Owner’s Agent. The Contract Time is specified in the Agreement Between Owner and Construction Manager.

A. LIQUIDATED DAMAGES:

1. If the Contractor fails to achieve Substantial Completion of the Work within the Contract Time or as otherwise required by the Contract Documents, the Owner shall be entitled to retain or recover from the Contractor and/or its Surety, liquidated damages and not as a penalty, the per diem amounts specified in the Contract Between the Owner and Construction Manager, and commencing upon the first day following expiration of the Contract Time and continuing until the actual date of Substantial Completion for each Phase of Work identified. Such liquidated damages are hereby agreed to be a reasonable pre-estimate of damages the Owner would incur as a result of delayed completion of the Work.
2. The Liquidated Damages amount per calendar day are fixed and agreed upon by and between the Contractor and the Owner because of the impracticality and difficulty of ascertaining actual damages the Owner will sustain. The Owner will suffer financial damage if the Project is not substantially completed on the dates set forth in the Contract Documents. Therefore, it is agreed that the liquidated damages amount per calendar day is adequate to cover damages which the Owner will sustain by reason of the inconvenience, loss of use, loss of monies, additional costs of contract administration by the Architect and Owner.
3. Permitting the contractor to continue and finish the Work or any part of the Work after time fixed for its completion or after date to which time for completion may have been extended shall in no way constitute a waiver on the part of the Owner of any of his rights under the Contract.
4. Liquidated Damages shall also be assigned to the Contractor if punch list items have not been completed within the specified number of days after Substantial Completion. Liquidated Damages for punch list items shall commence on the after Substantial Completion is established and accrue until the final Application for Payment has been approved by the Architect. The Contractor, and its Surety, shall pay to the Owner the sums stipulated as fixed, agreed and liquidated damages for each calendar day of delay until the punch list items are complete.”

ARTICLE 9 - PAYMENTS AND COMPLETION:

9.5 DECISION TO WITHHOLD CERTIFICATION:

9.5 Add the following:

“9.5.4 The Architect may withhold or cause to be withheld, from any monies payable on account for work performed by the Contractor, or Subcontractor, such sums as may administratively be determined to be necessary to satisfy any liabilities of such Contractor or Subcontractors for damages.”

SECTION 008000 – SUPPLEMENTARY GENERAL CONDITIONS (continued)

9.10 FINAL COMPLETION AND FINAL PAYMENT:

9.10.2 Add the following paragraph:

“9.10.2.1 Final payment consisting of the entire unpaid balance of the Contract Amount will be paid by the Owner to the Contractor thirty (30) days after receipt of the Final Certificate for Payment from the Architect, Close-Out Documents including Record Drawings, and the “Final Consent of Surety. Final Payment will not be made until all Close-Out Documents and As-Built Drawings have been submitted and approved.”

ARTICLE 10 - PROTECTION OF PERSONS AND PROPERTY:

10.2 SAFETY OF PERSONS AND PROPERTY:

10.2.2 Add the following subparagraph:

“10.2.2.1 This requirement shall include, but not necessarily be limited to, all health, safety, and fire protection regulations of the Florida Industrial Commission and the Department of Labor Safety and Health Regulations and construction promulgated under the Occupational Safety and Health Act of 1970 (P191-596) and under Section 107 of the Contract Work Hours and Safety Standards Act (P191-54). These regulations are administered by the Department of Labor who shall have full access to the Project for inspection, etc. Compliance with the above is strictly and exclusively the responsibility of the Contractor and Subcontractors and shall in no event be considered reason for additional time or monetary compensation. In the event that a hurricane or storm emergency is imminent, the Subcontractor shall, at his own expense and without cost to the Owner, take all necessary measures to secure all his movable property, building work or plant in such a manner that no damage to public or private property or to persons may result by reason of displacement of the Subcontractor's material, equipment or plant during such hurricane or storm.”

10.2.7 Add the following subparagraph:

“10.2.7.1 The Subcontractor shall adequately protect preceding and existing Work from damage caused by his operations. Breakage or damage shall be repaired by the erector of the Work at cost to the party causing the damage. The Construction Manager shall be the sole judge determining the party causing the damage, notwithstanding any dispute resolution.”

ARTICLE 11 INSURANCE AND BONDS

11.1 CONTRACTOR'S LIABILITY INSURANCE

Delete Subparagraph 11.1.1 and substitute the following:

11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the State of Florida such insurance as will protect the Owner, Contractor, Architect and Architect's consultants from claims set forth below which may arise out of or result from the Contractor's operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable. All insurance policies shall be issued and countersigned by representatives of such companies duly authorized for the State of Florida and shall be written on ISO standard forms or their equivalents. The Contractor shall provide the ISO Commercial General Liability policy for general liability coverages. All liability policies shall provide that the Owner, Bay County School Board, is a named additional insured (being named as Certificate Holder is not acceptable) as to the operations of the Contractor under the Agreement and shall provide the Severability of Insured's Provision. The Owner shall be exempt from, and in no way liable for, any sums of money which may represent a deductible in any insurance policy. The payment of such deductible shall be the responsibility solely of the Contractor and/or Subcontractor providing such insurance. This insurance shall protect the Contractor from the following claims:

.1 claims under workers' or workmen compensation, disability benefit and other similar employee benefit acts which are applicable to the Work to be performed;

SECTION 008000 – SUPPLEMENTARY GENERAL CONDITIONS (continued)

- .2 claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 claims for damages insured by usual personal injury liability coverage including claims which are sustained (1) by a person as a result of an offense directly or indirectly related to employment of such person by the Contractor, or (2) by another person;
- .5 claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle; and
- .7 claims involving contractual liability insurance applicable to the Contractor's obligations under Paragraph 3.18.

Delete Subparagraph 11.1.2 and substitute the following:

11.1.2 The insurance required by Subparagraph 11.1.1 provides Coverages, whether written on an occurrence or claims-made basis, that shall be maintained without interruption from date of commencement of the Work until date of final payment and termination of any coverage. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located. Insurance must be maintained for one (1) year after final payment. The insurance required by Subparagraph 11.1.1 shall include contractual liability insurance applicable to the Contractor's obligations under Paragraph 3.18 and coverage for the "XCU" exposure. The amounts set forth herein and by Law shall apply equally or whether on or off the site of the Work.

11.1.2.1 Contractor's Liability: Shall include Comprehensive General Liability, Premises and Completed Operations, Contractual Liability and Broad Form coverage.

- a. Bodily injury in at least the amounts of \$1,000,000 per occurrence, with an Aggregate of \$1,000,000.
- b. Property damage, including Complete Operations and Broad Form: in at least the amount of \$1,000,000 per occurrence, with an Aggregate of \$1,000,000.
- c. Personal Injury (with the employment exclusion deleted) in at least the amounts of \$1,000,000 per occurrence, with an Aggregate of \$1,000,000.

11.1.2.2 Worker's Compensation: The Contractor shall secure and maintain for the life of this Agreement, valid Worker's Compensation Insurance as required by Chapter 440, Florida Statutes. Copies of the insurance policy shall be filed with the Owner no later than 60 days after execution of the Owner-Contractor Agreement. All subcontractors shall maintain valid Worker's Compensation Insurance as required by Florida Statutes.

- a. Applicable Per Florida Statute – Chapter 440
- b. Railroad Required NO
- c. Maritime Required NO
- d. Employer's Liability \$500,000

11.1.2.3 Motor Vehicle Liability (Owned, Non-owned and Hired): The Contractor shall secure and maintain, during the life of this Agreement, Motor Vehicle Liability insurance on all vehicles for the following:

- a. Bodily injury in at least the amounts of \$1,000,000 per occurrence, with an Aggregate of \$1,000,000.
- b. Property damage in at least the amount of \$200,000 per occurrence, with an Aggregate of \$400,000.

11.1.2.4 Owner and Contractor's Protective Liability: The Contractor shall provide an Owner's and Contractor's Protective Liability Policy with the following limits: (A separate policy in the name of the Owner must be provided.)

SECTION 008000 – SUPPLEMENTARY GENERAL CONDITIONS (continued)

- a. Bodily injury in at least the amounts of \$1,000,000 per occurrence, with an Aggregate of \$1,000,000.
- b. Property damage in at least the amount of \$1,000,000 per occurrence, with an Aggregate of \$1,000,000.
- c. Personal Injury in at least the amounts of \$1,000,000 per occurrence, with an Aggregate of \$1,000,000.
- d. Optionally, the Owner may purchase and maintain other insurance for self-protection against claims which may arise from operations under the Contract

11.1.2.5 Public Liability: Shall include Comprehensive General Liability and Products and Completed Operations Liability coverage against bodily injury, personal injury and property damage, in limits as specified.

Delete Subparagraph 11.1.3 and substitute the following:

11.1.3 Two (2) Certificates of Insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work. These Certificates and the insurance policies required by this Paragraph 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner; this shall be noted on the Certificates of Insurance. The foregoing insurance coverages are required to remain in force for one (1) year after final payment if written on a claims-made basis; therefore an additional certificate evidencing continuation of such coverage shall be submitted with the final Application for Payment as required by Subparagraph 9.10.2. The Contractor shall furnish one copy each of Certificates of Insurance for each copy of the Agreement which shall specifically set forth evidence of all insurance coverage required by the Contract Documents. The Certificate of Insurance shall be dated and show the name of the insured Contractor, the specific job by name and job number, the name of the insurer, the number of the policy, its effective date, and its termination date. The Contractor shall furnish a copy of the insurance policy to the Owner within 30 days following execution of the Agreement. The Supplemental Attachment form, AIA document G715 shall be completed, signed by the Contractor's insurance representative and attached to the Acord certificate. Furnish to the owner a letter from the insurance company stating that all required insurance has been complied with as specified.

The Supplemental Attachment, The American Institute of Architects' (AIA) Document G715 is included at the end of this section.

Add the following Subparagraph 11.1.4:

11.1.4 The Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the State of Florida, property insurance, written on a Builder's Risk completed value form, in the amount of the initial Contract Sum as well as subsequent modifications thereto for the entire Work at the site, on a replacement cost basis. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Paragraph 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Paragraph 11.1 to be covered, whichever is earlier. This insurance shall include interests of the Owner, the Contractor and Subcontractors in the Work. Perils insured shall be "All Risks" including flood, Earthquake, and Sinkhole. Contractor remains responsible for any deductible under such policy."

Property Insurance coverage shall include coverage of perils of windstorms, fire, lightning vandalism, malicious mischief and those included in extended coverage in the amount of one hundred percent (100%) of the values at risk. Extended coverage, vandalism, and malicious mischief insurance may contain the standard deductibles.

The Owner and Contractor waive all rights against each other for damages caused by fire or other perils to the extent covered by insurance provided under this paragraph, except such rights as they may have to the proceeds of such insurance held by the Owner as trustee. The Contractor shall require similar waivers by Subcontractors and Sub-subcontractors.

Add the following Subparagraphs 11.1.4.1, through 11.1.4.5:

SECTION 008000 – SUPPLEMENTARY GENERAL CONDITIONS (continued)

11.1.4.1 Property insurance shall be on a Special Causes of Loss form or its equivalent, including reasonable compensation for the Architect/Engineer's services and expenses required as a result of such insured loss.

11.1.4.2 If the Owner requests in writing that other special insurance be included in the property insurance policy, the Contractor shall, if possible, include such insurance, and the cost thereof shall be charged to the Owner by appropriate Change Order.

11.1.4.3 If the property insurance provides deductibles, the Contractor shall pay costs not covered because of such deductibles.

11.1.4.4 Any insured loss is payable to the Owner as trustee for the insured, as their interest may appear.

11.4.5 Unless otherwise provided in the Contract Documents, property insurance shall cover portions of the Work stored off the site after written approval of the Owner at the value established in the approval, and also portions of the Work in transit.

Add the following Subparagraph 11.1.5:

11.1.5 Boiler and Machinery Insurance: The Contractor shall purchase and maintain an appropriate installation floater which shall specifically cover such insured objects which are subject to the boiler and machinery hazards during installation and until final acceptance by the Owner.

11.3 WAIVERS OF SUBROGATION

Add Subparagraphs 11.3.3 to 11.3.5:

11.3.3 Partial occupancy or use in accordance with Paragraph 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

11.3.4 The Owner and Contractor waive all rights against each other for damages caused by fire or other perils to the extent covered by insurance provided under this paragraph, except such rights as they may have to the proceeds of such insurance held by the Owner as trustee. The Contractor shall require similar waivers by Subcontractors and Sub-subcontractors.

ARTICLE 13 - MISCELLANEOUS PROVISIONS:

13.1 GOVERNING LAW:

13.1 Add the following:

“13.1.1 The Contractor and Subcontractors shall comply with all applicable provisions of the Florida Building Code 2020 (with latest supplements), Florida Fire Prevention Code 2017, applicable portions of the Florida Administrative Code, federal, state, and local law. All limits or standards set forth in this contract to be observed in the performance of the project are minimum requirements and shall not affect the application of more restrictive standards to the performance of the project.”

“13.1.2 The Contractor and Subcontractors shall comply with the Owner’s personnel background check and badging of all on-site personnel. Refer to Section 00 98 00, Background Check.”

ARTICLE 15 - CLAIMS AND DISPUTES:

15.2 INITIAL DECISION:

15.2 Delete Paragraphs in its’ entirety and substitute the following:

“15.2.1 “Any claim, dispute or other matter in question between the Contractor, Subcontractor and the Owner, shall be referred to the Initial Decision Maker (the Architect will serve as the Initial Decision Maker unless otherwise

SECTION 008000 – SUPPLEMENTARY GENERAL CONDITIONS (continued)

indicated in the agreement), except those relating to artistic effect, and except those which have been waived by the Owner's acceptance, shall be subject to litigation at instance of the aggrieved party. However, no litigation of any such claim, dispute or other matter may be commenced until the earlier of (1); the date on which the Initial Decision Maker had rendered a written decision, or (2); the tenth (10) day after the parties have presented their evidence to the Initial Decision Maker, or have been given a reasonable opportunity to do so, if the Initial Decision Maker has not rendered his written decision by that date. When such a written decision of the Initial Decision Maker states (1); that the decision is final, but subject to appeal, and (2); that any litigation of a dispute or other matter covered by such decisions must be filed before Final Completion by the party making the demand and received the written decision. Failure to commence litigation within said period will result in the Initial Decision Maker's decision becoming final and binding upon the Contractor, Owner and the Subcontractor.”

ARTICLE 17 - EQUAL OPPORTUNITY:

ADD the following Article:

“17.1 The Contractor shall maintain policies of employment compliant with Executive Order #11246 as follows:

17.1.1 Neither the Contractor or any Subcontractors shall discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, or age. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor and Subcontractors agree to post in conspicuous places, available to employees and applicants of employment, notices setting forth the policies of non-discrimination.

17.1.2 The Contractor and all Subcontractors shall, in all solicitations advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, national, origin, or age”

END OF SECTION 008000

SECTION 008200 – SPECIAL CONDITIONS

TABLE OF CONTENTS:

ARTICLE 1:	Permits and Fees
ARTICLE 2:	Project Signs
ARTICLE 3:	Layout of Work
ARTICLE 4:	Temporary Fencing and Security
ARTICLE 5:	Material Storage
ARTICLE 6:	Temporary Toilet Facilities
ARTICLE 7:	Use of Premises, Barricades and Protection
ARTICLE 8:	Temporary Field Office, Facilities and Parking
ARTICLE 9:	Cooperation - Disputes
ARTICLE 10:	Cleanup
ARTICLE 11:	Quality Control
ARTICLE 12:	Changes to the Work
ARTICLE 13:	Priority
ARTICLE 14:	Cooperation with Public Service Companies
ARTICLE 15:	Substitution of Materials and Equipment
ARTICLE 16:	Fastening Devices
ARTICLE 17:	Project Close-Out
ARTICLE 18:	Historical and Archaeological Data Preservation
ARTICLE 19:	Environmental (Endangered Species) Requirements
ARTICLE 20:	Indemnification

Attachment: Certificate of Substantial Completion Form

Attachment: Certificate of Contract Completion Form

Attachment: Warranty-Guarantee Form

PART I - GENERAL REQUIREMENTS:

These Special Conditions are hereby made a part of every Section of these Specifications and shall be binding upon each Contractor, Subcontractor, and Material Supplier.

ARTICLE 1: PERMITS AND FEES:

- A. Building Permit: A local building permit is NOT required for this project. The Owner shall obtain and pay for all required approvals and inspections for the building. The Contractor, Subcontractors, and Suppliers shall cooperate with the Owner in obtaining required approvals and inspections.
- B. Utility service connection fees (if required) and required utility service fees, if any, will be coordinated by the Contractor and paid for by the Owner.
- C. Other Permits and Fees: Other than as noted above, the Contractor shall assist in obtaining and arranging for payment for all other permits, assessments, fees, bonds, and other charges as necessary to perform and complete the work of this contract, including any related inspection fees, in accordance with the contract between the Owner and the Contractor.
- D. The Contractor and Subcontractors will be subject to all applicable County and local Municipal Occupational License Fees and Taxes.

ARTICLE 2: PROJECT SIGNS:

- A. The Contractor will provide the project sign(s) as designed by the Architect and approved by the Owner. The signs will be ONE (1) 4' x 8' professionally painted (or digital printed and mounted) plywood signs indicating the Architect, Contractor and the Owner. Location to be as directed by the Owner's Representative. No other signs or advertising shall be displayed on the premises without the approval of the Owner. This does not exclude the posting of required trade notices and cautionary signage by the Contractor or the Subcontractors. Directional signage indicating construction entrances, contractor parking, and other miscellaneous information shall be provided as required by the Contractor.

SECTION 008200 – SPECIAL CONDITIONS (continued):

- B. See SECTION 01 50 00 – PROJECT SIGN for additional requirements.

ARTICLE 3: LAYOUT OF WORK:

- A. All work, and in particular piping, ducts, conduit, and similar items, shall be neatly and carefully laid out to provide the most useful space utilization and the most orderly appearance. Except as otherwise indicated or directed, piping and similar work shall be installed as close to ceilings and walls as conditions reasonably permit, located to prevent interference with other work or with the use of the spaces in the manner required by the functions of the space as determined by the Construction Manager, Owner and Architect. Valves and clean-outs shall be located in inconspicuous but accessible locations and shall be field verified before proceeding with any work where exposed to view. The Contractor and Subcontractors shall carefully plan the layout and review any questionable installations with the Contractor and the Architect.
- B. Refer to Section 01 31 00, Project Management and Coordination, for required Coordination Drawings.

ARTICLE 4: TEMPORARY FENCING AND SECURITY:

- A. A temporary fencing enclosure WILL BE required for the duration of the construction period. The temporary fencing may need to be modified by the Contractor for the various phases of construction.
- B. The services of a watchman will NOT be provided by the Owner or the Architect. The Contractor shall be responsible for, and make good, any loss due to theft or vandalism during construction for any claim not covered by Builder's Risk Insurance.
- C. Subcontractors shall advise the Contractor and the Architect of any theft or damage which might delay the execution of the Work.
- D. See SECTION 01 50 00 – TEMPORARY FACILITIES AND CONTROLS for additional requirements.

ARTICLE 5: MATERIAL STORAGE:

- A. Each Subcontractor shall provide sufficient protection for his materials and equipment from damages by weather or construction work, or theft. Location shall be coordinated and approved by the Contractor. During progress of work on a daily basis and upon completion of the work, remove all debris and leave the area in a clean and orderly condition.
- B. See SECTION 01 50 00 – TEMPORARY FACILITIES AND CONTROLS for additional requirements.

ARTICLE 6: TEMPORARY TOILET FACILITIES:

- A. The Contractor will obtain and maintain sanitary temporary toilet facilities acceptable to the local Health Department for use by all crew and workmen.
- B. Contractor and Subcontractors will not have access to existing toilet facilities within this facility or the adjacent buildings for the use of his crew and workmen.
- C. See SECTION 01 50 00 – TEMPORARY FACILITIES AND CONTROLS for additional requirements.

ARTICLE 7: USE OF PREMISES, BARRICADES AND PROTECTION:

- A. Subcontractors shall be subject to such rules and regulations for the conduct of the Work as the Contractor, Owner or Architect may establish.
- B. Before entering upon the Work, ascertain from the Contractor, as approved by the Owner and Architect, what entrances, routes, or roadways shall be used for access to the work, and use only the entrance, routes, and roadways designed for movement of personnel, materials, and vehicles to and from the work.
- C. Contractor shall provide and maintain in good repair barricades, fences, overhead protection, guard railings, etc., as required by law or necessary for the protection of the public and personnel engaged in the Work from hazards incidental to this contract. Take reasonable precautions necessary to protect

SECTION 008200 – SPECIAL CONDITIONS (continued):

- Owner's employees, the public, and workmen from injury or damage to vehicles or other property.
- D. Whenever the Contractor intends to depart from the normal work hours, he shall notify the Owner and the Architect at least twenty (20) hours in advance. Failure of the Contractor to give such timely notice may be cause for the Architect to require the removal or uncovering of the Work performed during such time without the knowledge of the Architect but is subject to the approval of the Owner.
 - E. Protect pavement, curbs, and all existing construction and improvements during the course of the Work and repair all parts of same which become damaged. Contractor and each Subcontractor shall be responsible for the necessary cleaning and repairing of adjacent streets and other improvements resulting from his operations.
 - F. Each Contractor and Subcontractor shall be responsible for all damage to the Owner's property and this project due to his operations. Repair or replacement of damaged items shall be to the satisfaction of the Owner and the Architect.
 - G. Provide and maintain proper shoring and bracing for existing underground utilities, sewers, and building foundations, encountered during excavation work to protect them from collapse or movement, or other type of damage until such time as they are removed or repaired, incorporated into the new work, or can be properly backfilled upon completion of new work.
 - H. Maintain clearances adjacent to and in connection with the work performed.
 - I. The Contractor and each Subcontractor shall effectively confine dust, dirt, and noise to the actual construction areas.
 - J. All employees and people on-site shall maintain procedures as stated in the Contractor's safety program.
 - K. Each Subcontractor shall assume full responsibility for the protection and safekeeping of products under his control which are stored on the site. Subcontractors must move any stored products, under Subcontractor's control, which interfere with operations of the Contractor, Owner or other Subcontractors as directed by the Contractor.
 - L. Contractors and Subcontractors must also obtain and pay for use of additional storage or work areas needed for his operations. The Contractor shall receive from each Subcontractor, a receipt of shipment for all materials and equipment stored on-site (or off-site if approved). No materials or equipment shall be removed from the site without the permission of the Contractor and the Owner. No materials may be stored off-site unless approved in writing by the Contractor, Architect and Owner.
 - M. Contractor and each Subcontractor shall not load or permit any part of a structure to be loaded with a weight that will endanger its safety, or the safety of persons or property.
 - N. All employees of the Contractor and Subcontractors shall conduct themselves in a proper manner. Any disruptive behavior by any employee will cause that employee to be barred from the construction site and the Owner's property. The use of AM/FM radios is prohibited. Animals are not allowed on the property.
 - O. All pumping, bailing, or well point equipment necessary to keep excavations and trenches free from the accumulation of water during the entire progress of this work shall be the responsibility of the Contractor performing said excavations and trenches due to their scope of work. Dispose of water in such a manner as will not endanger public health or cause damage or expense to public or private property. Abide by the requirements of any public agencies having jurisdiction.
 - P. Contractor shall prepare a Safety Plan which clearly delineates areas for construction, safety barriers, exits, construction traffic during the various phases of the project prior to initiating construction. Contractor to submit the Plan to the Architect and Owner.

ARTICLE 8: TEMPORARY FIELD OFFICES FACILITIES AND PARKING:

- A. The Contractor, Owner and the Architect will designate an area for construction trailers (if required), equipment and parking for all construction workers. Placement and schedule shall be coordinated with the Contractor.
- B. Contractor shall provide a temporary field office with a meeting room of adequate size, and other temporary buildings as may be necessary for his operations as approved by the Owner. Storage and maintenance facilities shall be as required in accordance with the local Fire Marshall having jurisdiction. The Contractor shall arrange for the temporary electrical service and other utilities in his area for their use.

SECTION 008200 – SPECIAL CONDITIONS (continued):

- C. The Contractor and/or Subcontractors shall maintain his designated space for office and sheds if provided. This includes removal of weeds, debris, and trash. Clean and restore space at completion of the work.
- D. Field offices and sheds shall not be used for living quarters.
- E. Offices and sheds, when provided, shall be of suitable and safe design, maintenance, and appearance. Temporary facilities shall be securely anchored to the ground to resist wind speed at the specific site of construction.

ARTICLE 9: COOPERATION - DISPUTES:

- A. The completion of the Project within the described time is dependent upon the close and active cooperation at all those engaged therein. Therefore, it is expressly understood and agreed that the Contractor and Subcontractors shall lay out and install his work at such time, and in such manner as not to delay or interfere with the carrying forward of the work of others, and as directed by the Contractor.
- B. In the event of any dispute arising as to possible or alleged interference between the various Subcontractors, which may retard the progress of the Work, the same shall be adjusted by the Contractor.

ARTICLE 10: CLEANUP:

- A. Contractor and Subcontractors shall be responsible for clean-up. Each Contractor shall clean their respective work areas on a daily basis as a minimum.

ARTICLE 11: QUALITY CONTROL:

- A. It is the Contractor's and the Subcontractor's responsibility to familiarize himself with all required tolerances and quality assurance clauses, which are a part of the Contract Documents. It is also the Contractor's and the Subcontractor's responsibility to reject or condemn work performed by his forces or the Sub-Subcontractor's forces which does not comply with the requirements set forth in the Contract Documents, or as required by law, codes, etc. NOTE: If a conflict appears between the tolerances and quality assurance of published industry standards and the requirements of the Contract Documents, the Contract Document requirements will govern.
- B. The Owner, Engineer and Architect will conduct periodic observations of the Work as it progresses. Should the Owner, Engineer or the Architect reject any portion of the Work, he will promptly notify the Contractor with a Notice of Non-Conformance/Rejected Work. The Contractor will immediately provide the responsible Subcontractors with a Notice of Non-Conformance/Rejected Work and upon receipt of such notification shall, within 48 hours, inform the Contractor, Owner and Architect of his intended plan of action.
- C. The Contractor and Subcontractors should be aware that no monies will be awarded against defective work until such work is completed in a manner satisfactory to the Owner and Architect. In addition, the A/E, depending on the extent of the rejected work, may decide to withhold additional monies to compensate for the projected cost of repairs.
- D. In the event a Subcontractor fails to cooperate in the coordination program, he will be held responsible for all costs incurred for adjustments to the work of others made necessary to accommodate the uncooperative Contractor's installations.
- E. When a change order request is issued, the affected Subcontractors shall review the Coordination Drawings and bring to the attention of the Contractor any revisions necessary to the work of others not directly affected by the change order.

ARTICLE 12: CHANGES TO THE WORK:

- A. During the course of the Contractor's and Subcontractor's performance of the work necessary to complete the subject Project, certain events may occur which have the effect of changing the conditions under which the work is to be performed as specified and described in the Bidding

SECTION 008200 – SPECIAL CONDITIONS (continued):

Documents and/or the nature and extent of the work as specified and described in the Contract Documents.

- B. The occurrence of such events may cause the Contractor and Subcontractors to incur greater or less cost and expense to perform the work required to complete the subject Project. The Contractor, Subcontractor(s) or the Owner shall respectively be entitled to either an increase or decrease in the Contract Sum, whichever is the case. The changes shall be made as documented in Section 00 70 00, AIA A201 General Conditions and Section 00 80 00 Supplementary General Conditions.

ARTICLE 13: PRIORITY:

- A. In case of close quarters for installation of mechanical and electrical systems, and in the absence of instructions to the contrary, the following order or precedence shall be followed:
 - 1. Special Equipment - Electric Devices
 - 2. Light Fixtures
 - 3. Sheet Metal Duct Work
 - 4. Plumbing Work, including fire protection piping
 - 5. Mechanical Work, including electrical and A/C pipes
 - 6. Electrical Work
 - 7. Control System
- B. After award of contracts and prior to start of construction the Contractor will schedule a meeting with the Contractors responsible for the work items listed above. The purpose of the meeting will be to introduce the coordination program and to determine its implementation in relation to the progress schedule.
- C. At the initial coordination meeting, the Contractor will provide to the HVAC and Electrical Contractors the drawings for the building on ELECTRONIC MEDIA in Autodesk ACAD Architectural Desktop (2019 Version). The Architect will provide the Contractor with the digital files of the building for the Contractor's and Subcontractor's use to prepare Shop Drawings, Coordination Drawings, and As-Built Drawings upon receipt of accepted AIA Documents E203-2013 and G201-2013 Digital Protocol Agreements and the Architect's Digital File Release Forms from all users. The HVAC and Electrical Contractors, with reference and consideration to the structural, mechanical, electrical, fire protection, plumbing, and reflected ceiling plans, shall draw to scale, his proposed installation showing duct sizes, equipment layouts, and dimensions from column lines and from finished floors to bottom of ducts. Ductwork shall be maintained as tight as possible to the underside of floor slabs and/or beams. In congested areas, the HVAC Contractor shall, in addition, prepare drawings in section view. During this phase of the program, it shall be the Electrical Contractor's and the Fire Protection System Contractor's responsibility to furnish the HVAC Contractor with recessed lighting and sprinkler installation and clearance requirements. This information shall be outlined on the drawings by the HVAC Contractor. Also refer to Section 01 31 00, Project Management and Coordination for the required Coordination Drawings.
- D. In the event a Subcontractor fails to cooperate in the coordination program, he will be held responsible for all costs incurred for adjustments to the work of others made necessary to accommodate the uncooperative Contractor's installations.
- E. When a change order request is issued, the affected Subcontractors shall review the Coordination Drawings and bring to the attention of the Contractor any revisions necessary to the work of others not directly affected by the change order.

ARTICLE 14: COOPERATION WITH PUBLIC SERVICE COMPANIES:

- A. Contractors shall notify the appropriate persons within local utilities 48 hours before commencement of any work, to verify location of existing below grade pipes, cables, poles, towers, and right-of-ways that could be hazardous to life, limb, health or property. The Contractors will be held solely responsible for any injury, damage to existing utilities, or damaged property.

ARTICLE 15: SUBSTITUTION OF MATERIALS AND EQUIPMENT:

- A. All bids submitted shall be based on materials, equipment, and apparatus of the quality and make

SECTION 008200 – SPECIAL CONDITIONS (continued):

specified. The Architect will include at least three (3) approved manufacturers, as reasonably possible, but the manufacturers shall comply with the basis-of-design specifications. The Bidder's attention is directed to Section 255.04, Florida Statutes, which requires that on public building contracts, Florida products and labor shall be used wherever price and quality are equal. However, Bidders wishing to obtain approval of an article, device, product, material, fixture, form, or type of construction other than specified or shown by name, make, or catalog number, shall make written request to the Architect timed so as to reach the Architect at least seven (7) working days prior to the date of receipt of bids. Such requests shall be accompanied by data supporting the claim to equality or equivalence.

- B. "Or Equal": The Contractor and Subcontractors shall not decide that another product is equal or equivalent to the brand, or model specified. The Architect is solely charged with this responsibility and judgment. Where "or equal" is stated in the Specifications, it is the Architect/Engineer's and not the Contractor's or Subcontractor's decision as to what brands or suppliers qualify as equal, or equivalent, or do not qualify as equal or equivalent.
- C. The Bidder shall submit drawings and other descriptive data of any modification, or items of assemblies, necessary to provide approved compliance with requirements and compatibility with adjacent components.
- D. Approval by the Architect, if given, will be made by Addendum. Said approval will indicate that the additional article, device, product material, fixture, form, or type of construction is approved for use insofar as the requirements of this Project are concerned. However, it is the responsibility of the Contractor to ensure that the approved item meets all requirements of the Contract. Bids shall not be based on assumed acceptance of any item which has not been approved by Addendum or specified herein. If a substitute item is bid without prior written approval, the Architect holds the option to void that bid, or require that the work be incorporated as specified at no additional cost to the Owner or Architect.
- E. Under no circumstance will the Architect/Engineer be required to prove that a product proposed for substitution is, or is not, equal or equivalent quality to the product specified. It is mandatory that the Bidder submit a complete description of the proposed substitute, the name of the material or equipment for which it is to be substituted, drawings, cuts, performance and test data, and any other data, samples or information necessary for a complete evaluation. Insufficient data will not be considered.
- F. Where more than one (1) manufacturer's product is listed, the listing is not necessarily in order of preference, and all will be considered as equally acceptable as long as they meet the design requirements of the Contract Documents and as determined by the Architect/Engineer.
- G. The Contractor shall provide the same guarantee for an approved substitution, if approved, that is originally required for the originally specified product.

ARTICLE 16: FASTENING DEVICES:

- A. All exposed screw and bolt heads in secure spaces throughout the interior of the Project (this specifically excludes mechanical and electrical rooms) shall comply with the following:
 - 1. Any item which requires periodic access for maintenance shall have "spanner-head" fastening devices, or approved equal, which enables removal of the fastener with appropriate special tools.
 - 2. All exposed fastening devices shall be of tamper-proof design, where ever possible, as approved by the Architect/Engineer.
 - 3. All exterior fasteners shall be stainless steel unless otherwise specified by individual Sections.

ARTICLE 17: PROJECT CLOSE-OUT/DOCUMENTS:

- A. The Contractor and each Subcontractor shall be responsible for collecting, identifying, and collating the following materials, as applicable to his portion of the Work, and shall submit the same (in duplicate) to the A/E. The Contractor, shall properly organize the materials from himself and the various Contractors and Subcontractors into hard cover, 3-ring binders, and shall deliver copies of the finished books to the A/E for verification. The Architect/Engineer will deliver the approved copies to the Owner for approval. This process, together with the As-Built Drawing requirements, must be completed before the Final Certificate for Payment will be issued by the Architect.

SECTION 008200 – SPECIAL CONDITIONS (continued):

- B. INDEXING: All information shall be organized with categories indexed as per the project close-out index. The individual categories shall also be organized and indexed as per Section of the Specifications.
- C. LISTING OF CONTRACTOR AND SUB-CONTRACTORS: The Contractor shall provide a listing of all Sub-Contractors performing work on the site. Required information shall be as follows:
- (Example)
Division 1
CM / Contractor Representative's Name
Company Name
Title
Address
Phone Number
Facsimile Number
- Division 2
Earth Moving and Site Grading
Representative's Name
Title
Company Name
Phone Number
Address
Facsimile Number
- D. CERTIFICATE OF SUBSTANTIAL COMPLETION: The Contractor shall insert, at this point, a copy of the fully executed Certificate of Substantial Completion on the form incorporated in the project documents, as future reference for the Owner.
- E. CERTIFICATE OF STRUCTURES LOCATIONS: The Contractor shall have a state registered surveyor certify, in writing, with seal affixed, that the location of all new structure(s) is in compliance with the Contract Documents.
- F. TESTING, INSPECTIONS AND CERTIFICATE OF OCCUPANCY: The Contractor shall provide copies of all test and balance reports from his Subcontractors as required. (See Division 21 thru 28.) Provide copies of all Certificates of Inspection from controlling authorities for each trade, division, or section of work, as required. Provide a copy of final executed Certificate of Occupancy.
- G. CONSENT OF SURETY: The Contractor and Contractors shall provide a Consent of Surety on A.I.A. Document G707, Latest Edition.
- H. WARRANTY, GUARANTEE AND BONDS:

1. The Contractor and Subcontractors shall, and hereby does guarantee all Work and materials called for in the Contract Documents, including all work performed by the Contractor and his Subcontractors, for a minimum period of one (1) year from the date of Substantial Completion of the building, unless a longer Warranty/Guarantee time is specified by individual Sections.

The Contractor shall provide a listing of all Sub-Contractors performing work on the site. Required information shall be as follows:

(Example)
Division 1
CM / Contractor Representative's Name
Company Name
Title
Address

SECTION 008200 – SPECIAL CONDITIONS (continued):

Phone Number
Facsimile Number
Start and End of Warranty

Division 2
Earth Moving and Site Grading
Representative's Name
Title
Company Name
Phone Number
Address
Facsimile Number
Start and End of Warranty

2. Warranty guarantee and bonds will be as stated in the Contractor's contract.

I. INSTRUCTION/OPERATION MANUALS AND KEYS:

1. Contractor shall provide all equipment diagrams, instruction/operation manuals, wiring diagrams, and pneumatic and/or electrical control diagrams as applicable for each working characteristic of mechanical, electrical, and special equipment furnished under this Contract, and submitted at Substantial Completion.
2. The Contractor and Subcontractors shall provide a competent and experienced person(s) thoroughly familiar with the work, for a reasonable period of time to instruct the Owner's personnel in operation and maintenance of equipment, materials, and control systems. This instruction shall include normal start-up, run, stop, and emergency operations, location and operation of all controls, alarms, and alarm systems.
3. Label turn-over all keys.

K. MAINTENANCE MANUALS AND SPARE PARTS:

(All items in this Section are required prior to issuance of Certificate of Substantial Completion.)

1. Contractor shall provide all instructions and maintenance manuals for products, mechanical, electrical, and special equipment. This instruction shall include tracing the system in the field and on the diagrams in the manuals so that maintenance personnel will be thoroughly familiar with both systems and the data supplied.
2. Contractor shall submit all parts lists, spare parts, tools, fuses, bulbs, and motor listing, containing locations, motor nameplate, rating, and size of overload relay installed.
3. Contractor shall also provide all maintenance letters as listed in the specifications for manufacturer's cleaning procedures, materials and equipment to be used, including instruction as listed above.

J. AS-BUILT DRAWINGS:

1. Final corrected "As-Built" or "Record" drawings shall be complete and accepted by the Architect/Engineer.
2. Refer to Article 3.11.1, Record Drawings, for specified process and requirements.

ARTICLE 18: HISTORICAL AND ARCHAEOLOGICAL DATA PRESERVATION:

- A. The Contractor agrees to facilitate the preservation and enhancement of structures and objects of historical, architectural or archaeological significance and when such items are found and/or unearthed during the course of project construction. Any excavation by the Contractor that uncovers an historical or archaeological artifact shall be immediately reported to the Owner and a representative of the Architect. Construction within the immediate area shall be temporarily halted pending the notification process and further directions issued by the Architect after consultation with the State Historic

SECTION 008200 – SPECIAL CONDITIONS (continued):

Preservation Officer (SHPO) for recovery of the items. *See* the National Historic Preservation Act of 1966 (80 Stat 915, 16 U.S.C. § 470) and Executive Order No. 11593 of May 31, 1971.

ARTICLE 19 ENVIRONMENTAL REQUIREMENTS:

- A. Endangered Species. The Contractor shall comply with the Endangered Species Act, which provides for the protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of the Contractor, the Contractor will immediately report this evidence to the Owner and a representative of the Architect. Construction within the affected area shall be temporarily halted pending the notification process and further directions issued by the Architect after consultation with the Florida Fish and Wildlife Conservation Commission.

ARTICLE 20: INDEMNIFICATION:

- A. To be as stated in the Contract between Owner and Contractor.

END OF SECTION 008200

SECTION 008200 – SPECIAL CONDITIONS (continued):

CERTIFICATE OF SUBSTANTIAL COMPLETION

Date: _____ Project No. _____

The work performed under the Contract dated _____
between _____ (the Owner)
and _____ (the Contractor),
for the construction of _____ (Building Name)
was found to be Substantially Completed as of _____ (Date).

The term "Substantial Completion" shall mean that the construction is sufficiently completed in accordance with the Plans and Specifications, as modified in any Change Order agreed to by the parties, so that the Owner can occupy the building and/or utilize the facility/project for the use for which it was intended without hazard to the occupants or to the facility.

A list of items to be completed or corrected is appended hereto. This list may not be exhaustive and the failure to include an item on it does not alter the responsibility of the Contractor or the Contractor to complete all the work in accordance with the Contract Documents, including authorized changes thereto.

The Contractor will complete or correct the work on the list of items appended hereto within fifteen (15) consecutive calendar days from the Date of Substantial Completion.

Owner assumed full possession of the facility above described on _____.

The responsibility of the Contractor to provide utilities, under the Contract Documents shall cease that date and the one-year warranty period or other specified warranty/guarantees so specified shall begin. Insurance coverage shall continue in accordance with provisions as amended in the Contract Documents.

(Architect/Engineer) _____ (Authorized Representative)

(Contractor) _____ (Authorized Representative)

(Owner) _____ (Authorized representative)

SECTION 008200 – SPECIAL CONDITIONS (continued):

CERTIFICATE OF CONTRACT COMPLETION

AGENCY/OWNER: _____

PROJECT: _____

CONTRACTOR: _____

CONTRACT FOR: _____

CONTRACT DATE: _____

CONTRACT AMOUNT: _____

CONTRACTOR'S AFFIDAVIT: _____

I solemnly swear (or affirm): That the work under the above named Contract and all Amendments thereto have been satisfactorily completed; that all amounts payable for materials, labor and other charges against the project will be paid; that no liens have been attached against the project; that no suits are pending by reason of work on the project under the Contract; that all Workers' Compensation Claims are covered by Workers' Compensation Insurance as required by law; and that all public liability claims are covered by insurance.

CONTRACTOR: _____

Signature: _____

Date: _____

Title: _____

(SEAL)

STATE OF _____

COUNTY OF _____

Personally appeared before me this _____ day of _____, _____, known (or made known) to me to be the
(OWNER) OR (PARTNER) _____
of,
(Corporate Official Title) _____

Contractor(s), who, being by me duly sworn, subscribed to the foregoing affidavit in my presence.
(Notary Public)

(Type Name): _____

My Commission Expires: _____

SECTION 008200 – SPECIAL CONDITIONS (continued):

WARRANTY – GUARANTEE

Submit for each individual Warranty – Guarantee specified in each Section of the Specifications:

Division No.: _____

Section No.: _____

Title No.: _____

TO: (Owner)

RE: (Project Name)

(Contractor's Name): _____,
does hereby certify to all guarantees and warranties taking effect on the date of Substantial Completion and shall remain in force as required by the Contract Documents for the Construction of ; and further certifies that all labor, materials, equipment or items necessary to execute said guarantees and warranties shall be furnished at no cost to the Owner for the duration of each guarantee or warranty period.

WARRANTY – GUARANTEE PERIOD:

(Contractor's Name) _____

(Address) _____

By: _____ (type name of signee below)

Title: _____

Sworn to and subscribed before me this

(NOTARIAL SEAL)

_____ day of _____, _____.

Notary Public, State of Florida

My Commission Expires: _____

SECTION 000950 - DIRECT PURCHASES BY OWNER

1. The OWNER is tax exempt and may wish to exercise its right to purchase directly various construction materials, supplies and equipment that may be part of this Contract. The OWNER will, via its purchase orders, purchase the materials and the CONTRACTOR shall assist the OWNER in the preparation of purchase orders. The OWNER may direct the CONTRACTOR to prepare the purchase order on the OWNER'S form and make ready for verification and execution by the OWNER. The materials may be purchased from the vendors/suppliers selected by the CONTRACTOR, for the price originally negotiated by the CONTRACTOR. The CONTRACTOR will prepare a list of materials, supplies and equipment and the OWNER will advise the CONTRACTOR which items from the list it wishes to purchase directly, with enough lead time to allow this request to be incorporated into the overall construction schedule.

2. The Contract amount shall be reduced by the net, undiscounted amount of the purchase order, plus all sales taxes. Issuance of the purchase orders by the Owner does not change any of the CONTRACTOR'S responsibilities regarding material purchases, or installations, with the exception of the payments for the materials so purchased. The CONTRACTOR remains responsible for coordination, correct quantities ordered, submittals, protection, storage, scheduling, shipping, security, expediting, receiving, checking shipping tickets, and invoices, installation, cleaning all applicable warranties, and that all materials purchased meet the requirements of the CONTRACT DOCUMENTS.

3. In the event that materials, supplies, or equipment purchased under this option, are defective or rejected for any reason whatsoever, and it becomes necessary in the opinion of the CONTRACTOR to initiate legal action against the responsible party, the OWNER agrees to assign and subordinate to the CONTRACTOR any claims the OWNER has against the responsible party resulting from the purchase order and to execute any legal documents necessary to accomplish the assignment, subordination or subrogation of such claims, and to cooperate with the CONTRACTOR in such legal action.

ATTEST _____
Secretary
(SEAL)

CONTRACTOR: _____
BY: _____
As its

ATTEST _____
Secretary

OWNER: THE BAY DISTRICT SCHOOLS,
PANAMA CITY, FLORIDA
BY: _____
Chairman
DATE: _____



OFFICE OF
BILL HUSFELT
SUPERINTENDENT

1311 Balboa Avenue
Panama City, Florida
32401

(850) 872-4100
Hearing Impaired Access
(800) 955-8770 Voice
(800) 955-8771 TDD

www.bay.k12.fl.us

Board Members

Jerry Register
District 1

District 2

Pamm Chapman
District 3

Ryan Neves
District 4

Steve Moss
District 5

BAY DISTRICT SCHOOL BOARD DIRECT PURCHASE PROCEDURE

CONTRACTOR INFORMATION SHEET

Requesting a Purchase Order

In an effort to save the additional cost of sales tax, the District may purchase major materials for this construction project, at its discretion. This procedure does not alter, modify or relieve the General Contractor of any obligations specified in the contract documents or of any responsibilities regarding the compliance with specification requirements, coordination, protection, scheduling or warranty.

The General Contractor shall be familiar with Section 01028, "Direct Material Purchase Procedure" in the Project Manual.

The contractors will make out a "Request for Purchase Order" (RPO) {Attachment 1} for orders of approximately \$5,000 and above. Special delivery instructions or other information such as specifications that are required by the vendor should be attached to the (RPO). The (RPO) will be sent to the Facilities Department through the General Contractor.

A purchase order for the material will be processed by the Facilities Department and forwarded to the vendor along with a letter explaining billing procedures {Attachment 2}. A copy of this purchase order will be sent to the General Contractor.

Submitting Invoices for Payment

In the letter sent to vendors {Attachment 2}, vendors are instructed to send invoices directly to the General Contractor. The General Contractor will approve all invoices and forward a copy of each invoice and a Vendor Invoice Transmittal Form {Attachment 3} to the Bay District Schools Facilities Department for payment.

Change Orders

Change Orders to make adjustments in the contract for direct material purchases will be issued periodically as needed. An agreement should be reached as to whether the Facilities Department or the Contractor will initiate the change order. Regardless of which agency initiates the change order the Facilities Department and Contractor should agree on the details of the change order information prior to being sent to the Architect for preparation.

Miscellaneous

It is important for the direct material purchase records of the Facilities Department and the Contractor to agree. It is recommended that periodically during construction, the Contractor provide a copy of their breakdown of direct material payments to the Facilities Department so that possible errors may be found earlier rather than later.

REQUEST FOR PURCHASE ORDER
Bay District Schools - Capital Projects Direct Purchase

Requisition #: _____

PROJECT: _____ **Bay District P.O. #** _____

Contractor: _____ **Date:** _____

Subcontractor: _____ **Vendc** _____

Delivery Address: _____

Vendor: _____

Vendor Address: _____

Vendor Phone: _____ **Fax:** _____

Vendor Contact Person: _____

Vendor Email Address: _____ **(REQUIRED)**

Item No.	Description	Qty	Unit Price	Total Price

NOTES:	Total	\$-
1. You may attach a typed list of items to be ordered	Shipping (Not taxable)	
2. Only include materials that become part of the project.	TOTAL	\$ -
3. Do not include: Labor or Tax		
4. Do not include items that will be used and disposed of or returned to your facility (i.e. tools, paint filter, drop clothes, brushes, etc.		
5. Please breakout the shipping charge or have your supplier bill you directly for shipping		

Requested Delivery Date: _____

Special Delivery Instructions: _____

Fund	Func	Object	Center	Project	Prjx	Amount



OFFICE OF
BILL HUSFELT
SUPERINTENDENT

1311 Balboa Avenue
Panama City, Florida
32412

(850) 872-4100
Hearing Impaired Access
(800) 955-8770 Voice
(800) 955-8771 TDD

www.bay.k12.fl.us

Board Members

Jerry Register
District 1

Brenda Ruthven
District 2

Pamm Chapman
District 3

Winston Chester
District 4

Steve Moss
District 5

MEMORANDUM - SAMPLE

TO: [VENDOR NAME]
FROM: Lee Walters, Executive Director of Facilities
DATE: January 20, 2021
SUBJECT: Direct Material Purchase
Purchase Order # _____ - \$ _____

The Bay District School Board is making this purchase under the District Direct Material Purchase Procedure. The purpose of this procedure is to eliminate the cost of the sales tax for the School District. The Bay District School Board is exempt from all state and county sales tax; tax exemption number 13-06-024866-53C. However, the Contractor is fully responsible for all aspects of this purchase, as if the material purchase was made directly by the company.

All inquiries related to this purchase order should be directed to the Contractor:

GAC Contractors, Inc.
4116 Hwy. 231
Panama City, FL 32404
850-769-3477- Phone

Bay High STEM Building – New Construction

When material is delivered it will be inspected by a Bay District School Board representative and the contractor.

If the material is not acceptable for any reason, the Contractor will negotiate with the supplier on behalf of the School Board to correct any discrepancy.

Supplier shall provide required shipping and handling insurance.

Two copies of payment invoices are required and should be addressed to the contractor listed above. The general contractor will approve and forward the invoices to Bay District School Board for payment.

I VERIFY RECEIPT OF PURCHASE ORDER Fax verification to 850-873-7153

Signature

Printed Name

Attachment 3



VENDOR INVOICE TRANSMITTAL NO: _____ DATE: _____

VENDOR: _____ SCHOOL BOARD PO # _____

TO: Sharron Smith Facilities Department Bay County School Board 1311 Balboa Avenue Panama City, FL 32401	FROM: {Contractor Name} [Contractor Address] {Contractor Address}
----------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------

Render Payment To: {Vendor Name} {Vendor Address} {Vendor Address}	
-----------------------------------------------------------------------------	--

Invoice Number	Invoice Amount

TOTAL	
--------------	--

PURCHASE ORDER BREAKDOWN:	
Purchase Order Amount:	
Previously Paid:	
Amount Due This Request:	
Balance to Finish:	
Total Billed to Date	

I certify that the above materials have been received in good condition and payment may be made.

Authorized Signature: _____

Printed Name & Title: _____



SECTION 000951 - DIRECT MATERIAL PURCHASE PROCEDURE

PART 1 - MAJOR MATERIAL PURCHASE

1.01 GENERAL:

A. As a service to Contractors, and as a cost savings measure for the District, Bay County School Board may direct purchase major materials for construction project.

1.02 PROCEDURE

A. The School Board may issue purchase orders and process payment for invoices approved by the Contractor. The Construction Manager (C.M.) is responsible for all ordering of materials, delivery, installation and warrantee. This purchase process does not alter, modify or relieve the C.M. of any obligations specified in the Contract Documents.

1.03 COST OF MATERIALS AND EQUIPMENT

A. C.M. will include the cost of construction materials and equipment in the Guaranteed Maximum Price. The Guaranteed Maximum Price will also include all Florida State sales and other taxes normally applicable to such material and equipment. The Owner may, at its own discretion, purchase such materials and equipment directly from the supplier. The Owner may consider purchasing any item but does not expect to purchase items less than \$5,000.

1.04 SALES TAX

A. In the event the owner elects to make direct purchases, the C.M. will not be responsible for paying sales tax on such items. Such items are referred to in this Section as "Direct Purchase Material". The responsibilities of the Owner, Architect/Engineer (A/E) and C.M. relative to the Direct Material Purchase shall be governed by the terms and conditions of this Section. This Section shall take precedence over any conflicting conditions and terms of other Contract Documents. All clerical, administrative, management, supervisory, inspection, handling, storage and other costs necessary for the C.M. to comply with this Section are included in the C.M.'s Guaranteed Maximum Price.

1.05 COST OF BONDS

A. Cost of the bonds shall be included in the C.M.'s Guaranteed Maximum Price. The C.M. may select the supplier or suppliers from whom it wishes to purchase materials or equipment as long as the material or equipment meets the specification which relates to that material or equipment.

1.06 SUBCONTRACTORS COMPLIANCE

The C.M. shall furnish the Owner, through the A/E, with a Direct Material Purchase Form identifying each item or material or equipment to be purchased by the Contractor for the Project. The Direct Material Purchase Form shall include:

1. The name, address, telephone number and contact person for the supplier and the name and address of the project.
2. Manufacturer or brand, model or specification number of the item.
3. Quantity needed as estimated by the C.M. or subcontractor.
4. The price quoted by the supplier for the material or equipment in questions.
5. Any sales tax associated with such quote.

6. Shipping, handling and insurance costs.
7. Delivery dates as established by the C.M. or subcontractor.
8. Special terms and conditions which have been negotiated with the supplier relative to payment terms, discounts, rebates, warranty, credits or other terms and conditions which will revert to the Owner.
9. Statement with the submittal control number that material/equipment have been reviewed and approved by A/E during the shop drawing submittal process.

1.08 OWNER'S PURCHASE ORDER

- A. Promptly upon receipt of a Direct Material Purchase Form, the Owner will initiate a purchase order for the material/equipment which the Owner chooses to purchase. The purchase order shall require that the supplier provide required shipping and handling insurance. The purchase order shall also require the delivery of the Direct Material Purchase items on the delivery dates provided by the C.M. in the Request Form. A copy of each purchase order will be furnished to the C.M. The C.M. shall promptly review the copy of the purchase order and verify that items ordered are in accordance with the Direct Materials Purchase Request Form, the terms of this contract, and with the C.M.'s requirements.
- B. The invoice for the Direct Material Purchase items will be sent directly to the Owner with a courtesy copy sent to the C.M.

1.09 DEDUCTIVE CHANGE ORDERS

- A. The C.M. shall prepare and execute, on a monthly basis, deductive Change Orders to reflect purchases made by the Owner. The amount of the deduction shall be based on the requisition amount plus sales tax. These Change Orders must be executed before the related purchase order will be paid.
- B. Contractor's overhead and profit shall not be deducted on change orders for Direct Material Purchase items.

1.10 SHOP DRAWINGS

- A. Nothing in this Section shall alter or modify the procedures for submission of shop drawings and other submittals by the C.M.

1.11 DELIVERY TO JOB SITE

- A. When the Direct Material Purchase Items are delivered to the project, either by common carrier or manufacturer's/supplier's vehicle, the title to these items shall pass to the Owner. The Owner's Representative and C.M. shall jointly inspect each deliver for manufacturer/brand, quantity and condition. The C.M. and Owner's Representative shall both sign the invoice after the inspection; by this process the ownership will transfer from the Owner to the C.M.
- B. There upon; the C.M. shall be fully responsible for all matters relating to the receipt, protection and risk loss of Direct Material Purchase Items the same as if such items were purchased by the C.M. or subcontractor until such items are incorporated and accepted by the Owner as a finished product.
- C. At a minimum, the C.M. shall verify correct quantities, verify documentation, coordinate and expedite delivery, obtain and verify warranties required by contract documents, inspect and accept each item at the time of delivery, unload, handle and store the item.
- D. Direct purchase of materials by the Owner in no way relieves the C.M. of any responsibilities regarding the compliance with specification requirements, coordination, protection, scheduling or warranty.
- E. As Direct Material Purchase Items are delivered to the job-site, Contractor shall visually inspect all shipments, and approve the supplier's shipping documents and the courtesy invoice. The C.M. and Owner's

Representative shall assure that each delivery is accomplished by documentation adequate to identify the purchase order against which the purchase is made.

F. After courtesy invoices have been signed by both the C.M. and Owner's Representative, the completed invoices will be processed for payment.

G. The C.M. shall inspect to determine that Direct Material Purchase Items conform to the purchase requisition form and determine prior to the incorporation into the project if such materials are defective. If the C.M. discovers defective or non-conforming items it shall not utilize such items in the project and shall promptly notify Owner of the defect or non-conformity and assist Owner in obtaining repair or replacement of item.

H. The C.M. shall be fully responsible and liable to the Owner if they fail to perform such inspection or otherwise permit defective or non-conforming material or equipment to be incorporated into the project. This requirement does not relieve the C.M. of its obligation to ensure that materials requested for purchase have been reviewed and approved by the A/E through shop drawing and submittal procedures.

1.12 WARRANTY

A. Contractor warrants Direct Material Purchase Items the same as all other materials and equipment furnished by the C.M. and nothing in this Section shall alter or modify the C.M.'s obligations under the Contract relative to warranties.

1.13 INSURANCE

A. The C.M. shall purchase the insurance for the benefit and protection of the Owner, A/E and C.M. sufficient to protect against any loss of or damage to Direct Materials Purchase Items. The Owner is paying for this insurance as part of the Contract Price.

B. Such insurance shall cover the full value of any Owner-Furnished Materials not yet incorporated into the project starting from the time of material acceptance. The C.M. shall be solely responsible for any loss or damage attributed to the C.M. to the extent that the Owner is not compensated by the insurance stated above.

1.14 DELAY OR INTERRUPTION

A. Owner shall not be liable for any interruption or delay damages in connection with Direct Material Purchase Items except where Owner fails within (30) days of receipt or a Purchasing Requisition Form to either cause the Owner to award a Purchase Order or notify the C.M. that the Owner elects not to purchase an item.

1.15 REPORTS

A. The C.M. shall on a bi-weekly basis provide Owner with documentation establishing the amount and nature of the material and equipment delivered by suppliers and accepted by the C.M. during the reporting period.

B. The C.M. shall correspond all material and equipment to purchase orders, courtesy invoices, delivery tickets, and inspection and acceptance reports.

C. The C.M. shall also obtain lien waivers and other releases from suppliers. Upon receipt of appropriate documentation from the C.M., payment will be made by owner directly to the appropriate supplier.

END OF SECTION 000951

SECTION 011000 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS: Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 PROJECT DESCRIPTION

A. The DEANE BOZEMAN SCHOOL project consists of approximately 39,000 S.F. of new construction as indicated on drawings.

1. Project Location: Panama City, FL
2. Owner: Bay District Schools

B. Contract Documents dated December 5, 2024 were prepared for the Project by Clemons, Rutherford & Associates, Inc., 949 Jenks Ave, Suite 12, Panama City, FL 32401.

C. The work consists of:

1. New mechanical, electrical and plumbing systems.
2. New interior partitions, doors, windows and finishes.
3. New Tilt-up Concrete exterior walls.
4. New low slope roofing.
5. New drives, parent dop, parking and sidewalks.
6. New site work.
7. A 2-story Tornado Safe Building

D. Work Sequence: The work will be conducted in such a sequence to minimize interference to Owner's normal activities.

E. Applicable Codes: All work shall be completed in accordance with the following codes where applicable:

- | | | |
|----|----------------------------------------------|----------------|
| 1. | Florida Building Code, Building (FBC,B) | (2020 Edition) |
| 2. | Florida Building Code, Accessibility (FBC,A) | (2020 Edition) |
| 3. | Florida Building Code, Mechanical (FBC,M) | (2020 Edition) |
| 4. | Florida Building Code, Fuel Gas (FBC,FG) | (2020 Edition) |
| 5. | Florida Building Code, Plumbing (FBC,P) | (2020 Edition) |
| 6. | Florida Fire Prevention Code (FFPC) | (2017 Edition) |
| 7. | National Electric Code (NEC) | (2017 Edition) |
| 8. | NFPA 101 | (2017 Edition) |
| 9. | ICC 500 | (2020 Edition) |

F. Product Approval: The Contractor shall, for each product installed in the building envelope, either; provide the applicable Product Approval Numbers OR provide certification (for alternate means of Building code approval) that products installed conform to the Florida Building Code 2020 EDITION. The list of products is as follows:

1. Exterior doors.
2. Windows.
3. Roofing products.
4. Structural components.
5. Other products as applicable.

Note: The list shown above is not comprehensive. No effort was made to list each and every possible aperture in the building envelope. The Contractor shall determine what products apply and furnish the applicable Product Approval Numbers, or the required testing and subsequent certifications to meet the Florida Building Code. The Product Approval List can be found within the Florida Building Code website.

SECTION 011000 - SUMMARY OF WORK (continued):

The following function and performance characteristics shall be provided on the *label* for each *impact-protective system* tested to be installed in the Building envelope:

1. Manufacturer's identification reference or listing number for the assembly
2. Type of *impact-protective system*, such as window assembly, door assembly, shutter assembly or louver.
3. Hazard: hurricane, tornado or both.
4. Missile weight and speed.
5. *Design wind pressure*.
6. Edition of ICC 500.

- G. Contractor: Construction Manager has been engaged for this project to serve as Contractor who in turn Subcontracts all or portions of the work. In Divisions 1 through 33, the terms "Construction Manager" and "Contractor" are synonymous.

1.03 **CONTRACTOR USE OF PREMISES**

- A. **General:** During the construction period, the contractor shall have use of the premises for construction activities in areas indicated or agreed upon by the Owner.
1. Confine operations to areas within Contract limits indicated. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.
 2. Contractor to note/delineate any wetlands and protect them during construction. BDS to be held harmless if subcontractors invade this area.
 3. Keep surrounding driveways, sidewalks, and entrances serving the site clear and available to the Owner and Visitors at all times. Do not use these areas for parking or storage of materials.
- B. **Construction Safeguards:** The contractor shall construct safeguards to protect personnel and visitors from the construction areas and areas where materials are stored. Limits of the construction safeguards shall be determined by the Owner.

- 1.04 **DRESS CODE AND CONDUCT:** All workmen on the construction site shall always wear a shirt. No workmen shall engage in any verbal expressions or physical gestures directed towards any visitors, employees of Owner, or any other person at this construction site which may be considered sexual harassment. All workers are always to be badged. There is no smoking on any part of the property. Any person not meeting these standards will be banned from this construction site.

PART 2 - PRODUCTS (Not applicable).

PART 3 - EXECUTION

- 3.01 **LAYOUT OF THE WORK:** Dimensions and elevations indicated on the drawings shall be verified by the Contractor prior to commencement of work. Discrepancies between drawings, specifications, and existing conditions shall be referred to the Architect for adjustment before affected work is performed. Failure to make such notification shall place responsibility upon the Contractor to carry out the work in a satisfactory and workmanlike manner at no additional cost to the Owner.

3.02 **RESTORATION**

- A. Remove, cut, alter, replace, patch and repair existing work as necessary to install new work. Except as otherwise shown or specified, do not cut, alter or remove any structural work and do not disturb any plumbing, steam, gas or electric work without approval.
- B. Existing work (mechanical and electrical work, lawns, paving, roads, walks, etc.) disturbed or removed as a result of performing required new work, shall be patched, repaired, reinstalled, or replaced with new work, and refinished and left in as good condition as existed before

SECTION 011000 - SUMMARY OF WORK (continued):

commencing work. Existing work to be altered or extended and that is found to be defective in any way, shall be reported to Architect before it is disturbed. Materials and workmanship used in restoring work, shall conform in type and quality to that of original existing construction, except as otherwise shown or specified.

- C. Upon completion of contract, deliver work complete and undamaged. Damage that may be caused by Contractor or his workmen to existing structures, grounds, and utilities or work done by others shall be repaired by him at no additional cost to the Owner and left in as good condition as existed prior to damaging.
- D. At his own expense, Contractor shall immediately restore to service and repair any damage he may cause to existing piping and conduits, wires, cables, fiber, etc., of utility services or of fire protection systems and communications systems which are not scheduled for discontinuance or abandonment. Contractor shall employ appropriate parties for repair work.

3.03 **CLEANING UP**

- A. At completion of the work, the Contractor shall remove from the building and site all tools, appliances, surplus materials, debris, temporary structures and facilities, scaffolding, and equipment; sweep clean the building thoroughly and remove all marks, stains, fingerprints, dust, dirt, paint drippings, and the like from all surfaces; clean tile work, windows, plumbing, and other fixtures and surfaces.
- B. All hardware and other unpainted metals shall be cleaned and polished, and all equipment and paint or decorated work shall be cleaned and touched up, if necessary. Surfaces that are waxed shall be polished. Remove all temporary labels, tags, and paper covering throughout the building.
- C. The exterior of the buildings, the grounds, approaches, equipment, pavement, sidewalks, etc., shall be cleaned similar to interior of buildings and left in good order at the time of final acceptance, with paint surfaces clean and unbroken, hardware clean and polished, all repair work accomplished and dirt areas scraped and cleared of weed growth.
- D. Cleaning, polishing, sealing, waxing, and all other finish operations indicated on the drawings, or required in the specifications, shall mean that this is the required condition at the time of acceptance of all work under the contract.

END OF SECTION 011000

SECTION 012150 - THRESHOLD INSPECTION PLAN

PART 1 - GENERAL

1.01 GENERAL

Florida Statute 553.79 requires that Threshold Buildings have Structural Inspection Plan submitted to the local enforcing agency. As the Engineer of Record, I have prepared the following plan for the Dean Bozeman School Addition. This project has been designed in accordance with the 2020 Florida Building Code.

1.02 BUILDINGS DESIGNATED AS ATHRESHOLD BUILDINGS

The new 2 story classroom building is designated as a Threshold Buildings.

1.03 SPECIAL INSPECTOR QUALIFICATIONS

The special Inspector shall be a person, not a firm or company, nor two or more persons taken collectively, certified by either the Board of Architecture or the Board of Professional Engineers. The name of the special inspector must be submitted to, and approved by, the Department of Education prior to commencement of inspection services.

The special inspector may employ duly authorized technical representatives in the field. However, such representatives must have the following minimum qualifications:

- A. Be a licensed architect or professional engineer, or
- B. Graduate from an engineering education program in civil or structural engineering, or
- C. Graduate from an architectural education program, or
- D. Successfully complete an NCEES examination, or
- E. Be registered as either a building inspector or a general contractor.

PART 2 - STRUCTURAL INSPECTION PLAN

2.01 SPECIAL INSPECTOR'S RESPONSIBILITY:

The Special Inspector is responsible to the Enforcement Agency having jurisdiction for this Project. The Special Inspector shall not assume the duties of the Enforcement Agency, the Contractor, the Architect, nor the Structural Engineer. The Special Inspector shall make inspections of the construction only to verify that construction is accomplished according to the requirements indicated on the plans and approved specifications. However, the Special Inspector shall not make design decisions, interpretations of the Contract Documents, direct Contractor's work, nor be responsible for construction means and methods. The Special Inspector shall not have the authority to order any changes in the work nor any additional testing, as only the Architect/Engineers of record have such authority. The Special Inspector shall make inspections of all construction indicated on the Structural Drawings and shall immediately report observed construction variations to the Contractor and the Structural Engineer. The Special Inspector, or his duly authorized representatives, shall perform inspections according to the special inspection plan approved by the Department of Education. The Special Inspector shall prepare written Inspection Reports recording work progress, working conditions, inspection observations, testing, variations of construction from the drawings, requirements pertaining to variations, and corrective actions taken by the Contractor. Since the Special Inspector does not certify that the official Contract Documents are in compliance with the Building

SECTION 012150 - THRESHOLD INSPECTION PLAN (continued)

Code, all inspections and reports will refer to completed work being in accordance with the Contract Documents rather than the applicable codes. A written inspection report shall be prepared for every inspection performed by the Special Inspector, or his authorized representatives, and all inspection reports shall be signed, dated and bear the impressed seal of the Special Inspector. An updated file summary, and the written reports for all inspections performed during the period shall be submitted to the Enforcement Agency, the Contractor, the Architect, and the Structural Engineer on a weekly basis no more than 3 days after the end of a given weekly period. All inspection reports shall be sequentially numbered and shall indicate:

1. Sequential report number.
2. The date and time of inspection.
3. Identification of the project, the project location, the Contractor and the Owner.
4. Work conditions including weather conditions observed at the time of inspection.
5. The names and affiliation of people pertinent to the project, on the project site at the time of the inspection. Include the name of the person making the inspection, names of representatives of the contractor and other pertinent personnel.
6. A summary of the inspection report.
7. Individual inspection observations indicated on a numbered item basis, including, if pertinent, references to previous inspection observations noting previous inspection report numbers and observation item numbers.

Prior to commencement of the inspection services described herein, the special inspector shall issue to the owner a letter stating that he or she has read the special inspection plan and intends to comply with and enforce it. This letter shall bear the special inspectors seal and signature.

2.02 **INSPECTION OBSERVATIONS SHALL INCLUDE:**

1. Summary of work progress.
2. Testing, including description and locations of testing, test results and requirements pertaining to testing.
3. The construction item or method inspected as indicated on the plans and herein.
4. An indication that the construction item or method observed conforms with or varies from the requirements indicated on the plans.
5. Requirements pertaining to variations including a record of communications between the field inspector and the Structural Engineer.
6. Corrective actions taken by the Contractor including references to the construction item number and the inspection report number where the variation was noted.

SECTION 012150 - THRESHOLD INSPECTION PLAN (continued)

2.03 THE SPECIAL INSPECTOR SHALL MAINTAIN AN EXCEPTION FILE RECORDING:

1. Observed variations of construction from the requirements indicated on the drawings including the Inspection report number and construction observation item number recording the observed variation.
2. Requirements indicated either on the drawings or by the Structural Engineer pertaining to variations including the inspection report number and construction observation item number recording these requirements and communication with the Structural Engineer.
3. Corrective actions taken including the inspection report number and construction observation item number recording the corrective action.

2.04 OBSERVED CONSTRUCTION VARIATIONS THAT SHALL BE REPORTED TO THE CONTRACTOR, THE ENFORCEMENT AGENCY, THE ARCHITECT AND THE STRUCTURAL ENGINEER INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

1. The use of materials, tests, equipment or workmanship not conforming to the drawings.
2. Construction not in substantial conformance with the drawings.
3. Construction without inspection where inspection is prevented due to concealment or other reasons.

2.05 OTHER REQUIREMENTS

The Special Inspector shall insure that all shoring plans are filed with the District Office prior to commencement of all such activities.

2.06 SPECIAL INSPECTOR'S RESPONSIBILITY TO THE OWNER

The Special Inspector works for and reports directly to the Enforcement Agency but is paid by the owner.

PART 3 - STRUCTURAL INSPECTION STAGES

3.01 SOIL PREPARATIONS

The Special Inspector shall be furnished with inspection reports, test reports and a summary report from the geotechnical inspector indicating that all subsurface soils preparation was performed in accordance with the Contract Documents. The summary report shall be signed, dated and bear the embossed seal of an Engineer registered in the State of Florida.

3.02 FOUNDATIONS

The Special Inspector shall observe and inspect foundations for conformance with the Contract Documents as follows:

1. Review test reports from concrete testing to verify concrete strength.
2. Check dimensions of foundations including width, length and depth.

SECTION 012150 - THRESHOLD INSPECTION PLAN (continued)

3. Verify reinforcing steel grade, size, number of bars, placement, clearance, dowels and splices.
4. Review concrete forming and operations as indicated for concrete inspection herein.

3.03 MASONRY WALLS

The Special Inspector shall observe grouting operations, including grouting filled cells and bond beams, and construction of masonry walls for conformance with the Contract Documents as follows:

1. Masonry units; mortar materials and preparation; joint reinforcing materials, laps and use of preformed corner and tees; dovetail slots; materials and construction.
2. All masonry cells and bond beams to be grouted including cell sizes; clean-out sizes and locations; debris and mortar fin removal; and height of grouting operation.
3. Filled cell, pier and bond beam reinforcing steel, bar conditions, placement, locations, supports and cover, bar sizes, bends and grades; corner bars; and lap splices.
4. Filled cell and bond beam grouting. For masonry grout used to fill cells and bond beams, verify the grout materials and mix. Record all testing. Observe methods used to transport, handle, place, vibrate and consolidate the grout.
5. Tie Beam size and reinforcing.

3.04 CAST-IN-PLACE CONCRETE

The Special Inspector shall inspect the cast-in-place stairs, columns, walls, slabs, and other cast-in-place concrete work for conformance with the Contract Documents as follows:

1. Observe formwork including bulkheads and construction joints and keyways.
2. Inspect reinforcing steel bar conditions, placements, locations, supports and covers; bar sizes, bends and grades; and lap splices.
3. Inspect embedded items including weld plates, anchor bolts, inserts and sleeves for proper embedment, location and position.
4. Observe and record openings not shown in the drawings and verify added reinforcing or other requirements.
5. Observe and record concrete placement; verify the concrete mix; batching, travel and arrival time and the addition of water to concrete from the batch plant ticket for every batch of concrete. Record all concrete testing including slump tests and test cylinder preparation. Observe methods used to transport, handle, place vibrate, and consolidate the concrete. Observe curing of concrete. Verify testing required by the Contract Documents is performed.
6. Generally inspect anchors for proper number, sizes, location and tightening.
7. Verify size of all cast-in place concrete elements, including beams, columns, slabs, walls, footings, etc.
8. Receive and review lab reports for strength of concrete.

SECTION 012150 - THRESHOLD INSPECTION PLAN (continued)

3.05 TILT-UP REINFORCED CONCRETE WALLS

The Special Inspector shall inspect the tilt-up wall panels for conformance with the Contract Documents as follows:

1. Observe formwork and verify the panel forms are the correct depth to yield panels of the specified depth. Verify wall openings, penetrations, corbels and projections are formed as required.
2. Inspect reinforcing steel bar conditions, placements, locations, supports and covers; bar sizes, bends and grades; and lap splices. Verify reinforcing required for lifting is of the correct size, spacing and location.
3. Inspect embedded items including weld plates, lifting anchors, anchor bolts, inserts and sleeves for proper size, embedment, location and position.
4. Observe and record openings not shown in the drawings and verify added reinforcing or other requirements.
5. Observe and record concrete placement; verify the concrete mix; batching, travel and arrival time and the addition of water to concrete from the batch plant ticket for every batch of concrete. Record all concrete testing including slump tests and test cylinder preparation. Observe methods used to transport, handle, place vibrate, and consolidate the concrete. Observe curing of concrete. Verify testing required by the Contract Documents is performed.
6. Generally inspect anchors for proper number, sizes, location and tightening.
7. Observe that all bracing, including but not limited to temporary bracing and supports, is installed properly and in accordance with submittals and/or construction documents.
8. Observe all connections for compliance with submittals and/or construction documents.

3.06 PRECAST CONCRETE ELEMENTS

The Special Inspector shall inspect the precast concrete elements for conformance with the Contract Documents as follows:

1. Verify that erected items conform to the approved vendor drawings. Verify items installed are the correct size and shape. Verify all openings, penetrations, corbels and projections are formed as required.
2. Inspect all elements to verify elements are in good condition with the finish as shown on the approved vendor drawings. All defects shall be noted.
3. Inspect embedded items including weld plates, lifting anchors, anchor bolts, inserts and sleeves for proper size, embedment, location and position.
4. Generally inspect anchors for proper number, sizes, location and tightening.
5. Observe that all bracing, including but not limited to temporary bracing and supports, is installed properly and in accordance with submittals and/or vendor drawings.

SECTION 012150 - THRESHOLD INSPECTION PLAN (continued)

6. Observe all connections for compliance with submittals and/or vendor drawings.

3.07 OBSERVE SHORING AND RESHORING PROCEDURES

1. Forms for reinforced concrete pilasters, columns, walls and sides of beams shall remain in place a minimum of 24 hours after casting.
2. Forms for beam soffits shall remain in place for a minimum of 4 days.
3. Beams shall be reshored immediately following removal of soffit forms.
4. For beams supporting masonry, shores or reshores shall remain in place until the supported masonry work has been completed but not less than 14 days.
5. Forms, shores and reshores shall be designed to support applied loads in accordance with ACI 347. The contractor is responsible for the design, construction, erection and removal of all formwork and shoring.

3.08 STRUCTURAL STEEL

1. Inspect materials for proper size, condition, finish, grade and fabrication including cutting, notching, camber and holes.
2. Inspect erection for location, level, plumb, straightness, finish and fit.
3. Generally inspect bolted connections for proper number, types, sizes and tightening of bolts.
4. Make a visual inspection of all welds for type, length, size and quality of weld. Verify welders on site making field welds have current certificates.
5. Inspect headed stud anchors for size, length, spacing and welding.
6. Inspect steel decks for type, gage, size, condition, welding, side lap connections, laps, connection to supporting structure and weld repair for conformance with Contract Documents. Where steel deck is connected to light gage steel trusses or framing, inspect the screw size and pattern for conformance with Contract Documents.
7. Verify testing and secondary inspections required by the Contract Documents are performed.
8. Inspect steel beams to verify that all required bridging and bracing at steel beams, trusses, joists and other elements is in place.
9. Inspect steel bearing on masonry to ensure connection is solid and smooth.

3.09 LIGHT GAGE STEEL ROOF TRUSSES

1. Inspect materials for proper size, condition, grade and fabrication including cutting, splices and connections.
2. Inspect erection for location, plumb, and fit.

SECTION 012150 - THRESHOLD INSPECTION PLAN (continued)

3. Inspect layout to confirm actual layout is in accordance with layout plan and mark number locations indicated on vendor drawings.
4. Generally inspect bolted connections for proper number, types, sizes and tightening of bolts.
5. Inspect connection of trusses to walls and beams to verify connection conforms to approved documents.

3.10 OPEN WEB STEEL JOISTS

1. Inspect materials for mark numbers and confirm actual layout is in accordance with layout plan and mark number locations indicated on vendor drawings.
2. Inspect erection for location, plumb and fit.
3. Inspect embed plates or other supporting structure to insure proper alignment. Joist bearing on embed plate shall be solid and smooth.
4. Inspect bridging to insure the correct amount, type and size bridging is installed. Also inspect bridging attachment to supporting structure to insure conformance with vendor drawings.
5. Inspect and verify joist size (depth and chord bar size) conforms to sizes shown on approved documents.

3.11 STANDING SEAM METAL DECK

1. Inspect materials for proper size, thickness and grade.
2. Inspect joints and attachment clips to insure correct size, type and spacing and overall conformance with vendor drawings and details.

PART 4 - FINAL REPORT

The Special Inspector shall, upon completion of the building and prior to the Issuance of a Certificate of Occupancy, file a signed and sealed statement with the Enforcement Agency, in substantially the following form "To the best of my knowledge and belief, the construction of all structural load-bearing components described in the special inspection plan complies with the approved documents, and the specialty shoring design professional engineer has ascertained that the shoring and reshoring conforms with the shoring and reshoring plans submitted to the district office".

JOHNSON & ASSOCIATES ENGINEERING

Bradley B. Johnson, P.E.
Florida Registration No. 52284

SECTION 012500 – SUBSTITUTION PROCEDURES

PART 1 - GENERAL

- 1.01 **SUBSTITUTIONS**: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor after award of the Contract are considered requests for "substitutions." The following **are not** considered substitutions:
- A. Substitutions requested during the bidding period and accepted prior to award of Contract.
 - B. Revisions to Contract Documents requested by the Owner or Architect.
 - C. Specified options of products and construction methods included in Contract Documents.
 - D. Compliance with governing regulations and orders issued by governing authorities.
- 1.02 **SUBMITTAL**: Requests for substitution will be considered if received within 30 days after commencement of the Work. Requests received may be considered or rejected at the discretion of the Architect after review. See mechanical and electrical "General Provisions" section for special substitution requirements.
- A. Submit 3 copies of each request for substitution in the form and in accordance with procedures for Change Order proposals.
 - B. Identify the product, or installation method to be replaced in each request. Include related Specification Section and Drawing numbers. Document compliance with requirements for substitutions, and the following information, as appropriate:
 - 1. Product Data, including Drawings and descriptions of products, fabrication and installation procedures.
 - 2. Samples, where applicable or requested.
 - 3. A comparison of significant qualities of the proposed substitution with those specified.
 - 4. A list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate Contractors that will be necessary to accommodate the proposed substitution.
 - 5. A statement indicating the substitution's effect on the Construction Schedule compared to the Schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.
 - 6. Cost information, including a proposal of the net change, if any in the Contract Sum.
 - 7. Certification that the substitution is equal-to or better in every respect to that required by Contract Documents, and that it will perform adequately in application indicated. Include Contractor's waiver of rights to additional payment or time that may be necessary because of the substitution's failure to perform adequately.
 - C. **Architect's Action**: Within one week of receipt of the request for substitution, the Architect will request additional information necessary for evaluation. Within 2 weeks of receipt of the request, or one week of receipt of additional information, whichever is later, the Architect will notify the Contractor of acceptance or rejection. If a decision on use of a substitute cannot be made within the time allocated, use the product specified. Acceptance will be in the form of a Change Order.

SECTION 012500 – SUBSTITUTION PROCEDURES (continued):

- 1.03 **SUBSTITUTIONS:** The Contractor's substitution request will be received and considered by the Architect when one or more of the following conditions are satisfied, as determined by the Architect; otherwise requests will be returned without action except to record noncompliance with these requirements.
- A. The request is directly related to an "or approved equal" clause or similar language in the Contract Documents.
 - B. The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
 - C. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
 - D. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. Additional responsibilities for the Owner may include additional compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner or separate contractors, and similar considerations.
 - E. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.
 - F. The specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.
 - G. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provide the required warranty.
- 1.04 The Contractor's submittal and Architect's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

END OF SECTION 012500

SECTION 012900 – PAYMENT PROCEDURES

PART 1 - GENERAL

- 1.01 **SCHEDULE OF VALUES:** Coordinate preparation of the Schedule of Values with the Contractor's Construction Schedule. Correlate line items in the Schedule of Values for each phase with other schedules and forms, including:

Contractor's Construction Schedule.
Application for Payment form.
List of subcontractors.
List of products.
Schedule of submittals.

- A. Submit the Schedule of Values to the Architect and Owner at the earliest date, but no later than 7 days before the date scheduled for submittal of the initial Application for Payment.
- B. **Format and Content:** Use the Project Manual Table of Contents as a guide to establish the format.
Identification: Include the following identification:
Project name and location.
Name of the Architect.
Project number.
Contractor's name and address.
Date of submittal.

Format: Use AIA Document G703 Continuation Sheet.

Break down each Division that is listed in enough detail to facilitate evaluation of Application for Payments. Round amounts off to the nearest dollar; the total shall equal the Contract Sum.

Each item in the Applications for Payment and Continuation Sheet shall be complete including total cost and share of overhead and profit. Temporary facilities and items that are not direct cost of Work-in-place may be shown as separate line items or distributed as general overhead expense.

Update and resubmit the schedule when Change Orders change the Contract Sum.

- C. **Change Management:** Any change in the project's 'schedule of values' line items shall be noted to the architect and owner monthly prior to changing the owner schedule of values via a submitted pay application.
- a. ***EXAMPLE:***
- i. *Month 1 - site line item = 1000.00.*
 - ii. *Month 2 – site line item = 1500.00, a 500.00 change has been listed in the schedule of values.*
 - iii. *What is the audit path for the change in scheduled value under the sit line item?*
 1. *Did the owner receive a copy of the paperwork documentation back-up requiring this change (RFI, ASI, RFP)?*
 2. *Did the owner receive a proposal for the change in scope prior to proceeding?*
 3. *Did the owner receive a copy of any subcontractor change issued?*
 4. *Did the owner receive a copy of the change management document indicating the proposed change was accepted by the architect and approved by the owner?*
 5. *What GMP line item did the funding added to site line item come from?*
- b. All these noted audit path requirements may be accomplished in different ways but shall be required (at a minimum) regardless of amount or scope of the change. It shall be agreed upon at the outset of each project how change management will be implemented for each of the various types of changes that may occur. It will be noted in project meeting minutes as to the agreed upon method for change management. Subsequent to

SECTION 012900 – PAYMENT PROCEDURES (continued):

those agreements change management shall be implemented in strict compliance with the agreed upon methodology.

1.02 **APPLICATIONS FOR PAYMENT:** Applications for Payment shall be submitted by the 25th of the month and will be paid by the 10th of the following month. Applications for Payment not received by the 25th of the month will be paid not later than 15 days after the date received. The period covered by each Application for Payment is one month. A retainage of 10% of the amount earned and stored will be withheld from each payment.

- A. **Payment Application Times:** Payment dates are indicated in the Agreement. The period covered by each application is the period indicated.
- B. **Payment Application Forms:** Use AIA Document G 702 and Continuation Sheets G 703, 1992 edition, as the form for the application.
- C. **Application Preparation:** Complete every entry, including notarization and execution by person authorized to sign on behalf of the Contractor. Incomplete applications will be returned without action. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions have been made. Include amounts of Change Orders issued prior to the last day of the period covered by the application.
 - a. The first pay application must mimic the approved GMP for the project, or mimic the project bid for the work.
 - b. Per change management section listed in 1.01C, subsequent pay applications may include changes to various line items within the schedule of values. Changes shall be tracked monthly and documentation provided to ensure a clear auditable trail for the project accounting starting with the GMP and ending with the final pay application on the project.
 - c. Each successive pay application must be accompanied by change management paperwork sufficiently detailed to ensure all parties are clear regarding changes or adjustments to the schedule of values.
 - d. It is the sole discretion of the owner to determine what documentation is adequate. However, the minimum required documentation is listed in the change management section herein.
- D. **Transmittal:** Submit 4 executed copies of each application to the Architect within 24 hours; two copies shall be complete, including waivers of lien where required and similar attachments. Transmit each copy with a transmittal listing attachments, and recording information related to the application.
- E. **Waivers of Lien:** With final application, submit waivers of lien from every entity who has performed work, provided labor or supplied materials. Waivers of Lien are to be provided by, but not limited to the following material suppliers and subcontractors. This list is for illustration only, not necessarily complete.

Concrete	Masonry	Paving
Steel	Site Work	Landscaping
Finish Carpentry	Roofing	Doors
Windows	Finish Hardware	Gypsum Wallboard
Flooring	Painting	Ceilings
Signage	Toilet & Bath Accessories	
Mechanical	Plumbing	Electrical

- F. **Waiver Forms:** Submit waivers of lien on AIA Document G706A, "Contractor's Affidavit of Release Of Liens".

SECTION 012900 – PAYMENT PROCEDURES (continued):

- 1.03 **INITIAL APPLICATION FOR PAYMENT:** Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include:

- Fully executed Contract.
- List of subcontractors.
- List of suppliers and fabricators.
- Schedule of Values.
- Contractor's Construction Schedule (preliminary if not final).
- Submittal Schedule (preliminary if not final).
- List of Contractor's staff assignments.
- Copies of building permits (if required).
- Copies of licenses from governing authorities.
- Certificates of insurance and insurance policies.
- Performance and payment bonds.

- 1.04 **PARTIAL RETAINAGE RELEASE**

- A. **FORMS:** Use AIA Document G707A, "Consent of Surety To Reduction in Or Partial Release Of Retainage".
- B. Retainage may only be reduced to 5% with owner approval and in no case will final retainage be released until all items required for final completion are completed and accepted by the architect and the owner.

- 1.05 **APPLICATION FOR PAYMENT AT SUBSTANTIAL COMPLETION:** Following issuance of the Certificate of Substantial Completion, submit an Application for Payment; reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions. Administrative actions and submittals that precede or coincide with this application include:

- Occupancy permits.
- Test/adjust/balance records (Final).
- Operation and Maintenance instructions.
- Meter readings.
- Change-over information related to Owner's occupancy.
- Training as Specified
- Final Cleaning
- As-builts

- 1.06 **BUYOUT SAVINGS AND CONTINGENCY USAGE:** Buy out savings, contingency, and any other project funds are the property of the owner under the control of the Contractor or CM. ALL buy out savings and contingency funds used shall be reported to the owner and may not be used without notification to the owner. See Change management section 1.01C.

- 1.07 **FINAL PAYMENT APPLICATION:** Administrative actions and submittals which must precede or coincide with submittal of the final payment application include:

- Completion of Project closeout requirements. 100% complete to the satisfaction of the Owner and Architect. Refer to Section 01700 - Project Closeout.
- Warranties and maintenance agreements.
- Completion of all items specified for completion after Substantial Completion.
- Transmittal of required Project construction records to Architect.
- AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims".
- Change of door locks to Owner's access.
- AIA Document G707, "Consent of Surety To Final Payment".

END OF SECTION 012900

SECTION 013100 - PROJECT COORDINATION

PART 1 - GENERAL

1.01 **THIS SECTION** specifies requirements for project coordination including:

Coordination with other Contractors.	General installation provisions.
Administrative and supervisory personnel.	Cleaning and protection.

1.02 **COORDINATION**: Coordinate activities included in various Sections to assure efficient and orderly installation of each component. Coordinate operations included under different Sections that are dependent on each other for proper installation and operation.

Where installation of one component depends on installation of other components before or after its own installation, schedule activities in the sequence required to obtain the best results.

Where space is limited, coordinate installation of different components to assure maximum accessibility for maintenance, service and repair.

Make provisions to accommodate items scheduled for later installation.

Coordinate installations such that items requiring maintenance are readily accessible. Do not block maintenance access to these components with follow on installation. Anything blocked will be corrected by the sub-contractor.

Prepare memoranda for distribution to each party involved outlining required coordination procedures. Include required notices, reports, and attendance at meetings.

Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.

1.03 **ADMINISTRATIVE PROCEDURES**: Coordinate scheduling and timing of administrative procedures with other activities to avoid conflicts and ensure orderly progress. Such activities include:

Preparation of schedules.	Delivery and processing of submittals.
Power and utility shutdowns.	Progress meetings.
Installation and removal of temporary facilities.	Project closeout activities.

1.04 **COORDINATION DRAWINGS**: Prepare Coordination Drawings where close coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space necessitates maximum utilization of space for efficient installation of different components.

Show relationship of components shown on separate Shop Drawings.
Indicate required installation sequences.

1.05 **STAFF NAMES**: Within 10 days of Notice to Proceed, submit a list of Contractor's staff assignments, including Superintendent and personnel at the site; identify individuals, their duties and responsibilities, addresses and telephone numbers. Staff substitutions must be approved by owner in advance.

Post copies in the Project meeting room, the field office, and at each temporary telephone.

1.06 **INSPECTION OF CONDITIONS**: The Installer of each component shall inspect the substrate and all other conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected and as follows:

- a. MVER/RH/BNLT moisture readings for slabs on grade or walls must pass manufacturer requirements.
- b. Humidity and temperature control ranges for installation must meet manufacturer requirements.
- c. Other items must meet the listed, installation requirements set forth by the manufacturer.

SECTION 013100 - PROJECT COORDINATION (continued):

- 1.07 **MANUFACTURER'S INSTRUCTIONS:** Comply with manufacturer's installation instructions and recommendations, to the extent that they are more stringent than requirements in Contract Documents.
- 1.08 **INSPECT** material immediately upon delivery and again prior to installation. Reject damaged and defective items.
- 1.09 **PROVIDE ATTACHMENT** and connection devices and methods necessary for securing each construction element. Secure each construction element true to line and level. Allow for expansion and building movement.
- 1.10 **VISUAL EFFECTS:** Provide uniform joint widths in exposed Work. Arrange joints to obtain the best effect. Refer questionable choices to the Architect for decision.
- 1.11 **RECHECK MEASUREMENTS** and dimensions, including elevations, before starting installation.
- 1.12 **INSTALL EACH COMPONENT** during weather conditions and project status that will ensure the best results. Isolate each part from incompatible material as necessary to prevent deterioration.
- 1.13 **COORDINATE TEMPORARY ENCLOSURES** with inspections and tests, to minimize uncovering completed construction for that purpose.
- 1.14 **MOUNTING HEIGHTS:** Where mounting heights are not indicated, install components at standard heights for the application indicated or refer to the Architect.
- 1.15 **CLEANING AND PROTECTION:** During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

Clean and maintain completed construction as often as necessary through the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

Limiting Exposures: Supervise operations to ensure that no part of construction, completed or in progress, is subject to harmful or deleterious exposure. Such exposures include, but are not limited to the following:

- Excessive static or dynamic loading.
- Excessive internal or external pressures.
- Excessive weathering.
- Excessively high or low temperatures or humidity.
- Air contamination or pollution.
- Water or ice.
- Chemicals or solvents.
- Heavy traffic, soiling, staining and corrosion.
- Rodent and insect infestation.
- Unusual wear or other misuse.
- Contact between incompatible materials.
- Theft or vandalism.

END OF SECTION 013100

SECTION 013200 - PROJECT MEETINGS

PART 1 - GENERAL

1.01 SUMMARY: This Section specifies requirements for Project meetings including:

Pre-Construction Conference.
Progress Meetings.

1.02 PRE-CONSTRUCTION CONFERENCE: Architect shall conduct a pre-construction conference after execution of the Agreement and prior to commencement of construction activities. Review responsibilities and personnel assignments.

Attendees: The Owner, Architect and their consultants, the Contractor and its superintendent, subcontractors, suppliers, manufacturers, and other concerned parties shall be represented by persons authorized to conclude matters relating to the Work.

Agenda: Discuss significant items that could affect progress, including the tentative construction schedule, critical sequencing, use of the premises, procedures for processing Change Orders and equipment deliveries.

Review progress of other activities and preparations for the activity under consideration at each conference, including time schedules, manufacturer's recommendations, weather limitations, substrate acceptability, compatibility problems and inspection and testing requirements.

Record significant discussions, agreements and disagreements of each conference, along with the approved schedule. Distribute the meeting record to everyone concerned, promptly, including the Owner and Architect.

Do not proceed if the conference cannot be successfully concluded. Initiate necessary actions to resolve impediments and reconvene the conference at the earliest feasible date.

1.03 PROGRESS MEETINGS: Conduct progress meetings at regular monthly intervals. Notify the Owner and Architect of scheduled dates. Coordinate meeting dates with preparation of the payment request.

Attendees: The Owner and Architect, each subcontractor, supplier or other entity concerned with progress or involved in planning, coordination or performance of future activities shall be represented by persons familiar with the Project and authorized to conclude matters relating to progress.

Agenda: Review minutes of the previous progress meeting. Review significant items that could affect progress. Include topics appropriate to the current status of the Project including:

RFIs
Scheduling

Change Orders
Submittals

Reporting: Distribute copies of the minutes of the meeting to each party present and to parties who should have been present.

1.04 CONTRACTOR'S CONSTRUCTION SCHEDULE: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

SECTION 013200 - PROJECT MEETINGS (continued):

Review the present and future needs of each entity present, including such items as:

- Time.
- Sequences.
- Deliveries.
- Off-site fabrication problems.
- Site utilization.
- Temporary facilities and services.
- Hazards and risks.
- Quality and Work standards.
- Change Orders.
- Documentation of information for payment requests.

- 1.05 PROJECT CLOSE OUT MEETING: Once the contractor has gathered a complete project close out deliverable including both hard copies and electronic copies, warranties, extra parts and any other close out required items, they are to notify the architect that they are ready to schedule the project close out meeting.

END OF SECTION 013200

SECTION 013300 - SUBMITTALS

PART 1 - GENERAL

1.01 GENERAL PROCEDURES

- A. Coordinate submittal preparation with performance of construction activities, and with purchasing or fabrication, delivery, other submittals and related activities. Transmit in advance of performance of related activities to avoid delay.
- B. Coordinate transmittal of different submittals for related elements so processing will not be delayed by the need to review concurrently for coordination. The Architect reserves the right to withhold action on a submittal requiring coordination until related submittals are received.

1.02 PROCESSING: Allow two weeks for initial review. Allow more time if processing must be delayed for coordination with other submittals. The Architect will notify the Contractor when a submittal must be delayed for coordination. Allow two weeks for reprocessing each submittal.

No extension of time will be authorized because of failure to transmit submittals sufficiently in advance of the Work to permit processing.

1.03 SUBMITTAL PREPARATION: Place a label or title block on each submittal for identification. Provide two 4" x 5" spaces on the label or beside the title block on Shop Drawings to record Contractor's review and approval markings and action taken. Include the following information on the label for processing and recording action taken. Submittals received without a signed Contractor's Approval Stamp will be returned for resubmittal with no action taken.

Project name.

Date.

Name, address and contact info of Contractor.

Name, address and contact info of supplier.

Name and contact info of manufacturer.

Number and title of appropriate Specification Section.

Drawing sheet number and detail references, as required.

1.04 SUBMITTAL TRANSMITTAL: Package submittals appropriately for transmittal and handling. Transmit with a transmittal form. Submittals received from other than the Contractor will be returned without action.

Transmittal Form: Use AIA Document G 810 or other form acceptable to Architect. On the form record requests for data, and deviations from Contract Documents. Include Contractor's certification that information complies with Contract Documents.

1.05 CONTRACTOR'S CONSTRUCTION SCHEDULE: Submit a fully developed, CPM type construction schedule with Gantt chart showing critical path and interrelated installations, within 14 days after the date of the Owner's issuance of a Notice to Proceed. Use the categories of work in the schedule to establish the categories in the "Schedule of Values".

As work progresses, mark the schedule to indicate Actual Completion.

Provide notations on the Schedule depicting the consequences on the Work from construction phasing.

Prepare the schedule on sheets of sufficient width to show data for the entire construction period.

Secure commitments for performing critical construction operations from parties involved. Coordinate each activity with other activities and show in proper sequence; include minor elements involved in the construction sequence. Indicate sequences necessary for completion of related portions.

Coordinate the Construction Schedule with the Schedule of Values, list of subcontracts, Submittal Schedule, progress reports, payment requests and other schedules.

Schedule completion in advance of the date established for Substantial Completion. Schedule Substantial

SECTION 013300 - SUBMITTALS (continued):

Completion to allow time for the Architect's procedures necessary for certification of Substantial Completion.

Print and distribute schedule following initial approval to the Architect, Owner, subcontractors and other parties required to comply with scheduled dates. Redistribute after any approved revisions. Post copies in the temporary field office. Submit update schedule with each Pay Application.

- 1.06 **DAILY CONSTRUCTION REPORTS:** Prepare a daily construction report, recording information concerning events at the site. Submit duplicate copies to the Architect at weekly intervals. Include the following information:

List of subcontractors at the site.
Work Activities.
High and low temperatures, general weather conditions.
Accidents, stoppages, delays, shortages, losses.
Emergency procedures.
Change Orders received, implemented.
Partial Completions, occupancies.
Substantial Completions authorized.
Other relevant dates.

- 1.07 **SUBMITTALS:** Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit 4 sets plus the number of sets required by the Contractor; maximum eight (8) sets. The Architect will retain four sets and return the others marked with the action taken. (**Note: Architect will mark only one (1) set for return to the Contractor with action taken and/or modifications required.**) Maintain Sample sets at the Project site, for quality comparisons throughout construction phase.

Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.

- 1.08 **ARCHITECT'S ACTION:** Except for submittals for record, information or similar purposes, where action and return is required, the Architect will review each submittal, mark to indicate action taken, and return. Compliance with specified characteristics is the Contractor's responsibility.

Action Stamp: The Architect will stamp each submittal with a self-explanatory action stamp. The stamp will be appropriately marked to indicate action taken.

- 1.09 **DISTRIBUTION:** Furnish copies of final submittal to installers, and others required for performance of construction activities. Show distribution on transmittal forms. Do not proceed with installation until an applicable copy of Product Data is in the installer's possession. Do not permit use of unmarked copies of Product Data in connection with construction.

- 1.10 **SHOP DRAWINGS:** Submit information, drawn to accurate scale. Submittals shall **indicate deviations from Contract Documents**. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Include the following information:

Project Name.
Location.
Suppliers Name.
Date.
Drawing No.
Specification Section Reference.
Dimensions.
Identification of products and materials included.
Compliance with specific standards.
Notation of coordination requirements.
Notation of dimensions established by field measurement.

SECTION 013300 - SUBMITTALS (continued):

Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2" x 11" but no larger than 24" x 36".

Initial Submittal: Submit one correctable translucent print and two blue-line print for review; the reproducible print will be returned.

Final Submittal: Submit four (4) blue or black line prints of the original submittal for use by the Architect/Engineer, Owner and Contractor.

Do not use Shop Drawings without a Architects stamp indicating action taken in connection with construction.

The Contractor shall schedule all shop drawing submittals to allow sufficient time for one initial review and two resubmittal reviews.

- 1.11 COORDINATION DRAWINGS are a special type of shop drawing depicting relationship and integration of different construction elements requiring coordination during fabrication or installation to fit and function as intended.

Preparation of coordination drawings is described in these Specifications under "Project Coordination" and may include components previously shown on shop drawings or product data.

Submit for integration of different construction elements. Show sequences and relationships of separate components to avoid conflicts in use of space.

- 1.12 PRODUCT DATA: Collect Product Data into a single submittal for each element or system. Mark each copy to show applicable choices and options. Where Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:

Manufacturer's printed recommendations.
Compliance with recognized trade association standards.
Compliance with recognized testing agency standards.
Application of testing agency labels and seals.
Notation of dimensions verified by field measurement.
Notation of coordination requirements.

- A. Submittals: Submit 3 copies. The Architect will retain two and will return the others. **Note:** The Architect will mark only one set for return to the Contractor with action taken and/or modifications required. The Contractor will be responsible to see that any notes made by the Architect are made on all copies.

Unless noncompliance with Contract Documents, the submittal may serve as the final submittal.

- B. Distribution: Furnish copies of final submittal to installers and others required for performance of construction activities. Show distribution on transmittal forms. Do not proceed with installation until an applicable copy of Product Data is in the installer's possession.

- 1.13 SAMPLES: Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics, and a comparison of these characteristics between the final submittal and the component as delivered and installed. Where variations are inherent in the product, submit multiple units that show limits of the variations.

Refer to other Sections for Samples that illustrate details of assembly, fabrication techniques, workmanship, connections, operation and similar characteristics.

Refer to other Sections for Samples to be returned for incorporation in the Work. Such Samples

SECTION 013300 - SUBMITTALS (continued):

must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.

Sample sets may be used to obtain final acceptance of the construction associated with each set.

Preliminary submittals: Where Samples are for selection of characteristics from a range of choices, submit a full set of choices for the product. Preliminary submittals will be reviewed and returned indicating selection and other action.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION (Not Applicable).

PART 4 - SCHEDULES

4.01 The following Submittal Schedule is for **REFERENCE ONLY**. Items listed may or may not be required for this project.

SUBMITTAL SCHEDULE		
SECTION	TYPE OF SUBMITTAL	DESCRIPTION
000610 - Performance Bond and Labor and Material Bond	Bonds	Performance Bond, Labor and Material Bond
000430 - List of Subcontractors	List	Subcontractors, Suppliers, Principal Manufactures
012900 - Application for Payment	Schedule of Values Application for Payment	Initial and Subsequent Initial and Subsequent
013100 - Project Coordination	List	Staff Names
013300 - Submittals	Construction Schedule Submittal Schedule Daily Construction Reports	
017700 - Project Closeout	Documents Certificate	Record Drawings, Specifications, Submittals, As-Builts, Maintenance Manuals, O & M Instructions OEF Final & Occupancy Inspection
022070 - Selective Demolition	Schedule	Demolition Schedule
313116 - Termite Control	Warranty	Soil Treatment Solution
02510 - Concrete Paving	Shop Drawings	Walkways/Curb Layout
033000 - Concrete	Shop Drawings	Formwork Reinforce Placement/Schedule
042000 - Unit Masonry	Product Data Field Mock-Up	Grout/Mortar, Joint Reinforcement Masonry Wall
042113 - Brick Masonry	Product Data Samples Field Mock-Up	Grout/Mortar, Joint Reinforcement Brick, Mortar Brick Wall
055000 - Metal Fabrication	Product Data Shop Drawings Certification	Assembly and Installation Instructions Metal Fabrication Metal and Steel Test Results
052100 - Metal Building	Shop Drawings	Sizes, Design Information
062000 - Finish Carpentry	Product Data Samples	

SECTION 013300 - SUBMITTALS (continued):

SUBMITTAL SCHEDULE		
SECTION	TYPE OF SUBMITTAL	DESCRIPTION
064023 - Interior Architectural Woodwork	Shop Drawings Samples	Casework Plastic Laminate, Hardware
071326 - Sheet Membrane Waterproofing	Product Data	Technical Data and Recommendations
072116 - Building Insulation	Product Data	Each Type of Insulation Required
076200 - Flashing and Sheet Metal	Product Data Guarantee	Roofing and Flashing Materials Maintenance Guarantee
074113 – Preformed wall and roof panels	Product Data Samples	Manufacturer=s Information
07900 - Joint Sealers	Product Data Samples Certification	Each Type Sealants Product Test Reports
081113 – Hollow Metal Doors and Frames	Shop Drawings Schedules	Frames
081416 - Flush Wood Doors	Product Data Shop Drawings Schedule	Wood Doors
083113 - Access Doors	Product Data	Doors
087100 - Finish Hardware	Schedule Product Hardware	Hardware
088000 - Glass and Glazing	Product Data Samples	Glass/Glazing Materials Glass
093000 - Tile	Product Data Samples	Tile and Grout Tile
095123 - Acoustical Ceilings	Product Data Samples	Panel/Suspension System
09650 - Resilient Flooring	Product Data Sample Maintenance Instructions Replacement Material	Tile and Base
099100 - Painting	Product Data Samples Mock-Up	Paint Paint Field Application
101000 - Markerboards, Chalkboards, Tackboards	Product Data Samples	Each Type of Visual Board Tackboard Fabric
101600 - Toilet Partitions	Product Data Shop Drawings Samples	Toilet Partitions Fabrication of Partitions Color and Solid Plastic Selection
089800 - Louvers and Vents	Product Data Shop Drawings Samples	Louvers and Vents Details Color Selection
104400 - Signage	Product Data Schedule Shop Drawings	Signage Sign Layout
102800 - Toilet and Bath Accessories	Product Data	Accessories
	Product Data	Each Item Installation Instructions

SECTION 013300 - SUBMITTALS (continued):

SUBMITTAL SCHEDULE		
SECTION	TYPE OF SUBMITTAL	DESCRIPTION
109900 - Miscellaneous Specialties	Shop Drawings	Fabrication Details (where required)
111320 - Project Screens and T.V. Mounting Brackets	Product Data Shop Drawings	Screens and Monitor Mounts Installation Details
23010 - Mechanical General Provisions		
22400 - Plumbing		
26010 - Electrical General Provisions		

NOTE: Additional Submittals may be requested by the Architect/Engineer.

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

- 1.01 **GENERAL**: This Section specifies requirements for quality control services. Quality control services include inspections and tests performed by independent agencies, governing authorities, as well as the Contractor.
- 1.02 **CONTRACTOR RESPONSIBILITIES**: Provide inspections and tests specified or required by governing authorities, except where they are the Owner's responsibility, or are provided by another entity; services include those specified to be performed by an independent agency not by the Contractor. Costs are included in the Contract.

The Contractor shall engage and pay for services of an independent agency, acceptable to the Architect/Engineer to perform inspections and tests specified as Quality Control services.

Retesting: The Contractor is responsible for retesting where results prove unsatisfactory and do not indicate compliance with Contract Documents, regardless of whether the original test was the Contractor's responsibility.

Cost of retesting construction revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original construction.

Associated Services: The Contractor shall cooperate with agencies performing inspections or tests and provide auxiliary services as requested. Notify the agency in advance of operations to permit assignment of personnel. Auxiliary services include but are not limited to:

Provide access to the Work and furnish incidental labor and facilities necessary to facilitate inspections and tests.

Take representative samples of materials that require testing or assist the agency in taking samples.

Provide facilities for storage and curing of samples and deliver samples to testing laboratories. Provide a preliminary design mix proposed for use for material mixes that require control by the testing agency.

Provide security and protection of samples and test equipment at the Project site.

- 1.03 **CONTRACTOR STATEMENT OF RESPONSIBILITIES (PER ICC 500, SECTION 107)**:

Each contractor responsible for the construction, fabrication or installation of a main windforce-resisting system, *impact-protective system* or any component listed in the quality assurance plan shall submit a written statement of responsibility to the *authority having jurisdiction*, the responsible design professional and the owner or the owner's authorized agent prior to the commencement of work on the system or component. See form at the end of this section. The contractor's statement of responsibility shall contain:

1. Acknowledgement of awareness of the special requirements contained in the quality assurance plan.
2. Acknowledgement that control will be exercised to obtain compliance with the construction documents.
3. Procedures for exercising control within the contractor's organization, the method and frequency of reporting and the distribution of reports.
4. Identification and qualifications of the person exercising such control and their position in the organization.

Exception: A written statement of responsibility shall not be required for the fabrication of *storm shelter* components that have been inspected and *labeled* by an *approved agency* as meeting the requirements of the *applicable code* and this standard.

- 1.04 **DUTIES OF THE TESTING AGENCY**: The agency engaged to perform inspections and testing of materials and construction shall cooperate with the Architect and Contractor in performance of its duties and provide qualified personnel to perform inspections and tests.

SECTION 014000 - QUALITY REQUIREMENTS (continued)

The agency shall notify the Architect and Contractor promptly of deficiencies observed during performance of its services.

The agency is not authorized to release, revoke, alter or enlarge requirements of the Contract Documents, or approve or accept any portion of the Work.

- 1.05 **COORDINATION**: The Contractor and each agency engaged to perform inspections and tests shall coordinate the sequence of activities to accommodate services with a minimum of delay. The Contractor and each agency shall coordinate activities to avoid removing and replacing construction to accommodate inspections and tests.

The Contractor is responsible for scheduling inspections, tests, taking samples and similar activities.

- 1.06 **SUBMITTALS**: The testing agency shall submit a certified written report of each inspection and test to the Architect, in duplicate, unless the Contractor is responsible for the service. If the Contractor is responsible, submit a certified written report of each inspection and test through the Contractor, in triplicate, who shall send two (2) copies to the Architect.

Submit additional copies of each report to the governing authority, when the authority so directs.

Report Data: Written reports of each inspection or test shall include, but not be limited to:

- Date of issue.
- Project title and number.
- Name, address and telephone number of testing agency.
- Testing agency qualifications.
- Dates and locations of samples and tests or inspections.
- Names of individuals making the inspection or test.
- Designation of the Work and test method including applicable industry standards and/or codes.
- Identification of product and Specification Section.
- Complete inspection or test data.
- Test results and an interpretations of test results.
- Ambient conditions at the time of sample-taking and testing.
- Comments or professional opinion as to whether inspected or tested Work complies with Contract Document requirements.
- Name and signature of laboratory inspector or person reviewing results.
- Recommendations on retesting.

- 1.07 **QUALIFICATION FOR SERVICE AGENCIES**: Engage inspection and testing agencies which are prequalified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories and specialize in the types of inspections and tests to be performed.

Each inspection and testing agency engaged shall be authorized to operate in the State in which the Project is located.

- 1.08 **REPAIR AND PROTECTION**: Upon completion of inspection and testing repair damaged construction and restore substrates and finishes to eliminate deficiencies. Comply with requirements for "Cutting and Patching."

Protect construction exposed by or for quality control service activities and protect repaired construction.

The Contractor is responsible for repair and protection regardless of the assignment of responsibility for inspection and testing.

SECTION 014000 - QUALITY REQUIREMENTS (continued)

Contractor's Statement of Responsibility

Each contractor responsible for the construction or fabrication of a system or component designated in the Quality Assurance and Special (Threshold) Inspection Plan must submit a Statement of Responsibility.

Project: Deane Bozeman School, 2-Story Classroom Addition

Contractor's Name:

Address:

License No.:

Description of designated building systems and components included in the Statement of Responsibility:

Contractor's Acknowledgment of Special Requirements

I hereby acknowledge that I have received, read, and understand the Quality Assurance and Special (Threshold) Inspection program.

I hereby acknowledge that control will be exercised to obtain conformance with the construction documents approved by the Building Official.

Signature Date

Contractor's Provisions for Quality Control

Procedures for exercising control within the contractor's organization, the method and frequency of reporting and the distribution of reports is attached to this Statement.

Identification and qualifications of the person(s) exercising such control and their position(s) in the organization are attached to this Statement.

SECTION 014000 - QUALITY REQUIREMENTS (continued)

END OF SECTION 014000

SECTION 014200 - DEFINITIONS AND STANDARDS

PART 1 - GENERAL

1.01 **DEFINITIONS:** Basic Contract definitions are included in the General Conditions.6

- A. **Indicated** refers to graphic representations, notes or schedules on Drawings, or Paragraphs or Schedules in Specifications, and similar requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used, it is to help locate the reference.
- B. **Directed:** Terms such as "directed", "requested", "authorized", "selected", "approved", "required", and "permitted" mean "directed by the Architect", "requested by the Architect", and similar phrases. No implied meaning shall be interpreted to extend the Architect's responsibility into the Contractor's supervision of construction.
- C. **Approve,** used in conjunction with action on submittals, applications, and requests, is limited to the Architect's duties and responsibilities stated in General and Supplementary Conditions. Approval shall not release the Contractor from responsibility to fulfill Contract requirements.
- D. **Regulation** includes laws, ordinances, statutes and lawful orders issued by authorities having jurisdiction, and rules, conventions and agreements within the construction industry that control performance of the Work, whether lawfully imposed by authorities having jurisdiction or not.
- E. **Furnish** means "supply and deliver, ready for unloading, unpacking, assembly, installation, and similar operations."
- F. **Install** describes operations at the site including "unloading, unpacking, assembly, erection, anchoring, applying, working to dimension, protecting, cleaning and similar operations."
- G. **Provide** means "furnish and install, complete and ready for use."
- H. **Installer:** "Installer" is the Contractor, or an entity engaged by the Contractor, as an employee, subcontractor or sub-subcontractor for performance of a particular construction activity, including installation, erection, application and similar operations. Installers are required to be experienced in the operations they are engaged to perform. The term "experienced," when used with "Installer" means having a minimum of 5 previous Projects similar in size to this Project, and familiar with the precautions required, and with requirements of the authority having jurisdiction.
- I. **Project Site** is the space available for construction activities, either exclusively or with others performing other construction on the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land upon which the Project is to be built.
- J. **Testing Laboratories:** A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, at the Project Site or elsewhere, and to report on, and, if required, to interpret, results of those inspections or tests.

1.02 **SPECIFICATION FORMAT:** These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's 48-Division format and MASTERFORMAT 2004 numbering system. Language used in the Specifications is the abbreviated type. Implied words and meanings will be appropriately interpreted. Singular words will be interpreted as plural and plural words interpreted as singular where applicable and where the context so indicates. Imperative language is used generally. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the text subjective language is used to describe responsibilities which must be fulfilled indirectly by the Contractor, or by others when so noted. The words "shall be" shall be included by inference wherever a colon (:) is used within a sentence or phrase.

SECTION 014200 - DEFINITIONS AND STANDARDS (continued):

- 1.03 **ASSIGNMENT OF SPECIALISTS:** Certain construction activities shall be performed by specialists, recognized experts in the operations to be performed. Specialists must be engaged for those activities, and assignments are requirements over which the Contractor has no option. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.
- 1.04 **DRAWING SYMBOLS:** Where not otherwise noted, symbols are defined by "Architectural Graphic Standards", published by John Wiley & Sons, Inc., eighth edition.
- 1.05 **MECHANICAL/ELECTRICAL DRAWINGS:** Graphic symbols for mechanical and electrical Drawings are defined in a graphic symbol legend on the Construction Documents and are aligned with symbols recommended by ASHRAE. Where appropriate, they are supplemented by symbols recommended by technical associations. Refer instances of uncertainty to the Architect for clarification before proceeding.
- 1.06 **APPLICABILITY OF STANDARDS:** Except where the Contract Documents include more stringent requirements, applicable industry standards have the same force and effect as if bound or copied into Contract Documents. Such standards are part of the Contract Documents by reference. Individual Sections indicate standards the Contractor must keep available at the Project Site.
- 1.07 **PUBLICATION DATES:** Where the date of issue of a referenced standard is not specified, comply with the standard in effect as of date of Contract Documents.
- Updated Standards:** Submit a Change Order proposal where an applicable standard has been revised and reissued after the date of the Contract Documents and before performance of Work. The Architect will decide whether to issue a Change Order to proceed with the updated standard.
- 1.08 **CONFLICTING REQUIREMENTS:** Where compliance with two or more standards that establish different or conflicting requirements for minimum quantities or quality levels, the most stringent requirement will be enforced. Refer uncertainties as to which quality level is more stringent to the Architect for a decision before proceeding.
- Minimum Quantities or Quality Levels:** The quantity or quality shown or specified is the minimum to be provided or performed. Indicated values are minimum or maximum values, as appropriate for the requirements. Refer instances of uncertainty to the Architect for decision before proceeding.
- 1.09 **COPIES OF STANDARDS:** Each entity engaged on the Project shall be familiar with standards applicable to that activity. Copies of applicable standards are not bound with the Contract Documents.
- Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.
- Although copies of standards needed for enforcement of requirements may be part of submittals, the Architect reserves the right to require submittal of additional copies for enforcement of requirements.
- 1.10 **ABBREVIATIONS AND NAMES:** Where acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction or other entity applicable. Refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.
- 1.11 **PERMITS, LICENSES, AND CERTIFICATES:** For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

END OF SECTION 014200

SECTION 015000 - TEMPORARY FACILITIES

PART 1 - GENERAL

- 1.01 **RELATED DOCUMENTS:** Drawings and General Provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.
- 1.02 **SUMMARY:** This Section specifies temporary services and facilities, including utilities, construction and support facilities, security and protection. Provide facilities ready for use. Maintain, expand and modify as needed. Remove when no longer needed or replaced by permanent facilities.
- Temporary facilities required include but are not limited to water service and distribution, temporary electric power and light, storage sheds, sanitary facilities and temporary enclosures, barricades, warning signs, lights and environmental protection.
- 1.03 **USE CHARGES:** Cost or use charges for temporary facilities are not chargeable to the Owner or Architect and will not be accepted as a basis of claims for a Change Order.
- 1.04 **REGULATIONS:** Comply with all applicable local, state, and federal laws and regulations.
- 1.05 **STANDARDS:** Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library "Temporary Electrical Facilities" and OSHA.
- A. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services", prepared by AGC and ASC.
- B. **Electrical Service:** Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).
- 1.06 **INSPECTIONS:** Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.
- 1.07 **CONDITIONS OF USE:** Keep facilities clean and neat. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload or permit facilities to interfere with progress. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.
- 1.08 **MATERIALS AND EQUIPMENT:** Provide new materials and equipment; if acceptable to the Architect, undamaged previously used materials and equipment in serviceable condition may be used. Provide materials and equipment suitable for the use intended.
- A. **Tarpaulins:** Waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.
- B. **Temporary / Construction Fencing:** 11-gage, galvanized 2-inch, chain link fabric fencing 6-feet high with galvanized steel pipe posts, 1-1/2" I.D. for line posts and 2-1/2" I.D. for corner posts.
- 1.09 **TEMPORARY UTILITY INSTALLATION:** Engage the local utility company to install temporary service or connect to existing service. Arrange for a time when service can be interrupted to make connections. Provide adequate capacity at each stage of construction. Combined use of temporary and existing power and water is anticipated for this project.
- A. **Water Service:** Install water service and distribution piping of sizes and pressures adequate for construction. Sterilize water piping prior to use.

SECTION 015000 - TEMPORARY FACILITIES (continued):

- B. Electric Power Service:
Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics. Include meters, transformers, overload protected disconnects, automatic ground-fault interrupters and main distribution switch gear. Install service underground, if possible.
1. Power Distribution System: Install wiring overhead and rise vertically where least exposed to damage.
 2. Electrical Outlets: Provide properly configured NEMA polarized outlets. Provide outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.
 3. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to traffic.
- C. Lighting: Provide temporary lighting with local switching to fulfill security requirements and provide illumination for construction operations and traffic conditions.
1. Lamps and Light Fixtures: Provide general service incandescent lamps. Provide guard cages or tempered glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.
- D. Telephones: Provide temporary telephone service for personnel engaged in construction. Post a list of important telephone numbers.
- E. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent. If sewers are not available or cannot be used, provide drainage ditches, or similar facilities.

Filter out construction debris and other contaminants that might clog sewers or pollute waterways before discharge. Provide earthen embankments and similar barriers in and around excavations and subgrade construction to prevent flooding by runoff of storm water from heavy rains.

Comply with all City and County requirements for storm water runoff.

- 1.10 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION: Locate for easy access. Maintain facilities until Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, if acceptable to the Owner.
- A. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads where they do not interfere with construction activities.
 - B. Dust Control: If, in the opinion of the Owner or Architect it is necessary to control dust during construction period, the Contractor shall furnish and spread water or calcium chloride at points where dust is a nuisance or as directed by the Architect, at no additional cost to the Owner.
 - C. Field Office: Provide field offices of size required to accommodate personnel, including telephone and fax line. In addition, provide a 3' x 5' desk, table and stool for use by the Architect. Field office is to be provided with air conditioning. Keep clean and orderly for use for small progress meetings.
 - D. Storage and Fabrication Sheds: Install sheds, equipped to accommodate materials and/or existing equipment involved. Sheds may be open shelters.

SECTION 015000 - TEMPORARY FACILITIES (continued):

- E. Sanitary facilities include temporary toilets and drinking water fixtures. Comply with regulations and health codes for the type, number, location, operation and maintenance of fixtures. Install where facilities will best serve the Project. Provide toilet tissue, paper towels, paper cups and similar disposable materials for each facility. Provide covered waste containers for used material.
 - F. Toilets: Install self-contained single-occupant toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material. Use of pit-type privies will not be permitted. Under no circumstances will construction personnel use existing toilet facilities.
 - G. Drinking Water Facilities: Provide containerized tap-dispenser type drinking water units.
 - H. Dewatering Facilities and Drains: For temporary drainage and dewatering operations not associated with construction, comply with requirements of applicable Division-2 Sections. Where feasible, utilize the same facilities. Maintain excavations and construction free of water.
 - I. Temporary Enclosures: Provide temporary enclosure for protection of construction from exposure, foul weather, other construction operations and similar activities. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions.

Install tarpaulins securely, with incombustible framing. Close openings through floor or roof decks and horizontal surfaces with load-bearing construction.
 - J. Collection and Disposal of Waste: Collect waste daily. Comply with NFPA 241 for removal of combustible waste. Enforce requirements strictly. Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose in a lawful manner.
 - K. Project Identification and Temporary Signs: Prepare project identification signs on grade B-B High Density Overlay Plywood; install where indicated by Architect. Support on framing of preservative treated wood or steel. Engage an experienced sign painter to apply graphics. Refer to project identification sign drawing at end of this section (Attachment 015000-1).
- 1.11 SECURITY AND PROTECTION FACILITIES INSTALLATION: Except for use of permanent fire protection as soon as available, do not change from use of temporary security and protection facilities to permanent facilities until Substantial Completion.
- A. Fire Protection: Until fire protection is supplied by permanent facilities, install and maintain temporary fire protection of types needed to protect against predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers," and NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations." Consideration should be given to existing fire hydrant locations.
 - B. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers. Locate fire extinguishers where effective for the intended purpose.

Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
Store combustible materials in containers in fire-safe locations.
Provide supervision of welding operations, combustion type temporary heating units, and sources of fire ignition.
 - C. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of barricades. Paint appropriate warning signs to inform personnel and the public of the hazard being protected against. Where needed provide lighting, including flashing lights. Temporary,

SECTION 015000 - TEMPORARY FACILITIES (continued):

portable or metal barricades and structures shall be constructed over all open trench areas intersecting student walkways. Walkway structures over trenches shall be of sturdy construction with handrails and be handicap accessible.

- D. Security Enclosure and Lockup: Install temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism and theft. Where materials and equipment must be stored, provide a secure lockup.
 - E. Enclosure Fence: When excavation begins, install an enclosure fence with lockable entrance gates where indicated, or if not indicated, enclose the entire site or the portion sufficient to accommodate operations. Provide open-mesh, chain-link fencing with posts set in a compacted mixture of gravel and earth.
 - F. Environmental Protection: Operate temporary facilities and conduct construction by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted. Restrict use of noise making tools and equipment to hours that will minimize complaints.
- 1.12 OPERATION: Enforce strict discipline in use of temporary facilities. Limit availability to intended use to minimize abuse. Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and the elements.

Maintain operation of enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24-hour day basis to achieve indicated results and to avoid damage.

Prevent piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

- 1.13 TERMINATION AND REMOVAL: Remove each facility when the need has ended, or replaced by a permanent facility, or no later than Substantial Completion. Complete or restore construction delayed because of interference with the facility. Repair damaged Work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.

Temporary facilities are property of the Contractor.

At Substantial Completion, renovate permanent facilities used during the construction period, including but not limited to:

Replace air filters and clean inside of ductwork and housings.
Replace worn parts and parts subject to unusual operating conditions.
Replace burned out lamps.

END OF SECTION 015000



Lord & Son
Construction Inc.

Trusted Performance
Lasting Value™

19 David St.
Ft Walton Beach 32547

lordandsonconstruction.com
850-863-5158
CGC 057094



BOZEMAN SCHOOL

SUPERINTENDENT
WILLIAM V. HUSFELT III

SCHOOL BOARD MEMBERS
STEVE MOSS, CHAIRPERSON
PAMM CHAPMAN, VICE CHAIRPERSON
RYAN NEVES
JERRY REGISTER

DISTRICT FACILITIES
LEE WALTERS
KYLE ROWELL



Clemons, Rutherford
& Associates, Inc.

Architects
Planners
Interior Designers
Construction Managers

www.craarchitects.com
850-385-6153
License #AA-C000297

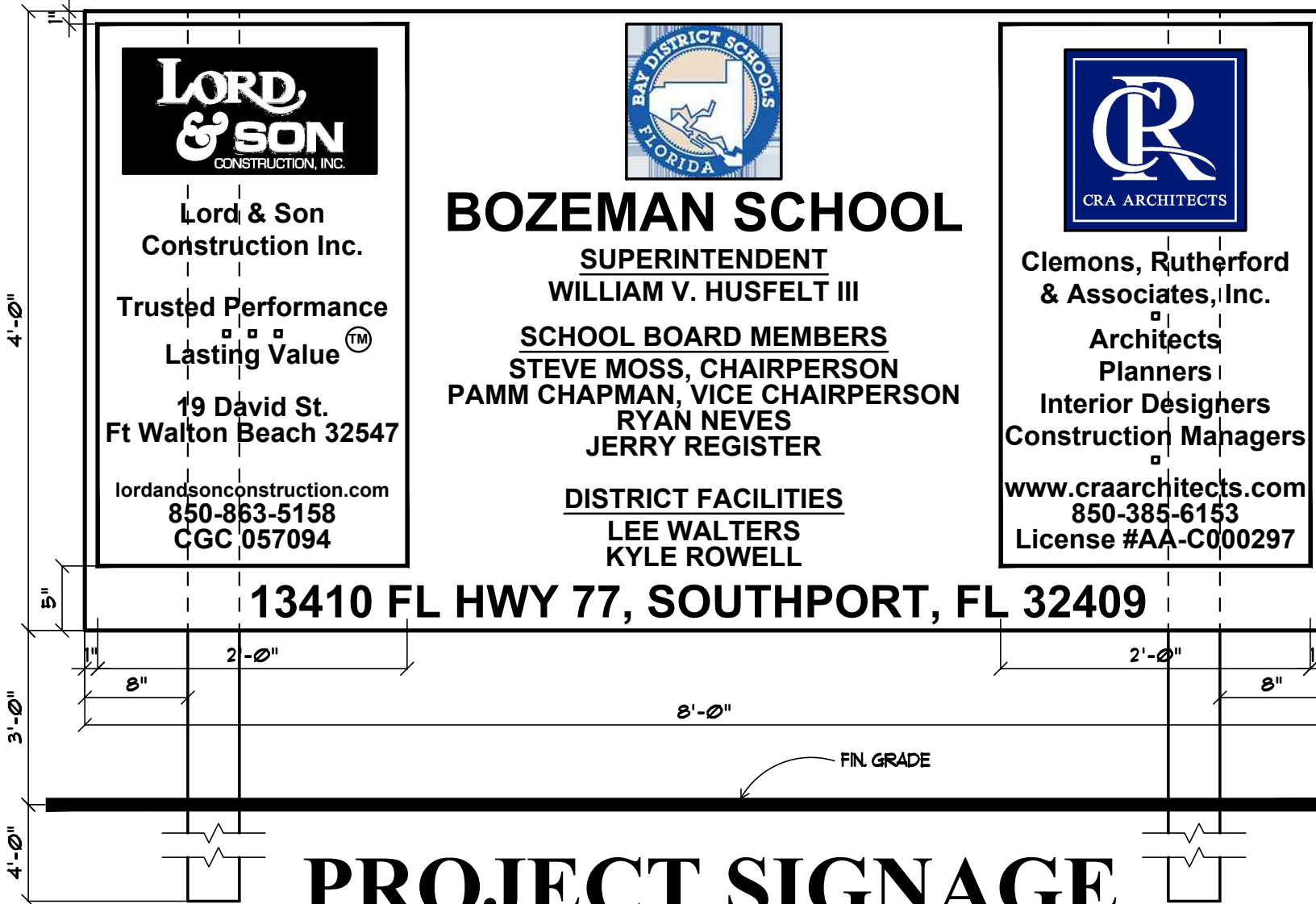
NOTE:
CONTRACTOR AND / OR SIGN
SHOP TO CONTACT CRA
TO REQUEST AN ELECTRONIC
COPY OF IMAGE PRIOR
TO PRINTING.

FINISH:
ALKYD PRIMER & INDUSTRIAL
ENAMEL. PANELS ARE PAINTED
ON BOTH SIDES & ALL EDGES.
FINISH COAT ON FACE SIDE IS
DOUBLED COATED.

COLORS:
GRAY BACKGROUND
(FMS 754IU)
NAVY BLUE LOGO &
LETTERING (FMS 2167U)

13410 FL HWY 77, SOUTHPORT, FL 32409

PROJECT SIGNAGE



Clemons, Rutherford & Associates, Inc.

Architects Planners Interior Designers Construction Managers

2027 Thomasville Road, Tallahassee, Florida 32309

(850) 385-6153 Fax (850) 386-8420

NOTES :

1. LETTERING STYLES SHALL BE ARIAL, UNLESS NOTED OTHERWISE.
2. ALL COLORS ARE TO BE SELECTED BY THE ARCHITECT
3. PLYWOOD SHALL BE 3/4" M.D.O. EXTERIOR GRADE
4. CONTRACTOR SHALL FURNISH SIGN.
5. PROVIDE SHOP DRAWING LAYOUT FOR ARCHITECTS' REVIEW PRIOR TO PAINTING SIGN.
6. ARCHITECT TO SELECT LOCATION OF SIGN.

SECTION 015500 - MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.01 DEFINITIONS

- A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well-recognized meanings in the construction industry.
- B. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
- C. "Named Products" are items identified by the manufacturer's product name, including make or model number or other designation, shown or listed in the manufacturer's published product literature that is current as of the date of the Contract Documents.
- D. "Materials" are products substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
- E. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections, such as wiring or piping.

1.02 QUALITY ASSURANCE

- A. Source Limitations: To the fullest extent possible, provide products of the same kind from a single source.
- B. Compatibility of Options: When the Contractor is given the option of selecting between two or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.
- C. Nameplates: Except for required labels and operating data, do not attach or imprint manufacturers or producer's nameplates or trademarks on exposed surfaces of products that will be exposed to view in occupied spaces or on the exterior.
- D. Labels: Locate required product labels and stamps on concealed surfaces or, where required for observation after installation, on accessible surfaces that are not conspicuous.
- E. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface that is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:

Name of product and manufacturer.

Model and serial number.

Capacity.

Speed.

Ratings.

SECTION 015500 - MATERIALS AND EQUIPMENT (continued):

- F. Field marking for electrical, mechanical, plumbing and telecom locations:
1. All above ceiling electrical, mechanical, and plumbing shall have below ceiling labeling provided for some specific items IFF located above ceiling.
 - a. Electrical – any electrically powered motor or device other than junction boxes located in a concealed location above ceiling shall be labeled below ceiling. See labeling requirements in a separate section “Labeling”.
 - b. HVAC – HVAC equipment located above ceiling including but not limited to VAV, VRF, AHU, EF units, and valves shall be baled below ceiling so as to make them easily locatable from below ceiling. Identification should match plan call outs for the items such that plans may be utilized in conjunction with labeling to locate and maintain each item.
 - c. Plumbing – all valves located above ceiling shall be labeled below ceiling. Above ceiling valve shall be marked with permanently affixed TAG indicating what areas or items are served by the valve.
 - d. Telecomm – see above ceiling labeling requirements per specification section on telecomm devices. Any signal repeaters, or other data / telecomm equipment located above ceiling shall be labeled on the ceiling below for easy identification in the future.
 2. Labels shall be 1” x 4” in size and permanently attached to underside of drywall or permanently affixed to the acoustic ceiling grid within 2 feet of the above ceiling item being labeled.
 3. Labels shall be hard plastic.
 4. Lettering shall be minimum 12 font engraved into labels.
 5. Color coding of labels shall be as follows:
 - a. Red = electrical & Fire
 - b. Yellow = gas
 - c. Blue = water & sewer
 - d. Green = HVAC
 - e. Orange – telecomm
 - f. *Other colors as mutually agreed by owner and architect to be added*

1.03 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.
- B. Coordinate delivery with installation time to assure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses; and to prevent overcrowding of construction spaces.
- C. Deliver products to the site in undamaged condition in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
- D. Inspect products upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
- E. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
- F. All new installed materials shall be sealed from moisture penetration at the end of each day.

SECTION 015500 - MATERIALS AND EQUIPMENT (continued):

PART 2 - PRODUCTS

2.01 PRODUCT SELECTION

- A. **General Product Requirements:** Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, new at the time of installation. Discontinued items will not be accepted.
1. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and the intended use and effect.
 2. **Standard Products:** Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- B. **Product Selection Procedures:** The Contract Documents and governing regulations govern product selection. Procedures governing product selection include the following:
1. **Semi proprietary Specification Requirements:** Where Specifications name two or more products or manufacturers, provide one of the products indicated.

Where Specifications specify products or manufacturers by name, accompanied by the term "**or equal**" or "**or approved equal**", comply with the Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
 2. **Descriptive Specification Requirements:** Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.
 3. **Performance Specification Requirements:** Where Specifications require compliance with performance requirements, provide products that comply with these requirements and are recommended by the manufacturer for the application indicated.

Manufacturer's recommendations may be contained in published product literature or by the manufacturer's certification of performance.
 4. **Compliance with Standards, Codes, and Regulations:** Where Specifications only require compliance with an imposed code, standard, or regulation, select a product that complies with the standards, codes, or regulations specified.
 5. **Visual Matching:** Where Specifications require matching an established Sample (match existing), the Architect's decision will be final on whether a proposed product matches satisfactorily.

Where no product is available within the specified category, matches satisfactorily and complies with other specified requirements; comply with provisions of the Contract Documents concerning "substitutions" (Section 01631 - Product Substitutions) for selection of a matching product in another product category.
 6. **Visual Selection:** Where specified product requirements include the phrase "... as selected from manufacturer's standard colors, patterns, textures ..." or a similar phrase, select a product and manufacturer that complies with specified requirements. The Architect will select the color, pattern, and texture from the product line selected. Any selections within the product line which are unavailable, no longer make or superseded by another should be so marked.

PART 3 - EXECUTION

SECTION 015500 - MATERIALS AND EQUIPMENT (continued):

3.01 **INSTALLATION OF PRODUCTS**

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.
- B. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION 015500

SECTION 015719 - EROSION CONTROL AND ENVIRONMENTAL PROTECTION

1.1 INTENT

It is the intent of these specifications to provide supplemental information to the contents of the construction drawings on the quality of materials, execution, measurement, etc. These specifications are general in nature and may contain products and requirements which are not applicable to the project. Discrepancies between these specifications and the construction drawings, either imagined or real, shall be brought to the attention of the Contracting officer for clarification.

1.2 DESCRIPTION OF WORK

Comply with the provisions of the following codes and standards, except as otherwise shown or specified:

"Standard Specifications for Road and Bridge Construction", Florida Department of Transportation, latest edition...

"Roadway and Traffic Design Standards", Florida Department of Transportation, latest edition.

"American Society for Testing and Materials (ASTM) Publications" as follow:

D 123-87	Standard Terminology Relating to Textiles
D 1683-81	Failure in Sewn Seams of Woven Fabrics
D 2487-83	Test Method for Classification of Soils for Engineering Purposes
D 3786-80	Standard Test Method for Mullen Burst Strength
D 3787-80	Bursting Strength of Knitted Goods - Constant-Rate-of- Traverse (CRT) Ball Burst
D 4439-87	Standard Terminology for Geotextiles
D 4533-85	Standard Test Method for Trapezoid Tearing Strength of Geotextiles
D 4632-86	Standard Test Method for Breaking Load and Elongation of Geotextiles (Grab Method)
VTM-51-79	Filtration Efficiency
VTM-51-79	Slurry Flow Rate

Certification: The contractor shall be responsible for providing the required material certifications prior to construction. Failure to provide certification may result in rejection of the material and replacement at no cost to the Owner.

Testing: An independent testing and inspection service will not be required for the work of this section.

1.3 SUBMITTALS

Material Certificates: Provide copies of materials certificates signed by material producer and Contractor, certifying that each material item complies with or exceeds specified requirements. When test requirements are specified, the contractor shall supply results performed by a certified testing laboratory.

1.4 TEMPORARY EROSION CONTROL (VEGETATION AND COVERINGS)

General: Temporary erosion control features shall consist of, but not be limited to, temporary grassing, temporary sodding, temporary mulching, sandbagging, artificial coverings, berms, and baled hay or straw.

Temporary Grassing: Temporary grassing shall be as specified in Section 13 except as modified herein. Perennial grass seed may be omitted if permanent erosion control will be placed prior to death of annual grass.

SECTION 015719 - EROSION CONTROL AND ENVIRONMENTAL PROTECTION (continued)

Temporary Sod: Sod shall be as specified in Section 12.
Temporary Mulch: Mulch shall be as specified in Section 13.

Sandbagging: Sandbagging shall consist of furnishing and placing sandbags in configurations, so as to control erosion and siltation.

Artificial Coverings: This work shall consist of furnishing and applying fiber mats, netting, plastic sheeting, or other approved covering to the earth surfaces.

Baled Hay or Straw: This work shall consist of construction of baled hay or straw dams to protect against downstream accumulations of silt. The baled hay or straw dams shall be constructed in accordance with the details shown in the construction drawings or, when details are not shown, in accordance with the FDOT Standard Index No. 102.

1.5 **TEMPORARY EROSION CONTROL (SILT FENCES)**

General: Temporary erosion control features shall consist of, but not be limited to, silt fences and staked turbidity barriers. The work shall consist of furnishing, installing, maintaining, and removing temporary fences and barriers in accordance with the manufacturer's recommendations, these specifications, the details shown on the plans, or, when details are not shown, in accordance with the FDOT Standard Index No. 102 & 103. The barrier type(s) will be at the Contractor's option unless otherwise specified in the plans.

Silt Fence: Silt fence or sediment control fence shall consist of a geotextile fabric attached to posts. The geotextile fabric shall be a woven or non-woven fabric as specified herein. Posts shall be a minimum length of five feet rough or surfaced four-inch by four-inch wood, three-inch minimum diameter wood or steel at least 1.33 pounds per linear foot. When called for, wire reinforcement shall be poultry mesh, a minimum height of 36 inches, 20 gauge wire minimum, with a mesh spacing of one inch. As an alternative, Type A fence conforming to Section 966, FDOT Standard Specifications, may be used.

Staked Turbidity Barrier: In addition to the requirements for a temporary silt fence contained herein, the fabric used for staked turbidity barrier shall have a double stitched hem at the top of the fabric into which has been sewn a braided nylon cord with a minimum diameter of 1/8 inch running the full length of that section of fabric. Supports for staked turbidity barriers shall be a minimum length of three feet seasoned two-inch by four-inch wood, 2-1/2 inch minimum diameter wood, or steel at least 1.33 pounds per linear foot.

1.6 **GEOTEXTILES**

Filter Fabric: The geotextile fabric shall be a woven or non-woven fabric consisting of long-chain polymeric filaments or yarns such as polypropylene, polyethylene, polyester, polyamides, or polyvinyl chloride formed into a stable network such that the filaments or yarns retain their relative position to each other. The base plastic shall contain stabilizers and/or inhibitors to make the filaments resistant to deterioration from ultraviolet light, heat exposure, and commonly encountered chemicals. The edges of the fabric shall be selvaged or otherwise finished to prevent the outer yarn from pulling away from the fabric.

The fabric shall conform to the following physical requirements:

PROPERTIES TEST METHOD ACCEPTABLE VALUES

Seam Strength (min)	ASTM D 1683	120 lbs.
Mullen Burst	ASTM D 3786	200 psi

SECTION 015719 - EROSION CONTROL AND ENVIRONMENTAL PROTECTION (continued)

Strength (min)		
Puncture Strength (min)	ASTM D 3787	60 lbs.
Trapezoidal Tear Strength (min)	ASTM D 4533	50 lbs.
Grab Tensile Strength (min)	ASTM D 4632	120 lbs.
Elongation (max)	ASTM D 4632	25%
Filtration Efficiency (min)	VTM-51-79	75%
Slurry Flow Rate (min)	VTM-51-79	0.3 gpm/sf

Seams: The seams of the fabric shall be sewn with thread of a material meeting the chemical requirements for the fabric. The minimum seam strength shall comply with the property requirements contained herein.

Shipment and Storage: During shipment and periods of storage, the geotextile shall be protected from direct sunlight, ultra-violet rays, temperatures greater than 140 degrees Fahrenheit, mud, dirt, dust, and debris. Stockpiled materials shall be kept covered at all times.

1.7 **EXECUTION**

General: The installation of temporary erosion control features shall be coordinated with the construction of the permanent erosion control features to the extent necessary to assure effective and continuous control of erosion and water pollution throughout the life of the contract.

The Contractor shall take sufficient precautions to prevent pollution of streams, canals, lakes, reservoirs, and other water impoundments, with fuels, oils, bitumen's, calcium chloride, or other harmful materials. Also, he shall conduct and schedule his operations so as to avoid pollution or siltation of such streams, etc.

Except as necessary for construction, excavated material shall not be deposited in rivers, streams, canals, or impoundments, or in an position close enough thereto to be washed away by high water or runoff.

Where de-watering methods are used, the water shall be treated by one or more of the following methods prior to discharge off-site or into environmental areas: pumping into grassed swales or appropriate vegetated areas, sediment basins, or confined by an appropriate enclosure such as siltation curtains when other methods are not considered appropriate.

The Contractor shall not disturb lands or waters outside the limits of construction as staked, except as may be Found necessary and authorized by the Contracting officer.

The locations of and methods of operation in all detention areas, excavation and stockpile areas, and disposal areas shall meet the approval of the Contracting officer as being such that erosion during and after completion of the work will not likely result in detrimental conditions, siltation's, or water pollution.

Limitation of Exposure or Erodible Earth: The Contractor shall limit the surface areas of unprotected erodible earth exposed by clearing and grubbing, excavation, or filling operations and shall provide immediate permanent or temporary erosion or pollution control measures to prevent contamination of any river, stream, lake, tidal water, reservoir, canal, or other impoundment or to prevent detrimental effects on

SECTION 015719 - EROSION CONTROL AND ENVIRONMENTAL PROTECTION (continued)

property outside the project and damage to the project. The limitation of area in which excavation and filling operations may be underway shall be commensurate with the contractor's capability and progress in keeping the finish grading, grassing, sodding, and other such permanent erosion control measures current in accordance with the accepted schedule.

Under no conditions shall the surface area or erodible earth exposed by clearing and grubbing operations or by excavation and filling operations exceed one-half acre without specific prior approval by the Contracting officer. This limitation applies separately to clearing and grubbing operations and excavation and filling operations.

The Contracting officer may increase or decrease the amount of surface area allowed to be exposed at any one time, on the basis of his analysis of conditions on the project.

Permanent erosion control features shall be incorporated into the project at the earliest practical time. Temporary erosion control features will be used to control erosion prior to the time it is practical to construct permanent control features or to provide immediate temporary control of erosion that develops during normal construction operations, but is not associated with permanent erosion control features on the project. In no case shall be exposure of erodible earth be for more than five days without erosion control features being implemented.

Temporary erosion control features may be authorized for use in controlling erosion in areas where stage construction or other conditions not under the control of the Contractor preclude completion of a section of work in a continuous manner and in areas where construction operations which must be performed subsequently will cause damage to permanent erosion control features constructed.

When the item of Topsoil or Muck Blanket is included in the contract, the rate of construction of these items may be limited by the availability of topsoil or muck from the normal grading operations. The existence of this condition will be considered as precluding completion of a section or roadway in a continuous manner, and use of temporary erosion control features will be used in areas so affected.

The Contractor shall schedule his operations such that the area of unprotected erodible earth exposed at any one time is not larger than the minimum area necessary for efficient construction operations, and the duration of exposed, uncompleted construction to the elements shall be as short as practicable.

Clearing and grubbing shall be so scheduled and performed that grading operations can follow immediately thereafter, and grading operations shall be so scheduled and performed that permanent erosion control features can follow immediate thereafter if conditions on the project permit.

1.8 TEMPORARY EROSION CONTROL (VEGETATION AND COVERINGS)

General: Temporary vegetative erosion control features shall be installed in accordance with Section 13. Temporary coverings shall be installed in accordance with the manufacturer's recommendations.

1.9 TEMPORARY EROSION CONTROL (SILT FENCES)

Temporary Silt Fence: Temporary silt fence shall be erected at locations as shown on the plans or as approved by the Contracting officer. The filter fabric shall be reinforced with wire fence, when called for, and the post spacings shall not exceed ten feet. The wire reinforcement shall be installed so that the filter fabric is on the upstream side of the fence, and both the wire fence and the filter fabric are on the upstream side of the posts. Posts shall be uniformly installed with approximately 20 degrees inclination toward the potential silt load (upstream) area. The silt fence shall be maintained in an effective condition at all times while in use.

Filter fabric shall be a minimum of 45 inches wide and shall be secured to the post or fence by suitable staples, tie wire, or hog rings in such a manner as to prevent tearing of the fabric. The bottom of the filter

SECTION 015719 - EROSION CONTROL AND ENVIRONMENTAL PROTECTION (continued)

fabric shall be entrenched into the ground a minimum of eight inches to prevent water from flowing under the fence. Filter fabric shall be spliced together only at support posts with a minimum of six-inch overlap and securely sealed.

Staked Turbidity Barrier: Staked turbidity barrier shall be securely fastened to wood or steel supports which are spaced at maximum intervals of six feet and driven a minimum of 12 inches into the ground. A minimum of three supports shall be used. The bottom of the fabric shall be entrenched into the existing ground a minimum of eight inches. The staked turbidity barrier shall be a minimum of 15 inches in height and shall not exceed 18 inches in height.

The support line sewn in the top hem of the filter fabric shall be used at each post location to secure the fabric to the post at an appropriate height.

Staked turbidity barriers shall be installed across ditch lines and at temporary locations as shown on the plans or approved by the Contracting officer where continuous construction activities change the natural contour and drainage runoff.

Posts in staked turbidity barriers shall be installed in the vertical position unless otherwise directed by the Contracting officer.

Floating Turbidity Barrier: This work shall consist of the installation and removal of floating turbidity barriers to contain silt and other deleterious materials that may occur as the result of dredging, filling, or other construction activities in waters of the State. The type barrier used will be installed in accordance with the details contained in the plans, or, when details are not shown, in accordance with the FDOT Standard Index No. 103, or as approved by the Contracting officer. Alternate methods may be approved provided that compliance with applicable permit conditions and State water quality standards are maintained.

1.10 INSPECTION AND MAINTENANCE

General: The Contractor shall, at his expense, provide routine maintenance of permanent and temporary erosion control features until the project is completed and accepted. The Contractor shall inspect all temporary erosion control measures immediately after each rainfall and at least daily during prolonged rainfall. Any deficiencies shall be immediately corrected by the Contractor.

Silt Fences and Turbidity Barriers: The Contractor shall make a daily review of the location of silt fences and turbidity barriers to ensure that the silt fence or turbidity barriers are properly located for effectiveness and contain no breaches. Where deficiencies exist, additional silt fences or turbidity barriers shall be installed as directed.

Sediment deposits shall be removed when the deposit reaches approximately one-half of the volume capacity of the temporary silt fence or turbidity barrier as directed. Any sediment deposits remaining in place after the temporary silt fence or turbidity barrier is no longer required shall be dressed to conform with the finished grade, prepared and finished as shown on the construction plans, or seeded in accordance with Section 13.

END OF SECTION 015719

SECTION 017700 – CLOSEOUT PROCEDURES

PART 1 - GENERAL

- 1.01 SUBSTANTIAL COMPLETION: (See Section 00700 - General Conditions, Section 9.8). Before requesting inspection for certification of Substantial Completion, complete the following:
- A. Change-over permanent locks and transmit keys to the Owner.
 - B. Complete start-up testing of systems, and instruction of the Owner's personnel. Remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
 - C. Complete final clean up. Touch-up and repair and restore marred exposed finishes.
 - D. Submit record drawings (As-builts), maintenance manuals, damage or settlement survey, and similar record information.
 - E. Attain Occupancy permits.
- 1.02 INSPECTION PROCEDURES: When the Contractor considers the work substantially complete, he shall prepare and submit a comprehensive list of items to be completed and/or corrected to the Architect. The Contractor shall proceed to promptly complete and/or correct all items on the list.
- A. Upon receipt of Contractor's list and assurance by the Contractor that the list has been addressed/completed, the Architect will make an inspection for final verification that the list provided is comprehensive and includes all remaining work items to be completed or corrections required OR inform the Contractor of work to be completed before an inspection will be conducted.
 - B. After receipt of the completion/punch list and prior to the architect issuing substantial completion, the architect shall require that every consultant who provided documents for the project (ie: electrical, HVAC, Plumbing, Architectural, Roof, telecomm, etc.) shall perform an onsite inspection of work completed under the scope of their responsibilities and provide a detailed final completion list of incomplete work or work requiring corrections.
 - C. This process will be the responsibility of the Architect to ensure this occurs and that the information gathered from those site visits is to be coordinated through the contractor, added to the contractor's final completion/punch list, and issued to the owner. This will ensure that all required corrections are included in the final punch list prior to substantial completion being awarded.
 - D. When the work is substantially complete, the Architect will prepare the Certificate of Substantial Completion which shall establish the date of Substantial Completion.
 - E. Results of the completed inspection will form the basis of requirements for final acceptance, **including any items discovered at a later date considered necessary to be completed for final.**
- 1.03 FINAL ACCEPTANCE: (See Section 00700 - General Conditions Section 9.10). Before requesting inspection for certification of final acceptance and final payment, complete the following:
- A. Submit a copy of the final inspection list stating that each item has been completed or otherwise resolved for acceptance.
 - B. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
 - C. Refer to Section 01027 - Application for Payment - Final Payment Application.
 - D. Provide the Architect with 'Final Statement of Compliance', for the Owner.

SECTION 017700 – CLOSEOUT PROCEDURES (continued):

- 1.04 **REINSPECTION PROCEDURE** (if required): The Architect will reinspect the Work upon receipt of notice that the Work has been completed, except items whose completion has been delayed because of circumstances acceptable to the Architect.
- A. Prior to Final completion, A Final walk through/verification of completion/correction by the various design consultants shall occur. Final payment to the contractor shall not be released until the final completion /punch list is complete 100%.
 - B. Upon completion of reinspection, the Architect will then prepare a certificate of final acceptance or advise the Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance. If necessary, reinspection will be repeated.
- 1.05 **RECORD DRAWINGS**: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark-up these drawings to show the actual installation where installation varies from that shown originally. Mark whichever drawing is most capable of showing conditions accurately. Give particular attention to concealed elements that would be difficult to measure and record at a later date. Maintain and review monthly with the Owner and Architect.
- A. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover.
 - B. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and lost. Provide access to Project Record Documents for Architect's reference during normal working hours.
 - C. Upon completion of the Work, submit Record Drawings (red-line field as-builts) to the Architect for Owner's records.
 - D. As built documents are a requirement of final close out for the project. As built documents shall include all design revisions issued during the course of the project. Those revisions shall be marked on the documents in a way that provides clarity for the noted changes. It is at the sole discretion of the architect to determine what is and what is not adequate for as built documentation.
 - E. The contractor is expected to maintain as built documents throughout the course of the project work. Monthly review of the as built documents wherein the contractor shall show the architect what changes were accepted and have been noted as revisions to the project ON the as built documents each month.
 - F. Failure to maintain as built documentation during the course of the project may be grounds to hold progress payment.
 - G. Failure to provide adequate as built documentation shall be grounds to hold final payment pending receipt of acceptable as built documentation.
- 1.06 **PROJECT RECORD SPECIFICATIONS**: Maintain one copy of the Project Manual, including addenda. Mark-up to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot be readily discerned later by direct observation. Note related record drawing information and Product Data.
- A. Maintain on site, in a 3-ring binder or other organized method, executed RFI's, ASI's, RFP's, CO's and other project record items.
 - B. All record of revisions is to be incorporated into the Project As-Built drawings
 - C. Upon completion of the Work, submit record Drawings and Specifications to the Architect for the Owner's records.
- 1.07 **PROJECT AS-BUILT DRAWINGS**: The Contractor shall, at his own expense, hire the Architect of Record to prepare as-built drawings. The Contractor shall provide to the Architect record drawings and record specifications. The Contractor is solely responsible for the content of the record drawings and the as-built documents.

SECTION 017700 – CLOSEOUT PROCEDURES (continued):

- A. Site As-built drawings shall comply with the following:
1. Show the actual locations of all components, including depth below grade, along with any changes and/or modifications to the Contract Drawings. Provide GPS coordinates for all below grade installations.
 - a. During the course of the project, various utilities are buried on site. The project as-built documentation for utilities shall include a layout for as-built conditions of all buried underground utility runs to within 3 feet of actual.
 - b. All above ground access points shall be detailed on site as built to within 1 foot of actual with GPS coordinates provided for each item.
 - c. Items to be recorded include but are not limited to water Valves, sewer manholes, storm water manholes, and sewer and storm water cleanouts, electronic junction boxes buried on site, electrical junction boxes buried on site, site transformers, and any other items as indicated on the project design documents.
 - d. All stub outs for utility tie ins shall be indicated on the as built plan.
 - e. All utilities shall be labeled every 50 feet on the as built so as to allow easy identification in the field while using electronic as built plans. All utility items listed in item 3 above shall also be labeled on the as built plans.
 - f. All dimensions and elevations, including invert elevations, shall be verified by field measurements.
 2. The Contractor is cautioned to make all necessary measurements and elevations during installation to accurately locate all concealed items.
- B. As-Built Survey: Contractor shall provide signed and sealed As-Built Survey of existing grades and structures as required by authorities having jurisdictions.

1.08 MAINTENANCE MANUALS: Organize maintenance data into sets of manageable size. Bind in individual heavy-duty 2-inch, 3-ring vinyl-covered binders, with pocket folders for folded sheet information. Mark identification on front and spine of each binder. Include the following information:

Emergency instructions.	Spare parts list.
Copies of warranties.	Wiring diagrams.
Recommended "turn around" cycles.	Inspection procedures.
Shop Drawings and Product Data.	Fixture lamping schedule.

1.09 OPERATING AND MAINTENANCE INSTRUCTIONS: Arrange for the installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. Acceptance of the owner training provided is at the sole discretion of the owner. Training provided must be comprehensive in nature and include all pertinent aspects of use and maintenance for the item(s) requiring training. Include a detailed review of the following:

Maintenance manuals.	Spare parts and materials.
Tools.	Lubricants.
Control sequences.	Hazards.
Warranties and bonds.	Maintenance agreements and similar continuing commitments.

As part of instruction for operating equipment, demonstrate the following procedures:

Start-up and shutdown.	Emergency operations.
Noise and vibration adjustments.	Safety procedures.

All operation and training sessions shall be recorded and provided to the Owner. The contractor may use their own personnel to film the training provided. Verify with Owner the appropriate format of recording that should be used.

SECTION 017700 – CLOSEOUT PROCEDURES (continued):

1.10 **FINAL CLEANING:** Employ experienced workers for final cleaning. Clean each surface to the condition expected in a commercial building cleaning and maintenance program. Complete the following, as a minimum before requesting inspection for certification of Substantial Completion:

- A. Remove labels that are not permanent labels.
- B. Clean transparent materials. Remove glazing compound. Replace chipped or broken glass.
- C. Clean exposed hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean.
- D. Vacuum carpeted surfaces.
- E. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
- F. Clean the site of rubbish, litter and other foreign substances. Sweep paved areas; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted to a smooth even-textured surface.

1.11 **REMOVAL OF PROTECTION:** Remove temporary protection and facilities.

1.12 **CLOSE OUT DOCUMENTATION:**

- A. All close out documents shall be provided in hard copy and identical electronic copy.
- B. Contractor shall provide (2) hard copies for all documents and as built plans.
- C. Contractor shall provide (4) electronic copies identical to hard copies as listed above.
 - a. Contractor shall utilize “thumb drive” media of sufficient size to accommodate entire close out package including all as built documents being saved onto (1) thumb drive encompassing (1) full copy of all documentation on that (1) drive.
 - b. Each successive copy of electronic documents shall be identical and complete.
 - c. Folder structure on the Thumb drive shall be as follows:
 - i. 0 NAME OF PROJECT
 - ii. 1 SCOPE OF WORK
 - iii. 2 AS BUILT DRAWINGS
 - iv. 3 O&M MANUALS
 - v. 4 SUB WARRANTIES
 - vi. 5 CERTIFICATES & PERMITS
 - vii. 6 TEST REPORTS
 - viii. 7 SHOP DRAWINGS
 - ix. 8 DPO VENDOR LETTERS
 - x. 9 AIA WAIVERS G706 & G707
 - xi. 10 ATTIC STOCK
 - d. Subfolder structure on the Thumb drive under items 2, 3, 4 & 7 above shall be as follows:
 - i. ARCHITECTURAL
 - ii. AUDIO VISUAL
 - iii. CIVIL
 - iv. FIRE PROTECTION
 - v. FURNISHINGS & EQUIPMENT
 - vi. KITCHEN
 - vii. LANDSCAPE
 - viii. MECHANICAL
 - ix. PLUMBING
 - x. STRUCTURAL
 - xi. TELECOMM

SECTION 017700 – CLOSEOUT PROCEDURES (continued):

- e. Under the ‘Scope of Work’ folder, provide the Title sheet showing Project Information and all Architect & Engineer names and contact information. Provide a separate brief Narrative of the Project Scope, type of Structure, HVAC and other broad project information utilized. In this narrative, if this is a Renovation, provide a list of rooms that were altered during the construction process.
- D. In addition to close out documentation, all spare parts or extra parts required by specification shall be provided at final close out. The method for this to occur is negotiable but final verification including transmittal and owner/architect verification of receipt is a close out requirement.
- E. Contractor MAY NOT deliver close out documents in multiple phases or at multiple times or to multiple parties.
- a. Initial submittal of Close out documents shall be to the Architect for review and comment.
 - b. Upon Architect acceptance, the Contractor shall gather all hard copies and electronic copies for a full and complete documentation deliverable for the project close out documentation.
 - c. In addition to items listed in various parts of the specifications, THE CONTRACTOR SHALL ALSO PROVIDE A COMPREHENSIVE SPREADSHEET THAT LISTS THE NAME AND CONTACT PERSON WITH PHONE NUMBER AND EMAIL FOR EACH SUBCONTRACTOR THAT PERFORMED WORK ON THE PROJECT. (see ‘Subcontractor Contact List’ attachment).
 - d. A Warranty spreadsheet shall also be included showing the term of any warranty provided by the subcontractor, the date the warranty started, and the end date the warranty will be completed on. (see ‘Warranty Contact List’ attachment).
 - e. The Warranty spreadsheet shall also list any manufacturers extended warranties that may exist for any item under a particular subcontractor’s scope. Include the same information listed in item d. above for manufacturer’s warranties.
- F. Once the previous item ‘E’ is finalized and all Work is completed, including ALL punch out, all paperwork, all pay applications submitted with final and retainage applied for and any unspent funds returned, such that the job is closed out and 100% completed with no lingering issues yet to be resolved, then the Contractor shall gather a complete project close out deliverable including both hard copies and electronic copies, warranties, extra parts and any other close out required items, they are to notify the architect that they are ready to schedule the PROJECT CLOSE OUT MEETING.
- a. The closeout meeting will be held at Maintenance on 933 Baldwin Road, Lynn Haven, Florida. The Contractor is required to schedule the meeting in advance and a formal meeting request sent via email and accepted by all required attendees before the meeting is held.
 - b. A list of the attendees with signatures and contact numbers shall be created and all attendees shall be noted and shall sign in.
 - c. The project close out meeting shall consist of a meeting with all stakeholders including but not limited to the following:
 - i. BDS Facilities PM
 - ii. BDS Maintenance Supervisor
 - iii. BDS Administration for the Project facility
 - iv. Architect, other design consultants as directed by the architect
 - v. Contractor project management team and project executive
 - d. The project close out meeting agenda shall include a recap of the project scope, presentation of a completed and architect approved final punch list.
 - e. Contractor shall deliver close out documents with Transmittals to Facilities & Maintenance.
 - i. Each of the transmittals shall be signed by the Architect and the Contractor signifying they have reviewed and approved the close out documents and all close out requirements have been met before the documents are turned over to BDS.

SECTION 017700 – CLOSEOUT PROCEDURES (continued):

- ii. The maintenance transmittal shall be signed by the head of maintenance signifying the close out documents have been completed and have been received by Maintenance.
 - iii. The Facilities transmittal will be signed by the Facilities project manager signifying the close out documents have been completed and have been received by Facilities.
 - iv. A copy of each transmittal will be provided to the head of maintenance, the contractor, the architect, and the original will be retained by the Facilities PM.
 - v. The original transmittals will be held in perpetuity at the facilities offices as record of the formal close out being completed.
 - f. Question and answers will be called for all participants. Any necessary follow up meetings for any lingering items associated with the project will be scheduled and coordination responsibility for each item will be assigned.
 - g. Contractor will provide meeting minutes for the meeting including action items list and schedule for completion of any action items noted during the project close out meeting
 - h. Please note in some instances final financial paperwork may be incomplete or the contract may remain open, but only with the approval of the Bay District Facilities' PM.
- 1.13 COMPLIANCE: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Remove waste materials from the site and dispose of in a lawful manner.

END OF SECTION 017700

SECTION 017800 - WARRANTIES AND BONDS

PART 1 - GENERAL

- 1.01 **STANDARD PRODUCT WARRANTIES** are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner. Note: All Standard Product Warranties are to be provided.
- 1.02 **SPECIAL WARRANTIES** are written warranties required by or incorporated in Contract Documents, to extend time limits provided by standard warranties or to provide greater rights for the Owner. Refer to the General Conditions for terms of the Contractor's special warranty of workmanship and materials.
- A. Requirements for warranties for products and installations that are specified to be warranted, are included in the individual Sections of Divisions-2 through -33.
- 1.03 **DISCLAIMERS AND LIMITATIONS**: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and Subcontractors required to countersign special warranties with the Contractor.
- 1.04 **RELATED DAMAGES AND LOSSES**: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.
- 1.05 **REINSTATEMENT OF WARRANTY**: When Work covered by a warranty has failed and been corrected, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- 1.06 **REPLACEMENT COST**: On determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through part of its useful service life.
- 1.07 **OWNER'S RECOURSE**: Written warranties made to the Owner are in addition to implied warranties, and shall not limit duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.
- A. **Rejection of Warranties**: The Owner reserves the right to reject warranties and limit selections to products with warranties not in conflict with requirements of the Contract Documents. The Owner reserves the right to refuse to accept Work where a special warranty, or similar commitment is required, until evidence is presented that entities required to countersign commitments are willing to do so.
- 1.08 **SUBMIT WRITTEN WARRANTIES** to the Architect prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion, submit written warranties on the Architect's request.
- A. When a designated portion of the Work is completed and occupied or used, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect within fifteen days of completion of that designated portion of the Work.
- B. When a special warranty is to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Architect for approval prior to final execution.

SECTION 017800 - WARRANTIES AND BONDS (continued):

- C. Refer to individual Sections of Divisions-2 through -33 for specific content, and particular requirements for submittal of special warranties.
- D. Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2" by 11" paper.
- E. Provide heavy paper dividers with celluloid covered tabs for each warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address and telephone number of the installer.
- F. Identify each binder on the front and the spine with the typed or printed title "WARRANTIES AND BONDS", the Project title or name, and the name of the Contractor.
- G. When operating and maintenance manuals are required for warranted construction, provide additional copies of each warranty, as necessary, for inclusion in each required manual.

END OF SECTION 017800

SECTION 018113 – SUSTAINABLE DESIGN REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Environmental Goals utilizing the Green Globes rating system.

1.2 DEFINITIONS

- A. Definitions pertaining to sustainable development: As defined in ASTM E2114.

1.3 ENVIRONMENTAL GOALS

- A. Sustainable building rating system:
 - 1. Green Globes – US: Provide work consistent with Green Globes –US level One Globe requirements.
- B. General list of criteria:
 - 1. There is commissioning on this project. See specification section 019113.
 - 2. See Erosion Control Plans C105 – C108 and specification section 015719.
 - 3. Energy consumption was reduced at least 15% by ASHRAE 90.1 standards.
 - 4. See Glass & Glazing Specification section for pertinent Visible Transmittance (VT) and U Values.
 - 5. Major energy uses will be sub-metered: chilled water system, hot water system, building system.
 - 6. Major energy efficient systems within the building: Energy-efficient lighting fixtures, lamps and ballasts, Lighting controls, Energy-efficient HVAC equipment, High efficiency modulating boiler, Building automation system, Variable speed drives, Energy-efficient motors
 - 7. Major water-efficient equipment utilized on this project: Low-flush toilets (1.28 gallons/flush), water-saving fixtures on lavatory faucets (.5 gpm) and low-flow kitchen faucets (1 gpm).
 - 8. Utilize durable and low maintenance building materials such as concrete, brick, metal roof, porcelain and vinyl tile.
 - 9. Refrigerants are hydrofluorocarbons with an ozone depleting potential=0.
 - 10. Air intake and exhaust louver openings are suitably protected and appropriately spaced between each other and potential pollution sources. Ventilation lining will avoid the release of pollution and fibers into the ventilation air path.
 - 11. This project has used the Indoor Air Quality procedure and CO2 monitoring.
 - 12. To prevent the growth of fungus, mold, and bacteria on building surfaces and in concealed spaces, the following measure are in place: Anti-microbial Paint, VT, Rubber Tile, Carpet, PT, Controls (BAS), humidity monitor controls the HVAC units.
 - 13. Paint, Vinyl Tile, Rubber tile, Carpet, Porcelain Tile and mechanical and electrical mastics, sealants, caulks and adhesives are low-VOC emitting, non-toxic chemically inert.
 - 14. Acoustic control is provided in the classrooms with an NRC = .7 for the ACT and STC = 55 at the wall partitions. Duct silencer meet room criteria 25.
 - 15. This is a Tobacco Free Campus.
 - 16. A Solar Reflectance Index (SRI) of 78 or higher must be attained on the roof.

1.4 COORDINATION MEETINGS:

- A. Meetings to inform, confirm and access the progress of the implementation of these green building practices will be held at the following times:
 - 1. Preconstruction meeting
 - 2. 50% Completion
 - 3. Substantial completion

END OF SECTION 018113

SECTION 019113 – GENERAL COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Commissioning. Commissioning is a systematic process of ensuring that all building systems perform interactively according to the design intent and the owner’s operational needs. Ideally, this is achieved by beginning in the design phase and documenting design intent and continuing through construction, acceptance and the warranty period with actual verification of performance. The commissioning process shall encompass and coordinate the traditionally separate functions of system documentation, equipment startup, control system calibration, testing and balancing, performance testing and training.

Commissioning activities during the construction phase is intended to achieve the following specific objectives according to the Contract Documents:

- 1) Verify that applicable equipment and systems are installed according to the manufacturer’s recommendations and to industry accepted minimum standards and that they receive adequate operational checkout by installing contractors.
 - 2) Verify and document proper functional performance of equipment and systems.
 - 3) Verify on-going proper performance persistence of systems under changing conditions throughout the first year of operation.
- B. The commissioning process does not take away from or reduce the responsibility of the system designers or installing contractors to respectively design, provide, and install a finished and fully functioning product.
- C. Abbreviations. The following are common abbreviations used in the *Specifications* and in the *Commissioning Plan*. Definitions are found in Section 1.6.

A/E-	Architect and design engineers (Sub to the Construction Manager)	FT-	Functional performance test
CA-	Commissioning authority	MC-	Mechanical contractor
CC-	Controls contractor	PC-	Prefunctional checklist
Cx-	Commissioning	PM-	Project manager (of the Owner)
Cx Plan-	Commissioning Plan document	Subs-	Subcontractors to CM
CM-	Construction Manager	TAB-	Test and balance contractor
EC-	Electrical contractor		

1.2 COORDINATION

- A. Commissioning Team. The members of the commissioning team consist of the Commissioning Authority (CA), the owner’s Project Manager (PM), the owner’s Mechanical Engineer (OME), the designated representative of the Construction Manager (CM), the architect and design engineers (particularly the mechanical engineer and the electrical engineer), the Mechanical Contractor (MC), the Plumbing Contractor (PC), the Electrical Contractor (EC), the TAB representative (TAB), the Controls Contractor (CC), any other installing subcontractors or suppliers of equipment which is part of a system identified to be commissioned. If known, other members of the Owner’s building or plant operations / maintenance staff may also a member of the commissioning team.
- B. Management. For this project, the Construction Phase CA is hired by the Owner and reports directly to the Owner while copying the Architect / Engineer and the remainder of the Commissioning Team members with all project correspondence. The CA directs and coordinates the commissioning activities. All members work together to fulfill their contracted responsibilities and meet the objectives of the Contract Documents. The CA’s responsibilities are the same regardless of who hired the CA.

- C. Scheduling. The CA will work with the Construction Manager according to established protocols to schedule the commissioning activities. The CA will provide sufficient notice to the Construction Manager for scheduling commissioning activities. The Construction Manager will integrate all milestone commissioning activities into the master schedule. All parties will address scheduling problems and make necessary notifications in a timely manner in order to expedite the commissioning process.

The CA will provide the initial schedule (or possibly just sequence) of primary commissioning events at the commissioning scoping meeting. As construction progresses more detailed schedules are developed by the CA.

1.3 COMMISSIONING PROCESS

- A. Commissioning Plan. The commissioning plan provides guidance in the execution of the commissioning process. Just after the initial commissioning scoping meeting the CA will complete the plan which is then considered the “final” construction phase commissioning plan, though it will continue to evolve and expand as the project progresses. The *Specifications* will take precedence over the *Commissioning Plan*.
- B. Commissioning Process. The following narrative provides a brief overview of the typical commissioning tasks during construction and the general order in which they occur.

Construction / Acceptance Period

1. Commissioning during construction begins with a kickoff meeting conducted by the CA where the commissioning process is reviewed with the commissioning team members.
2. Additional meetings, if required throughout construction, will be scheduled by the CA with necessary parties attending, to plan, scope, coordinate, schedule future activities and resolve problems.
3. Equipment documentation is submitted to the CA during normal submittals for use in developing and finalizing project-specific Cx documentation.
4. The CA reviews the commissioned equipment submittals for compliance with contract requirements as well as for aspects related to commissioning and owner maintenance.
5. The CA develops prefunctional checklists to be completed for systems and equipment to be commissioned during the equipment startup and check-out process. These checklists are intended to augment, not replace, the manufacturer’s standard start-up / checkout documentation. These checklists are developed and completed using the on-line Cx Plus commissioning platform provided by BES Plus Tech.
6. The CA and the Subs work together to execute and document the prefunctional checklists and perform startup and initial checkout. In general the CA will complete the installation checks portion of the prefunctional checklists while the CA and the Subs will complete the equipment start-up / checkout portions. The CA documents that the checklists and startup were completed according to the approved plans.
7. The CA develops specific equipment and system functional performance test procedures. These tests are developed and completed using the on-line Cx Plus commissioning platform provided by BES Plus Tech.
8. The Controls Contractor sets up trending of system points and automated delivery of the trend reports as directed by CA. This data, if available prior to manual functional testing, is utilized to judge the readiness of systems to be tested.
9. The CA with the assistance of the TAB Contractor completes the Test, Adjust, Balance Verification (TAB-V) process. This must be successfully completed prior to beginning functional testing for each specific system.
10. The manual functional test procedures are executed by the Subs, under the direction of, and documented by the CA.
11. Items of non-compliance in material, installation or setup are corrected at the Sub’s expense and the system retested.
12. Commissioning is substantially completed before Final Completion is granted to CM. This requires the issuance of a Final Construction Phase Cx Issues Log with all items resolved.

Warranty Period

1. For the duration of the Warranty Period the CA monitors the performance of the commissioned systems using the cloud-based Cx-PMOR system (BES Plus Tech Performance Plus). Any items identified by this monitoring shall be resolved through the Contract Warranty Process.

1.4 RELATED WORK

- A. Specific commissioning requirements are given in the following sections of these specifications. All of the following sections apply to the Work of this section.

230800	Mechanical Cx	Describes the Cx responsibilities of the mechanical, controls and TAB contractors and the prefunctional testing and startup responsibilities of each.
--------	---------------	-------------------------------------------------------------------------------------------------------------------------------------------------------

260500	Electrical Cx	Describes the Cx responsibilities of the electrical contractor.
--------	---------------	-----------------------------------------------------------------

1.5 RESPONSIBILITIES

- A. The responsibilities of various parties in the commissioning process are provided in this section. It is noted that the services for the Project Manager, Architect, HVAC mechanical and electrical designers/engineers, and Commissioning Authority are not provided for in this contract. That is, the Contractor is not responsible for providing their services as they are contracted separately with the Owner. Their responsibilities are listed here to clarify the commissioning process.

B. All Parties

1. Attend Pre-commissioning Meeting and normal construction period Commissioning Meetings, as deemed necessary by the CA, PM, and Construction Manager to effectively participate in the Cx Process.
2. Each company / organization identified as being a member of the Cx Team shall designate an employee who is involved and familiar with the project to be the point-of-contact (POC) for the Cx process.
3. The identified POC shall regularly review the on-line Issue Log at the BES Plus Tech website project portal and the report documents which are emailed to the Cx Team.
4. The POC shall respond to any and all issues assigned to the company / organization that they are representing in the Cx Process within five (5) working days of the date the issue is added to the Log. Failure by a construction team member to effectively participate in the Cx Process, as judged by the Owner, can be considered cause for holding a construction progress payment.

C. Architect

Construction and Acceptance Phase

1. Perform normal submittal review, construction observation, as-built drawing preparation, O&M manual preparation, etc., as specifically contracted to the Owner.
2. Provide any design narrative documentation requested by the CA.
3. Coordinate resolution of system deficiencies identified during commissioning, according to the contract documents.
4. Prepare and submit final as-built design intent documentation for inclusion in the O&M manuals. Review and approve the O&M manuals.

Warranty Period

1. Coordinate resolution of design non-conformance and design deficiencies identified during warranty-period commissioning.

D. Mechanical and Electrical Designers / Engineers (of the A/E)

Construction and Acceptance Phase

1. Perform normal submittal review, construction observation, as-built drawing preparation, etc., as contracted. One site observation should be completed just prior to system startup.
2. Provide any design narrative and sequences documentation requested by the CA. The designers shall assist (along with the contractors) in clarifying the operation and control of commissioned equipment in areas where the specifications, control drawings or equipment documentation is not sufficient for writing detailed testing procedures.
3. Participate in the resolution of system deficiencies identified during commissioning, according to the contract documents.
4. Prepare and submit the final as-built design intent and operating parameters documentation for inclusion in the O&M manuals. Review and approve the O&M manuals.
5. Provide a presentation at one of the training sessions for the Owner's personnel.

Warranty Period

1. Participate in the resolution of non-compliance, non-conformance and design deficiencies identified during warranty-period.

E. Commissioning Authority (CA)

The CA is not responsible for design concept, design criteria, compliance with codes, design or general construction scheduling, cost estimating, or construction management. The CA may assist with problem-solving non-conformance or deficiencies, but ultimately that responsibility resides with the Construction Manager and his Subs. The primary role of the CA is to develop and coordinate the execution of a testing plan, observe and document performance—that systems are functioning in accordance with the documented design intent and in accordance with the Contract Documents. At the direction and discretion of the CA, the Contractors will provide tools or the use of tools to start, check-out and functionally test equipment and systems.

Construction and Acceptance Phase

1. Coordinates and directs the commissioning activities in a logical, sequential and efficient manner using consistent protocols and forms, centralized documentation, clear and regular communications and consultations with all necessary parties, frequently updated timelines and schedules and technical expertise.
2. Coordinate the commissioning work and, with the Construction Manager, ensure that commissioning activities are being scheduled into the master schedule.
3. Plan and conduct a pre-commissioning meeting (Cx Kickoff Meeting) and participate in construction coordination and Owner-Contractor meetings as required to support the Cx Process.
4. Request and review additional information required to perform commissioning tasks, including O&M materials, contractor start-up and checkout procedures.
5. Before startup, gather and review the current control sequences and interlocks and work with contractors and design engineers until sufficient clarity has been obtained, in writing, to be able to write detailed testing procedures.
6. Review normal Contractor submittals applicable to systems being commissioned for compliance with commissioning needs, concurrent with the Construction Manager reviews.
7. Write and distribute prefunctional tests and checklists.
8. Perform site visits, as necessary, to observe component and system installations. Attends selected planning and job-site meetings to obtain information on construction progress. Review construction meeting minutes for revisions / substitutions relating to the commissioning process. Assist in resolving any discrepancies.
9. Witness all or part of the HVAC piping test and flushing procedure, sufficient to be confident that proper procedures were followed. Document this testing and include the documentation in O&M manuals. Notify owner's project manager of any deficiencies in results or procedures. At the discretion of the CA this testing may be witnessed by an alternate party (e.g. PM, TAB, Construction Manager) as approved by the CA, documentation shall be provided to the CA that the testing was completed satisfactorily and according to specifications.

10. Witness all or part of any ductwork testing and cleaning procedures, sufficient to be confident that proper procedures were followed. Document this testing and include the documentation in O&M manuals. Notify owner's project manager of any deficiencies in results or procedures. At the discretion of the CA this testing may be witnessed by an alternate party (e.g. PM, TAB, Construction Manager) as approved by the CA, documentation shall be provided to the CA that the testing was completed satisfactorily and according to specifications.
11. Document equipment installation meets contract requirements by completion of the installation checks portion of the prefunctional checklists. Work together with Subs to complete the equipment start-up and check-out portion of the checklists. Approve prefunctional tests and checklist completion by reviewing prefunctional checklist reports and by selected site observation and spot checking.
12. Approve systems startup by reviewing start-up reports and by selected site observation.
13. Review TAB execution plan, discuss concerns and comments with TAB.
14. Oversee sufficient functional testing of the control system and approve it to be used for TAB, before TAB is executed.
15. Approve air and water systems balancing by spot testing, by reviewing completed reports and by selected site observation.
16. With necessary assistance and review from installing contractors, write the functional performance test procedures for equipment and systems. This may include energy management control system trending, stand-alone datalogger monitoring or manual functional testing.
17. Analyze functional performance trend logs and monitoring data to verify performance.
18. Coordinate, witness and approve manual functional performance tests performed by installing contractors. Coordinate retesting as necessary until satisfactory performance is achieved.
19. Maintain a master deficiency and resolution log (aka 'Issues Log') and a separate testing record. Provide the Construction Manager with written progress reports and test results with recommended actions.
20. Provide a final commissioning report (as described in this section).

Warranty Period

1. Configure and maintain the cloud-based Cx-PMOR performance monitoring system throughout the Warranty Period to identify performance and operational issues. Issues shall be documented using On-Going Issues Log and shall be corrected by way of the Contract Warranty Process.
2. Verify completion and effectiveness of required deficiency corrections for issues discovered during Warranty Period.

F. Construction Manager (CM)

Construction and Acceptance Phase

1. Facilitate the coordination of the commissioning work by the CA, and ensure that commissioning activities are being scheduled into the master schedule.
2. Include the cost of providing commissioning assistance to the CA as described in the drawings and this and other related specification sections in the total contract price. *(do NOT include the cost of the Commissioning Authority as they are under contract to the Owner)*
5. Furnish a copy of all construction documents, addenda, change orders and approved submittals and shop drawings related to commissioned equipment to the CA.
6. In each purchase order or subcontract written, include requirements for submittal data, O&M data, commissioning tasks and training.
7. Review commissioning progress and deficiency reports.
8. Coordinate the resolution of non-compliance and design deficiencies identified in all phases of commissioning.
9. Assist the Owner PM and the CA in coordinating the training of owner personnel.
10. Ensure that all Subs execute their commissioning responsibilities according to the Contract Documents and schedule.
11. Coordinate the training of owner personnel in accordance to Contract Documents.

12. Prepare O&M manuals, according to the Contract Documents, including clarifying and updating the original sequences of operation to as-built conditions.

Warranty Period

1. Ensure that Subs complete deficiency corrections for issues discovered during Warranty Period.

G. Owner's Project Manager (PM)

Construction and Acceptance Phase

1. Manage the contract of the CA, A/E, and the Construction Manager.
2. Arrange for facility operating and maintenance personnel to attend various field commissioning activities and field training sessions according to the *Commissioning Plan—Construction Phase*.
3. Provide final approval for the completion of the commissioning work.

Warranty Period

1. Ensure that any seasonal or deferred testing and any deficiency issues are addressed.

H. Equipment Suppliers

1. Provide all requested submittal data, including detailed start-up procedures and specific responsibilities of the Owner to keep warranties in force.
2. Assist in equipment testing per agreements with Subs and as required by individual equipment specification sections.
3. Include all special tools and instruments (only available from vendor, specific to a piece of equipment) required for testing equipment according to these Contract Documents in the base bid price to the Contractor, except for stand-alone data logging equipment that may be used by the CA.
4. Provide information requested by CA regarding equipment sequence of operation and testing procedures.
5. Review test procedures for equipment installed by factory representatives.
6. Provide Owner Training activities per individual equipment specification sections to include trainer personnel meeting specification qualification and experience requirements. Training provided shall meet or exceed the time duration as specified in the equipment specification sections unless specifically authorized in writing by the Owner PM that less training is acceptable.

1.6 DEFINITIONS

Acceptance Phase - phase of construction after startup and initial checkout when functional performance tests, O&M documentation review and training occurs.

Approval - acceptance that a piece of equipment or system has been properly installed and is functioning in the tested modes according to the Contract Documents.

Basis of Design (BOD)- The basis of design is the documentation of the primary thought processes and assumptions behind design decisions that were made to meet the design intent. The basis of design describes the systems, components, conditions and methods chosen to meet the intent. Some reiterating of the design intent may be included. The document records concepts, calculations, decisions, and product selections used to meet the OPR and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.

Commissioning Authority (CA)- an independent agent, not otherwise associated with the Construction Manager or his Subs. The CA directs and coordinates the day-to-day commissioning activities. Regardless of to whom the CA is contracted, the CA shall report directly to the Owner's Project Manager (PM).

Commissioning Plan - an overall plan, developed before or after bidding, that provides the structure, schedule and coordination planning for the commissioning process.

Contract Documents - the documents binding on parties involved in the construction of this project (drawings, specifications, change orders, amendments, contracts, *Cx Plan*, etc.).

Control system - the central building energy management control system.

Cx-PMOR – see PMOR.

Datalogging - monitoring flows, currents, status, pressures, etc. of equipment using stand-alone dataloggers separate from the control system.

Deficiency - a condition in the installation or function of a component, piece of equipment or system that is not in compliance with the Contract Documents (that is, does not perform properly or is not complying with the design intent).

Construction Manager - the contractor providing general construction services and oversight of trade subcontractors as well as providing professionals who comprise the design team such as the HVAC mechanical designer/engineer and the electrical designer/engineer.

Design Intent - a dynamic document that provides the explanation of the ideas, concepts and criteria that are considered to be very important to the owner. It is initially the outcome of the programming and conceptual design phases.

Design Narrative or Design Documentation - sections of either the Design Intent or Basis of Design.

Factory Testing - testing of equipment on-site or at the factory by factory personnel with an Owner's representative present.

Functional Performance Test (FT) - test of the dynamic function and operation of equipment and systems using manual (direct observation) or monitoring methods. Functional testing is the dynamic testing of systems (rather than just components) under full operation (e.g., the chiller pump is tested interactively with the chiller functions to see if the pump ramps up and down to maintain the differential pressure set point). Systems are tested under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, fire alarm, power failure, etc. The systems are run through all the control system's sequences of operation and components are verified to be responding as the sequences state. Traditional air or water test and balancing (TAB) is not functional testing, in the commissioning sense of the word. TAB's primary work is setting up the system flows and pressures as specified, while functional testing is verifying that which has already been set up. The commissioning authority develops the functional test procedures in a sequential written form, coordinates, oversees and documents the actual testing, which is usually performed by the installing contractor or vendor. FTs are performed after prefunctional checklists and startup are complete.

Indirect Indicators - indicators of a response or condition, such as a reading from a control system screen reporting a damper to be 100% closed.

Manual Test - using hand-held instruments, immediate control system readouts or direct observation to verify performance (contrasted to analyzing monitored data taken over time to make the "observation").

Monitoring - the recording of parameters (flow, current, status, pressure, etc.) of equipment operation using dataloggers or the trending capabilities of control systems.

Non-Compliance - see Deficiency.

Non-Conformance - see Deficiency.

Over-written Value - writing over a sensor value in the control system to see the response of a system (e.g., changing the outside air temperature value from 50F to 75F to verify economizer operation). See also "Simulated Signal."

Owner-Contracted Tests - tests paid for by the Owner outside the Construction Manager's contract and for which the CA does not oversee. These tests will not be repeated during functional tests if properly documented.

Owner's Project Requirements (OPR) - A document that details the functional requirements of a project and the expectations of how it will be used and operated. These include Project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information.

Performance Monitoring, Optimization, and Reporting (PMOR) – cloud based SaaS (Software as a Service) which provides automated building operating data acquisition, analysis, archival, and reporting by utilizing data provided from the building automation system to continually analyze and improve the overall performance of the building and its underlying mechanical and electrical systems.

Phased Commissioning - commissioning that is completed in phases (by floors, for example) due to the size of the structure or other scheduling issues, in order minimize the total construction time.

Prefunctional Checklist (PC) - a list of items to inspect and elementary component tests to conduct to verify proper installation of equipment, provided by the CA to the Sub. Prefunctional checklists are primarily static inspections and procedures to prepare the equipment or system for initial operation (e.g., belt tension, oil levels OK, labels affixed, gages in place, sensors calibrated, etc.). However, some prefunctional checklist items entail simple testing of the function of a component, a piece of equipment or system (such as measuring the voltage imbalance on a three phase pump motor of a chiller system). The word prefunctional refers to before functional testing. Prefunctional checklists augment and are combined with the manufacturer's start-up checklist. Even without a commissioning process, contractors typically perform some, if not many, of the prefunctional checklist items a commissioning authority will recommend. However, few contractors document in writing the execution of these checklist items. Therefore, for most equipment, the contractors execute the checklists on their own. The commissioning authority only requires that the procedures be documented in writing, and does not witness much of the prefunctional checklisting, except for larger or more critical pieces of equipment.

Project Manager (PM) - the contracting and managing authority for the owner over the design and/or construction of the project, a staff position.

Sampling - functionally testing only a fraction of the total number of identical or near identical pieces of equipment. Refer to Section 019113, Part 3.6, F for details.

Simulated Condition - condition that is created for the purpose of testing the response of a system (e.g., applying a hair blower to a space sensor to see the response in a VAV box).

Simulated Signal - disconnecting a sensor and using a signal generator to send an amperage, resistance or pressure to the transducer and DDC system to simulate a sensor value.

Specifications - the construction specifications of the Contract Documents.

Startup - the initial starting or activating of dynamic equipment, including executing prefunctional checklists.

Subs - the subcontractors to the Construction Manager who provide and install building components and systems.

Test Procedures - the step-by-step process which must be executed to fulfill the test requirements. The test procedures are developed by the CA.

Test Requirements - requirements specifying what modes and functions, etc. shall be tested. The test requirements are not the detailed test procedures.

Trending - monitoring using the building control system.

Vendor - supplier of equipment.

Warranty Period - warranty period for entire project, including equipment components. Warranty begins at Substantial Completion and extends for at least one year, unless specifically noted otherwise in the Contract Documents and accepted submittals.

1.7 SYSTEMS TO BE COMMISSIONED

A. The following systems or equipment will be commissioned in this project.

1. HVAC Systems:
 - a. Air Cooled Chiller
 - b. Chilled Water Pumps
 - c. Natural Gas Condensing Boiler
 - d. Heating Water Pumps
 - e. Air Distribution System Ductwork
 - f. Variable Frequency Drives
 - g. Multi-Zone VAV Air Handling Units
 - h. Air Terminal Units with Hot Water Reheat Coils
 - i. Mini-Split DX Air Conditioning Units
 - j. Split-System DX Heat Pumps
 - k. DX 100% Outside Air Units
 - l. Exhaust Air Systems
 - m. Testing, Adjusting, Balancing (scope as specified in Contract)
 - n. HVAC Control System components
(a.k.a. Building Automation System)
2. Domestic Hot Water Systems
 - a. Domestic Water Heater
 - b. Recirculation Pump
 - c. Thermostatic Mixing Valve
3. Electrical Systems:
 - a. Power Distribution related to HVAC equipment
 - b. Lighting Control Systems

PART 2 - PRODUCTS

2.1 TEST EQUIPMENT

- A. All standard testing equipment required to perform startup and initial checkout and required functional performance testing shall be provided by the Division contractor for the equipment being tested. For example, the mechanical contractor of Division 23 shall ultimately be responsible for all standard testing equipment for the HVAC system and controls system in Division 23, except for equipment specific to and used by TAB in their commissioning responsibilities. Two-way radios, when required, shall be provided by the Division Contractor.
- B. Special equipment, tools and instruments (only available from vendor, specific to a piece of equipment) required for testing equipment, according to these Contract Documents shall be included in the base bid price to the Contractor and left on site, for the CA to use during functional testing, seasonal testing, and deferred testing. The equipment, tools, and instruments will be returned to the vendor / Subs after successful conclusion of the commissioning effort.
- C. All testing equipment shall be of sufficient quality and accuracy to test and/or measure system performance with the tolerances specified in the *Specifications*. If not otherwise noted, the following minimum requirements shall apply: Temperature sensors and digital thermometers shall have a certified calibration within the past year to an accuracy of 0.5°F and a resolution of + or - 0.1°F. Humidity sensors shall have a certified calibration within the past 6 months and a resolution of +/- 1%. Pressure sensors shall have an accuracy of + or - 2.0% of the value range being measured (not full range of meter) and have been calibrated within the last year. All equipment shall be calibrated according to the manufacturer's recommended intervals and when dropped or damaged. Calibration tags shall be affixed or certificates readily available.

PART 3 - EXECUTION

3.1 MEETINGS

- A. Pre-Commissioning Meeting. The CA will schedule, plan and conduct a pre-commissioning meeting with the entire commissioning team in attendance. This is also known as the Commissioning Kickoff Meeting.
- B. Miscellaneous Meetings. Meetings regarding the Commissioning Process that may be required throughout the construction period will be scheduled as agenda items at the Construction Manager's regularly scheduled construction coordination meetings or Owner-Contractor meetings. An exception to this policy would be extraordinary meetings which are deemed necessary by the CA and the Construction Manager with necessary parties attending in order to resolve outstanding deficiencies toward the end of the construction period.

3.2 REPORTING

- A. The CA will provide regular reports to the Owner's PM with copy to the Construction Manager, depending on the management structure, with increasing frequency as construction and commissioning progresses. Standard forms are provided and referenced in the *Commissioning Plan*.
- B. The CA will regularly communicate with all members of the commissioning team, keeping them apprised of commissioning progress and scheduling changes through memos, progress reports, etc. delivered via group email.
- C. Testing or review approvals and non-conformance and deficiency reports are made regularly with the review and testing as described in later sections.
- D. A final summary report (about four to six pages, not including backup documentation) by the CA will be provided to the PM, focusing on evaluating commissioning process issues and identifying areas where the process could be improved. All acquired documentation, logs, minutes, reports, deficiency lists, communications, findings, unresolved issues, etc., will be compiled in appendices and provided with the summary report.

3.3 SUBMITTALS

- A. The CA will provide appropriate contractors with a specific request for the type of submittal documentation the CA requires to facilitate the commissioning work. These requests will be integrated into the normal submittal process and protocol of the construction team. This request will include the manufacturer and model number, the manufacturer's printed installation and detailed start-up procedures, full sequences of operation, O&M data, performance data, any performance test procedures, and control drawings (e.g. typical formal construction submittals).
- B. These submittals to the CA do not constitute compliance for O&M manual documentation and review of the equipment submittals is not for contract compliance. The O&M manuals are the responsibility of the Contractor, though the CA will review and utilize this documentation for purposes of facilitating the Commissioning process. Review of the equipment submittals for contract compliance is the responsibility of the A/E.

3.4 START-UP, PREFUNCTIONAL CHECKLISTS AND INITIAL CHECKOUT

- A. The following procedures apply to all equipment to be commissioned, according to Section 1.7, Systems to be Commissioned. Some systems that are not comprised so much of actual dynamic machinery and thus may have very simplified PCs and startup.
- B. General. Prefunctional checklists are important to ensure that the equipment and systems are hooked up and operational. It ensures that functional performance testing (in-depth system checkout) may proceed

without unnecessary delays. Each piece of equipment receives full prefunctional checkout. No sampling strategies are used. The prefunctional testing for a given system must be successfully completed prior to formal functional performance testing of equipment or subsystems of the given system.

C. Start-up and Initial Checkout Plan. The CA shall assist the commissioning team members responsible for startup of any equipment in developing detailed start-up plans for all equipment. The primary role of the CA in this process is to ensure that there is written documentation that each of the manufacturer-recommended procedures have been completed. Parties responsible for prefunctional checklists and startup are identified in the commissioning scoping meeting and in the checklist forms. Parties responsible for executing functional performance tests are identified in the testing requirements outlined in the *Commissioning Plan – Construction Phase*.

1. These checklists indicate required procedures to be executed as part of startup and initial checkout of the systems and the party responsible for their execution.
2. These checklists and tests are provided by the CA to the Contractor. The CA will complete the installation checks portion of the checklists while the Subs will assist the CA in completing the equipment start-up and check-out portions. Most forms will have more than one trade responsible for its execution.
3. The CA may utilize some or all of a manufacturer’s start-up documentation.

D. Sensor and Actuator Calibration.

All field-installed temperature, relative humidity, CO, CO₂ and pressure sensors and gages, and all actuators (dampers and valves) on all equipment shall be calibrated using the methods described below. Alternate methods may be used, if approved by the Owner and CA before-hand. All test instruments shall have had a certified calibration within the last 12 months. Sensors installed *in* the unit at the factory with calibration certification provided need not be field calibrated.

All procedures used shall be fully documented on the prefunctional checklists or other suitable forms, clearly referencing the procedures followed and written documentation of initial, intermediate and final results.

Sensor Calibration Methods

All Sensors. Verify that all sensor locations are appropriate and away from causes of erratic operation. Verify that sensors with shielded cable, are grounded only at one end. For sensor pairs that are used to determine a temperature or pressure difference, make sure they are reading within 0.2°F of each other for temperature and within a tolerance equal to 2% of the reading, of each other, for pressure. Tolerances for critical applications may be tighter.

Make a reading with a calibrated test instrument within 6 inches of the site sensor. Verify that the sensor reading (via the permanent thermostat, gage or building automation system (BAS)) is within the tolerances in the table below of the instrument-measured value. If not, install offset in BAS, calibrate or replace sensor.

Tolerances, Standard Applications

<u>Sensor</u>	<u>Required Tolerance (+/-)</u>	<u>Sensor</u>	<u>Required Tolerance (+/-)</u>
Cooling coil, chilled and condenser water temps	0.4F	Flow rates, water	4% of design
AHU wet bulb or dew point	2.0F	Relative humidity	4% of design
Hot water coil and boiler water temp	1.5F	Combustion flue temps	5.0F
Outside air, space air, duct air temps	0.4F	Oxygen or CO ₂ monitor	0.1 % pts
Watt-hour, voltage & amperage	1% of design	CO monitor	0.01 % pts
Pressures, air, water and gas	3% of design	Natural gas and oil flow rate	1% of design
Flow rates, air	10% of design	Steam flow rate	3% of design
		Barometric pressure	0.1 in. of Hg

The above stated tolerances shall be considered the most stringent required. Based on field conditions and the relative affect of a sensor to the operation of the system(s) the CA may choose to relax the above tolerances at his discretion subject to approval of the PM.

Valve and Damper Stroke Setup and Check BAS Readout. For all valve and damper actuator positions checked, verify the actual position against the BAS readout.

Set pumps or fans to normal operating mode. Command valve or damper closed, visually verify that valve or damper is closed and adjust output zero signal as required. Command valve or damper open, verify position is full open and adjust output signal as required. Command valve or damper to a few intermediate positions. If actual valve or damper position doesn't reasonably correspond, replace actuator.

E. Execution of Prefunctional Checklists and Startup.

1. Four weeks prior to startup, the Subs and vendors schedule startup and checkout with the Construction Manager who will notify the CA. The performance of the prefunctional checklists, startup and checkout are directed and executed by the CA with the assistance of the Sub or vendor as required. The CA will primarily complete the installation checks portion of the checklists while the Subs will assist with the equipment start-up and check-out portion. When checking off prefunctional checklists, signatures may be required of other Subs for verification of completion of their work.
2. The Subs and vendors shall execute startup and provide the CA with a signed and dated copy of the completed start-up and prefunctional tests and checklists.
3. Only individuals that have direct knowledge and witnessed that a line item task on the prefunctional checklist was actually performed shall initial or check that item off. It is not acceptable for witnessing supervisors to fill out these forms.

F. Deficiencies, Non-Conformance and Approval in Checklists and Startup.

1. The CA shall clearly list any outstanding items of the initial start-up and prefunctional procedures that were not completed successfully, at the bottom of the procedures form or on an attached sheet.
2. The CA shall work with the Subs and vendors to correct and retest deficiencies or uncompleted items. The CA will involve the Construction Manager and others as necessary. The installing Subs or vendors shall correct all areas that are deficient or incomplete in the checklists and tests in a timely manner, and shall notify the CA as soon as outstanding items have been corrected and resubmit an updated start-up report and a Statement of Correction on the original non-compliance report. When satisfactorily completed, the CA recommends approval of the execution of the checklists and startup of each system to the Construction Manager using a standard form.

3.5 TEST, ADJUST, BALANCE (TAB) VERIFICATION (TAB-V)

A. TAB Agency shall provide labor and instruments to complete TAB Verification process with the Commissioning Agent. TAB Verification (TAB-V) shall be conducted to verify the contents of the Engineer-of-Record reviewed TAB Report. The verification shall include the following sampling rates and strategies:

1. Supply Air Flow: a sample 20% of the total supply air outlets / terminal unit calibrations shall be tested, acceptable tolerance shall be +/- 10% between the measured airflow and the design airflow / DDC indicated airflow. If more than 25% of the sample requires correction at the time of testing then another 10% of the total quantity of supply air outlets shall be tested.
2. Exhaust Air Balance: ALL exhaust air devices (including fume hoods) on the project shall be verified to have airflows balanced to +/- 10% of the design airflow. Fume hood balance shall be verified based on face velocity through sash opening being not less than required velocity (- 0%) but not more than +10%.

3. Outside Air Flow Measurement Station Calibration: ALL outside air flow measurement stations shall be calibrated by the TAB Agency (with assistance of Controls Contractor). ALL flow measurement station calibrations shall be verified, +/- 10% between the measured total airflow and the airflow indicated by the DDC system.
 4. Heating Water Flow Balance: a sample 20% of the total terminal unit heating water flows shall be tested, acceptable tolerance shall be +/- 10% between the measured flow and the design flow. If more than 25% of the sample requires correction at the time of testing then another 10% of the total quantity shall be tested.
 5. Chilled Water Flow Balance: ALL chilled water cooling coils on the project shall be verified, acceptable tolerance shall be +/- 10% between the measured chilled water flow and the design water flow.
- B. The TAB Agency may be responsible to pay for the additional trip(s) required of the Cx Professional to test additional outlets due to test failures on a time and material basis.
- 3.6 PERFORMANCE MONITORING, OPTIMIZATION & REPORTING (PMOR)
- A. Objectives and Scope.
1. This project will utilize a cloud-based SaaS (Software as a Service) commissioning, performance monitoring, optimization, and reporting (PMOR) system which is provided under the CA contracted scope of work. The system shall be utilized during three distinctive phases of the project: construction, acceptance, and warranty phase.
- B. Construction Phase - System Readiness:
1. The PMOR system will be utilized prior to Functional Performance Testing in order to gauge the readiness of the systems to be tested.
 2. At least 10 days prior to the scheduled start of functional testing the BAS shall have delivered two weeks of operating data to the PMOR system. If the building automation system communication capabilities are not complete sufficiently to enable the BAS to email trend reports then the Controls Contractor shall manually generate two weeks trend data to a report. This manual report shall be the SAME EXACT REPORT FORMAT as was prior approved and will be used for the permanent reporting (specified elsewhere herein). This manual report shall either be emailed to the CA or shall be emailed to the project's specific PMOR email account.
 3. Following receipt of two weeks of operating data (either automatically or manual) the CA shall review the data utilizing the PMOR system to assess the readiness of the specific system to begin on-site functional testing.
 4. The CA shall notify the project team of the any deficiencies identified by the trend data analysis that would need to be addressed prior to beginning functional testing.
- C. Acceptance Phase – Post Functional Test Monitoring:
1. The PMOR system shall be utilized following on-site Functional Testing to assess dynamic operation stability and to ensure the systems operate properly under varying load conditions and occupancy modes. This is a limited length testing and is intended to be conducted for a short period (approximately two weeks) prior the completion of the formal functional testing.
 2. Any deficiencies identified during this monitoring period shall be added to the project Commissioning Issue Log to be addressed by the Contractor as construction deficiencies. Some deficiencies identified by this monitoring may required supplemental on-site functional testing to be performed at the cost of the Contractor.
- D. Warranty Phase – Monitoring:

1. The PMOR system will be utilized during the first year following substantial completion to monitor the performance of the building and the individual systems.
2. Any operational deficiency identified by the system will be documented using the system's online Issue Log and the deficiency will be resolved through the contract's Project Warranty process.
3. At eleven months following substantial completion the CA shall provide a comprehensive review of the system operation using the PMOR system to analyze the data provided from the BAS. An updated Warranty Phase Issue Log shall be generated and the Contractor shall resolve all issues determined by the team to be subject to Warranty requirements.
4. At the Owner's option, and additional cost, the services of the CA and the PMOR system may be utilized after the expiration of the Warranty Phase as an On-Going Commissioning process.

3.7 FUNCTIONAL PERFORMANCE TESTING

- A. This sub-section applies to all commissioning functional testing for all divisions.
- B. The general list of equipment to be commissioned is found in Section 019113, Part 1.4. The specific equipment and modes to be tested are found in the *Commissioning Plan – Construction Phase*.
- C. The parties responsible to execute each test are listed with each test in the *Commissioning Plan – Construction Phase*.
- D. Objectives and Scope. The objective of functional performance testing is to demonstrate that each system is operating according to the documented design intent and Contract Documents. Functional testing facilitates bringing the systems from a state of substantial completion to full dynamic operation. Additionally, during the testing process, areas of deficient performance are identified and corrected, improving the operation and functioning of the systems.

In general, each system should be operated through all modes of operation (seasonal, occupied, unoccupied, warm-up, cool-down, part- and full-load) where there is a specified system response. Verifying each sequence in the sequences of operation is required. Proper responses to such modes and conditions as power failure, freeze condition, low oil pressure, no flow, equipment failure, etc. shall also be tested. Specific modes required in this project are given in the *Commissioning Plan – Construction Phase*.

- E. Development of Test Procedures. Before test procedures are written, the CA shall obtain all requested documentation and a current list of change orders affecting equipment or systems, including an updated points list, program code, control sequences and parameters. The CA shall develop specific test procedures and forms to verify and document proper operation of each piece of equipment and system. Each Sub or vendor responsible to execute a test, shall provide limited assistance to the CA in developing the procedures review (answering questions about equipment, operation, sequences, etc.). Prior to execution, the CA shall provide a copy of the test procedures to the Sub(s) who shall review the tests for feasibility, safety, equipment and warranty protection. The CA may submit the tests to the PM or Construction Manager for review, if requested.

The CA shall review owner-contracted, factory testing or required owner acceptance tests which the CA is not responsible to oversee, including documentation format, and shall determine what further testing or format changes may be required to comply with the *Specifications*. Redundancy of testing shall be minimized.

The purpose of any given specific test is to verify and document compliance with the stated criteria of acceptance given on the test form.

The test procedure forms developed by the CA may include (but not be limited to) the following information:

1. System and equipment or component name(s)
2. Equipment location and ID number
3. Unique test ID number, and reference to unique prefunctional checklist and start-up documentation ID numbers for the piece of equipment
4. Date
5. Project name
6. Participating parties
7. A copy of the specific sequence of operations or other specified parameters being verified
8. Formulas used in any calculations
9. Required pre-test field measurements
10. Instructions for setting up the test.
11. Special cautions, alarm limits, etc.
12. Specific step-by-step procedures to execute the test, in a clear, sequential and repeatable format
13. Acceptance criteria of proper performance with a Yes / No check box to allow for clearly marking whether or not proper performance of each part of the test was achieved.
14. A section for comments
15. Signatures and date block for the CA

F. Test Methods.

1. Functional performance testing and verification may be achieved by manual testing (persons manipulate the equipment and observe performance) or by monitoring the performance and analyzing the results using the control system's trend log capabilities or by stand-alone dataloggers (if stand-alone dataloggers are required then they will be provided and installed by the CA). The CA will determine which method is most appropriate for tests that do not have a method specified.
2. Simulated Conditions. Simulating conditions (not by an overwritten value) shall be allowed, though timing the testing to experience actual conditions is encouraged wherever practical.
3. Overwritten Values. Overwriting sensor values to simulate a condition, such as overwriting the outside air temperature reading in a control system to be something other than it really is, shall be allowed, but shall be used with caution and avoided when possible. Such testing methods often can only test a part of a system, as the interactions and responses of other systems will be erroneous or not applicable. Simulating a condition is preferable. e.g., for the above case, by heating the outside air sensor with a hair blower rather than overwriting the value or by altering the appropriate set point to see the desired response. Before simulating conditions or overwriting values, sensors, transducers and devices shall have been calibrated.
4. Simulated Signals. Using a signal generator which creates a simulated signal to test and calibrate transducers and DDC constants is generally recommended over using the sensor to act as the signal generator via simulated conditions or overwritten values.
5. Altering Setpoints. Rather than overwriting sensor values, and when simulating conditions is difficult, altering setpoints to test a sequence is acceptable. For example, to see the AC compressor lockout work at an outside air temperature below 55F, when the outside air temperature is above 55F, temporarily change the lockout setpoint to be 2F above the current outside air temperature.
6. Indirect Indicators. Relying on indirect indicators for responses or performance shall be allowed only after visually and directly verifying and documenting, over the range of the tested parameters, that the indirect readings through the control system represent actual conditions and responses. Much of this verification is completed during prefunctional testing.
7. Setup. Each function and test shall be performed under conditions that simulate actual conditions as close as is practically possible. The Sub executing the test shall provide all necessary materials, system modifications, etc. to produce the necessary flows, pressures, temperatures, etc. necessary to execute the test according to the specified conditions. At completion of the test, the Sub shall return all affected building equipment and systems, due to these temporary modifications, to their pre-test condition.
8. Sampling. Multiple identical pieces of non-life-safety or otherwise non-critical equipment may be functionally tested using a sampling strategy. Significant application differences and significant sequence of operation differences in otherwise identical equipment invalidates their common

identity. A small size or capacity difference, alone, does not constitute a difference. The specific recommended sampling rates are specified in the *Commissioning Plan – Construction Phase*. It is noted that no sampling by Subs is allowed in prefunctional checklist execution.

A common sampling strategy referenced in the *Specifications* as the “xx% Sampling—yy% Failure Rule” is defined by the following example.

xx = the percent of the group of identical equipment to be included in each sample.
yy = the percent of the sample that if failing, will require another sample to be tested.

The example below describes a 20% Sampling—10% Failure Rule.

- a. Randomly test at least 20% (xx) of each group of identical equipment. In no case test less than three units in each group. This 20%, or three, constitute the “first sample.”
- b. If 10% (yy) of the units in the first sample fail the functional performance tests, test another 20% of the group (the second sample).
- c. If 10% of the units in the second sample fail, test all remaining units in the whole group.
- d. If at any point, frequent failures are occurring and testing is becoming more troubleshooting than verification, the CA may stop the testing and require the responsible Sub to perform and document a checkout of the remaining units, prior to continuing with functionally testing the remaining units.

- G. Coordination and Scheduling. The Subs shall provide sufficient notice to the CA regarding their completion schedule for the prefunctional checklists and startup of all equipment and systems. The CA will schedule functional tests through the Construction Manager and affected Subs. The CA shall direct, witness and document the functional testing of all equipment and systems. The Subs shall execute the tests.

In general, functional testing is conducted after prefunctional testing and startup has been satisfactorily completed. The control system is sufficiently tested and approved by the CA before it is used for TAB or to verify performance of other components or systems. The air balancing and water balancing is completed and debugged before functional testing of air-related or water-related equipment or systems. Testing proceeds from components to subsystems to systems. When the proper performance of all interacting individual systems has been achieved, the interface or coordinated responses between systems is checked.

- H. Test Equipment. Refer to Section 019113, Part 2 for test equipment requirements.
- I. Problem Solving. The CA will recommend solutions to problems found, however the burden of responsibility to solve, correct and retest problems is with the Construction Manager and his Subs.

3.8 DOCUMENTATION, NON-CONFORMANCE AND APPROVAL OF TESTS

- A. Documentation. The CA shall witness and document the results of all functional performance tests using the specific procedural forms developed for that purpose. Prior to testing, these forms are provided to the PM for review and approval and to the Subs for review. The CA will include the filled out forms in the Commissioning Record.
- B. Non-Conformance.
1. The CA will record the results of the functional test on the procedure or test form. All deficiencies or non-conformance issues shall be noted and reported to the Construction Manager on a standard non-compliance form.
 2. Corrections of minor deficiencies identified may be made during the tests at the discretion of the CA. In such cases the deficiency and resolution will be documented on the procedure form.
 3. Every effort will be made to expedite the testing process and minimize unnecessary delays, while not compromising the integrity of the procedures. However, the CA will not be pressured into

- overlooking deficient work or loosening acceptance criteria to satisfy scheduling or cost issues, unless there is an overriding reason to do so at the request of the PM.
4. As tests progress and a deficiency is identified, the CA discusses the issue with the executing contractor.
 - a. When there is no dispute on the deficiency and the Sub accepts responsibility to correct it:
 - 1) The CA documents the deficiency and the Sub's response and intentions and they go on to another test or sequence. After the day's work, the CA submits the non-compliance reports to the PM, if required. A copy is provided to the Sub and CA. The Sub corrects the deficiency, signs the statement of correction at the bottom of the non-compliance form certifying that the equipment is ready to be retested and sends it back to the CA.
 - 2) The CA reschedules the test and the test is repeated.
 - b. If there is a dispute about a deficiency, regarding whether it is a deficiency or who is responsible:
 - 1) The deficiency shall be documented on the non-compliance form with the Sub's response and a copy given to the Construction Manager and to the Sub representative assumed to be responsible.
 - 2) Resolutions are made at the lowest management level possible. Other parties are brought into the discussions as needed. Final interpretive authority is with the Construction Manager. Final acceptance authority is with the Project Manager.
 - 3) The CA documents the resolution process.
 - 4) Once the interpretation and resolution have been decided, the appropriate party corrects the deficiency, signs the statement of correction on the non-compliance form and provides it to the CA. The CA reschedules the test and the test is repeated until satisfactory performance is achieved.
 5. Cost of Retesting.
 - a. At the discretion of the CA, A/E, and the Owner, the cost for the *Sub* to retest a functional test, if they are responsible for the deficiency, shall be theirs. If they are not responsible, any cost recovery for retesting costs shall be negotiated with the CM.
 - b. For a deficiency identified, not related to any start-up or initial checkout fault, the following shall apply: The CA and PM will direct the retesting of the equipment once at no "charge" to the CM for their time. However, the CA's time for a second retest will be charged to the CM, who may choose to recover costs from the responsible Sub.
 - c. The time for the CA to direct any retesting required because a specific start-up or checkout item, reported to have been successfully completed, but determined during functional testing to be faulty, will be backcharged to the CM, who may choose to recover costs from the party responsible for executing the faulty prefunctional test.
 6. The Contractor shall respond using the commissioning website concerning the status of each apparent outstanding discrepancy identified during commissioning. Discussion shall cover explanations of any disagreements and proposals for their resolution. Comments shall be provided at least five (5) days after deficiency is noted or prior to a scheduled commissioning meeting whichever occurs first.
 8. Any required retesting by any contractor shall not be considered a justified reason for a claim of delay or for a time extension by the prime contractor.
- C. Approval. The CA notes each satisfactorily demonstrated function on the test form. Formal approval of the functional test is made later after review by the CA and by the PM, if necessary. The CA recommends acceptance of each test to the PM using a standard form. The PM gives final approval on each test using the same form, providing a signed copy to the CA and the Contractor.

3.9 OPERATION AND MAINTENANCE MANUALS / FINAL COMMISSIONING REPORT

A. O&M Manuals.

1. The specific content and format requirements for the project O&M manuals shall be per Construction Managers contract requirements with Owner and Construction Manager standard format for such. Special requirements for the controls contractor and TAB contractor are found in their respective specification sections.
2. CA Review and Approval. For this project the CA will not be involved in review and approval of the O&M manuals.
3. Final Commissioning Report Details. The final commissioning report shall include an executive summary, list of participants and roles, brief building description, overview of commissioning and testing scope and a general description of testing and verification methods. For each piece of commissioned equipment, the report should contain the disposition of the commissioning authority regarding the adequacy of the equipment, documentation and training meeting the contract documents in the following areas:
 - 1) Equipment meeting the equipment specifications,
 - 2) Equipment installation,
 - 3) Functional performance and efficiency,
 - 4) Equipment documentation and design intent, and
 - 5) Operator training.All outstanding non-compliance items shall be specifically listed. Recommendations for improvement to equipment or operations, future actions, commissioning process changes, etc. shall also be listed. Each non-compliance issue shall be referenced to the specific functional test, inspection, trend log, etc. where the deficiency is documented. The functional performance and efficiency section for each piece of equipment shall include a brief description of the verification method used (manual testing, BAS trend logs, data loggers, etc.) and include observations and conclusions from the testing.
3. Other documentation will be retained by the CA.

3.10 TRAINING OF OWNER PERSONNEL

- A. The CM shall coordinate with the Owner for desired training sequencing and scheduling and shall provide the approved schedule of training to the Owner and CA for review and approval. The Mechanical Contractor, Controls Contractor, Electrical Contractor, and Equipment Suppliers shall complete all training activities and documentation as directed by the CM, the approved schedule, and the specific equipment specification sections.

3.11 WRITTEN WORK PRODUCTS

- A. The commissioning process generates a number of written work products described in various parts of the *Specifications*. The *Commissioning Plan—Construction Phase*, lists all the formal written work products, describes briefly their contents, who is responsible to create them, their due dates, who receives and approves them and the location of the specification to create them. In summary, the written products are:

<u>Product</u>	<u>Developed By</u>
1. Final commissioning plan	CA
2. Cx Meeting minutes	CA
3. Commissioning schedules	CA with Construction Manager
4. Equipment documentation submittals	Subs
5. Sequence clarifications	Subs and Construction Manager
6. Prefunctional checklists	CA
7. Final TAB report	TAB

- | | | |
|-----|-------------------------------|-----------|
| 8. | Issues Log (deficiencies) | CA |
| 9. | Commissioning Progress Record | CA |
| 10. | Functional test forms | CA |
| 11. | O&M manuals | Subs |
| 12. | Overall training plan | CM |
| 13. | Specific training agendas | Subs / CM |
| 14. | Final commissioning report | CA |

END OF SECTION 019113

SECTION 023000 - GEOTECHNICAL DATA

PART 1 - GENERAL

1.01 Subsurface soil explorations were conducted at the site by:

Southern Earth Sciences, Inc.
7500 McElvey Rd, Suite A
Panama City Beach, FL 32408
850-769-4773

The results are issued in a report entitled, "Geotechnical Services for the Proposed Additions to Deane Bozeman School in Southport, Bay County, Florida" dated June 8, 2022.

1.02 **INTERPRETATION:**

Geotechnical Data is provided only for the information and the convenience of the Bidders. The Owner and the Architect/Engineer disclaim any responsibility for the accuracy, true location and extent of the Geotechnical Data that has been prepared by others. They further disclaim responsibility for interpretation of that data by Bidders, as in projecting soil-bearing values, rock profiles, soil stability and the presence, level and extent of underground water.

The FINDINGS AND RECOMMENDATIONS and the STRUCTURAL RECOMMENDATIONS in the report are to be utilized as the basis of design for earthwork under buildings and structures. If any design parameters conflict, between this report and the specifications, the more stringent shall be followed.

END OF SECTION 023000



PANAMA CITY OFFICE
7500 McElvey Road, Ste. A
Panama City Beach, FL 32408
Tel: (850) 769-4773
Fax: (850) 872-9967
www.soearth.com

CRA Architects
2027 Thomasville Rd
Tallahassee, FL 32308
Attn: Ms. Melinda Lindsey

June 8, 2022
File No.: P22-0258

Subject: Geotechnical Services for the Proposed Additions to Deane Bozeman School in Southport, Bay County, Florida

Dear Ms. Lindsey:

Southern Earth Sciences, Inc., has completed the geotechnical services for the proposed additions at Deane Bozeman School in Southport, Bay County, Florida. Our services were performed in general accordance with proposal number XP22-4.18.22-1, dated April 18, 2022. This report presents the results of our field and laboratory testing and includes recommendations with regard to the design and construction of the foundations as well as soil and groundwater conditions for the design of the stormwater management area.

FIELD INVESTIGATIVE PROCEDURES:

Prior to our field testing, the boring locations were staked and we reviewed the locations with school maintenance personnel. Additionally Sunshine State One Call of Florida was contacted to locate underground utilities. On May 19 and 20, 2022, personnel with our firm traveled to the project site and completed the field testing for the above referenced project. For our geotechnical investigation, nine (9) cone penetrometer soundings were performed to depths ranging from 20 feet below the existing ground surface. Six were performed in the main classroom building, two were performed in the field house building, and one was performed at the press box building. The cone penetrometer is track mounted and rather than sampling and testing at five foot intervals, as normally done with a standard penetration borings, the cone penetrometer is an electronic device that provides continuous evaluation of the soils bearing capacity through point and frictional resistances. The cone penetrometer is hydraulically pushed into the soil with point and frictional resistances obtained continuously on a computer printout. This testing equipment provides an accurate definition of the soil strength characteristics and the changes in stratification. The cone soundings were performed in general accordance with ASTM D5778.

To verify soil conditions encountered within the depth of our cone soundings, direct push borings were performed to depths of approximately 10 to 20 feet below the existing ground surface. For stormwater design, four borings were performed in the area of the

proposed stormwater additions to depths of ten feet below existing grade. The direct push borings were performed with our Geoprobe 6622 and the DT22 soil sampling system. This is a closed-piston sampler, with an inner piston rod and outer drive casing, and is driven to the top of the sampling interval. The inner piston rod is removed and the sampler is driven to collect a soil sample. The soil samples are collected in a clear 5-foot PVC liner and are delivered back to our laboratory for soil classifications and laboratory testing.

Test locations were established in the field by using a hand held GPS and measurements from existing landmarks, therefore, our test locations should be considered approximate. See the attached Figure for our approximate test locations.

LABORATORY TESTING PROCEDURES:

Laboratory investigative work consisted of physical examination of samples obtained during the soil test boring operation. Soil samples were visually classified in the laboratory in accordance with the Unified Soil Classification System. Evaluation of these samples, in conjunction with penetration resistances, have been used to estimate soil characteristics.

Natural Moisture: Three (3) samples were selected for determination of their natural moisture content. In the laboratory, each sample was weighed, dried, and its moisture content was calculated in general accordance with ASTM D2216.

Percent Passing 200 Mesh Sieve: Three (3) samples were selected to determine their percent of materials, by dry weight, finer than the U.S. Number 200 Mesh Sieve. This test was performed in general accordance with ASTM D1140.

The laboratory test results are shown on the boring logs at the depth of the tested sample. Abbreviations of laboratory data are shown below:

NM = Natural Moisture Content (%)

-200 = Percent Finer than the U.S. No. 200 Mesh Sieve

CONE SOUNDINGS:

CPT Log graphically indicates the cone tip resistance, friction ratio, equivalent N-value and interpreted soil type at each sounding location. Soil classifications and data were interpreted from methods recommended by Robertson and Campanella and/or the Swedish Geotechnical Institute Information Publication No. 15E. Correlations between Cone Resistance values and Standard Penetration Testing "N" values were performed according to the methods developed by Robertson, Campanella and Wightman.

The soil types and stratigraphy shown on the CPT Log sheets are based upon material parameters measured and evaluated as the cone is advanced. The CPT Log sheets were developed for general information only.

SITE AND SOIL CONDITIONS:

The new additions will be located at the northeast side of campus. Currently this area is south and east of the existing baseball field and west of the agriculture area. This area is also currently used for bus parking. At this time topographic information is not available. Based upon Google Earth and Bay County GIS this area ranges from approximately +85 to +87 Feet. The area is mostly level between test locations. The stormwater expansion areas are located on the northeast side of campus as well as the southwest side near the entrance road. Most areas are grassed with some trees near the agriculture area.

The logs of our cone soundings and direct push borings are attached. Topographic information has not been provided, therefore, elevations of our test locations are unknown.

The soils encountered throughout our soundings/borings were sands. The sands we encountered varied in color and texture ranging from slightly silty to silty, slightly clayey to clayey and clean sands. The sands encountered throughout our testing were primarily clean to slightly silty with some silty and clayey layers. In general the sands encountered within the top five (5) feet are very loose to loose. At test location C-1, we encountered these very loose sands to a depth of seven (7) feet below existing grade. These sands are not unsuitable, however, will need preparation prior to foundation construction. Beyond the very loose sands we encountered medium dense to dense slightly silty to slightly clayey sands throughout the remaining extent, however, at test location C-3 we encountered a loose zone from approximately 15 to 17 feet. It should also be noted, within the top 6 to 18-inches we encountered various amounts of organics near the surface mostly consisting of roots, grasses, and topsoil.

On the date of our field testing (May 19, 2022), the groundwater level was not able to be measured due to the borehole collapsing at depths ranging from 14 to 16 feet below existing ground surface. This is a common occurrence in loose dry sands. Based upon the cone soundings we anticipate the groundwater depths to range between 16 to 18 feet below existing ground surface. Fluctuations in the water table depths will occur due to seasonal precipitation/evapotranspiration differences, and neighboring drainage influences, therefore, prior to foundation construction we recommend that groundwater levels be verified.

STRUCTURAL INFORMATION:

The proposed additions will consist of the large two-story classroom building, a new field house building, and a press box building. The classroom building will be roughly 17,000 square feet, two-story, tilt-up concrete wall structure. The field house building will be roughly 3000 square feet and will be a single-story tilt-up wall structure. The press box building will be roughly 360 square feet and will be a two-story tilt-up structure. At this time, finished floor elevations of the structures are unknown. However, based upon the terrain and the existing buildings, we anticipate one foot or less of filling will be required. We have discussed the project with the Structural Engineer, Mr. Brad Johnson, PE. He has provided maximum wall loads of 11 kips per lineal foot for the main classroom building, wall loads in the Field house to be 3.5 kips per lineal foot, and wall loads for the press box to be roughly 3.5 kips per lineal foot. We understand the bottoms of footings will be roughly 2.5 to 3 feet below the finished floor elevation, which will likely be one to two feet below existing grade. If any of this information is incorrect, we should be notified to provide additional foundation recommendations.

We also understand there will be stormwater management additions and expansions. Two of the existing ponds on the south end of campus will be expanding. There will be two new areas of stormwater retention on the northeast side of campus near the additions. At this time pond size and bottom elevations are unknown. We understand these will be dry retention systems.

FOUNDATION RECOMMENDATIONS

Our evaluation of foundation conditions has been based on structural information presented in this report and subsurface data obtained during our investigation. In evaluating soundings and direct push borings, we have used correlations that were previously made between penetration resistances and foundation stabilities observed in soil conditions similar to those encountered at your site.

Based upon the loose to very loose sands that were encountered typically within the top five feet within our borings, we recommend compaction of these sands prior to construction. These loose sands will cause settlements from the significant weight of the structures. The groundwater levels were encountered deeper in our soundings, therefore no dewatering will be required. The sands within the top five feet are typically clean to slightly silty sands and are suitable, however, will need to be compacted. Based upon the depth to groundwater and soil type, we anticipate the compaction with a heavy vibratory roller may produce acceptable results. Since the neighboring structures are approximately 75 feet away from the proposed footprint, a vibratory roller may be used with caution for compaction of the existing soils. However, a test strip will need to be performed initially to determine if compaction can be

achieved at four to five feet below existing ground surface. If it cannot be achieved at this depth, partial over-excavation and compaction will be required. This may require over-excavation of the loose sands within the top two to three feet and compaction at this depth. Once achieved, the excavated sands (free of organics) can be replaced in 1-foot lifts and compacted each lift until finished grade is achieved.

Based upon the results of our field and laboratory testing, it is our opinion that with pre-densification of loose surficial sands, the proposed structure may be supported on a conventionally designed shallow foundation system. We recommend footings be proportionally designed for an allowable soil contact pressure of 2000 psf or less. We have calculated settlements of approximately one inch, or less. We recommend continuous footings have a minimum width of 18 inches and a minimum embedment depth of 18 inches from the bottom of the footings to the outside finished grade. We also recommend the footings have top and bottom reinforcement. Prior to foundation construction we recommend the following site and soil preparations.

1. Clear and grub the surface soils within the building perimeter and extend at least five (5) feet beyond the building perimeter to remove all topsoil, organics laden sands, and other deleterious materials. Based upon the results of our borings, these soils typically were encountered within the top six to eighteen inches of our borings.
2. Once the topsoil has been grubbed, prior to the addition of fill soils, compact the existing soils until a density of 95% of the Modified Proctor (ASTM D-1557) maximum dry density is achieved to a depth of five (5) feet below compacted grade. Moisture conditioning of the soils including the addition of water may be required to achieve optimum moisture conditions for compaction. Since there are no adjacent structures within 75 feet, a vibratory roller may be used for compaction.

Compact the existing soils with a minimum of ten (10) passes in each of two perpendicular directions, with 20% overlap between passes. The vibratory roller shall have a minimum static weight of ten tons and shall deliver a minimum dynamic force of 20,000 pounds. We recommend that an Engineering Technician with our firm be present during compaction efforts. Compaction should continue until a density of 95% of the Modified Proctor maximum dry density is achieved to a depth of five feet below compacted grade. It may be necessary to partially excavate two to three feet to obtain proper compaction to this depth.

3. Fill soils shall be sands to slightly silty sands containing no more than twelve (12) percent, by dry weight, finer than U.S. No. 200 mesh sieve. Fill shall be placed in thin level lifts not to exceed twelve (12) inches, loose, and compacted to a density of 95% of the

Modified Proctor maximum dry density throughout its full depth.

4. Once footings are excavated, compact the soils at the bottom of footings to achieve a minimum density of 95% of the Modified Proctor maximum dry density to a depth of twelve (12) inches.
5. Laboratory moisture-density relationships (Proctors) and in-place density tests should be performed to verify compliance with the foregoing compaction recommendations. We recommend one density test per column footing, one density test per 75 lineal feet of wall footing, and one density test per 3000 square feet of existing soils and for each foot of fill soils.

TESTING:

The effectiveness of the foundation will depend significantly on the proper preparation of the soils, as indicated previously. Therefore, we recommend the owner employ Southern Earth Sciences, Inc., as the testing laboratory to perform construction testing services. If we are not employed to provide construction testing services, Southern Earth Sciences, Inc., can not accept any responsibility for any conditions, which deviate from those described in this geotechnical report. Southern Earth Sciences, Inc., should be invited to the pre-construction conference to discuss the project with all interested parties so that the project may be completed expeditiously and to the intent of our geotechnical report. We would be pleased to review the plans and specifications as they relate to the soil preparation and provide a fee proposal for construction testing.

FIELD TESTING FOR STORMWATER DESIGN:

While the borings and double-ring infiltrometer tests performed for this project are representative of subsurface soil conditions at their respective locations/depths and for their respective vertical reaches, local variations of the subsurface materials, vertical infiltration rates, and seasonal high groundwater levels are anticipated. Soil descriptions and vertical infiltration rates, and seasonal high groundwater levels represent subsurface conditions at the designated locations.

We understand the proposed stormwater ponds will be a dry retention systems. As mentioned above, two will be located on the south side of campus at the existing ponds. The ponds will match the existing systems. There will be two new ponds constructed at the northeast side of campus near the additions. At this time, the depths of the ponds are unknown. On the date of our field testing (May 19, 2022), the groundwater levels were not encountered within the depths of our borings. As mentioned above, based upon our cone

soundings, we anticipate the groundwater levels to be beyond 16 feet below existing ground surface at the northeast side of campus near test locations SW-1 and SW-2. The stormwater borings extended to depths of 10 feet below existing ground surface. At our test locations, seasonal high groundwater levels were determined by characteristics such as soil colors and soil mottles. Based upon the results of our borings, the estimated depth to seasonal high groundwater level is beyond 7.5 feet at test locations SW-1, SW-2, and SW-3, and beyond 6 feet at test location SW-4. It may be advisable to have a Professional Surveyor obtain the elevations of our test locations which would help further define the elevation of the seasonal high groundwater elevations. During periods of above average rainfall, groundwater levels may rise above the seasonal high depths indicated above.

Vertical Infiltration Rates:

To estimate the vertical infiltration rates double-ring infiltrometer tests were performed at each test location SW-1 through SW-4 at a depth of approximately 1.5 feet below the existing ground surface. The double ring infiltrometer test was performed in general accordance with ASTM D-3385 "Infiltration Rate of Soils in Field Using Double-Ring Infiltrometers". The soils were presaturated prior to performing the test. The double ring infiltration test does not include the effect of long-term saturation and groundwater mounding.

The results for the double-ring infiltrometer test is graphically illustrated as accumulated intake (inches) versus time (min) and infiltration rate (in/hr) versus time (min) for the test period on the attached Graph. Based upon the results of our double-ring infiltrometer tests, the unsaturated vertical infiltration rate at test location SW-1 is approximately 13.1 inches per hour, approximately 23.6 inches per hour at test location SW-2, approximately 26.2 inches per hour at test location SW-3, and approximately 5.25 inches per hour at test location SW-4. We should note the infiltration rate is not factored and should be used with an appropriate factor of safety.

The vertical infiltration rate stated above should not be considered the drawdown rate of the pond or swales. The drawdown rate is a complex 3-dimensional phenomenon dependent upon numerous factors including pond/system geometry, vertical and horizontal infiltration rates, groundwater mounding, etc. The prediction of the drawdown rate is made more difficult by varying soil/groundwater conditions. The Northwest Florida Water Management District recommends a correlation factor between unsaturated vertical infiltration rates and horizontal hydraulic conductivity of 1.5.

GENERAL COMMENTS:

Professional judgments on design criteria are presented in this letter. These are based partly on our evaluations of technical information provided, partly on our understanding of the characteristics of the project being planned, and partly on our general experience with subsurface conditions in the area. We do not guarantee performance of the project in any respect, only that our judgments meet the standard of care of our profession.

This information is exclusively for the use and benefit of the addressee(s) identified on the first page of this report and is not for the use or benefit of, nor may it be relied upon by any other person or entity. The contents of this letter may not be quoted in whole or in part or distributed to any person or entity other than the addressee(s) hereof without, in each case, the advance written consent of the undersigned.

This report has been prepared in order to aid in the evaluation of this property and to assist the architects and engineers in the foundation design. It is intended for use with regard to the specific project discussed herein, and any substantial changes in the buildings, loads, locations, or assumed (or reported) grades shall be brought to our attention immediately so that we may determine how such changes may effect our conclusions and recommendations. We would appreciate the opportunity to review the plans and specifications for the foundation and floor construction to verify that our conclusions and recommendations are interpreted correctly. Our report does not address environmental issues which may be associated with the subject property.

While the cone soundings and borings performed for this project are representative of subsurface soil conditions at their respective locations and for their respective vertical reaches, local variations of the subsurface materials are anticipated and may be encountered. The boring logs and related information are based on the driller's logs and visual examination of selected samples in the laboratory. Delineation between soil types shown on the boring logs is approximate, and soil descriptions represent our interpretation of subsurface conditions at the designated boring location on the particular date drilled.

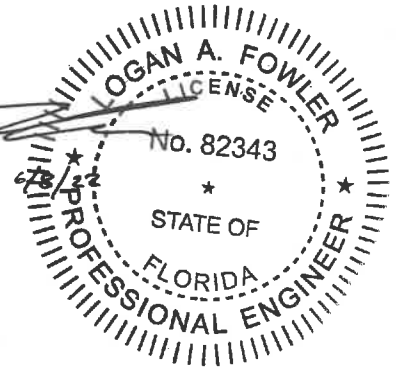
We appreciate the opportunity to assist you. If you have any questions or if we may be of further assistance, please call at your convenience.

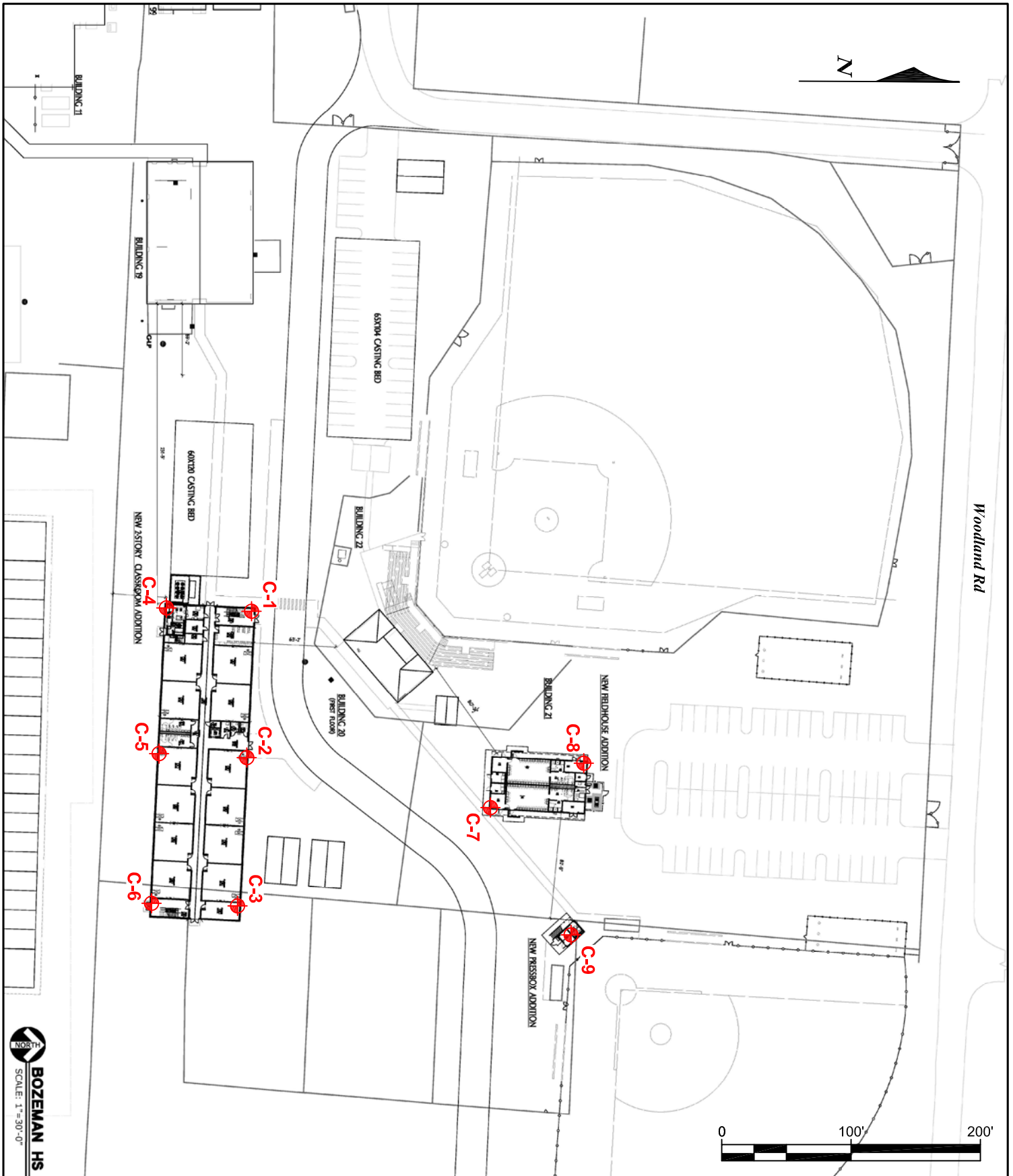
Sincerely,

SOUTHERN EARTH SCIENCE, INC.



Logan A. Fowler, P.E.
Eng. Reg. No. 82343
State of Florida





BOZEMAN HS
SCALE: 1" = 30'-0"

SESI FILE NO:
P22-0258

Deane Bozeman School
Classroom & Stormwater Addn's
Southport, Bay County, FL



DRAWN BY: LF

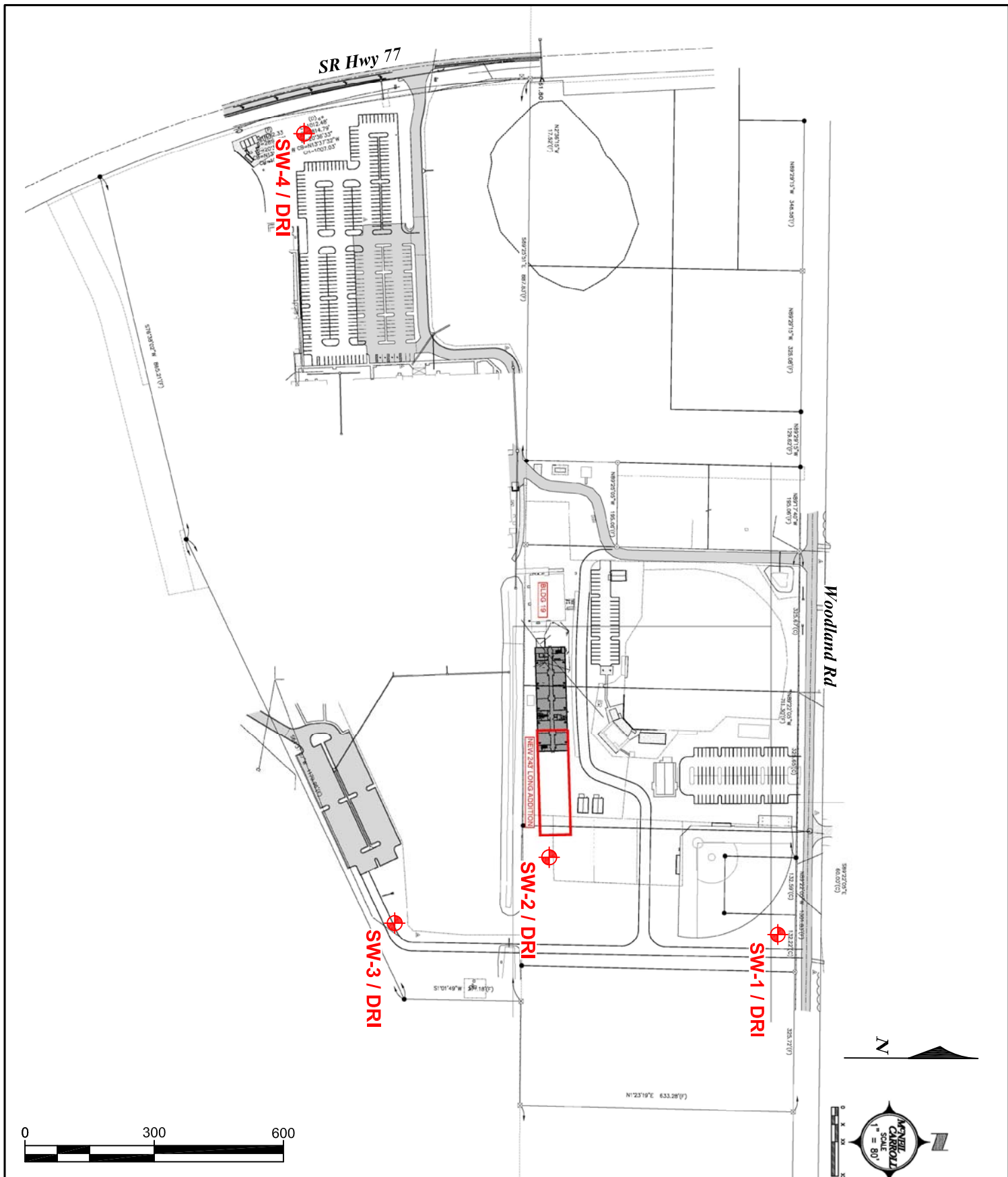
CHECKED BY: LF

DATE: 6/3/22

SCALE: 1:100

FIGURE I
Structural Borings

APPROXIMATE TEST
LOCATIONS



SESI FILE NO:
P22-0258

Deane Bozeman School
Classroom & Stormwater Addn's
Southport, Bay County, FL



DRAWN BY:	LF
CHECKED BY:	LF
DATE:	6/3/22
SCALE:	1:300

FIGURE 2
Stormwater Borings

APPROXIMATE TEST
LOCATIONS

SOUTHERN EARTH SCIENCES

Operator: DUSTIN THOMPSON

CPT Date/Time: 5/19/2022 8:18:33 AM

Sounding: CPT-1

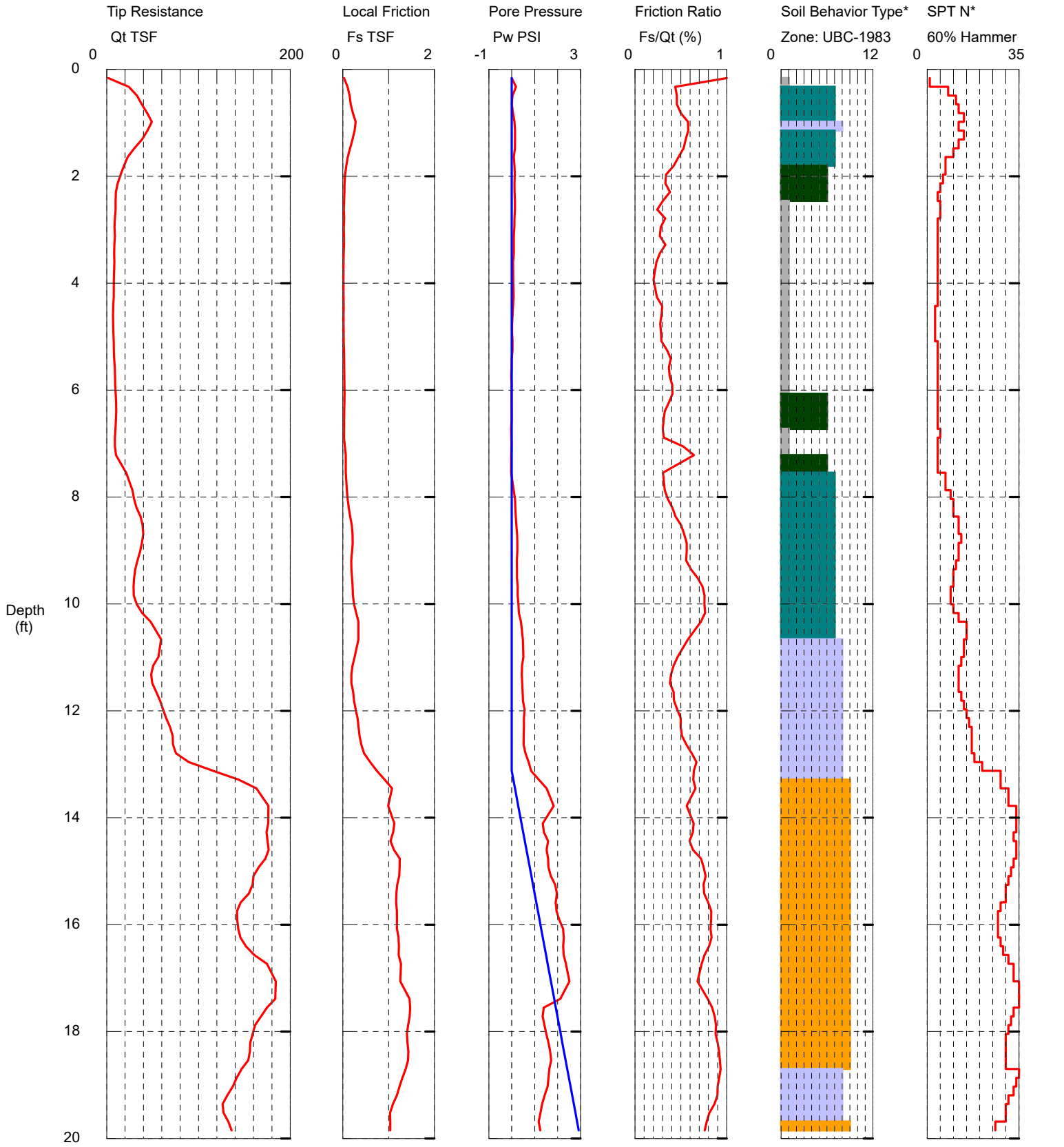
Location: DEANE BOZEMAN SCHOOL ADDITIONS

Cone Used: DDG1485

Job Number: P22-0258

Groundwater: Borehole Collapsed Dry at 15'

Elevation: Unknown



Maximum Depth = 19.85 feet

Depth Increment = 0.164 feet

- 1 sensitive fine grained
- 2 organic material
- 3 clay

- 4 silty clay to clay
- 5 clayey silt to silty clay
- 6 sandy silt to clayey silt

- 7 silty sand to sandy silt
- 8 sand to silty sand
- 9 sand

- 10 gravelly sand to sand
- 11 very stiff fine grained (*)
- 12 sand to clayey sand (*)

Filter On
Auto Enhance On

VETTIN

*Soil behavior type and SPT based on data from UBC-1983

LOG OF BORING C-1

PROJECT: Deane Bozeman School Additions
LOCATION: Southport, Bay County, FL
PROJECT NO.: P22-0258
DATE: 05/19/22

METHOD: Direct Push
DRILLER: DT
ENGR / GEOL: LF
SURFACE ELEVATION: Unknown

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION	▲ N Value (blows/ft)				NATURAL MOISTURE (%)	ATTERBERG LIMITS (%)			PASSING #200 SIEVE (%)
			Per Plan - Main Bldg	20	40	60	80		LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
				Atterberg Limits Natural Moisture								
MATERIAL DESCRIPTION				20	40	60	80	LL	PL	PI		
0		SP	Light Tan Fine SAND									
		SP	Tan Fine SAND									
5		SP	Light Tan Fine SAND									
		SP	Light Orange Fine SAND									
10		SP-SM	Brown Slightly Silty Fine SAND									
		SC	Tan and Gray Clayey Fine SAND									
		SP-SM	Gray and Brown Slightly Silty Fine SAND									
15												

LOG OF BORING P21-0258.GPJ SES PC FL.GDT 6/7/22

Water Level Est. Seasonal High GWL: ▾ Measured: ▼ Perched: ▼ **Notes:**
 Water Observations: Groundwater Not Encountered -
 Borehole Collapsed Dry at 15'

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)
 Sample Key: SPT Shelby Tube **SOUTHERN EARTH SCIENCES, inc.**

SOUTHERN EARTH SCIENCES

Operator: DUSTIN THOMPSON

CPT Date/Time: 5/19/2022 8:35:18 AM

Sounding: CPT-2

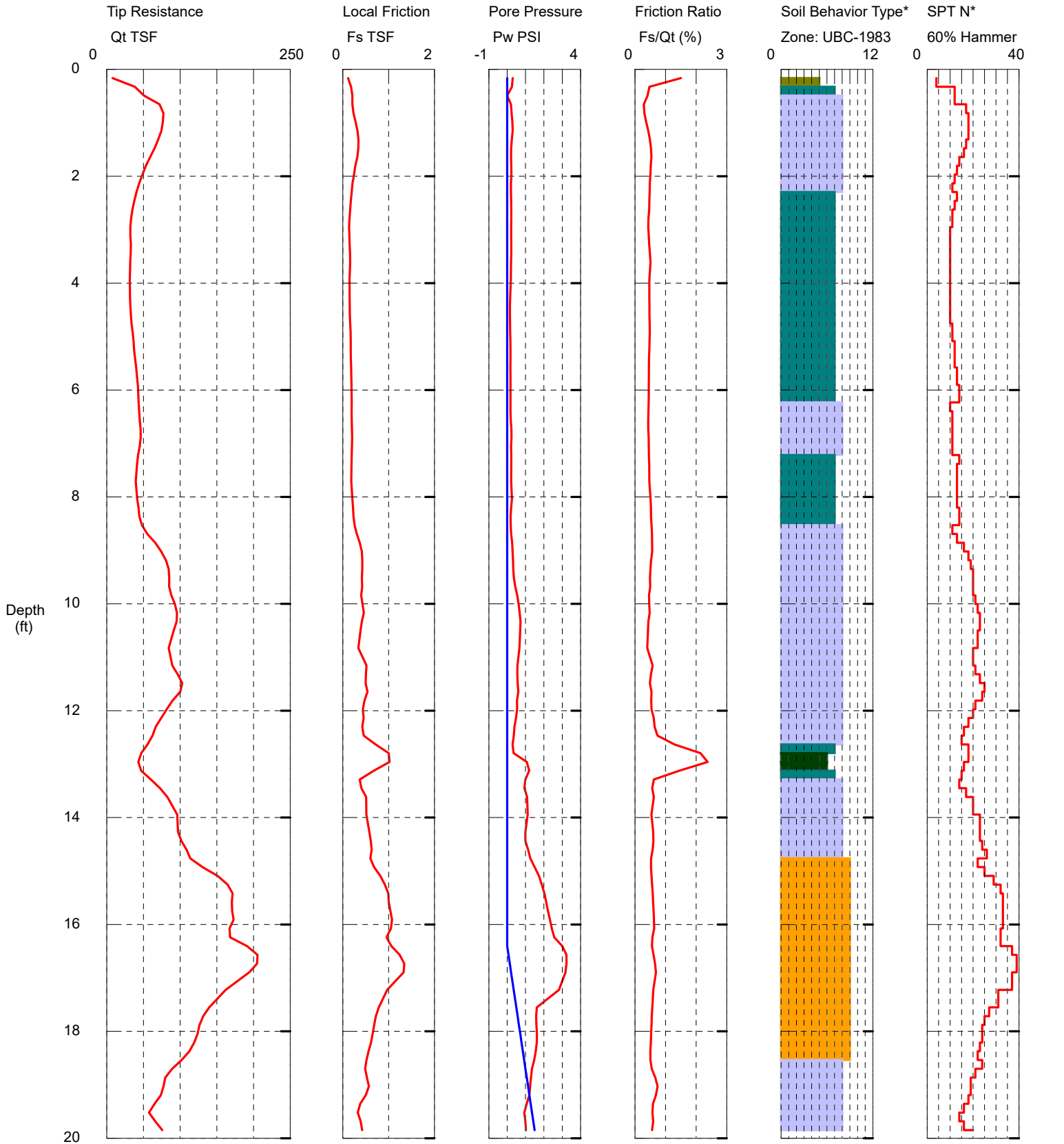
Location: DEANE BOZEMAN SCHOOL ADDITIONS

Cone Used: DDG1485

Job Number: P22-0258

Groundwater: Borehole Collapsed Dry at 15'

Elevation: Unknown



Maximum Depth = 20.01 feet

Depth Increment = 0.164 feet

- 1 sensitive fine grained
- 2 organic material
- 3 clay

- 4 silty clay to clay
- 5 clayey silt to silty clay
- 6 sandy silt to clayey silt

- 7 silty sand to sandy silt
- 8 sand to silty sand
- 9 sand

- 10 gravelly sand to sand
- 11 very stiff fine grained (*)
- 12 sand to clayey sand (*)

Filter On
Auto Enhance On

VETTIN

*Soil behavior type and SPT based on data from UBC-1983

SOUTHERN EARTH SCIENCES

Operator: DUSTIN THOMPSON

CPT Date/Time: 5/19/2022 9:21:59 AM

Sounding: CPT-3

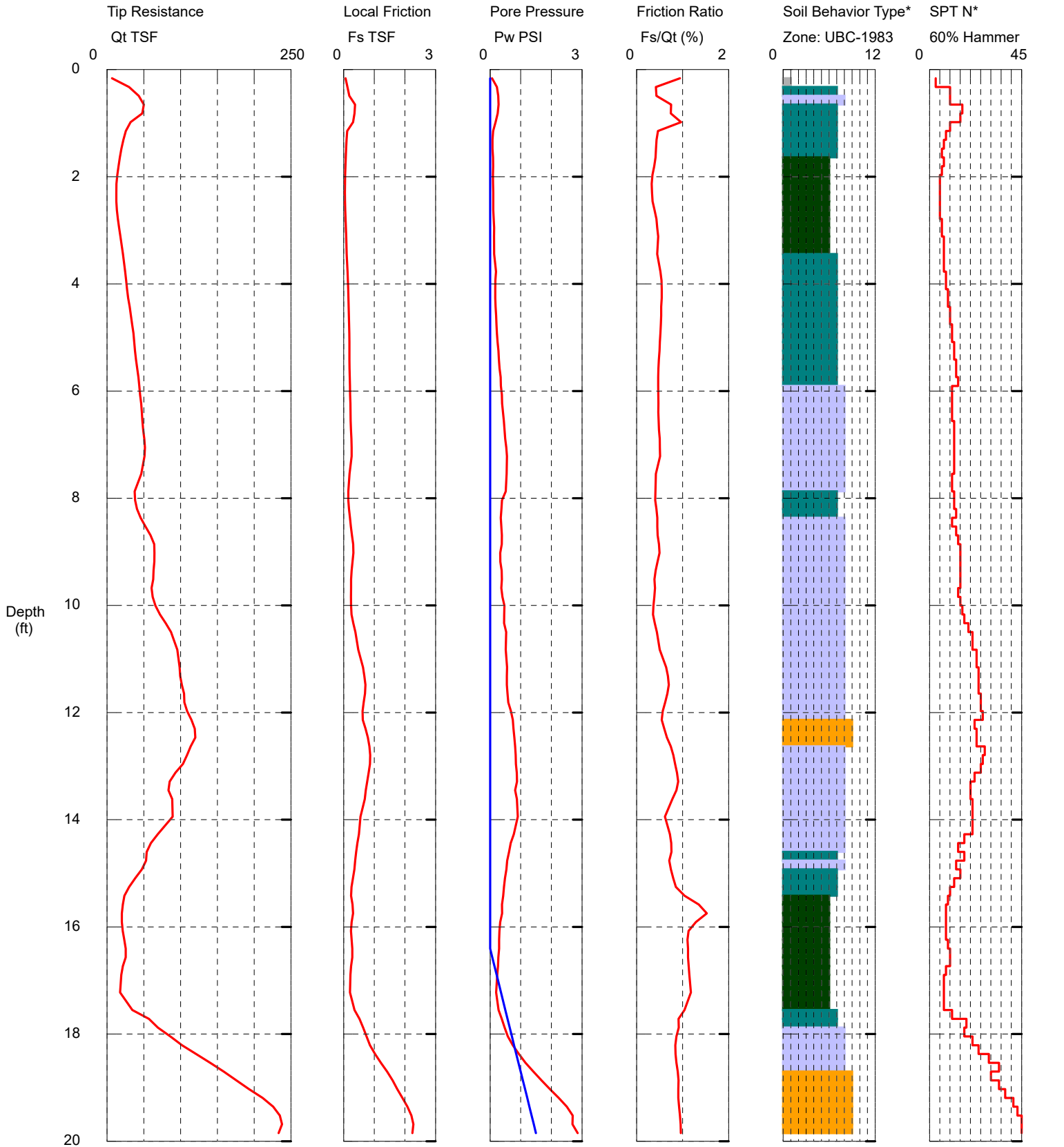
Location: DEANE BOZEMAN SCHOOL ADDITIONS

Cone Used: DDG1485

Job Number: P22-0258

Groundwater: Borehole Collapsed Dry at 15'

Elevation: Unknown



Maximum Depth = 19.85 feet

Depth Increment = 0.164 feet

- 1 sensitive fine grained
- 2 organic material
- 3 clay

- 4 silty clay to clay
- 5 clayey silt to silty clay
- 6 sandy silt to clayey silt

- 7 silty sand to sandy silt
- 8 sand to silty sand
- 9 sand

- 10 gravelly sand to sand
- 11 very stiff fine grained (*)
- 12 sand to clayey sand (*)

Filter On
Auto Enhance On

VETTIN

*Soil behavior type and SPT based on data from UBC-1983

LOG OF BORING C-3

PROJECT: Deane Bozeman School Additions
LOCATION: Southport, Bay County, FL
PROJECT NO.: P22-0258
DATE: 05/19/22

METHOD: Direct Push
DRILLER: DT
ENGR / GEOL: LF
SURFACE ELEVATION: Unknown

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION	▲ N Value (blows/ft)	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%)			PASSING #200 SIEVE (%)
			Per Plan - Main Bldg	20 40 60 80		Atterberg Limits Natural Moisture			
			MATERIAL DESCRIPTION	PL 40 60 80		MC	LL	LL	
0		SP	Light Tan Fine SAND						
		SP	Tan Fine SAND						
5		SP	Tan and Light Orange Fine SAND						
		SC	Gray Clayey Fine SAND						
10		SP-SM	Brown and Dark Brown Slightly silty Fine SAND						
		SC	Gray Clayey Fine SAND						
15		SP-SC	Gray and Brown Slightly Clayey Fine SAND						
		SM	Dark Gray Silty Fine SAND						
20		SP	Tan and Brown Fine SAND						

Water Level Est. Seasonal High GWL: ∇ Measured: ∇ Perched: ∇ **Notes:**
 Water Observations: Groundwater Not Encountered -
 Borehole Collapsed Dry at 15'

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)

Sample Key: SPT Shelby Tube

SOUTHERN EARTH SCIENCES, inc.

LOG OF BORING P21-0258.GPJ SES PC FL.GDT 6/7/22

SOUTHERN EARTH SCIENCES

Operator: DUSTIN THOMPSON

CPT Date/Time: 5/19/2022 8:02:09 AM

Sounding: CPT-4

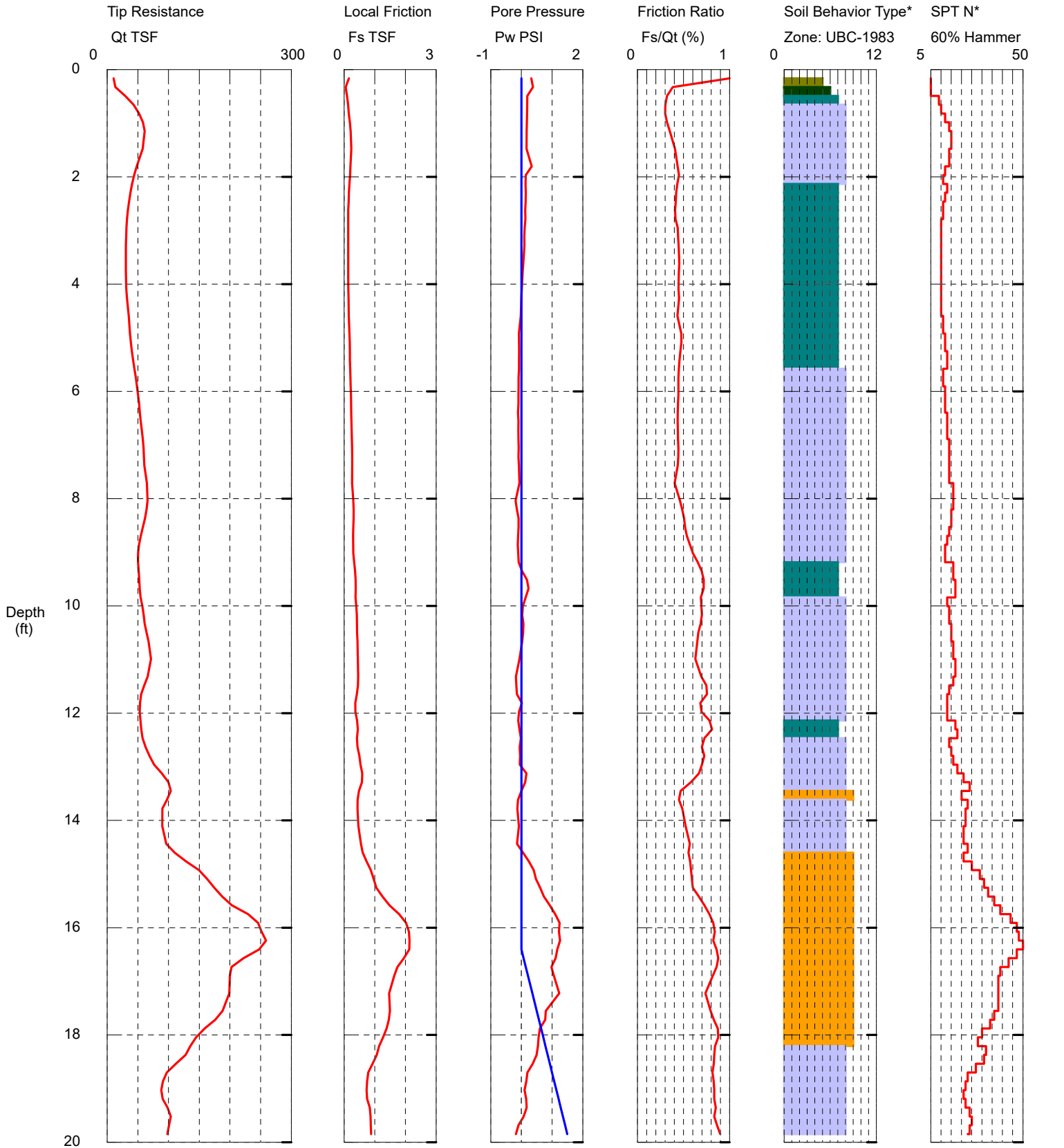
Location: DEANE BOZEMAN SCHOOL ADDITIONS

Cone Used: DDG1485

Job Number: P22-0258

Groundwater: Borehole Collapsed Dry at 15'

Elevation: Unknown



Maximum Depth = 20.01 feet

Depth Increment = 0.164 feet

- 1 sensitive fine grained
- 2 organic material
- 3 clay

- 4 silty clay to clay
- 5 clayey silt to silty clay
- 6 sandy silt to clayey silt

- 7 silty sand to sandy silt
- 8 sand to silty sand
- 9 sand

- 10 gravelly sand to sand
- 11 very stiff fine grained (*)
- 12 sand to clayey sand (*)

Filter On
Auto Enhance On

VETTIN

*Soil behavior type and SPT based on data from UBC-1983

SOUTHERN EARTH SCIENCES

Operator: DUSTIN THOMPSON

CPT Date/Time: 5/19/2022 8:48:45 AM

Sounding: CPT-5

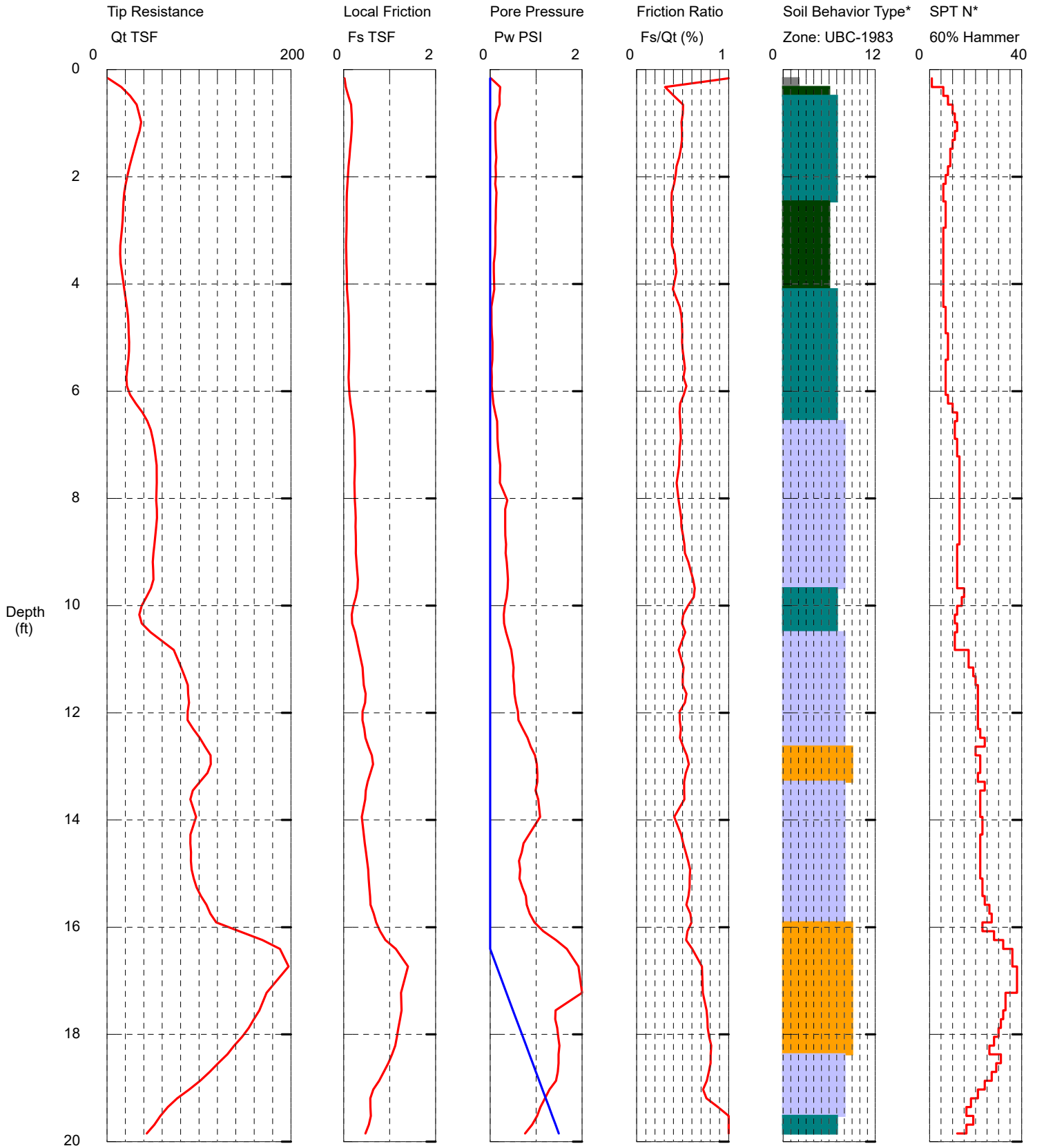
Location: DEANE BOZEMAN SCHOOL ADDITIONS

Cone Used: DDG1485

Job Number: P22-0258

Groundwater: Borehole Collapsed Dry at 15'

Elevation: Unknown



Maximum Depth = 20.01 feet

Depth Increment = 0.164 feet

- 1 sensitive fine grained
- 2 organic material
- 3 clay

- 4 silty clay to clay
- 5 clayey silt to silty clay
- 6 sandy silt to clayey silt

- 7 silty sand to sandy silt
- 8 sand to silty sand
- 9 sand

- 10 gravelly sand to sand
- 11 very stiff fine grained (*)
- 12 sand to clayey sand (*)

Filter On
Auto Enhance On

VETTIN

*Soil behavior type and SPT based on data from UBC-1983

LOG OF BORING C-5

PROJECT: Deane Bozeman School Additions
LOCATION: Southport, Bay County, FL
PROJECT NO.: P22-0258
DATE: 05/19/22

METHOD: Direct Push
DRILLER: DT
ENGR / GEOL: LF
SURFACE ELEVATION: Unknown

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION	▲ N Value (blows/ft)				NATURAL MOISTURE (%)	ATTERBERG LIMITS (%)			PASSING #200 SIEVE (%)
			MATERIAL DESCRIPTION	Atterberg Limits Natural Moisture					LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
				20	40	60	80					
0		SP	Per Plan - Main Bldg	20	40	60	80					
		SP	Tan Fine SAND									
5		SP	Light Tan and Light Orange Fine SAND									
		SP-SC	Orange Slightly Clayey Fine SAND									
10		SP-SM	Gray and Tan Fine SAND									
15		SP-SM	Gray and Tan Fine SAND									

Water Level Est. Seasonal High GWL: ∇ Measured: ∇ Perched: ∇ **Notes:**
 Water Observations: Groundwater Not Encountered -
 Borehole Collapsed Dry at 15'

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)

Sample Key: SPT Shelby Tube

SOUTHERN EARTH SCIENCES, inc.

LOG OF BORING P21-0258.GPJ SES PC FL.GDT 6/7/22

SOUTHERN EARTH SCIENCES

Operator: DUSTIN THOMPSON

CPT Date/Time: 5/19/2022 9:05:34 AM

Sounding: CPT-6

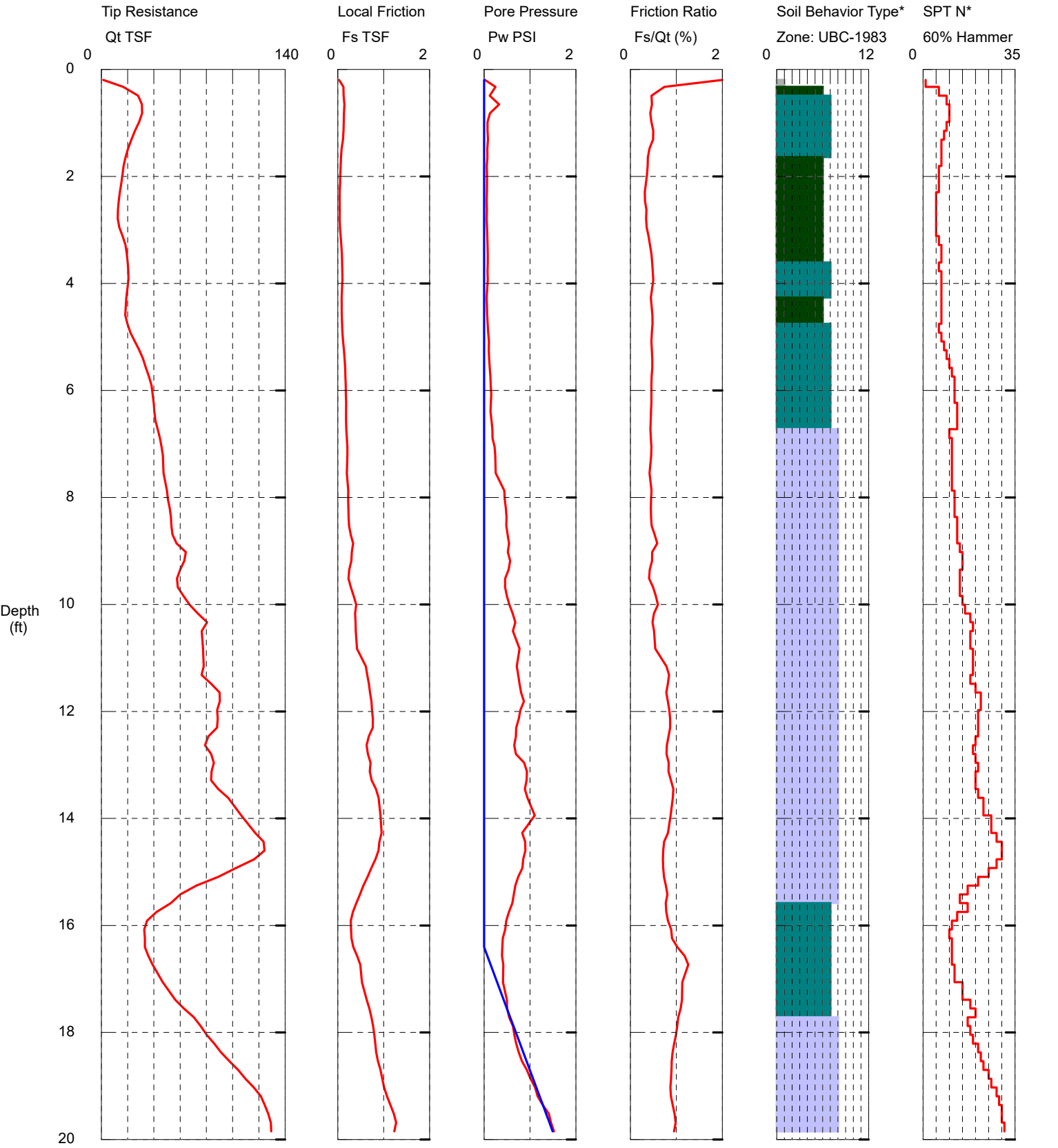
Location: DEANE BOZEMAN SCHOOL ADDITIONS

Cone Used: DDG1485

Job Number: P22-0258

Groundwater: Borehole Collapsed Dry at 15'

Elevation: Unknown



Maximum Depth = 19.85 feet

Depth Increment = 0.131 feet

- 1 sensitive fine grained
- 2 organic material
- 3 clay

- 4 silty clay to clay
- 5 clayey silt to silty clay
- 6 sandy silt to clayey silt

- 7 silty sand to sandy silt
- 8 sand to silty sand
- 9 sand

- 10 gravelly sand to sand
- 11 very stiff fine grained (*)
- 12 sand to clayey sand (*)

Filter On
Auto Enhance On

VETTIN

*Soil behavior type and SPT based on data from UBC-1983

SOUTHERN EARTH SCIENCES

Operator: DUSTIN THOMPSON

CPT Date/Time: 5/19/2022 9:53:17 AM

Sounding: CPT-7

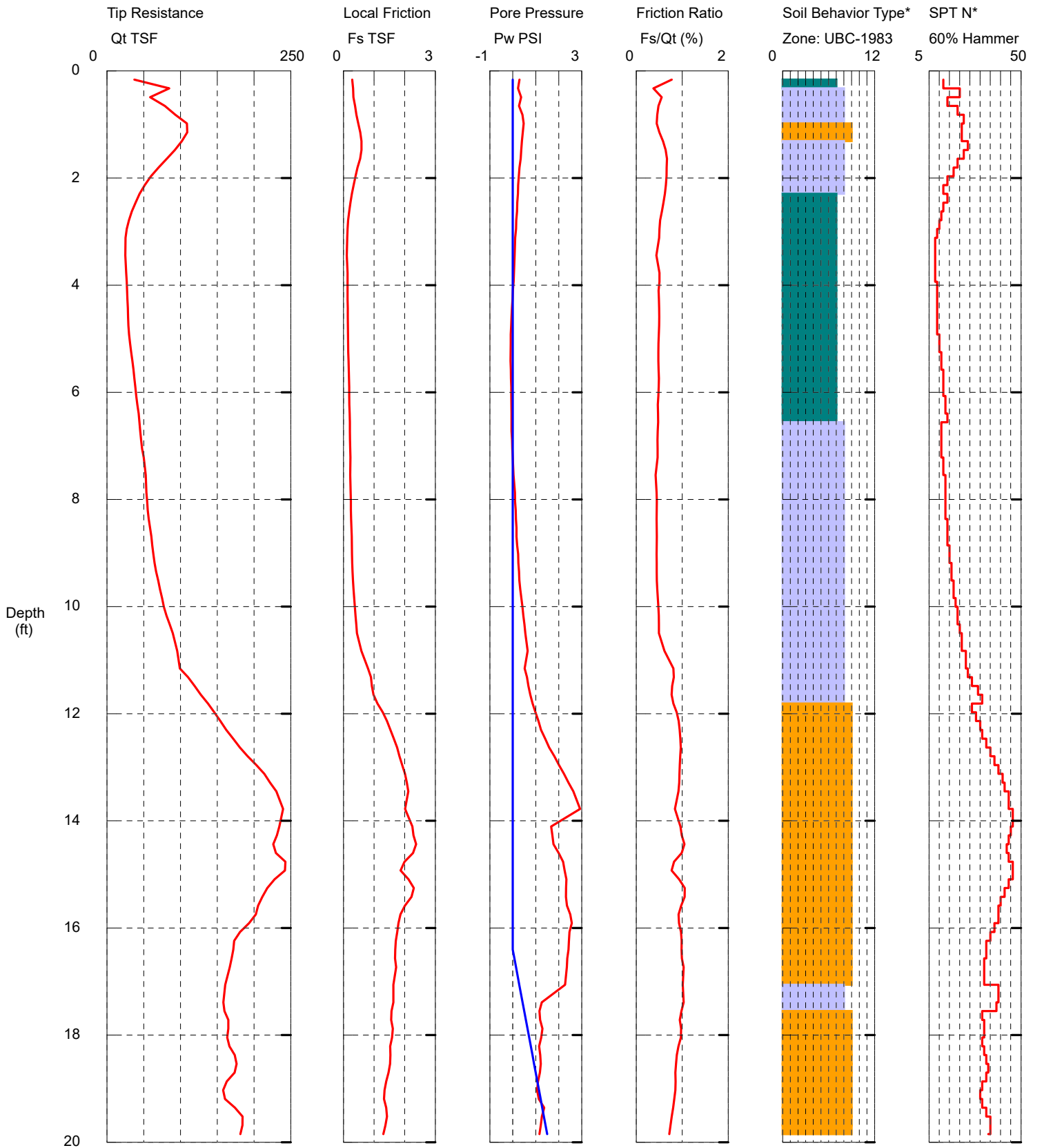
Location: DEANE BOZEMAN SCHOOL ADDITIONS

Cone Used: DDG1485

Job Number: P22-0258

Groundwater: Borehole Collapsed Dry at 15'

Elevation: Unknown



Maximum Depth = 20.01 feet

Depth Increment = 0.164 feet

- 1 sensitive fine grained
- 2 organic material
- 3 clay

- 4 silty clay to clay
- 5 clayey silt to silty clay
- 6 sandy silt to clayey silt

- 7 silty sand to sandy silt
- 8 sand to silty sand
- 9 sand

- 10 gravelly sand to sand
- 11 very stiff fine grained (*)
- 12 sand to clayey sand (*)

Filter On
Auto Enhance On

VETTIN

*Soil behavior type and SPT based on data from UBC-1983

SOUTHERN EARTH SCIENCES

Operator: DUSTIN THOMPSON

CPT Date/Time: 5/19/2022 10:44:08 AM

Sounding: CPT-8

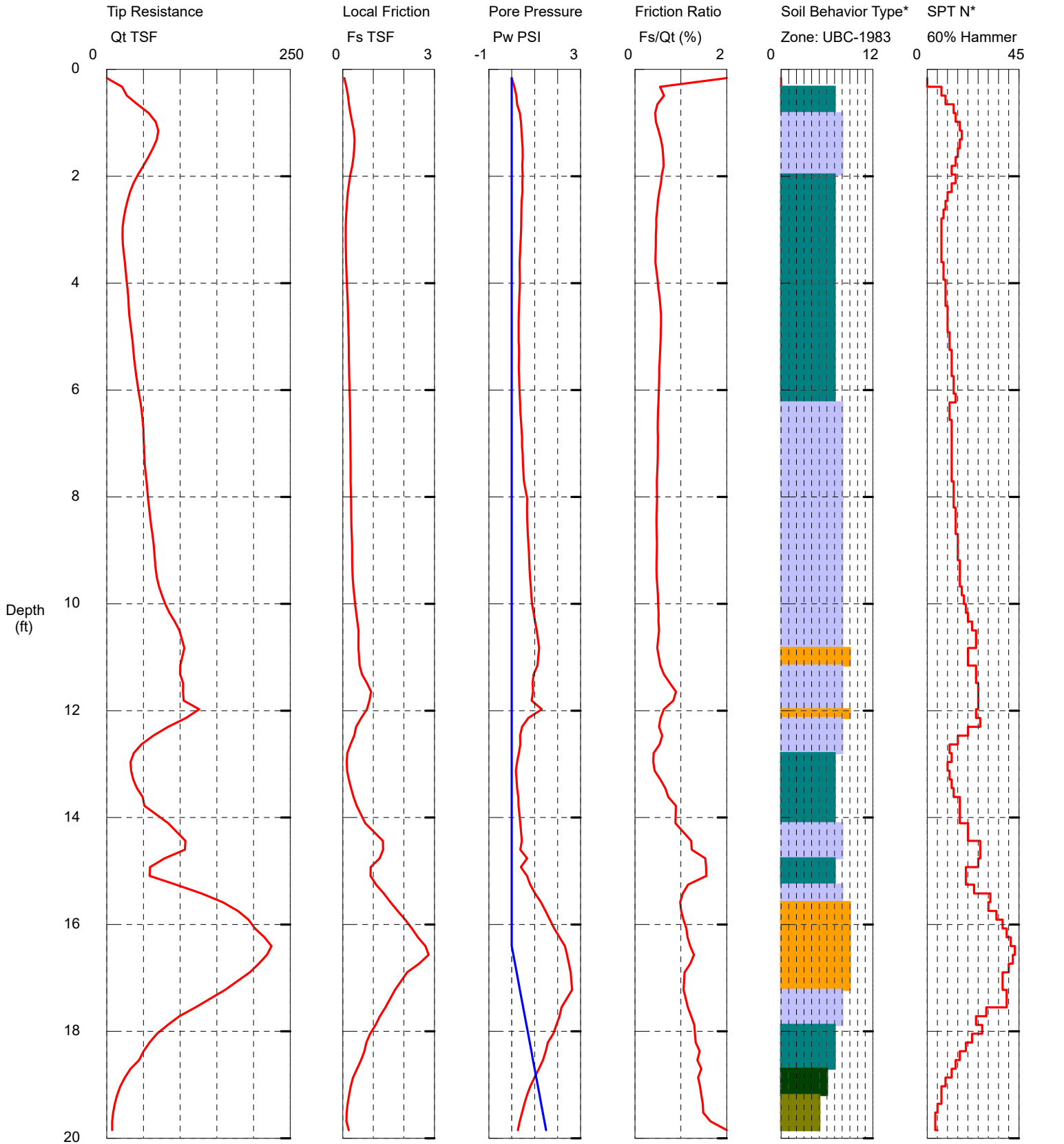
Location: DEANE BOZEMAN SCHOOL ADDITIONS

Cone Used: DDG1485

Job Number: P22-0258

Groundwater: Borehole Collapsed Dry at 15'

Elevation: Unknown



Maximum Depth = 20.01 feet

Depth Increment = 0.164 feet

- 1 sensitive fine grained
- 2 organic material
- 3 clay

- 4 silty clay to clay
- 5 clayey silt to silty clay
- 6 sandy silt to clayey silt

- 7 silty sand to sandy silt
- 8 sand to silty sand
- 9 sand

- 10 gravelly sand to sand
- 11 very stiff fine grained (*)
- 12 sand to clayey sand (*)

Filter On
Auto Enhance On

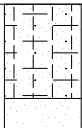


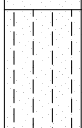

VETTIN

*Soil behavior type and SPT based on data from UBC-1983

LOG OF BORING C-8

PROJECT: Deane Bozeman School Additions
LOCATION: Southport, Bay County, FL
PROJECT NO.: P22-0258
DATE: 05/19/22

METHOD: Direct Push
DRILLER: DT
ENGR / GEOL: LF
SURFACE ELEVATION: Unknown

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION	▲ N Value (blows/ft)				NATURAL MOISTURE (%)	ATTERBERG LIMITS (%)			PASSING #200 SIEVE (%)
			Per Plan - Field House	20	40	60	80		LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
			MATERIAL DESCRIPTION	Atterberg Limits Natural Moisture								
0		SP-SM	Brown and Gray Slightly Silty Fine SAND with Trace Organics									
		SP	Tan Fine SAND									
5		SP	Light Tan and Light Orange Fine SAND									
10		SP-SM	Brown and Dark Brown Slightly Silty Fine SAND									
15		SP-SM	Brown and Dark Brown Slightly Silty Fine SAND									

LOG OF BORING P21-0258.GPJ SES PC FL.GDT 6/7/22

Water Level Est. Seasonal High GWL: Measured: Perched: **Notes:**
 Water Observations: Groundwater Not Encountered -
 Borehole Collapsed Dry at 15'

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)
 Sample Key: SPT Shelby Tube **SOUTHERN EARTH SCIENCES, inc.**

SOUTHERN EARTH SCIENCES

Operator: DUSTIN THOMPSON

CPT Date/Time: 5/19/2022 10:14:00 AM

Sounding: CPT-9

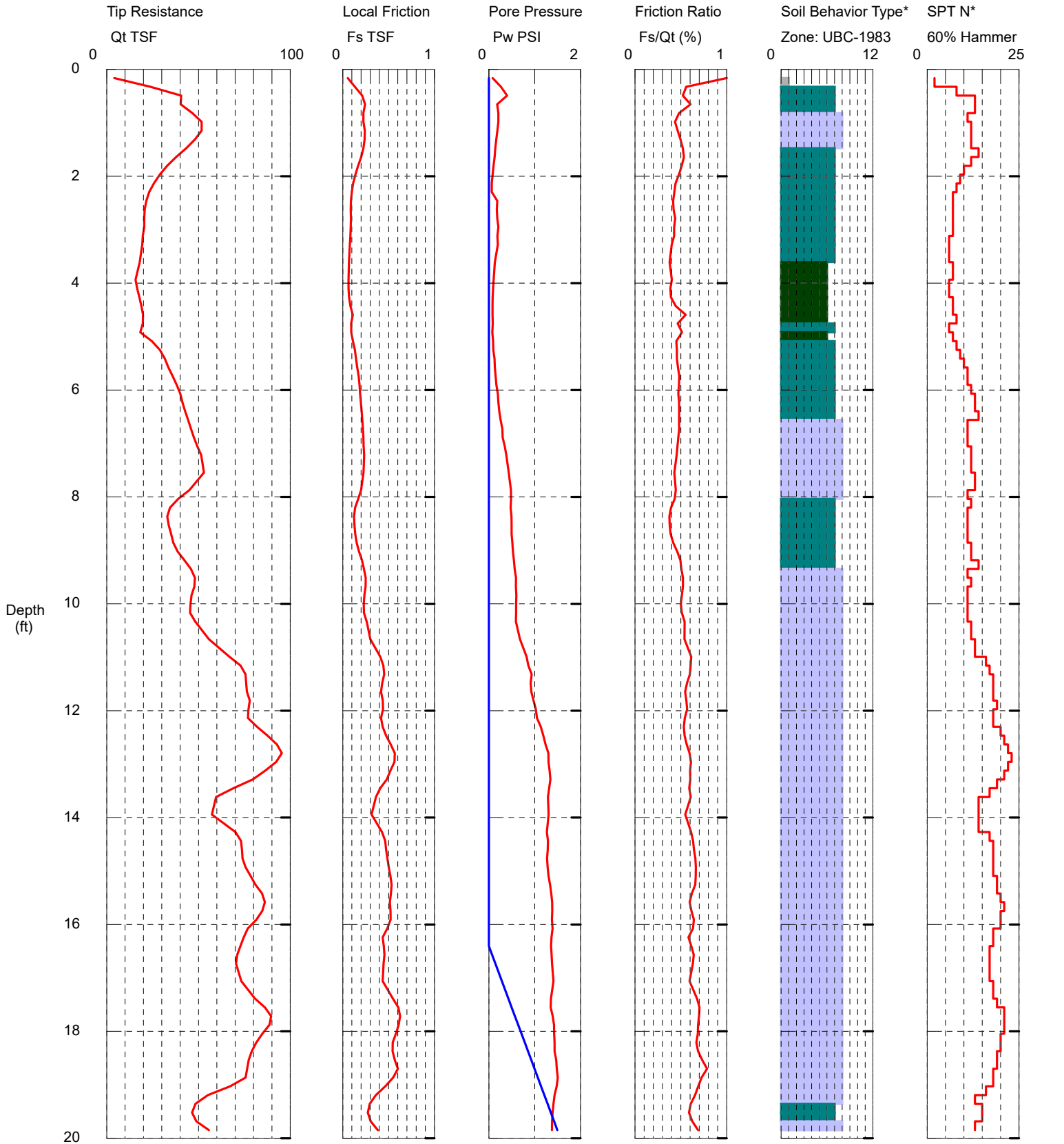
Location: DEANE BOZEMAN SCHOOL ADDITIONS

Cone Used: DDG1485

Job Number: P22-0258

Groundwater: Borehole Collapsed Dry at 15'

Elevation: Unknown



Maximum Depth = 19.85 feet

Depth Increment = 0.164 feet

- 1 sensitive fine grained
- 2 organic material
- 3 clay

- 4 silty clay to clay
- 5 clayey silt to silty clay
- 6 sandy silt to clayey silt

- 7 silty sand to sandy silt
- 8 sand to silty sand
- 9 sand

- 10 gravelly sand to sand
- 11 very stiff fine grained (*)
- 12 sand to clayey sand (*)

Filter On
Auto Enhance On

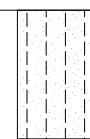


VETTIN

*Soil behavior type and SPT based on data from UBC-1983

LOG OF BORING C-9

PROJECT: Deane Bozeman School Additions
LOCATION: Southport, Bay County, FL
PROJECT NO.: P22-0258
DATE: 05/19/22

METHOD: Direct Push
DRILLER: DT
ENGR / GEOL: LF
SURFACE ELEVATION: Unknown

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION	▲ N Value (blows/ft)				NATURAL MOISTURE (%)	ATTERBERG LIMITS (%)			PASSING #200 SIEVE (%)
			Per Plan - Press Box	20	40	60	80		LIQUID LIMIT LL	PLASTIC LIMIT PL	PLASTICITY INDEX PI	
			MATERIAL DESCRIPTION	Atterberg Limits Natural Moisture								
0		SP-SM	Light Brown Slightly Silty Fine SAND									
		SP	Tan Fine SAND									
5		SP	Light Tan and Light Orange Fine SAND									
10												
15												

Water Level Est. Seasonal High GWL: Measured: Perched: Notes:
 Water Observations: Groundwater Not Encountered

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)

Sample Key: SPT Shelby Tube

SOUTHERN EARTH SCIENCES, inc.

LOG OF BORING P21-0258.GPJ SES PC FL.GDT 6/7/22

LOG OF BORING SW-1

PROJECT: Deane Bozeman School Additions
LOCATION: Southport, Bay County, FL
PROJECT NO.: P22-0258
DATE: 05/20/22

METHOD: Hand Auger
DRILLER: PC
ENGR / GEOL: LF
SURFACE ELEVATION: Unknown

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION	▲ N Value (blows/ft)	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%)			PASSING #200 SIEVE (%)
			Per Plan - Stormwater - Northeast	20 40 60 80		Atterberg Limits Natural Moisture			
			MATERIAL DESCRIPTION	PL 20 40 60 80		MC ●	LL	LL	
0		SP	Tan and Gray Fine SAND						
1		SP	Tan Fine SAND						
2									
3									
4									
5									
6		SP	Light Tan Fine SAND						
7		SP	Tan and Light Orange Fine SAND						
8		SP-SC	Tan and Light Orange Slightly Clayey Fine SAND						
9									
10									
11									

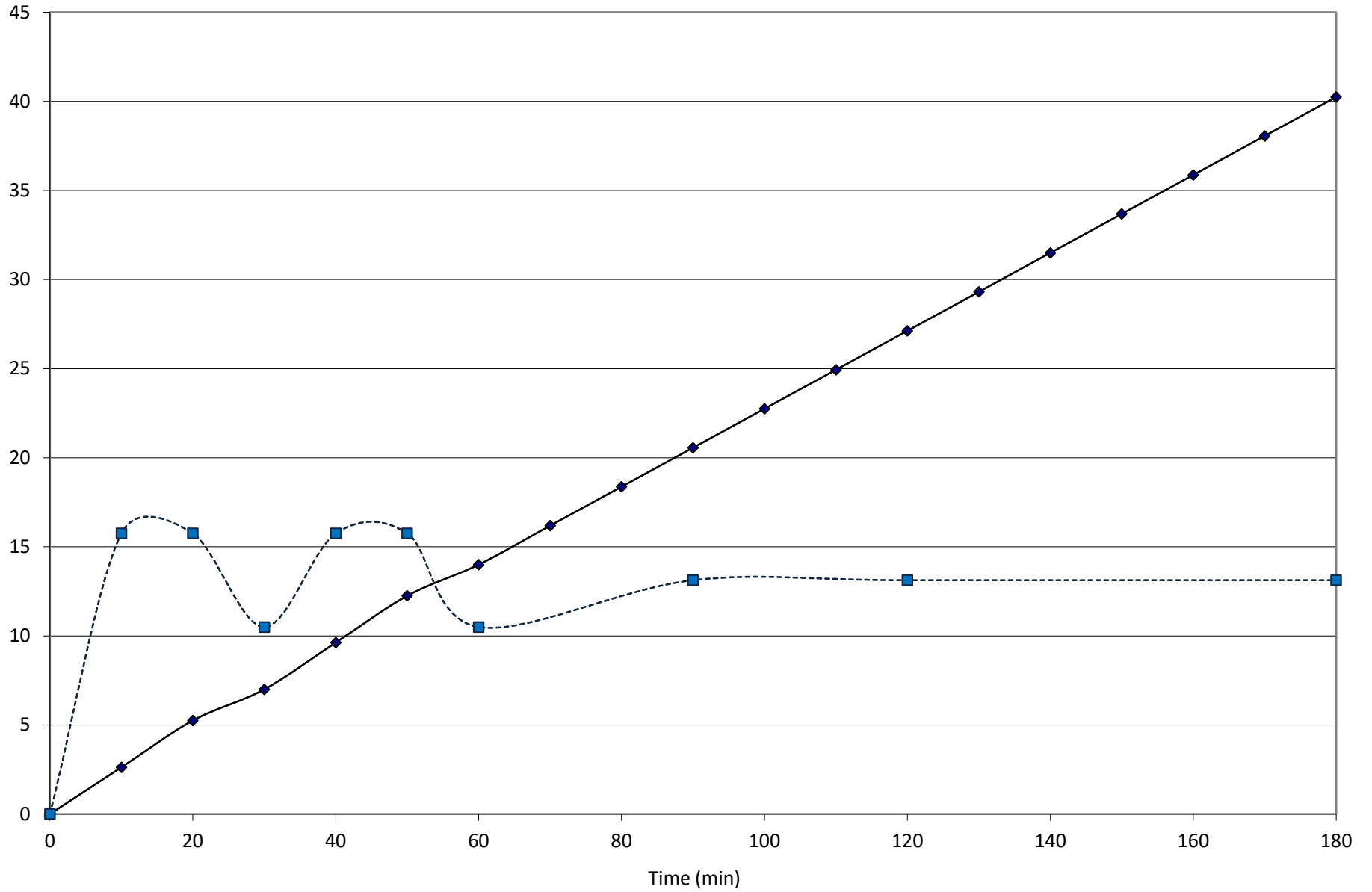
LOG OF BORING P21-0258.GPJ SES PC FL.GDT 6/7/22

Water Level Est. Seasonal High GWL: Measured: Perched: **Notes:**
 Water Observations: Groundwater Not Encountered -Estimated Seasonal High Groundwater is Beyond 7.5 Feet Below Existing ground Surface

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)
 Sample Key: SPT Shelby Tube **SOUTHERN EARTH SCIENCES, inc.**

Table 1

Double Ring Infiltrometer Test at SW-1



—◆— Accumulative Intake (in) - - -■- - - Infiltration Rate (in/hr)

LOG OF BORING SW-2

PROJECT: Deane Bozeman School Additions
LOCATION: Southport, Bay County, FL
PROJECT NO.: P22-0258
DATE: 05/19/22

METHOD: Hand Auger
DRILLER: PC
ENGR / GEOL: LF
SURFACE ELEVATION: Unknown

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION	▲ N Value (blows/ft)	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%)			PASSING #200 SIEVE (%)
			Per Plan - Stormwater - East	20 40 60 80		LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
			MATERIAL DESCRIPTION	Atterberg Limits Natural Moisture					
				PL MC LL		LL	PL	PI	
0		SP	Tan and Gray Fine SAND						
1		SP	Tan Fine SAND						
2									
3									
4									
5									
6									
7									
8									
9		SP-SM	Brown and Light Brown Slightly Silty Fine SAND						
10									
11									

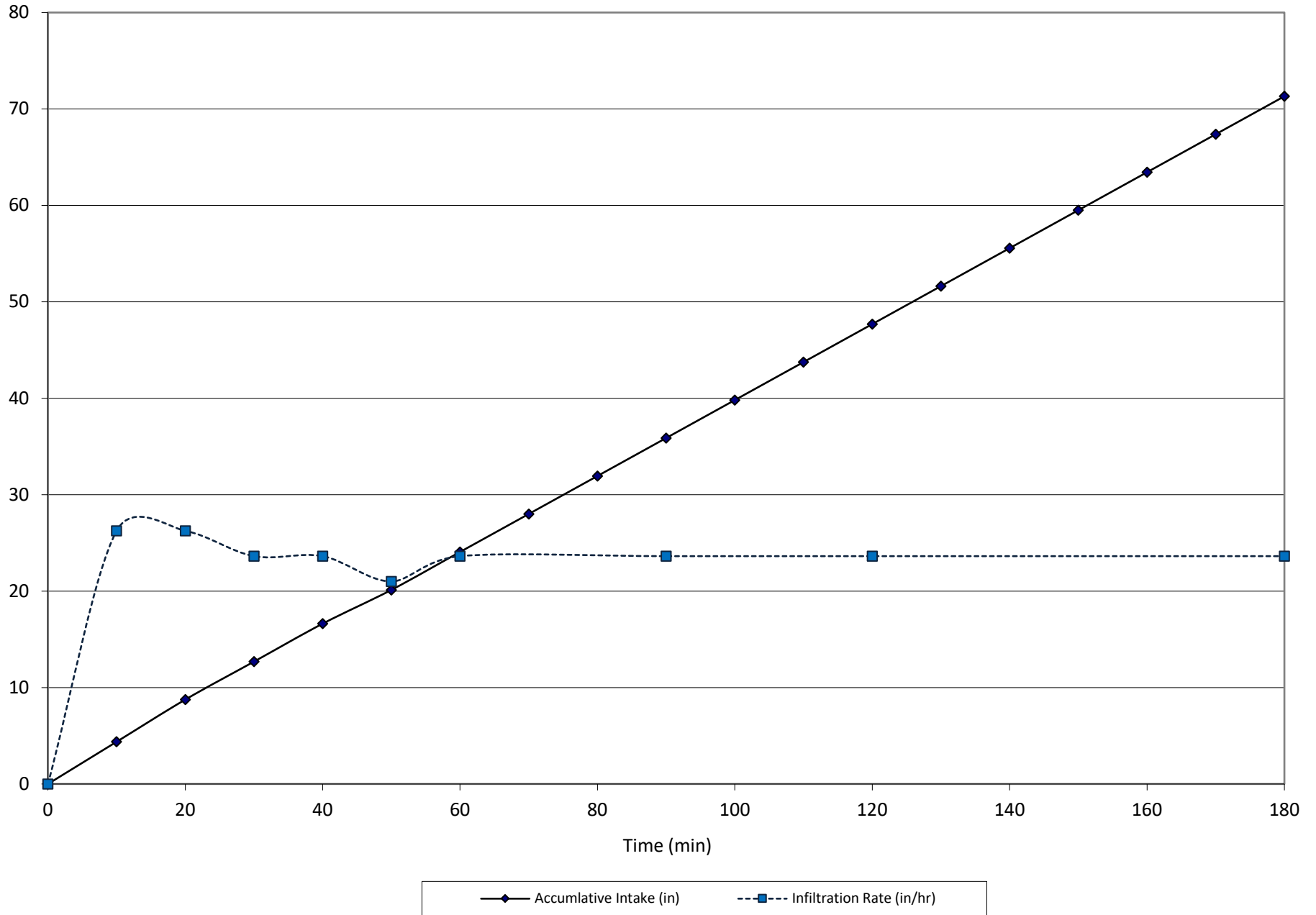
LOG OF BORING P21-0258.GPJ SES PC FL.GDT 6/7/22

Water Level Est. Seasonal High GWL: ▾ Measured: ▾ Perched: ▾ **Notes:**
 Water Observations: Groundwater Not Encountered -Estimated Seasonal High Groundwater is Beyond 7.5 Feet Below Existing ground Surface

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)
 Sample Key: SPT Shelby Tube **SOUTHERN EARTH SCIENCES, inc.**

Table 2

Double Ring Infiltrometer Test at SW-2



LOG OF BORING SW-3

PROJECT: Deane Bozeman School Additions
LOCATION: Southport, Bay County, FL
PROJECT NO.: P22-0258
DATE: 05/19/22

METHOD: Hand Auger
DRILLER: PC
ENGR / GEOL: LF
SURFACE ELEVATION: Unknown

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION	▲ N Value (blows/ft)	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%)			PASSING #200 SIEVE (%)			
			Per Plan - Stormwater - Southeast	Atterberg Limits Natural Moisture				LIQUID LIMIT LL		PLASTIC LIMIT PL	PLASTICITY INDEX PI	
				20		40	60					80
			MATERIAL DESCRIPTION	PL	MC	LL						
0		SP	Tan and Light Brown Fine SAND									
1		SP	Light Tan Fine SAND									
2		SP	Tan Fine SAND									
3												
4												
5												
6		SP	Light Tan Fine SAND									
7												
8												
9												
10												
11												

LOG OF BORING P21-0258.GPJ SES PC FL.GDT 6/7/22

Water Level Est. Seasonal High GWL: Measured: Perched:

Water Observations: Groundwater Not Encountered

Notes:
 -Estimated Seasonal High Groundwater is Beyond 7.5 Feet Below Existing ground Surface

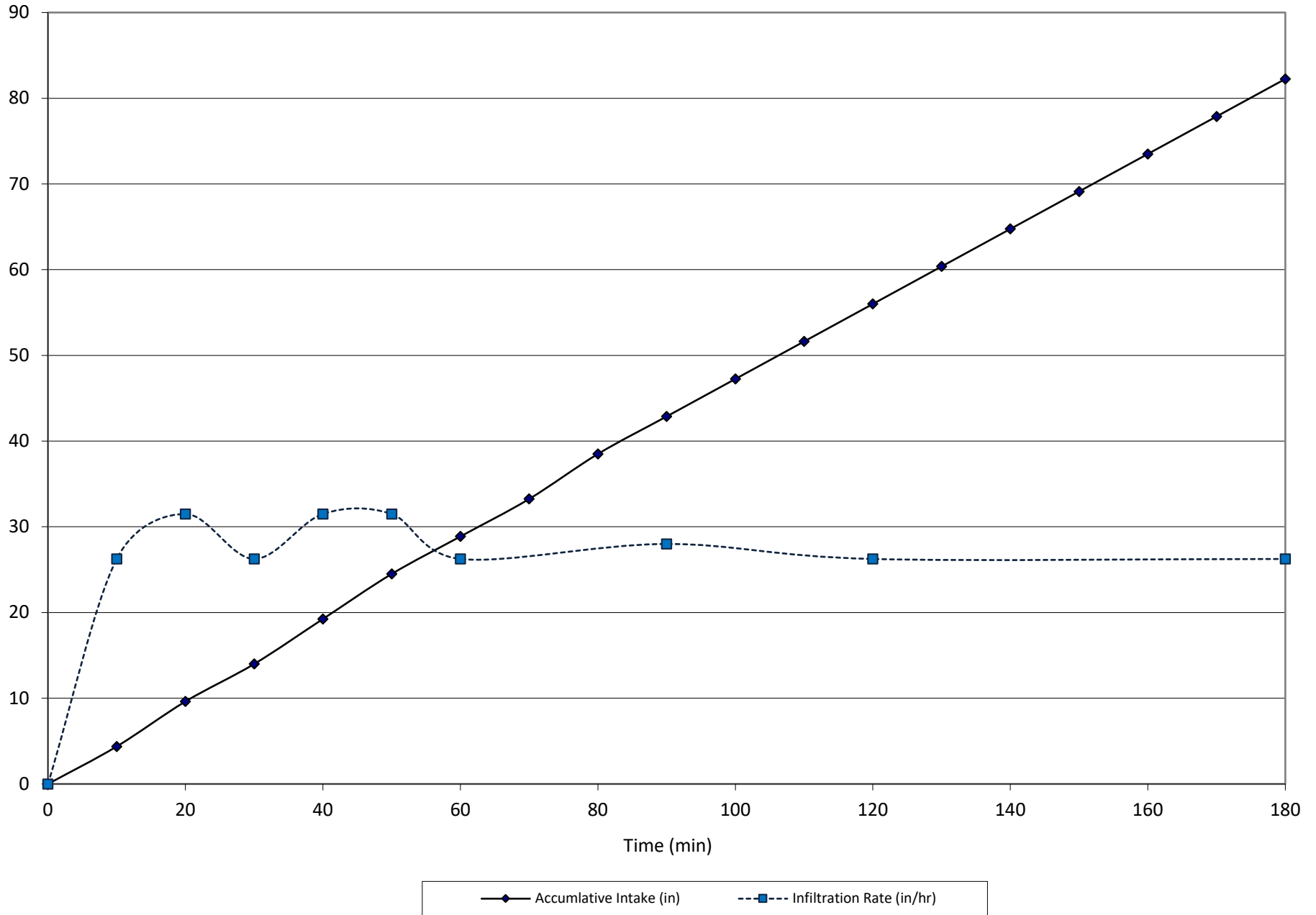
N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)

Sample Key: SPT Shelby Tube

SOUTHERN EARTH SCIENCES, inc.

Table 3

Double Ring Infiltrometer Test at SW-3



LOG OF BORING SW-4

PROJECT: Deane Bozeman School Additions
LOCATION: Southport, Bay County, FL
PROJECT NO.: P22-0258
DATE: 05/20/22

METHOD: Hand Auger
DRILLER: PC
ENGR / GEOL: LF
SURFACE ELEVATION: Unknown

Elevation / Depth	Soil Symbols Sampler Symbols and Field Test Data	USCS	LOCATION	▲ N Value (blows/ft)	NATURAL MOISTURE (%)	ATTERBERG LIMITS (%)			PASSING #200 SIEVE (%)
			Per Plan - Stormwater - Southwest	Atterberg Limits Natural Moisture					
				20		40	60	80	
			MATERIAL DESCRIPTION	PL	MC	LL			
0			Tan and Gray Slightly Silty Fine SAND						
1		SP-SM	Tan Fine SAND						
2									
3									
4									
5		SP-SM	Light Tan Slightly Silty Fine SAND						
6									
7		SP-SC	Tan Slightly Clayey Fine SAND						
8		SP-SM	Brown Slightly Silty Fine SAND						
9									
10		SP-SM	Brown and Dark Brown Slightly Silty Fine SAND						
11									

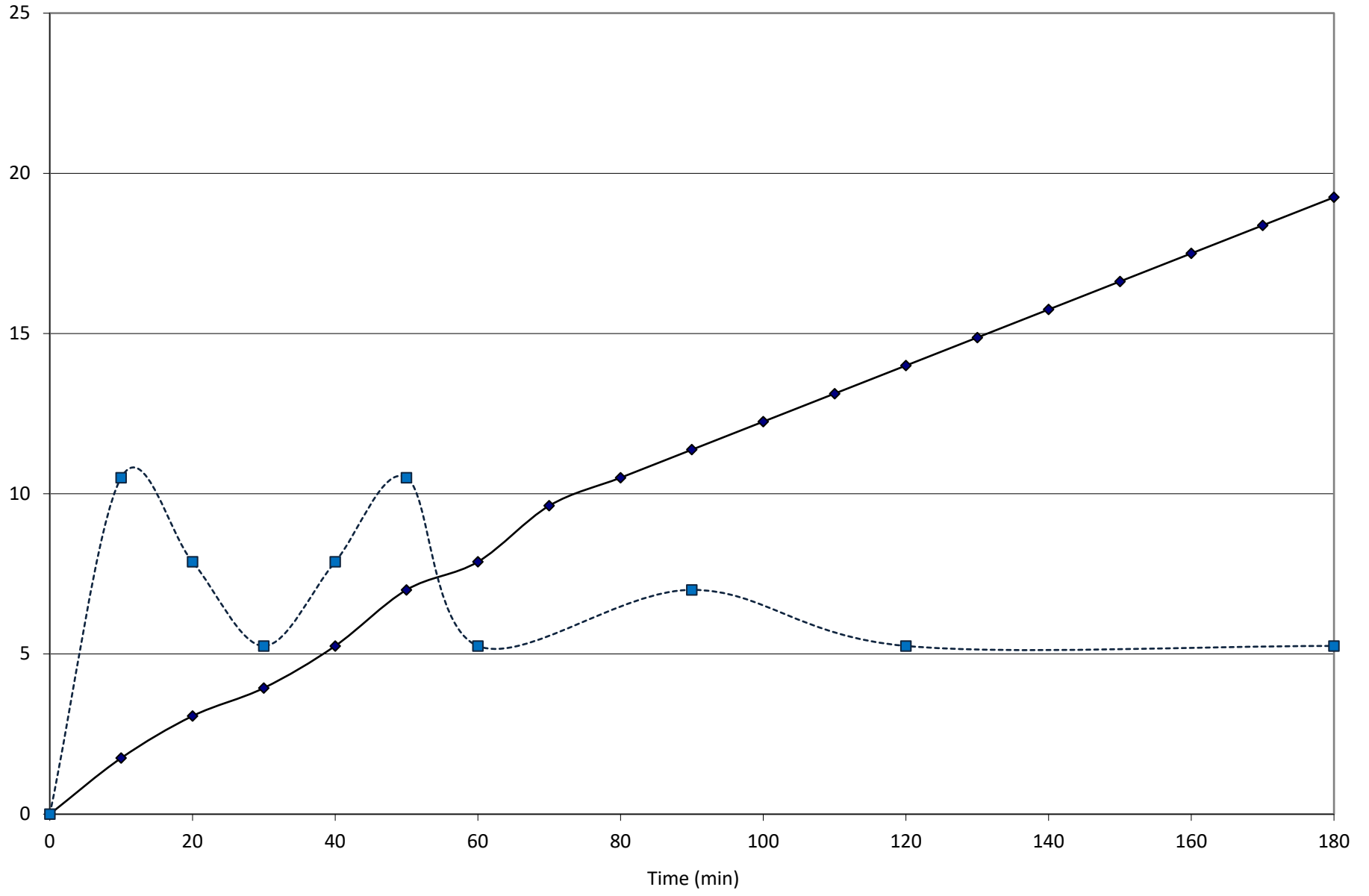
LOG OF BORING P21-0258.GPJ SES PC FL.GDT 6/7/22

Water Level Est. Seasonal High GWL: ∇ Measured: ∇ Perched: ∇ **Notes:**
 Water Observations: Groundwater Not Encountered -Estimated Seasonal High Groundwater is Beyond 6.0 Feet Below Existing ground Surface

N - SPT Data (Blows/Ft) P - Pocket Penetrometer (tsf)
 Sample Key: SPT Shelby Tube **SOUTHERN EARTH SCIENCES, inc.**

Table 4

Double Ring Infiltrometer Test at SW-4



Important Information About Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply the report for any purpose or project except the one originally contemplated.*

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that

have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely on Your ASFE-Member Geotechnical Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.



8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@asfe.org www.asfe.org

Copyright 2004 by ASFE, Inc. Duplication, reproduction, or copying of this document, in whole or in part, by any means whatsoever, is strictly prohibited, except with ASFE's specific written permission. Excerpting, quoting, or otherwise extracting wording from this document is permitted only with the express written permission of ASFE, and only for purposes of scholarly research or book review. Only members of ASFE may use this document as a complement to or as an element of a geotechnical engineering report. Any other firm, individual, or other entity that so uses this document without being an ASFE member could be committing negligent or intentional (fraudulent) misrepresentation.

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section requires the selective removal and subsequent offsite disposal of, but not necessarily limited to the following:

Fencing, Concrete, Asphalt, Light poles, sheds etc.

Electrical & plumbing systems.

NOTE: The Reports and specifications indicate general locations where demolition is required, but is not intended to show all possible items or areas of demolition. All demolition required to complete work is in contract.

1.02 SUBMITTALS

- A. Schedule indicating proposed sequence of operations for selective demolition work to Owner's Representative for review prior to start of work. Include coordination for shutoff, capping, and continuation of utility services as required, together with details for dust and noise control protection.
- B. Photographs of existing conditions of structure surfaces, equipment, and adjacent improvements that might be misconstrued as damage related to removal operations. File with Owner prior to start of work.

1.03 JOB CONDITIONS

- A. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished. Conditions existing at time of inspection for bidding purposes will be maintained by Owner insofar as practicable. However, minor variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition work.
- B. Damages: Promptly repair damages caused to adjacent facilities by demolition work.
- C. Traffic: Conduct selective demolition operations and debris removal to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.
1. Do not close, block, or otherwise obstruct streets, walks, or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- D. Flame Cutting: Do not use cutting torches for removal until work area is cleared of flammable materials. At concealed spaces, such as interior of ducts and pipe spaces, verify condition of hidden space before starting flame-cutting operations. Maintain portable fire suppression devices during flame-cutting operations.
- E. Utility Services: Maintain existing utilities indicated to remain in service and protect them against damage during demolition operations.
1. Do not interrupt utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.

SECTION 024119 - SELECTIVE DEMOLITION (continued):

- F. Environmental Controls: Use water sprinkling, temporary enclosures, and other methods to limit dust and dirt migration. Comply with governing regulations pertaining to environmental protection.
 - 1. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 PREPARATION

- A. Locate, identify, stub off, and disconnect utility services that are not indicated to remain.
 - 1. Provide bypass connections as necessary to maintain continuity of service to occupied areas of building. Provide minimum of 72 hours advance notice to Owner if shutdown of service is necessary during changeover.

3.02 DEMOLITION

- A. Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on Drawings in accordance with demolition schedule and governing regulations.
 - 1. Cut concrete and asphalt at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.
 - 2. Completely fill below-grade areas and voids resulting from demolition work. Provide fill consisting of approved earth, gravel, or sand, free of trash and debris, stones over 6 inches in diameter, roots, or other organic matter.
- B. If unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Owner's Representative in written, accurate detail. Pending receipt of directive from Owner, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.

3.03 SALVAGED MATERIALS

- A. Salvaged Items: Where indicated on Drawings as "Salvage - Deliver to Owner," carefully remove indicated items, clean, store, and turn over to Owner and obtain receipt.
- B. Historic artifacts, including cornerstones and their contents, commemorative plaques and tablets, antiques, and other articles of historic significance, remain property of Owner. Notify Owner if such items are encountered and obtain acceptance regarding method of removal and salvage for Owner.

3.04 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove from building site debris, rubbish, and other materials resulting from demolition operations. Transport and legally dispose off site.
 - 1. If hazardous materials are encountered during demolition operations **notify the Architect and Owner**. Comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.

SECTION 024119 - SELECTIVE DEMOLITION (continued):

Note: Contractor shall comply with the notice requirements of Chapter 62-257.301, F.A.C., Asbestos Program when renovation or demolition of site or facility involving the removal of a threshold amount of regulated ACM (asbestos containing material) regardless of whether or not asbestos is present. 'Notice of Asbestos Renovation or Demolition', DEP Form Number 62-257.900(1), effective 2-9-99 shall be filed with FDEP (Florida Department of Environmental Protection) ten (10) working days prior to commencement of work.

2. Burning of removed materials is not permitted on project site.

3.05 **CLEANUP AND REPAIR**

- A. **General:** Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave interior areas broom clean.
- B. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION 024119

SECTION 033000 - BUILDING CONCRETE WORK

PART 1 - GENERAL

1.01 QUALITY ASSURANCE

- A. Codes and Standards: Comply with provisions of following codes, specifications and standards, except where more stringent requirements are shown or specified:

ACI 301 "Specifications for Structural Concrete for Buildings."

ACI 318 "Building Code Requirements for Reinforced Concrete."

ACI 347 "Recommended Practice for Concrete Formwork."

Concrete Reinforcing Steel Institute, "Manual of Standard Practice."

- 1.02 SUBMITTALS: Submit manufacturer's product data with installation instructions for proprietary materials including reinforcement and forming accessories, admixtures, joint materials, hardeners, curing materials and others as requested by Architect.

- A. Submit design mixes of each individual type of concrete to be used on the project prior to the start of concrete work. Tests shall be made for compressive strength, slump and air entrainment. Proportion mixes in compliance with mix design procedures specified in ACI 301 and requirements stated on the plans.
- B. Submit shop drawings for fabrication, bending, and placement of concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, diagrams of bent bars, arrangement of concrete reinforcement. Include special reinforcement required for openings through concrete structures.
- C. Concrete Testing Service: The Contractor shall employ, at his sole expense, an independent testing agency acceptable to the Architect/Engineer to perform sampling and testing during concrete placement as follows. Refer to Section 01400 for additional requirements for Testing Agency.
1. Sampling: ASTM C 172.
 2. Slump: ASTM C 143, one of test for each load at **point of discharge**.
 3. Air Content: ASTM C 173, one for each set of compressive strength specimens.
 4. Compressive Strength: ASTM C 39, three sets for each 25 cu. yds. or fraction thereof of each class of concrete; one specimen tested at 7 days, two specimens tested at 28 days, and one retained for later testing if required. When the total quantity of a given class of concrete is less than 25 cu. yds., strength tests may be waived by Architect if field experience indicates evidence of satisfactory strength.
 5. Test Results will be reported in writing to Architect, Contractor, and concrete producer within 24 hours after tests are made.

SECTION 033000 - BUILDING CONCRETE WORK (continued):

PART 2 – PRODUCTS

2.01 FORM MATERIALS

- A. Forms for Exposed Finish Concrete: Unless otherwise indicated, construct formwork for exposed concrete surfaces with plywood, metal, metal-framed plywood faced or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings. Provide form material with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection.
1. Use plywood complying with U.S. Product Standard PS-1 "B-B (Concrete Form) Plywood," Class I, Exterior Grade or better, mill-oiled and edge-sealed, with each piece bearing legible inspection trademark.
- B. Forms for Unexposed Finish Concrete: Form concrete surfaces which will be unexposed in finished structure with plywood, lumber, metal or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.
- C. Cylindrical Columns and Supports: Form round-section members with metal, fiberglass reinforced plastic, or paper or fiber tubes. Construct paper or fiber tubes of laminated plies using water-resistant adhesive with wax-impregnated exterior for weather and moisture protection. Provide units with sufficient wall thickness to resist loads imposed by wet concrete without deformation.
- D. Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.

2.02 REINFORCING MATERIALS

- A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.
- B. Supports for Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying with CRSI specifications, unless otherwise acceptable.

2.03 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type I, unless otherwise acceptable to Architect.
Use one brand of cement throughout project, unless otherwise acceptable to Architect.
- B. Normal Weight Aggregates: ASTM C 33, and as herein specified. Provide aggregates from a single source for exposed concrete.
1. Local aggregates not complying with ASTM C 33 but which have shown by special test or actual service to produce concrete of adequate strength and durability may be used when acceptable to Architect.
 2. The aggregate shall not exceed 1" in its maximum dimensions for foundation and slab work nor 3/8" (pea gravel) for concrete block lintels and filled cells.
 3. Lightweight Aggregates: ASTM C 330.
 4. Water: Drinkable.
 5. Air-Entraining Admixture: ASTM C 260.
 - a. Available Products: Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to the following:

SECTION 033000 - BUILDING CONCRETE WORK (continued):

"Sika Aer"; Sika Corp
"MB-VR or MB-AE"; Master Builders
"Dorex AEA"; W.R. Grace
"Edoco 2001 or 2002"; Edoco Technical Product

2.04 **RELATED MATERIALS:** Submit any product not specifically listed in this specification to Architect for approval.

A. **Vapor Barrier:** Provide vapor barrier cover over prepared base material where indicated. Use only materials which meet ASTM 1745-09, not less than 15 mils thick, and are resistant to decay when tested in accordance with ASTM E154. Product must maintain a permeance of less than 0.01 perms after mandatory conditioning tests include in ASTM E 1745-09, Section 7.12, 7.1.3, 7.1.4 and 7.1.5. Install material according to ASTM E 1643-09. Lap vapor barrier a minimum of 6" at all locations.

B. **Non-Shrink Grout:** CRD-C 621, factory pre-mixed grout.

1. **Available Products:** Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:

a. **Non-metallic**

"Masterflow 713"; Master Builders
"Euco-NS"; Euclid Chemical Co.

C. **Liquid Membrane Forming Curing Compound:** Liquid type membrane-forming curing compound complying with ASTM C 309, Type I, Class A unless other type acceptable to Architect. Moisture loss not more than 0.055 gr./sp. cm. when applied at 200 sq. ft./gal.

1. **Available Products:** Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:

"Masterseal"; Master Builders
"Ecocure"; Euclid Chemical Co.
"Clear Seal"; A. C. Horn
"Kure-N-Seal"; Sonneborn-Contech

D. **Cure, Sealer and Dustproofers:** ASTM C-309, containing 250% solids. ADay-Chem Cure & Seal@ (J-22) by Dayton Superior OR approved equal. Surface shall have a high gloss finish.

2.05 **PROPORTIONING AND DESIGN OF MIXES**

A. **Prepare design mix** for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. If trial batch method is used, use an independent testing facility acceptable to Architect for preparing an reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing unless otherwise acceptable to Architect.

B. **Submit written reports** to Architect of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until mixes have been reviewed by Architect.

C. **Design mixes** to yield normal weight concrete with the following properties, as indicated on drawings and schedules:

Concrete in slabs and footings shall have a minimum compressive strength of 3000 strength psi and in beams and columns a minimum compressive strength of 4000 psi at 28-days; the maximum

SECTION 033000 - BUILDING CONCRETE WORK (continued):

W/C ratio shall be 0.46 maximum (air-entrained).

RETEMPERING OR ADDING WATER AT THE JOBSITE IS PROHIBITED.

D. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant; at no additional cost to Owner and as accepted by Architect. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Architect before using in work.

E. Admixtures: Use air-entraining admixture in exterior exposed concrete, unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content with a tolerance of plus-or-minus 1-1/2% within following limits:

Concrete structures and slabs exposed to freezing and thawing, deicer chemicals, or subjected to hydraulic pressure:

4.5% (moderate exposure); 5.5% (severe exposure) 1-1/2" max. aggregate.

5.0% (moderate exposure); 6.0% (severe exposure) 3/4" max. aggregate.

Other Concrete: 2% to 4% air.

F. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:

Ramps, slabs, and sloping surfaces: 4" (+/-1").

Reinforced foundation systems: 4" (+/-1").

Pea gravel pump mix for filled masonry cells (3000 psi) C 8" to 11".

Other concrete: Not more than 4", except when slump is increased by use of super plasticizers.

2.06 CONCRETE MIXES

A. Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as herein specified.

During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C 94 may be required.

When air temperature is between 85°F (30°C) and 90°F (32°C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90°F (32°C), reduce mixing and delivery time to 60 minutes.

Exposed concrete slab concrete shall not be pumped unless it contains super plasticizer or other hydration stabilizer admixture.

B. The following are strictly prohibited:

- a. Partially hardened concrete.
- b. Contaminated concrete.
- c. Re-tempered concrete.
- d. Concrete that has been re-mixed after it has taken its initial set.

SECTION 033000 - BUILDING CONCRETE WORK (continued):

2.07 CONCRETE TOPPING

- A. Provide Level-Right Self-Leveling Floor Underlayment by Maxxon Corporation in locations indicated on drawings. Comply with manufacturer's requirements and the following:
1. Compressive Strengths: Modified ASTM C 109; up to 3000 psi (3 day).
 2. Tensile Strength: ASTM C 190; 720 psi (28 day).
 3. Surface Burning Characteristic: Flame Spread - 0.
Fuel Contribution - 0.
Smoke Development - 0. (ASTM E 84).
 4. Fire Ratings: U.L. Design #J919, L514, L528, L530

2.08 CONCRETE TOPPING OVER PRECAST HOLLOW CORE CONCRETE PLANKS

- A. Provide structural normal weight concrete topping in locations indicated on drawings. Comply with manufacturer's requirements and the following:
1. Compressive Strengths: Modified ASTM C 109; 3500 psi, 28 days.
 2. Tensile Strength: ASTM C 190; 720 psi, 28 days.
 3. Comply with water/cement ratios, blended aggregate mixes and curing requirements specified elsewhere in this section.

PART 3 - EXECUTION

3.01 FORMS

- A. Design, erect, support, brace and maintain formwork to support vertical and lateral loads that might be applied until such loads can be supported by concrete structure. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation and position.
- B. Design formwork to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials.
- C. Construct forms to sizes, shapes, lines and dimensions shown, and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, offsets, keyways, recesses, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide back-up at joints to prevent leakage of cement paste.
- D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and for easy removal.
- E. Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set time to forms to prevent loss of concrete mortar. Locate temporary openings on forms at inconspicuous locations.
- F. Chamfer exposed corners and edges as indicated, using wood, metal, PVC or rubber chamfer strips fabricated to product uniform smooth lines and tight edge joints.
- G. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses and chases from trades providing such items. Accurately place and securely support items built into forms.

SECTION 033000 - BUILDING CONCRETE WORK (continued):

- H. **Cleaning and Tightening:** Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is placed. Retighten forms and bracing after concrete placement is required to eliminate mortar leaks and maintain proper alignment.
- 3.02 **PLACING REINFORCEMENT:** Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports, and as herein specified.
- A. **Clean reinforcement** of loose rust and mill scale, earth, ice, and other materials which reduce or destroy bond with concrete. Reinforcing must also be free of non-shop bends or kinks.
- B. **Accurately position,** support and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required.
- C. **Place reinforcement** to obtain at least minimum coverage's for concrete protection and lap as specified by ACI. Arrange, space and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
- D. **Install welded wire fabric** in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset end laps in adjacent widths to prevent continuous laps in either direction.
- E. **Reinforcing bars shall** be free of kinks and non-shop bends. Field bends shall only be installed as directed by the Architect.
- 3.03 **JOINTS**
- A. **Construction Joints:** Locate and install keyed construction joints as indicated or, if not indicated, locate so as not to impair strength and appearance of the structure, as acceptable to Architect.
- B. **Provide keyways** at least 1-1/2" deep in construction joints in walls, slabs and between walls and footings; accepted bulkheads designed for this purpose may be used for slabs.
- C. **Place construction joints** perpendicular to main reinforcement. Continue reinforcement across construction joints.
- D. **Isolation Joints in Slabs-on-Ground:** Construct isolation joints in slabs-on-ground at points of contact between slabs on ground and vertical surfaces, such as column pedestals, foundation walls, grade beams and elsewhere as indicated.
- Joint filler and sealant** materials are specified in Division-7 sections of these specifications.
- E. **Contraction (Control) Joints in Slabs-on-Ground:** Construct contraction joints in slabs-on-ground to form panels of patterns as shown. If not shown, provide joints recommended by ACI Standards. Use inserts 1/8" to 1/4" wide x 1/4 of slab depth, unless otherwise indicated.
- F. **Form contraction joints** by inserting premolded plastic, hardboard or fiberboard strip into fresh concrete until top surface of strip is flush with slab surface. Tool slab edges round on each side of insert. After concrete has cured, remove inserts and clean groove of loose debris.

SECTION 033000 - BUILDING CONCRETE WORK (continued):

Contraction joints may be formed by saw cuts as soon as possible after slab finishing and without dislodging aggregate. Depth of saw cut to be 1/4 of slab thickness.

- G. Joint sealant material is specified in Division-7 sections of these specifications.
- H. Clean construction joints prior to placement of concrete including removal of all laitance. Immediately before concrete is placed, wet all construction joints and remove all standing water.

3.04 INSTALLATION OF EMBEDDED ITEMS: Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in- place concrete. Use setting drawings, diagrams, instructions and directions provided by suppliers of items to be attached thereto.

- A. Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface. Provide and secure units sufficiently strong to support types of screed strips by use of strike-off templates or accepted compacting type screeds.

3.05 PREPARATION OF FORM SURFACES

- A. Clean re-used forms of concrete matrix residue, repair and patch as required to return forms to acceptable surface condition.
- B. Coat contact surfaces of forms with a form-coating compound before reinforcement is placed.
- C. Thin form-coating compounds only with thinning agent of type, and in amount, and under conditions of form-coating compound manufacturer's directions. Do not allow excess form-coating material to accumulate in forms or to come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

3.06 CONCRETE PLACEMENT

- A. Preplacement Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast- in. Notify other crafts to permit installation of their work, cooperate with other trades in setting such work. Moisten wood forms immediately before placing concrete where form coatings are not used.
- B. Coordinate the installation of joint materials and moisture barriers with placement of forms and reinforcing steel.
- C. General: Comply with ACI 304 "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete," and as herein specified.
- D. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation.
- E. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic, to avoid cold joints. Concreting operations shall be carried on at such a rate that the concrete is at all times plastic.

SECTION 033000 - BUILDING CONCRETE WORK (continued):

- F. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand- spading, Roding or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI recommended practices.
- G. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6" into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.
- H. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.
- I. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
- J. Bring slab surfaces to correct level with straightedge and strikeoff. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
- K. Maintain reinforcing in proper position during concrete placement operations.
- L. Cold Weather Placing: Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306.
- M. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
- N. Do not use calcium chloride, salt and other materials containing antifreeze agents or chemical accelerators, unless otherwise accepted in mix designs.
- O. Hot Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305.
- P. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
- Q. Concrete is prohibited from being placed if the concrete is partially hardened, contaminated, re-tempered, or if it has been re-mixed after its initial set.

3.07 FINISH OF FORMED SURFACES

- A. Rough Form Finish: For formed concrete surfaces not exposed-to-view in the finish work or by other construction, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4" in height rubbed down or chipped off.
- B. Smooth Form Finish: For formed concrete surfaces exposed to view, or that are to be covered with a coating material applied directly, to concrete, or a covering material applied directly to concrete, such as waterproofing, damp-proofing, painting or other similar system. This is as-cast concrete surface obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas with fins or other projections completely removed and smoothed.

SECTION 033000 - BUILDING CONCRETE WORK (continued):

- C. **Grout Cleaned Finish:** Provide grout cleaned finish to cylindrical column surfaces which have received smooth form finish treatment.

Combine one part portland cement to 1-1/2 parts fine sand by volume, and mix with water to consistency of thick paint. Proprietary additives may be used at Contractor's option. Blend standard portland cement and white portland cement, amounts determined by trial patches, so that final color of dry grout will match adjacent surfaces.

Thoroughly wet concrete surfaces and apply grout to coat surfaces and fill small holes. Remove excess grout by scraping and rubbing with clean burlap. Keep damp by fog spray for at least 36 hours after rubbing.

3.08 **MONOLITHIC SLAB FINISHES**

- A. **Trowel Finish:** Apply trowel finish to monolithic slab surfaces to be exposed-to-view, and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint or other thin film finish coating system.

After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand- troweling operation, free of trowel marks, uniform in texture and appearance, and with a level surface plane so that depressions between high spots do not exceed 1/8" under a 10' straightedge. Grind smooth surface defects which would telegraph through applied floor covering system.

- B. **Non-Slip Broom Finish:** Apply non-slip broom finish to exterior concrete sidewalks, steps and ramps, and elsewhere as indicated.

Immediately after trowel finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

- 3.09 **CONCRETE CURING AND PROTECTION:** Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Keep continuously moist for not less than 7 days at 50°F. minimum temperature. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least 7 days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.

- A. **Curing Methods:** Perform curing of concrete by curing and sealing compound, by moist curing, by moisture-retaining cover curing, and by combinations thereof, as herein specified.

Where sealed concrete is the Afinish floor@, moist curing is required. Where interior slabs are to be covered with VCT, resilient flooring, or carpet, etc., curing method is Contractor=s Option.

- B. **Provide moisture curing** by following methods.

Keep concrete surface continuously wet by covering with water.

Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4" lap over adjacent absorptive covers.

- C. **Provide moisture-cover curing** as follows:

SECTION 033000 - BUILDING CONCRETE WORK (continued):

Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

- D. Provide curing and sealing compound to interior slabs with resilient flooring, carpet over cushion; and to exterior slabs, walks, and curbs, as follows:

Applied specified curing and sealing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours). Apply uniformly in continuous operation by power-spray or roller in accordance with manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.

- E. After moist curing of exposed concrete floor areas, provide two (2) coats of sealing compound.

Do not use membrane curing compounds on surfaces which are to be covered with coating material applied directly to concrete, liquid floor hardener, waterproofing, damp-proofing, membrane roofing, flooring (such as ceramic or quarry tile, glue-down carpet), painting, and other coatings and finish materials, unless otherwise acceptable to Architect.

- F. Curing Formed Surfaces: Cure formed concrete surfaces, including undersides of beams, supported slabs and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

- G. Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces by application of appropriate curing method.

Final cure concrete surfaces to receive liquid floor hardener or finish flooring by use of moisture-retaining cover, unless otherwise directed.

- H. Sealer and Dustproofers: Apply a second coat of specified curing and sealing compound only to surfaces given a first coat.

3.10 REMOVAL OF FORMS AND SHORING

- A. Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50° F (10° C) for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.
- B. Formwork or shoring supporting weight of concrete, such as beam soffits, joints, slabs and other structural elements, may not be removed in less than 14 days and until concrete has attained design minimum compressive strength at 28-days. Determine potential compressive strength of in place concrete by testing field-cured specimens representative of concrete location or members.
- C. Form facing material may be removed 4 days after placement, only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.

- 3.11 RE-USE OF FORMS: Clean and repair surfaces of forms to be re-used in work. Split, frayed, delaminated or otherwise damaged from facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new formwork.

SECTION 033000 - BUILDING CONCRETE WORK (continued):

3.12 MISCELLANEOUS CONCRETE ITEMS

- A. **Filling-In:** Fill-in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place and cure concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.
- B. **Curbs:** Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel-troweling surfaces to a hard, dense finish with corners, intersections and terminations slightly rounded.
- C. **Equipment Bases and Foundations:** Provide machine and equipment bases and foundations, as shown on drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with certified diagrams or templates of manufacturer furnishing machines and equipment.
- D. **Grout** base plates and foundations as indicated, using specified non-shrink grout. Use non-metallic grout for exposed conditions, unless otherwise indicated.
- E. **Reinforced Masonry:** Provide concrete for reinforced masonry lintels and bond beams where indicated on drawings and as scheduled. Maintain accurate location of reinforcing steel during concrete placement.

3.13 CONCRETE SURFACE REPAIRS

- A. **Patching Defective Areas:** Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Architect.

Cut out honeycomb, rock pockets, voids over 1/4" in any dimension, and holes left by tie rods and bolts, down to solid concrete but, in no case to a depth of less than 1". Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water and brush- coat the area to be patched with specified bonding agent. Place patching mortar after bonding compound has dried.
- B. **For exposed-to-view surfaces,** blend white portland cement and standard portland cement so that, when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.
- C. **Repair of Formed Surfaces:** Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Architect. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets; fins and other projections on surface; and stains and other discolorations that cannot be removed by cleaning; flush out form tie holes, fill with dry pack mortar, or precast cement cone plugs secured in place with bonding agent.
- D. **Repair concealed formed surfaces,** where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.
- E. **Repair of Unformed Surfaces:** Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness using a template having required slope.

SECTION 033000 - BUILDING CONCRETE WORK (continued):

- F. Repair finished unformed surfaces that contain defects which affect durability of concrete. Surface defects, as such, include crazing, cracks in excess of 0.01" wide or which penetrate to reinforcement of completely through non-reinforced sections regardless of width, spalling, pop-outs, honeycomb, rock pockets and other objectionable conditions.
- G. Correct high areas in unformed surfaces by grinding, after concrete has cured at least 14 days.
- H. Correct low areas in unformed surfaces during, or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to Architect.
- I. Repair defective areas, except random cracks and single holes not exceeding 1" diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4" clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact and finish to blend with adjacent finish concrete. Cure in same manner as adjacent concrete.
- J. Repair isolated random cracks and single holes not over 1" in diameter by dry-pack method. Groove top of cracks and cut-out holes to sound concrete and clean of dust, dirt and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Mix dry-pack, consisting of one part portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Place dry-pack after bonding compound has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than 72 hours.
- K. Perform structural repairs with prior approval of Architect or method and procedure, using specified epoxy adhesive and mortar.
- L. Repair methods not specified above may be used, subject to acceptance of Architect.

3.14 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. The Contractor will employ a testing laboratory to perform tests and to submit test reports.
- B. Sampling and testing for quality control during placement of concrete includes the following, as directed by Architect.
- C. Sampling Fresh Concrete: ASTM C172, except modified for slump to comply with ASTM C94.
 - 1. Slump: ASTM C143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.
 - 2. Air Content: ASTM C 173; volumetric method for lightweight or normal weight concrete; ASTM C 231 pressure method for normal weight concrete; one for each day's pour of each type of air- entrained concrete.
 - 3. Concrete Temperature: Test hourly when air temperature is 40°F (4°C) and below, and when 80°F (27°C) and above; and each time a set of compression test specimens made.

SECTION 033000 - BUILDING CONCRETE WORK (continued):

4. Compression Test Specimen: ASTM C31; one set of 4 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens.
5. Compressive Strength Tests: ASTM C39; one set for each day's pour exceeding 5 cu. yds. plus additional sets for each 25 cu. yds. over and above the first 25 cu. yds. of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.

When frequency of testing will provide less than 2 strength tests for a given class of concrete, conduct testing from each batch.

6. Acceptance of Concrete Strength:
The concrete strength will be considered satisfactory if both the following requirements are met:
 - A. Every arithmetic average of any three consecutive strength tests equals or exceeds $f'c$.
 - B. No individual strength test (average of two cylinders) falls below the $f'c$ by more than 500 psi.
- D. Test results will be reported in writing to Architect. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, compressive breaking strength and type of break for both 7-day tests and 28-day tests.
- E. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42, or by other methods as directed. Contractor shall pay for such tests conducted, and any other additional testing as may be required when unacceptable concrete is verified.

END OF SECTION 033000

SECTION 034700 - SITE-CAST TILT-UP CONCRETE

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following.
1. Site-cast tilt-up concrete panels.
 2. Site-cast tilt-up insulated sandwich concrete panels.
- B. Related Work: The following items are not included in this Section and are specified under the designated Sections:
1. Section 033000 – Cast-in-Place Concrete: Requirements for slab-on-grade design and construction and general requirements for concrete used in tilt-up panels.
 2. Section 076200 – Sheet Metal Flashing and Trim: Flashing to adjacent materials.
 3. Section 099000 – Painting and Coating: Site-finishing of panels as applicable.
- C. Reference Standards: Comply with applicable provisions of the following standards and regulations:
1. AWS D1.1 - Structural Welding Code – Steel.
 2. AWS D1.4 - Structural Welding Code – Reinforcing Steel.
 3. ASTM A123/A123M – Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 4. ASTM A184/A184M - Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement.
 5. ASTM A185 - Standard Specification for Welded Steel Wire Fabric for Concrete Reinforcement.
 6. ASTM A496 - Standard Specification for Deformed Steel Wire for Concrete Reinforcement.
 7. ASTM A497 - Standard Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete.
 8. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
 9. ASTM A706/A706M – Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement
 10. ASTM C31/C31M - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
 11. ASTM C33 - Standard Specification for Concrete Aggregates.
 12. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
 13. ASTM C78 - Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading).
 14. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete.
 15. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete.
 16. ASTM C150 - Standard Specification for Portland Cement.
 17. ASTM C293/C293M - Standard Test Method for Flexural Strength of Concrete (Using Simple Beam With Center-Point Loading).
 18. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
 19. ASTM C330/C330M - Standard Specification for Lightweight Aggregates for Structural Concrete.
 20. ASTM C595/C595M - Standard Specification for Blended Hydraulic Cements.
 21. ASTM C989/C989M - Standard Specification for Slag Cement for Use in Concrete and Mortars.
 22. ASTM C1157/C1157M - Standard Performance Specification for Hydraulic Cement.

SECTION 0034700 – SITE-CAST TILT-UP CONCRETE (continued):

23. ASTM C1697 - Standard Specification for Blended Supplementary Cementitious Materials.
24. ACI 117 - Specifications for Tolerances for Concrete Construction and Materials.
25. ACI 301 - Specifications for Structural Concrete for Buildings.
26. ACI 305 - Specification for Hot Weather Concreting.
27. ACI 306 - Guide to Cold Weather Concreting.
28. ACI 315 - Standard for Details and Detailing Concrete Reinforcement.
29. ACI 318 - Building Code Requirements for Structural Concrete.
30. ACI 551 - Guide to Tilt-Up Concrete Construction.
31. CRSI Manual of Standard Practice and CRSI Specifications for Placing Reinforcement.
32. BSR/ASHRAE/IESNA 90.1.
33. ASHRAE Handbook of Fundamentals.
34. ASCE 37 – Design Loads on Structures During Construction.
35. Tilt-Up Concrete Association Wind Bracing Guidelines (TCA).
36. Tilt-Up Concrete Association Erection Safety Procedures Brochure (TCA).

1.2 SUBMITTALS

- A. See drawings and architectural for submittal requirements.
- B. Shop Drawings: Submit panel shop drawings and erection drawings detailing the Work of this Section including temporary bracing. Minimum reinforcing is shown on the project drawings. The tilt-up wall delegated engineer shall remain solely responsible for the design of the panels, panel reinforcing, design of embeds, design of lifting and bracing reinforcement, inserts and connections. Tilt-up wall delegated engineer shall design and check panel for lifting and erection stresses. Shop drawings shall be prepared and/or reviewed by the tilt-up wall delegated engineer, licensed in the project state. Panel shop drawings shall include the following:
 1. Concrete mix designs for each mix specified.
 2. Mix design for structural grout for panel supports.
 3. Mill certificates for steel reinforcing.
 4. Cut sheets for embeds, and lifting and bracing inserts.
- C. Quality Control Submittals:
 1. Product Data: For each product, including bond breakers, joint sealants, insulation, connection devices.
 2. Manufacturer's Instructions: For manufactured items used, submit the manufacturer's current recommended methods of installation, including relevant limitations and safety precautions.
 3. Test Reports: Submit certified laboratory test reports confirming physical characteristics of materials used in the performance of the Work of this Section.

1.3 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with applicable codes and regulations of governmental agencies having jurisdiction. Where those requirements conflict with this Specification, comply with the more stringent provisions.
- B. Qualifications for General Contractors: General contractor responsible for the project shall demonstrate the experience and expertise required to manage the specified work in compliance with the TCA Tilt-up Certified Company program.
- C. Qualifications for Tilt-Up Contractors: Contractor performing the tilt-up operations shall demonstrate the experience and expertise required to manage and execute the specified work in compliance with the TCA Tilt-up Certified Company program. Tilt-up contractor shall have a minimum of 5 years of experience with multi-story tilt-wall construction and projects of this complexity. Tilt-wall contractor shall be

SECTION 0034700 – SITE-CAST TILT-UP CONCRETE (continued):

submitted to and approved by the Owner, Architect and Engineer prior to selection and commencement of construction.

- D. Qualifications for Field Personnel: Contractor shall show evidence of competence in site cast tilt-up concrete construction by means of active ACI tilt-up supervisor certification or by other means. Workers shall be proficient in production and erection operations and shall be under the direct supervision of qualified personnel.
- E. Qualifications for Welding: Qualify welding processes and welding operators in accordance with ANSI/AWS D1.4. Provide certification that welders to be employed in the Work have satisfactorily passed AWS qualification tests within the previous 12 months.
- F. Job Mock-up Panel for Architectural Finishes: Prepare one panel using forming technique and construction methods to be used on the project for each level of finish shown on the drawings according to the following:
 - 1. Panels shall be a minimum of 4-feet by 8-feet. Incorporate edge and reveal conditions as detailed on the project drawings.
 - 2. For painted concrete finishes: Utilize full range of color as specified. Utilize reveal characterization as specified.
 - 3. For abraded or exposed colored concrete finishes: Utilize full range size and colors in aggregate. Utilize full range of color in grout. Match the degree of abrasion (e.g. sand-blast, water-blast, retarder, acid etch, etc.) specified.
 - 4. For textured or architectural liner finishes: Utilize full range of texture as specified. Sample shall consist of section showing integration of both horizontal and vertical liner joints.
 - 5. For cast-in-brick or stone finishes: Utilize full range of color sampling for brick specified. Sample shall consist of one repaired brick in field of display.
 - 6. Cast mock-up over slab joint or column joint if actual panels will be affected by these conditions.
 - 7. Maintain approved mock-up for comparison with finish work.
 - 8. Dispose of mock-up when project is completed or when directed by Architect.

1.4 PROJECT CONDITIONS

- A. Job Conditions: Comply with the following:
 - 1. Do not construct formwork, place steel reinforcement or concrete, or erect panels during adverse weather unless approved measures are taken to prevent damage. During period of dry winds, low humidity and other conditions causing rapid drying, protect fresh concrete with an evaporation retardant (monomolecular film) or fine fog spray of water applied immediately after screeding and bull floating. Maintain protection until final finishing and curing compounds are applied.
 - 2. For cold weather conditions, adequate equipment shall be provided for heating concrete materials and protecting concrete during freezing or near-freezing weather. Concrete materials and reinforcing steel, forms, fillers and ground with which concrete is to come in contact shall be free from frost. If shelters are used, the type of fuel used for heating shall not weaken the concrete surface. Frozen materials or materials containing ice shall not be used.
 - 3. For hot weather conditions proper attention shall be given to concrete materials, production methods, handling, placing, protection and curing to prevent excessive concrete temperatures or water evaporation that may increase shrinkage and impair required strength or serviceability of the member or structure.

1.5 COORDINATION

- A. Coordinate site cast tilt-up operations with Work of other trades in order that Work may be expedited and omissions and delays avoided.

SECTION 0034700 – SITE-CAST TILT-UP CONCRETE (continued):

PART 2 - PRODUCTS

2.1 TILT-UP CONCRETE, GENERAL

- A. Comply with ACI 301, unless modified by requirements in the Contract Documents.

2.2 PANEL MATERIALS

A. Forms:

1. Forms shall contain blockouts required to provide openings detailed on Drawings. Coordinate openings with other trades.
2. Panel boundary forms shall be rigidly constructed and well braced steel or wood forms, straight and with precise corners. Design to withstand stresses resulting from the casting process. Consideration should be given to exposed formed surfaces. Forming surfaces shall be smooth and clean prior to pouring of concrete.
3. Forms shall be attached to the finished building slab using non-intrusive glues and/or adhesives wherever possible in lieu of nails and bolts to eliminate penetrations and blemishes. Repairs shall be approved by the Architect
4. Panels may be stacked for ease of casting, in forms as specified above.
5. When panels are stack cast, maintain a continuous sound and smooth casting to match the finish of the original casting surface.
6. Bondbreaker shall be compatible with curing compound or be completely removed according to the manufacturer's cleaning instructions prior to the installation of any subsequent finishes.

- B. Reveal Materials: Materials used for creating reveals or relief in the exterior face of the panel shall be of adequate strength to withstand construction traffic/loads without damage.

C. Concrete Materials:

1. Cementitious materials shall conform to ASTM C150, C595, C1157 or C1697. Portland cement shall be Type I or II.
2. Fine and coarse aggregates shall consist of clean, hard strong, and durable inert material, free of injurious amounts of deleterious substances, conforming to ASTM C33 for normal weight concrete and ASTM C330 for lightweight aggregate concrete.
3. Concrete shall be a design mix approved by Architect.
4. Mixing water shall be free of any acid, alkali, oil or organic material that may interfere with the setting of the cement.
5. Admixtures shall be approved by Architect.
6. Concrete shall be produced and delivered in accordance with ASTM C94.

- D. Quality of Concrete: Ready-mixed concrete shall conform to ASTM C94. Concrete shall have a minimum compressive strength at 28 days as indicated on the project drawings and as required for panel erection, or specified, and tested according to ASTM C39.

- E. Sacking Materials: Portland cement and water, mixed to a uniform creamy paste.

- F. Dry-Pack Materials: In accordance with requirements specified in Section 03300 – Cast-in-Place Concrete.

G. Steel Reinforcement:

1. Reinforcing bars shall conform to ASTM A615/A615M, Grade 60, or ASTM A706/A706M. For reinforcing bars conforming to ASTM A706, which will be welded, furnish a report of the chemical analysis for each heat of the bars.

SECTION 0034700 – SITE-CAST TILT-UP CONCRETE (continued):

2. Welded wire reinforcement shall conform to ASTM A185 or A497 based on type and location and shall be of the style shown on the project drawings. Welded wire reinforcement shall be supplied in flat sheets.
 3. Bar mats for concrete reinforcement shall conform to ASTM A184.
- H. Lifting Hardware: Lifting hardware, inserts, braces, and related embedded and attached items shall be manufactured specifically for site cast tilt-up construction.
- I. Randomly-Mixed Reinforcing Elements (Fibers): The use of materials mixed with the concrete for reinforcement are commonly applicable for reduction of plastic shrinkage and thermal expansion/contraction. They shall not be used as flexural reinforcement in structural panels unless approved by a licensed design professional and reviewed by the Architect. Consult the manufacturer's literature for proper material quantities and application procedures.
- J. Miscellaneous Metals:
1. Provide inserts, dowels, and other items to be cast in panels, including items required for erection and bracing.
 2. Steel that will be exposed to the exterior or damp environments in finished panels shall be plastic-tipped, hot-dipped galvanized or protected by other means to prevent corrosion or oxidation of the metal after fabrication in accordance with ASTM A123. Ensure that the plastic will not create stress concentrations within the thin sections of concrete when located near a surface from differential thermal expansion and contraction ultimately resulting in local shear failure of the concrete surface producing surface blemishes.
- K. Supports for Steel Reinforcement: Supports may consist of metal, all-plastic and concrete materials.
1. Supports for steel reinforcement shall be designed to prevent spalling of concrete surfaces or streaking of panel face from corrosion.
 2. Metal supports shall be either galvanized after fabrication or with tips protected with plastic. No galvanized or plastic tip metal support shall be used on panels to receive exposed or sandblasted finish.
 3. All-plastic supports should be of such design as to adequately support reinforcement, provide minimal surface contact and be of such coloring as to not be distinguishable on any surfaces. Minimal surface contact is defined as having a total contact surface area not to exceed 0.10 square inches (64.5 mm²) per contact point. Refer to CRSI Manual of Standard Practice.
 4. Concrete supports may only be used in situations where surface contact is not visible.

2.3 CONCRETE CURING MATERIALS

- A. Liquid Membrane-Forming Curing Compound:
1. Liquid-type membrane-forming curing compound complying with ASTM C309, Type I and I D, Class B. It is preferred that the curing compound/bondbreaker be the same product or compatible, and that only one manufacturer's product is used.
 2. Concrete Curing of Casting Beds: Concrete in and around those areas to be used for casting shall be cured after finishing and as soon as the free water on the surface has disappeared and no water sheen is visible, but not so late that the liquid curing compound will be absorbed into the concrete. The cure and/or bondbreaking compound should be applied at the manufacturer's recommended coverage to achieve minimum moisture loss.
 3. Curing compound must be compatible with the bond breaker.
- B. Reusable Wet Cure Covers: Impregnated fiber mat with a white or light-colored backing having low permeability with high moisture retention to maintain the proper moisture content during the concrete curing process. Comply with ASTM C171 for reflection and moisture retention.

SECTION 0034700 – SITE-CAST TILT-UP CONCRETE (continued):

2.4 SEALANTS

- A. Sealants and Caulking: Comply with requirements of Section 079200 – Joint Sealants.

2.5 BONDBREAKER

- A. Liquid Dissipating Membrane-Forming Curing Compound.
1. The bond breaking material shall also be a dissipating membrane forming material complying with ASTM C 309-98a, Type I and I D, Class B.
 2. The bond breaking compound shall be applied with adequate time to dry prior to placement of reinforcing steel.
 3. The bond breaking compound shall dry in 30-minutes or less at 100°F to reduce panel clean up.
 4. Material shall be compatible with curing material.
 5. The bond breaker used shall be fully removed from the slab surface or shall be compatible with any curing compound.

PART 3 - EXECUTION

3.1 CASTING SURFACES

- A. Casting Slab Preparation:
1. Casting slab shall be cured. Saw cuts, cracks, joints or defects in the casting bed shall be filled so as to minimize transfer of the joint line to the panel face.
 2. Waste slabs, if used, shall be of sufficient thickness and strength so as not to crack with the weight of the panels.
 3. Contractor shall be responsible for compatibility of curing agents, sealants, and releasing agents utilized in the Work. If panels are to be stacked, the troweled surface shall be considered the casting bed and shall be treated as the same.
 4. Isolation pockets shall be formed in such a manner as to minimize the transfer of the pocket to the finished appearance of the panel.
- B. Bondbreaker shall be applied in accordance with manufacturer's printed instructions for the applicable condition.
- C. Locate and install all inserts and anchorages required for the panels prior to casting of any concrete. When approved by the engineer of record, embedded items such as dowels, inserts or anchorages, that either protrude from the concrete or remain exposed for inspection, may be installed while the concrete is in a plastic state. This is provided the item(s) is not required to be hooked or tied to the reinforcement within the concrete and are maintained in the correct position until the concrete hardens. Such items shall be properly anchored to ensure full development of the design load. The concrete surface adjacent to the embedded item shall be properly finished for correct interfacing.
- D. After placing steel reinforcement for panels, check casting slab surfaces for continuity of bondbreaker. If touch-up or recoating of worn, damaged or missing areas is required, the Contractor shall remove the steel reinforcement entirely prior to re-application of the bondbreaker unless approved by the Architect.

3.2 FORMING PANELS

- A. Layout the panels for casting in a manner that minimizes the locations of floor joints, column isolation joints and other construction joints in the panel faces. Prevent the layout of the panels over temporarily poured casting surfaces such as pre-formed columns and pits unless deemed absolutely necessary.

SECTION 0034700 – SITE-CAST TILT-UP CONCRETE (continued):

- B. Forms shall be designed to maintain the perimeter of the panel as shown on the project drawings within 1/4-inch maximum deflection during pouring.
- C. Formed blockouts for openings in the panels shall be designed to limit the deflection during pouring to a maximum of 1/8 inch.
- D. Where reveals are specified in panels, assure that forming strips are straight and securely fastened to prevent movement or floating during placing operations and that alignment between adjacent panels is correct. Reveal tolerances shall comply with requirements specified in this Section.

3.3 PLACING CONCRETE

- A. Place concrete in accordance with recommendations in ACI 309 and the following:
 - 1. Concrete shall be thoroughly worked around reinforcement, around the embedded items, and into corners of the forms.
 - 2. Cold joints shall not be permitted in an individual site cast tilt-up panel.

3.4 FIELD QUALITY CONTROL TESTING

- A. Field Testing:
 - 1. The Contractor shall make and store a minimum of four 6x12 cylinders or five 4x8 cylinders and four 6x6x24 beams in accordance to ASTM C31. Specimens shall be made for each class of concrete, for each 50 cu.yds. or fraction thereof, and for each day concrete is cast, or not less than once for each 5,000 sq.ft. of panel area.
 - 2. Test cylinders shall be tested in accordance with ASTM C39. A minimum of 2 from each set shall be tested at 7 days and the rest at 28 days.
 - 3. Test beams shall be tested in accordance with ASTM C78. At least two from each set shall be tested prior to panel erection. The average of the two beam results shall be considered the tested flexural strength to determine if the specified flexural strength has been met. Remaining specimens shall be kept in reserve in the event that additional testing is needed.
 - 4. Test specimens and test reports shall accurately indicate in which panel, by number and concrete delivery tag, the concrete represented by each test specimen was placed.
 - 5. Copies of test reports shall be distributed to Owner, Architect, Building Official and Contractor. Reports shall indicate location of tests, dates, technician, and other pertinent information
- B. Deficient Compressive Strength: In the event that concrete tests indicate a 7-day or 28-day strength below that which was specified, the Contractor with the agreement of the Architect shall have the mix adjusted so that subsequent concrete will comply with the minimum strength requirements.
 - 1. The Owner may require core specimens to be taken and tested, at the Contractor's expense. If core tests fall below minimum requirements, as determined by the Architect, the concrete in place will be deemed to be defective.
 - 2. This concrete shall be removed and replaced or strengthened in a manner acceptable to the Owner and Architect, at the Contractor's expense.
 - 3. Demolition or repair of other materials or systems as a result of repair or replacement of defective concrete shall be at the Contractor's expense.

3.5 CURING AND PROTECTION

- A. Comply with recommendations in ACI 308 and the following:

SECTION 0034700 – SITE-CAST TILT-UP CONCRETE (continued):

1. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures and maintain without drying at a relatively constant temperature for the period of time necessary for hydration of the cement and proper hardening of the concrete.
2. Apply liquid membrane curing compound in accordance with manufacturer's recommendations.
3. Underlying panels in a stack cast arrangement shall be cured in the same manner as casting beds.

B. Moist Curing in lieu of Liquid Membranes for Curing:

1. Cover panels completely with 4-mil polyethylene, transguard or burlene to prevent evaporation. The panels shall be kept wet for seven days. Do not allow alternate wetting and drying. The polyethylene shall be turned over and down the edge of the forms and securely fastened.
2. In panels or areas to be cured, weight the polyethylene, transguard or burlene with enough and type of weight to prevent normal winds for the area from blowing it off the panels. Keep panels wet until erection begins or approved by the Architect.

3.6 CASTING TOLERANCES

A. Dimensions of the finished panels, prior to erection in the structure, shall conform to the casting tolerances stated below unless otherwise specified or approved by the Architect.

B. Deviation from Specified Height or Width of Structural Panel:

- | | |
|-----------------------------------------------------------|-----------|
| 1. Up to 20 feet | ± 1/4 in. |
| 2. 20 feet to 30 feet | ± 3/8 in. |
| 3. Each additional 10-foot increment in excess of 30 feet | ± 1/8 in. |
| 4. Maximum overall tolerance | ± 5/8 in. |

C. Deviation from Specified Panel Thickness: Note the tolerance listed is for the average variation of panel thickness through any cross-section of the panel.

- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 1. Top surface of panel from casting slab | ±3/8 in. |
| 2. Thickness of panel, any one individual measurement | -1/2 in. |
| 3. Thickness of panel, average of all measurements | -3/8 in. |
| 4. Minimum number of panel thickness measurements, when taken, shall be four (4) for each 5,000 sq.ft. or part thereof, or a minimum of three (3) measurements in any one panel less than 5,000 sq.ft. | |

D. Deviation in Length of Diagonals for a Rectangular Member or Opening, where Length of Diagonal is as follows. Note the tolerance listed is the measured difference in length of the two diagonals across any rectangle.

- | | |
|-------------------------------------------------|-----------|
| 1. Less than or equal to 6 ft. | ± 1/8 in. |
| 2. Over 6 ft. but less than or equal to 12 ft. | ± 1/4 in. |
| 3. Over 12 ft. but less than or equal to 18 ft. | ± 3/8 in. |
| 4. Over 18 ft. | ± 1/2 in. |

E. Deviations from Specified Size:

- | | |
|-----------------------------------------|-----------|
| 1. Rough opening | ± 1 in. |
| 2. Finished opening | ± 1/2 in. |
| 3. Rustication or architectural feature | ± 1/8 in. |

SECTION 0034700 – SITE-CAST TILT-UP CONCRETE (continued):

F. Deviation from Specified Location (any direction):

- | | |
|------------------------------------------------------------------------|-----------|
| 1. Blockout or opening | ± 1 in. |
| 2. Bolts, pipes or sleeves | ± 1/2 in. |
| 3. Lifting and bracing inserts per manufacturer's specs, not to exceed | ± 1 in. |
| 4. Embeds | ± 1 in. |
| 5. Reglets for flashing or bricks | ± 1/4 in. |
| 6. Rustication or architectural feature | ± 1/8 in. |
| 7. Electrical box or accessory of another trade | ± 1 in. |

G. Deviation from Plane:

- | | |
|------------------------------------------|-----------|
| 1. Embeds (Tipping & Flushness) | ± 1/4 in. |
| 2. Surface of concrete between embeds | ± 1/4 in. |
| 3. Depth of recess, from casting surface | ± 1/4 in. |

H. Deviation from Specified Position of Reinforcement:

- | | |
|-----------------------------------------------------------------------------------|-----------|
| 1. Cover, in accordance with ACI 318 and in no case less than specified elsewhere | ± 1/4 in. |
| 2. Centroid within section, at any point within span | ± 1/2 in. |
| 3. Plan position of reinforcement | ± 1 in. |

3.7 PANEL FINISH

A. Finish exposed surfaces of panels as indicated below including both the front and back of the panels as well as any exposed edges as defined below. Visible surfaces of the panels, when in place shall be free from surface defects as defined below.

B. Grade A - Architectural: Projects designed for the circulation of people within a distance of 10 feet to 25 feet.

1. Panel surfaces shall be free of voids, holes, pockets and other surface deformations greater than 1/8 inch.
2. Surfaces of panels shall not project reinforcing patterns, floor joints or other projections or voids from the casting surface.
3. Cracks are not permissible in excess of 1/32 inch.
4. Surface repairs shall be performed in such a way as to prevent the projection of repair strokes through the intended finish.
5. Holes shall be filled with patching material to present a smooth surface ready for painting unless the designed finish is to result in exposed aggregates whereby the patching material shall match the intended color and texture.

C. Surfaces to be painted shall be prepared to receive paint finish as specified in Section 099000 – Painting and Coating.

3.8 HANDLING AND ERECTION OF PANELS

A. Engineer panels for erection stresses and selection of lifting system and hardware.

1. Minimum strength of panels at time of erection shall be in accordance with the lifting design.

SECTION 0034700 – SITE-CAST TILT-UP CONCRETE (continued):

2. It is recommended that the Contractor take extra test specimens and field cure to verify concrete strength of panels or demonstrate the acceptable strength through maturity prediction of calibrated mix designs.
3. Before starting erection operations, Contractor shall check relevant job site conditions insofar as they are ready for the erection of panels. Each element shall be properly marked to correspond with the designation indicated on the approved Shop Drawings.
4. Use erection equipment that will prevent damage to existing construction, permanent floor slabs and panels. Damage to Work shall be repaired or replaced at the Contractor's expense and in a manner acceptable to the Architect prior to painting or coating.
5. Temporary panel bracing shall not be removed until floor and roof diaphragm(s) is completely welded and installed.

Designer/Specifier Note: Typically retain subparagraph 1 following. The project Structural Engineer should verify the footing design for point loading of panel supports during construction.

- B. Set panels in the position assigned. Place panels evenly on prepared setting pads or proper-capacity shims. Grout space under panels for full bearing or provide additional support until grouting takes place.
 1. Provide sufficient number of shims to adequately distribute the load on the footing or grout as soon as practical to prevent damage of the footing.
- C. Panels not attached to the building frame at the time of erection shall be braced in position using a bracing system designed to resist wind and other loads that may reasonably be determined until structural connections have been made. There shall be a minimum of two braces per panel. Engineering of bracing shall be the responsibility of the Contractor. Panel bracing connection shall be maintained daily to assure tightness.
- D. Dry-pack grout installation and preparation for weld pockets and other panel block outs not cast in during pouring shall be performed as follows:
 1. Remove laitance down to sound concrete
 2. Surface to receive grout shall be rough and reasonably level
 3. Surface shall have been properly wet cured
 4. Do not use curing compounds
 5. Clean surface of oil, grease, dirt and loose particles.
 6. Remove free water from concrete and bolt holes immediately before grouting.
- E. After Panels are Erected:
 1. Check connecting bolts at the floor and panels daily to ensure tightness.
 2. Protect elements to prevent staining, warping or cracking. After panels are erected, dismantle panel erection devices and patch panels as required for a uniform appearance.
 3. After panels are erected, patch holes or other blemishes in casting slab that were caused by the panel casting and erection processes in a manner acceptable to the Architect.

3.9 ERECTION TOLERANCES

- A. Erection Tolerances: Dimensions of the finished panel in the erected position in the structure shall conform to the erection tolerances stated below unless otherwise specified or approved by the Architect.
- B. Deviation from Specified Dimension Between Controlling Surface or Line and Building Reference Line:
 1. Horizontal dimension to vertical surface + 1/2 in., - 1/4 in.
 2. Vertical dimension to horizontal surface + 1/4 in., - 1/2 in.
 3. From top elevation ± 1/2 in.

SECTION 0034700 – SITE-CAST TILT-UP CONCRETE (continued):

C. Deviation from Plumb of the Controlling Surface or Line:

- | | |
|--------------------------------------|-----------|
| 1. Any 10 feet of member height | ± 1/4 in. |
| 2. Each additional 10 feet of height | ± 1/4 in. |
| 3. Not to exceed | ± 1 in. |

D. Deviation from Specified Relationship of Adjacent Members:

- | | |
|------------------------------------------------------------------------------------|-----------|
| 1. Matching edges at horizontal and vertical joints | ± 1/2 in. |
| 2. Matching faces exposed to view | ± 3/8 in. |
| 3. Matching faces not exposed to view | ± 3/4 in. |
| 4. Bowing between adjacent members | 1/2 in. |
| 5. Alignment of brick mortar joints across joints, jog in alignment. | 1/8 in. |
| 6. Alignment of brick mortar joints across joints, alignment with panel centerline | ± 1/8 in. |

E. Deviation from Specified Joint Width:

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 1. Vertical joint (governs over joint taper), total | ± 3/8 in. |
| 2. Horizontal joint (governs over joint taper), total | ± 3/8 in. |
| 3. Visually noncritical joint | ± 1/2 in. |
| 4. Joint taper over any 10 ft. length measured between the panels at the exterior face of the panels at the joint. | ± 3/8 in. |
| 5. Joint taper over entire length measured between the panels at the exterior face of the panels at the joint | ± 1/2 in. |
| 6. Variation in width of exposed brick mortar joints measured difference in joint width indicating the panel edges are not parallel | ± 1/8 in. |

F. Deviation of Architectural Features at Face of Panel:

- | | |
|-------------------------------------------------------------------------|------------|
| 1. Brick (individual) out of plane, any one (depth of form liner joint) | - 1/4 in. |
| 2. Brick (individual) tipping, any one (depth of form liner joint) | - 1/4 in. |
| 3. Brick (individual) out of square, any one | ± 1/16 in. |
| 4. Brick (field), max. per panel | 2 percent |

3.10 SEALING OF PANEL JOINTS

- A. Clean the panel joints of contaminants, including form release agents and concrete laitance. Dust and loose particles shall be blown out or otherwise cleaned to provide proper bond. Apply sealants in accordance with manufacturer's recommendations.
- B. Install fire-resistive blanket where indicated.
- C. Install joint insulation where indicated to consist of a limited expansion polyurethane insulation or an approved equal as provided in accordance with Section 072000 – Insulation.
- D. Install back-up rod, primer, paint and sealant in accordance with Section 079200 – Sealants and Caulking.

SECTION 0034700 – SITE-CAST TILT-UP CONCRETE (continued):

3.11 ATTACHING PANELS TO BUILDING FRAME

- A. Perform welding in accordance with ANSI/AWS D1.4. Wait a minimum of 28 days from panel casting before making panel-to-panel welds.

3.12 CLEANING AND PROTECTION

- A. Remove trash, debris, surplus materials, tools and equipment from site on a regular basis.

PART 4 - END OF SECTION 034700

SECTION 051200 - STRUCTURAL STEEL

PART 1 - GENERAL

- 1.01 RELATED DOCUMENTS: Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- 1.02 DESCRIPTION OF WORK:
- A. Extent of structural steel work is shown on drawings, including schedules, notes and details to show size and location of members, typical connections, and type of steel required.
 - B. Structural steel is that work defined in AISC "Code of Standard Practice" and as otherwise shown on drawings.
 - C. Miscellaneous Metal Fabrications are specified elsewhere in Division 5.
- 1.03 QUALITY ASSURANCE
- A. Codes and Standards: Comply with provisions of following, except as otherwise indicated:
 - 1. AISC "Code of Standard Practice for Steel Buildings and Bridges"
 - 2. Paragraph 4.2.1 of the above code is hereby modified by deletion of the following sentence: "This approval constitutes the Design Builder's acceptance of all responsibility for the decision adequacy of any connections designed by the fabricator as a part of his preparation of these shop drawings."
 - 3. AISC "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings," including "Commentary" and Supplements thereto as issued.
 - 4. AISC "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts" approved by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation.
 - 5. AWS D1.1 "Structural Welding Code"
 - 6. ASTM A6 "General Requirements for Delivery of Rolled Steel Plates, Shapes, Sheet Piling and Bars for Structural Use"
 - B. Qualifications for Welding Work: Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure." Provide certification that welders to be employed in work have satisfactorily passed AWS qualification tests. Certification must be current (less than 1 year old). If recertification of welders is required, retesting will be Contractor's responsibility. Contractor must furnish a copy of each welders current certification prior to welder performing work on the project.
 - C. Installer Qualifications: Engage an experienced installer who has completed structural steel work similar in material, design, and extent to that indicated for this project and with a record of successful in-service performance.
 - D. Fabricator Qualifications: Engage a firm experienced in fabricating structural steel similar to that indicated for this project and with a record of successful in-service performance, as well as sufficient production capacity to fabricate structural steel without delaying the work.
 - 1. Fabricator must participate in the AISC Quality Certification Program and be designated an AISC-Certified Plant as follows:

SECTION 051200 - STRUCTURAL STEEL (continued):

- a. Category: Category I, conventional steel structures.
 - b. Fabricator shall be registered with and approved by authorities having jurisdiction.
- E. Firms wishing to bid the work, but not participating in the AISC Certification, may seek pre-qualification by making submittals as listed in paragraph 1.04 Submittals, Para. D. of this section.
- F. Whether by Certification or by Pre-Qualification, the steel fabricator shall have in their employ a specialty Engineer responsible for designing and detailing all structural connections and have responsible charge of shop drawing preparation. Fabricator shall anticipate and include in his bid all miscellaneous plates, angles, welds, or bolts necessary to accomplish the connection. Specialty Engineer shall sign and seal shop drawings indicating responsibility for connections only, and certifying that main members are as indicated on the contract documents. Connections shall be capable of resisting forces equal to the strength of the member being connected, when such forces are not shown on the plans.

1.04 SUBMITTALS

- A. **Product Data:** Submit producer's or manufacturer's specifications and installation instructions for following products. Include laboratory test reports and other data to show compliance with specifications (including specified standards).
- 1. Structural steel (each type).
 - 2. High-strength bolts (each type), including nuts and washers.
 - 3. Structural steel primer paint.
 - 4. Shrinkage-resistant grout.
- B. **Shop Drawings:** Submit shop drawings, including complete details and schedules for fabrication and assembly of structural steel members procedures and diagrams. Include details of cuts, connections, camber, holes, and other pertinent data. Indicate welds by standard AWS symbols, and show size, length, and type of each weld. Provide setting drawings, templates, and directions for installation of anchor bolts and other anchorages to be installed by others.
- Shop drawings relating to the connections shall be signed and sealed by the fabricators engineer, who is registered in the project state.
- Any submittal or RFI shall be incorporated as part of the shop drawings. The first and all shop drawing submittals shall include the signature and seal of the Specialty Engineer, noting the purpose of the submittal.
- C. **Test Reports:** Submit copies of reports of tests conducted on shop and field bolted and welded connections. Include data on type(s) of tests conducted and test results.
- D. Qualification data for firms and persons specified in the AQuality Assurance@ Article to demonstrate their capabilities and experience. Include lists of completed projects with project name and address, name and address of Architect and Design Builder, and the name and address of the Specialty Engineer proposed for the work.

1.05 DELIVERY, STORAGE AND HANDLING

- A. **Deliver materials** to site at such intervals to insure uninterrupted progress of work.
- B. **Deliver anchor bolts** and anchorage devices, which are to be embedded in cast-in-place concrete or

SECTION 051200 - STRUCTURAL STEEL (continued):

masonry, in ample time to not to delay work.

- C. Store materials to permit easy access for inspection and identification. Keep steel members off ground, using pallets, platforms, or other supports. Protect steel members and packaged materials from erosion and deterioration.
- D. Do not store materials on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Metal Surfaces, General: For fabrication of work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness. Remove such blemishes by grinding, or by welding and grinding, prior to cleaning, treating and application of surface finishes.
- B. Structural Steel Shapes, Plates and Bars: ASTM A 572, except channels, angles, bars, plates and other miscellaneous items shall be ASTM A36.
- C. Cold-Formed Steel Tubing: ASTM A 500, Grade B.
- D. Steel Pipe: ASTM A 53, Type E or S, Grade B.
- E. Anchor Bolts: ASTM A 307, nonheaded type unless otherwise indicated.
- F. High-Strength Threaded Fasteners: Heavy hexagon structural bolts, heavy hexagon nuts, and hardened washers, as follows:
 - 1. Quenched and tempered medium-carbon steel bolts, nuts and washers, complying with ASTM A 325.
 - 2. Direct tension indicator washers may be used at Contractor's option.
- G. Electrodes for Welding: Comply with AWS Code.
- H. Structural Steel Primer Paint: Fabricator's standard rust-inhibiting primer.
- I. Non-metallic Shrinkage-Resistant Grout: Pre-mixed, non-metallic, non-corrosive, non-staining product containing selected silica, sands, portland cement, shrinkage compensating agents, plasticizing and water reducing agents, complying with CRD-C621.

Available Products: Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:

Euco N.S.; Euclid Chemical Co.
Masterflow 713; Master Builders
Five Star Grout; U.S. Grout Corp.

2.02 FABRICATION

- A. Shop Fabrication and Assembly: Fabricate and assemble structural assemblies in shop to greatest extent possible. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on final shop drawings. Provide camber in structural members where indicated.

SECTION 051200 - STRUCTURAL STEEL (continued):

Properly mark and match-mark materials for field assembly. Fabricate for delivery sequence which will expedite erection and minimize field handling of materials.

- B. **Connections:** Weld or bolt shop connections, as indicated. Weld field connections, except where bolted connections or other connections are indicated.
 - 1. Provide high-strength threaded fasteners for principal bolted connections, except where unfinished bolts are indicated.
 - 2. Provide unfinished threaded fasteners for only bolted connections of secondary framing members to primary members (including purlins, girts, and other framing members taking only nominal stresses) and for temporary bracing to facilitate erection.
- C. **High-Strength Bolted Construction:** Install high-strength threaded fasteners in accordance with AISC "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts" (RCRBSJ).
- D. **Welded Construction:** Comply with AWS Code for procedures, appearance and quality of welds, and methods used in correcting welding work. Build up welded door frames attached to structural steel framing. Weld exposed joints continuously and grind smooth. Plug weld steel bar stops to frames, except where shown removable. Secure removable stops to frames with countersunk, cross-recessed head machine screws, uniformly spaced not more than 10" o.c., unless otherwise indicated.
- E. **Holes for Other Work:** Provide holes required for securing other work to structural steel framing, and for passage of other work through steel framing members, as shown on final shop drawings. Provide threaded nuts welded to framing, and other specialty items as indicated to receive other work. Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame cut holes or enlarge holes by burning. Drill holes in bearing plates.

2.03 **SHOP PAINTING**

- A. **General:** Shop paint structural steel, except those members or portions of members to be embedded in concrete or mortar or that is scheduled to receive sprayed on fireproofing. Paint embedded steel which is partially exposed on exposed portions and initial 2" of embedded areas only.
 - 1. Do not paint surfaces which are to be welded or high-strength bolted with friction-type connections.
 - 2. Apply 2 coats of paint to surfaces which are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.
- B. **Surface Preparation:** After inspection and before shipping, clean steel work to be painted. Remove loose rust, loose mill scale, and spatter, slag or flux deposits. Clean steel in accordance with Steel Structures Painting Council (SSPC) as follows:
 - 1. SP-2 "Hand Tool Cleaning"
 - 2. SP-3 "Power Tool Cleaning"
- C. **Painting:** Immediately after surface preparation, apply structural steel primer paint in accordance with manufacturer's instructions and at a rate to provide dry film thickness of not less than 1.5 mils. Use painting methods which result in full coverage of joints, corners, edges and exposed surfaces.

SECTION 051200 - STRUCTURAL STEEL (continued):

PART 3 - EXECUTION

3.01 ERECTION

- A. **Temporary Shoring and Bracing:** Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads. Remove temporary members and connections when permanent members are in place and final connections are made. Provide temporary guy lines to achieve proper alignments of structures as erection proceeds.
- B. **Temporary Planking:** Provide temporary planking and working platforms as necessary to effectively complete work.
- C. **Anchor Bolts:** Furnish anchor bolts and other connectors required for securing structural steel to foundations and other in-place work. Furnish templates and other devices as necessary for presetting bolts and other anchors to accurate locations. Refer to Division 3 of these Specifications for anchor bolt installation requirements in concrete, and Division 4 for masonry installation.
- D. **Setting Bases and Bearing Plates:** Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen to improve bond to surfaces. Clean bottom surface of base and bearing plates. Set loose and attached base plates and bearing plates for structural members on wedges or other adjusting devices.
- E. **Tighten anchor bolts** after supported members have been positioned and plumbed. Do not remove wedges or shims, but if protruding, cut off flush with edge of base or bearing plate prior to backing with grout.
- F. **Pack grout** solidly between bearing surfaces and bases or plates to ensure that no voids remain. Finish exposed surfaces, protect installed materials, and allow to cure. For proprietary grout materials, comply with manufacturer's instructions.
- G. **Field Assembly:** Set structural frames accurately to lines and elevations indicated. Align and adjust various members forming part of complete frame or structure before permanently fastening. Clean bearing surfaces and other surfaces which will be in permanent contact before assembly. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
 - 1. Level and plumb individual members of structure within specified AISC tolerances. Employ surveyor to plumb columns with transit.
 - 2. Splice members only where indicated and accepted on shop drawings.
- H. **Erection Bolts:** On exposed welded construction, remove erection bolts, fill holes with plug welds and grind smooth at exposed surfaces.
- I. **Comply with AISC Specifications** for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds. Do not enlarge unfair holes in members by burning or by use of drift pins, except in secondary bracing members. Ream holes that must be enlarged to admit bolts.
- J. **Gas Cutting:** Do not use gas cutting torches in field for correcting fabrication errors in primary structural framing. Cutting will be permitted only on secondary members which are not under stress, as acceptable to Architect. Finish gas-cut sections equal to a sheared appearance when permitted.

SECTION 051200 - STRUCTURAL STEEL (continued):

- K. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint. Apply paint to exposed areas using same material as used for shop painting. Apply by brush or spray to provide minimum dry film thickness of 1.5 mils.

3.02 QUALITY CONTROL

- A. Engage an independent testing and inspection agency to inspect high-strength bolted connections and welded connections and to perform tests and prepare test reports. Testing agency shall conduct and interpret tests and state in each report whether test specimens comply with requirements, and specifically state any deviations therefrom. Provide access for testing agency to places where structural steel work is being fabricated or produced so that required inspection and testing can be accomplished.
- B. Shop Bolted Connections: Inspect in accordance with AISC specifications.
- C. Shop Welding: Inspect and test during fabrication of structural steel assemblies, as follows:
1. Use Current Certified welders (certifications not over 1 year old) and conduct inspections and tests as required. Record types and locations of defects found in work. Record work required and performed to correct deficiencies.
 2. Perform visual inspection of all welds.
- D. Field Bolted Connections: Inspect in accordance with AISC specifications.
- E. Field Welding: Inspect and test during erection of structural steel as follows:
1. Use Current Certified welders and conduct inspections and tests as required. Record types and locations of defects found in work. Record work required and performed to correct deficiencies.
- F. Completion Certification: Upon completion of erection, fabricator engineer shall certify that all connections have been completed in accordance with the shop drawings and contract documents.

END OF SECTION 051200

SECTION 052100 - STEEL JOISTS

PART 1 - GENERAL

DESCRIPTION OF WORK:

Extent of steel joists is shown on drawings, including basic layout and type of joists required.

QUALITY ASSURANCE:

Provide joists fabricated in compliance with the following, and as herein specified.

Steel Joist Institute (SJI) Standard Specifications, Load Tables and Weight Tables for:

K-Series Open Web Steel Joists
LH and DLH-Series Longspan Joists
KCS-Series Joists
Joist Girders

Provide joists designed in accordance with SJI recommendations, except as may be modified by requirements within these specifications or on the plans.

Qualification of Field Welding: Qualify welding processes and welding operators in accordance with American Welding Society (AWS) "Standard Qualification Procedure". Provide certification that welders to be employed in work have satisfactorily passed AWS qualification tests. Certification must be current. If recertification of welders is required, retesting will be Contractor's responsibility. Contractor must furnish a copy of each welders current certification prior to welder performing work on the project.

Joists welded in place are subject to inspection and testing. Expense of removing and replacing any portion of steel joists for testing purposes will be born by Owner if welds are found to be satisfactory. Remove and replace work found to be defective and provide new acceptable work.

SUBMITTALS:

Product Data: Submit manufacturer's specifications and installation instructions for each type of joist and accessories. Include manufacturer's certification that joists comply with SJI "Specifications".

Shop Drawings: Submit detailed drawings showing layout of joist units, special connections, jointing and accessories. Include mark, number, type, location, spacing of joists and bridging, and shall bear the impressed seal and signature of the specialty engineer.

Provide templates or location drawings for installation of anchor bolts.

Documents shall indicate that the specialty engineer certifies that the steel joist bottom chords will safely resist the wind uplift.

DELIVERY, STORAGE AND HANDLING:

Deliver, store and handle steel joists as recommended in SJI "Specifications". Handle and store joists in a manner to avoid deforming members and to avoid excessive stresses.

PART 2 - PRODUCTS

MATERIALS:

Steel: Comply with SJI "Specifications".

SECTION 052100 - STEEL JOISTS (continued):

Steel Prime Paint: Comply with SJI "Specifications".

Bedding Mortar: For joist ends bearing on concrete or masonry, provide bedding mortar as follows:

Non-metallic shrinkage-resistant mortar; premixed, non-corrosive, non-staining product containing selected silica sands, portland cement, shrinkage compensating agents, plasticizing and water reducing agents, complying with CRD-C621.

Products: Provide non-metallic, shrinkage resistant mortar as manufactured by one of the following:

Euco N.S.; Euclid Chemical Co.
Masterflow 713; Master Builders
Five Star Grout; U.S. Grout Corp.

FABRICATION:

General: Fabricate steel joists in accordance with SJI "Specification".

Holes in Chord Members: Provide holes in chord members where shown for securing other work to steel joists; however, deduct area of holes from the area of chord when calculating strength of member.

Extended Ends: Provide extended ends on joists where shown, complying with manufacturer's standards and requirements of applicable SJI "Specifications" and load tables.

Ceiling Extensions: Provide ceiling extensions in areas having ceilings attached directly to joist bottom chord. Provide either an extended bottom chord element or a separate unit, to suit manufacturer's standards, of sufficient strength to support ceiling construction. Extend ends to within 1/2" of finished wall surface unless otherwise indicated.

Bridging: Provide horizontal or diagonal type bridging for "open web" joists, complying with SJI "Specifications".

Provide bridging anchors for ends of bridging lines terminating at walls or beams.

Provide bridging at first panel point of all joists for wind uplift.

End Anchorage: Provide end anchorages to secure joists to adjacent construction, complying with SJI "Specifications", unless otherwise indicated.

Header Units: Provide header units to support all tail joists at openings in floor or roof system not framed with steel shapes.

Shop Painting: Remove loose scale, heavy rust, and other foreign materials from fabricated joists and accessories before application of shop paint.

Apply one shop coat of primer paint to steel joists and accessories, by spray, dipping, or other method to provide a continuous dry paint film thickness of not less than 1.0 mil.

Joists scheduled to receive sprayed on fireproofing shall not be painted.

SECTION 052100 - STEEL JOISTS (continued):

PART 3 - EXECUTION:

ERECTION:

Place and secure steel joists in accordance with SJI "Specifications", final shop drawings, and as herein specified.

Anchors: Furnish anchor bolts and other devices to be built into concrete and masonry construction.

Furnish unfinished threaded fasteners for anchor bolts, unless otherwise indicated.

Refer to Division-3 sections for installation of anchors set in concrete.

Refer to Division-4 sections for installation of anchors set in masonry.

Placing Joists: Do not start placement of steel joists until supporting work is in place and secured. Place joists on supporting work, adjust and align in accurate locations and spacing before permanently fastening.

Provide temporary bridging, connections, and anchors to ensure lateral stability during construction.

Where "open web" joist lengths are 40 feet and longer, install a center row of bolted bridging to provide lateral stability before slackening of hoisting lines.

Bridging: Install bridging simultaneously with joist erection, before construction loads are applied. Anchor ends of bridging lines at top and bottom chords where terminating at walls or beams.

Fastening Joists:

Field weld joists to supporting steel framework in accordance with SJI "Specifications" for type of joists used. Coordinate welding sequence and procedure with placing of joists.

Touch-Up Painting: After joist installation, paint field bolt heads and nuts, and welded area, abraded or rusty surfaces on joists and steel supporting members. Wire brush surfaces and clean with solvent before painting. Use same type of paint as used for shop painting.

END OF SECTION 05210

SECTION 053100 - STEEL DECKING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.02 SUMMARY:

- A. This Section includes steel deck units for roof and floor applications (excluding composite floor).

1.03 SUBMITTALS:

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
 - 1. Product data including manufacturer's specifications and installation instructions for each type of decking and accessories.
 - a. Provide test data for mechanical fasteners used in lieu of welding for fastening deck to supporting structures.
 - 2. Shop drawings showing layout and types of deck units, anchorage details, and conditions requiring closure strips, supplementary framing, sump pans, cant strips, cut openings, special jointing, and other accessories.
 - a. Shop drawings shall be prepared under the direction of and shall be signed and sealed by, a registered professional engineer licensed in the State of Florida.
 - b. Submit certification, signed and sealed by a registered professional engineer that metal deck design shown on shop drawings complies with loading requirements indicated in this section and on Contract drawings.

1.03 QUALITY ASSURANCE:

- A. Codes and Standards: Comply with provisions of the following codes and standards, except as otherwise indicated:
 - 1. American Iron and Steel Institute (AISI), "Specification for the Design of Cold-Formed Steel Structural Members."
 - 2. American Welding Society (AWS), D 1.3 "Structural Welding Code - Sheet Steel."
 - 3. Steel Deck Institute (SDI), "Design Manual for Composite Decks, Form Decks and Roof Decks."
- B. Qualification of Field Welding: Use qualified welding processes and welding operators in accordance with "Welder Qualification" procedures of AWS.
 - 1. Welded decking in place is subject to inspection and testing. Owner will bear expense of removing and replacing portions of decking for testing purposes if welds are found to be satisfactory. Remove work found to be defective and replace with new acceptable work.

SECTION 053100 – STEEL DECKING (continued):

PART 2 - PRODUCTS

2.01 MANUFACTURERS:

Subject to compliance with requirements, provide products of one of the following:

- A. Bowman Metal Deck Div., Cyclops Corp.
Consolidated Systems, Inc.
Epic Metals Corp.
Marlyn Steel Products, Inc.
H. H. Robertson Co.
Roll Form Products, Inc.
Roof Deck, Inc.
United Steel Deck, Inc.
Vulcraft Div., Nucor Corp.
Wheeling Corrugating Co.

2.02 MATERIALS:

- A. Steel for Galvanized Metal Deck Units: ASTM A-653, grade as required to comply with SDI specifications.
- B. Miscellaneous Steel Shapes: ASTM A 36.
- C. Sheet Metal Accessories: ASTM A 526, commercial quality, galvanized.
- D. Galvanizing: ASTM A 525, G60.
 - 1. Galvanizing Repair: Where galvanized surfaces are damaged, prepare surfaces and repair in accordance with procedures specified in ASTM A 780.

2.03 FABRICATION:

- A. General: Form deck units in lengths to span three or more supports, with flush, telescoped, or nested 2-inch laps at ends and interlocking or nested side laps, of metal thickness, depth, and width as indicated.
- B. Roof Deck Units: Provide deck configurations that comply with SDI "Specifications and Commentary for Steel Roof Deck."

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. General: Install deck units and accessories in accordance with manufacturer's recommendations, shop drawings, and as specified herein.
 - 1. Place deck units on supporting steel framework and adjust to final position with ends accurately aligned and bearing on supporting members before being permanently fastened. Do not stretch or contract side lap interlocks.
 - 2. Align deck units for entire length of cells and with close alignment between cells at ends of abutting units.
 - 3. Place deck units flat and square, secured to adjacent framing without warp or deflection.
 - 4. Do not place deck units on concrete supporting structure until concrete has cured

SECTION 053100 – STEEL DECKING (continued):

and is dry.

- B. Fastening Deck Units:
 - 1. Fasten roof deck units to steel supporting members in a 24/4 pattern for 24" coverage metal deck. Support fasteners shall be 5/8" puddle welds. Sidelap fasteners shall be # 10 TEKS. Provide 8 sidelap fasteners per span. Deck shall be fastened to steel embed plates as indicated on drawings.
 - 2. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used in correcting welding work.
 - 3. Use welding washers where recommended by deck manufacturer.

- C. Uplift Loading: Install and anchor roof deck units to resist wind uplift forces in accordance with the ASCE 7-16 for a Risk Category III, Exposure Category C, and a wind velocity of 145 miles per hour.

- D. Cutting and Fitting: Cut and neatly fit deck units and accessories around other work projecting through or adjacent to the decking, as shown.

- E. Reinforcement at Openings: Provide additional metal reinforcement and closure pieces as required for strength, continuity of decking, and support of other work shown.

- F. Closure Strips: Provide metal closure strips at open uncovered ends and edges of roof decking and in voids between decking and other construction. Weld into position to provide a complete decking installation.

- G. Touch-Up Painting: After decking installation, wire brush, clean, and paint scarred areas, welds, and rust spots on top and bottom surfaces of decking units and supporting steel members.
 - 1. Touch-up galvanized surfaces with galvanizing repair paint applied in accordance with manufacturer's instructions.
 - 2. Touch-up painted surfaces with same type of shop paint used on adjacent surfaces.
 - 3. In areas where shop-painted surfaces are to be exposed, apply touch-up paint to blend into adjacent surfaces.

END OF SECTION 053100

SECTION 054000 - COLD-FORMED METAL FRAMING

PART 1 - GENERAL

- 1.01 **RELATED DOCUMENTS:** Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.
- 1.02 **REFERENCE STANDARDS**
- A. The following documents of the issue in effect date of material procurement, referred to thereafter by basic designation only form a part of this specification to the extent indicated by reference thereto.
1. American Iron and Steel Institute: Specifications for the Design of Cold-Formed Steel Structural Members.
 2. American Society of Testing materials: ASTM A-446 "Specification for Steel Sheet, Zinc Coated (Galvanized) by the Hot-Dip Process, Physical (Structural) Quality." Grade C, Galvanizing: G-60 coating class.
 3. American Welding Society: AWS D1.0 "Code for Welding in Building Construction" and ANSIZ49.1 "Safety in Welding and Cutting".
- 1.03 **DESCRIPTION:** Furnish, fabricate, deliver and erect all lightgage metal framing as shown on the drawings, or herein specified.
- A. **Wind design** shall be per ASCE 7-16. See drawings for wind design criteria.
- B. All bridging and bracing, including erection bracing, required for the finished product shall be designed and furnished. Bracing required for horizontal wind loads shall be designed for loads indicated on the plans and specifications, and as required by applicable codes
- D. All framing connections shall be designed and furnished. Connections shall be designed for all loading conditions; including uplift and reactions from horizontal wind load transfer.
- 1.04 **SUMMARY**
- A. **Types** of cold-formed metal framing units include SJ-shaped load-bearing steel studs.
- B. **Related Work Specified Elsewhere:** Interior steel studs for gypsum drywall construction are specified in Section 09250.
- 1.05 **SUBMITTALS:**
- A. **General:** Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. **Product data** and installation instructions for each item of cold-formed metal framing and accessories.
- C. **Shop Drawings:** Submit shop drawings showing shapes and dimensions of members to be used, including pitch, span, chamber configuration, and spacing for each type of configuration. Show all bearing and anchorage details. Specify and detail all supplemental framing, strapping, complete bracing, bracing clips, bridging and other required for proper installation and to satisfy

SECTION 054000 - COLD-FORMED METAL FRAMING (continued):

all designed requirements. Shop drawings and calculations must prepared by, and sealed, sealed and dated by, an engineer registered in the project state. Shop drawings bearing the seal, signature and date of the engineer registered in the project state responsible for their preparation shall be submitted for approval.

1.06 QUALITY ASSURANCE:

- A. Component Design: Calculate structural properties of studs and joists in accordance with American Iron and Steel Institute (AISI) "Specification for Design of Cold-Formed Steel Structural Members." Calculations shall be signed and sealed by a Specialty Engineer, registered in the project state.
- B. Welding: Use qualified welders and comply with American Welding Society (AWS) D1.3, "Structural Welding Code - Sheet Steel."
- C. Fire-Rated Assemblies: Where framing units are components of assemblies indicated for a fire-resistance rating, including those required for compliance with governing regulations, provide units that have been approved by governing authorities that have jurisdiction.

PART 2 - PRODUCTS

2.01 MANUFACTURERS: Subject to compliance with requirements, provide products of one of the following:

Alabama Metal Industries Corp.	Superior Steel Studs, Inc.
Dale Industries, Inc.	USG Industries
Dietrich Industries, Inc.	United States Steel
Marino \ Ware.	Unimast Incorp.
Wheeling Corrugating Co.	

2.02 DELIVERY AND STORAGE: Protect metal framing units from rusting and damage. Deliver to project site in manufacturer's unopened containers or bundles, fully identified with name, brand, type and grade. Store off ground in a dry ventilated space or protect with suitable waterproof coverings.

2.03 METAL FRAMING

- A. System Components: Manufacturers' standard load-bearing steel studs of type, size, shape, and gage as indicated. With each type of metal framing required, provide manufacturer's standard, steel runners (tracks), blocking, lintels, clip angles, shoes, reinforcements, fasteners, and accessories for applications indicated, as needed to provide a complete metal framing system.
- B. Materials and Finishes:
 - 1. Fabricate metal framing components of commercial quality steel sheet with a minimum yield point of 50,000 psi; ASTM A 446, A 570, or A 611.
 - 2. Provide galvanized finish to metal framing components complying with ASTM A 525 for minimum G 60 coating.
 - 3. Studs: Manufacturer's standard load-bearing steel studs of size, shape, and gage indicated on drawings. Unless indicated otherwise on the drawings, stud flange width shall be 1.625" with flange return lip.

SECTION 054000 - COLD-FORMED METAL FRAMING (continued):

2.04 FABRICATION

- A. General: Framing components may be prefabricated into assemblies before erection. Fabricate panels or members plumb, square, true to line, and braced against racking with joints welded. Perform lifting of prefabricated units to prevent damage or distortion.
- B. Fastenings: Attach similar components by welding. Attach dissimilar components by welding, bolting, or screw fasteners, as standard with manufacturer.
- C. Wire tying of framing components is not permitted.
- D. All framing components shall be cut neatly to fit against abutting members.
- D. Provide all angles, clips, and other miscellaneous pieces necessary to attach other materials to light gauge framing.
- E. All components shall be set square in line and shall be held firmly in position until properly fastened.
- F. Finished assemblies shall be free from twist, bends, or open joints with all members straight, square, and true to line.
- J. All Light Gage trusses shall be shop fabricated. Field fabrication will not be allowed.

PART 3 - EXECUTION

- 3.01 INSTALLATION: General: Install metal framing systems in accordance with manufacturer's printed or written instructions and recommendations.
 - A. The Contractor is responsible for checking dimensions and assuring fit of all members before erection begins.
 - B. All work shall be erected plumb and level and to dimensions, spacing, and elevations indicated on drawings.
 - C. Members shall be of size and spacing shown on the approved shop drawings.
 - D. Provide temporary bracing as required.
 - E. Install permanent bracing and related components to withstand live and dead loads, wind uplift, material wind loads, and to comply with other indicated requirements.
 - F. All light gauge steel framing shall be erected by approval methods using equipment of adequate capacity to safely perform the work.
- 3.02 RUNNER TRACKS: Install continuous tracks sized to match studs. Align tracks accurately to layout at base and tops of studs. Secure tracks as shown on drawings, or if not shown, as recommended by stud manufacturer for type of construction involved. Do not exceed 24 inches o.c. spacing for nail or power-driven fasteners or 16 inches o.c. for other types of attachment. Provide fasteners at corners and ends of tracks.
- 3.03 SET STUDS PLUMB, except as needed for diagonal bracing or required for non-plumb walls or warped surfaces and similar requirements.

SECTION 054000 - COLD-FORMED METAL FRAMING (continued):

- 3.04 WHERE STUD SYSTEM abuts structural columns or walls, including masonry walls, anchor ends of stiffeners to supporting structure.
- 3.05 INSTALL SUPPLEMENTARY FRAMING, blocking, and bracing in metal framing system wherever walls or partitions are indicated to support fixtures, equipment, services, casework, heavy trim and furnishings, and similar work requiring attachment to the wall or partition. Where type of supplementary support is not otherwise indicated, comply with stud manufacturer's recommendations and industry standards in each case, considering weight or loading resulting from item supported.
- 3.06 INSTALLATION OF WALL STUDS: Secure studs to top and bottom runner tracks by either welding or screw fastening at both inside and outside flanges.
- 3.07 FRAME WALL OPENINGS larger than 2 feet square with double stud at each jamb of frame except where more than two are either shown or indicated in manufacturer's instructions or on drawings. Install runner tracks and jack studs above and below wall openings. Anchor tracks to jamb studs with stud shoes or by welding, and space jack studs same as full-height studs of wall. Secure stud system wall opening frame in manner indicated.
- A. Frame both sides of expansion and control joints, as shown for wall system, with a separate stud and do not bridge the joint with components of stud system.
- B. Install horizontal stiffeners in study system, spaced (vertical distance) at not more than 4'-0" o.c. Weld at each inter-section.
- 3.08 INSTALLATION OF JOISTS AND TRUSSES: Install level, straight, and plumb, complete with bracing and reinforcing as indicated on drawings. Provide not less than 1-1/2 inch end bearing.
- A. Reinforce ends with end clips, steel hangers, steel angle clips, steel stud section, or as otherwise recommended by joist manufacturer.
- B. Where required, reinforce joists at interior supports with single short length of joist section located directly over interior support, snap-on shoe, 30 percent side-piece lapped reinforcement, or other method recommended by joist manufacturer.
- C. Secure joists to interior support systems to prevent lateral movement of bottom flange.
- 3.09 Field Painting: Touch-up damaged shop-applied protective coatings. Use compatible primer for prime-coated surfaces; use galvanizing repair system for galvanized surfaces.

END OF SECTION 054000

SECTION 055000 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Miscellaneous steel framing and supports.
2. Shelf angles.
3. Metal ladders.
4. Ladder safety cages.
5. Metal floor plate and supports.
6. Elevator pit sump covers.
7. Structural-steel door frames.
8. Miscellaneous steel trim.
9. Metal bollards.
10. Wire rope.
11. Pipe and Downspout guards.
12. Abrasive metal nosings, treads, and thresholds.
13. Loose bearing and leveling plates.

B. Products furnished, but not installed, under this Section include the following:

1. Loose steel lintels.
2. Anchor bolts, steel pipe sleeves, slotted-channel inserts, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.
3. Steel weld plates and angles for casting into concrete for applications where they are not specified in other Sections.

1.2 ACTION SUBMITTALS

A. Product Data: For the following:

1. Metal nosings and treads.
2. Paint products.
3. Grout.
4. Railings

B. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.

C. Samples for Verification: For each type and finish of extruded nosing and tread.

D. Delegated-Design Submittal: For ladders, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design specified structural elements.

B. Structural Performance of Aluminum Ladders: Aluminum ladders, including landings, shall withstand the effects of loads and stresses within limits and under conditions specified in ANSI A14.3.

SECTION 054000 – METAL FABRICATIONS (continued):

- C. Structural Performance of Handrails and Toprails shall withstand concentrated loads of 200 lbf applied at any point in any direction and a uniform load of 50 lbf per lin. ft. applied simultaneously in both vertical and horizontal directions. All railings fabricated and installed shall comply with ADA requirements.
- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.
 - 1. Temperature Change: 120 deg F, ambient.
- E. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

2.2 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- C. Stainless-Steel Bars and Shapes: ASTM A 276, Type 316L.
- D. Rolled-Steel Floor Plate: ASTM A 786/A 786M, rolled from plate complying with ASTM A 36/A 36M or ASTM A 283/A 283M, Grade C or D.
- E. Rolled-Stainless-Steel Floor Plate: ASTM A 793.
- F. Abrasive-Surface Floor Plate: Steel plate with abrasive granules rolled into surface or with abrasive material metallurgically bonded to steel].
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. IKG Industries, a division of Harsco Corporation; Mebac.
 - b. SlipNOT Metal Safety Flooring; SlipNOT.
- G. Steel Tubing: ASTM A 500/A 500M, cold-formed steel tubing.
- H. Steel Pipe: ASTM A 53/A 53M, Standard Weight (Schedule 40) unless otherwise indicated.
- I. Stainless Steel Wire Rope: ASTM A 316.
 - 1. Wire-Rope Fittings: Stainless steel connectors with capability to sustain, without failure, a load equal to minimum breaking strength of wire rope with which they are used.
- J. Slotted Channel Framing: Cold-formed metal box channels (struts) complying with MFMA-4.
 - 1. Size of Channels: 1-5/8 by 1-5/8 inches.
 - 2. Material: Galvanized steel, ASTM A 653/A 653M, with G90 coating
 - 3. Material: Cold-rolled steel, ASTM A 1008/A 1008M, hot-dip galvanized after fabrication.
- K. Cast Iron: Either gray iron, ASTM A 48/A 48M, or malleable iron, ASTM A 47/A 47M, unless otherwise indicated.
- L. Aluminum Extrusions: ASTM B 221 , Alloy 6063-T6.

SECTION 054000 – METAL FABRICATIONS (continued):

- M. Aluminum-Alloy Rolled Tread Plate: ASTM B 632/B 632M, Alloy 6061-T6.
- N. Aluminum Castings: ASTM B 26/B 26M, Alloy 443.0-F.
- O. Bronze Extrusions: ASTM B 455, Alloy UNS No. C38500 (extruded architectural bronze).
- P. Bronze Castings: ASTM B 584, Alloy UNS No. C83600 (leaded red brass) or No. C84400 (leaded semired brass).
- Q. Nickel Silver Castings: ASTM B 584, Alloy UNS No. C97600 (20 percent leaded nickel bronze).

2.3 FASTENERS

- A. General: Unless otherwise indicated, provide Type 316 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.
 - 1. Provide stainless-steel fasteners for fastening aluminum.
 - 2. Provide stainless-steel fasteners for fastening stainless steel.
 - 3. Provide stainless-steel fasteners for fastening nickel silver.
 - 4. Provide bronze fasteners for fastening bronze.
- B. Cast-in-Place Anchors in Concrete: Either threaded type or wedge type unless otherwise indicated; galvanized ferrous castings, either ASTM A 47/A 47M malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, all hot-dip galvanized per ASTM F 2329.
- C. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors.
 - 1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, unless otherwise indicated.
 - 2. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless-steel bolts and nuts.
- D. Slotted-Channel Inserts: Cold-formed, hot-dip galvanized-steel box channels (struts) complying with MFMA-4, 1-5/8 by 7/8 inches by length indicated with anchor straps or studs not less than 3 inches long at not more than 8 inches o.c. Provide with temporary filler and tee-head bolts, complete with washers and nuts, all zinc-plated to comply with ASTM B 633, Class Fe/Zn 5, as needed for fastening to inserts.

2.4 MISCELLANEOUS MATERIALS

- A. Shop Primers: Provide primers that comply with Section 099113 "Exterior Painting", Section 099123 "Interior Painting", and Section 099600 "High-Performance Coatings."
- B. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
 - 1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.
- C. Water-Based Primer: Emulsion type, anticorrosive primer for mildly corrosive environments that is resistant to flash rusting when applied to cleaned steel, complying with MPI#107 and compatible with topcoat.
- D. Epoxy Zinc-Rich Primer: Complying with MPI#20 and compatible with topcoat.
- E. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

SECTION 054000 – METAL FABRICATIONS (continued):

- F. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.
- G. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- H. Concrete: Comply with requirements in Section 033000 "Cast-in-Place Concrete" for normal-weight, air-entrained, concrete with a minimum 28-day compressive strength of 4000 psi.

2.5 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Use connections that maintain structural value of joined pieces.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges. Remove sharp or rough areas on exposed surfaces.
- C. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended.
- D. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Locate joints where least conspicuous.
- E. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- F. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors not less than 8 inches from ends and corners of units and 24 inches o.c.

2.6 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.

2.7 SHELF ANGLES

- A. Fabricate shelf angles from steel angles of sizes indicated and for attachment to concrete framing. Provide horizontally slotted holes to receive 3/4-inch bolts, spaced not more than 6 inches from ends and 24 inches o.c., unless otherwise indicated.
- B. For cavity walls, provide vertical channel brackets to support angles from backup masonry and concrete.
- C. Galvanize shelf angles located in exterior walls.
- D. Prime shelf angles located in exterior walls with primer specified in Section 099600 "High-Performance Coatings."
- E. Furnish wedge-type concrete inserts, complete with fasteners, to attach shelf angles to cast-in-place concrete.

SECTION 054000 – METAL FABRICATIONS (continued):

2.8 METAL LADDERS

A. General:

1. Comply with ANSI A14.3, except for elevator pit ladders.
2. For elevator pit ladders, comply with ASME A17.1/CSA B44.

B. Steel Ladders:

1. Space siderails 16 inches apart unless otherwise indicated.
2. Siderails: Continuous, 3/8-by-2-1/2-inch steel flat bars, with eased edges.
3. Rungs: 3/4-inch square square steel bars.
4. Fit rungs in centerline of siderails; plug-weld and grind smooth on outer rail faces.
5. Provide nonslip surfaces on top of each rung.
6. Galvanize exterior ladders, including brackets.
7. Prime exterior ladders, including brackets and fasteners, with primer specified in Section 099600 "High-Performance Coatings."

C. Aluminum Ladders:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. ACL Industries, Inc.
 - b. Alco-Lite Industrial Products.
 - c. Halliday Products.
 - d. O'Keeffe's Inc.
 - e. Precision Ladders, LLC.
 - f. Royalite Manufacturing, Inc.
 - g. Thompson Fabricating, LLC.
2. Space siderails 16 inches apart unless otherwise indicated.
3. Siderails: Continuous extruded-aluminum channels or tubes, not less than 2-1/2 inches deep, 3/4 inch wide, and 1/8 inch thick.
4. Rungs: Extruded-aluminum tubes, not less than 3/4 inch deep and not less than 1/8 inch thick, with ribbed tread surfaces.

2.9 LADDER SAFETY CAGES

- A. Fabricate ladder safety cages to comply with ANSI A14.3. Assemble by welding or with stainless-steel fasteners.
- B. Provide primary hoops at tops and bottoms of cages and spaced not more than 20 feet o.c. Provide secondary intermediate hoops spaced not more than 48 inches o.c. between primary hoops.
- C. Galvanize steel ladder safety cages, including brackets and fasteners.
- D. Prime steel ladder safety cages, including brackets and fasteners, with primer specified in Section 099600 "High-Performance Coatings."

2.10 METAL FLOOR PLATE

- A. Fabricate from rolled-steel floor or rolled-stainless-steel floor as indicated on drawings.
- B. Provide steel or stainless-steel angle supports as indicated.

SECTION 054000 – METAL FABRICATIONS (continued):

- C. Provide flush stainless-steel bar drop handles for lifting removable sections, one at each end of each section.

2.11 ELEVATOR PIT SUMP COVERS

- A. Fabricate from 1/8-inch rolled-steel floor plate with four 1-inch diameter holes for water drainage and for lifting.

2.12 STRUCTURAL-STEEL DOOR FRAMES

- A. Fabricate structural-steel door frames from steel shapes, plates, and bars of size and to dimensions indicated, fully welded together, with 5/8-by-1-1/2-inch steel channel stops. Plug-weld built-up members and continuously weld exposed joints. Reinforce frames and drill and tap as necessary to accept finish hardware.
 - 1. Provide with integrally welded steel strap anchors for securing door frames into adjoining concrete or masonry.
- B. Prime exterior steel frames with primer specified in Section 099600 "High-Performance Coatings."

2.13 MISCELLANEOUS STEEL TRIM

- A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.
- B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.
- C. Prime exterior miscellaneous steel trim with primer specified in Section 099600 "High-Performance Coatings."

2.14 METAL BOLLARDS

- A. Fabricate metal bollards from Schedule 40 steel pipe.
 - 1. Cap bollards with 1/4-inch thick steel plate.
- B. Fabricate sleeves for bollard anchorage from steel pipe thick steel plate welded to bottom of sleeve.
- C. Prime bollards with primer specified in Section 099600 "High-Performance Coatings."

2.15 PIPE AND DOWNSPOUT GUARDS

- A. Fabricate pipe and downspout guards from 3/8-inch thick by 12-inch wide steel plate, bent to fit flat against the wall or column at both ends and to fit around pipe with 2-inch clearance between pipe and pipe guard. Drill each end for two 3/4-inch anchor bolts.
- B. Galvanize pipe and downspout guards.

2.16 ABRASIVE METAL NOSINGS, TREADS, AND THRESHOLDS

- A. Cast-Metal Units: Cast iron with an integral-abrasive, as-cast finish consisting of aluminum oxide, silicon carbide, or a combination of both.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

SECTION 054000 – METAL FABRICATIONS (continued):

- a. American Safety Tread Co., Inc.
 - b. Balco, Inc.
 - c. Barry Pattern & Foundry Co., Inc.
 - d. Granite State Casting Co.
 - e. Safe-T-Metal Company, Inc.
 - f. Wooster Products Inc.
- B. Extruded Units: Aluminum, with abrasive filler consisting of aluminum oxide, silicon carbide, or a combination of both, in an epoxy-resin binder.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. ACL Industries, Inc.
 - b. American Safety Tread Co., Inc.
 - c. Amstep Products.
 - d. Armstrong Products, Inc.
 - e. Balco, Inc.
 - f. Granite State Casting Co.
 - g. Wooster Products Inc.
 2. Provide ribbed units, with abrasive filler strips projecting 1/16 inch above aluminum extrusion.
 3. Provide solid-abrasive-type units without ribs.
- C. Provide anchors for embedding units in concrete, either integral or applied to units, as standard with manufacturer.
- D. Drill for mechanical anchors and countersink. Locate holes not more than 4 inches from ends and not more than 12 inches o.c.
- E. Apply bituminous paint to concealed surfaces of cast-metal units.
- F. Apply clear lacquer to concealed surfaces of extruded units.
- 2.17 LOOSE BEARING AND LEVELING PLATES
- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.
- 2.18 LOOSE STEEL LINTELS
- A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated.
 - B. Galvanize loose steel lintels located in exterior walls.
 - C. Prime loose steel lintels located in exterior walls with primer specified in Section 099600 "High-Performance Coatings."
 - D. Paint and caulk when installed in exterior wall veneer.
- 2.19 STEEL WELD PLATES AND ANGLES
- A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with no fewer than two integrally welded steel strap anchors for embedding in concrete.

SECTION 054000 – METAL FABRICATIONS (continued):

2.20 FINISHES, GENERAL

- A. Finish metal fabrications after assembly.

2.21 Exterior Railings: Fabricate using Schedule 80 aluminum.

2.22 Interior Railings: Fabricate using steel pipe. ASTM A 53, type and grade as required for design loading (if applicable), black finish unless galvanizing indicated; standard weight (Schedule 40) unless otherwise indicated. All handrails shall be 1 ½" o.d.

2.23 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153/A 153M for steel and iron hardware and with ASTM A 123/A 123M for other steel and iron products.
- B. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.
 - 1. Shop prime with primers specified in Section 099600 "High-Performance Coatings".
- C. Preparation for Shop Priming: Prepare surfaces to comply with requirements indicated below:
 - 1. Exterior Items: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 2. Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 3. Items Indicated to Receive Primers Specified in Section 099600 "High-Performance Coatings": SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 4. Other Items: SSPC-SP 3, "Power Tool Cleaning."
- D. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction.

SECTION 054000 – METAL FABRICATIONS (continued):

- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

3.2 INSTALLING METAL BOLLARDS

- A. Fill metal-capped bollards solidly with concrete and allow concrete to cure seven days before installing.
- B. Anchor bollards in concrete with pipe sleeves preset and anchored into concrete in formed or core-drilled holes. Fill annular space around bollard solidly with nonshrink grout.
- C. Fill bollards solidly with concrete, mounding top surface to shed water.

3.3 INSTALLING BEARING AND LEVELING PLATES

- A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.
- B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with nonshrink grout. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.4 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780/A 780M.

END OF SECTION 055000

SECTION 055113 - METAL PAN STAIRS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Preassembled steel stairs with concrete-filled and abrasive-coating-finished treads.
 2. Steel tube railings attached to metal stairs.
 3. Steel tube handrails attached to walls adjacent to metal stairs.

1.2 ACTION SUBMITTALS

- A. Product Data: For metal pan stairs.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
- C. Delegated-Design Submittal: For stairs and railings, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
1. Alfab, Inc.
 2. American Stair, Inc.
 3. Lapeyre Stair Inc.
 4. Pacific Stair Corporation.
 5. Worthington Metal Fabricators.

2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design stairs and railings.
- B. Structural Performance of Stairs: Metal stairs shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
1. Uniform Load: 100 lbf/sq. ft.
 2. Concentrated Load: 300 lbf applied on an area of 4 sq. in.
 3. Uniform and concentrated loads need not be assumed to act concurrently.
 4. Stair Framing: Capable of withstanding stresses resulting from railing loads in addition to loads specified above.
- C. Structural Performance of Railings: Railings shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

SECTION 055113 – METAL PAN STAIRS (continued):

1. Handrails and Top Rails of Guards:
 - a. Uniform load of 50 lbf/ft. applied in any direction.
 - b. Concentrated load of 200 lbf applied in any direction.
 - c. Uniform and concentrated loads need not be assumed to act concurrently.

2. Infill of Guards:
 - a. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft.
 - b. Infill load and other loads need not be assumed to act concurrently.

D. Seismic Performance of Stairs: Metal stairs shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. Component Importance Factor: 1.5.

2.3 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For components exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M, except wide flange sections shall conform to ASTM A 572, Grade 50.
- C. Steel Tubing: ASTM A 500 (cold formed).
- D. Uncoated, Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, structural steel, Grade 25, unless another grade is required by design loads; exposed.
- E. Uncoated, Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, structural steel, Grade 30, unless another grade is required by design loads.
- F. Expanded-Metal, Carbon Steel: ASTM F 1267, Class 1 (uncoated).
 1. Style Designation: 1-1/2 number 10.
- G. Perforated Metal: Cold-rolled steel sheet, ASTM A 1008/A 1008M, or hot-rolled steel sheet, ASTM A 1011/A 1011M.
- H. Woven-Wire Mesh: Intermediate-crimp, diamond pattern, 2-inch woven-wire mesh, made from 0.135-inch nominal diameter wire complying with ASTM A 510.
- I. Aluminum Extrusions: ASTM B 221, Alloy 6063-T6.

2.4 ABRASIVE NOSINGS

- A. Cast-Metal Units: Cast iron, with an integral abrasive, as-cast finish.
 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. American Safety Tread Co., Inc.

SECTION 055113 – METAL PAN STAIRS (continued):

- b. Balco, Inc.
- c. Barry Pattern & Foundry Co., Inc.
- d. Granite State Casting Co.
- e. Safe-T-Metal Company, Inc.
- f. Wooster Products Inc.

B. Extruded Units: Aluminum units with abrasive filler in an epoxy-resin binder.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

- a. ACL Industries, Inc.
- b. American Safety Tread Co., Inc.
- c. Amstep Products.
- d. Armstrong Products, Inc.
- e. Balco, Inc.
- f. Granite State Casting Co.
- g. Nystrom, Inc.
- h. Wooster Products Inc.

2. Provide ribbed units, with abrasive filler strips projecting 1/16 inch above aluminum extrusion.

3. Provide solid-abrasive-type units without ribs.

C. Provide anchors for embedding units in concrete, either integral or applied to units, as standard with manufacturer.

D. Apply bituminous paint to concealed surfaces of cast-metal units set into concrete.

E. Apply clear lacquer to concealed surfaces of extruded units set into concrete.

2.5 FASTENERS

A. Provide zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 12 for exterior use, and Class Fe/Zn 5 where built into exterior walls. Select fasteners for type, grade, and class required.

2.6 MISCELLANEOUS MATERIALS

A. Shop Primers: Provide primers that comply with Section 099113 "Exterior Painting," Section 099123 "Interior Painting," and Section 099600 "High-Performance Coatings."

B. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.

C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.

D. Concrete Materials and Properties: Comply with requirements in Section 033000 "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 3000 psi unless otherwise indicated.

E. Welded Wire Reinforcement: ASTM A 185/A 185M, 6 by 6 inches, W1.4 by W1.4, unless otherwise indicated.

SECTION 055113 – METAL PAN STAIRS (continued):

2.7 PRECAST CONCRETE TREADS

- A. Concrete Materials and Properties: Comply with requirements in Section 033000 "Cast-in-Place Concrete" for normal-weight, ready-mixed concrete with a minimum 28-day compressive strength of 5000 psi and a total air content of not less than 4 percent or more than 6 percent.
- B. Reinforcement: Galvanized, welded wire reinforcement, 2 by 2 inches by 0.062-inch- diameter wire; comply with ASTM A 185/A 185M and ASTM A 82/A 82M, except for minimum wire size.

2.8 FABRICATION, GENERAL

- A. Provide complete stair assemblies, including metal framing, hangers, struts, railings, clips, brackets, bearing plates, and other components necessary to support and anchor stairs and platforms on supporting structure.
 - 1. Join components by welding unless otherwise indicated.
 - 2. Use connections that maintain structural value of joined pieces.
- B. Preassembled Stairs: Assemble stairs in shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
- C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- D. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- E. Weld connections to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. Weld exposed corners and seams continuously unless otherwise indicated.
 - 5. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Type 3 welds: partially dressed weld with spatter removed.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Locate joints where least conspicuous.

2.9 STEEL-FRAMED STAIRS

- A. NAAMM Stair Standard: Comply with "Recommended Voluntary Minimum Standards for Fixed Metal Stairs" in NAAMM AMP 510, "Metal Stairs Manual," Commercial Class, unless more stringent requirements are indicated.
- B. Stair Framing:
 - 1. Fabricate stringers of steel channels.
 - a. Provide closures for exposed ends of channel stringers.

SECTION 055113 – METAL PAN STAIRS (continued):

2. Construct platforms of steel channel headers and miscellaneous framing members as needed to comply with performance requirements indicated.
 3. Weld stringers to headers; weld framing members to stringers and headers.
 4. Where stairs are enclosed by gypsum board assemblies, provide hanger rods or struts to support landings from floor construction above or below. Locate hanger rods and struts where they do not encroach on required stair width and are within the fire-resistance-rated stair enclosure.
 5. Where masonry walls support metal stairs, provide temporary supporting struts designed for erecting steel stair components before installing masonry.
- C. Metal Pan Stairs: Form risers, subtread pans, and subplatforms to configurations shown from steel sheet of thickness needed to comply with performance requirements, but not less than 0.067 inch.
- D. Abrasive-Coating-Finished, Formed-Metal Stairs: Form risers, treads, and platforms to configurations shown from steel sheet of thickness needed to comply with performance requirements, but not less than 0.097 inch.

2.10 STAIR RAILINGS

- A. Steel Tube Railings: Fabricate railings to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including wall thickness of tube, post spacings, and anchorage, but not less than that needed to withstand indicated loads.
1. Rails and Posts: 1-5/8-inch diameter.
 2. Picket Infill: 1/2-inch round pickets spaced less than 4 inches clear.
 3. Expanded-Metal Infill: Expanded-metal panels edged with U-shaped channels made from steel sheet and not less than 0.043 inch thick. Orient expanded metal with long dimension of diamonds perpendicular to top rail.
 4. Perforated-Metal Infill: Perforated-metal panels edged with U-shaped channels made from metal sheet, of same metal as perforated metal, and not less than 0.043 inch thick. Orient perforated metal with pattern perpendicular to top rail.
 5. Mesh Infill: Woven wire mesh crimped into 1-by-1/2-by-1/8-inch steel channel frames. Orient wire mesh with wires perpendicular and parallel to top rail.
 6. Intermediate Rails Infill: 1-5/8-inch- intermediate rails spaced less than 21 inches.
- B. Welded Connections: Fabricate railings with welded connections. Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
1. Finish welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Type 2 welds: completely sanded joint, some undercutting and pinholes are okay as shown in NAAMM AMP 521.
- C. Form changes in direction of railings by bending or by inserting prefabricated elbow fittings.
- D. For changes in direction made by bending, use jigs to produce uniform curvature for each repetitive configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.
- E. Close exposed ends of railing members with prefabricated end fittings.
- F. Provide wall returns at ends of wall-mounted handrails.
- G. Connect posts to stair framing by direct welding.

SECTION 055113 – METAL PAN STAIRS (continued):

- H. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, end closures, flanges, miscellaneous fittings, and anchors for interconnecting components and for attaching to other work.
- I. Fillers: Provide fillers made from steel plate, or other suitably crush-resistant material, where needed to transfer wall bracket loads through wall finishes to structural supports. Size fillers to suit wall finish thicknesses.

2.11 FINISHES

- A. Finish metal stairs after assembly.
- B. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with SSPC-SP 3, "Power Tool Cleaning."
- C. Apply shop primer to uncoated surfaces of metal stair components, except those with galvanized finishes and those to be embedded in concrete or masonry unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

PART 3 - EXECUTION

3.1 INSTALLING METAL PAN STAIRS

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal stairs. Set units accurately in location, alignment, and elevation, measured from established lines and levels and free of rack.
- B. Install metal stairs by welding stair framing to steel structure or to weld plates cast into concrete unless otherwise indicated.
- C. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints.
- D. Field Welding: Comply with requirements for welding in "Fabrication, General" Article.
- E. Place and finish concrete fill for treads and platforms to comply with Section 033000 "Cast-in-Place Concrete."
 - 1. Install abrasive nosings with anchors fully embedded in concrete.
- F. Install precast concrete treads with adhesive supplied by manufacturer.

3.2 INSTALLING RAILINGS

- A. Adjust railing systems before anchoring to ensure matching alignment at abutting joints. Space posts at spacing indicated or, if not indicated, as required by design loads. Plumb posts in each direction. Secure posts and rail ends to building construction as follows:
 - 1. Anchor posts to steel by welding to steel supporting members.
 - 2. Anchor handrail ends to concrete and masonry with steel round flanges welded to rail ends and anchored with postinstalled anchors and bolts.

SECTION 055113 – METAL PAN STAIRS (continued):

- B. Attach handrails to wall with wall brackets. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads. Secure wall brackets to building construction as required to comply with performance requirements.

3.3 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

END OF SECTION 055113

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

- 1.01 **Lumber, General:** Manufacture lumber, S4S and grade stamped, to comply with PS 20 and applicable grading rules of inspection agencies certified by ALSC's Board of Review. Provide seasoned lumber with 19 percent moisture content at time of dressing and shipment, for sizes 2" or less in thickness.
- 1.02 **Blocking:** All wood blocking shall be a minimum 3/4" plywood. This applies to backing supporting for millwork, headwalls, oak crash rails, toilet accessories, metal lockers, t.v. brackets, etc. or unless otherwise indicated in drawings or by manufacturer of the product being hung.
- A. Wood blocking methods shall be approved by manufacturers of all wall supported systems.
- 1.03 **Related Sections:**
- A. Section 102800 - Toilet and Bath Accessories for blocking requirements.
- B. Section 111132 - Projection Screens and T.V. Brackets.

PART 2 - PRODUCTS

- 2.01 **Dimension Lumber:**
- A. **Construction grade light-framing lumber (2"-4" thick, 2"-4" wide):** Any species graded under WWPA or WCLIB rules or Southern Pine graded under SPIB rules or Western Spruce-Pine-Fir graded under NLGA rules.
- B. **Studs (2"-4" thick, 2"-6" wide, 10' and shorter):** "Stud" or No. 3 Structural Light Framing grade, any species graded under WWPA, WCLIB, SPIB OR NLGA rules.
- 2.02 **Lumber for Miscellaneous Uses:** Unless otherwise indicated, provide Standard grade lumber for support of other work, including bucks, nailers, blocking, furring, grounds, stripping and similar members.
- 2.03 **Fasteners and Anchorages:** Of size, type, material and finish suited to application shown and of quality equal to products by Simpson Strong Tie Co., Inc. Provide metal hangers and framing anchors of size and type recommended for intended use by manufacturer. Hot-dip galvanize fasteners and anchorages for work exposed to weather, in ground contact and high relative humidity to comply with ASTM A 153.
- 2.04 **Preservative pressure treat** lumber with water-borne preservatives to comply with AWPA C2 and C9, respectively, and with AWPB LP-22 (Wood for Ground Contact Use) and AWPB LP-2 (Wood for Above-Ground Use).
- A. **Treat nailers,** blocking, and similar items in conjunction with flashing and treat sills, blocking, furring, and similar items in direct contact with masonry or concrete.
- 2.05 **WALL SUPPORT SYSTEM AND ROUGH-IN REQUIREMENTS:** Provide blocking as recommended by the manufacturer for all wall hung items.

PART 3 - EXECUTION

- 3.01 **Install rough carpentry work** to comply with "Manual of House Framing" by National Forest Products Assoc. (N.F.P.A.) and with recommendations of American Plywood Association (APA), unless otherwise indicated. For sheathing and other products not covered in above standards, comply with recommendations of manufacturer of product involved for use intended. Set carpentry work to required levels and lines, with members plumb and true and cut to fit.

SECTION 061000 – ROUGH CARPENTRY (continued):

- 3.02 Securely attach carpentry work to substrates and supporting members using fasteners of size that will not penetrate members where opposite side will be exposed to view or receive finish materials. Install fasteners without splitting wood; fasten panel products to allow for expansion at joints unless otherwise indicated.
- 3.03 Provide wood framing members of size and spacing indicated; do not splice structural members between supports.

END OF SECTION 061000

SECTION 064000 – PLASTIC LAMINATE CLAD CABINETS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and Division 1, apply to work of this section.

1.02 DESCRIPTION OF WORK: Extent of each type of architectural millwork is indicated on drawings. Types of architectural millwork include laminate clad cabinets including tops and opaque shelving.

1.03 QUALITY ASSURANCE

- A. AWI Quality Standard: Comply with applicable requirements of "Architectural Woodwork Quality Standards" published by the Architectural Woodwork Institute (AWI) and American Laminators Association (ALA), except as otherwise indicated.
- B. Installer Qualifications: Arrange for installation of architectural millwork items by same firm which fabricated them.

1.04 SUBMITTALS

- A. Shop Drawings: Submit shop drawings showing location of each item, dimensioned plans and elevations, large scale details, joinery, attachment devices and other components. All shop drawings shall indicate use of particle board with minimum density of 45# throughout panels and plywood.
- B. Samples: Submit samples of plastic laminate and all cabinet hardware, one unit of each type and finish.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect millwork during transit, delivery, storage and handling to prevent damage, soiling and deterioration.
- B. Do not deliver millwork, until painting, wet work, grinding and similar operations which could damage, soil or deteriorate millwork have been completed in installation areas. If, due to unforeseen circumstances, millwork must be stored in other than installation areas, store only in areas meeting requirements specified for installation areas.

1.06 PROJECT CONDITIONS

- A. Conditioning: Millwork Manufacturer and Installer shall advise Contractor of temperature and humidity requirements for millwork installation and storage areas. Do not install millwork until required temperature and relative humidity have been stabilized and will be maintained in installation areas.
- B. Maintain temperature and humidity in installation area as required to maintain moisture content of installed millwork within a 1.0 percent tolerance of optimum moisture content, from date of installation through remainder of construction period. Require Millwork Manufacturer to establish optimum moisture content and required temperature and humidity conditions.

PART 2 – PRODUCTS

2.01 ACCEPTABLE LAMINATE MANUFACTURER

- A. Manufacturer: Subject to compliance with requirements, provide high pressure decorative laminates by Wilsonart, Formica, Nevamar, Pionite OR approved equal.

SECTION 064000 – PLASTIC LAMINATE CLAD CABINETS (continued):

2.02 MATERIALS

- A. ARCHITECTURAL CABINETS, LAMINATE CLAD: Comply with the following requirements:
Grade: Custom.
Construction: Panel Type Construction.
Notes:
 - 1. All construction shall be 45# density particleboard throughout panel.**
 - 2. All cabinets over 36" wide to have 3/4" continuous top.**
 - 3. Butt seams are not acceptable.**Plastic Laminate for Exposed Surfaces: Vertical Grade (VGP-0.028") for horizontal surfaces and vertical surfaces.
Colors: See Color Legend in the Finish Plans.
Comply with AWI Section 400 and its Division 400B.
- B. ARCHITECTURAL CABINET TOPS: Solid surfacing with continuous 3/4" substrate. See division 6.
Grade: Custom.
Colors: See Color Legend in Finish Plans.
Comply with AWI Section 400 and its Division 400C.
Notes:
 - 1. Counter tops to be 3/4" plywood with 1-1/4" built-up plywood front edge.**
 - 2. All counter tops to receive backer sheet. No exposed or semi-exposed surfaces.**
- C. FASTENERS AND ANCHORS:
 - Screws: Select material, type, size and finish required for each use. Comply with FS FF-S-111 for applicable requirements.
 - Nails: Select material, type, size and finish required for each use. Comply with FS FF-N-105 for applicable requirements.
 - Anchors: Select material, type, size and finish required by each substrate for secure anchorage. Provide non-ferrous metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion-resistance. Provide toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts and anchors, as required, to be set into concrete or masonry work for subsequent millwork anchorage.

2.03 FABRICATION, GENERAL

- A. Wood Moisture Content: Comply with requirements of referenced quality standard for moisture content of lumber at time of fabrication and for relative humidity conditions in the installation areas.
- B. Fabricate millwork to dimensions, profiles, and details indicated with openings and mortises precut, where possible, to receive hardware and other items and work.
- C. Complete fabrication, assembly, finishing, hardware application, and other work before shipment to project site to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- D. Pre-Cut Openings: Fabricate architectural millwork with pre-cut openings, where possible, to receive hardware, appliances, plumbing fixtures, electrical work and similar items. Locate openings accurately and use templates or roughing-in diagrams for proper size and shape. Smooth edges of cutoffs and, where located in countertops and similar exposures seal edges of cutouts with a water-resistant coating. Exposed openings to receive plastic grommets.

SECTION 064000 – PLASTIC LAMINATE CLAD CABINETS (continued):

- E. Measurements: Before proceeding with fabrication of millwork required to be fitted to other construction, obtain field measurements and verify dimensions and shop drawing details as required for accurate fit.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Condition millwork to average prevailing humidity conditions in installation areas prior to installing.
- B. Prior to installation of architectural millwork, examine shop fabricated work for completion, and complete work as required, including back priming and removal of packing.

3.02 INSTALLATION

- A. Install millwork plumb, level, true and straight with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/8" in 8'-0" for plumb and level (including tops); and with no variations in flushness of adjoining surfaces.
- B. Scribe and cut millwork to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.
- C. Anchor millwork to anchors or blocking built-in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fasteners heads are required, use fine finishing nails for exposed nailing, countersunk and filled flush with millwork, and matching final finish where transparent finish is indicated.
- D. Cabinets: Install without distortion so that doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete the installation of hardware and accessory items as indicated.
- E. Tops: Anchor securely to base units and other support systems as indicated.

3.03 ADJUSTMENT, CLEANING, FINISHING, AND PROTECTION

- A. Repair damaged and defective millwork where possible to eliminate defects functionally and visually; where not possible to repair replace millwork. Adjust joinery for uniform appearance.
- B. Clean, lubricate and adjust hardware.
- C. Clean millwork on exposed and semi-exposed surfaces. Touch-up shop-applied finishes to restore damaged or soiled areas.
- D. Complete the finishing work specified as work of this section, to whatever extent not completed at shop or prior to installation of millwork.
- E. Provide final protection and maintain conditions, in a manner acceptable to Fabricator and Installer, which ensures architectural millwork being without damage or deterioration at time of substantial completion.

END OF SECTION 064000

SECTION 066510 - SOLID SURFACE FABRICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including general and supplementary conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following horizontal and trim solid surface product types:
 - 1. Windowsills and countertop at Reception
- B. Related Sections include the following:
 - 1. Division 6 Section "Rough Carpentry" for Blocking.

1.3 DEFINITION

- A. Solid surface is defined as nonporous, homogeneous material maintaining the same composition throughout the part with a composition of acrylic polymer, aluminum trihydrate filler and pigment.

1.4 SUBMITTALS

- A. Product data:
 - 1. For each type of product indicated.
- B. Shop drawings:
 - 1. Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices and other components.
 - a. Show full-size details, edge details, thermoforming requirements, attachments, etc.
 - b. Show locations and sizes of furring, blocking, including concealed blocking and reinforcement specified in other Sections.
 - c. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, and other items installed in solid surface.
- C. Samples:
 - 1. For each type of product indicated.
 - a. Submit minimum 2-inch by 2-inch sample in specified gloss.
- D. Product data:
 - 1. Indicate product description, fabrication information and compliance with specified performance requirements.
- E. Product certificates:
 - 1. For each type of product, signed by product manufacturer.
- G. Fabricator/installer qualifications:
 - 1. Provide copy of certification number.
- H. Manufacturer certificates:
 - 1. Signed by manufacturers certifying that they comply with requirements.
- I. Maintenance data:
 - 1. Submit manufacturer's care and maintenance data, including repair and cleaning instructions.

SECTION 066510 - SOLID SURFACE FABRICATIONS (continued):

- a. Maintenance kit for finishes shall be submitted.
2. Include in project closeout documents.

1.5 QUALITY ASSURANCE

- A. Qualifications:
 1. Shop that employs skilled workers who custom fabricate products similar to those required for this project and whose products have a record of successful in-service performance.
- B. Fabricator/installer qualifications:
 1. Work of this section shall be by a certified fabricator/installer, certified in writing by the manufacturer.
- C. Applicable standards:
 1. Standards of the following, as referenced herein:
 - a. American National Standards Institute (ANSI)
 - b. American Society for Testing and Materials (ASTM)
 - c. National Electrical Manufacturers Association (NEMA)
 - d. NSF International
 2. Fire test response characteristics:
 - a. Provide with the following Class A (Class I) surface burning characteristics as determined by testing identical products per UL 723 (ASTM E84) or another testing and inspecting agency acceptable to authorities having jurisdiction:
 - 1) Flame Spread Index: 25 or less.
 - 2) Smoke Developed Index: 450 or less.
- D. Coordination drawings:
 1. Shall be prepared indicating:
 - a. Miscellaneous steel for the general work.
 - b. Indicate location of all walls (rated and non-rated), blocking locations and recessed wall items, etc.
 2. Content:
 - a. Project-specific information, drawn accurately to scale.
 - b. Do not base coordination drawings on reproductions of the contract documents or standard printed data.
 - c. Indicate dimensions shown on the contract drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements.
 - d. Provide alternate sketches to designer for resolution of such conflicts.
 - 1) Minor dimension changes and difficult installations will not be considered changes to the contract.
- E. Drawings shall:
 1. Be produced in 1/2-inch scale for all fabricated items.
- F. Drawings must be complete and submitted to the architect within 60 days after award of contract for record only.
 1. No review or approval will be forthcoming.
 2. Coordination drawings are required for the benefit of contractor's fabricators/installers as an aid to coordination of their work so as to eliminate or reduce conflicts that may arise during the installation of their work.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver no components to project site until areas are ready for installation.
- B. Store components indoors prior to installation.

SECTION 066510 - SOLID SURFACE FABRICATIONS (continued):

- C. Handle materials to prevent damage to finished surfaces.
 - 1. Provide protective coverings to prevent physical damage or staining following installation for duration of project.

1.7 WARRANTY

- A. Provide manufacturer's warranty against defects in materials.
 - 1. Warranty shall provide material and labor to repair or replace defective materials.
 - 2. Damage caused by physical or chemical abuse or damage from excessive heat will not be warranted.
 - 3. Warranty shall be transferable to subsequent owner for remainder of warranty period.
- B. Manufacturer's warranty period:
 - 1. Fifteen years from date of substantial completion.

1.8 MAINTENANCE

- A. Provide maintenance requirements as specified by the manufacturer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers:
 - 1. Subject to compliance with requirements, provide products by one of the following:
 - a. Corian, Wilsonart, LG Hausys (HI-MACS®) OR Approved Equal.

2.2 MATERIALS

- A. Solid polymer components
 - 1. Cast, nonporous, filled polymer, not coated, laminated or of composite construction with through body colors meeting ANSI Z124.3 or ANSI Z124.6, having minimum physical and performance properties specified.
 - 2. Superficial damage to a depth of 0.010 inch (.25 mm) shall be repairable by sanding and/or polishing.
- B. Thickness:
 - 1. 1/2 inch
- C. Edge treatment:
 - 1. 1-1/4" built up front edge with 1/8" eased edges

I. Performance characteristics:

<u>Property</u>	<u>Typical Result</u>	<u>Test</u>
Tensile Strength	6,000 psi	ASTM D 638
Tensile Modulus	1.5 x 10 ⁶ psi	ASTM D 638
Tensile Elongation	0.4% min.	ASTM D 638
Flexural Strength	10,000 psi	ASTM D 790
Flexural Modulus	1.2 x 10 ⁶ psi	ASTM D 790
Hardness	>85 Rockwell "M" Scale	ASTM D 785
Thermal Expansion	2.2 x 10 ⁻⁵ in./in./°F	ASTM D 696
Fungus and Bacteria Resistance	Does not support microbial growth	ASTM G21&G22
Microbial Resistance	Highly resistant to mold growth	UL 2824
Ball Impact Resistance (sheets)	0.5 lbs (0.23 kg) ball 1/4" slab—36" drop 1/2" slab—144" drop	NEMA LD 3-2000
Weatherability	ΔE* ₉₄ <5 in 1,000 hrs.	ASTM G155

SECTION 066510 - SOLID SURFACE FABRICATIONS (continued):

Flammability		ASTM E 84, NFPA 255 & UL 723
Class	A	NFPA 101, Life Safety Code
Flame Spread	<25	NFPA 255 & UL 723
Smoke Developed	<25	

2.3 ACCESSORIES

- A. Joint adhesive:
 - 1. Manufacturer's standard one- or two-part adhesive kit to create inconspicuous, nonporous joints.
- B. Sealant:
 - 1. Manufacturer's standard mildew-resistant, FDA-compliant, NSF 51-compliant (food zone — any type), UL-listed silicone sealant in colors matching components.

2.4 FACTORY FABRICATION

- A. Shop assembly
 - 1. Fabricate components to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer's printed instructions and technical bulletins.
 - 2. Form joints between components using manufacturer's standard joint adhesive without conspicuous joints.
 - a. Reinforce with strip of solid polymer material, 2" wide.
 - 3. Provide factory cutouts for plumbing fittings and bath accessories as indicated on the drawings.
 - 4. Rout and finish component edges with clean, sharp returns.
 - a. Rout cutouts, radii and contours to template.
 - b. Smooth edges.
 - c. Repair or reject defective and inaccurate work.

2.5 FINISHES

- A. Color: To be selected from price group C.
- B. Finish:
 - 1. Provide surfaces with a uniform finish.
 - a. Matte; gloss range of 5–20.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with fabricator present for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install components plumb, level and rigid, scribed to adjacent finishes, in accordance with approved shop drawings and product data.
 - 1. Provide product in the largest pieces available.
 - 2. Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work.
 - a. Exposed joints/seams shall not be allowed.

SECTION 066510 - SOLID SURFACE FABRICATIONS (continued):

3. Reinforce field joints with solid surface strips extending a minimum of 1 inch on either side of the seam with the strip being the same thickness as the top.
4. Cut and finish component edges with clean, sharp returns.
5. Rout radii and contours to template.
6. Anchor securely to base cabinets or other supports.
7. Align adjacent countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop.
8. Carefully dress joints smooth, remove surface scratches and clean entire surface.
9. Install countertops with no more than 1/8-inch (3 mm) sag, bow or other variation from a straight line.

3.3 **REPAIR**

- A. Repair or replace damaged work which cannot be repaired to architect's satisfaction.

3.4 **CLEANING AND PROTECTION**

- A. Keep components clean during installation.
- B. Remove adhesives, sealants and other stains.

END OF SECTION 066510

SECTION 071113 - BITUMINOUS DAMPPROOFING

PART 1 - GENERAL

1.01 SUBMITTALS:

- A. **Product Data:** Submit manufacturer's technical product data, installation instructions, and recommendations for each damp-proofing material required. Include data substantiating that materials comply with requirements.

1.02 JOB CONDITIONS:

- A. **Substrate:** Proceed with dampproofing work section only after substrate construction and penetrating work have been completed.
- B. **Weather:** Proceed with dampproofing work only when existing and forecasted weather conditions will permit work to be performed in accordance with manufacturer's recommendations.

PART 2 - PRODUCTS

2.01 COLD-APPLIED ASPHALT EMULSION DAMPPROOFING: (Cavity masonry wall, apply to inner face of CMU.)

- A. **Asphalt Emulsion:** Manufacturer's standard asphalt and water emulsion, recommended for below-grade exterior and for above-grade interior applications to either damp (green) or dry substrates, compounded to penetrate substrate and build to moisture-resistant but breathing type of firm, elastic coating.

1. **Provide non-fibrated type liquid** asbestos-free emulsion; ASTM D 1227 Type III or ASTM D 1187 Type II, depending upon application.

B. **Approved Manufacturers:**

Celotex Corporation.
Certainteed Corporation.
Flintkote/Genstar Roofing Products Co.
J & P Petroleum Products, Inc.
Karnak Chemical Corporation.
Koppers Company, Inc.
Lunday Thagard Company, Inc.
Manville Building Products Corp.
Sonneborne Bldg. Products/Rexnord Chemical Products Inc.
Tamko Asphalt Products, Inc.
Tremco Company.

2.02 MISCELLANEOUS MATERIALS: If specific manufacturers of miscellaneous damp-proofing materials are not indicated below, provide materials acceptable to manufacturer(s) of primary dampproofing materials (bitumens).

- A. **Bituminous Grout:** ASTM D 147.
- B. **Plastic Cement:** ASTM D 491, asphalt base, except where coal tar base is specifically recommended by manufacturer of bituminous dampproofing materials.
- C. **Protection Board:** 3/4" polystyrene board (for below grade application only).

SECTION 071113 - BITUMINOUS DAMPPROOFING (continued):

PART 3 - EXECUTION

- 3.01 Installation: Except as otherwise indicated, and whether or not shown on drawings, apply dampproofing to all **new** exterior concrete and concrete masonry surfaces behind face brick or CMU veneer and precast concrete.
- A. Extend vertical dampproofing down masonry walls above and below finished grade line to top of footing.
 - B. Comply with manufacturer's instructions, except where more stringent requirements are shown or specified, and except where project conditions require extra precautions or provisions to ensure satisfactory performance of work.
 - C. Mask or otherwise protect adjoining work to prevent spillage or migration of dampproofing materials onto other surfaces of work. Do not allow dampproofing materials to enter drains or conductors.
 - D. Install 2 x 2 cant strip of bituminous grout at base of vertical dampproofing where it meets horizontal surface.
 - E. Fill voids, seal joints, and apply bond breakers (if any) as recommended by prime materials manufacturer, with particular attention at construction joints.
 - F. Install separate flashings and corner protection stripping as recommended by prime materials manufacturer, where indicated to precede application of dampproofing. Comply with details shown and manufacturer's recommendations. Give particular attention to requirements at building expansion joints, if any.
- 3.02 Apply dampproofing compound over entire surfaces before the protection board is installed, sealing around all penetrations, pipes, conduit and the like to comply with manufacturer's recommendations.
- 3.03 Install protection board over completed-and-cured dampproofing treatment. Comply with dampproofing materials manufacturer's recommendations for method of support or attachment of protection materials. Support with spot-application of plastic cement where not otherwise indicated.

END OF SECTION 071113

SECTION 071326 - WATERPROOFING

PART 1 - GENERAL

- 1.01 **Product Data:** Submit product data and general recommendations from waterproofing materials manufacturer, including data substantiating that materials comply with requirements.
- 1.02 **Manufacturer:** Obtain primary waterproofing materials of each type required from a single manufacturer, to greatest extent possible. Provide secondary materials only as recommended by manufacturer of primary materials.
- 1.03 **Project Conditions:** Proceed with work after substrate construction, openings, and penetrating work have been completed. Start waterproofing and associated work only when existing and forecasted weather conditions will permit work to be performed in accordance with manufacturers' recommendations and warranty requirements.

PART 2 - PRODUCTS

- 2.01 **Rubberized Asphalt Sheet Waterproofing:** Self-adhering membrane of rubberized asphalt integrally bonded to polyethylene sheeting, formed into uniform flexible sheets of thickness shown, or not less than 56 mils. Comply with the following:
- A. **Tensile Strength:** 250 psi min; ASTM D 412.
 - B. **Ultimate Elongation:** 300 percent min; ASTM D 412.
 - C. **Brittleness Temperature:** minus 25 deg F (minus 32 deg C); ASTM D 746.
 - D. **Hydrostatic Head Resistance:** 150 feet min.
 - E. **Water Absorption:** Not more than 0.5 percent weight gain after 48 hours of immersion at 70 deg F (21 deg C); ASTM D 570.
 - F. **Products:** Subject to compliance with requirements, provide one of the following:
 - Bituthene; W. R. Grace & Co.
 - Mel-rol; W.R. Meadows, Inc.
 - Polyguard 650; Polyguard Products, Inc.
 - Miradri; Mirafi, Inc.
 - G. **Locations of use:** Elevator Pit, and locations where soil comes in contact with an exterior wall adjacent to an interior space.
 - H. For underslab conditions, use Polyguard Products, Inc.'s 85 mil, pre-concrete pour 'UnderSeal' Underslab waterproofing membrane or equal.
- 2.02 **Roof Underlayment:** 40 mil thick, self-adhering membrane polymer modified bituminous sheet material equal to "Ice and Water Shield" by W. R. Grace.
- A. **Tensile Strength:** 250 psi; ASTM D 412.
 - B. **Ultimate Elongation:** 250 percent min; ASTM D 412.
 - C. **Adhesion:** 3.0; ASTM D 903.
 - D. **Permeance:** 0.05; ASTM E 96.

SECTION 071326 - SHEET MEMBRANE WATERPROOFING (continued):

2.03 Fluid Applied Waterproofing: Single component, Silyl-Terminated-Polymer (STP), roller applied to produce a highly durable, seamless, elastomeric weatherproofing membrane, manufactured by PROSOCO, Inc., 3741 Greenway Circle, Lawrence, KS 66046. Apply to the exterior of the ICF.

A. Preparation:

1. Clean surfaces free of contaminants. Chemical residues, surface oxidation, surface coatings or films may adversely affect adhesion.
2. Concrete must be in place 3–7 days and free of any curing compounds or form release agents before permeable R-Guard products are applied. Mortar joints in CMU construction must have a minimum 3 day cure before treated with R-Guard products.
3. When using on insulated concrete forms, the preferred method for cleaning oxidation is with water and low-pressure cleaning.
4. Remove and replace damaged sheathing. On exterior sheathing, treat cracks with R-Guard Joint & Seam Filler and/or R-Guard FastFlash®, as needed.
5. In rough openings, and where appropriate, prepare all raw gypsum board edges with R-Guard PorousPrep. Apply to raw gypsum board edges in a thin, uniform coat according to published application instructions. Do not over apply. Allow to dry tack-free before application of R-Guard products.
6. Use R-Guard Joint & Seam Filler and/or R-Guard FastFlash® on joints, seams and all other interfaces, as needed. Let Joint & Seam Filler and/or FastFlash® skin over before applying Cat 5™.
7. Roofing systems should be capped and sealed or top of walls protected from water intrusion both before and after air barrier system installation. Water intrusion may interfere with bonding of air barrier waterproofing materials and/or detrimentally impact the performance of such materials.

B. Application Instructions

1. Roller apply R-Guard Cat 5™ to exterior wall assembly using vertical strokes with a slight diagonal slant ensuring coverage that is free of pinholes, voids and gaps.
2. Seal masonry ties and other penetrations as work progresses.
3. Allow product to cure and dry.
4. Inspect membrane before covering to ensure a void- and pinhole-free surface. Repair any deep gouges, punctures, or damaged areas with additional Cat 5™, or FastFlash® or Joint & Seam Filler.

C. Coverage: Coverage rates vary depending on surface porosity, moisture uptake and other factors. Cat 5™ is sold in 5-gallon containers.

1. Exterior Gypsum Board, OSB and Plywood: 50 to 100 square feet per gallon.
2. CMU: 50 to 80 square feet per gallon
3. Actual rates must be determined through mock-up applications.

D. Cleanup: Clean tools and equipment immediately using mineral spirits or similar solvent.

2.04 Auxiliary Materials: Provide the following materials:

A. Adhesives: Provide types of adhesive compound and tapes recommended by waterproofing sheet manufacturer, for bonding to substrate (if required), for waterproof sealing of seams in membrane, and for waterproof sealing of joints between membrane and flashings, adjoining surfaces and projections through membrane.

B. Primers: Provide type of concrete primer recommended by manufacturer of sheet waterproofing material for applications required.

C. Flashing Materials: Except as otherwise indicated, provide types of flexible sheet material for flashing as recommended by waterproofing sheet manufacturer.

SECTION 071326 - SHEET MEMBRANE WATERPROOFING (continued):

PART 3 – EXECUTION of SHEET MEMBRANES

- 3.01 **Preparation:** Comply with manufacturer's instruction for surface preparation. Apply primer to concrete and masonry surfaces at rate recommended by manufacturer of primary waterproofing materials. Prime only area that will be covered by WP membrane in same working day; reprime areas not covered by WP membrane within 24 hours.
- 3.02 **Installation:** Comply with manufacturer's instructions for handling and installation of sheet waterproofing materials.
- A. **Coordinate installation** of waterproofing materials and associated work to provide complete system complying with combined recommendations of manufacturers and installers involved in work. Schedule installation to minimize period of exposure of sheet waterproofing materials.
 - B. **Extend waterproofing sheet and flashings** as shown to provide complete membrane over area indicated to be waterproofed. Seal to projections through membrane and seal seams. Bond to vertical surfaces and also, where shown or recommended by manufacturer, bond to horizontal surfaces.
 - C. **Install protection board** over completed membrane, complying with manufacturer's recommendations for both waterproofing sheet and protection course materials.
- 3.03 **Cleaning:** After completion, remove any masking materials and stains from exposed surfaces caused by waterproofing installation. Provide protection of completed membrane during installation of work over membrane and throughout remainder of construction period.

END OF SECTION 071326

SECTION 072100 - BUILDING INSULATION

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes thermal insulation, acoustical insulation, and exterior wall insulation as indicated and/or specified complete.

1.02 Fire Performance Characteristics: Provide insulation materials identical to those whose indicated fire performance characteristics have been determined per ASTM E 119, ASTM E 84, and ASTM E 136, as applicable, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing and inspecting organization.

1.03 SUBMITTALS: Submit product data for each form and type of insulation indicated.

1.04 Insulation, including facing, exposed to the return air plenum, shall have a Flame Spread Index = 25 or less and a Smoke Developed Index = 450 or less when tested per ASTM E 84 or UL®723.

PART 2 - PRODUCTS

2.01 Roof Deck Insulation: 5.2", R-30 min. per **LTTR (Long Term Thermal Resistance) Values CAN / ULC - S770**, Polyisocyanurate foam insulation board. AC Foam III by Atlas Roofing Corporation OR approved equal. **Note: 3" : R-17.4.**

2.02 Polyicynene Spray Insulation: Manufactured by Icynene, Inc. OR approved equal. Spray insulation shall be icynene, hydrophobic, low-density, open-cell modified polyicynene; conforming with the following:

A. Thermal Resistance: ASTM C518; 3.6 hr/sq ft/degree F/BTU In.

B. Air Permeance (for 5.25 inches of material): ASTM E283; 0.0049 l/m2/second.

C. Water Vapor Transmission (for 5 inches of material): ASTM E96; 10 perms.

D. Sound Transmission Class (STC): ASTM E90; STC 37 in wood stud wall.

E. Noise Reduction Coefficient (NRC): ASTM E90; NRC-0.7 in wood stud wall.

F. Flame Spread and Smoke Developed rating: ASTM E84; Flame Spread < 25; Smoke Development < 450.

G. Locations: Gables, knee walls, fascias, soffits and other areas within building envelope and where shown on contract documents.

H. Installation shall be in accordance with manufacturer's written application instructions.

2.03 Thermal Barrier for Polyicynene Spray Insulation: JM Spider Insulation manufactured by Johns Manville OR approved equal. Spray foam insulation to be sprayed **over** spray polyurethane foam (SPF) insulation providing a thermal barrier and shall conform with the following:

A. Complying with ASTM E-84 and ASTM E-136.

B. Must limit the average temperature rise of the SPF to not more than 250°F (120°C) after 15 minutes of fire exposure, complying with the standard time-temperature curve of ASTM E 119 or UL 263. The thermal barrier shall be installed in such a manner that it will remain in place for 15 minutes based on FM 4880, UL 1040, NFPA 286 or UL 1715.

SECTION 072100 - BUILDING INSULATION (continued):

- 2.04 Semi-Rigid Spray Applied Polyurethane Foam: Two-component, open celled, spray-applied, semi-rigid polyurethane foam system. "SEALECTION 500" manufactured by Demilec USA LLC OR approved equal. Product shall comply with the following:
- A. Thermal Resistance: ASTM C518; 3.81 hr/sq ft/degree F/BTU In.
 - B. Air Permeance: ASTM E283 @ 25 mph; 0.00013 ft³/sq. ft.
 - C. Water Vapor Transmission: ASTM E96; 3.6 perms.
 - D. Sound Transmission Class (STC): ASTM E90; STC 39.
 - E. Flame Spread and Smoke Developed rating: ASTM E84; Class I; Flame Spread 21; Smoke Development 216.
 - F. Installation shall be in accordance with manufacturer's written application instructions.
- 2.05 Intumescent Coating: Water base, fire protection intumescent coating, "BlazeLok TB" manufactured by Demilec USA LLC OR approved equal. 14 mil coating applied over semi-rigid spray applied polyurethane foam insulation (SEALECTION). Installation shall be in accordance with manufacturer's written application instructions.
- 2.06 Acoustical Insulation:
- A. Mineral fiber sound batts, R-11, unfaced (non-combustible). Flame spread - 25 maximum as tested by ASTM # 84-75.
 - B. Acoustical insulation is required above ceilings at toilets, unless "full height" sound insulated walls are specified. STC rating shall be 45 to 51 in walls and ceilings. Vinyl backed insulation shall be used in open air plenum spaces.
- 2.07 Extruded Polystyrene Board Insulation: Rigid, cellular polystyrene thermal insulation with foil skin, formed by the expansion of polystyrene base resin in an extrusion process to comply with ASTM C 578 for type indicated; with 5-year aged r-values of 5.4 and 5 at 40 and 75 deg. F (4.4 and 23.9 deg. C), respectively; per inch of thickness in manufacturer's standard lengths and widths; thicknesses as indicated.
- 2.08 Vapor Barrier: Provide vapor barrier at all exterior wood / metal stud construction and as indicated on drawings. Vapor barrier (6 mil) shall be "DURA-SKRIM 6WW" by Raven Industries, Inc. (800) 635-3456 OR approved equal. Vapor barrier shall meet or exceed ASTM E 84 standard, Class 'A', and shall comply with the following:
- A. Perm Rating: 0.07
 - B. Tensile Strength: 42 lbf.
 - C. Elongation at Break: 450%.
- 2.09 Perimeter Fire-Containment Systems (Fire Safing): Where indicated for gaps between the perimeter edge of fire-resistance-rated floor assemblies and non-fire-resistance-rated exterior curtains walls, provide a perimeter fire-containment system with the fire-test-response characteristics indicated, as determined by testing identical systems per UL 2079 by UL and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.

SECTION 072100 - BUILDING INSULATION (continued):

- 2.10 **Foamed-In-Place Insulation:** Material shall be "Core-Fill 500" by Tailored Chemical Products Inc., (704) 322-6512, OR approved equal. Two component thermal insulation produced by combining a plastic resin and catalyst forming agent surfactant and complying with the following:
- B. **Fire Resistance Ratings:** Minimum four (4) hour fire resistance wall rating (ASTM E-1 19) for 8" and 12" CMU when used in standard two (2) hour rated CMU=s.
 - C. **Surface Burning Characteristics:** Maximum flame spread, smoke developed and fuel contributed of 0, 5 and 0 respectively.
 - D. **Combustion Characteristics:** Must be non-combustible, Class A building material.
 - E. **Thermal Values:** R Value of 4.91 / inch @ 32 degrees F mean; ASTM C-177.
 - F. **Sound Abatement:** Minimum STC rating of 53 and a minimum OITC rating of 44 for 8" wall assembly (ASTM E 90-90).
 - G. **Installation:** Fill all open cells and voids in hollow concrete masonry walls and where shown on drawings. The foam insulation shall be injected and spaced into block cells as recommended by manufacturer. After installation of foam insulation, patch holes with mortar and score to resemble existing surface.

PART 3 - EXECUTION

- 3.01 **GENERAL:** Comply with insulation manufacturer's instructions for installation of insulation.
- A. **Support** insulation units by adhesive or mechanical anchorage or both as applicable to location and conditions indicated.
- 3.02 **INSTALLATION**
- A. **Batt Insulation:** Provide Batt insulation as indicated. Install insulation with edges butted snugly, leaving no open areas. Support securely with staples, clips, tape or fasteners, as required. Install in accordance with the manufacturer's directions and recommendations.
 - 1. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage, to provide permanent placement and support of units.
 - 2. At interior ceilings, where indicated, install on top of drywall or acoustical tile, as shown, fastening securely. Do not install insulation over light fixtures. Maintain 3" clearance from all light fixtures.
 - 3. At ceilings, install on cross runners. Wire tie and fasten to prevent sag.
 - B. **Wall Insulation:**
 - 1. Install as per manufacturer's specifications, using licensed and approved installers.
 - C. **Vapor Barrier:** Overlap vapor barrier 6" and tape with 4" black seaming tape as recommended by manufacturer.

END OF SECTION 072100

SECTION 07 54 19 - POLYVINYL-CHLORIDE (PVC) ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Adhered PVC membrane roofing system for flat roof decks.
2. Roof insulation.

B. Related Sections:

1. Section 076200 "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counterflashings.
2. Section 079200 "Joint Sealants" for joint sealants, joint fillers, and joint preparation.

1.3 DEFINITIONS

- A. Roofing Terminology: See ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

1.4 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed membrane roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Membrane roofing and base flashings shall remain watertight.
- B. Florida Building Code 6th Edition (2020) Wind Design Speed: **Ultimate Wind Design of 200 mph** with Ultimate Wind Load pressures.
- C. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by membrane roofing manufacturer based on testing and field experience.
- D. Roofing System Design: Provide membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE/SEI 7.
- E. FM Approvals Listing: Provide membrane roofing, base flashings, and component materials that comply with requirements in FM Approvals 4450 and FM Approvals 4470 as part of a membrane roofing system, and that are listed in FM Approvals' "RoofNav" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Approvals markings.

SECTION 07 54 19 - POLYVINYL-CHLORIDE (PVC) ROOFING (continued)

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Base flashings and membrane terminations.
 - 2. Tapered insulation, including slopes.
 - 3. Roof plan showing orientation of steel roof deck and orientation of membrane roofing and fastening spacings and patterns for mechanically fastened membrane roofing.
 - 4. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
 - 5. Florida Product Approval numbers and data verifying approvals.
- C. Samples for Verification: For the following products:
 - 1. Sheet roofing, of color specified, including T-shaped side and end lap seam.
 - 2. Roof insulation.
 - 3. Walkway pads or rolls.
 - 4. Six insulation fasteners of each type, length, and finish.
 - 5. Six roof cover fasteners of each type, length, and finish.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer and manufacturer.
- B. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
 - 1. Submit evidence of compliance with performance requirements.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of membrane roofing system.
- D. Research/Evaluation Reports: For components of membrane roofing system, from the ICC-ES.
- E. Field quality-control reports.
- F. Warranties: Sample of special warranties.

1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For roofing system to include in maintenance manuals.

1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer that is UL listed and FM Approvals approved for membrane roofing system identical to that used for this Project.
- B. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by membrane roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

SECTION 07 54 19 - POLYVINYL-CHLORIDE (PVC) ROOFING (continued)

- C. Exterior Fire-Test Exposure: ASTM E 108, Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.
- D. Fire-Resistance Ratings: Where indicated, provide fire-resistance-rated roof assemblies identical to those of assemblies tested for fire resistance per ASTM E 119 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.10 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.11 WARRANTY

- A. Special Warranty: Manufacturer's standard or customized form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period.
 - 1. Special warranty includes membrane roofing, base flashings, roof insulation, fasteners, cover boards, roofing accessories, and other components of membrane roofing system.
 - 2. Warranty Period: **20 year, 120 mph wind resisting System warranty** starting from the date of Substantial Completion.
- B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of membrane roofing system such as membrane roofing, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, roof pavers, and walkway products, for the following warranty period:
 - 1. Warranty Period: Five (5) years from date of Substantial Completion.

SECTION 07 54 19 - POLYVINYL-CHLORIDE (PVC) ROOFING (continued)

PART 2 - PRODUCTS

2.1 PVC MEMBRANE ROOFING

- A. Manufacturers: The components of the roofing system are to be products of a single manufacturer as required to provide the specified system warranty. Subject to compliance with requirements, provide roofing products from:
1. Basis of design: Sika Sarnafil.
 2. FiberTite
 3. Duro-Last

- B. PVC Sheet: ASTM D 4434, Type II, Grade I, glass fiber reinforced.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work are limited to, the following:

- a. **BASIS-OF-DESIGN**: Sarnafil Inc.; Sarnafil G410. FL Product Approval # 9274.15
- b. Secondary membrane or walkway mat around any rooftop exhaust vents.

2. Thickness: **60 mils**, nominal
3. Exposed Face Color: White.

2.2 AUXILIARY MEMBRANE ROOFING MATERIALS

- A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use, and compatible with membrane roofing.
- B. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as PVC sheet membrane.
- C. Bonding Adhesive: Manufacturer's standard, water based.
- D. Slip Sheet: Manufacturer's standard, of thickness required for application.
- E. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch (25 by 3 mm) thick; with anchors.
- F. Metal Battens: Manufacturer's standard, aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch wide by 0.05 inch (25 mm wide by 1.3 mm) thick, prepunched.
- G. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion resistance provisions in FM Approvals 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.
- H. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

SECTION 07 54 19 - POLYVINYL-CHLORIDE (PVC) ROOFING (continued)

2.3 SUBSTRATE BOARDS

- A. Substrate Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, 1/2 inch (13 mm) thick.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Georgia-Pacific Corporation; Dens Deck.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion resistance provisions in FM Approvals 4470, designed for fastening substrate board to roof deck.

2.4 ROOF INSULATION

- A. General: Preformed roof insulation boards manufactured or approved by PVC membrane roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses required to meet existing perimeter edge height and that produce FM Approvals-approved roof insulation.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 2, felt or glass-fiber mat facer on both major surfaces.
- C. Tapered Insulation: Provide factory-tapered insulation boards as required to achieve positive drainage.
- D. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.
- E. Thickness: Min. thickness required to achieve R-30.

2.5 INSULATION ACCESSORIES

- A. General: Furnish roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with membrane roofing.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion resistance provisions in FM Approvals 4470, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer.
- C. Bead-Applied Insulation Adhesive: Insulation manufacturer's recommended bead-applied, low-rise, one- or multicomponent urethane adhesive formulated to attach roof insulation to substrate or to another insulation layer.
- D. Full-Spread Applied Insulation Adhesive: Insulation manufacturer's recommended spray applied, low-rise, two-component urethane adhesive formulated to attach roof insulation to substrate or to another insulation layer.

2.6 WALKWAYS

- A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads or rolls, approximately 3/16 inch (5 mm) thick, and acceptable to membrane roofing system manufacturer.

SECTION 07 54 19 - POLYVINYL-CHLORIDE (PVC) ROOFING (continued)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
 - 1. Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place.
 - 2. Verify that blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
- B. Verify that surface plane flatness and fastening of steel roof deck
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.3 SUBSTRATE BOARD

- A. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.
 - 1. Fasten substrate board to top flanges of steel deck to resist uplift pressure at corners, perimeter, and field of roof according to membrane roofing system manufacturers' written instructions.

3.4 INSULATION INSTALLATION

- A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with membrane roofing system and insulation manufacturer's written instructions for installing roof insulation.
- C. Install tapered insulation under area of roofing to conform to slopes indicated.
- D. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches (68 mm) or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.

SECTION 07 54 19 - POLYVINYL-CHLORIDE (PVC) ROOFING (continued)

- E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
 - F. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with insulation.
 - 1. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.
 - G. Adhered Insulation: Install each layer of insulation and adhere to substrate as follows:
 - 1. Prime surface of concrete deck with asphalt primer at rate of 3/4 gal./100 sq. ft. (0.3 L/sq. m) and allow primer to dry.
 - 2. Set each layer of insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F (14 deg C) of equiviscous temperature.
 - 3. Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
 - 4. Set each layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.
 - H. Install slip sheet over cover board and immediately beneath membrane roofing.
- 3.5 ADHERED MEMBRANE ROOFING INSTALLATION: Scope of work for achieving 120 mph wind warranty rider as basis of design. You must have at least a 6 mil poly serving as a vapor barrier over the metal deck, while making sure any penetrations are sealed, attach ISO and Densdeck staggered over the deck with the membrane mechanically attached with Number 15 screws and XPN plates at 6 inches on center in the laps. Use a minimum of 2 half sheets following ASCE 7 guidelines for perimeter attachment.
- A. Adhere membrane roofing over area to receive roofing and install according to membrane roofing system manufacturer's written instructions.
 - 1. Install sheet according to ASTM D 5036.
 - B. Start installation of membrane roofing in presence of membrane roofing system manufacturer's technical personnel.
 - C. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
 - D. Bonding Adhesive: Apply to substrate and underside of membrane roofing at rate required by manufacturer and allow to partially dry before installing membrane roofing. Do not apply to splice area of membrane roofing.
 - E. In addition to adhering, mechanically fasten membrane roofing securely at terminations, penetrations, and perimeter of roofing.
 - F. Apply membrane roofing with side laps shingled with slope of roof deck where possible.
 - G. Seams: Clean seam areas, overlap membrane roofing, and hot-air weld side and end laps of membrane roofing and sheet flashings according to manufacturer's written instructions to ensure a watertight seam installation.

SECTION 07 54 19 - POLYVINYL-CHLORIDE (PVC) ROOFING (continued)

1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of sheet membrane.
 2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
 3. Repair tears, voids, and lapped seams in roofing that does not comply with requirements.
- H. Spread sealant bed over deck drain flange at roof drains and securely seal membrane roofing in place with clamping ring.

3.6 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.
- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
- D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.
- E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.7 WALKWAY INSTALLATION

- A. Flexible Walkways: Install walkway products in locations indicated. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

3.8 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.
- C. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.
- D. Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.9 PROTECTING AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements; repair substrates; and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

SECTION 07 54 19 - POLYVINYL-CHLORIDE (PVC) ROOFING (continued)

- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.10 ROOFING INSTALLER'S WARRANTY

- A. WHEREAS <Insert name> of <Insert address>, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:

- 1. Owner: Bay District School Board
- 2. Address: 1311 Balboa Ave, Panama City, FL 32401
- 3. Building Name/Type: <Insert information>.
- 4. Address: <Insert address>.
- 5. Acceptance Date: <Insert date>.
- 6. Warranty Period: <Insert time>.
- 7. Expiration Date: <Insert date>.

- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,

- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition. D. This Warranty is made subject to the following terms and conditions:

- 1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
 - a. Lightning;
 - b. Fire;
 - c. Failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
 - d. Faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
 - e. Vapor condensation on bottom of roofing; and
 - f. Activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
- 2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
- 3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
- 4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing

SECTION 07 54 19 - POLYVINYL-CHLORIDE (PVC) ROOFING (continued)

reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.

5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this <Insert day> day of <Insert month>, <Insert year>.

1. Authorized Signature: <Insert signature>.
2. Name: <Insert name>.
3. Title: <Insert title>.

END OF SECTION 075419

SECTION 076200 - FLASHING & SHEET METAL

PART 1 - GENERAL

- 1.01 Conform to profiles and sizes shown on drawings and comply with "Architectural Sheet Metal Manual" by SMACNA, for each general category of work required.

Metal flashing and counter flashing.

- 1.02 Guarantee: Five-year maintenance guarantee stating that all work in this section not guaranteed under the roof warranty, will remain watertight for a period of 5-years from the date of project acceptance, co-signed by the General Contractor.

PART 2 - PRODUCTS

- 2.01 Solder: For use with steel or copper, provide 50-50 tin/lead solder (ASTM B 32), with rosin flux.

- 2.02 Fasteners: Same metal as flashing/sheet metal or other non-corrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.

- 2.03 Bituminous Coating: SSPC-Paint 12, solvent-type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.

- 2.04 Elastomeric Sealant: Generic type recommended by manufacturer of metal and fabricator of components being sealed and complying with requirements for joint sealants as specified in Section 07900 - Joint Sealers.

- 2.05 Epoxy Seam Sealer: 2-part noncorrosive metal seam cementing compound, recommended by metal manufacturer for exterior/interior nonmoving joints including riveted joints.

- 2.06 Reglets: Metal or plastic units of type and profile indicated, compatible with flashing indicated, noncorrosive.

- 2.07 Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of work, matching or compatible with material being installed, noncorrosive, size and gage required for performance.

- 2.08 Mill Finish Aluminum: ASTM B 209, 3003-H14, with a minimum thickness of 0.040 inch, unless otherwise indicated.

- 2.09 Fabricated Units

Fabricate sheet metal with flat-lock seams; solder with type solder and flux recommended by manufacturer, except seal aluminum seams with epoxy metal seam cement and, where required for strength, rivet seams and joints.

Provide for thermal expansion of running sheet metal work by overlaps of expansion joints in fabricated work. Where required for water-tight construction, provide hooked flanges filled with polyisobutylene mastic for 1-inch embedment of flanges. Space joints at intervals of not more than 50 feet for steel, 24 feet for copper or stainless steel, or 30 feet for zinc alloy or aluminum. Conceal expansion provisions where possible.

PART 3 - EXECUTION

- 3.01 Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by fabricator or manufacturers of dissimilar metals.

SECTION 076200 - FLASHING AND SHEET METAL (continued):

- A. Coat side of uncoated aluminum and stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
 - B. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene underlayment.
 - C. Bed flanges in thick coat of asphalt roofing cement where required for waterproof performance.
- 3.02 Anchor work in place with noncorrosive fasteners, adhesives, setting compounds, tapes and other materials and devices as recommended by manufacturer of each material or system. Provide for thermal expansion and building movements. Comply with recommendations of "Architectural Sheet Metal Manual" by SMACNA.
- 3.03 Seal moving joints in metal work with elastomeric joint sealants, complying with requirements specified in Division 7 Section "Joint Sealants."
- 3.04 Clean metal surfaces of soldering flux and other substances which could cause corrosion.
- 3.05 Nail flanges of expansion joint units to substrates at spacing of 6 inches o.c.
- 3.06 Composition Stripping: Cover flanges (edges) of work set on bituminous substrate with 2 courses of glass fiber fabric (ASTM D-1668) set in and covered with asphaltic roofing cement.
- 3.07 Performance: Water-tight and weatherproof performance of flashing and sheet metal work is required.

END OF SECTION 076200

SECTION 078400 - FIRESTOPPING

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Firestopping of Through Penetrations in Rated Assemblies.
- B. Fire Resistive Joint Systems.
- C. Perimeter Fire Containment Systems.
- D. Smoke Seals.
- E. Construction enclosing compartmentalized areas.

1.02 RELATED SECTIONS

- A. Section 01 25 13 – Product Substitution Procedures.
- B. Section 01 33 00 – Submittal Procedures.
- C. Section 01 42 00 – References.
- D. Section 01 45 00 – Quality Control.
- E. Section 01 66 00 – Project Storage and Handling Requirements.
- F. Section 01 78 00 – Closeout Submittals Section 10 42 00 – References.
- G. Section 03 30 00 - Cast-In-Place Concrete: Sleeves and blockouts in concrete assemblies.
- H. Section 04 80 00 - Masonry Assemblies: Sleeves and blockouts in masonry assemblies.
- C. Section 05 50 00 - Metal Decking.
- D. Section 05 81 10 - Architectural Joint Systems.
- E. Section 07 21 00 - Building Insulation.
- F. Section 07 71 60 - Roof Expansion Assemblies.
- G. Section 07 81 00 - Applied Fireproofing.
- H. Section 07 84 10 - Duct Firestopping: Fire resistive duct enclosures.
- I. Section 07 90 00 - Joint Sealers.
- J. Section 09 25 00 - Gypsum Board.
- K. Division 23 – Heating, Ventilating and Air Conditioning (HVAC): Work requiring firestopping.
- L. Division 26 - Electrical: Electrical work requiring firestopping.

1.03 REFERENCES

- A. See Section 01 42 00 – References for standards, rules, regulations and statutes applicable to this section.

1.04 PERFORMANCE REQUIREMENTS

- A. Provide products that upon curing, do not re-emulsify, dissolve, leach, breakdown or otherwise deteriorate over time from exposure to atmospheric moisture, sweating pipes, ponding water or other forms of moisture characteristic during and after construction.
- B. Provide firestop sealants sufficiently flexible to accommodate motion such as pipe vibration, water hammer, thermal expansion and other normal building movement without damage to seal.
- C. Pipe insulation shall not be removed, cut away or otherwise interrupted through wall or floor openings. Provide products appropriately tested for thickness and type of insulation utilized.
- D. Openings within walls and floors designed to accommodate voice, data and video cabling shall be provided with re-enterable products specifically designed for retrofit.
- E. Penetrants passing through fire-resistance rated floor-ceiling assemblies contained within chase wall assemblies shall be protected with products tested by being fully exposed to fire outside of chase wall.

SECTION 078400 – FIRESTOPPING (continued):

Systems within UL Fire Resistance Directory that meet criterion are identified with words "Chase Wall Optional".

- F. Provide fire-resistive joint sealants sufficiently flexible to accommodate movement such as thermal expansion and other normal building movement without damage to seal.
- G. Provide fire-resistive joint sealants designed to accommodate specific range of movement and tested for purpose in accord with cyclic movement test criteria as outlined in Standards, ASTM E-1399, ASTM E-1966 or ANSI/ UL 2079.
- H. Provide through penetration firestop systems and fire-resistive joint systems and conduct air leakage test in accord with Standards, ANSI/UL1479 and ANSI/ UL2079, respectively, with published L-Ratings for ambient and elevated temperatures as evidence of ability of through penetration firestop system or fire-resistive joint system to restrict movement of smoke.

1.05 SUBMITTALS

- A. Submit in accord with Section 01 33 00 – Submittal Procedures.
- B. Product Data: Provide manufacturer's standard catalog data for specified products demonstrating compliance with referenced standards and listing numbers of systems in which each product is to be used.
- C. Shop Drawings: Submit schedule of opening locations and sizes, penetrating items, and required listed design numbers to seal openings to maintain fire resistance rating of adjacent assembly.
- D. Certificates:
 - 1. Product certificates signed by the firestop system manufacturer certifying material compliance with applicable code and specified performance characteristics.
 - 2. Certification of Installer's Qualifications.
- E. Installation Instructions: Submit manufacturer's printed installation instructions.

1.06 QUALITY ASSURANCE

- A. Products/Systems: Provide firestopping systems that comply with following requirements and as specified in Paragraph 1.04 - Performance Criteria.
 - 1. Firestopping tests shall be performed by qualified, testing and inspection agency, UL approved, or another agency performing testing and follow-up inspection services for firestop systems acceptable to authorities having jurisdiction.
 - 2. Firestopping products bear classification marking of qualified testing and inspection agency.
- B. Installer Qualifications: Experienced in performing work, certified, licensed or otherwise qualified by firestopping manufacturer as having required training to install firestop products in accord with specified requirements.
- C. Mock-Up: Install mock-up using acceptable products and manufacturer approved installation methods.
 - 1. Apply one of each unit type of firestopping material, such as penetrations through fire rated partition, to representative application.
 - 2. Locate where directed.
 - 3. Maintenance: Maintain mock-up during construction for workmanship comparison.
 - 4. Remove and legally dispose of mock-up when no longer required.
- D. Preinstallation Meetings: Conduct meeting to verify project requirements, substrate conditions, manufacturer's installation instructions, and warranty requirements. Comply with Division 1 requirements.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Delivery in manufacturer's original, unopened, undamaged containers, identification labels intact

SECTION 078400 – FIRESTOPPING (continued):

identifying product and manufacturer, date of manufacture; lot number; shelf life, if applicable; qualified testing and inspection agency's classification marking; and mixing instructions for multicomponent materials.

- B. Handle and store products in accord with manufacturer's written recommendations published in technical materials. Leave products wrapped or otherwise protected and under clean and dry storage conditions until required for installation.
- C. Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer.

1.08 PROJECT CONDITIONS

- A. Do not install firestopping products when ambient or substrate temperatures are outside limitations recommended by manufacturer.
- B. Do not install firestopping products when substrates are wet due to rain, frost, condensation, or other causes.
- C. Maintain minimum temperature before, during, and for minimum 3 days after installation of materials
- D. Do not use materials that contain flammable solvents.
- E. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements.
- F. Coordinate sizing of sleeves, openings, core-drilled holes or cut openings to accommodate through-penetration firestop systems.
- G. Schedule installation of firestopping after completion of penetrating item installation but prior to covering or concealing of openings.
- H. Schedule installation of safing materials in linear opening at curtain wall prior to construction that limits access to safing slot.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturer: Specified Technologies Inc., 200 Evans Way; Somerville, NJ 08876; Tel: 800-992-1180; Tel: 908-526-8000; Fax: 908-526-9623; Website: www.stifirestop.com.
- B. Requests for substitutions will be considered in accord Section 01 25 13 – Product Substitution Procedures.
- C. Single Source: Obtain firestop systems for each type of penetration or joint opening and construction condition indicated only from single manufacturer.

2.02 MATERIALS

- A. Use only firestopping products that have been tested for specific fire-resistance-rated construction conditions conforming to construction assembly type, penetrating item type or joint opening width and movement capabilities, annular space requirements, and fire-rating involved for each separate instance.
- B. Latex Sealants: STI SpecSeal Series single component latex formulations that upon cure do not re-emulsify during exposure to moisture, the following products are acceptable:
 - 1. Specified Technologies, Inc. (STI) SpecSeal Series SSS Intumescent Sealant.
 - 2. Specified Technologies, Inc. (STI) SpecSeal Series LCI Intumescent Sealant.
 - 3. Specified Technologies, Inc. (STI) SpecSeal Series LC Endothermic Sealant.
 - 4. Specified Technologies, Inc. (STI) SpecSeal Series AS Elastomeric Spray.

SECTION 078400 – FIRESTOPPING (continued):

5. Specified Technologies, Inc. (STI) SpecSeal Series ES Elastomeric Sealant.
- C. Firestop Devices: STI SpecSeal Series factory-assembled steel collars lined with intumescent material sized to fit specific outside diameter of penetrating item, the following products are acceptable:
 1. Specified Technologies, Inc. (STI) SpecSeal Series SSC Firestop Collars.
 2. Specified Technologies, Inc. (STI) SpecSeal Series LCC Firestop Collars.
- D. Wall Opening Protective Materials: STI SpecSeal Series intumescent, non-curing pads or inserts for protection of electrical switch and receptacle boxes to reduce horizontal separation to less than 24 inches (610mm), the following products are acceptable:
 1. Specified Technologies, Inc. (STI) SpecSeal Series SSP Firestop Putty Pads.
 2. Specified Technologies, Inc. (STI) SpecSeal Series EP PowerShield Insert Pads.
- E. Firestop Putty: STI SpecSeal Series intumescent, non-hardening, water resistant putties containing no solvents, inorganic fibers or silicone compounds, the following products are acceptable:
 1. Specified Technologies, Inc. (STI) SpecSeal Series SSP Firestop Putty.
- F. Fire Rated Cable Pathways: STI EZ-PATH device modules comprised of steel raceway with intumescent foam pads allowing 0 to 100 percent cable fill, the following products are acceptable:
 1. Specified Technologies Inc. (STI) EZ-PATH Fire Rated Pathway.
- G. Wrap Strips: STI SpecSeal Series single component intumescent elastomeric strips faced on both sides with a plastic film, the following products are acceptable:
 1. Specified Technologies, Inc. (STI) SpecSeal Series RED Wrap Strip.
 2. Specified Technologies, Inc. (STI) SpecSeal Series BLU Wrap Strip.
 3. Specified Technologies, Inc. (STI) SpecSeal Series BLU2 Wrap Strip.
- H. Firestop Pillows: STI SpecSeal Series re-enterable, non-curing, mineral fiber core encapsulated with an intumescent coating contained in a flame retardant poly bag, the following products are acceptable:
 1. Specified Technologies, Inc. (STI) SpecSeal Series SSB Firestop Pillows.
- I. Mortar: STI SpecSeal Series Portland cement based dry-mix product formulated for mixing with water at Project site to form a non-shrinking, water-resistant, homogenous mortar, the following products are acceptable:
 1. Specified Technologies, Inc. (STI) SpecSeal Series SSM Firestop Mortar.
- J. Silicone Sealants: STI SpecSeal Series moisture curing, single component, silicone elastomeric sealant for horizontal surfaces (pourable or nonsag) or vertical surface (nonsag), the following products are acceptable:
 1. Specified Technologies, Inc. (STI) Pensil 300 Silicone Sealant.
 2. Specified Technologies, Inc. (STI) Pensil 300 SL Self-Leveling Silicone Sealant.
- K. Silicone Foam: STI SpecSeal Series multicomponent, silicone-based liquid elastomers, that when mixed, expand and cure in place to produce a flexible, non-shrinking foam, the following products are acceptable:
 1. Specified Technologies, Inc. (STI) Pensil 200 Silicone Foam.
- L. Silicone/Urethane Sealants: STI SpecSeal Series moisture curing, single component, silicone/urethane hybrid elastomeric sealant for horizontal surfaces, the following products are acceptable:
 1. Specified Technologies, Inc. (STI) SpecSeal Fast Tack Firestop Spray.
- M. Installation Accessories: Provide clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.

SECTION 078400 – FIRESTOPPING (continued):

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Before beginning installation, verify that substrate conditions previously installed under other sections are acceptable for installation of firestopping in accord with manufacturer's installation instructions and technical bulletins.
- B. Surfaces shall be free of dirt, grease, oil, scale, laitance, rust, release agents, water repellents, and any other substances that may inhibit optimum adhesion.
- C. Provide masking and temporary covering to protect adjacent surfaces.
- D. Do not proceed until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. General: Install through-penetration firestop systems and fire-resistive joint systems in accordance with the Performance Criteria and in accord with conditions of testing and classification as specified in published design.
- B. Manufacturer's Instructions: Comply with manufacturer's written instructions for installation of firestopping products and the following.
 - 1. Seal openings or voids made by penetrations to ensure air and water resistant seal.
 - 2. Consult with mechanical engineer, project manager, and damper manufacturer prior to installation of through-penetration firestop systems that might hamper the performance of fire dampers as it pertains to duct work.
 - 3. Protect materials from damage on surfaces subjected to traffic.
 - 4. Apply suitable bond-breaker to prevent three-sided adhesion in applications where conditions might occur such as intersection of gypsum wallboard/steel stud wall to floor or roof assembly where joint is backed by steel ceiling runner or track.
 - 5. Where joint application is exposed to elements, fire-resistive joint sealant must be approved by manufacturer for use in exterior applications and shall comply with ASTM C-920, "Specification for Elastomeric Joint Sealants".

3.03 FIELD QUALITY CONTROL

- A. Keep areas of work accessible until inspection by authorities having jurisdiction.
- B. Where deficiencies are found, repair or replace firestopping products to comply with requirements.

3.04 ADJUSTING AND CLEANING

- A. Remove equipment, materials and debris, leaving area in undamaged, clean condition.
- B. Clean all surfaces adjacent to sealed openings to be free of excess firestopping materials and soiling as work progresses.

END OF SECTION 078400

SECTION 079200 - JOINT SEALERS

PART 1 - GENERAL

- 1.01 **PRECONSTRUCTION FIELD TESTS:** Prior to installation of joint sealers, field-test their adhesion to joint substrates per field adhesion test in AAMA Aluminum Curtain Wall Series No. 13.
- 1.02 **SUBMITTALS:** Submit product data, samples of each type and color of joint sealer required and certified test reports for joint sealers evidencing compliance with requirements.
- 1.03 **COMPATIBILITY:** Provide joint sealers, joint fillers and other related materials that are compatible with one another and with joint substrates under service and application conditions, as demonstrated by testing and field experience.
- 1.04 **COLORS:** Provide color of exposed joint sealers to match color of adjacent surface.

PART 2 - PRODUCTS

- 2.01 **ELASTOMERIC SEALANT STANDARD:** Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated, complying with ASTM C 920 requirements.
 - A. **One-Part Nonacid-Curing Silicone Sealant:** Type S, Grade NS, Class 25, Uses NT, M, G, A, and O. Additional capability, when tested per ASTM C 719, to withstand 35 percent movement in both extension and compression for a total of 70 percent movement as measured at time of application and still comply with other requirements of ASTM C 920.
 - B. **One-Part Nonsag Urethane Sealant for Use NT:** Type S; Grade NS; Class 25; and Uses NT, M, A, and O.
- 2.02 **ACRYLIC SEALANT:** Manufacturer's standard one-part nonsag, solvent-release-curing, acrylic terpolymer sealant complying with ASTM C 920 for Type S; Grade NS; Uses NT, M, G, A and O; except for selected test properties which are revised as follows:
 - Heat-aged hardness: 40-50
 - Weight loss: 15 percent
 - Max. cyclic movement capability: plus or minus 7.5 percent
- 2.03 **SILICONE-EMULSION SEALANT:** Manufacturer's standard one part, nonsag, mildew-resistant, paintable, silicone-emulsion sealant complying with ASTM C 834.
- 2.04 **ACOUSTICAL SEALANT FOR CONCEALED JOINTS:** Manufacturer's standard, nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic rubber sealant recommended for sealing interior concealed joints to reduce transmission of airborne sound.
- 2.05 **FIRESTOP CAULKING AND PUTTY:** Provide Firestop Putty or Adhesive Firestop Caulking/Sealant for fire sealing rated partitions at penetrations, junctions with roofing panels, and intersections at dissimilar materials. Firestop putty shall be Nelson FSP Firestop Putty as manufactured by Hevi-Duty/Nelson, OR Approved Equal. Adhesive Firestop caulking/sealant shall be Nelson CLK Adhesive Firestop Sealant as manufactured by Hevi-Duty/Nelson, OR Approved Equal. Materials furnished for firestopping shall comply with ASTM E-84 and ASTM E-814. Comply with manufacturer's instructions for installation and suitability for application.
- 2.06 **FOAMED-IN-PLACE FIRE-STOPPING SEALANT:** Two-part, foamed-in-place, silicone sealant for use as part of a through-penetration fire-stop system for filling openings around cables, conduit, pipes and similar penetrations through walls and floors, with fire-resistance rating indicated, per ASTM E 814; listed by UL or other testing and inspecting agency acceptable to authorities having jurisdiction.

SECTION 079200 - JOINT SEALERS (continued):

- 2.07 **ONE-PART FIRE-STOPPING SEALANT:** One part elastomeric sealant formulated for use as part of a through-penetration fire-stop system for sealing openings around cables, conduit, pipes and similar penetrations through walls and floors, listed by UL or other testing and inspecting agency acceptable to authorities having jurisdiction.
- 2.08 **SEALANT BACKINGS, GENERAL:** Nonstaining; compatible with joint substrates, sealants, primers and other joint fillers; approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- A. **Elastomeric Tubing Joint-Fillers:** Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, capable of remaining resilient at temperatures down to -26 deg F (-15 deg C). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth and otherwise contribute to optimum sealant performance.
- B. **Bond-Breaker Tape:** Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing bond between sealant and joint filler or other materials at back of joint.
- 2.09 **PRIMER:** As recommended by joint sealer manufacturer where required for adhesion of sealant to joint substrates indicated.
- 2.10 **ACCESSORY MATERIALS FOR FIRE-STOPPING SEALANTS:** Forming, joint-fillers, packing and other accessory materials as required for installation of fire-stopping sealants.

PART 3 - EXECUTION

- 3.01 **GENERAL:** Comply with joint sealer manufacturers' instructions applicable to products and applications indicated.
- 3.02 **INSTALLATION:**
- A. **Elastomeric Sealant Installation Std:** Comply with ASTM C 962.
- B. **Latex Sealant Installation Standard:** Comply with ASTM C 790.
- C. **Acoustical Sealant Application Standard:** Comply with ASTM C 919 for use of joint sealants in acoustical applications.
- D. **Installation of Fire-Stopping Sealant:** Install sealant, including forming, packing and other accessory materials to fill openings around mechanical and electrical services penetrating floors and walls to provide fire-stops with fire resistance ratings indicated.
- E. **Protect Precast concrete panel joints** in accordance with one of the following:
1. For wall panels 6 inches in thickness or greater where the joint is a maximum of $\frac{3}{4}$ inches in width and sealed on each face with a Type S joint material in accordance ASTM C920. The panel thickness shall be measured perpendicular to the joint and at 1 inch or less from the joint center.
 2. For roof panels 4 inches in thickness or greater where the joint is a maximum of $\frac{3}{4}$ inches and sealed with a Type S joint material in accordance with ASTM C920. The panel thickness shall be measured perpendicular to the joint and at 1 inch or less from the joint center.

END OF SECTION 079200

SECTION 080500 - DOOR SCHEDULE															
ROOM	DOOR		DOOR SIZE			DOOR			FRAME			ASSEMBLY		NOTES/ COMMENTS	
	NO.	MARK	WIDTH	HT	THICK	TYPE	MATL	FINISH	TYPE	MATL	FINISH	LBL	HDWR		DETAIL
CLASSROOM BUILDING 23 - FIRST FLOOR															
CORRIDOR	100	100	(PR) 3' - 0"	7' - 0"	1 3/4"	B	HM	PT	HM2	HM	PT		1	1/A7.1	see note 12
CORRIDOR	100	100A	(PR) 3' - 0"	7' - 0"	1 3/4"	B	HM	PT	HM2	HM	PT		1	1/A7.1	see note 12
CORRIDOR	100	100B	(PR) 3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM2	HM	PT		2	2/A7.1	
CORRIDOR	100A	100C	(PR) 3' - 0"	7' - 0"	2 3/4"	B	HM	PT	HM2	HM	PT		1	1/A7.1	see note 12
STORAGE	102	102	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	S	8	2/A7.1	
STAIRS	103	103	(PR) 3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM2	HM	PT	90 M/S	11	4/A7.1	
STAIRS	103	103A	(PR) 3' - 0"	7' - 0"	1 3/4"	B	HM	PT	HM2	HM	PT		3	1/A7.0	see note 12
CLASSROOM	104	104	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	105	105	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	106	106	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	107	107	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	108	108	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	109	109	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CONFERENCE/WORK RM	110	110	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	20	2/A7.1	
OFFICE	110A	110A	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT		17	2/A7.1	
ITINERANT	110B	110B	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT		18	2/A7.1	
CLASSROOM	111	111	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
BOYS	112	112	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT		12	2/A7.1	
GIRLS	113	113	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT		12	2/A7.1	
SECRETARY	114	114	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT		16	2/A7.1	
SECRETARY	114	114D	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	6	2/A7.1	
OFFICE	114A	114A	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT		17	2/A7.1	
OFFICE	114B	114B	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT		17	2/A7.1	
OFFICE	114C	114C	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT		17	2/A7.1	
JANITOR	115	115	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	S	15	4/A7.1	U/C
MEN	116	116	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT		13	2/A7.1	U/C
WOMEN	117	117	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT		13	2/A7.1	U/C
ELEV. MACH. RM	118	118	3' - 4"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	1HR	8	4/A7.1	
CLASSROOM	119	119	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	

SECTION 080500 - DOOR SCHEDULE																	
ROOM		DOOR			DOOR SIZE			DOOR			FRAME			ASSEMBLY			NOTES/
NO.	MARK	WIDTH	HT	THICK	TYPE	MATL	FINISH	TYPE	MATL	FINISH	LBL	HDWR	DETAIL	COMMENTS			
CLASSROOM	120	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1				
CLASSROOM	121	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1				
CLASSROOM	122	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1				
COMMUNICATIONS	123	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	S	5	3/A7.1				
STORAGE	124	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	S	8	3/A7.1				
ELECTRICAL	125	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	S	7	3/A7.1				
STAIRS	126	(PR) 3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM2	HM	PT	90 M/S	11	4/A7.1				
STAIRS	126A	(PR) 3' - 0"	7' - 0"	1 3/4"	B	HM	PT	HM2	HM	PT		3	1/A7.1	see note 12			
MECHANICAL	127	(PR) 3' - 0"	7' - 0"	1 3/4"	A	HM	PT	HM2	HM	PT		4	1/A7.1	see note 12			
MECHANICAL YARD	128	(PR) 3' - 0"	7' - 0"	1 3/4"	A	HM	PT	HM2	HM	PT		32	3/A7.1	see note 12			
CLASSROOM BUILDING 23 - SECOND FLOOR																	
STORAGE	202	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM2	HM	PT	S	8	2/A7.1				
STAIRS	203	(PR) 3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM2	HM	PT	90 M/S	11	4/A7.1				
CLASSROOM	204	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1				
CLASSROOM	205	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1				
CLASSROOM	206	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1				
CLASSROOM	207	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1				
CLASSROOM	208	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1				
CLASSROOM	209	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1				
CLASSROOM	210	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1				
CLASSROOM	211	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1				
BOYS	212	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT		12	2/A7.1				
GIRLS	213	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT		12	2/A7.1				
JANITOR	214	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	S	15	4/A7.1	U/C			
TEACHER PLANNING	215	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	21	2/A7.1				
MEN	215A	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT		14	2/A7.1	U/C			
WOMEN	215B	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT		14	2/A7.1	U/C			
STORAGE	216	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	S	8	3/A7.1				
CLASSROOM	217	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1				

SECTION 080500 - DOOR SCHEDULE																
ROOM	DOOR			DOOR SIZE			DOOR			FRAME			ASSEMBLY			NOTES/ COMMENTS
	NO.	MARK	WIDTH	HT	THICK	TYPE	MATL	FINISH	TYPE	MATL	FINISH	LBL	HDWR	DETAIL		
CLASSROOM	218	218	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1		
CLASSROOM	219	219	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1		
CLASSROOM	220	220	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1		
STAIRS	221	221	(PR) 3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	90 M/S	11	4/A7.1		
ELECTRICAL	222	222	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	S	7	4/A7.1		
COMMUNICATIONS	223	223	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	S	5	2/A7.1		
MECHANICAL	224	224	(PR) 3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM2	HM	PT	S	10	2/A7.1		
STORAGE	225	225	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	S	9	2/A7.1		

SECTION 080500 - DOOR SCHEDULE NOTES:

GENERAL NOTES:

1. See Sheets A7.1 for Frame Elevations and details.
2. See Mechanical Drawings for location of undercut doors. Maximum undercut to be 3/4".
3. All doors are to be 1-3/4" thick unless otherwise noted.
4. All hardware shall have lever type handles.
5. All doors in the means of egress shall be operable from the inside without special key effort or knowledge.
6. Folding door hardware shall be operable by a force of not more than five (5) pounds when folding doors are fully open. Operating hardware shall be exposed and useable from both sides.
7. See Section 101440 - Signage for sign types.
8. All rated door assembly hardware butts to be ball bearing.
9. Use tempered glass in all doors with lites and sidelites, except at fire rated doors.
10. All rated doors shall be positively latched.
11. Use fire rated glazing in all fire rated doors with lites and sidelites.
12. Exterior Doors, Frames & Hardware on Building 23 to meet FEMA P-361 & ICC 500 wind speeds, pressures & Missile Impact criteria.

REMARKS:

1. See Sheet A1.0 for locations, Sheet A7.1 for elevations and Specification Section 323119 for gate hardware and details.
2. See Sheet LS1.1 for Maximum Occupancies Capacities.

SECTION 080500 - DOOR SCHEDULE NOTES:

DOOR SCHEDULE LEGEND

<u>ABBREVIATION</u>	<u>DEFINITION</u>
AL	ALUMINUM
ANOD	ANODIZED
HM	HOLLOW METAL
PR	PAIR OF DOORS
PT	PAINT
ST	STAIN
MTL	METAL
S	SMOKE DOOR (TO MEET UL 1784 AND TO HAVE CLOSER AND ARTIFICAL BOTTOM SEAL INSTALLED ACROSS THE FULL WIDTH OF THE BOTTOM OF THE DOOR ASSEMBLY)
STL	STEEL
WD	WOOD
Manf.	MANUFACTURER
UC	UNDER CUT
20 MIN	20 MINUTE FIRE-RATED DOOR AND FRAME ASSEMBLY.
45 MIN	45 MINUTE FIRE-RATED DOOR AND FRAME ASSEMBLY.
90 MIN.	1 1/2 HOUR FIRE-RATED DOOR AND FRAME ASSEMBLY.

END OF SECTION 080500

SECTION 080500 - DOOR SCHEDULE															
ROOM		DOOR	DOOR SIZE			DOOR			FRAME			ASSEMBLY			NOTES/
NAME	NO.	MARK	WIDTH	HT	THICK	TYPE	MATL	FINISH	TYPE	MATL	FINISH	LBL	HDWR	DETAIL	COMMENTS
CLASSROOM BUILDING 23 - FIRST FLOOR															
CORRIDOR	100	100	(PR) 3' - 0"	7' - 0"	1 3/4"	B	HM	PT	HM2	HM	PT		1	1/A7.1	see note 12
CORRIDOR	100	100A	(PR) 3' - 0"	7' - 0"	1 3/4"	B	HM	PT	HM2	HM	PT		1	1/A7.1	see note 12
CORRIDOR	100	100B	(PR) 3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM2	HM	PT		2	2/A7.1	
CORRIDOR	100A	100C	(PR) 3' - 0"	7' - 0"	2 3/4"	B	HM	PT	HM2	HM	PT		1	1/A7.1	see note 12
STORAGE	102	102	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	S	8	2/A7.1	
STAIRS	103	103	(PR) 3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM2	HM	PT	90 M/S	11	4/A7.1	
STAIRS	103	103A	(PR) 3' - 0"	7' - 0"	1 3/4"	B	HM	PT	HM2	HM	PT		3	1/A7.0	see note 12
CLASSROOM	104	104	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	105	105	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	106	106	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	107	107	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	108	108	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	109	109	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CONFERENCE/WORK RM	110	110	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	20	2/A7.1	
OFFICE	110A	110A	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT		17	2/A7.1	
ITINERANT	110B	110B	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT		18	2/A7.1	
CLASSROOM	111	111	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
BOYS	112	112	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT		12	2/A7.1	
GIRLS	113	113	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT		12	2/A7.1	
SECRETARY	114	114	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT		16	2/A7.1	
SECRETARY	114	114D	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	6	2/A7.1	
OFFICE	114A	114A	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT		17	2/A7.1	
OFFICE	114B	114B	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT		17	2/A7.1	
OFFICE	114C	114C	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT		17	2/A7.1	
JANITOR	115	115	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	S	15	4/A7.1	U/C
MEN	116	116	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT		13	2/A7.1	U/C
WOMEN	117	117	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT		13	2/A7.1	U/C
ELEV. MACH. RM	118	118	3' - 4"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	1HR	8	4/A7.1	
CLASSROOM	119	119	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	

SECTION 080500 - DOOR SCHEDULE															
ROOM		DOOR	DOOR SIZE			DOOR			FRAME			ASSEMBLY			NOTES/
NAME	NO.	MARK	WIDTH	HT	THICK	TYPE	MATL	FINISH	TYPE	MATL	FINISH	LBL	HDWR	DETAIL	COMMENTS
CLASSROOM	120	120	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	121	121	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	122	122	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
COMMUNICATIONS	123	123	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	S	5	3/A7.1	
STORAGE	124	124	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	S	8	3/A7.1	
ELECTRICAL	125	125	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	S	7	3/A7.1	
STAIRS	126	126	(PR) 3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM2	HM	PT	90 M/S	11	4/A7.1	
STAIRS	126	126A	(PR) 3' - 0"	7' - 0"	1 3/4"	B	HM	PT	HM2	HM	PT		3	1/A7.1	see note 12
MECHANICAL	127	127	(PR) 3' - 0"	7' - 0"	1 3/4"	A	HM	PT	HM2	HM	PT		4	1/A7.1	see note 12
MECHANICAL YARD	128	128	(PR) 3' - 0"	7' - 0"	1 3/4"	A	HM	PT	HM2	HM	PT		32	3/A7.1	see note 12
CLASSROOM BUILDING 23 - SECOND FLOOR															
STORAGE	202	202	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM2	HM	PT	S	8	2/A7.1	
STAIRS	203	203	(PR) 3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM2	HM	PT	90 M/S	11	4/A7.1	
CLASSROOM	204	204	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	205	205	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	206	206	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	207	207	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	208	208	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	209	209	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	210	210	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	211	211	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
BOYS	212	212	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT		12	2/A7.1	
GIRLS	213	213	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT		12	2/A7.1	
JANITOR	214	214	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	S	15	4/A7.1	U/C
TEACHER PLANNING	215	215	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	21	2/A7.1	
MEN	215A	215A	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT		14	2/A7.1	U/C
WOMEN	215B	215B	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT		14	2/A7.1	U/C
STORAGE	216	216	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	S	8	3/A7.1	
CLASSROOM	217	217	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	

SECTION 080500 - DOOR SCHEDULE															
ROOM		DOOR	DOOR SIZE			DOOR			FRAME			ASSEMBLY			NOTES/
NAME	NO.	MARK	WIDTH	HT	THICK	TYPE	MATL	FINISH	TYPE	MATL	FINISH	LBL	HDWR	DETAIL	COMMENTS
CLASSROOM	218	218	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	219	219	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
CLASSROOM	220	220	3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	S	19	2/A7.1	
STAIRS	221	221	(PR) 3' - 0"	7' - 0"	1 3/4"	B	WD	ST	HM1	HM	PT	90 M/S	11	4/A7.1	
ELECTRICAL	222	222	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	S	7	4/A7.1	
COMMUNICATIONS	223	223	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	S	5	2/A7.1	
MECHANICAL	224	224	(PR) 3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM2	HM	PT	S	10	2/A7.1	
STORAGE	225	225	3' - 0"	7' - 0"	1 3/4"	A	WD	ST	HM1	HM	PT	S	9	2/A7.1	

SECTION 081113 – HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

- 1.01 STANDARDS: In addition to other specified requirements, comply with Steel Door Institute "Recommended Specifications for Standard Steel Doors and Frames" (SDI-100), for the following classifications:
- A. Interior Doors: SDI-100, Grade III, heavy-duty, Model 1, minimum 18-gage faces.
 - B. Exterior Doors: SDI-100, Grade III, extra heavy-duty, Model 2, minimum 16-gage faces.
- 1.02 SUBMITTALS: With manufacturer's standard details and specifications for steel doors and frames, submit shop drawings showing application to project, as required.
- 1.03 FIRE-RATED ASSEMBLIES: Provide units that display appropriate UL or FM labels for fire-rating indicated.
- 1.04 THERMAL INSULATED ASSEMBLIES: Provide thermal insulating door and frame assemblies tested in accordance with ASTM C 236, with U factor of 0.24 Btu/(hr x sq ft x deg. F) or better at all exterior locations.
- 1.05 TORNADO SHELTER, BUILDING 23, ASSEMBLIES: Provide thermal insulating door and frame assemblies tested in accordance with ASTM C 236, with U factor of 0.24 Btu/(hr x sq ft x deg. F) or better at all exterior locations. The Classroom Building's velocity and pressures are based on 200 mph; see S0.1 for the requirements on Components and Cladding. All exterior door assemblies to meet ASCE 7-22. The missile testing for all exterior components of **Classroom Building 23** shall be a **15-pound (6.8 kg) sawn lumber 2 by 4** traveling **90 mph Vertical Surfaces 60 mph Horizontal Surfaces**. Door & frame assembly must be successfully missile impact & pressure tested to meet **ASTM E1886, ASTM 1996, TAS 201, TAS 202 and TAS 203**.

PART 2 - PRODUCTS

- 2.01 MANUFACTURER: One of the following OR Approved Equal:
- Amweld Building Products, Inc.
 - Ceco Door Products.
 - Curries Co.
 - Mesker Door, Inc.
 - Pioneer Industries, Inc.
 - Steelcraft / Division of Ingersoll Rand.
 - Republic Builders Products.
- 2.02 MATERIALS: Steel doors and frames to be hot-rolled and pickled per ASTM A 569 and A 568; hot dip, galvanized, then quenched for protection in transport and storage.
- A. Galvanized sheets: ASTM A 526 with ASTM A 525, A 60 zinc coating, mill phosphatized. (At exterior doors and frames).
 - B. Anchors and Accessories: Manufacturer's standard units. Use galvanized items for units built into exterior walls, complying with ASTM A 153.
 - C. Doors: Comply with SDI-100, of the types and styles indicated, for materials quality, metal gages, and construction details.
 - 1. Provide top cap at all exterior doors.
 - 2. Design wind velocity at the project site is 145 mph for all buildings except the 2-story, Classroom Building 23, which houses a Tornado Safe Room on the 1st floor.

SECTION 081113 – HOLLOW METAL DOORS AND FRAMES (continued):

- D. Door Frames: All frames shall be 16 gage and comply with SDI-100, of the types and styles indicated, for materials quality, metal gages, and construction details.
1. Provide standard hollow metal frames for doors, transoms, sidelights, borrowed lights, and other openings as indicated.
 2. Prepare frames to receive 3 silencers on strike jambs of single-swing frames and 2 silencers on heads of double-swing frames.
 3. Provide 26-gauge steel plaster guards or mortar boxes, welded to frame, at back of hardware cutouts where installed in concrete, masonry or plaster openings.
 4. All fire rated frames shall be labeled with a permanently affixed raised metal tag located on the hinge side of frame. Stenciled or paper labels shall not be used.
- 2.03 FABRICATION: Fabricate units to be rigid, neat in appearance, and free from defects, warp or buckle. Weld exposed joints continuously, grind, dress, and make smooth, flush and invisible.
- A. Prepare steel doors and frames to receive mortised and concealed finish hardware, including cutouts, reinforcing, drilling and tapping, complying with ANSI A 115 "Specifications for Door and Frame Preparation for Hardware".
 - B. Reinforce units to receive surface-applied finish hardware to be field applied.
 - C. Locate finish hardware as indicated or, if not indicated, per DHI "Recommended Locations for Builder's Hardware".
- 2.04 Shop paint exposed surfaces of doors and frame units, including galvanized surfaces, using manufacturer's standard baked-on rust inhibitive primer.

PART 3 - EXECUTION

- 3.01 INSTALLATION: Install hollow-metal units in accordance with manufacturer's instructions and final shop drawings (if any). Fit doors to frames and floors with clearances specified in SDI-100.
- A. Install fire-rated units in accordance with NFPA Std. No. 80.
 - B. Finish hardware is specified in another Division-8 section.

END OF SECTION 081113

SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

- 1.01 QUALITY STANDARDS: Comply with ANSI/WDMA I.S. 1-A
- 1.02 SUBMITTALS: In addition to product data, submit Samples 1'-0" square, of each type of core construction, face material and finish required.
- 1.03 WARRANTY: Provide manufacturer's life time of installation warranty for interior wood doors.

PART 2 - PRODUCTS

- 2.01 APPROVED MANUFACTURERS & SERIES: Subject to compliance with requirements, provide wood doors by one of the following:
- Masonite - Algoma-Marshfield: Aspiro Series OR Approved Equal
- 2.02 GENERAL WOOD DOOR PRODUCT REQUIREMENTS: Provide doors with same exposed surface material on both faces of each door, unless otherwise indicated.
- A. Louvers: Manufacturer's standard louvers of type, materials and size indicated:
1. Material: Color anodized aluminum.
- 2.03 INTERIOR SOLID CORE DOORS FOR TRANSPARENT FINISH: As follows:
- A. Faces: Natural Birch, plain sliced.
- B. Grade: AA
- C. Veneer Leaf Match: Slip match
- D. Veneer Face Match/Assembly: Running
- E. Construction: PC-5 (Particleboard core, 5-ply).
- F. Finish: To be selected from manufacturer's select stain options.
- G. Metal Frames for Light Openings: Manufacturer's standard 18-gage cold-rolled steel frame, **factory-primed, to be painted in field. Color to be selected by Architect.**
- 2.04 INTERIOR FIRE-RATED SOLID CORE DOORS: Labeled and listed for rating indicated, by testing and inspection agency acceptable to authorities having jurisdiction, complying with the following requirements:
- A. Faces and AWI Grade: Match faces of non-rated doors in same area of building, unless otherwise indicated.
- B. Edge Construction: Manufacturer's standard laminated edge construction for improved screw-holding capability and split resistance.
- C. Pairs: Furnished formed steel edges and astragals for pairs of fire-rated doors, unless otherwise indicated.
- D. Metal Frames for Light Openings in Fire Doors: Manufacturer's standard 18-gage cold-rolled steel frame, factory-primed, approved for use in door of fire-rating indicated.
- E. All doors in stairwells shall be temperature rise doors.

SECTION 081416 - FLUSH WOOD DOORS (continued):

- F. Fire rated doors shall be labeled with a permanently affixed raised metal tag located on the hinge side of the door. Stenciled or paper labels shall not be used.
- 2.05 **FABRICATION:** Fabricate flush wood doors to produce doors complying with following requirements:
- A. **In sizes indicated** for job-site fitting.
 - B. **Metal Astragals:** Pre-machine astragals and formed steel edges for hardware where required for pairs of fire-rated doors.
 - C. **Openings:** Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of doors required.
 - 1. **Light Openings:** Trim openings with moldings of material and profile indicated.
 - D. **Louvers:** Factory install louvers in prepared openings.
- 2.06 **SHOP SEAL** faces and edges of doors for field-applied transparent finish with stain (if required) and other required pre-treatments and first coat of finish as specified in Division-9 section "Painting".

PART 3 - EXECUTION

- 3.01 **INSTALLATION:**
- A. **Install wood doors** to comply with manufacturer's instructions and of referenced AWI standard and as indicated.
 - B. **Install fire-rated doors** in corresponding fire-rated frames in accordance with requirements of NFPA No. 80.
- 3.02 **ALIGN AND FIT** doors in frames with uniform clearances and bevels. Machine doors for hardware. Seal cut surfaces after fitting and machining.
- 3.03 **PRE-FIT DOORS:** Fit to frames for uniform clearance at each edge.

END OF SECTION 081416

SECTION 083113 - ACCESS DOORS AND FRAMES

Quality Assurance:

Obtain access doors for entire project from one source from a single manufacturer.

Fire-Resistance Ratings: Provide UL listed access doors for rating shown.

Submittals: Manufacturer's standard details, specifications and installation instructions.

Warranty: Provide manufacturer's standard five (5) year warranty.

Products:

Manufacturers: One of the following:

Bar-Co., Inc.
Bilco
Cesco Products
J.L. Industries
Karp Associates, Inc.
Milcor, Inc.
Nystrom, Inc.
The Williams Brothers Corp.

Door and Frame: Access door shall be Model No. 3218-028 (24" x 36") as manufactured by Milcor Metal Access Door OR approved equal. Door leaf shall be 20 ga. door panel recessed to accept 5/8" GWB insert. Channel frame shall be 1/4" steel with an anchor flange around the perimeter. Material shall be primer painted steel. Hinge shall be continuous stainless steel pin type. Integrated concealed spring system shall be provided with self-latching hardware. All doors shall be equipped with key operated cylinder lock and interior latch release mechanism.

Locking Devices: Provide one cylinder lock per access door, with 2 keys per lock.

Location: **General Contractor to install where needed in walls and ceilings to access mechanical, plumbing, and electrical systems that require regular maintenance and/or resetting of dampers and/or access to ceiling mounted vendor equipment for required connections.**

Coordinate locations in GWB ceiling for access to existing utilities above the ceiling and access for AHJ to view smoketight and rated wall penetrations, if applicable.

Coordinate locations of access panels with electrical drawings.

Execution:

Installation: Coordinate installation with work of other trades and locate accurately. Comply with manufacturer's instructions for secure attachment, proper relation to adjacent finished surfaces and proper operation.

END OF SECTION 083113

SECTION 085113 - ALUMINUM WINDOWS

PART 1 - GENERAL

1.01 Standards: Comply with applicable requirements for aluminum windows, terminology and standards of performance, and fabrication workmanship specified in ANSI/AAMA 101-88.

1.02 SYSTEM DESCRIPTION

- A. Standard Window Design Requirements: Comply with air infiltration, water penetration and structural performance requirements indicated in AAMA 101-88 for the type, grade and performance class of window units required.
1. The "Performance Class Number" included as a part of the window designation system is the actual design pressure in pounds per sq. ft. used to determine the structural test pressure and the water test pressure.
 2. Where the required design pressure exceeds the minimum for the specified window grade, comply with requirements of AAMA 101-88, Section 3, "Optional Performance Classes" for higher than minimum performance class.
 3. Design wind velocity at the project site is 145 mph for all buildings except the 2-story Classroom Building 23, which houses a Tornado Safe Room on the 1st floor.
 - a. The Classroom Building's velocity and pressures are to be based on 200 mph; see sheet S0.1 for the requirements on Components and Cladding. The missile testing for all exterior components of **Classroom Building 23** shall be a **15-pound (6.8 kg) sawn lumber 2 by 4** traveling **90 mph Vertical Surfaces 60 mph Horizontal Surfaces** per the ICC 500. Window, glazing & frame assembly must be successfully missile impact & pressure tested **to meet ASTM E1886, ASTM 1996, TAS 201, TAS 202 and TAS 203.**
 4. All exterior window assemblies to meet ASCE 7-22.
- B. Sizes and Profiles: Required sizes for window units and profile requirements are indicated on the drawings. Variable dimensions are indicated along with maximum and minimum dimensions as required to achieve design requirements and coordination with other work.
- C. Thermal-Break Construction: Fabricate aluminum window units with integrally concealed low conductance thermal barrier, located between exterior materials and members exposed on the interior, in a manner that eliminates direct metal-to-metal contact.
1. Provide weepholes and internal water passages to conduct infiltrating water to the exterior.

1.03 SUBMITTALS

- A. Submit product data, including half-size details of each typical section, showing glazing details. Submit specific information on operating parts, hardware, weatherstripping, finishes for aluminum and pre-glazed construction.
- B. Submit shop drawings showing elevations, details and anchorages for work not detailed in product data.
- C. Submit finish samples of 8" long extrusions of typical sections.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who has completed installation of aluminum windows similar in design and extent to those required for the project and whose work has resulted in construction with a record of successful in-service performance.
- B. Standards: Requirements for aluminum windows, terminology and standards of performance, and fabrication workmanship are those specified and recommended in AAMA 101 and applicable general recommendations published by AAMA.

SECTION 085113 - ALUMINUM WINDOWS (continued):

- C. Single-Source Responsibility: Provide aluminum window units from one source and produced by a single manufacturer.
 - D. Pre-Installation Conference:
 - 1. Comply with Section 013200 – Project Meetings.
 - 2. Convene one week before starting work of this section.
- 1.04 WARRANTIES: The Contractor shall assume full responsibility and warrant for one year the satisfactory performance of the total window installation which includes that of the windows, hardware, glazing, anchorage and setting system, sealing, flashing, etc. as it relates to air, water, and structural adequacy as called for in the specifications and approved shop drawings. Provide window manufacturer's standard five (5) year written warranty agreeing to repair or replace window units that fail in materials or workmanship within the specified warranty period. Failures include but are not necessarily limited to:
- A. Structural failures including excessive deflection, excessive leakage, or air infiltration.
 - B. Faulty operation of sash and hardware.
 - C. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

Any deficiencies due to such elements not meeting the specifications shall be corrected by the Contractor at his expense during warranty period.

PART 2 - PRODUCTS

- 2.01 MANUFACTURERS: Provide aluminum casement and fixed window "Series 3250i-HP-XLT Hurricane XTherm"; horizontal sliding window "Series 3502" by EFCO Corp. or equal window by one of the following:
- A. Graham Architectural Products Corporation,
 - B. Kawneer Company Inc.
 - C. Modu-Line Windows
- 2.02 Types (Operation): The drawings indicate locations of outswinging casement (standard and egress), and horizontal sliding window units.
- 2.03 Grade (Classification): Provide window units of grade and performance class; C-HC120 for Casement Units; HS-AW50 for Horizontal Sliding Units.
- 2.04 MATERIALS
- A. Aluminum Extrusions: Provide alloy and temper recommended by the window manufacturer for strength, corrosion-resistance, and application of required finish, but not less than 22,000 psi ultimate tensile strength and not less than 0.125" thickness at any location for main frame and sash members.
 - 1. Extruded aluminum billet, 6063-T5 or T6 alloy for primary non-radius components; 6063-T5 or T6, 6005-T5, 6105-T5 or 6061-T6 for anchor components; all meeting the requirements of ASTM B221.
 - 2. Aluminum sheet alloy 5005-H32 (for anodic finishing), or alloy 3003-H14 (for painted or unfinished sheet) meeting the requirements of ASTM B209.
 - 3. Principal window frame and sash ventilator members will be a minimum 0.125" in thickness at hardware mounting locations.
 - 4. Extruded or formed trim components will be a minimum 0.060" in thickness.
 - 5. Frame depth 3 1/2" minimum.
 - 6. Sash ventilator sections must be tubular, and close flush with adjoining frame surfaces at interior and exterior.
 - i. Overlap sash ventilators will not be accepted.

SECTION 085113 - ALUMINUM WINDOWS (continued):

- B. Fasteners: Provide aluminum, non-magnetic stainless steel, epoxy adhesive, or other materials warranted by the manufacturer to be non-corrosive and compatible with aluminum window members, trim, hardware, anchors and other components of window units.

Where fasteners screw-anchor into aluminum less than 0.125" thick, reinforce the interior with aluminum or non-magnetic stainless steel to receive screw threads, or provide standard non-corrosive pressed-in splined grommet nuts.

Except where unavoidable for application of hardware, do not use exposed fasteners. For application of hardware, use fasteners that match finish of member or hardware being fastened, as appropriate.

2.05 COMPONENTS:

- A. Hardware: Provide manufacturer's standard hardware of type (operational function) indicated, for required type and grade of window units. Provide push-out egress hardware on (1) one window per classroom.

1. All steel components including attachment fasteners to be stainless steel except as noted.
2. Extruded aluminum components 6063-T5 or -T6.
3. Locking handles, bases and strikes to be die cast, white bronze or stainless steel in manufacturer's standard surface finish.
4. Thermo-plastic or thermo-set plastic caps, housings and other components to be injection-molded nylon, extruded PVC, or other suitable compound.
5. Hardware to be occupant-operated

- B. Sealants

1. All sealants shall comply with applicable provisions of AAMA 800 and/or Federal Specifications FS-TT-001 and 002 Series.
2. Frame joinery sealants shall be suitable for application specified and as tested and approved by window manufacturer.

- C. Glass

1. Provide in accordance with Section 08 80 00.
2. Sealed insulating glass shall be tested and certified in accordance with ASTM E2190.

- D. Glazing

1. Provide in general accordance with Section 08 80 00.
2. Glazing method shall be in general accordance with the GANA Glazing Manual for specified glass type, or as approved by the glass fabricator.

- E. Glazing Materials

1. Setting Blocks/Edge Blocking: Provide in sizes and locations recommended by GANA Glazing Manual. Setting blocks used in conjunction with soft-coat low-e glass shall be silicone.
2. Back-bedding tapes, expanded cellular glazing tapes, toe beads, heel beads and cap beads shall meet the requirements of applicable specifications cited in AAMA 800.
3. Glazing gaskets shall be non-shrinking, weather-resistant, and compatible with all materials in contact.
4. Structural silicone sealant where used shall meet the requirements of ASTM C1184.
5. Spacer tape in continuous contact with structural silicone shall be tested for compatibility and approved by the sealant manufacturer for the intended application.
6. Gaskets in continuous contact with structural silicone shall be extruded silicone or compatible material.

- F. Muntins:

1. Provide muntin grids as shown on architectural drawings.
2. Finish to match window frames.

SECTION 085113 - ALUMINUM WINDOWS (continued):

- G. Panning:
 - 1. Panning shall be pre-assembled, and all joinery back sealed prior to installation.
 - 2. Finish to match window frames.
- H. Receptors:
 - 1. Provide extruded aluminum receptors to receive windows, as shown on architectural drawings.
 - 2. Finish to match window frames.
- I. Insect Screens:
 - 1. Tubular extruded aluminum frames shall meet the requirements of ANSI/SMA 1004.
 - 2. Screen frame finish to match window frames.
 - 3. Aluminum cloth shall comply with GSA-FS-RR-W-365 and USDC-CS-138 with 18 x 16 mesh.
 - 4. Cloth mesh color shall be charcoal.
- J. Weatherstripping: Provide the manufacturer's standard weatherstripping at each edge of each operable sash.
- K. Limit restrictors shall be provided at all walkway locations and shall limit the edge of the window from projecting beyond the face of the window.

2.05 FABRICATION

- A. General:
 - 1. Finish, fabricate and shop assemble frame and sash ventilator members into complete windows under the responsibility of one manufacturer.
 - 2. No bolts, screws or fastenings shall impair independent frame movement, or bridge the thermal barrier, unless such bridging was also present in thermal test units and thermal models.
 - 3. Fabricate to allow for thermal movement of materials when subjected to a temperature differential from -30 °F to +180 °F.
 - 4. Include a complete system for assembly of components and anchorage of window units.
- B. Frames:
 - 1. Cope and mechanically fasten each corner, or miter and weld, or corner block each corner; then seal weather tight.
 - 2. Make provisions for continuity of frame joinery seals at extrusion webs.
- C. Main Sash Ventilator
 - 1. Miter all corners and mechanically stake over a solid extruded aluminum corner block, set and sealed in epoxy, leaving hairline joinery, then sealed weather tight.
 - 2. Make provisions for continuity of sash ventilator joinery seals at extrusion webs.
- D. Preglazed Fabrication:
 - 1. Preglaze window units at the factory where possible and practical for applications indicated. Comply with glass and glazing requirements of the "Glass and Glazing" sections of these specifications, and AAMA 101.
- E. Hardware:
 - 1. Concealed Hinges
 - a. Provide two stainless steel concealed four-bar adjustable friction hinges per vent meeting AAMA 904.1.
 - 2. Locks
 - a. Die cast, lacquered or e-coated white bronze, or stainless-steel cam locks, strikes and/or keepers for manual operation shall secure sash in closed position.

SECTION 085113 - ALUMINUM WINDOWS (continued):

- b. Provide locks for ventilators at maximum 40" spacing; 50" for single operator multi-lock hardware.
 - c. Provide double grip hardware activated by a lower device for locks exceeding 6'-0" from floor.
3. Egress Provisions and Egress Hardware
- a. Make provisions for egress in case of emergency at (1) one window per classroom.
- F. Thermal Break Construction:
- 1. Continuous extruded polyamide with 25% glass fiber reinforcing, mechanically crimped into cross-knurled cavities.
 - 2. Minimum thermal barrier width 24 mm.
 - 3. Quality assurance records must be maintained and available as requested.
- G. Weather-stripping:
- 1. Bulb- or fin-type neoprene, EPDM, dual-durometer PVC, polypropylene, TPE, or other suitable material as tested and approved by the window manufacturer.
 - 2. Miter, crowd, stake or join at corners. Provide drainage to exterior as necessary.
 - 3. Weather-stripping shall provide an effective seal at the interior face of the sash ventilator.

2.06 FINISHES

- A. General: Comply with NAAMM "Metal Finishes Manual" for recommendations relative to application and designations of finishes.
- B. Finish designations prefixed by "AA" conform to the system established by the Aluminum Association for designating aluminum finishes.
- C. Aluminum Finish: AAMA 607 clear anodized aluminum finish conforming to AA-M10-C22-A41 Class I, 1.7 mils thick.

PART 3 - EXECUTION

3.01 INSPECTION:

- A. Inspect openings before beginning installation. Verify that rough or masonry opening is correct and the sill plate is level.

3.02 Installation:

- A. Anchor window units securely in place, with permanent separations to prevent electrolytic corrosion. Seal the entire perimeter of each unit as shown; comply with applicable requirements of the "Joint Sealant" section.
- B. Adjust and lubricate operating sash and hardware for proper operation.
- C. Clean aluminum surfaces promptly after installation; do not damage protective coating. Repair minor damage to the finish. Clean glass promptly after installation.

END OF SECTION 085113

SECTION 08 71 00 - DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Hardware for non-rated, smoke-rated, and fire-rated swinging doors.
- B. Thresholds.
- C. Weatherstripping and gasketing.

1.02 RELATED REQUIREMENTS

- A. Section 06 20 00 - Finish Carpentry: Wood door frames.
- B. Section 06 41 00 - Architectural Wood Casework: Cabinet hardware.
- C. Section 08 06 71 - Door Hardware Schedule: Schedule of door hardware sets.
- D. Section 08 11 13 - Hollow Metal Doors and Frames.
- E. Section 08 12 13 - Hollow Metal Frames.
- F. Section 08 14 16 - Flush Wood Doors.
- G. Section 08 14 33 - Stile and Rail Wood Doors.
- H. Section 08 43 13 - Aluminum-Framed Storefronts: Door hardware, except as noted in section.

1.03 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.
- B. BHMA A156.1 - Standard for Butts and Hinges 2021.
- C. BHMA A156.3 - Exit Devices 2020.
- D. BHMA A156.4 - Door Controls - Closers 2019.
- E. BHMA A156.5 - Cylinders and Input Devices for Locks 2020.
- F. BHMA A156.6 - Standard for Architectural Door Trim 2021.
- G. BHMA A156.7 - Template Hinge Dimensions 2016.
- H. BHMA A156.13 - Mortise Locks & Latches Series 1000 2017.
- I. BHMA A156.18 - Materials and Finishes 2020.
- J. BHMA A156.21 - Thresholds 2019.
- K. BHMA A156.22 - Standard for Gasketing 2021.
- L. BHMA A156.26 - Standard for Continuous Hinges 2021.
- M. BHMA A156.28 - Recommended Practices For Mechanical Keying Systems 2018.
- N. BHMA A156.115 - Hardware Preparation In Steel Doors And Steel Frames 2016.
- O. BHMA A156.115W - Hardware Preparation in Wood Doors with Wood or Steel Frames 2006.
- P. DHI (H&S) - Sequence and Format for the Hardware Schedule 2019.
- Q. DHI (KSN) - Keying Systems and Nomenclature 2019.
- R. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames 2004.
- S. DHI WDHS.3 - Recommended Locations for Architectural Hardware for Flush Wood Doors 1993 and in WDHS-1/WDHS-5 Series, 1996.
- T. ICC 500 - International Building Code, ALL Sections, and especially Sections 507, 702 & Chapter 8
- U. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.

- V. ITS (DIR) - Directory of Listed Products current edition.
- W. NFPA 80 - Standard for Fire Doors and Other Opening Protectives 2022.
- X. NFPA 101 - Life Safety Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- Y. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives 2022.
- Z. FEMA P-361 – Safe Rooms for Tornadoes and Hurricanes

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the manufacture, fabrication, and installation of products that door hardware is installed on.
- B. Sequence installation to ensure facility services connections are achieved in an orderly and expeditious manner.
- C. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.
- D. Keying Requirements Meeting:
 - A. Attendance Required:
 - a. Owner.
 - b. Installer's Architectural Hardware Consultant (AHC).
 - c. Owner's Security Consultant.
 - B. Agenda:
 - a. Establish keying requirements.
 - b. Verify locksets and locking hardware are functionally correct for project requirements.
 - c. Verify that keying and programming complies with project requirements.
 - d. Establish keying submittal schedule and update requirements.
 - C. Deliver established keying requirements to manufacturers.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements for submittal procedures.
- B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.
- C. Shop Drawings - Door Hardware Schedule: A detailed listing that includes each item of hardware to be installed on each door.
 - A. Prepared by or under supervision of Architectural Hardware Consultant (AHC).
 - B. Comply with DHI (H&S) using door numbering scheme and hardware set numbers as indicated in Contract Documents.
 - a. Submit in vertical format.
 - C. List groups and suffixes in proper sequence.
 - D. Include complete description for each door listed.
- D. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.
- E. Keying Schedule:
 - A. Submit three (3) copies of Keying Schedule in compliance with requirements established during Keying Requirements Meeting unless otherwise indicated.
 - B. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner to approve submitted keying schedule prior to the ordering of permanent cylinders.
- F. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

- G. Wiring Diagrams: Furnish custom wiring diagrams for electrified hardware interfacing all electrical components in point-to-point wiring diagrams and elevation drawings. Drawings are to show the door number, the location of all accessories such as power supplies, relays, junction boxes, wire type and size and wire runs. Provide 6 copies along with the Finish Hardware schedule. Meet with the Electrical Contractor and the installation team for proper coordination.
- H. Certificate of Compliance: Submit a Certificate of Compliance from the manufacturer that the electronic hardware and systems being supplied comply with the operational descriptions exactly as described within this specification. Provide 3 copies.
- I. **Informational Submittals**:
 - 1. Within the State of Florida, provide a copy of current State of Florida Product Approval as proof of compliance that doors, frames and hardware for exterior opening assemblies have been tested and approved for use at the wind load and design pressure level requirements specified for the Project. See S0.1 for pressure requirements on Components & Cladding.
 - a. Classroom Building 23's velocity and pressures are based on 200 mph. Classroom Building 23's missile testing for all exterior components shall pass a **15-pound (6.8 kg) sawn lumber 2 by 4** traveling **90 mph Vertical Surfaces 60 mph Horizontal Surfaces as per ICC 500**.
 - b. ~~All other Building's velocity and pressures are based on 145 mph and shall pass the large missile impact tests of FBC Chapter 16.~~
 - 2. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

1.06 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Installer Qualifications: Installers, trained by the primary product manufacturers, with a minimum 3 years documented experience installing both standard and electrified builders' hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor in good standing by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
 - a. Scheduling Responsibility: Preparation of door hardware and keying schedules.
- D. Source Limitations: Obtain each type and variety of Door Hardware specified in this Section from a single source, qualified supplier unless otherwise indicated.
 - a. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third-party source will not be accepted.

- b. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.
- E. Regulatory Requirements: Comply with NFPA 70, NFPA 80, NFPA 101 and ANSI A117.1 requirements and guidelines as directed in the Building code including, but not limited to, the following:
- a. NFPA 70 "National Electrical Code", including electrical components, devices, and accessories listed and labeled as defined in Article 100 by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
 - b. Where indicated to comply with accessibility requirements, comply with Americans with Disabilities Act (ADA), "Accessibility Guidelines for Buildings and Facilities (ADAAG)," ANSI A117.1 as follows:
 - 1) Handles, Pulls, Latches, Locks, and other Operating Devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.
 - 2) Door Closers: Comply with the following maximum opening-force requirements indicated:
 - (a) Interior Hinged Doors: 5 lbf applied perpendicular to door.
 - (b) Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
 - 3) Thresholds: Not more than 1/2 inch high. Bevel raised thresholds with a slope of not more than 1:2.
 - c. NFPA 101: Comply with the following for means of egress doors:
 - 1) Latches, Locks, and Exit Devices: Not more than 15 lbf to release the latch. Locks shall not require the use of a key, tool, or special knowledge for operation.
 - 2) Thresholds: Not more than 1/2 inch high.
 - d. Fire-Rated Door Assemblies: Provide door hardware for assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252 (neutral pressure at 40" above sill) or UL-10C.
 - 1) Test Pressure: Positive pressure labeling.
- F. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.
- G. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
- a. Function of building, purpose of each area and degree of security required.
 - b. Plans for existing and future key system expansion.
 - c. Requirements for key control storage and software.
 - d. Installation of permanent keys, cylinder cores and software.
 - e. Address and requirements for delivery of keys.

- H. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
 - a. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
 - b. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
 - c. Review sequence of operation narratives for each unique access controlled opening.
 - d. Review and finalize construction schedule and verify availability of materials.
 - e. Review the required inspecting, testing, commissioning, and demonstration procedures
- I. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.08 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.
- C. Door and Frame Preparation: Related Division 08 Sections (Steel, Aluminum and Wood) doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.09 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrently with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
 - a. Structural failures including excessive deflection, cracking, or breakage.
 - b. Faulty operation of the hardware.
 - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - d. Electrical component defects and failures within the systems operation.
- C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.
- D. Special Warranty Periods:
 - a. Ten years for mortise locks and latches.
 - b. Seven years for heavy duty cylindrical (bored) locks and latches.
 - c. Five years for exit hardware.
 - d. Twenty-five years for manual surface door closers.
 - e. Two years for electromechanical door hardware.

1.10 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.
- B. Continuing Service: Beginning at Substantial Completion, and running concurrently with the specified warranty period, provide continuous (6) months full maintenance including repair and replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door opening operation. Provide parts and supplies as used in the manufacture and installation of original products.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.
- B. Provide individual items of single type, of same model, and by same manufacturer.
- C. Locks: Provide a lock for each door, unless it's indicated that lock is not required.
 - A. Lock Function: Provide lock and latch function numbers and descriptions of manufacturer's Series. As indicated in hardware sets.
 - B. Trim: Provide lever handle or pull trim on outside of each lock, unless otherwise indicated.
 - C. Strikes:
 - a. Finish: To match lock or latch.

- b. Curved-Lip Strikes: Provide as standard, with extended lip to protect frame, unless otherwise indicated.
 - c. Center Strike At Pairs of Doors: 7/8 inch (22.2 mm) lip.
- D. Closers:
 - A. Provide door closer on each exterior door, unless otherwise indicated.
 - B. Provide door closer on each fire-rated and smoke-rated door.
- E. Drip Guards: Provide at head of out swinging exterior doors unless protected by roof or canopy directly overhead.
- F. Thresholds:
 - A. Exterior Applications: Provide at each exterior door, unless otherwise indicated.
- G. Weatherstripping and Gasketing:
 - A. Provide weatherstripping on each exterior door at head, jambs, and meeting stiles of door pairs, unless otherwise indicated.
 - B. Provide door bottom sweep on each exterior door, unless otherwise indicated.
- H. Fasteners:
 - A. Provide fasteners of proper type, size, quantity, and finish that comply with commercially recognized standards for proposed applications.
 - a. Aluminum fasteners are not permitted.
 - b. Provide Phillips flat-head screws with heads finished to match door surface hardware unless otherwise indicated.
 - B. Provide machine screws for attachment to reinforced hollow metal and aluminum frames.
 - a. Self-drilling (Tek) type screws are not permitted.
 - C. Provide stainless steel machine screws and lead expansion shields for concrete and masonry substrates.
 - D. Provide wall grip inserts for hollow wall construction.
 - E. Fire-Resistance-Rated Applications: Comply with NFPA 80.
 - a. Provide wood or machine screws for hinges mortised to doors or frames, strike plates to frames, and closers to doors and frames.
 - b. Provide steel through bolts for attachment of surface mounted closers, hinges, or exit devices to door panels unless proper door blocking is provided.

2.02 PERFORMANCE REQUIREMENTS

- A. Provide door hardware products that comply with the following requirements:
 - A. Applicable provisions of federal, state, and local codes.
 - a. NFPA 101.
 - B. Accessibility: ADA Standards and ICC A117.1.
 - C. Fire-Resistance-Rated Doors: NFPA 80, listed and labeled by qualified testing agency for fire protection ratings indicated, based on testing at positive pressure in accordance with NFPA 252 or UL 10C.
 - D. Hardware Preparation for Steel Doors and Steel Frames: BHMA A156.115.
 - E. Hardware Preparation for Wood Doors with Wood or Steel Frames: BHMA A156.115W.

2.03 HINGES

- A. Manufacturers: Conventional butt hinges.
 - A. BEST; dormakaba Group: www.bestaccess.com/#sle.
 - B. McKinney.
 - C. PBB.
- B. Manufacturers: Aluminum Geared Continuous Hinges.
 - A. Best.
 - B. National Guard Products.
 - C. ABH.
- C. Properties:

- A. Butt Hinges: As applicable to each item specified.
 - a. Standard Weight Hinges: Minimum of two (2) permanently lubricated non-detachable bearings.
 - b. Heavy Weight Hinges: Minimum of four (4) permanently lubricated bearings on heavy weight hinges.
 - c. Template screw hole locations.
 - d. Bearing assembly installed after plating.
 - e. Bearings: Concealed fully hardened bearings.
 - f. Bearing Shells: Shapes consistent with barrels.
 - g. Pins: Easily seated, non-rising pins.
 - 1) Fully plate hinge pins.
 - 2) Non-Removable Pins: Slotted stainless steel screws.
- B. Continuous Hinges: As applicable to each item specified.
 - a. Geared Continuous Hinges: As applicable to each item specified.
 - 1) Non-handed.
 - 2) Anti-spinning through-fastener.
 - 3) UL 10C listed for fire-resistance-rated doors.
 - (a) Metal Door Installation: Rated up to 90 minutes.
 - (b) Wood Door Installation: Rated up to 60 minutes.
 - 4) Sufficient size to permit door to swing 180 degrees
- D. Sizes: See Door Hardware Schedule.
 - A. Hinge Widths: As required to clear surrounding trim.
 - B. Sufficient size to allow 180 degree swing of door.
- E. Finishes: See Door Hardware Schedule.
 - A. Fully polished hinges; front, back, and barrel.
- F. Grades:
 - A. Butt Hinges: Comply with BHMA A156.1 and BHMA A156.7 for templated hinges.
 - B. Continuous Hinges: Comply with BHMA A156.26, Grade 1.
- G. Material: Base metal as indicated for each item by BHMA material and finish designation.
- H. Types:
 - A. Butt Hinges: Include full mortise hinges.
 - B. Continuous Hinges: Include geared hinges.
- I. Quantities:
 - A. Butt Hinges: Three (3) hinges per leaves up to 90 inches in height. Add one (1) for each additional 30 inches in height or fraction thereof.
 - a. Hinge weight and size unless otherwise indicated in hardware sets:
 - 1) For doors from 36 inches wide up to 42 inches wide and up to 1-3/4 inches thick provide hinges with a minimum thickness of 0.145 inch and a minimum of 4-1/2 inches in height.
 - 2) For doors from 42 inches wide up to 48 inches wide and up to 1-3/4 inches thick provide hinges with a minimum thickness of 0.180 inch and a minimum of 5 inches in height.
 - B. Continuous Hinges: One per door leaf.
- J. Applications: At swinging doors.
 - A. Provide non-removable pins at out-swinging doors with locking hardware and all exterior doors.
- K. Products:
 - A. Butt Hinges:
 - a. Ball Bearing, Five (5) Knuckle. FBB Series
 - B. Continuous Hinges:
 - a. Aluminum geared hinges. 660 Series

2.04 BOLTS

- A. Manufacturers:
 - A. Trimco: www.trimcohardware.com/#sle.
 - B. Burns
 - C. Rockwood.
 - D. Securitech (FEMA-361 / ICC-500 openings only.)

- B. Properties:
 - A. Flush Bolts:
 - a. Pairs of Swing Doors: At inactive leaves, provide flush bolts of type as required to comply with code.
 - b. Manual Flush Bolts: Manually latching upon closing of door leaf.
 - 1) Bolt Throw: 3/4 inch (19 mm), minimum.
 - c. Automatic Flush Bolts: Automatic latching upon closing of active leaf.
 - d. Surface Bolts: Surface mounted manual bolts on inactive leaf, where shown in hardware sets.

- C. Products:
 - A. Manual flush bolts: 3900
 - B. Automatic flush bolts: 3800
 - C. Surface Bolts: 556WS
 - D. Surface Bolts (FEMA): 52XXV (Where shown in hardware sets.)

2.05 EXIT DEVICES

- A. Manufacturers:
 - A. BEST (Precision), dormakaba Group: www.bestaccess.com/#sle.
 - B. Von Duprin.
 - C. dormakaba.
 - D. Securitech (FEMA-361 / ICC-500 openings only.)

- B. Properties:
 - A. Actuation: Full-length touchpad.
 - B. Chassis:
 - a. Construction: Investment cast steel, zinc dichromate plated.
 - b. Compatibility: Standard Stile and Narrow Stile doors.
 - C. Touchpads: "T" style metal touchpads and rail assemblies with matching chassis covers end caps.
 - D. Latch Bolts: Stainless steel deadlocking with 3/4 inch (19 mm) projection using latch bolt.
 - E. Lever Design: Match project standard lockset trims.
 - F. Cylinder: Include where cylinder dogging or locking trim is indicated.
 - G. Strike as recommended by manufacturer for application indicated.
 - H. Sound dampening on touch bar.
 - I. Dogging:
 - a. Non-Fire-Resistance-Rated Devices: Cylinder 1/4 inch (6 mm) hex key dogging.
 - b. Fire-Resistance-Rated Devices: Manual dogging not permitted.
 - J. Touch bar assembly on wide style exit devices to have a 1/4 inch (6.3 mm) clearance to allow for vision frames.
 - K. All exposed exit device components to be of architectural metals and "true" architectural finishes.
 - L. Hanging: Field-reversible.
 - M. Fasteners on Back Side of Device Channel: Concealed - exposed fasteners not allowed.
 - N. Vertical Latch Assemblies' Operation: Gravity, without use of springs.

- O. Provide sex nuts and bolts for exit devices on exterior doors and on wood doors.
- C. Grades: Complying with BHMA A156.3, Grade 1.
 - A. Provide exit devices tested and certified by UL or by a recognized independent laboratory for mechanical operational testing to 10 million cycles minimum with inspection confirming Grade 1 Loaded Forces have been maintained.
- D. Standards Compliance:
 - A. UL Listed for Panic and Fire for Class II Circuitry.
 - B. Provide UL (DIR) listed exit device assemblies for fire-resistance-rated doors.
- E. Code Compliance: As required by authorities having jurisdiction in the State in which the Project is located.
- F. Options:
 - A. Motorized Latch Retraction:
 - a. Provide 24VDC Motorized Latch Retraction exit devices as indicated in hardware sets.
 - B. Internal Switches:
 - a. Request-to-Exit Switches as indicated in hardware sets.
 - b. Latchbolt Monitoring Switches as indicated in hardware sets.
- G. Products:
 - A. Apex 2000.
 - B. Securitech 8V where shown in hardware sets.

2.06 KEYED REMOVABLE MULLIONS

- A. Manufacturers:
 - A. BEST (Precision), dormakaba Group: www.bestaccess.com/#sle.
 - B. Von Duprin.
 - C. dormakaba
- B. Provide keyed removable mullions as shown in hardware sets.
 - A. Provide appropriate cylinder for engaging/disengaging mullion.
 - B. Provide stabilizer kits for all keyed removable mullions.
 - C. Provide Mullion Cap Spacers, where shown in hardware sets.
 - D. Mullions installed at exterior locations will be installed with mullion seals.
 - E. Exterior and fire rated mullions must be from same manufacturer as the exit devices used for that opening.
- C. Products: KR822

2.07 LOCK CYLINDERS

- A. Manufacturers:
 - A. BEST, dormakaba Group: www.bestaccess.com/#sle.
 - B. No Substitutions
- B. Properties:
 - A. Lock Cylinders: Provide key access on outside of each lock, unless otherwise indicated.
 - a. Provide cylinders from same manufacturer as locking device.
 - b. Provide cams and/or tailpieces as required for locking devices.
 - c. Provide cylinders with appropriate format interchangeable cores where indicated.
 - B. Access Control System Cylinder Cores:
 - a. Installation Portion: Compatible with 7-pin SFIC (small format interchangeable core).
- C. Types: As applicable to each item specified.
- D. Applications: At locations indicated in hardware sets, and as follows
 - A. As required for items with locking devices provided by other sections, including at elevator controls and cabinets.

- a. When provisions for lock cylinders are referenced elsewhere in the Project Manual to this Section, provide compatible type of lock cylinder, keyed to building keying system, unless otherwise indicated.

E. Products: 1E/12E

2.08 CYLINDRICAL LOCKS

A. Manufacturers:

- A. BEST, dormakaba Group: www.bestaccess.com/#sle.
- B. No substitutions permitted.

B. Properties:

A. Mechanical Locks:

- a. Fitting modified ANSI A115.2 door preparation.
- b. Door Thickness Fit: 1-3/8 inches (35 mm) to 2-1/4 inches (57 mm) thick doors.
- c. Construction: Hub, side plate, shrouded rose, locking pin to be a one-piece casting with a shrouded locking lug.
 - 1) Through-bolted anti-rotational studs.
- d. Cast stainless steel latch retractor with roller bearings for exceptionally smooth operation and superior strength and durability.
- e. Bored Hole: 2-1/8 inch (54 mm) diameter.
- f. Backset: 5 inches (127 mm) unless otherwise indicated.
- g. Latch: Single piece tail-piece construction.
 - 1) Latchbolt Throw: 9/16 inch (14.3 mm), minimum.
- h. Cylinders:
 - 1) Cylinder Core Types: Locks capable of supporting manufacturers' cores, as applicable.
 - (a) Small format interchangeable.
- i. Lever Trim:
 - 1) Style: See Door Hardware Schedule.
 - 2) Functionality: Allow the lever handle to move up to 45 degrees from horizontal position prior to engaging the latchbolt assembly.
 - 3) Strength: Locksets outside locked lever designed to withstand minimum 1,400 inch-lbs (158.2 Nm) of torque. In excess of that, a replaceable part will shear. Key from outside and/or inside lever will still operate lockset.
 - 4) Independent spring mechanism for each lever.
 - (a) Contain lever springs in the main lock hub.
 - 5) Outside Lever Sleeve: Seamless one-piece construction.
 - 6) Keyed Levers: Removable only after core is removed by authorized control key.

B. Electrified Locks: Same properties as standard locks, and as follows:

- a. Voltage: 24 VAC.
- b. Function: Electrically locked (Fail Safe) or unlocked (Fail Secure), as indicated for each lock in Door Hardware Schedule.
- c. Temperature Control Module (TCM).

C. Finishes: See Door Hardware Schedule.

A. Core Faces: Match finish of lockset.

D. Grades: Comply with BHMA A156.2, Grade 1, Series 4000, Operational Grade 1, Extra Heavy Duty.

A. Durability: Passing 50 Million cycle tests verified by third party testing agency.

E. Material: Manufacturer's standard for specified lock.

A. Critical Latch and Chassis Components: Brass or corrosion-resistance treated steel.

B. Outside Lever Sleeve: Hardened steel alloy.

F. Products: Cylindrical locks, including mechanical and electrified types.

- A. 9K / 9KW

2.09 MORTISE LOCKS

- A. Manufacturers:
 - A. BEST, dormakaba Group: www.bestaccess.com/#sle.
 - B. Securitech (FEMA361 / ICC500 Doors Only)
 - C. No Substitutions
- B. Properties:
 - A. Mechanical Locks: Manufacturer's standard.
 - a. Fitting modified ANSI A115.1 door preparation.
 - b. Door Thickness Coordination Fitting 1-3/4 inch (44 mm) to 2-1/4 inch (57 mm) thick doors.
 - c. Latch: Solid, one-piece, anti-friction, self-lubricating stainless steel.
 - 1) Latchbolt Throw: 3/4 inch (19 mm), minimum.
 - d. Auxiliary Deadlatch: One-piece stainless steel, permanently lubricated.
 - e. Backset: 2-3/4 inch (70 mm).
 - f. Cylinders:
 - 1) Cylinder Core Types: Locks capable of supporting manufacturers' cores, as applicable.
 - (a) Small Format, 7-pin, interchangeable.
 - g. Lever Trim:
 - 1) Functionality: Allow the lever handle to move up to 45 degrees from horizontal position prior to engaging the latchbolt assembly.
 - 2) Strength: Locksets outside locked lever designed to withstand minimum 1,400 inch-lbs. (158.2 Nm) of torque. In excess of that, a replaceable part will shear. Key from outside and/or inside lever will still operate lockset.
 - 3) Spindle: Designed to prevent forced entry from attacking of lever.
 - 4) Independent spring mechanism for each lever.
 - (a) Trim to be self-aligning and thru-bolted.
 - 5) Handles: Made of forged or cast brass, bronze, or stainless-steel construction. Levers that contain a hollow cavity are not acceptable.
 - 6) Levers to operate a roller bearing spindle hub mechanism.
 - 7) Provide 24VDC Electrified locksets as shown in hardware sets.
 - C. Finishes: See Door Hardware Schedule.
 - A. Core Faces: Match finish of lockset.
 - D. Grades:
 - A. Comply with BHMA A156.13, Grade 1.
 - a. Durability: Passing 4 million cycles tests verified by third party testing agency.
 - E. Options:
 - A. Provide locksets made in a manufacturing facility to compliant with ISO 9001-Quality Management and ISO 14001-Environmental Management.
 - F. Products: Mortise locks, including standard and electrified types.
 - A. 40H/40HW
 - B. Securitech 73L46 (Where shown in hardware sets.)

2.10 ELECTRIC POWER TRANSFERS

- A. Manufacturers:
 - A. Best (Precision)
 - B. Sargent
 - C. Von Duprin

- B. Properties:
 - A. UL Listed, UL10C
 - B. Accommodates 180 degree swing
 - C. Provide wire bundle including two 18 AWG conductors for power and suitable quantity of 24 AWG conductors for data.
 - D. Stainless Steel Housing & Spring Conduit
 - E. Pre-Installed Quick Connect Plugs
- C. Products: EPT-12C

2.11 COORDINATORS

- A. Manufacturers:
 - A. Trimco: www.trimcohardware.com/#sle.
 - B. Rockwood.
 - C. Ives
- B. Properties:
 - A. General: Non-handed devices, with field-selectable active door leaf.
 - B. Active door to be field-selectable.
 - C. Coordinators: Devices on pairs of doors with closers and self-latching or automatic flush bolts installed.
 - a. Coordinator Operation: Only when inactive door is opened.
- C. Grades:
 - A. Closer and Coordinator Combinations: Comply with BHMA A156.4, Grade 1.
- D. Code Compliance: As required by authorities having jurisdiction in the State in which the Project is located.
 - A. Meet UL 10C for Positive Pressure.
- E. Types:
 - A. Coordinators: Bar Type.
- F. Installation:
 - A. Mounting: Provide necessary mounting brackets and filler bars to ensure proper installation of coordinator and related hardware.
 - B. Coordination: Properly sequence installation of other door hardware affected by placement of coordinators and carry bars.
- G. Products:
 - A. 3090 Series.

2.12 DOOR CLOSERS

- A. Manufacturers:
 - A. Best.
 - B. Sargent.
 - C. dormakaba
- B. Properties:
 - A. Surface Mounted Closers: Manufacturer's standard.
 - a. Construction: Cast iron.
 - b. Mechanism: Separate tamper-resistant adjusting valves for closing and latching speeds.
 - c. Hydraulic Fluid: All-weather type.
 - d. Arm Assembly: Standard for product specified.
 - 1) Material: Steel.
 - 2) Include spring-loaded stop feature, as specified in Door Hardware Schedule.
 - 3) Parallel arm to be a heavy-duty rigid arm.

- 4) Where "IS" or "S-IS" arms are specified in hardware sets, if manufacturer does not offer this arm provide a regular arm mount closer in conjunction with a heavy-duty overhead stop equal to a dormakaba 900 Series.
- e. Covers:
 - 1) Type: Standard for product selected.
 - (a) Full.
 - 2) Material: Plastic.
 - 3) Finish: Painted.
- C. Grades:
 - A. Closers: Comply with BHMA A156.4, Grade 1.
 - a. Underwriters Laboratories Compliance:
 - 1) Product Listing: UL (DIR) and ULC for use on fire-resistance-rated doors.
- D. Code Compliance: As required by authorities having jurisdiction in the State in which the Project is located.
- E. Types:
 - A. Rack-and-pinion, surface-mounted. 1-1/2 inches (38 mm) minimum bore.
- F. Installation:
 - A. Mounting: Includes surface mounted installations.
 - B. Mount closers on non-public side of door and stair side of stair doors unless otherwise noted in hardware sets.
 - C. At out swinging exterior doors, mount closer on interior side of door.
 - D. Provide adapter plates, shim spacers, and blade stop spacers as required by frame and door conditions.
 - E. Where an overlapping astragal is included on pairs of swinging doors, provide coordinator to ensure door leaves close in proper order.
- G. Products:
 - A. Surface Mounted:
 - a. HD8000 Series.

2.13 PROTECTION PLATES

- A. Manufacturers:
 - A. Trimco: www.trimcohardware.com/#sle.
 - B. DonJo
 - C. Burns
- B. Properties:
 - A. Kick / Mop / Armor Plates:
 - a. Provide along bottom edge of push side of every wood door with closer, except aluminum storefront and glass entry doors, unless otherwise indicated.
 - 1) Kick Plate Size: 8 inches high by 2 inch less door width (LDW) on push side of door – 1" LDW for pairs of doors without mullions.
 - 2) Mop Plate Size: 6 inches high by 1 inch less door width (LDW) on pull side of door.
 - 3) Armor Plate Size: 36 inches high by 2 inches less than door width (LDW) on push side of door – 1" LDW for pairs of doors without mullions.
 - b. Edges: Beveled, on four (4) unless otherwise indicated.
- C. Grades: Comply with BHMA A156.6.
- D. Material: As indicated for each item by BHMA material and finish designation.
 - A. Metal Properties: Stainless steel.
- E. Installation:
 - A. Fasteners: Countersunk screw fasteners
- F. Products: K0050 / KM050 / KA050

2.14 THRESHOLDS

- A. Manufacturers:
 - A. National Guard Products, Inc: www.ngpinc.com/#sle.
 - B. Burns
 - C. Zero
- B. Properties:
 - A. Threshold Surface: Fluted horizontal grooves across full width.
- C. Grades: Thresholds: Comply with BHMA A156.21.
- D. Types: As applicable to project conditions. Provide barrier-free type at every location where specified.
 - A. Provide saddles and thresholds as shown in hardware sets.
 - B. For Bumper Seal Thresholds with Gasket, use silicone gaskets.
- E. Products 425HD, 896S

2.15 WEATHERSTRIPPING AND GASKETING

- A. Manufacturers:
 - A. National Guard Products, Inc: www.ngpinc.com/#sle.
 - B. Burns
 - C. Zero
- B. Grades: Comply with BHMA A156.22.
- C. Products:
 - A. Weatherstripping: See Door Hardware Schedule.
 - B. Smoke Seals: See Door Hardware Schedule.

2.16 MISCELLANEOUS ITEMS

- A. Manufacturers:
 - A. Trimco: www.trimcohardware.com/#sle.
 - B. Burns
 - C. Rockwood
- B. Properties:
 - A. Silencers: Provide at equal locations on door frame to mute sound of door's impact upon closing.
 - a. Single Door: Provide three on strike jamb of frame.
 - b. Pair of Doors: Provide two on head of frame, one for each door at latch side.
 - c. Material: Rubber, gray color.
- C. Products:
 - A. 1229A

2.17 KEYS AND CORES

- A. Manufacturers:
 - A. BEST, dormakaba Group: www.bestaccess.com/#sle.
 - B. No Substitutions
- B. Properties: Complying with guidelines of BHMA A156.28.
 - A. Provide small format interchangeable core.
 - B. Provide Patented CORMAX keys and cores to expand existing Grand Master Key System.
 - C. Provide keying information in compliance with DHI (KSN) standards.
 - D. Keying Schedule: Arrange for a keying meeting, with Architect, Owner and hardware supplier, and other involved parties to ensure locksets and locking hardware, are functionally correct and keying complies with project requirements.
 - E. Keying: Master keyed.
 - F. Include construction keying and control keying with removable core cylinders.

- G. Supply keys in following quantities:
 - a. Grand Master Keys: 1 each.
 - b. Master Keys: 4 each.
 - c. Construction Master Keys: 6 each.
 - d. Construction Keys: 15 each.
 - e. Construction Control Keys: 2 each.
 - f. Control Keys if New System: 2 each.
 - H. Provide key collection envelopes, receipt cards, and index cards in quantity suitable to manage number of keys.
 - I. Deliver keys with identifying tags to Owner by security shipment direct from manufacturer.
 - J. Permanent Keys and Cores: Stamped with applicable key marking for identification. Do not include actual key cuts within visual key control marks or codes. Stamp permanent keys "Do Not Duplicate."
- C. Products:
- A. Patented:
 - a. CORMAX.

2.18 FINISHES

- A. Finishes: Identified in Hardware Sets.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that doors and frames are ready to receive this work; labeled, fire-rated doors and frames are properly installed, and dimensions are as indicated on shop drawings.
- B. Correct all defects prior to proceeding with installation.
- C. Verify that electric power is available to power operated devices and of correct characteristics.

3.02 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions and applicable codes.
 - a. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Install hardware using the manufacturer's fasteners provided. Drill and tap all screw holes located in metallic materials. Do not use "Riv-Nuts" or similar products.
- C. Install hardware on fire-rated doors and frames in accordance with applicable codes and NFPA 80.
- D. Install hardware for smoke and draft control doors in accordance with NFPA 105.
- E. Use templates provided by hardware item manufacturer.
- F. Do not install surface mounted items until application of finishes to substrate are fully completed.
- G. Wash down masonry walls and complete painting or staining of doors and frames.
- H. Complete finish flooring prior to installation of thresholds.
- I. Door Hardware Mounting Heights: Distance from finished floor to center line of hardware item. As indicated in following list, unless noted otherwise in Door Hardware Schedule or on drawings.
 - A. For Steel Doors and Frames: Install in compliance with DHI (LOCS) recommendations.
 - B. For Steel Doors and Frames: See Section 6549.
 - C. For Steel Door Frames: See Section 08 1213.
 - D. For Aluminum-Framed Storefront Doors and Frames: See Section 08 4313.

- E. For Wood Doors: Install in compliance with DHI WDHS.3 recommendations.
- F. Flush Wood Doors: See Section 08 1416.
- G. Stile and Rail Wood Doors: See Section 08 1433.
- H. Mounting heights in compliance with ADA Standards:
 - a. Locksets: 40-5/16 inch (1024 mm).
 - b. Push Plates/Pull Bars: 42 inch (1067 mm).
 - c. Deadlocks (Deadbolts): 48 inch (1219 mm).
 - d. Exit Devices: 40-5/16 inch (1024 mm).
 - e. Door Viewer: 43 inch (1092 mm); standard height 60 inch (1524 mm).
- J. Set exterior door thresholds with full-width bead of elastomeric sealant at each point of contact with floor providing a continuous weather seal. Anchor thresholds with stainless steel countersunk screws.
- K. Include in installation for existing doors and frames any necessary field modification and field preparation of doors and frames for new hardware. Provide necessary fillers, reinforcements, and fasteners for mounting new hardware and to cover existing door and frame preparations.

3.03 ADJUSTING

- A. Adjust work under provisions of Section 01 70 00 - Execution and Closeout Requirements.
- B. Adjust hardware for smooth operation.
- C. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.04 CLEANING

- A. Clean adjacent surfaces soiled by hardware installation activities.
- B. Clean operating items as necessary to restore proper finish.

3.05 PROTECTION

- A. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy. See Section 01 70 00 - Execution and Closeout Requirements.

3.06 DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.07 DOOR HARDWARE SETS

- A. The following hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

Manufacturer List

Code	Name
BE	Best Access Systems
BY	By Related Section
DM	Dorma Door Controls
NA	National Guard Products
PR	BEST (Precision) Exit Devices
RO	Rockwood Manufacturing
SEC	Securitech

ST BEST Hinges and Sliding
 TR Trimco Hardware

Option List

Code	Description
1/4-20 SSMS/EA	STAINLESS MACHINE SCREWS/EXPANSION ANC.
24V	24 Volt
7/8"LTC	7/8" Lip-To-Center Strike
B4E-HEAVY-KP	BEVELED 4 EDGES - KICK PLATES
CD	CYLINDER DOGGING
CSK	COUNTER SINKING OF KICK and MOP PLATES
FL	Fire Exit Hardware
HC	Hurricane Code Device
LBR	LESS BOTTOM ROD
LD	Less Dogging
MCS	Mullion Cap Spacer (600 Finish)
MLR	MOTORIZED LATCH RETRACTION
NRP	NON REMOVEABLE PIN STD/HEAVY WT HINGE
RQE	REQUEST TO EXIT
S3	ANSI Strike Package
SNB (2)	SEX BOLTS (2)
TS	TOUCHBAR MONITORING SWITCH
VIB	Double Visual Indicator Option
WS	Wind-Storm Listed (Miami-Dade/Florida)

Finish List

Code	Description
26D	Satin Chrome
32D	Satin Stainless Steel
600	Primed for Painting
626	Satin Chromium Plated
626W	Weatherized Satin Chrome
630	Satin Stainless Steel
689	Aluminum Painted
AL	Aluminum
BLACK	Black
GREY	Grey
US26D	Chromium Plated, Dull

Hardware Sets

Set #1 – CARD READER (TORNADO SHELTER BLDG)

Doors: 23-100, 23-100A, 23-100C

6	Butt Hinge	FBB199 4.5" x 4.5" NRP	32D	ST
2	Power Transfer	EPT-12C		PR
1	Exit Device	8VT46-G1E-IHD-TI-CX-630	630	SEC
1	Exit Device	8VT11-IHD-TI-CX-630	630	SEC
1	Mortise Cylinder	1E-74 PATD	626	BE
2	Closer	HD8016 SDS	689	BE
2	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Gasketing (Head / Jambs)	127SA x LAR		NA
1	Split Astragal	9115A (Set)		NA
2	Door Sweep	C627A x LAR		NA

1	Drip Cap	16 A X 4" ODW		NA
1	Threshold	896S x LAR 1/4-20 SSMS/EA	AL	NA
1	Power Supply	Provided by Security Contractor		BY
2	Conc. Door Position Sw.	Provided by Security Contractor		BY
1	Card Reader	Provided by Security Contractor		BY

NOTE: Turning key in outside cylinder or presenting valid credential to card reader retracts exit device latch bolt, allowing entry through active leaf. Request-to-Exit switches in exit devices are activated upon depressing push pad when exiting, signaling Access Control System for authorized opening of either door. Door Position Switches monitor status of doors. Free egress is possible at all times through either leaf. Coordinate wiring and electrical requirements with Electrical Contractor and Security Contractor.

Set #2 – CARD READER + REMOTE RELEASE

Doors: 23-100B

6	Butt Hinge	FBB168 4.5" x 4.5" NRP	26D	ST
2	Power Transfer	EPT-12C		PR
1	Removable Mullion	KR822 MCS	600	PR
1	Exit Device	MLR TS 2103 X 4903D 24V SNB (2)	630	PR
1	Exit Device	TS 2101 LD SNB (2)	630	PR
1	Rim Cylinder	12E-72 PATD	626	BE
2	Closer	HD8016 SDS	689	BE
2	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
2	Mop Plate	KM050 6" X 1" LDW B4E-HEAVY-KP CSK	630	TR
1	Gasketing	5050 B Head & Jambs		NA
1	Mullion Seal	5100N x LAR		NA
2	Door Sweep	601A x LAR		NA
1	Power Supply	Provided by Security Contractor		BY
2	Conc. Door Position Sw.	Provided by Security Contractor		BY
1	Card Reader	Provided by Security Contractor		BY
1	Remote Release Switch	Provided by Security Contractor		BY

NOTE: Turning key in outside cylinder or presenting valid credential to card reader retracts exit device latch bolt, allowing entry through active leaf. Motorized latch bolt may also be retracted remotely by remote release switch at Reception Area. Request-to-Exit switches in exit devices are activated upon depressing push pad when exiting, signaling Access Control System for authorized opening of either door. Door Position Switches monitor status of doors. Free egress is possible at all times through either leaf. Coordinate wiring and electrical requirements with Electrical Contractor and Security Contractor.

Set #3 - MONITOR ONLY (TORNADO SHELTER BLDG)

Doors: 23-103A, 23-126A

6	Butt Hinge	FBB199 4.5" x 4.5" NRP	32D	ST
2	Power Transfer	EPT-12C		PR
1	Exit Device	8VT44-G1E-IHD-TI-CX-630	630	SEC
1	Exit Device	8VT11-IHD-TI-CX-630	630	SEC
1	Mortise Cylinder	1E-74 PATD	626	BE
2	Closer	HD8016 SDS	689	BE
2	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Gasketing (Head / Jambs)	127SA x LAR		NA
1	Split Astragal	9115A (Set)		NA
2	Door Sweep	C627A x LAR		NA
1	Drip Cap	16 A X 4" ODW		NA
1	Threshold	896S x LAR 1/4-20 SSMS/EA	AL	NA
2	Conc. Door Position Sw.	Provided by Security Contractor		BY

NOTE: Doors normally closed and locked. Turning key in outside cylinder retracts latch bolt, allowing entry. Door Position Switches monitor door status. Request-to-Exit Switches in exit devices are activated upon depressing push pad of either exit device when exiting, signaling Access Control System of authorized opening of either door. Coordinate wiring and electrical requirements with Electrical Contractor and Security Contractor.

Set #4 - ELEC ROUGH-IN (TORNADO SHELTER BLDG)

Doors: 23-127

6	Butt Hinge	FBB199 4.5" x 4.5" NRP	32D	ST
1	Power Transfer	EPT-12C		PR
1	Flush Bolt	52XXV-F17L-IHD-630	630	SEC
1	Electromechanical Lock	73L46-G1E-IHD-630	630	SEC
1	Mortise Cylinder	1E-74 PATD	626	BE
2	Closer	HD8016 DST	600	BE
2	Kick Plate	K0050 10" x 1" LDW B4E-HEAVY-KP CSK	630	TR
1	Gasketing (Head / Jambs)	127SA x LAR		NA
2	Door Sweep	C627A x LAR		NA
1	Drip Cap	16 A X 4" ODW		NA
1	Threshold	896S x LAR 1/4-20 SSMS/EA	AL	NA

NOTE: Provide electrified product as shown. Electrical rough in only. Power Supply, Card Reader and Door Position Switches to be provided by Security Contractor at a later date. Coordinate any further requirements with Electrical Contractor and Security Contractor.

Set #5 – CARD READER

Doors: 23-123, 23-223

3	Butt Hinge	FBB179 4.5" x 4.5"	26D	ST
1	Electromechanical Lock	9KW3-7DEU14D PATD RQE S3	626	BE
1	Closer	HD8016 AF80P	689	BE
1	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Mop Plate	KM050 6" X 1" LDW B4E-HEAVY-KP CSK	630	TR
1	Wall Bumper	1270CVSV	626	TR
1	Power Supply	Provided by Security Contractor		BY
1	Conc. Door Position Sw.	Provided by Security Contractor		BY
1	Power Transfer	EPT-12C		PR
1	Card Reader	Provided by Security Contractor		BY
1	Gasketing	2525 B x LAR		NA

NOTE: Presenting valid credential to card reader temporarily unlocks outside lever, allowing entry. Request-to-Exit Switch in lockset is activated upon turning insider lever when exiting, signaling Access Control System for authorized opening of door. Lock is fail-secure and outside lever remains locked during fire alarm or loss of power. Free egress is possible at all times. Coordinate wiring and electrical requirements with Electrical Contractor and Security Contractor.

Set #6 – CARD READER + REMOTE RELEASE

Doors: 23-114D

3	Butt Hinge	FBB168 4.5" x 4.5" NRP	26D	ST
1	Power Transfer	EPT-12C		PR
1	Electromechanical Lock	9KW3-7DEU14D PATD RQE S3	626	BE
1	Gasketing	2525 B x LAR		NA
1	Closer	HD8016 DS	689	BE
1	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR

1	Mop Plate	KM050 6" X 1" LDW B4E-HEAVY-KP CSK	630	TR
1	Power Supply	Provided by Security Contractor		BY
1	Conc. Door Position Sw.	Provided by Security Contractor		BY
1	Card Reader	Provided by Security Contractor		BY
1	Remote Release Switch	Provided by Security Contractor		BY

NOTE: Presenting valid credential to card reader temporarily unlocks outside lever, allowing entry. Outside lever may also be unlocked remotely, using remote release switch in reception. Request-to-Exit Switch in lockset is activated upon turning insider lever when exiting, signaling Access Control System for authorized opening of door. Lock is fail-secure and outside lever remains locked during fire alarm or loss of power. Free egress is possible at all times. Coordinate wiring and electrical requirements with Electrical Contractor and Security Contractor.

Set #7 -

Doors: 23-125, 23-222

3	Butt Hinge	FBB168 4.5" x 4.5" NRP	26D	ST
1	Exit Device	2103 X 4903D	630	PR
1	Rim Cylinder	12E-72 PATD	626	BE
1	Closer	HD8016 DS	689	BE
1	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Gasketing	2525 B x LAR		NA

Set #8 -

Doors: 23-102, 23-118, 23-124, 23-202, 23-216

3	Butt Hinge	FBB168 4.5" x 4.5" NRP	26D	ST
1	Lockset	9K3-7D14D PATD S3	626	BE
1	Closer	HD8016 DS	689	BE
1	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Mop Plate	KM050 6" X 1" LDW B4E-HEAVY-KP CSK	630	TR
1	Gasketing	2525 B x LAR		NA

Set #9 -

Doors: 23-225

3	Butt Hinge	FBB168 4.5" x 4.5" NRP	26D	ST
1	Lockset	9K3-7D14D PATD S3	626	BE
1	Closer	HD8016 AF80P	689	BE
1	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Wall Bumper	1270CVSV	626	TR
1	Gasketing	2525 B x LAR		NA

Set #10 -

Doors: 23-224

6	Butt Hinge	FBB168 4.5" x 4.5" NRP	26D	ST
1	Automatic Flush Bolts	3815L X 3815L	630	TR
1	Lockset	9K3-7D14D PATD 7/8"LTC	626	BE
1	Coordinator	3094B2	BLACK	TR
2	Closer	HD8016 DS	689	BE
2	Mop Plate	KM050 6" X 1" LDW B4E-HEAVY-KP CSK	630	TR
2	Mounting Bracket	3095 OR 3096 AS REQUIRED	BLACK	TR

1	Astragal Set	9115A SET x LAR		NA
1	Gasketing	2525 B x LAR		NA

Set #11 – STAIRS - MAGNETIC HOLDERS

Doors: 23-103, 23-126, 23-203, 23-221

6	Butt Hinge	FBB168 4.5" x 4.5" NRP	26D	ST
1	Exit Device	FL 2208 X 4908D LBR	630	PR
1	Exit Device	FL 2201 LBR	630	PR
2	Rim Cylinder	12E-72 PATD	626	BE
2	Magnetic Holder	EM 501-24120 x extensions as req'd.	689	DM
2	Closer	HD8016 AF80P	689	BE
2	Kick Plate	K0050 10" x 1" LDW B4E-HEAVY-KP CSK	630	TR
2	Mop Plate	KM050 6" X 1" LDW B4E-HEAVY-KP CSK	630	TR
1	Gasketing	5050 B Head & Jambs		NA
1	Astragal Set	9675A (SET) x LAR		NA

NOTE: Magnetic Holders will be tied to Fire Alarm System and will automatically release upon fire alarm or loss of power, allowing doors to self-close. Free egress to stairwell is possible at all times.

Set #12 - MULTI OCCUPANT RESTROOMS

Doors: 23-112, 23-113, 23-212, 23-213

3	Butt Hinge	FBB168 4.5" x 4.5"	26D	ST
1	Pull Plate	1017-3	630	TR
1	Push Plate	1001-3	630	TR
1	Closer	HD8016 AF80P	689	BE
1	Wall Bumper	1270CVSV	626	TR
1	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Mop Plate	KM050 6" X 1" LDW B4E-HEAVY-KP CSK	630	TR
1	Gasketing	2525 B x LAR		NA

Set #13 - SINGLE OCCUPANT RESTROOM - AT-VIB

Doors: 23-116, 23-117

3	Butt Hinge	FBB179 4.5" x 4.5"	26D	ST
1	Lockset	45H-7AT14H PATD VIB	626	BE
1	Closer	HD8016 AF80P	689	BE
1	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Mop Plate	KM050 6" X 1" LDW B4E-HEAVY-KP CSK	630	TR
1	Wall Bumper	1270CVSV	626	TR
1	Gasketing	2525 B x LAR		NA

Set #14 - SINGLE OCCUPANT RESTROOM - PVCY-VIB

Doors: 23-215A, 23-215B

3	Butt Hinge	FBB179 4.5" x 4.5"	26D	ST
1	Privacy Set	45H-0L14H VIB	626	BE
1	Closer	HD8016 AF80P	689	BE
1	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Mop Plate	KM050 6" X 1" LDW B4E-HEAVY-KP CSK	630	TR
1	Wall Bumper	1270CVSV	626	TR
1	Gasketing	2525 B x LAR		NA

Set #15 -

Doors: 23-115, 23-214

3	Butt Hinge	FBB168 4.5" x 4.5"	26D	ST
1	Lockset	9K3-7D14D PATD S3	626	BE
1	Closer	HD8016 AF80P	689	BE
1	Wall Bumper	1270CVSV	626	TR
1	Gasketing	5050 B Head & Jambs		NA

Set #16 -

Doors: 23-114

3	Butt Hinge	FBB168 4.5" x 4.5" NRP	26D	ST
1	Lockset (Intruder)	9K3-7IN14D PATD S3	626	BE
1	Closer	HD8016 FHP	689	BE
3	Silencer	1229A	GREY	TR

Set #17 -

Doors: 23-110A, 23-114A, 23-114B, 23-114C

3	Butt Hinge	FBB179 4.5" x 4.5"	26D	ST
1	Lockset	9K3-7AB14D PATD S3	626	BE
1	Wall Bumper	1270CVSV	626	TR
3	Silencer	1229A	GREY	TR

Set #18 -

Doors: 23-110B

3	Butt Hinge	FBB179 4.5" x 4.5" NRP	26D	ST
1	Lockset	9K3-7AB14D PATD S3	626	BE
1	Overhead Stop	702 S	626	DM
3	Silencer	1229A	GREY	TR

Set #19 -

Doors: 23-104, 23-105, 23-106, 23-107, 23-108, 23-109, 23-111, 23-119, 23-120, 23-121, 23-122, 23-204, 23-205, 23-206, 23-207, 23-208, 23-209, 23-210, 23-211, 23-217, 23-218, 23-219, 23-220

3	Butt Hinge	FBB168 4.5" x 4.5" NRP	26D	ST
1	Lockset (Intruder)	9K3-7IN14D PATD S3	626	BE
1	Closer	HD8016 AF80P	689	BE
1	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Mop Plate	KM050 6" X 1" LDW B4E-HEAVY-KP CSK	630	TR
1	Wall Bumper	1270CVSV	626	TR
1	Gasketing	5050 B Head & Jambs		NA

Set #20 -

Doors: 23-110

3	Butt Hinge	FBB168 4.5" x 4.5" NRP	26D	ST
1	Lockset (Intruder)	9K3-7IN14D PATD S3	626	BE
1	Closer	HD8016 IS	689	BE
2	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
	NOTE: Mount Kick Plates on both sides of door.			
1	Gasketing	5050 B Head & Jambs		NA

Set #21 -

Doors: 23-215

3	Butt Hinge	FBB168 4.5" x 4.5" NRP	26D	ST
1	Lockset (Intruder)	9K3-7IN14D PATD S3	626	BE
1	Closer	HD8016 DS	689	BE
2	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Gasketing	5050 B Head & Jambs		NA

Set #22 -

Doors: 24-100A, 24-107A

3	Butt Hinge	FBB168 4.5" x 4.5" NRP	26D	ST
1	Lockset	9K3-7AB14D PATD S3	626	BE
1	Closer	HD8016 FHP	689	BE
1	Wall Bumper	1270CVSV	626	TR
3	Silencer	1229A	GREY	TR

Set #23 -

Doors: 24-100, 24-107, 25-101

1	Continuous Hinge	661HD x LAR	AL	ST
1	Lockset	45H-7AB14H PATD WS	626	BE
1	Closer	HD8016 SDS	689	BE
1	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Gasketing (Head / Jambs)	127SA x LAR		NA
1	Door Sweep	C627A x LAR		NA
1	Drip Cap	16 A X 4" ODW		NA
1	Threshold	896S x LAR 1/4-20 SSMS/EA	AL	NA

Set #24 -

Doors: 24-108, 24-109

1	Continuous Hinge	661HD x LAR	AL	ST
1	Lockset	45H-7TA14H PATD WS	626	BE
1	Closer	HD8016 SDST	689	BE
1	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Gasketing (Head / Jambs)	127SA x LAR		NA
1	Door Sweep	C627A x LAR		NA
1	Drip Cap	16 A X 4" ODW		NA
1	Threshold	896S x LAR 1/4-20 SSMS/EA	AL	NA

Set #25 -

Doors: 24-101, 24-106

1	Continuous Hinge	661HD x LAR	AL	ST
1	Exit Device (Intruder)	HC 2110VI X 4908D	630	PR
1	Mortise Cylinder	1E-74 PATD	626	BE
1	Rim Cylinder	12E-72 PATD	626	BE
1	Closer	HD8016 SDS	689	BE
1	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Gasketing (Head / Jambs)	127SA x LAR		NA
1	Door Sweep	C627A x LAR		NA
1	Drip Cap	16 A X 4" ODW		NA

1	Threshold	896S x LAR 1/4-20 SSMS/EA	AL	NA
---	-----------	---------------------------	----	----

Set #26 -

Doors: 24-102, 24-105

2	Continuous Hinge	661HD x LAR	AL	ST
2	Extension Flush Bolt	556WS	US26D	RO
1	Lockset	45H-7TD14H PATD WS	626	BE
2	Closer	HD8016 SDST	689	BE
2	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Gasketing (Head / Jambs)	127SA x LAR		NA
2	Door Sweep	C627A x LAR		NA
1	Drip Cap	16 A X 4" ODW		NA
1	Saddle Threshold	425 HD x 1/4-20 SSMS/EA x LAR	AL	NA

Set #27 -

Doors: 24-103

1	Continuous Hinge	661HD x LAR	AL	ST
1	Lockset	45H-7TD14H PATD WS	626	BE
1	Closer	HD8016 SDS	689	BE
1	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Gasketing (Head / Jambs)	127SA x LAR		NA
1	Door Sweep	C627A x LAR		NA
1	Drip Cap	16 A X 4" ODW		NA
1	Threshold	896S x LAR 1/4-20 SSMS/EA	AL	NA

Set #28 -

Doors: 24-104A

3	Butt Hinge	FBB179 4.5" x 4.5" NRP	26D	ST
1	Lockset	9K3-7D14D PATD S3	626	BE
3	Silencer	1229A	GREY	TR

Set #29 -

Doors: 25-100

1	Continuous Hinge	661HD x LAR	AL	ST
1	Lockset	45H-7AT14H PATD VIB WS	626	BE
1	Closer	HD8016 SDS	689	BE
1	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Coat Hook	3071	630	TR
1	Gasketing (Head / Jambs)	127SA x LAR		NA
1	Door Sweep	C627A x LAR		NA
1	Drip Cap	16 A X 4" ODW		NA
1	Threshold	896S x LAR 1/4-20 SSMS/EA	AL	NA

Set #30 -

Doors: 25-102

1	Continuous Hinge	661HD x LAR	AL	ST
1	Lockset	45H-7AB14H PATD WS	626	BE
1	Closer	HD8016 DST	600	BE
1	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Gasketing (Head / Jambs)	127SA x LAR		NA
1	Door Sweep	C627A x LAR		NA

1	Drip Cap	16 A X 4" ODW		NA
1	Threshold	896S x LAR 1/4-20 SSMS/EA	AL	NA

Set #31 -

Doors: 25-200

1	Continuous Hinge	661HD x LAR	AL	ST
1	Lockset	45H-7TA14H PATD WS	626	BE
1	Closer	HD8016 DS	689	BE
1	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Gasketing (Head / Jambs)	127SA x LAR		NA
1	Door Sweep	C627A x LAR		NA
1	Drip Cap	16 A X 4" ODW		NA
1	Threshold	896S x LAR 1/4-20 SSMS/EA	AL	NA

Set #32 - EXT. HM PR. - MECH YARD (TORNADO SHELTER BLDG)

Doors: 23-128

2	Continuous Hinge	661HD x LAR	AL	ST
2	Exit Device	8VT44-G1E-IHD-TI-630	630	SEC
2	Mortise Cylinder	1E-74 PATD	626	BE
2	Closer	HD8016 SDST	689	BE
2	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Gasketing (Head / Jambs)	127SA x LAR		NA
1	Split Astragal	9115A		NA
1	Door Sweep	C627A x LAR		NA
1	Drip Cap	16 A X 4" ODW		NA

Set #33 - EXT. HM PR. - MECH YARD

Doors: 24-104

2	Continuous Hinge	661HD x LAR	AL	ST
1	Removable Mullion	HCKR822 MCS	600	PR
2	Exit Device	HC 2103 X 1703A CD	626W	PR
2	Mortise Cylinder	1E-74 PATD	626	BE
3	Rim Cylinder	12E-72 PATD	626	BE
2	Closer	HD8016 SDST	689	BE
2	Kick Plate	K0050 10" x 2" LDW B4E-HEAVY-KP CSK	630	TR
1	Gasketing (Head / Jambs)	127SA x LAR		NA
1	Mullion Seal	5100N x LAR		NA
1	Door Sweep	C627A x LAR		NA
1	Drip Cap	16 A X 4" ODW		NA

Opening List

<u>Opening</u>	<u>Hdw Set</u>	<u>Opening Label</u>
23-100	1	
23-100A	1	
23-100B	2	
23-100C	1	
23-102	8	20
23-103	11	90
23-103A	3	
23-104	19	S
23-105	19	S
23-106	19	S
23-107	19	S
23-108	19	S
23-109	19	S
23-110	20	S
23-110A	17	
23-110B	18	
23-111	19	S
23-112	12	
23-113	12	
23-114	16	
23-114A	17	
23-114B	17	
23-114C	17	
23-114D	6	S
23-115	15	S
23-116	13	
23-117	13	
23-118	8	60
23-119	19	S
23-120	19	S
23-121	19	S
23-122	19	S
23-123	5	S
23-124	8	S
23-125	7	S
23-126	11	90
23-126A	3	
23-127	4	
23-128	32	
23-201A	33	
23-202	8	S
23-203	11	90
23-204	19	S
23-205	19	S
23-206	19	S
23-207	19	S
23-208	19	S
23-209	19	S
23-210	19	S
23-211	19	S
23-212	12	S
23-213	12	
23-214	15	S

23-215	21	S
23-215A	14	
23-215B	14	
23-216	8	S
23-217	19	S
23-218	19	S
23-219	19	S
23-220	19	S
23-221	11	90
23-222	7	S
23-223	5	S
23-224	10	S
23-225	9	S
24-100	23	
24-100A	22	
24-101	25	
24-102	26	
24-103	27	
24-104	32	
24-104A	28	
24-105	26	
24-106	25	
24-107	23	
24-107A	22	
24-108	24	
24-109	24	
25-100	29	
25-101	23	
25-102	30	
25-200	31	

END OF SECTION 08 71 00

SECTION 088000 - GLASS AND GLAZING

PART 1 - GENERAL

- 1.01 **Glazing Standard:** Comply with FGMA "Glazing Manual" and "Sealant Manual".
- 1.02 **Safety Glazing Standard:** Comply with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for category II materials.
- 1.03 **Fire-Protection-Rated Glazing Labeling:** Permanently mark fire-protection-rated glazing with certification label of a testing agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, test standard, whether glazing is for use in fire doors or other openings, whether or not glazing passes hose-stream test, whether or not glazing has a temperature rise rating of 450 deg F (250 deg C), and the fire-resistance rating in minutes.
- 1.04 **Submittals:** In addition to product data submit samples of each glass indicated (except for clear single pane units) and tint color.

PART 2 - PRODUCTS

- 2.01 **Glass Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
- | | |
|----------------------------|---------------------|
| Falconer Glass Industries. | Pilkington Sales |
| Oldcastle Glass, Inc. | PPG Industries Inc. |
| Guardian Industries Corp. | |
- 2.02 **Sizes:** Fabricate glass of thicknesses indicated and to sizes required for glazing openings indicated, with edge clearances and tolerances complying with recommendations of glass manufacturer.
- 2.03 **Primary Glass Products:** Comply with ASTM C 1036 for the following:
- A. **Clear Float Glass:** Type I, Class 1, Quality q3.
- B. **Energy Efficient Low E, Tinted Float Glass:** Type I, Class 2, Quality q3. of manufacturer's standard tint with U-value of .40, shading coefficient of .50 and Visible Transmittance value of .60.
- C. **Mirror Units:** 1/4" thick, tempered mirrors at locations and sizes indicated on the drawings.
- 2.04 **Fire-Rated Glazing:** Provide "Superlite II" by SAFTI complying with the following requirements: 60 min. rating per E-152, WHI 495-0608, UL R 10665-3, 450° temperture rise rating OR approved equal.
- 2.05 **Uncoated Heat-Treated Glass Products:** Comply with ASTM C 1048 and with manufacturing process indicated for the following:
- A. **Clear Tempered Float Glass:** Kind FT, Condition A, Type I, Class 1, Quality q3.
- B. **Tinted Tempered Float Glass:** Kind FT, Condition A, type I, Class 1, Quality q3 of manufacturer's standard tint with U-value of .40, shading coefficient of .50 and Visible Transmittance value of .60.
- 2.06 **Sealed Insulating, Glass Units, (Exterior Windows):** Comply with requirements of ASTM E 774 for Class A units and the following:
- A. **Performance characteristics** indicated are those of units and are based on manufacturer's published test data for units with 1/4" thick panes and 1/2" thick air space. U-values are indicated in Btu per hr. per sq. ft. per deg. F difference.

SECTION 08800 - GLASS AND GLAZING (continued):

- B. For properties of individual glass panes making up units, refer to product requirements specified elsewhere in this section applicable to types, classes, kinds and conditions of glass products indicated.
- C. Provide heat-treated panes of kind indicated and as recommended by glass manufacturer for application indicated.

Thickness of Each Pane: 1/4".

Air Space Thickness: 1/2".

Sealing System: Manufacturer's standard.

Spacer Material: Manufacturer's standard metal.

- 2.07 Laminated Glass Units, (Exterior Security Windows): Comply with requirements of ASTM C 1172 for Class A units and the following:

- A. Security characteristics are based on manufacturer's published test data for units with (3) 1/4" thick panes and .190 Interlayer.
- B. Provide heat-treated panes of kind indicated and as recommended by glass manufacturer for application indicated.

Thickness of Each Pane: 1/4".

Interlayer: Manufacturer's Missile/Storm defense Interlayer.

Sealing System: Manufacturer's standard.

Spacer Material: Manufacturer's standard metal.

- 2.08 Glazing Sealant: Comply with sealant and glass manufacturers for selection of glass sealants which suit project application and installation conditions and which are compatible with surfaces contacted. Provide color of exposed sealants indicated or as selected by Architect.

- 2.09 Dense Elastomeric Compression Seal Gaskets: ASTM C 864, extruded or molded neoprene, EPDM, or thermoplastic polyolefin rubber.

- 2.10 Cellular Elastomeric Preformed Gaskets: ASTM C 509, Type II, black; extruded or molded neoprene.

- 2.11 Cleaners, Primers and Sealers: Type recommended by manufacturer of sealants/gaskets.

- 2.12 Blocks and Spacers: Neoprene, EPDM or silicone as required for compatibility with glazing sealants; of 80 to 90 Shore A hardness for setting blocks and, for spacers and edge blocks, of hardness recommended by glass and sealant manufacturer for application indicated.

- 2.13 Compressible Filler Rods: Closed-cell or waterproof-jacketed rod stock of synthetic rubber or plastic foam, 5-10 psi compression strength for 25 percent compression.

- 2.14 All exterior aperture assemblies in the exterior envelopes of these buildings shall be successfully tested as follows:

- (1) Classroom Building 23: Wind loads - wind speed $V_{ult} = 200$ mph minimum. See S0.1 for Components and Cladding pressures. Must pass Missile impact criteria per ICC 500: **15-pound (6.8 kg) sawn lumber 2 by 4 traveling 90 mph Vertical Surfaces 60 mph Horizontal Surfaces.** Window, glazing & frame assembly must be successfully missile impact & pressure tested to meet **ASTM E1886, ASTM 1996, TAS 201, TAS 202 and TAS 203.**
- (2) ~~All other Buildings: Wind loads - wind speed $V_{ult} = 145$ mph minimum. Missile impact criteria: SSTD 12, ASTM E1886 or E1996, or Miami Dade TAS 201, 202, or 203. See sheet S2.1~~
- (3) All exterior assemblies to meet ASCE 7-22.

SECTION 08800 - GLASS AND GLAZING (continued):

PART 3 - EXECUTION

- 3.01 Glass Installation (Glazing): Comply with referenced FGMA standards and instructions of manufacturers of glass, glazing sealants, and gaskets, to achieve airtight and watertight performance, and to minimize breakage.
- 3.02 Protect glass from edge damage during handling and installation. Inspect glass during installation and discard pieces with edge damage that could affect glass performance.
- 3.03 Set units of glass in each series with uniformity of pattern, draw, bow and similar characteristics.
- 3.04 Protect glass from contact with contaminating substances resulting from construction operations; remove any such substances by method approved by glass manufacturer.
- 3.05 Wash glass on both faces not more than 4 days prior to date scheduled for inspections intended to establish date of substantial completion. Wash glass by method recommended by glass manufacturer.

END OF SECTION 088000

SECTION 092900 - GYPSUM DRYWALL

PART 1 - GENERAL

- 1.01 Fire-Resistance Ratings: Provide gypsum drywall construction fire-resistance ratings indicated, conforming to assemblies tested per ASTM E 119 by inspecting and testing organization acceptable to authorities having jurisdiction.
- A. **All fire and/or smoke barriers or walls shall be effectively and permanently identified with stenciling above any decorative ceiling and/or in concealed space with letters a minimum of two (2) inches high on a contrasting background spaced a maximum of twelve (12) feet on center with a minimum of one per wall or barrier. The hourly fire rating shall be included on all rated barriers or walls. Wording shall be as follows: “() Hour Fire and Smoke Barrier-Protect All Openings.”**
 - B. **Storage rooms which are sprinklered shall have permanently stenciled, eighteen (18) inches below sprinkler heads, a designation line (red) with the following wording: “NO STORAGE ABOVE LINE.” Requirements for stenciling shall be as noted above.**
- 1.02 Submittals: Provide documentation that all products are made in the U.S.A.

PART 2 - PRODUCTS

- 2.01 Manufacturers: Subject to compliance with requirements, provide gypsum board and related products by one of the following:
Georgia-Pacific Gypsum LLC
Lafarge North America Inc.
National Gypsum Company
USG Corporation.
- 2.02 Steel Framing Components for Suspended Ceilings: As follows, sized per ASTM C 754, unless otherwise indicated:
- A. Wire for Hangers and Ties: ASTM A 641, soft, Class 1 zinc coating.
 - B. Grid Suspension System: ASTM C 645, manufacturer's standard grid suspension system composed of main beams and cross furring members which interlock to form a modular supporting network.
- 2.03 Steel Framing for Walls and Partitions: Comply with ASTM C 754 and the following:
- A. Steel Studs and Runners: ASTM C 645, 0.0179 inch (25 gauge) base metal thickness unless otherwise indicated.
 - 1. Height for which 0.0179 inch (25 gauge) is insufficient per manufacturer's "Limiting Height Tables", shall be accomplished in the gauge of material required by these tables. **Such materials to be provided at no additional cost to the Owner.**
 - 2. All door frame openings shall be reinforced with two (2) 0.0312 inch (20 gauge) studs on each side for a total of four (4) studs.
 - B. Base Track: ASTM C 645, 0.0312 inch (20 gauge) for interior; 0.0538 inch (16 gauge) for exterior.
 - C. Top Track: Slip Track, 0.0312 inch (20 gauge) for interior; 0.0538 inch (16 gauge) for exterior.
 - D. Steel Rigid Furring Channels: ASTM C 645, 0.0179 inch (25 gauge) base metal thickness, hat-shaped.

SECTION 092900 - GYPSUM DRYWALL (continued):

- 2.04 **Gypsum Board:** Provide gypsum board of types indicated in maximum lengths available to minimize end joints:
- A. **Exposed Gypsum Board:** ASTM C 36, 5/8" thickness, type 'X'. For fire rated assemblies refer to drawings for UL design numbers.
 - B. **Moisture & Mold Resistant Gypsum Board:** ASTM C 1396, 5/8" thickness, regular type except where Type X Fire-resistant type is indicated or required to meet UL assembly types. Edges shall be tapered. Provide Sheetrock brand Mold Tough Firecode Gypsum Panels by USG OR approved equal. **Note: All wet areas to receive Moisture & Mold Resistant Gypsum Board. Wet areas include walls and ceilings where gypsum board is specified. Areas include, but are not necessarily limited to, bathrooms, gang toilets, showers, janitor closets, kitchens and laundry areas.**
 - C. **Gypsum Wallboard Sheathing:** ASTM C79, 5/8" thickness, regular edges. Treated gypsum core shall be encased with specially treated water repellent paper on both sides and long edges. Application requires a 15# asphalt impregnated felt paper in cavity between gypsum sheathing and brick veneer.
 - D. **Mineral Board:** Provide 1/2" gypsum sheathing board core in accordance with ASTM C 1177 with glass mats both sides and long edges. Application requires a No.15, nonperforated, asphalt saturated felt complying with ASTM D 226, Type 1or equal. Provide Dens-Glass Gold by Georgia-Pacific Corp. OR approved equal.
 - E. **Abuse Resistant Gypsum Board:** ASTM E-136, ASTM E-84, ASTM E-119, 5/8" thickness, Fiberock Brand Panels - VHI Abuse-Resistant OR approved equal. Apply to 20 ga. (min) steel studs. **Provide to a height of 8'-0" in all locations.**
- 2.05 **Trim Accessories:** ASTM C 840; manufacturer's standard trim accessories, including cornerbead and edge trim of beaded type with face flanges for concealment in joint compound.
- 2.06 **Gypsum Board Joint Treatment Materials:** ASTM C 475 and ASTM C 840, and as follows:
- A. **Joint Tape:** Paper reinforcing tape, unless open-weave glass fiber tape is recommended by gypsum board manufacturer.
 - B. **Setting-Type Joint Compound:** Factory-prepackaged, job-mixed chemical-hardening powder products formulated for uses indicated.
 - C. **Drying-Type Joint Compounds:** Factory-prepackaged -premixed vinyl-based products. Taping compound formulated for embedding tape and first coat over fasteners and flanges of corner beads and edge trim. Topping compound formulated for fill (2nd) and finish (3rd) coats.
- 2.07 **Miscellaneous Materials:** As recommended by gypsum board manufacturer:
- A. **Gypsum Board Screws:** ASTM C 1002.
 - B. **Concealed Acoustical Sealant:** Comply with requirements specified in Division-7 Section "Joint Sealers."

PART 3 - EXECUTION:

- 3.01 **Install steel framing** to comply with ASTM C 754 and ASTM C 840.
- A. **Do not bridge** building expansion joints with support systems, frame both sides of joints with furring and other supports as indicated.
 - B. **Secure hangers** to structural support by connecting directly to structure where possible, otherwise

SECTION 092900 - GYPSUM DRYWALL (continued):

- connect to inserts, clips other anchorage devices or fasteners as indicated.
- C. Install direct-hung grid suspension system, including perimeter wall track or angle, with members spaced and installed to comply with mfr's instructions.
 - D. Install steel studs with bottom and top runner tracks anchored to substrates. Isolate system from building structure to prevent transfer of loading and deflections into metal support system, both vertically and horizontally.
 - E. Install supplementary framing, runners, furring, blocking and bracing at openings and terminations in gypsum drywall and where required for support of other work which cannot be adequately supported on gypsum board alone.
- 3.02 Install and finish gypsum board to comply with ASTM C 840 and as follows:
- A. Isolate drywall construction from abutting structural and masonry work; provide edge trim and acoustical sealant as recommended by manufacturer.
 - B. Screw gypsum board to metal supports.
 - C. Do not bridge building expansion joints. Leave space of the width indicated between boards, and trim both edges for installation of sealant or gasket.
- 3.03 Install water-resistant backing board where indicated to receive thin-set tile.
- 3.04 Drywall Finishing: Apply joint tape and joint compound at joints between gypsum boards. Apply compounds indicated below at accessory flanges, penetrations, fastener heads and surface defects.
- A. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C840:
 - 1. Level 4:
 - a. All Joints and interior angles shall have tape embedded in joint compound and two separate coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges. Note: It is recommended that the prepared surface be coated with a drywall primer prior to the application of final finishes. (See Section 099000 – Painting.)
- 3.05 Install compound in 3 coats (plus prefill of cracks where recommended by manufacturer); sand between coats and after last coat.
- A. Embedding and First Coat: Ready-mix drying type all-purpose of taping compound.
 - B. Fill (Second) Coat: Ready-mix drying type all-purpose or topping compound.
 - C. Finish (Third) Coat: Ready-mix drying-type all-purpose or topping compound.

END OF SECTION 092900

SECTION 095100 - ACOUSTICAL CEILINGS

PART 1 - GENERAL

- 1.01 **Acoustical Panel and Tile Standard:** FS SS-S-118.
- 1.02 **Acoustical Suspension System Standards:** ASTM C 635 for materials, ASTM C 636 for installation.
- 1.03 **Surface Burning Characteristics:** 5 or less for flame spread, 50 or less for smoke developed, per ASTM E84
- 1.04 **Submittals:** Submit product data for each type of acoustical ceiling tile along with 6" square samples of each type of acoustical tile.
- 1.05 **Coordination:** Review Finish Plan on drawings and Mechanical and Electrical Drawings for layout and pattern of acoustical units, location of recessed light fixtures, ceiling diffusers and grilles, details of ceiling penetrations, details of fire rated acoustical treatment, access doors and necessary connections to work of other trades.
Provide coordination drawings for reflected ceiling plans drawn accurately to scale and coordinating penetrations and ceiling-mounted items. Show the following:
1. Ceiling suspension members.
 2. Methods of attaching hangers to building structure.
 3. Size and location of initial access modules.
 4. Ceiling-mounted items including light fixtures; air outlets and inlets; speakers; sprinkler heads; and column penetrations and other junctures with adjoining construction.
- 1.06 **Installer Qualifications:** Engage an experienced Installer who has successfully completed acoustical ceilings similar in material, design and extent to that indicated for Project.
- 1.07 **Pre-installation Conference:** Conduct a pre-installation conference at the Project site to coordinate work from all trades.
- 1.08 **Delivery, Storage and Handling:** Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination and other causes. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
- 1.09 **Deliver extra materials** to Owner. Furnish extra materials of each size and type matching products installed and equaling 2.0% of acoustical units and exposed suspension members installed. Package materials in protective covering and identify with appropriate labels.
- 1.10 **Warranty:** Provide acoustical panels and grid from the same manufacturer with a thirty-year warranty from the date of substantial completion.

PART 2 - PRODUCTS:

- 2.01 **ACT 1**– Wet formed mineral fiber with factory applied latex paint; Type III; Form 2; Class A and as follows:
Color: White.
Light Reflectance: 82%
NRC: 0.70
CAC: 35.
Edge Detail: Square
Size: 24" x 24" x 3/4".
Products: Subject to compliance with requirements, provide "School Zone Fine Fissured with High Acoustics" #1713, by Armstrong OR approved equal.

SECTION 095100 - ACOUSTICAL CEILINGS (continued):

Sag Resistance: HumiGuard+
Antimicrobial: BioBlock+
Recycled Content: Up to 56%
VOC Emissions: Greenguard Gold Certified

- 2.02 **ACT 2**– Wet formed mineral fiber with factory applied latex paint; Type IX; Form 2; Pattern G; Class A and as follows:
Color: White.
Light Reflectance: 89%
NRC: NA
CAC: 33.
Edge Detail: Square
Size: 24" x 24" x 5/8".
Products: Subject to compliance with requirements, provide "Kitchen Zone" #673, by Armstrong OR approved equal.
Sag Resistance: HumiGuard+
Antimicrobial: BioBlock+
Recycled Content: Up to 36%
VOC Emissions: Greenguard Gold Certified
- 2.03 Dimensional Stability: Suspension systems shall meet or exceed the requirements of ASTM C635 for dimensional tolerances, coatings and finishes, and load carrying capabilities.
- 2.04 Humidity control: Ceilings shall have a 30-year system warranty against system sagging and warping when installed according to manufacturer's recommendations. Ceilings shall have and anti-microbial warranty against fungi, mold, mildew, bacteria, yeast or algae.
- 2.05 Suspension Systems:
A. Non-Fire-Resistance-Rated Exposed Double Web Steel Direct-Hung Suspension System with 15/16" Wide Exposed Faces: Roll-formed from prefinished cold-rolled steel sheet, with hanger wire, attachment devices and edge moldings and trim; intermediate-duty system structural classification; white painted finish. Note: All cold-rolled steel sheets shall be hot dipped galvanized (G-30). Armstrong – 15/16" Prelude XL. (Use at all ACT locations.)
(Armstrong Ceiling Tile shall be installed with Armstrong's Suspension System in order to keep the 30 year warranty - No exceptions).

PART 3 - EXECUTION

- 3.01 Project Conditions: Do not install interior acoustical ceilings until space is enclosed and weatherproof, wet work in space is completed and nominally dry, work above ceilings is complete, and ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.
- 3.02 Layout: Balance ceiling borders on opposite sides, using more-than-half-width acoustical units.
- 3.03 Tolerance: 1/8" in 12'-0" level tolerance.
- 3.04 Suspension System: Secure to building structure, with hangers spaced 4'-0" along supported members.
- 3.05 Edge Moldings: Secure to substrate with screw anchors spaced 16" o.c. Miter corner joints. Cope exposed edges of intersecting exposed suspension members to produce flush intersections.
- 3.06 Damaged ceiling panels: Prior to Substantial Completion, remove and replace skinned, damaged or dirty ceiling panels with new material.

SECTION 095100 - ACOUSTICAL CEILINGS (continued):

- 3.07 Cleaning: Clean exposed surfaces of acoustical ceilings, including trim, edge moldings and suspension members. Comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 095100

SECTION 096500 - RESILIENT WALL BASE AND STAIR TREADS

PART 1 - GENERAL

1.01 SUMMARY

Section Includes: RESILIENT WALL BASE AND STAIR TREADS

1.02 REFERENCED DOCUMENTS

- A. ASTM International
 1. E84, Standard Test Method for Surface Burning Characteristics of Building Materials.
 2. E648, Standard Test Method for Critical Radiant Flux of Flooring Systems Using a Radiant Energy Source.
 3. E662, Test Method for Specific Density of Smoke Generated by Solid Materials.
 4. F137, Standard Test Method for Flexibility of Resilient Flooring Materials with Cylindrical Mandrel Apparatus.
 5. F925, Standard Test Method for Resistance to Chemicals of Resilient Flooring.
 6. F1861, Standard Specification for Resilient Wall Base.
- B. Other Referenced Documents
 1. National Fire Protection Association (NFPA), NFPA 255; Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source.
 2. National Fire Protection Association (NFPA), NFPA 258; Test Method for Specific Density of Smoke Generated by Solid Materials.
 3. The Collaborative for High Performance Schools (CHPS).

1.03 SUBMITTALS

- A. Product Data: Submit product data, including manufacturer's specification summary sheet for specified products.
- B. Shop Drawings: Submit shop drawings showing layout, finish colors, patterns and textures.
- C. Samples: Submit selection and verification samples for finishes, colors, and textures.
- D. Quality Assurance Submittals: Submit the following
 1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
 2. Manufacturer's Instructions: Manufacturer's installation and maintenance instructions.
- E. Maintenance Information: Maintenance information for installed products in accordance with Division 1 sections.
 1. Methods for maintaining installed products.
 2. Precautions against cleaning materials and methods detrimental to finishes and performance.
- F. Warranty: Warranty documents specified herein.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installing work similar to that required for this project.
- B. Regulatory Requirements
 1. Fire Performance characteristics: Provide resilient wall base with the following Fire performance characteristics as determined by testing products in accordance with ASTM method (and NFPA method) indicated below by a certified testing laboratory or another testing and inspecting agency acceptable to authorities having jurisdiction.

SECTION 096500 - RESILIENT WALL BASE AND STAIR TREADS (Continued):

- a. ASTM E648 (NFPA 253), Critical Radiant Flux of Floor Covering Systems; Class 1, Greater than 0.45 W/cm².
 - b. ASTM E662 (NFPA 258), Specific Optical Density of Smoke Generated by Solid Materials; < 450.
- C. Single-Source Responsibility: Obtain resilient wall base tile and manufacturer's recommended adhesive from a single supplier.
- D. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, Manufacturer's conditions, recommended adhesive depending on product, substrate type and type of installation, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with requirements in Division 1.

1.05 **DELIVERY, STORAGE AND HANDLING**

- A. General: Comply with requirements in Division 1.
- B. Ordering: Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.
- C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with Identification labels intact.
- D. Storage and Protection: Store materials protected from exposure to harmful weather conditions and acclimated to site conditions at temperature and humidity conditions recommended by manufacturer.

1.06 **PROJECT CONDITIONS**

- A. Environmental Requirements/Conditions: In accordance with manufacturer's recommendations, areas to receive rubber flooring shall be clean, fully enclosed, weather tight with the permanent HVAC set at a uniform temperature of 65° - 85° F for 48 hours prior to, during and thereafter installation of rubber flooring. Rubber flooring and adhesive shall be conditioned in the same manner. Rubber flooring/tile must be un-boxed at least 48 hours prior to installation in the areas in which it will be installed.

1.07 **SEQUENCING AND SCHEDULING**

- A. Finishing Operations: Install resilient wall base after finishing operations, including floor covering, painting and ceiling operations, have been completed.

1.08 **MAINTENANCE**

- A. Extra Materials: Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Division 1, Closeout Submittals Section.
- B. Quantity: Furnish quantity of resilient wall base equal to 5% of amount to be installed.
- C. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra materials.
- D. Maintenance of finished resilient wall base to be conducted per Manufacturer's Maintenance Guide.

1.09 **WARRANTY**

- A. Manufacturer's Materials Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document. Manufacturer's warranty is in addition to, and not a limitation of, other rights

SECTION 096500 - RESILIENT WALL BASE AND STAIR TREADS (Continued):

Owner may have under Contract Documents.

1. Warranty: 1 year limited warranty commencing on Date of Substantial Completion. Notice of any defect must be made in writing to manufacturer within 30 days after buyer learns of the defect.

PART 2 - PRODUCTS

2.01 RESILIENT WALL BASE

- A. Manufacturer: Flexco Corporation, 1401 E. 6th Street, Tuscumbia, AL 35674. Phone: 800-633-3151, Fax: 800-346-9075, Web: www.flexcofloors.com OR Approved Equal.
 1. Contact: Commercial Flooring Distributors, Emi Chavez-Miller, 904-327-9858
- B. Test results
 1. ASTM D570, Water Absorption of Plastics; < 0.15%.
 2. ASTM E84 (NFPA 255), Surface Building Characteristics of Building Materials; Class C.
 3. ASTM E648 (NFPA 253), Critical Radiant Flux; Class 1, > 1.0 W/cm².
 4. ASTM E662 (NFPA 258), Specific Optical Density of Smoke Generated by Solid Materials; Passes.
 5. ASTM F925, Resistance to Chemicals; Passes, List Available.
 6. ASTM F1515, Light Stability; Excellent.
 7. ASTM F1861, Standard Specification for Resilient Wall Base - Types TS, TP & TV, Group 1 & 2, Styles A&B; (Federal Specification SSW40a, Type II, Styles A&B).
 8. NFPA 101 Life Safety Code, Wall Base; Interior floor trim material used at the junction of the wall and the floor to provide a functional or decorative border, and not exceeding 6 in. (150 mm) in height shall meet the requirements for the interior wall finish for its location or the requirements for Class II interior floor finish as described (CFR > .22 W/cm² / < .45 W/cm²) using ASTM E 648. If Class I floor finish is required (CFR > .45 W/cm²), the interior floor trim shall be Class I.
 9. Complies with California Proposition 65
 10. Approved for Collaborative for High Performance Schools 01350, Low-Emitting Material Criteria.
- C. Product:
 1. BASE 2000 Wall Base OR Approved Equal.
 - a. Complies with ASTM F 1861 Type TP (Thermoplastic Rubber), Group 2 (Layered).
 - b. Contains 10% Post Industrial Recycled Content.
 - c. Profile:
 - 1) Standard Toe (Cove base)
 - d. Height:
 - 1) 4" (101.6 mm)
 - e. Length:
 - 1) 120' (36.57 m) Coils - **48" pieces are not acceptable.**
 - f. Thickness: 1/8" (3.175 mm)
 - g. Corner Installation (select one):
 - 1) Factory Formed Corners.
 2. Resilient stair treads, risers and top riser nosing:
 1. Heavy Duty Radial II , One-piece tread with riser: equal to Flexco model #1776 - with visually impaired contrast 2" strip.
 - a. Contrast strip to be equal to Flexco ribbed rubber insert, model RVI.
 - b. Provide stair nosing equal to Flexco top set stair nosing #189 at top step.
 2. Heavy Duty Radial II rubber tiles for intermediate landings – 18" x 18".

SECTION 096500 - RESILIENT WALL BASE AND STAIR TREADS (Continued):

PART 3 - EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's requirements as published in Flexco installation instructions.
- B. Adhesive: Flexco 106 Wall Base Adhesive.
- C. Caulking: Flexco colored caulking as required.

3.02 EXAMINATION

- A. Site Verification of Conditions: Confirm substrate conditions (which have been previously addressed under other sections) are acceptable for product installing in accordance with manufacturer's instructions.
- B. Material Inspection: In accordance with manufacturer's installing requirements, visually inspect materials prior to installing. Material with visual defects shall not be installed.

3.03 PREPARATION

- A. Adjacent Surfaces Protection: Protect adjacent work areas and finish surfaces from damage while installing.
- B. Substrate Preparation: Prepare substrate to be smooth, rigid, flat, level, permanently dry, clean and free of foreign materials such as paint, dust, grease, oils, solvent, old adhesive residue, vinyl wall coverings, non-porous surfaces and all other contaminants that may interfere with adhesive bond.
- C. Do not install over existing floor covering or over substrates not approved by manufacturer.

3.04 INSTALLING

- A. Refer to Flexco installation instructions for specific resilient wall base detailed specifications on installing.
 - 1. Accessories: Architect shall specify manufacturers' color coordinated accessories as required, including (but not limited to) resilient transition strips and reducers.

3.05 FIELD QUALITY REQUIREMENTS

- A. Manufacturer's Field Services: Upon Owner's request and with minimum 72 hours notice, provide manufacturer's field service consisting of product use recommendations and periodic site visits to confirm installing of product is in accordance with manufacturer's instructions.

3.06 PROTECTION

- A. Protection: Protect installed product and finish surfaces from damage during construction. Remove and legally dispose of protective covering at time of substantial completion.
- B. Restrict cleaning for first 72 hours.

3.07 INITIAL MAINTENANCE PROCEDURES

- A. General: Include in contract sum cost for initial maintenance procedures and execution by professional maintenance personnel after resilient wall base has been installed for 72 hours as specified in the Flexco maintenance instructions.

SECTION 096500 - RESILIENT WALL BASE AND STAIR TREADS (Continued):

3.08 CLEANING

- A. Cleaning: See Flexco maintenance instructions. Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of.

END OF SECTION 096500

SECTION 096519 - LUXURY VINYL TILE

PART 1 – GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY:

- A. Section Includes:
 - 1. Luxury vinyl floor tile.

1.03 SUBMITTALS:

- A. Product Data: For each type of product indicated.
- B. Samples for Verification: Full-size units of each color and pattern of floor tile required.
- C. Qualification Data: For qualified Installer.
- D. Maintenance Data: For each type of floor tile to include in maintenance manuals.

1.04 QUALITY ASSURANCE

- A. Qualifications: A qualified installer who employs workers for this Project who are competent in techniques required by manufacturer for floor tile installation indicated.
 - 1. Engage an installer who employs workers for this Project who are trained for installation techniques required.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Store floor tile and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 65 deg F or more than 85 deg F. Store floor tiles as recommended by manufacturer.

1.06 PROJECT CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 65 deg F or more than 85 deg F, in spaces to receive floor tile during the following time periods:
 - 1. 7 days before installation.
 - 2. During installation.
 - 3. after installation.
- B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 65 deg F or more than 85 deg F.
- C. Close spaces to traffic during floor tile installation.
- D. Close spaces to traffic for 48 hours after floor tile installation.
- E. Install floor tile after other finishing operations, including painting, have been completed.

1.08 EXTRA MATERIALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

SECTION 096519 – LUXURY VINYL TILE (continued):

1. Floor Tile: Furnish 1 box for every 50 boxes or fraction thereof, of each type, color, and pattern of floor tile installed.

PART 2 - PRODUCTS

2.01 LUXURY VINYL TILE - LVT

- A. Manufacturer: Interface
Series: Studio Set
Contact: Katherine Thomas (251) 709-2334.
- B. Class/ASTM F1700: Class III, Printed Vinyl Plank
- C. Wear layer thickness: 22 mil
- D. Total thickness: 4.5 mm
- E. Backing class: Commercial grade
- F. Finish: Ceramor
- G. Nominal dimensions: 25 cm x 1 m (9.845 in. x 39.38 in.)
- H. Warranty: 15 year standard LVT warranty
- I. Installation: See Interface LVT installation guidelines
- J. Maintenance: See Interface LVT maintenance guidelines

2.02 PERFORMANCE SPECIFICATIONS

- A. IIC Sound Rating: ASTM E492-09 – 57 IIC
- B. Slip Resistance: ASTM D2047 – greater than 0.55 wet/dry, ADA compliant
- C. Static Load Limit: ASTM F970 – 1500 psi
- D. Flexibility: ASTM F137 – Passes
- E. Resistance to Heat: ASTM F1514 – Passes
- F. Resistance to Light: ASTM F1515 – Passes
- G. Radiant Flux: ASTM E648 - Class 1
- H. Smoke Density: ASTM E662 – less than or equal to 450
- I. Size and squareness: ASTM F2055 – Passes, +/- 0.016 in. per linear foot
- J. Thickness: ASTM F386 – Passes
- K. Dimensional Stability: ASTM F2199 – Passes
- L. Residual Indentation: ASTM F1914 – Passes
- M. Resistance to Chemicals: ASTM F925 – Passes

SECTION 096519 – LUXURY VINYL TILE (continued):

2.03 ENVIRONMENTAL SPECIFICATIONS

- A. Indoor Air Quality: FloorScore/CDPH 01350 Certified for Low-VOC emissions
- B. Material Composition: Free of Ortho Phthalates, Added Formaldehyde and Heavy Metal Stabilizers
- C. Ingredients and Life Cycle Impacts: Environmental Product Declaration
- D. Carbon Footprint: 3rd Party Verified Carbon Neutral
- E. Sustainability Assessment: NSF/ANSI 332 Silver
- F. End of Life: Fully Recyclable LVT to Carpet Tile Backing

2.03 INSTALLATION MATERIALS

- A. Leveling and Patching Compounds: Portland based formulation approved by manufacturer for applications indicated.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. All substrates to receive resilient flooring shall be dry, clean, smooth and structurally sound. They shall be free of dust, solvent, paint, wax, oil, grease, residual adhesive, adhesive removers, curing, sealing, hardening/parting compounds, alkaline salts, excessive carbonation/laitance, mold, mildew and other foreign materials.
- C. Areas to receive resilient flooring should be adequately illuminated during all phases of the installation process.
- D. Do not install resilient flooring products until the work area can be temperature controlled.
- E. The permanent HVAC system must be operational and functional and set to a minimum of 65 degrees F or a maximum of 85 degrees F for a minimum of 7 days prior to, during, and after installation. Once the installation is complete, the temperature should not exceed 85 degrees F.
- F. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Before installing resilient flooring over new or existing concrete subfloor, you must test the moisture and alkalinity levels of the concrete. All concrete substrates should be tested for moisture by use of the in Situ Probe RH test method (ASTM F 2170) and pH following ASTM F710 guidelines.
 - 1. Moisture Testing: Perform tests recommended by manufacturer **and as follows**. Proceed with installation only after substrates pass testing. Testing shall be done by an independent third party. Results shall be documented and retained. A copy shall be submitted to the Architect, Contractor and Flooring Subcontractor within 72 hours.

SECTION 096519 – LUXURY VINYL TILE (continued):

- C. TacTiles Installation: For projects equal to or less than 540 sf, Interface TacTiles connectors may be used.
 - 1. Over concrete with up to 85% RH and pH up to 9.0, you may install with Interface’s TacTiles connectors. Standard installation instruction apply.
 - 2. Over concrete with up to 90% RH and pH up to 9.0, you may install with Interface’s TacTiles connectors provided the following conditions are met:
 - a. The concrete slab must be a new, bare concrete less than one year old form date of pour.
 - b. The slab must be on or above grade.
 - c. On grade slabs must have a functional vapor barrier under the entire slab.
 - d. An above grade slab must be a suspended slab or be poured in a vented pan.
 - 3. Over concrete with up to 97% RH and pH up to 11.0, you may install with Interface’s TacTiles connectors in conjunction with XL Brands 9511 Moisture Vapor Reduction System. All XL Brands 9511 written requirements for product application, including, but not limited to, moisture and pH testing protocols, must be met or the resilient tile products will not be covered by warranty.
- D. New and existing concrete subfloors should meet the guidelines of the latest edition of ACI 302 and ASTM F710, “Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring”.
- E. Levelness: Concrete floors shall be flat and smooth within 1/8” in 6 feet or 3/16” in 10 feet.
- F. Expansion and isolation joints in concrete are designed to allow for the expansion and contraction of the concrete. Resilient flooring products should never be installed over expansion joints. Expansion joint covers designed for use with resilient floor coverings should be used. Control joints (saw cuts) may be patched and covered with resilient once the concrete is thoroughly cured, dry and acclimated.
- G. Old Adhesive Residue must be dealt with in one of two ways:
 - 1. It may be mechanically removed by methods such as: sanding, grinding, bead blasting or scarifying. Encapsulate the residual with XL Brands TriSeal or similar product specifically designed for adhesive encapsulation.
 - 2. A self-leveling Portland based underlayment may be applied over it. Check with a substrate manufacturer for suitability, application instruction and warranties.
Never use solvents or citrus adhesive removers to remove old adhesive residue. Solvent residue left in/on the substrate may affect the new adhesive and floor covering.

3.03 FLOOR TILE INSTALLATION

- A. Comply with manufacturer's written instructions for installing floor tile.
- B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
- C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
 - 1. Lay tiles carefully, noting directional arrows on the back of tiles when present.
- D. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
- E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent, non-staining marking device.

SECTION 096519 – LUXURY VINYL TILE (continued):

- G. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in finished floor areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.

3.04 **CLEANING AND PROTECTION**

- A. Comply with manufacturer's written instructions for cleaning and protection of floor tile.
- B. Perform the following operations immediately after completing floor tile installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Sweep and vacuum surfaces thoroughly.
 - 3. Damp-mop surfaces to remove marks and soil.
- C. Protect floor tile products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Remove soil, visible adhesive, and surface blemishes from floor tile surfaces.
 - 1. Not less than 48 hours after installation, clean floor with a neutral liquid cleaner, as recommended by the flooring and cleaner manufacturers.

END OF SECTION 096500

SECTION 096700 – SPECIAL COATINGS FOR CONCRETE

PART 1 GENERAL

1.01 **SECTION INCLUDES:**

- A. Fluid-applied flooring for Concrete

1.02 **RELATED SECTIONS:**

- A. Division 3 – Concrete

1.03 **REFERENCES:**

- A. SSPC-SP 1 - Solvent Cleaning
- B. SSPC-SP 2 - Hand Tool Cleaning
- C. SSPC-SP 3 - Power Tool Cleaning
- D. SSPC-SP 13 / NACE No. 6 Surface Preparation for Concrete
- E. ASTM F1869 - Moisture Test by use of Calcium Chloride
- F. ASTM D4258 - Standard Practice for Cleaning Concrete
- G. ASTM D4259 - Standard Practice for Abrading Concrete
- H. ASTM D4260 - Standard Practice for Etching Concrete
- I. ASTM D4263 - Plastic Sheet Method for Checking Moisture in Concrete
- J. EPA-Method 24
- K. ICRI # 03732

1.04 **SUBMITTALS:**

- A. Submit under provisions of Section 013300, Submittal Procedures.
- B. Product Data: Manufacturer's data sheets on each paint and coating product should include:
 - 1 Product characteristics
 - 2 Surface preparation instructions and recommendations
 - 3 Primer requirements and finish specification
 - 4 Storage and handling requirements and recommendations
 - 5 Application methods
 - 6 Cautions
- C. Selection Samples: Submit a complete set of color chips that represent the full range of manufacturer's color samples available.
- D. Verification Samples: For each finish product specified, submit samples that represent actual product, color, and sheen.

1.05 **MOCK-UP:**

Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of painting on the project.

SECTION 096700 – SPECIAL COATINGS FOR CONCRETE (cont.):

- A. Finish surfaces for verification of products, colors, & sheens.
- B. Finish area designated by Architect.
- C. Provide samples that designate prime & finish coats.
- D. Do not proceed with remaining work until the Architect approves the mock-up samples.

1.06 **DELIVERY, STORAGE, AND HANDLING:**

- A. Delivery: Deliver manufacturer's unopened containers to the work site. Packaging shall bear the manufacturer's name, label, and the following list of information:
 - 1. Product name, and type (description)
 - 2. Application & use instructions
 - 3. Surface preparation
 - 4. VOC content
 - 5. Environmental issues
 - 6. Batch date
 - 7. Color number
- B. Storage: Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction. Store materials in an area that is within the acceptable temperature range, per manufacturer's instructions. Protect from freezing.
- C. Handling: Maintain a clean, dry storage area, to prevent contamination or damage to the coatings.

1.07 **PROJECT CONDITIONS:**

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not apply coatings under environmental conditions outside manufacturer's absolute limits.

PART 2 - PRODUCTS

2.01 **MANUFACTURERS:**

- A. Acceptable Manufacturer:
The Sherwin-Williams Company OR Approved Equal
101 Prospect Avenue NW
Cleveland, OH 44115
Tel: (800) 321-8194
Fax: (216) 566-1392
- B. Substitutions: Requests for substitutions will be considered in accordance with provisions of Section 016000 Product Requirements. When submitting request for substitution, provide complete product data specified above under Submittals, for each substitute product.

2.02 **SCHEDULE:**

- A. **SPC:** Light Industrial Duty: (Is Generally Considered For Industrial Foot Traffic & handcars)
 - 1st Coat: ArmorSeal® Tread-Plex™, B90 Series
(1.5 - 2.0 mils dry)
 - 2nd Coat: ArmorSeal® Tread-Plex™, B90 Series
(1.5 - 2.0 mils dry per coat)
 - Additive: SharkGrip for slip resistance
Spread Density Mock-up must be approved by Architect
 - Color: Architect to select color from manufactures standard colors plus 120 tints.

SECTION 096700 – SPECIAL COATINGS FOR CONCRETE (cont.):

2.04 **MATERIALS - GENERAL REQUIREMENTS:**

A. Paints and Coatings - General:

1. Unless otherwise indicated, provide factory-mixed coatings. When required, mix coatings to correct consistency in accordance with manufacturer's instructions before application. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.

B. Primers:

1. Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.

2.05 **ACCESSORIES:**

A. Coating Application Accessories:

1. Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required, per manufacturer's specifications.

PART 3 EXECUTION

3.01 **EXAMINATION:**

A. Do not begin application of coatings until substrates have been properly prepared. Notify Architect of unsatisfactory conditions before proceeding.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

C. Proceed with work only after conditions have been corrected, and approved by all parties, otherwise application of coatings will be considered as an acceptance of surface conditions.

3.02 **SURFACE PREPARATION:**

A. Proper product selection, surface preparation, and application affect coating performance. Coating integrity and service life will be reduced because of improperly prepared surfaces. Selection and implementation of proper surface preparation ensures coating adhesion to the substrate and prolongs the service life of the coating system.

B. Selection of the proper method of surface preparation depends on the substrate, the environment, and the expected service life of the coating system. Economics, surface contamination, and the effect on the substrate will also influence the selection of surface preparation methods.

C. Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

D. New Poured Concrete

1. For surface preparation, refer to SSPC-SP13/NACE 6/ICRI # 03732. Surfaces must be clean, dry, sound and offer sufficient profile to achieve adequate adhesion. Minimum substrate cure is 28 days at 75°F. Remove all form release agents, curing compounds, salts, efflorescence, laitance, and other foreign matter by sandblasting, shotblasting, or mechanical scarification. Chemical means is not accepted. Refer to ASTM D4260. Rinse thoroughly to achieve a final pH between 8.0 and 10.0. Allow to dry thoroughly prior to coating.

E. Fill all cracks, voids, bug holes and joints with appropriate filler or ArmorSeal Crack Filler, ArmorSeal Joint Sealant, or ArmorSeal Expresspatch.

F. Always follow the ASTM methods listed below:

1. ASTM F1869 Moisture Test by use of Calcium Chloride

SECTION 096700 – SPECIAL COATINGS FOR CONCRETE (cont.):

2. ASTM F2170 Relative Humidity Moisture Test with in-situ probes.
3. ASTM D4258 Standard Practice for Cleaning Concrete.
4. ASTM D4259 Standard Practice for Abrading Concrete.
5. ASTM D4260 Standard Practice for Etching Concrete.
6. ASTM D4263 Plastic Sheet Method for Checking Moisture in Concrete.
7. SSPC-SP 13/Nace 6 Surface Preparation of Concrete
8. ICRI # 03732 Surface Preparation of Concrete

WARNING! Removal of old paint by sanding, scraping or other means may generate dust or fumes that contain lead. Exposure to lead dust or fumes may cause brain damage or other adverse health effects, especially in children or pregnant women. Controlling exposure to lead or other hazardous substances requires the use of proper protective equipment, such as a properly fitted respirator (NIOSH approved) and proper containment and cleanup. For more information, call the National Lead Information Center at 1-800-424-LEAD (in US) or contact your local health authority.

- G. Moisture Testing: Perform tests recommended by manufacturer **and as follows**. Proceed with installation only after substrates pass testing. Testing shall be done by an independent third party.
1. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
 2. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum **80%** relative humidity level measurement.
 3. Both test shall be done. Results shall be documented and retained. A copy shall be submitted to the Architect, Contractor and Flooring Subcontractor.

3.03 **INSTALLATION:**

- A. Apply all coatings and materials with manufacturer's specifications in mind. Mix and thin coatings according to manufacturer's recommendation.
- B. Do not apply to wet or damp surfaces.
 1. Wait at least 28 days before applying to new concrete or masonry. Or follow manufacturer's procedures to apply appropriate coatings prior to 28 days.
 2. Test new concrete for moisture content.
- C. Apply coatings using methods recommended by manufacturer.
- D. Uniformly apply coatings without runs, or sags, without brush marks, and with consistent sheen.
- E. Apply coatings at spreading rate required to achieve the manufacturer's recommended dry film thickness.
- F. Inspection: The coated surface must be inspected and approved by the Architect or Engineer just prior to each coat.

3.04 **PROTECTION:**

- A. Protect finished coatings from damage until completion of project.
- B. Touch-up damaged coatings after substantial completion, following manufacturer's recommendation for touch up or repair of damaged coatings. Repair any defects that will hinder the performance of the coatings.

END OF SECTION 096700

SECTION 096723 – RESINOUS FLOORING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Coating systems for food and beverage facilities, correctional facilities, pharmaceutical processing areas, and commercial and restaurant kitchen concrete floors. Developed for low odor and quick return to service. Excellent resistance to thermal shock and aggressive cleaning methods required to meet hygienic standards.

1.02 RELATED SECTIONS

- A. Section 033000 for under-slab-vapor barrier.

1.03 REFERENCES

- A. ASTM D 16 - Terminology Relating to Paint, Varnish, Lacquer, and Related Products.
- B. ASTM D 4259 – Standard Practice for Abrading Concrete.
- C. ASTM D 4263 - Indicating Moisture in Concrete by the Plastic Sheet Method.
- D. ASTM F 2170 - Relative Humidity Test using in situ probes.
- E. International Concrete Repair Institute (ICRI) Guideline No. 03732 - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays.
- F. SSPC-SP 13/NACE 6 - Surface Preparation of Concrete.

1.04 DEFINITIONS

- A. Definitions of Painting Terms: ASTM D 16, unless otherwise specified.
- B. Dry Film Thickness (DFT): Thickness of a coat of paint in fully cured state measured in mils (1/1000 inch).

1.05 SUBMITTALS

- A. Comply with Section 013000 - Submittals.
- B. Product Data: Submit manufacturer's product data for each coating, including generic description, complete technical data, surface preparation, and application instructions.
- C. Color Samples: Submit manufacturer's color samples showing full range of standard colors.
- D. Manufacturer's Quality Assurance: Submit manufacturer's certification that coatings comply with specified requirements and are suitable for intended application.
- E. Applicator's Quality Assurance: Submit list of a minimum of 5 completed projects of similar size and complexity to this Work. Include for each project:
 - 1. Project name and location.
 - 2. Name of owner.
 - 3. Name of contractor.
 - 4. Name of architect.
 - 5. Name of coating manufacturer.
 - 6. Approximate area of coatings applied.

SECTION 096723 – RESINOUS FLOORING (continued):

7. Date of completion.
- F. Warranty: Submit manufacturer's standard warranty.

1.06 QUALITY ASSURANCE

- A. Manufacturer's Qualifications:
 1. Specialize in manufacture of coatings with a minimum of 5 years successful experience.
 2. Able to demonstrate successful performance on comparable projects.
 3. Single Source Responsibility: Coatings and coating application accessories shall be products of a single manufacturer.
- B. Applicator's Qualifications:
 1. Experienced in application of specified coatings for a minimum of 5 years on projects of similar size and complexity to this Work.
 2. Applicator's Personnel: Employ persons trained for application of specified coatings.
- C. Mock-Ups: Prepare 10 foot x 10 foot mock-up for each coating system specified using same materials, tools, equipment, and procedures intended for actual surface preparation and application. Obtain Architect's approval of mock-ups. Retain mock-ups to establish intended standards by which coating systems will be judged.
- D. Pre-application Meeting: Convene a pre-application meeting Two (2) weeks before start of application of coating systems. Require attendance of parties directly affecting work of this section, including Contractor, Architect, applicator, and manufacturer's representative. Review the following:
 1. Environmental requirements.
 2. Protection of surfaces not scheduled to be coated.
 3. Surface preparation.
 4. Application.
 5. Repair.
 6. Field quality control.
 7. Cleaning.
 8. Protection of coating systems.
 9. One-year inspection.
 10. Coordination with other work.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying:
 1. Coating or material name.
 2. Manufacturer.
 3. Color name and number.
 4. Batch or lot number.
 5. Date of manufacture.
 6. Mixing and thinning instructions.
- B. Storage:
 1. Store materials in a clean dry area and within temperature range in accordance with manufacturer's instructions.
 2. Keep containers sealed until ready for use.
 3. Do not use materials beyond manufacturer's shelf life limits.
- C. Handling: Protect materials during handling and application to prevent damage or contamination.

SECTION 096723 – RESINOUS FLOORING (continued):

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Weather:
 - 1. Air and Surface Temperatures: Prepare surfaces and apply and cure coatings within air and surface temperature range in accordance with manufacturer's instructions.
 - 2. Surface Temperature: Minimum of 5^oF (3^oC) above dew point.
 - 3. Relative Humidity: Prepare surfaces and apply and cure coatings within relative humidity range in accordance with manufacturer's instructions.

- B. Ventilation: Provide ventilation during coating evaporation stage in confined or enclosed areas in accordance with manufacturer's instructions.

- C. Dust and Contaminants:
 - 1. Schedule coating work to avoid excessive dust and airborne contaminants.
 - 2. Protect work areas from excessive dust and airborne contaminants during coating application and curing.

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. Tnemec Coatings as represented by Florida Protective Coatings Consultants, 250 Waymont Ct, ste 120, Lake Mary, FL 32746 Phone (407) 322-1243. Fax (407) 322-1245. E-Mail: bpasseser@tnemec.com (Barry Passeser – 386-689-3083) Web Site www.tnemec.com. OR Approved Equal.

- B. Alternate materials to be considered for this project must be submitted at least 14 days prior to the bid opening with equivalent performance test data. Required substitution data includes the following:
 - 1) Product specification.
 - 2) Warranty information.
 - 3) Repair details.
 - 4) List of three comparative installations, in use three or more years.
 - 5) Contact information for performance reference checks.

2.02 COATINGS

- A. **RFL**: Medium use commercial and 6" Cove Base
 - 1. Laminate Resinous Flooring: Tnemec Series 222 Deco-Tread consisting of a two-component modified polyamine cured water clear epoxy liquid and a colored quartz broadcast aggregate applied by double broadcast or as a slurry broadcast to provide a minimum 1/8" thickness.
 - 2. Apply Series 241 Ultra-Tread MVT at 1/8" thickness. This is a primer and first coat. Broadcast quartz aggregate to refusal. Apply Tnemec Series 222 Deco-tread to 20 mills. Broadcast quartz aggregate to refusal. Surface preparation should be a minimum ICRI CSP5.
 - 3. Grout Coat: Tnemec Series 284 Deco-Clear at 6-12 mils dft.
 - 4. Finish Coat: Tnemec Series 285 Satin glaze, a two-component, polyamine cured water clear epoxy finish. Provides a satin finish and orange peel texture when applied over Series 284 Deco-Clear.
 - 5. Second Finish Coat: For additional gloss, color retention and abrasion resistance, install a finish coat of Tnemec Series 294 Clear CRU for a semi-gloss finish.
 - 6. Coving: Series 222 Deco-Tread, a two-component, modified polyamine cured epoxy liquid, blended as a mortar with decorative aggregate applied to form a cant or rolled radius cove. Base shall be 6" high.
 - 7. Use a PCS Joint, premolded plastic termination strip, from KEP, Inc., or engineer approved equal at the top of 6" Cove Base.

SECTION 096723 – RESINOUS FLOORING (continued):

C. Installation:

1. Install Cove Base before proceeding.
 - a. Surface prepare areas to receive cove base by mechanical means to obtain a minimum ICRI CSP3.
 - b. Apply 1 coat of Tnemec Series 201 Epoxyoprime at 6.0 - 8.0 mils dft. Lightly "dust" into the wet material a small amount of aggregate to facilitate the application of the cove base.
 - c. Provide a "rolled radius" cove base. Use Tnemec Series 237 Power-Tread (or Tnemec Series 222 Deco-Tread) mixed with 30 - 50 mesh aggregate at an approximate ratio of 6-9 parts aggregate to 1 part resin ratio.
2. Fill all cracks, depressions and recessed joints, such as control and construction joints with Tnemec Series 201 Epoxoprime mixed with fumed silica or Tnemec Series 245 Ultra-Tread mixed with an aggregate. When filled, the area should be flush with the floor surface.
3. Terminations such as perimeter drains, trenches, etc. must be keyed to provide anchorage. A key is achieved by cutting a 1/2" wide by 1/2" deep channel into the substrate. Do not feather edge Series 245.
4. A minimum ICRI CSP 5 is required.
5. Tnemec Series 245 Ultra Tread S is supplied as a 4 part mix and is applied as a slurry. Mix all components per the manufacturer's instructions. Pour the mixed material onto the floor and spread to achieve a uniform thickness and coverage per the product data sheet. Apply and "push" to the cove base.
6. Using a porcupine or loop roller, backroll through the material to help facilitate leveling and alleviate imperfections.
7. Immediately broadcast the aggregate specified to refusal.
8. Remove excess aggregate after the material has cured and can support the weight of the workers.
9. Follow the manufacturer's printed instructions for recoat times.
10. Apply Tnemec Series 246 Ultra Tread Glaze at 8.0 - 10.0 mils per coat over the entire floor including the cove base.

2.03 ACCESSORIES

A. Coating Application Accessories:

1. Accessories required for application of specified coatings in accordance with manufacturer's instructions, including thinners.
2. Products of coating manufacturer.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine areas and conditions under which coating systems are to be applied. Notify Architect of areas or conditions not acceptable. Do not begin surface preparation or application until unacceptable areas or conditions have been corrected.

3.02 PROTECTION OF SURFACES NOT SCHEDULED TO BE COATED

- A. Protect surrounding areas and surfaces not scheduled to be coated from damage during surface preparation and application of coatings.
- B. Immediately remove coatings that fall on surrounding areas and surfaces not scheduled to be coated.

3.03 SURFACE PREPARATION OF CONCRETE FLOORS

- A. Prepare concrete surfaces in accordance with manufacturer's instructions, SSPC-SP 13/NACE 6, and

SECTION 096723 – RESINOUS FLOORING (continued):

ICRI 03732. Surface profile to be no less than an ICRI CSP 5.

- B. Ensure surfaces are clean, dry, and free of oil, grease, dirt, dust, and other contaminants.
- C. Moisture Testing: Perform tests recommended by manufacturer **and as follows**. Proceed with installation only after substrates pass testing. Testing shall be done by an independent third party.
 - a. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum **90%** relative humidity level measurement.
 - b. Results shall be documented and retained. A copy shall be submitted to the Architect, Contractor and Flooring Subcontractor within 72 hours.
- D. Allow new concrete to cure for a minimum of 10 days before coating.
- E. Level protrusions and mortar spatter.
- F. Saw cut all perimeters and terminations

3.04 APPLICATION

- A. Apply coatings in accordance with manufacturer's instructions.
- B. Fill large voids in surface with either TNEMEC Series 218 MortarClad epoxy cement. Series 243 Ultra-Tread V or Tnemec Series 245 as required.
- C. Mix coatings in accordance with manufacturer's instructions.
- D. Keep containers closed when not in use to avoid contamination.
- E. Do not attempt to remixed or apply coatings beyond pot life limits.
- F. Use application equipment, tools, and techniques in accordance with manufacturer's instructions.
- G. Uniformly apply coatings at spreading rate required to achieve specified DFT.
- H. Apply coatings to be free of film characteristics or defects that would adversely affect performance or appearance of coating systems.
- I. Refer to Tnemec' Guideline for the application of Polyurethane Modified Concrete's.

3.05 REPAIR

- A. Materials and Surfaces Not Scheduled To Be Coated: Repair or replace damaged materials and surfaces not scheduled to be coated.
- B. Damaged Coatings: Touch-up or repair damaged coatings. Touch-up of minor damage shall be acceptable where result is not visibly different from adjacent surfaces. Recoat entire surface where touch-up result is visibly different, either in sheen, texture, or color.
- C. Coating Defects: Repair in accordance with manufacturer's instructions coatings that exhibit film characteristics or defects that would adversely affect performance or appearance of coating systems.

3.06 FIELD QUALITY CONTROL

- A. Inspector's Services:
 - 1. Verify coatings and other materials are as specified.

SECTION 096723 – RESINOUS FLOORING (continued):

2. Verify surface preparation and application are as specified.
3. Verify DFT of each coat and total DFT of each coating system are as specified using wet film and dry film gauges.
4. Coating Defects: Check coatings for film characteristics or defects that would adversely affect performance or appearance of coating systems.
5. Report:
 - a. Submit written reports describing inspections made and actions taken to correct nonconforming work.
 - b. Report nonconforming work not corrected.
 - c. Submit copies of report to Architect and Contractor.

B. Manufacturer's Field Services: Manufacturer's representative shall provide technical assistance and guidance for surface preparation and application of coating systems.

3.07 CLEANING

A. Remove temporary coverings and protection of surrounding areas and surfaces.

3.08 PROTECTION OF COATING SYSTEMS

A. Protect surfaces of coating systems from damage during construction.

3.09 ONE-YEAR INSPECTION

- A. Owner will set date for one-year inspection of coating systems.
- B. Inspection shall be attended by Owner, Contractor, Architect, and manufacturer's representative.
- C. Repair deficiencies in coating systems as determined by Architect in accordance with manufacturer's instructions.

END OF SECTION 096723

SECTION 096816 – CARPETING

PART 1 - GENERAL

- 1.01 **Submittals:** Submit product binder of each required type, color, pattern and texture of carpet and samples of edge stripping.
- 1.02 **Layout plan:** Submit a working layout for each area to be covered showing the installation pattern for review and approval.
- 1.04 **Extra material:** Furnish 2% additional stock from the same production run as the materials applied. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner. The Owner shall be permitted to inspect waste carpet scraps, so he may retain any for future repairs before they are removed from the jobsite. Usable pieces of carpet not necessary to complete the work are to be left on the jobsite and placed in an orderly manner in such an area as designated by the Owner.
- 1.05 **Product, Delivery and Handling:** Carpet will be delivered to the jobsite in the original mill wrappings with each roll having its size, material and register number properly marked on each bale. The carpet shall be stored under cover in dry, well ventilated spaces as soon as it is delivered to the jobsite and the Contractor shall protect it from damage, dirt, stains and moisture.
- 1.06 **Field Verification:** Contractor shall field verify and measure all conditions affecting the installation of the carpet. Contractor will be responsible for proper installation of carpet in designated areas.
- 1.07 **Substrate Testing:**
1. **Moisture Testing:** Perform tests recommended by manufacturer **and as follows.** Proceed with installation only after substrates pass testing. Testing shall be done by an independent third party.
 - a. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum relative humidity level measurement within the manufacturer's required range.
 - b. Both tests shall be done. Results shall be documented and retained. A copy shall be submitted to the Architect and Flooring Subcontractor within 72 hours.
 - c. Installation of flooring shall not begin until moisture tests are within the required range.
- 1.08 **Warranty:** Manufacturer's standard 15-year warranty.

PART 2 – PRODUCTS

- 2.01 **Interior Carpet Materials and Construction:**
- A. Carpet – CPT: Product Specifications
 1. Manufacturer: Interface Carpet
 2. Pattern: Cubic or Cubic Colors
 3. Product Construction: Tufted Textured Loop
 4. Yarn System: 100% Recycled Content type 6 nylon
 5. Yarn manufacturer: Aquafil
 6. Dye Method: 100% Solution Dyed
 7. Dye Lots: Mergeable
 8. Soil/Stain Protection: Protekt
 9. Preservative Protection: Intersept
 10. Pile Thickness: 0.093 inch
 11. Pile Density: 6968 oz/square yard
 12. Size: 19.69 inches x 19.69 inches (50 cm x 50 cm)
 13. Color: To be selected
 14. Installation Method: Non directional
 15. Standard Backing: GlasBac

SECTION 096816 – CARPETING (continued):

- B. Entry Carpet – ECPT: Product Specifications
 - 1. Manufacturer: Interface Carpet
 - 2. Pattern: Step Repeat Collection – SR899
 - 3. Product Construction: Tufted Textured Loop
 - 4. Yarn System: 100% Recycled Content type 6 nylon; scrubber yarn
 - 5. Yarn manufacturer: Aquafil
 - 6. Dye Method: 100% Solution Dyed
 - 7. Soil/Stain Protection: Protekt
 - 8. Preservative Protection: Intersept
 - 9. Pile Thickness: 0.143 inch
 - 10. Pile Density: 6545 oz/square yard
 - 11. Size: 19.69 inches x 19.69 inches (50 cm x 50 cm)
 - 12. Color: To be selected
 - 13. Installation Method: Monolithic
 - 14. Standard Backing: GlasBac

- C. Performance Specifications:
 - 1. Flooring Radiant Panel: ASTM E-648 – Passes
 - 2. Smoke Density: ASTM E 662 – less than or equal to 450
 - 3. Flammability: Passes Methenamine Pill Test – DOC-FF1-70
 - 4. Lightfastness: AATCC 16-E – greater than or equal to 4.0 @ 60 AFU’s
 - 5. Static: AATCC-134 – less than 3.0 KV
 - 6. Dimensional Stability: AACHEN Din 54318 – less than 0.10%
 - 7. Traffic Classification: Heavy
 - 8. Fiber Modification Ratio: 1.9 to 2.2
 - 9. Preservative Efficacy: AATCC 174 Parts 2 & 3 – 99% Reduction/No Mold 7 days; ASTM E-2471 – Complete Inhibition

- D. Environmental Specifications:
 - 1. Total Recycled Content: 71%
 - 2. Indoor Air Quality: Green Label Plus #GLP0820
 - 3. Ingredients and Life Cycle Impacts: Environmental Product Declaration
 - 4. Other Environmental Claims: 3rd Party Verified Carbon Neutral; NSF/ANSI 140 Gold – Sustainable Assessment
 - 5. End of Life: Carpet to Carpet Recycling

- E. Technical Information:
 - 1. See Interface Installation Guidelines online
 - 2. See recommended Interface Maintenance Guidelines
 - 3. Reclamation: Recyclable through ReEntry

2.02 Miscellaneous Materials and Carpet Accessories:

- A. Resilient Transition Strip: See General Finish notes in the finish plans.
- B. Installation Adhesive: Provide Interface TacTile connectors. Install as recommended by carpet manufacturer.
- C. Miscellaneous Materials: Products of type recommended by manufacturer and Installer.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Temperature for the job site must stay within 60 degrees F and 85 degrees F with relative humidity between 40% - 60% for 48-72 hours prior to, during and 48-72 hours after installation.
- B. All carpet tiles must be removed from the cartons and allowed to adjust to the job site temperature for 48 hours prior to installation.

SECTION 096816 – CARPETING (continued):

3.02 **CONCRETE MOISTURE AND ALKALINITY TESTING**

- A. The required pre-installation moisture and alkalinity tests should be performed to ASTM standards. Per CRI guidelines, these tests shall be performed by a qualified and independent third party. The General Contractor shall be responsible for test costs.
- B. Concrete subfloors shall be new or bare. Bare concrete floors are free of adhesive residue, paint, sealers, primers and other applied materials.
- C. Before installing, all concrete floors, regardless of age, must comply with the moisture and pH requirements stated below, and must otherwise be suitable for carpet tile installation. The moisture conditions of the concrete should be determined by use of the In Situ probe relative humidity (RH) test method (ASTM F 2170). Interface requires the use of a moisture testing device manufactured by Wagner or Vasela. The testing device must be properly maintained and calibrated in accordance with the manufacturer's specifications and frequency recommendations. Certificates of calibration should be maintained for test validation.
- D. For installation over existing concrete substrates (in which case, even if there is an existing vapor barrier, the condition and performance of the vapor barrier cannot be guaranteed) with up to 97% RH and pH up to 11.0, you may install with Interface's TacTiles connectors in conjunction with XL Brands 9511 Moisture Vapor Reduction System. All XL Brands 9511 written requirements for product application, including but not limited to moisture and pH testing protocols, must be met for Interface warranty eligibility.

3.03 **PRODUCT INSPECTION**

- A. Inspect carpet tiles to be sure they meet the order specifications. Inspect the labels on each carton for the correct product style, pattern and color.
- B. Check to make sure you have the right quantity and correct installation method. Be sure you also have enough tiles to establish and "attic stock" for future replacements.

3.04 **LIGHTING**

- A. Ensure adequate overhead lighting is provided. Ideally, lighting should mimic or consist of the same conditions expected at time of occupancy.

3.05 **INSTALLATION**

- A. Install carpet tiles with the specified installation method and pattern per manufacturers' instructions.
- B. Clean and protect carpet tiles as recommended by manufacturer after installation is complete.

END OF SECTION 096816

SECTION 099100 – PAINTING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and Division 1 Specification Sections, apply to this section.

1.02 DESCRIPTION OF WORK

- A. Painting and finishing of interior and exterior items and surfaces, unless otherwise indicated.
- B. Includes field painting of bare and covered pipes and ducts (including color coding), and hangers, exposed steel and iron work, and primed metal surfaces of equipment installed under mechanical and electrical work.
- C. Paint exposed surfaces, except as otherwise indicated, whether or not colors are designated. If not designated, colors will be selected by Architect from designer colors available for the coatings required.
- D. See Section 099600 for textured coatings to be utilized on the exterior of the building.

1.03 WORK NOT INCLUDED: Unless otherwise indicated, shop priming of ferrous metal items and fabricated components are included under their respective trades. Pre-finished items, are not included.

- A. Unless otherwise indicated, painting not required on surfaces of concealed areas except for piping, equipment and other such items within concealed spaces. Finished metals such as anodized aluminum, stainless steel, bronze, and similar metals will not be painted. Do not paint any moving parts of operating units, or over any equipment identification, performance rating, name or nomenclature plates or code-required labels.

1.04 RELATED SECTIONS

- A. Section 064023 - Interior Architectural Woodwork
- B. Section 081113 - Steel Doors and Frames
- C. Section 092900 - Gypsum Drywall

1.05 FLAME SPREAD RATING

- A. Class A (0-25) over non-combustible surfaces.

1.06 SUBMITTALS: In addition to manufacturer's data, application instructions, and label analysis for each coating material, submit samples for Architect's review of color and texture only. Resubmit samples if requested until required sheen, color and texture is achieved.

- A. On 8" x 8" hardboard, provide samples of each color and material, with texture to simulate finish conditions.
- B. On actual wall surfaces and other building components, duplicate painted finishes of acceptable samples, as directed by Architect. Final acceptance of paint color and texture shall be from wall sample.

SECTION 099100 - PAINTING (continued):

1.07 PROJECT CONDITIONS

- A. Do not apply paint in rain, fog or mist or when relative humidity exceeds 85%. Do not apply paint to damp or wet surfaces or before the building is weathered in.

1.08 EXTRA MATERIALS

- A. Furnish extra paint materials from the same production run as the materials applied. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner. Furnish Owner with 1 gal. of each material and color applied.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Provide specified paint by Sherwin-Williams Company OR approved equal by one of the following paint manufacturers:
1. PPG.
 2. Benjamin Moore.

2.02 PAINT MATERIALS – GENERAL

- A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates recommended by manufacturer.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

2.03 PAINT SCHEDULE

- A. Exterior Surfaces:
1. **Galvanized Metal (Exterior): Semi-Gloss Finish**
NOTE: See below for hollow metal doors & frames and handrails.
1st Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
2nd Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
(2.5-4 mils dry per coat; VOC 0 g/L)
 2. **Metal: Hollow Metal Doors & Frames and Handrails: Semi-Gloss Finish**
1st Coat: S-W PRO Industrial Pro-Cryl Universal Metal Primer; B66 Series
2nd Coat: S-W PRO Industrial Waterbased Alkyd Urethane; B53-1150 Series
3rd Coat: S-W PRO Industrial Waterbased Alkyd Urethane; B53-1150 Series
(1.4-1.7 dry mils per coat)
 3. **Ferrous Metal (Exterior) (Shop Primed Metal): Semi-Gloss Finish**
1st Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
2nd Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
(2.5-4 mils dry per coat; VOC 0 g/L)
 4. **Concrete Masonry Units: Satin Finish**
1st Coat: Loxon block surfacer, A24W200
2nd coat: Loxon Self-cleaning satin finish, LX 14 series
3rd coat: Loxon Self-cleaning satin finish, LX 14 series

SECTION 099100 - PAINTING (continued):

B. Interior Surfaces:

1. **Gypsum Drywall (Interior):**
 - 1st Coat: S-W ProMar 200 Zero VOC Latex Primer, B28W2600
(4 mils wet, 1.5 mils dry; Zero VOC)
 - 2nd Coat: S-W ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series
 - 3rd Coat: S-W ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series
(4 mils wet, 1.6 mils dry per coat; Zero VOC)
2. **Gypsum Drywall (Wet Areas or where EP-Epoxy Paint is scheduled on the Finish Plans): Semi-Gloss Finish**
 - 1st Coat: S-W ProGreen 200 Interior Latex Primer, B28W600
(4 mils wet, 1.5 mils dry; VOC 49 g/L, 0.36 lb/gal)
 - 2nd Coat: S-W ProIndustrial Pre-Catalyzed Waterbased Epoxy, K46
 - 3rd Coat: S-W ProIndustrial Pre-Catalyzed Waterbased Epoxy, K46
(4.0 mils wet, 1.5 mils dry per coat; VOC 155 g/L, 1.29 lb/gal)
3. **Concrete Masonry Units and Concrete (Interior): Semi-Gloss Finish**
 - 1st Coat: S-W PrepRite Blockfiller , B25W25
(VOC , 50 g/L)
 - 2nd Coat: S-W ProMar 200 Zero VOC Latex Semi-gloss, B31-2600 Series
 - 3rd Coat: S-W ProMar 200 Zero VOC Latex Semi-gloss, B31-2600 Series
(4 mils wet, 1.6 mils dry per coat; Zero VOC)
4. **Concrete Masonry Units (Where EP-Epoxy Paint is scheduled on finish plans):**
 - 1st Coat : S-W Loxon Block Surfacer, A24W200
(50-100 sq ft/gal; VOC 81 g/L, 0.68 lb/gal)
 - 2nd Coat: S-W ProIndustrial Pre-Catalyzed Waterbased Epoxy, K46
 - 3rd Coat: S-W ProIndustrial Pre-Catalyzed Waterbased Epoxy, K46
(4.0 mils wet, 1.5 mils dry per coat; VOC 155 g/L, 1.29 lb/gal)
5. **Concrete Floors (Where EFC - Epoxy Floor Coating is scheduled):**
 - 1st Coat: AS1000 HS, B67-2000 Series, reduced 1 pt per gallon with R7K54
Solvent (2.5-4.0 dry mils)
 - 2nd Coat: AS1000 HS, B67-2000 Series (2.5-4.0 dry mils)
6. **Galvanized Metal (Interior):**

NOTE: See below for hollow metal doors & frames and handrails.

 - Primer: S-W Pro-Cryl Universal Primer, B66-310 Series
(5.0-10.0 mils wet, 2.0-4.0 mils dry; VOC <100 g/L, <0.93 lb/gal)
 - 1st Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
 - 2nd Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
(2.5-4 mils dry per coat; VOC 0 g/L)
7. **Metal: Hollow Metal Doors & Frames and Handrails (Semi-Gloss Finish):**
 - 1st Coat: S-W PRO Industrial Pro-Cryl Universal Metal Primer; B66 Series
 - 2nd Coat: S-W PRO Industrial Waterbased Alkyd Urethane; B53-1150 Series
 - 3rd Coat: S-W PRO Industrial Waterbased Alkyd Urethane; B53-1150 Series
(1.4-1.7 dry mils per coat)
8. **Ferrous Metal (Interior):**
 - Primer: S-W Pro-Cryl Universal Primer, B66-310 Series
(5.0-10.0 mils wet, 2.0-4.0 mils dry; VOC <100 g/L, <0.93 lb/gal)
 - 1st Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
 - 2nd Coat: S-W PRO Industrial Acrylic Semi-Gloss Coating, B66-650 Series
(2.5-4 mils dry per coat; VOC 0 g/L)

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application.

SECTION 099100 - PAINTING (continued):

1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.
3. Notify Architect about anticipated problems when using the materials specified over substrates primed by others.

3.02 PREPARATION

- A. Remove hardware and accessories, machined surfaces, plates, lighting fixtures and similar items in place and not to be finish-painted or provide surface-applied protection. Reinstall removed items and remove protective coverings at completion of work.
- B. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
Cementitious Surfaces: Prepare concrete, concrete masonry, cement plaster and surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation. Determine alkalinity and moisture content of surfaces to be painted. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's printed directions.
 2. Wood: Clean surfaces of dirt, oil, or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth, and dust off.
 - a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After primer, fill holes and imperfections in finish surfaces with putty or plastic wood filler.
Sand
 - b. Prime, stain, or seal wood to be painted immediately upon delivery. Prime edges, ends, faces, undersides, and backsides of wood, including cabinets, counters, cases, and paneling.
 - c. Seal tops, bottoms, and cut-outs of unprimed wood doors with a heavy coat of varnish or sealer immediately upon delivery.
- C. Ferrous Metals: Clean non-galvanized ferrous metal surfaces that have not been shop-coated; remove oil, grease, dirt, loose mill scale and other foreign substances. Use solvent or mechanical cleaning methods that comply with recommendations of the Steel Structures Painting Council. Touch-up shop-applied prime coats that have been damaged, and bare areas. Wire-brush, clean with solvents and touch-up with the same primer as the shop coat.
- D. Galvanized Surfaces: Clean galvanized surfaces with non-petroleum based solvents so that surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock, by mechanical methods.
- E. Material Preparation: Mix and prepare paint materials according to Manufacturer's written instructions.

3.03 APPLICATION:

- A. Apply painting and finishing materials in accordance with manufacturer's directions. Use applicators, and techniques best suited for materials and surfaces to which applied.
- B. Apply additional coats when undercoats, stains or other conditions show through final paint coat, until paint film is of uniform finish, color and appearance.

SECTION 099100 - PAINTING (continued):

- C. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only before equipment is installed.
- D. Paint interior surfaces of ducts, where visible through registers or grilles, flat, non-specular black.
- E. Paint back sides of access panels, and removable or hinged covers to match exposed surfaces.
- F. Sand lightly between exceeding enamel or varnish coats.
- G. Omit first coat (primer) on metal surfaces which have been shop-primed and touch-up painted, unless otherwise specified.
- H. Apply prime coat to material which is required to be painted or finished, and which has not been prime coated by others.
- I. Apply each material at not less than manufacturer's recommended spreading rate, to provide a total dry film to thickness of not less than 4.0 mils for entire coating system of prime and finish coats for 3-coat work.
- J. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.

3.05 **PROTECTION:**

- A. Protect work of other trades. Correct any painting related damages by cleaning, repairing or replacing, and refinishing, as directed by Architect.

3.06 **COORDINATION:**

- A. Provide finish coats which are compatible with prime paints used. Provide barrier coats over incompatible primers where required. Notify Architect in writing of anticipated problems using specified coatings with substrates primed by others.

3.07 **COMPLETED WORK**

- A. Match approved samples for color, texture and coverage. Remove, refinish or repaint work not in compliance with specified requirements.

END OF SECTION 099100

SECTION 099600 - FIBERGLASS MAT REINFORCED EPOXY WALL COATING

PART 1: GENERAL

1.01 DELIVERY AND STORAGE

- A. Material shall be delivered to project site in manufacturer's original unopened containers.
- B. Materials shall be stored indoors, protected from damage, moisture, direct sunlight and temperatures below 70⁰F or above 90⁰F.

1.03 ENVIRONMENTAL CONDITIONS

- A. Surface and surrounding air temperatures must exceed 55⁰F but must be less than 90⁰F, with materials at not less than 70⁰F during application.

1.04 QUALIFICATION OF APPLICATOR

- A. Installation shall be performed by an applicator having satisfactory experience in the application of these or similar materials or with on-site consultation by a qualified field service representative of the manufacturer.

1.05 SUBMITTALS

- A. Prior to commencing work, submit to owner, manufacturer's technical information and installation details describing materials to be used.
- B. Owner, contractor, and manufacturer shall review and mutually agree upon color, grade, and final texture of coating system before starting installation. The acceptance of a sample will constitute the job standard by which installation will proceed.

PART 2. PRODUCTS

2.01 MATERIALS – EWC (Epoxy Wall Coating):

- A. Primer/Surfacer: Tnemec Series 215 Surfacing Epoxy, two-component, penetrating polyamine cured epoxy primer.
- B. Body Coat: Tnemec Series 273 Stranlok ML incorporating a fiberglass mat reinforcement and polyamine cured epoxy.
- C. Intermediate glaze coat: Tnemec Series 280 Tneme-Glaze, two-component, modified polyamine cured epoxy.
- D. Finish coat: Tnemec Series 291 CRU, two component, aliphatic polyester polyurethane coating.

2.02 MANUFACTURER

- A. Tnemec Company, Incorporated.
6800 Corporate Dr
Kansas City, MO 64120
Contact: FL Protective Coating Consultants, Inc.
250 Waymont Ct., Ste 120
Lake Mary, FL 32746
Ph: 407-322-1243
bpasseser@tnemec.com
Barry Passeser – 386-689-3083
Cc: ordersfl@tnemec.com
OR approved equal.

SECTION 099600 - FIBERGLASS MAT REINFORCED EPOXY WALL COATING (continued)

PART 3 – EXECUTION

3.01 PREPARATION

This product should be used on holding cells, bathrooms and severe use areas. See finish schedule.

- A. For concrete walls, allow a minimum cure of 28 days at 75 degrees and a minimum 50% RH before proceeding. Surfaces must be clean, dry, and free of oil, grease and other contaminants. Level protrusions and mortar spatter. Voids and other defects should be filled with Tnemec Series 215 Surfacing Epoxy or Tnemec Series 218 MortarClad as necessary.
- B. For CMU, allow new mortar to cure for a minimum of 14 days at 75 degrees and a minimum 50% RH before proceeding. Level protrusions and mortar splatter.
- B. Applicator must report, in writing, surfaces left in improper condition by other trades. Application will constitute acceptance of surfaces by applicator.
- D. Prepare surfaces as required, per manufacturer's printed instructions.

3.02 INSTALLATION

- A. Primer/Surfer: Apply a "skim" coat of Tnemec Series 215 Surfacing Epoxy (modified epoxy filler/surfer) at an average of 1/16" DFT. Do not exceed an average of 1/16" DFT. The primer shall be mechanically mixed and applied in accordance with manufacturer's instructions.
- B. Immediately install Tnemec Series 273 Stranlok ML fiberglass reinforcing mat into the wet film. Smooth out mat using an 8" to 12" wide blade putty knife. Remove ridges.
- C. Intermediate Coat: Immediately follow with one coat of Tnemec Series 273 Stranlok ML polyamine epoxy at a dry film thickness of 8.0-12.0 mils to encapsulate the fiberglass mat. Series 273 Stranlok shall be mechanically mixed in accordance with instructions and uniformly applied to all surfaces by brush or roller. The intermediate coat shall be allowed to cure for a minimum of 4 hours, but not longer than 24 hours before application of topcoat. Before topcoating, the surface should be pole sanded to smooth surface and remove all protruding fibers. If more than 24 hours have elapsed between coats, the Stranlok ML coated surface must be mechanically abraded before topcoating.
- D. Glaze coat: The high solids epoxy glaze coat, Series 280 shall be mechanically mixed in accordance with manufacturer's instructions and applied by roller at a dry film thickness of 6.0 to 10.0 mils dft. Small areas and areas that meet the floor, ceiling or other walls may be brushed.
- E. Topcoat: Apply 1 coat of Tnemec Series 290 CRU aliphatic polyester polyurethane by roller at a dry film thickness of 2.0 – 3.0 mils dft. Series 291 shall be mechanically mixed in accordance with manufacturer's instructions and. Small areas and areas that meet the floor, ceiling or other walls may be brushed.
- F. All products shall be stored per Tnemec's temperature recommendations for a minimum of 24 hours before use.

3.03 JOB STANDARDS

- A. Prior to commencing the installation, the contractor shall install, with the owner's approval, a mutually agreed upon test sample to show final color and texture of the system. This test area shall serve as a job standard for the final installation.

SECTION 099600 - FIBERGLASS MAT REINFORCED EPOXY WALL COATING (continued)

3.04 CLEANUP

- A. Remove waste materials, rubbish, and debris and dispose of them at the owner's direction. Leave work areas in a clean condition.

3.05 PROTECTION

- A. Protect the completed work from water, airborne particles or other surface contaminants for a minimum of 24 hours after application.
- B. Protect from traffic, physical abuse, immersion and chemical exposure for 24 hours at 75 degrees F. For different temperatures, consult the manufacturer's representative for curing times.

END OF SECTION 099600

SECTION 099601 - HIGH PERFORMANCE COATINGS FOR EXTERIOR EXPOSED CONCRETE

PART 1 – GENERAL

1.01 SUMMARY

- A. This Section includes applying special coating systems to items and surfaces scheduled, including surface preparation, prime coats, and topcoats for exterior painting.
- B. Types of Special Coatings for exterior use as indicated on the drawings and schedules include the following:
 - 1. High build, multifunctional acrylic primer
 - 2. Infrared heat-reflective water based exterior coating that incorporates Kynar Aquatec® technology.
- C. Related Work:
 - 1. Documents affecting work of this Section include, but are not limited to, General Conditions, Supplementary Conditions, Sections in Division 1 of these Specifications, and including the following Divisions:
 - a. Division 3 – Cast-in-Place & Precast Concrete

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM B 117 Standard Test Method for Corrosion Resistance.
 - 2. ASTM D 2240 Standard Test Method for Measuring Shore Hardness.
 - 3. ASTM D 2794 Standard Test Method for Measuring Direct Impact.
 - 4. ASTM D 3359 Standard Test Methods for Measuring Adhesion by Tape Test.
 - 5. ASTM D 3363 Standard Test Method for Film Hardness by Pencil Test.
 - 6. ASTM D 4060 Standard Test Method for Abrasion Resistance.
 - 7. ASTM D 4213 Standard Test Method for Measuring Scrub-ability of Coatings.
 - 8. ASTM D 4258 Standard Practice for Surface Cleaning Concrete for Coating.
 - 9. ASTM D 4259 Standard Practice for Abrading Concrete.
 - 10. ASTM D 4261 Standard Practice for Surface Cleaning Concrete Unit Masonry for Coating.
 - 11. ASTM D 4263 Standard Test Method for Indicating Moisture by the Plastic Sheet Method.
 - 12. ASTM D 4541 Standard Test Method for Pull-off Strength of Coatings Using Portable Adhesion Testers.
 - 13. And various other ASTM test standards.
- B. Steel Structures Painting Council (SSPC):
 - 1. Steel Structures Painting Council Surface Preparation Specifications (SSPC-SP)
 - 2. Steel Structures Painting Council Paint Application Specifications (SSPC-PA)

1.03 DEFINITIONS

- A. Definitions as used in Finish Schedule shown on Drawings and Coating Schedule included herein.
 - 1. Coatings: Paint or heavy duty finishes for use on surfaces subject to interior and exterior exposure, submergence, high moisture, splash, or chemical environment, including primers, sealers, fillers, and intermediate and finish coats.
 - 2. Normal: Surfaces subject to normal temperature and humidity.
 - 3. First Coat: Field primer, factory primer, or shop primer. When only one coat is required, first coat is the finish coat.
 - 4. Second, Third, Intermediate, or Finish coats: Successive finish coats applied over first coat.

5. DFT: Dry Film Thickness (Mils/coat).
6. Sfpq: Square feet per gallon (per coat).

1.04 SUBMITTALS

A. Product Data:

1. To be considered for approval all submittals shall include the following: Manufacturer's product data sheets, product performance criteria, generic chemistry of each coating, and application recommendations for each coating scheduled.
2. List each material and cross-reference the specific coating, finish system, and application.

B. Submit one copy of manufacturer's Material Safety Data Sheets (MSDS) for each type of coating to ARCHITECT'S field office for information. CONTRACTOR shall post a copy of MSDS on the Site at all times when coating is in progress.

1.05 QUALITY ASSURANCE

A. Regulatory Requirements:

1. All coatings shall conform to OSHA requirements for allowable exposure to lead and other hazardous substances.

B. Product Manufacturer:

1. Manufacturer shall be a company that specializes in producing high quality industrial coating materials. This company shall have 30 years or more experience demonstrated by case histories in the designated field of application.

C. Applicator Qualifications:

1. Engage an experienced applicator with 5 years or more experience who has successfully completed coating system applications similar in material and extent to those indicated.

D. Single-Source Responsibility:

1. Provide coating material produced by the same manufacturer for each system.

E. Performance Testing:

1. The OWNER/ARCHITECT may request testing from the manufacturer for required performance that may include but is not limited to adhesion to the substrate and between coating layers, and resistance to abrasion, humidity, freeze/thaw, and Ultra-violet light exposure.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Materials shall be delivered to the site in original containers with labels intact and seals unbroken.

B. Protect and heat or cool material storage location to maintain temperature ranges recommended by coating manufacturers, but not less than 50 degrees F.

C. Oily rags and waste must be removed from buildings each night or kept in appropriate metal containers. Provide fire extinguishers of the type recommended by coating manufacturers in

areas of storage and where finishing is occurring. Allow no smoking or open containers of solvent.

D. Empty containers shall have labels canceled and clearly marked as to use.

1.07 PROJECT / SITE CONDITIONS

A. Environmental Requirements:

1. Use indirect-fired dry heat and ventilate areas to obtain conditions recommended by coating manufacturer.
2. Relative humidity conditions as specified by coating manufacturer shall be adhered to.
3. No unprotected, unheated exterior coating shall be undertaken when cold damp, foggy, or rainy weather appears probable, nor when the temperature of the substrate is below 50 degrees F, unless listed in this specification or approved in writing by the coating manufacturer.
4. Maintain the manufacturer's environmental requirements until the coating is fully cured.
5. Apply no coating in areas where dust is being generated.
6. Testing and disposal of any waste and coating shall be the responsibility of the CONTRACTOR.

B. Protection:

1. Drop cloths shall be provided in all areas where coating is performed to fully protect other surfaces.
2. Remove hardware, accessories, plates, lighting fixtures, and similar items or provide protection by masking. Upon completion, replace items or remove protection and clean.

C. Upon Substantial Completion, remaining unused material will become property of the OWNER. Seal material as required for storage, mark contents with color, type, location, and shelf life, and store on Site where required by the OWNER. Provide a minimum of two gallons of each system component and color used.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Tex-Cote, LLC (A subsidiary of Tnemec Company)
2422 E. 15th Street
Panama City, Florida 32405
Tex-Coat Coolwall® with Kynar® and Infrared Reflective Pigments

Technical information may be obtained from the following:
SteelCon Coating Systems, Inc.
2100 3rd Ave South
Irondale, Alabama 35210
Phone: 205-951-2086
E Mail: crumbaugh@steelconcoatings.com

B. Or approved equal

2.02 SPECIAL COATING MATERIALS

A. Special Coating products of Tex-Cote, LLC. are listed in the Coating Schedule as a standard of quality and performance, and it is not the intent of the specifier that these materials are to be used to the exclusion of equivalent products of other manufacturers.

- B. Only coatings that meet or exceed the performance of these specified coatings may be submitted for use. No substitutions will be considered that change the generic chemistry of the coatings specified.
- C. No substitution will be considered unless the Architect/Owner has received a written request for approval at least 10 days prior to the bid date for receipt of bids. Each request shall include the name of the specified material for which a substitute is being requested; name of the proposed substitute material; and a complete description of the proposed substitute including performance & test data, cure times, recoat windows, and generic composition. No request for substitution will be considered that would decrease film thickness or offer a change in the generic type of coating specified. The decision of the Architect/Owner regarding approval or disapproval of the proposed substitution shall be final.

2.03 COLORS, MIXING, AND THINNING

- A. Color shall be formed of pigments free of lead, lead compounds, or other materials that might be affected by the presence of hydrogen sulfide or other gases likely to be present at the Site.
- B. Where thinning is necessary, only the products of the manufacturer furnishing the coating will be allowed. All such thinning shall be done in strict accordance with the coating manufacturer's recommendations.
- C. Mix in accordance with the manufacturer's recommendations.

2.04 SOURCE QUALITY

- A. Source Quality: Obtain painting, coating, and thinning materials from a single manufacturer.

PART 3 – EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including technical information, catalogue instructions, and product instructions listed on material containers.

3.02 EXAMINATION

- A. Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to the timely and proper completion of the work. Materials removed and replaced to correct defects due to errant application such as overspray or drips on unsuitable surfaces shall be at the CONTRACTOR'S expense.

3.03 SURFACE PREPARATION

- A. General:
 - 1. All surfaces to be coated shall be prepared as specified herein and in accordance with the coating manufacturer's recommendations. The object shall be to obtain a uniform, clean, and dry surface.
 - 2. Quality of surface preparation described herein is considered a minimum. If the coating manufacturer requires a higher degree of preparation, comply with the coating manufacturer's recommendations.
 - 3. Where surface dryness is questioned, test with a dampness-indicating instrument. Do not apply coatings over surfaces where moisture content exceeds that permitted by the coating manufacturer.
 - 4. Workmanship for surface preparation shall conform to the following Steel Structures Painting Council (SSPC) specification:

- a. Surface Preparation of Concrete:
 - i. SSPC-SP WJ4 Light Cleaning
 - ii. Take measures to ensure Tilt wall bond breaker and/or other agents have been removed from the Concrete surface
- B.
- C. Exterior Concrete:
 - 1. Concrete must be at least 28 days old and shall pass a dryness test in accordance with ASTM D4263 Test Method for Indicating Moisture by the Plastic Sheet Method, before coating is applied.
 - 2. Remove fins and other protrusions by grinding.
 - 3. Repair surface defects and voids as recommended by the coating manufacturer.
 - 4. Concrete surfaces, including pre-cast concrete, to be coated shall be cleaned of all form oil, curing compound, laitance, other foreign substances, and shall meet the cleanliness standard of ASTM D 4258 Standard Practice for Surface Cleaning Concrete for Coating.
 - 5. Concrete surfaces shall be pressure washed in accordance with SSPC-SPWJ4 Light Cleaning.
 - 6. All surfaces shall be clean and dry.

3.04 APPLICATION

- A. Surfaces shall be dry at the time of application.
- B. The minimum surface temperature shall be 50 degrees F and rising unless noted otherwise.
- C. Apply in strict accordance with the manufacturer's recommendations by brush, roller, spray, or other application method. The number of coats and thickness required is the same regardless of application method.
- D. Each coat shall be allowed to dry in accordance to the manufacturer's requirements. Drying time shall be construed to mean "under normal conditions." Where conditions other than normal exist, because of weather or because of confined space, longer times will be necessary.
- E. Coatings shall be applied to provide an opaque, smooth surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, or other surface imperfections will not be acceptable. Areas cut-in by brush prior to rolling shall have uniform appearance in comparison to adjoining surfaces.
- F. Edges of coatings adjoining other materials or other colors shall be sharp and clean without overlapping.
- G. Crevices and other hard to apply areas shall be back-rolled/back-brushed in conjunction with the field-applied prime coat.
- H. Where multiple coats of the same material are applied, each undercoat shall be slightly different in shade to facilitate identifying each coat.

3.05 FINAL TOUCH-UP AND CLEANING

- A. Prior to substantial completion, examine the coated surfaces and retouch or refinish surfaces to leave in condition acceptable to the ARCHITECT/OWNER.
- B. Remove masking, coatings, and other material from floors, glass, and other surfaces not scheduled to be coated.

3.06 COATING SYSTEMS

- A. Scheduled thickness or coverage rate is the minimum as recommended by Tnemec Company, Inc. If another manufacturer is used, manufacturer's recommendations shall be followed, but in no case shall the thickness or coverage rate be less than scheduled.
- B. Coatings shall conform to the following schedule and coating manufacturer's recommendations. Examples of surfaces to be coated may not be all inclusive.

3.07 SCHEDULE OF COATING SYSTEMS FOR EXTERIOR SERVICE

*All coating thicknesses are expressed in dry film thickness (DFT.)

A. Exterior Concrete:

- 1. Surface Preparation: SSPC-SPWj 4 Light Cleaning to remove all dirt, dust, as well as any foreign matter. All surfaces shall be clean and dry. Allow new concrete, and masonry to cure 28 days.
- 2. Primer: Tex-Cote High Build Textured Primer (for a Sand Texture finish)
 - a. Coverage Rate: 60 - 80 sq. ft. per gallon
- 3. First Coat: Tex-Cote Cool Wall® with Kynar® IR Finish
 - a. Dry Film Thickness: 3.0 – 4.0 mils
- 4. Finish Coat: Tex-Cote Cool Wall® with Kynar® IR Finish
 - a. Dry Film Thickness: 3.0 – 4.0 mils.

Performance Requirements:

- ASTM D4803-97 – Total Solar Reflectance:
- ASTM C1305 – Crack Bridging
- ASTME96 - Permeability
- ASTM D6940 – Wind Driven Rain Resistance
- ASTM D2565-99-T-1, C#4 – Accelerated Weathering – 5,000 hours
- ASTM D3273/ D3274 – Mold and Mildew Resistance – 28 days.

3.08 WARRANTY

- A. Product Warranty: The Manufacturer shall warrant that the system will not chip, flake, or peel from the underlying surface to which it is applied. The material shall also be warranted for a period of ten (10) years not to fade beyond ten (10) Delta E CIE L*a*b* units from the original color at the time of application. Color change shall be determined in accordance ASTM D 2244.
- B. Applicator Warranty: The applicator shall warrant his workmanship for a period of 5 years from the date of completion. All defects in the coating system not covered by the manufacturer's warranty, shall be repaired at no additional cost to the Owner.

END OF SECTION 099601

SECTION 101000 - MARKERBOARDS AND TACKBOARDS

PART 1 - GENERAL

- 1.01 **Submittals**: Submit product data showing elevations and sections of trim members. Submit samples of tackboard fabric for selection of colors.
- 1.02 **Markerboard Warranty**: Furnish written warranty, agreeing to replace chalkboards that do not retain their original writing and erasing qualities, become slick and shiny, or exhibit crazing, cracking, or flaking, provided manufacturer's instructions with regard to handling, installation, protection, and maintenance have been followed. Warranty Period - 50 years.

PART 2 - PRODUCTS

- 2.01 **Porcelain Enamel Magnetic Markerboard**: Provide porcelain enamel steel magnetic markerboard of 3-ply construction consisting of face sheet, core material, and backing. Provide markerboard by Claridge Products and Equipment, Inc. OR approved equal.
- A. **Face Sheet**: 24-gage porcelain enamel magnetic steel
 - B. **Cover Coat**: Light-colored special writing surface with gloss finish for use with liquid felt-tipped markers. Color to be white.
 - C. **Core**: 3/8-inch-thick particleboard or fiberboard, as per manufacturer, ANSI A208.1, Grade 1-M-1.
 - D. **Backing Sheet**: 0.015-inch-thick aluminum sheet or 26-gage galvanized steel sheet.
 - E. **Laminating Adhesive**: Moisture-resistant thermoplastic adhesive.
- 2.02 **Cork Tackboards**: Provide mildew-resistant, washable, self-seaming, 1/4" thick cork sheet with 1/4" thick burlap on hardboard backing, "Claridge Cork" by Claridge Products and Equipment, Inc., Gold Seal Bulletin Board Cork by Forbo Industries, OR Newline Products, Inc. (NPI). Provide flame spread rating of 25 or less when tested in accordance with ASTM E 84. Color to be selected by the Architect from the manufacturer's full range of colors.
- 2.03 **Metal Trim and Accessories**: Fabricate frames and trim of not less than 0.062-inch-thick aluminum alloy, size and shape as indicated, to suit type of installation. Provide straight, single-length units wherever possible; keep joints to a minimum. Miter corners to a neat, hairline closure.
- A. Where size of boards or other conditions exist that require support in addition to the normal trim, provide structural supports or modify trim as indicated.
 - B. **Markertray**: Furnish manufacturer's standard continuous box-type aluminum markertray with slated front and cast aluminum end closures for each markerboard.
 - C. **Map Rail**: Furnish map rail at the top of each unit, complete with the following accessories:
 - D. **Display Rail**: Continuous cork display rail approximately 1 or 2 inches wide, as indicated, integral with the map rail.
 - E. **End Stops**: One end stop at each end of the map rail.
 - F. **Map Hooks**: 2 map hooks for each 4 feet of map rail or fraction thereof.
 - G. **Flagholder**: One flagholder for each room.

SECTION 101000 - MARKERBOARDS AND TACKBOARDS (continued):

- 2.05 Fabrication: Laminate porcelain enamel facing sheet and backing sheet to core material with flexible, waterproof adhesive.
- 2.06 Assembly: Provide factory-assembled units, except where field- assembled units are required. Make joints only where total length exceeds maximum manufactured length. Fabricate with minimum number of joints, balanced around center of the board. Provide "hairline" vertical joint system between abutting sections of markerboard. Provide mullion trim at joints between markerboard and tackboard.
- 2.07 Finishes: Comply with NAAMM "Metal Finishes Manual."
Class II Clear Anodized Finish: AA-M12C22A31

PART 3 - EXECUTION

- 3.01 Installation: Deliver factory-built units completely assembled in one piece. Where dimensions exceed panel size, provide 2 or more pieces of equal length. When overall dimensions require delivery in separate units, prefabricate components at the factory, disassemble for delivery, and make final joints at the site. Use splines at joints to maintain surface alignment.
- 3.02 Install units in locations and mounting heights indicated in accordance with manufacturer's instructions. Keep perimeter lines straight, plumb, and level. Provide grounds, clips, backing materials, adhesives, brackets, anchors, trim, and accessories necessary for a complete installation. Units shall be mechanically attached, the use of adhesives is allowed only in conjunction with mechanical fastening.
- 3.03 Coordinate job-site-assembled units with grounds, trim, and accessories. Join parts with a neat, precision fit.
- 3.04 Clean in accordance with manufacturer's instructions.

END OF SECTION 101000

SECTION 101440 - SIGNAGE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Interior signage of the following types:
 - 1. Advanced Sign Solutions; Standard Education Series; Raster Engraved

1.2 REFERENCES

- A. ICC/ANSI A117.1 - Accessible and Useable Buildings and Facilities.
- B. USATBCB - Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG).

1.3 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data: Manufacturer's descriptive literature.
- C. Shop Drawings: List sign styles, lettering, locations and dimensions of each interior sign. Contractor shall submit a sign schedule with doors listed in numerical order for review and approval. Shop drawings shall include a scaled diagram of each type of sign specified.
- D. Selection Samples: One complete set of color chips representing manufacturer's full range of available colors.
- E. Verification Samples: Two full size samples, representing type, style and color specified including method of attachment.

1.4 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with requirements of ICC/ANSI A117.1 and ADAAG.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Inspect products upon receipt. Store products in manufacturer's packaging until ready for installation.

1.6 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Advanced Sign Solutions, 7518 McElvey Rd, Panama City Beach, FL 32408; Website: www.adv-signs.com; Phone: 888.368.9928 or 850.914.9925; Email: support@adv-signs.com
- B. Requests for substitutions will be considered in accordance with provisions of Section 016000.

SECTION 101440 - SIGNAGE (continued)

2.2 SIGNS

- A. ADA-Compliant Interior Signage, Custom Design.

2.3 INTERIOR SIGNAGE

- A. Manufacturer's standard tactile ADA compliant sign/id placard, constructed utilizing a raster engraved/laser processed manufacturing method; custom 2nd surface painted client specified color, resulting in a grade II compliant sign that is UV resistant.
 1. Style: Custom Education Series by Advanced Sign Solutions
 2. Material: Cast/ADA acrylic
 3. Sign Thickness: 1/8 inch (3mm)
 4. Tactile Characters/Symbols: Raised 1/32 inch (1 mm) from sign plate face
 5. Construction: Raster Engraved/Laser finished
 6. Lettering Style: Typeface as selected from the manufacturer's standard sans serif or simple serif typefaces, upper case letters, minimum height 5/8", maximum height 2"
 7. Braille: Grade 2 braille, placed directly below last line of letters or numbers
 8. Contrast: Letters, numbers and symbols shall contrast with background.
 9. Bevel Options: squared edges
 10. Profiles: 1/4" radiused corners
 11. Color of Background: Client specified custom color, 2nd surface painted
 12. Color of Text and Raised Characters: Client specified custom color
 13. Surface Texture: Smooth matte finish
 14. Signage shall be approved for use at interior doors as well as exterior doors.

2.4 ROOM SIGNAGE

- A. All doors (interior and exterior) shall receive a Type "A" sign. Provide a schedule with the room number and name as shown on the signage schedule for the architect and owner to review and edit.
- B. All restrooms shall receive a Type "B" sign. They are to be an ADA compliant regulatory sign with text, braille and universal symbol.
- C. Each OFFICE shall receive a Type "C" sign.
- D. A graphic diagram, Type "D" sign, of primary and emergency evacuation routes shall be posted adjacent to the primary exit door from each space occupied by six or more students. The diagram shall clearly indicate, by contrasting color and number, each route of evacuation.
- E. Signs requiring the posting of maximum occupancy shall receive a Type "E" sign.
- F. Each room with an exterior, operable window to receive a sign that states 'ENSURE WINDOWS ARE LATCHED DURING A TORNADO EVENT'. Sign to be posted adjacent to the window.
- G. All rooms with fire extinguishers are to have a 8" high x 8" wide sign outside of the door with the text "Fire Extinguisher Inside" and Universal fire extinguisher symbol.
- F. Contractor shall provide signage as described above and as shown in the attached schedule.

2.5 EXTERIOR SIGNS:

- A. Building Identification: Exterior sign as indicated on front elevation. Flush mounted; cast aluminum, Helvetica font(or as specified); vertical brushed clear finish
 1. Text (8" high, all caps - verify verbiage with Owner):
 - a. 23 (Bldg #; provide 2 sets of numbers)

SECTION 101440 - SIGNAGE (continued)

- C. Provide an interior mounted 'Design Information Sign' in Building 23 with the following information:
 - 1) TORNADO SAFE BUILDING
 - 2) CAPACITY: 500 OCCUPANTS
 - 3) 200 MPH WIND SPEEDS (3 SECOND GUST)
 - 4) DESIGNED TO ICC 500-2020 AND FEMA P-361-2021
 - 5) BUILDER: LORD & SONS CONSTRUCTION INC.

- D. Provide an 18" x 24" post and panel assembly, 'Safe Room Direction Sign' near the Cafeteria that shows/states the following (see sheet A1.0B for location):
 - 1) TORNADO SYMBOL/*IMAGE*
 - 2) DURING A TORNADO EVENT, TAKE SHELTER IN BUILDING 23.
 - 3) DIRECTIONAL ARROW POINTING TOWARD BLDG 23

- E. Provide an exterior mounted 'Safe Room Entry Sign' at each corridor entry of Building 23 showing/stating the following:
 - 1) TORNADO SYMBOL/*IMAGE*
 - 2) TORNADO SAFE ROOM

- F. Provide an interior mounted 'Safe Room Perimeter Sign' at each corridor exit of Building 23 showing/stating the following:
 - 1) NOTICE: NOW LEAVING THE TORNADO SAFE ROOM

- G. Provide a sign at all Electrical & Mechanical room doors with the following information:
 - 1) NO STORAGE ALLOWED

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine installation areas to ensure that conditions are suitable for installation.
- B. Examine signage for defects prior to installation. Do not install damaged signage.

3.2 PREPARATION

- A. Verify mounting heights and locations for interior signage will comply with referenced standards.
- B. Clean mounting locations of dirt, dust, grease or similar conditions that would prevent proper installation.

3.3 INSTALLATION

- A. Install signs level, plumb, without distortion, and in proper relationship with adjacent surfaces using manufacturer's recommended standard mounting system.
 - 1. Mount with vinyl foam tape.
 - 2. Mount with screws.
 - 3. Mount with silicone and vinyl foam tape.
- B. Remove adhesive from exposed sign surfaces as recommended by manufacturer.
- C. Clean signs after installation as recommended by manufacturer.
- D. Replace damaged products before Substantial Completion.

SECTION 101440 - SIGNAGE (continued)

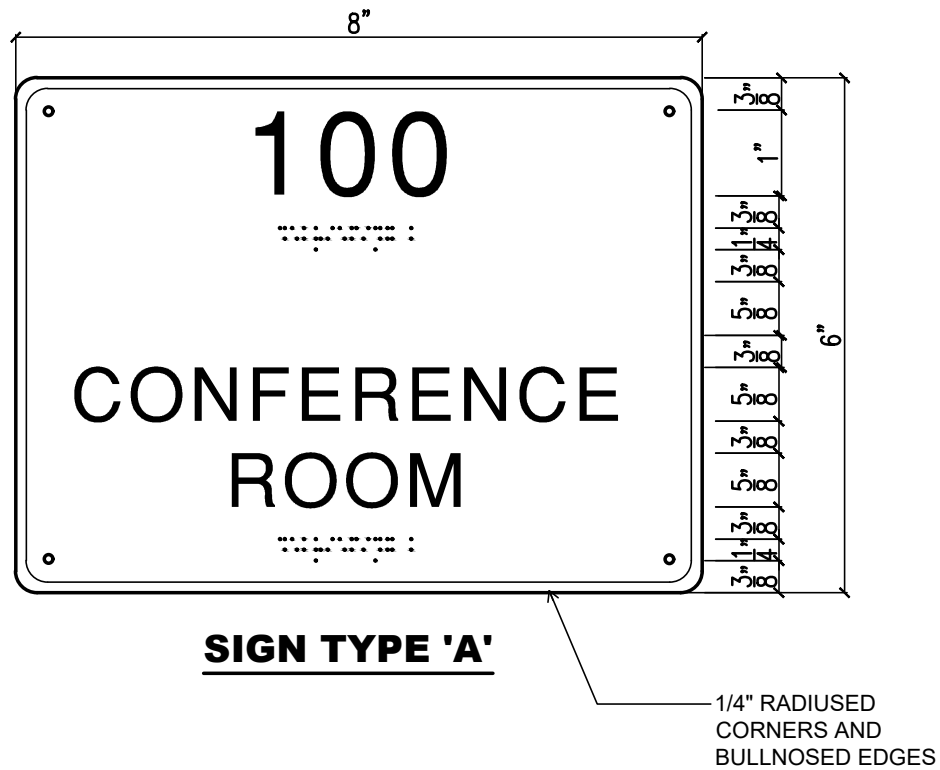
3.4 ADA GUIDELINES FOR SIGNAGE

- A. **Room Identification Signs:** Signs which designate permanent rooms or spaces shall comply with the following guidelines:
1. **Raised Copy** - Letters and numerals shall be raised 1/32" upper case, sans serif or simple serif typestyle.
 2. **Symbols** - Symbols shall be accompanied by the equivalent verbal description placed directly below the symbol. The border dimension of the symbol shall be 6" minimum in height.
 3. **Braille Tags** - Grade 2 Braille shall be on all signs, as required.
 4. **Colors** - The characters and backgrounds of all signs shall be of matte or other non-glare finish. Characters and symbols shall contrast with light characters on a dark background or dark characters on a light background. Colors to be as selected by the Architect from the manufacturer's standard colors.
- B. **Directional and Information Signs:** Signs which provide direction to, or information about, functional spaces of the building shall comply with the same guidelines as those set for Room Identification Signs with the following additions and exceptions.
1. **Character Proportion** - Letters and numerals on sign shall have a width to height ratio between 3:5 and 1:1 and a stroke width to height ratio between 1:5 and 1:10.
 2. **Character Height** - Characters and numbers on signs shall be sized according to the viewing distance from which they are to be read. The minimum height is measured using an upper case X. Lower case characters are permitted. Any signs that are suspended or projected overhead shall have characters at least three inches high and shall maintain a minimum clearance of 80 inches from finished floor.
 3. **Raised Copy** - Directional and Informational signs are NOT required to use raised copy or braille tags.
- C. **Signage Mounting Location and Height:** Where permanent identification is provided for rooms and spaces, signs shall be installed on the wall adjacent to the latch side of the door. Where there is no wall space to the latch side of the door, including at double leaf doors, signs shall be placed on the nearest adjacent wall. Mounting height shall be 60 inches (1525 mm) above the finish floor to the centerline of the sign. Mounting location for such signage shall be so that a person may approach within 3 inches (76 mm) of signage without encountering protruding objects or standing within the swing of a door.

Figure 1:



END OF SECTION 101440

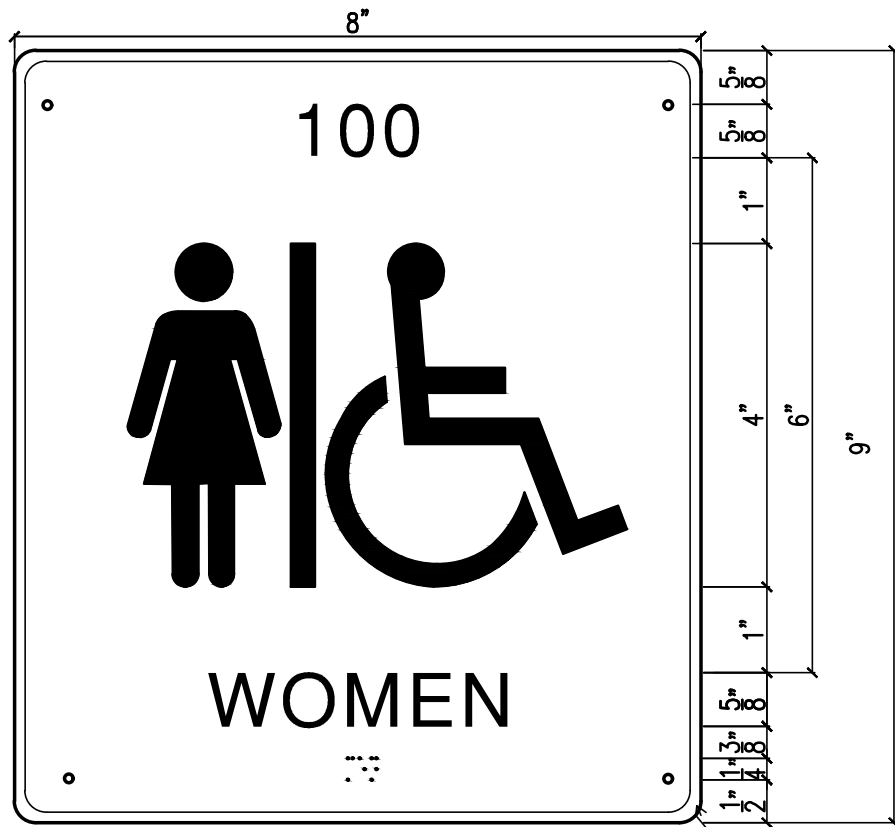


Clemons, Rutherford
& Associates Inc.
 2027 Thomasville Road
 Tallahassee, Florida 32308
 (850) 385-6153
 Fax (850) 386-8420

SIGNAGE TYPES

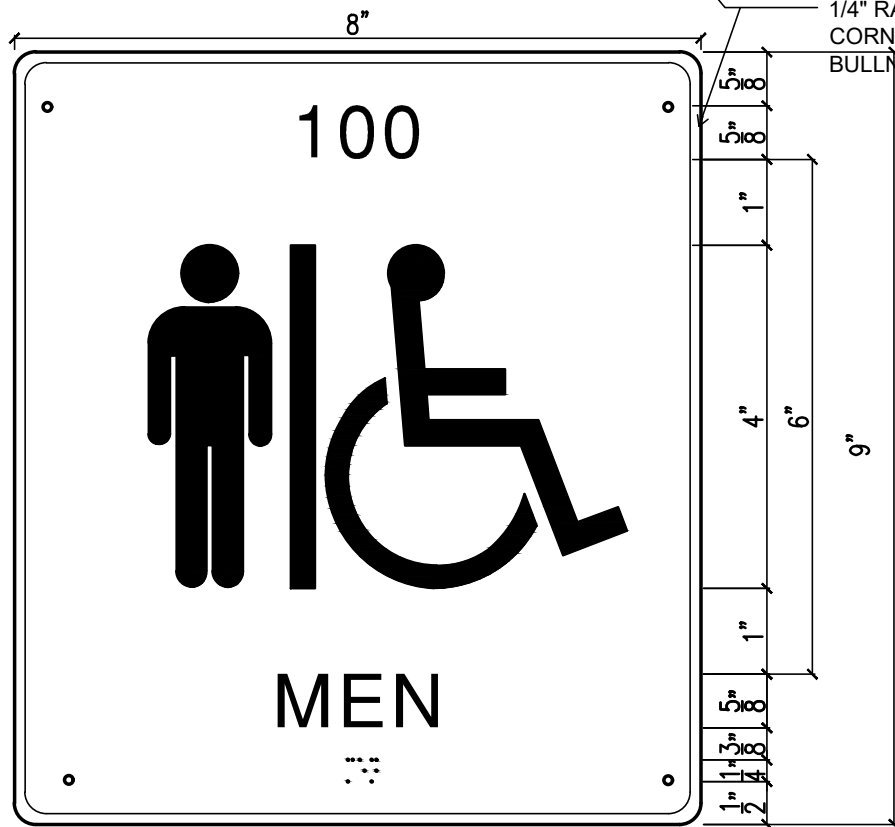
PROJECT: BCS - DEANE BOZEMAN SCHOOL
 CLASSROOM ADDITION & SITE WORK
 PANAMA CITY BEACH, FL

CRA PROJECT NO.: 21070



SIGN TYPE 'B'

NOTE:
PROVIDE UNISEX SYMBOL
WHERE SCHEDULED



1/4" RADIUSED
CORNERS AND
BULLNOSED EDGES

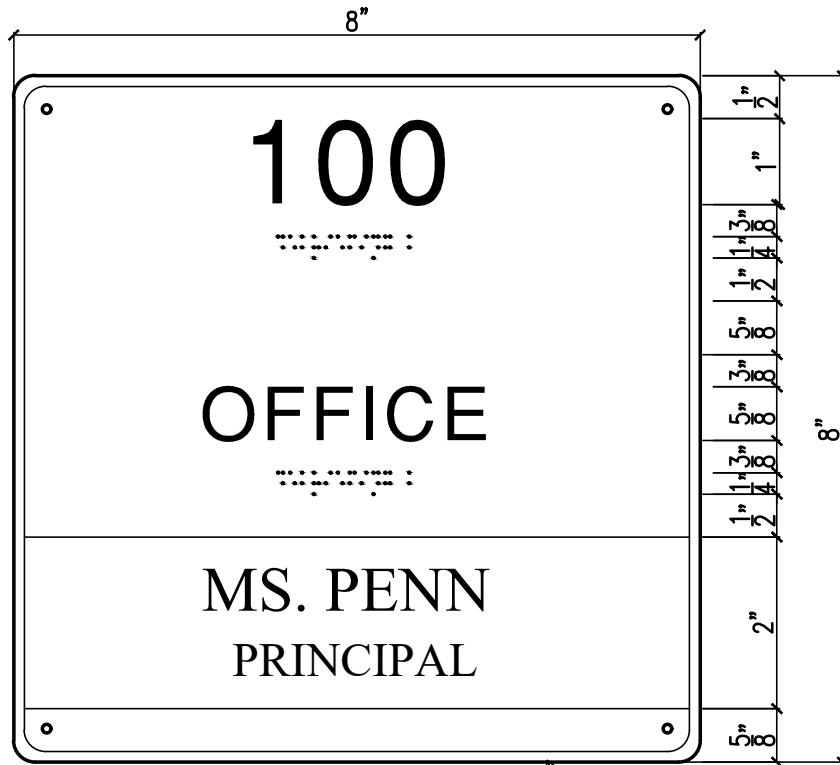


Clemons, Rutherford
& Associates Inc.
2027 Thomasville Road
Tallahassee, Florida 32308
(850) 385-6153
Fax (850) 386-8420

SIGNAGE TYPES

PROJECT: BCS - DEANE BOZEMAN SCHOOL
CLASSROOM ADDITION & SITE WORK
PANAMA CITY BEACH, FL

CRA PROJECT NO.: 21070



SIGN TYPE 'C'

NOTE: WITH 2" HIGH REPLACEABLE SECTION 1/4" RADIUSED CORNERS AND BULLNOSED EDGES

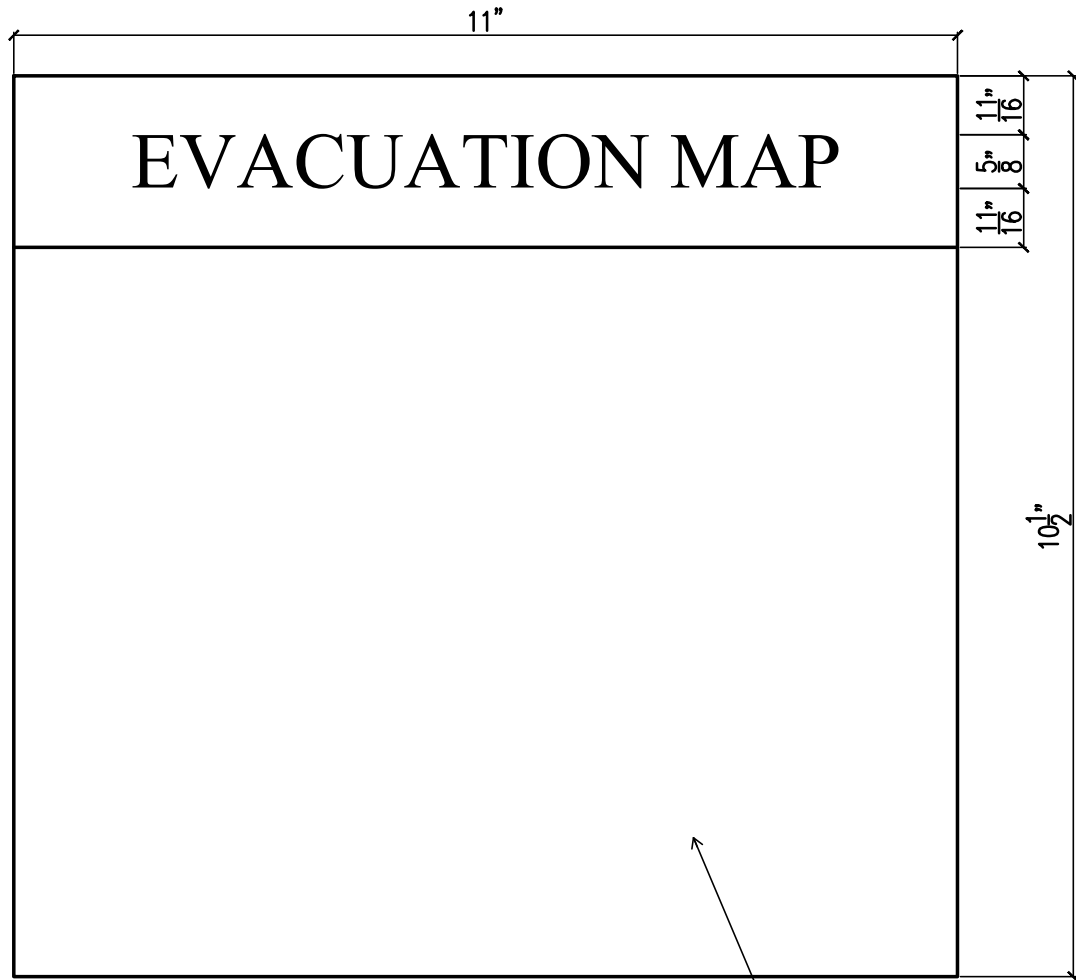


Clemons, Rutherford
& Associates Inc.
2027 Thomasville Road
Tallahassee, Florida 32308
(850) 385-6153
Fax (850) 386-8420

SIGNAGE TYPES

PROJECT: BCS - DEANE BOZEMAN SCHOOL
CLASSROOM ADDITION & SITE WORK
PANAMA CITY BEACH, FL

CRA PROJECT NO.: 21070



SIGN TYPE 'D'

INSERT SHOWING EGRESS
MAP TO THE CLOSEST EXIT
TO BE PROVIDED BY THE
CONTRACTOR

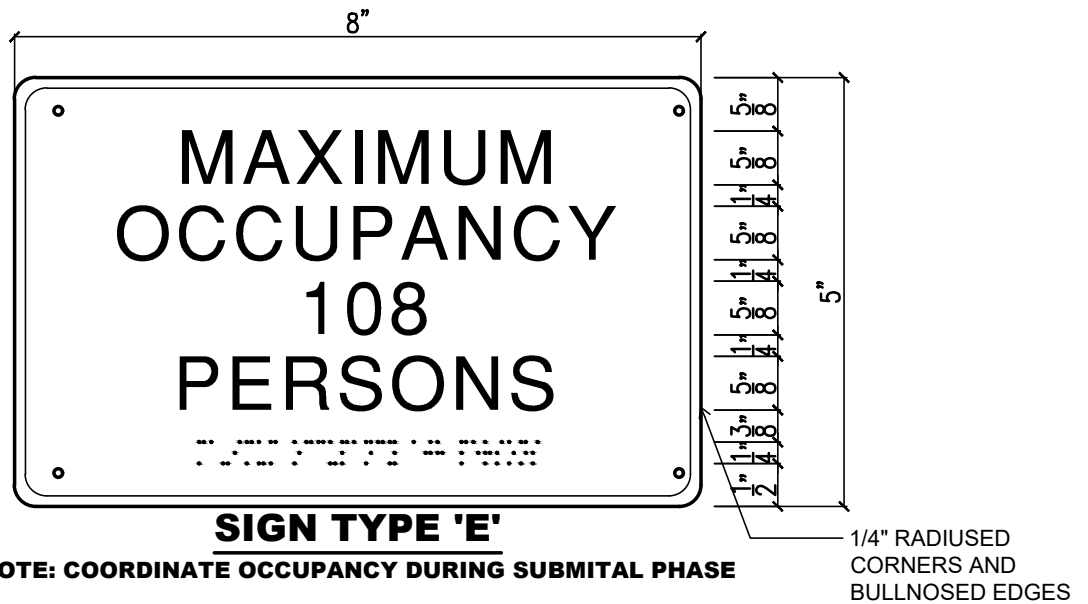


Clemons, Rutherford
& Associates Inc.
2027 Thomasville Road
Tallahassee, Florida 32308
(850) 385-6153
Fax (850) 386-8420

SIGNAGE TYPES

PROJECT: BCS - DEANE BOZEMAN SCHOOL
CLASSROOM ADDITION & SITE WORK
PANAMA CITY BEACH, FL

CRA PROJECT NO.: 21070



Clemons, Rutherford & Associates Inc.
 2027 Thomasville Road
 Tallahassee, Florida 32308
 (850) 385-6153
 Fax (850) 386-8420

SIGNAGE TYPES

PROJECT: BCS - DEANE BOZEMAN SCHOOL
 CLASSROOM ADDITION & SITE WORK
 PANAMA CITY BEACH, FL

CRA PROJECT NO.: 21070

SIGNAGE SCHEDULE- BAY COUNTY SCHOOL (21070)

Door Number	Room Name	Room Number	Sign Type	Raised Text / Braille	Signage notes
Classroom Building					
100	Corridor	100	A	"TBD" BUILDING "TBD"	Exterior
100A	Corridor	100	A	"TBD" BUILDING "TBD"	Exterior
100B	Corridor			No signage	
100C	Corridor	100A	A	"TBD" BUILDING "TBD"	Exterior
	Vestibule	100B	B	RESTROOM VESTIBULE	Universal male & female symbol
	Elevator	101	A	ELEVATOR	Universal elevator symbol & note not to use elevator in case of fire
102	Storage	102	A	102 STORAGE	
103	Stair	103	A	103 STAIR	Universal stair symbol
103A	Stair	103	A	103 STAIR	Universal stair symbol Exterior
104	Classroom	104	A	104 CLASSROOM	
105	Classroom	105	A	105 CLASSROOM	
106	Classroom	106	A	106 CLASSROOM	
107	Classroom	107	A	107 CLASSROOM	

SIGNAGE SCHEDULE- BAY COUNTY SCHOOL (21070)

Door Number	Room Name	Room Number	Sign Type	Raised Text / Braille	Signage notes
108	Classroom	108	A	108 CLASSROOM	
109	Classroom	109	A	109 CLASSROOM	
110	Conference Workroom	110	A	110 CONFERENCE WORKROOM	
110A	Office	110A	C	110A OFFICE	
110B	Office	110B	C	110B OFFICE	
111	Classroom	111	A	111 CLASSROOM	
112	Boys	112	B	112 BOYS	Universal male symbol
113	Girls	113	B	113 GIRLS	Universal female symbol
114	Secretary	114		114 "TBD"	
114A	Office	114A	C	114A OFFICE	
114B	Office	114B	C	114B OFFICE	
115	J/C	115	A	115 FACILITIES	
116	Men	116	B	116 MEN	Universal male symbol
117	Women	117	B	117 WOMEN	Universal female symbol

SIGNAGE SCHEDULE- BAY COUNTY SCHOOL (21070)

Door Number	Room Name	Room Number	Sign Type	Raised Text / Braille	Signage notes
118	Elevator Machine Room	118	A	118 ELEVATOR MACHINE ROOM	
119	Classroom	119	A	119 CLASSROOM	
120	Classroom	120	A	120 CLASSROOM	
121	Classroom	121	A	121 CLASSROOM	
122	Classroom	122	A	122 CLASSROOM	
123	Communications	123	A	123 COMMUNICATIONS	
124	Storage	124	A	124 STORAGE	
125	Electrical	125	A	125 ELECTRICAL	
126	Stair	126	A	126 STAIR	Universal stair symbol
126A	Stair	126	A	126 STAIR	Universal stair symbol Exterior
127	Mechanical	127	A	127 MECHANICAL	Exterior
128	Mechanical Yard	128	A	128 MECHANICAL YARD	Exterior
	Vestibule	200A	B	RESTROOM VESTIBULE	Universal male & female symbol

SIGNAGE SCHEDULE- BAY COUNTY SCHOOL (21070)

Door Number	Room Name	Room Number	Sign Type	Raised Text / Braille	Signage notes
	Elevator	201	A	ELEVATOR	Universal elevator symbol & note not to use elevator in case of fire
202	Storage	202	A	202 STORAGE	
203	Stair	203	A	203 STAIR	Universal stair symbol
204	Classroom	204	A	204 CLASSROOM	
205	Classroom	205	A	205 CLASSROOM	
206	Classroom	206	A	206 CLASSROOM	
207	Classroom	207	A	207 CLASSROOM	
208	Classroom	208	A	208 CLASSROOM	
209	Classroom	209	A	209 CLASSROOM	
210	Classroom	210	A	210 CLASSROOM	
211	Classroom	211	A	211 CLASSROOM	
212	Boys	212	B	212 BOYS	Universal male symbol
213	Girls	213	B	213 GIRLS	Universal female symbol
214	J/C	214	A	214 FACILITIES	

SIGNAGE SCHEDULE- BAY COUNTY SCHOOL (21070)

Door Number	Room Name	Room Number	Sign Type	Raised Text / Braille	Signage notes
215	Teacher Planning	215	A	215 TEACHER PLANNING	
215A	Men	215A	B	215A MEN	Universal male symbol
215B	Women	215B	B	215B WOMEN	Universal female symbol
216	Storage	216	A	216 STORAGE	
217	Classroom	217	A	217 CLASSROOM	
218	Classroom	218	A	218 CLASSROOM	
219	Classroom	219	A	219 CLASSROOM	
220	Classroom	220	A	220 CLASSROOM	
221	Stair	221	A	221 STAIR	Universal stair symbol
222	Electrical	222	A	222 ELECTRICAL	
223	Communications	223	A	223 COMMUNICATIONS	
224	Mechanical	224	A	224 MECHANICAL	
225	Storage	225	A	225 STORAGE	

SIGNAGE SCHEDULE- BAY COUNTY SCHOOL (21070)

Door Number	Room Name	Room Number	Sign Type	Raised Text / Braille	Signage notes

SECTION 101600 - TOILET PARTITIONS

PART 1 - GENERAL

- 1.01 **SUBMITTALS**: Submit manufacturer's data and installation instructions, shop drawings showing layout toilet partitions and samples of solid plastic for color selection.
- 1.02 **PERFORMANCE REQUIREMENTS**:
- A. Fire Resistance: Partition materials shall comply with the following requirements, when tested in accordance with the ASTM E 84: Standard Test Method for Surface Burning Characteristics of Building Materials:
 - 1. Smoke Developed Index: Not to exceed 450
 - 2. Flame Spread Index: Not to exceed 75
 - 3. Material Fire Ratings:
 - a. National Fire Protection Association (NFPA): Class B
 - b. International Code Council (ICC): Class B
- 1.03 **QUALITY ASSURANCE**
- A. Manufacturer's Qualifications: A company regularly engaged in manufacture of products specified in this section, and whose products have been in satisfactory use under similar service conditions for not less than 5 years.
 - B. Installer's Qualifications: A Company or Individual, regularly engaged in installation of products specified in this Section, with a minimum of 5 years experience.
- 1.04 **WARRANTY**: Scranton Products (Santana/Comtec/Capitol), guarantees its plastic against breakage, corrosion, and delamination under normal conditions for 25 years from the date of receipt by the customer. If materials are found to be defective during that period for reasons listed above, the materials will be replaced free of charge. (Labor not included in warranty.)

PART 2 - PRODUCTS

- 2.01 **MANUFACTURER**: Provide toilet partitions as manufactured by Scranton Products (Santana/Comtec/Capitol) OR approved equal.
- 2.02 **MATERIAL**: Doors, panels and pilasters shall be 1" thick constructed from High Density Polyethylene (HDPE) resins. Partitions shall be fabricated from polymer resins compounded under high pressure, forming a single component which is waterproof, nonabsorbent and has a self-lubricating surface that resists marks from pens, pencils, markers and other writing instruments. All plastic components shall be covered with a protective plastic masking.
- 2.03 **CONSTRUCTION**:
- A. Doors, panels, and pilasters shall be 1" thick, seamless construction with eased edges.
 - B. Doors and dividing panels shall be 55" high and mounted at 14" above the finished floor. An aluminum heat sink may be fastened to the bottom edges.
 - C. **PILASTER**: Pilaster shall be 82 inches high and mounted to panels and walls with continuous wall brackets. Pilasters shall contain 2 level adjusting bolts on the bottom and shall be fastened to the floor with a 3 inch high 20 gauge stainless steel shoe anchored as per manufacturer's recommendation. Pilasters shall be overhead braced with anti-grip heavy extruded aluminum (6463 T5 alloy) with bright dip anodized finish headrail.
 - D. **WALL BRACKETS**: Shall be 54 inches long and made of heavy aluminum extrusion (6463-T5 alloy) with bright dip anodized finish. Wall brackets shall be pre-drilled by manufacturer with

SECTION 101600 - TOILET PARTITIONS (continued):

holes spaced every 10 inches along full length of brackets. Attachments shall be made as per manufacturer's recommendations. Provide continuous shim, matching toilet partitions, as necessary above tile wainscot.

- E. Headrail shall be made of heavy-duty extruded aluminum (6463-T5 alloy) with anti-grip design and integrated curtain track. The headrail shall have a clear anodized finish and shall be fastened to the headrail bracket by a stainless steel tamper resistant torx head sex bolt, and fastened at the top of the pilaster with stainless steel tamper resistant torx head screws.
- F. Headrail brackets shall be 20 gauge stainless steel with a satin finish and secured to the wall with a stainless steel tamper resistant torx head screws.

2.04 **HARDWARE AND ACCESSORIES:** Manufacturer's standard, heavy-duty operating hardware and accessories, non-ferrous cast alloy with satin chrome finish. Furnish for each door, the following:

- A. **Hinges:** Shall be 8 inches and made of heavy aluminum extrusion (6463-T5 alloy) with bright dip anodized finish with wrap around flanges, surface mounted to the doors with stainless steel tamper resistant torx screws.
- B. Door strike/keeper shall be 6" long and made of heavy-duty extruded aluminum (6436-T5 alloy) with a bright dip anodized finish and secured to the pilasters with stainless steel tamper resistant torx head sex bolts. Bumper shall be made of extruded black vinyl.
- C. Latch and housing shall be made of heavy-duty extruded aluminum (6463-T5 alloy). The latch housing shall have a bright dip anodized finish, and the slide bolt and button shall have a black anodized finish.
- D. **Coat Hook and Bumper:** Manufacturer's standard unit, rubber-tipped at each door.
- E. **Door Pulls:** Manufacturer's standard.
- F. **Door Pulls (Handicapped Stalls):** ALL handicapped toilet partition doors to have ADA approved pull handle. Provide cast door pull #137 with US28 finish by Rockwood OR approved equal. Mounting shall be with thru bolt.
- G. **Heat Sinc:** Aluminum edging strips shall be fastened to the bottom edge of all doors and panels.

2.05 **ANCHORAGES AND FASTENERS:** Manufacturer's standard theft-proof exposed fasteners, finished to match hardware.

2.06 **FABRICATION:**

- A. **Floor-Supported Pilasters:** 1" thick, with galvanized steel anchorage complete with threaded rods, lock washers, and leveling nuts.
- B. **Doors and Panels:** Not less than 1" thick units, size shown. Doors to meet ADA requirements.

PART 3 - EXECUTION

3.01 **INSTALLATION:** Install partitions rigid, straight, plumb and level in accordance with manufacturer's printed instructions. Set units with not more than 1/2" between pilasters and panels, and not more than 1" clearances between panels and walls.

3.02 **HARDWARE ADJUSTMENTS:** Adjust and lubricate hardware for proper operation after installation.

- A. **Set hinges on in-swing doors** to hold doors open approximately 30 deg from the closed position when unlatched.

SECTION 101600 - TOILET PARTITIONS (continued):

- B. Set hinges on out-swing doors to return to fully closed position.

- 3.03 CLEANING AND FINAL ADJUSTMENTS: Perform final adjustments to leveling devices, door hardware, and other operating parts. Clean exposed surfaces and touch up minor finish imperfections using materials and methods recommended by partition manufacturer.

- 3.04 REPLACE DAMAGE units which cannot be satisfactorily field repaired, as directed by Architect.

END OF SECTION 101600

SECTION 102800 - TOILET AND BATH ACCESSORIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.02 SUBMITTALS

- A. **Product Data:** For each type of product included. Include the following:
 - 1. Construction details and dimensions.
 - 2. Anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
 - 3. Material and finish descriptions.
 - 4. Manufacturer=s warranty.
- B. **Maintenance Data:** For toilet and bath accessories to include in maintenance manuals.

- 1.03 **STRUCTURAL REQUIREMENTS:** All grab bars and their mounting devices shall withstand a downward load of at least 250 lbs. of force when tested according to method in ASTM F 446.

1.04 WARRANTY

- A. **Special Mirror Warranty:** Manufacturer’s standard form in which manufacturer agrees to replace mirrors that develop visible silver spoilage defects and that fail in materials or workmanship within a 5-year period from date of Substantial Completion.

PART 2 - PRODUCTS

- 2.01 **MANUFACTURER:** Provide toilet and bath accessories as manufactured by Bobrick OR approved equal.

- 2.02 **GENERAL:** Provide toilet and bath accessories as scheduled. Install units at locations and heights as indicated, plumb and level, firmly anchored, in accordance with manufacturer's instructions.

2.03 MATERIALS:

- A. **Stainless Steel:** AISI Type 302/304, with polished No. 4 finish, 22 gage minimum, unless otherwise indicated.
- B. **Mirror Glass:** 1/4" thick, Type I, Class 1, Quality q2, conforming to FS DD-G-451, with silvering, copper coating, and protective organic coating complying with FS DD-M-411.
- C. **Galvanized Steel Sheet:** ASTM A 527, G60.
- D. **Galvanized Steel Mounting Devices:** ASTM A 153, hot-dip galvanized after fabrication.
- E. **Fasteners:** Screws, bolts, and other devices of same material as accessory unit or of galvanized steel where concealed.

- 2.04 **GENERAL FABRICATION:** Stamped names or labels on exposed faces of toilet and bath accessory units are not permitted, however unobtrusive labels indicating manufacturer and model number are required on surface not exposed to view. Wherever locks are required for particular type of accessory, provide same keying throughout project. Furnish two keys for each lock, properly identified.

SECTION 102800 - TOILET AND BATH ACCESSORIES (continued):

- B. Mirror Fabrication: Fabricate frames for glass mirrors to accommodate wood, felt, plastic, or other glass edge protection material. Provide mirror backing and support system which will permit rigid, tamperproof glass installation and prevent accumulation of moisture.
- C. Surface-Mounted Accessories: Fabricate units with tight seams and joints, exposed edges rolled. Hang doors or access panels with continuous piano hinge or minimum of two 1-1/2" pin hinges of same metal as unit cabinet. Provide concealed anchorage wherever possible.
- D. Recessed Toilet Accessories, General: Except where otherwise indicated, fabricate units of all welded construction, without mitered corners. Hang doors or access panels with full-length stainless steel piano hinge. Provide anchorage that is fully concealed when unit is closed.
- 2.05 TOILET ACCESSORY ITEMS: Provide the following toilet accessories by Bobrick Washroom Equipment Inc. OR approved equal, unless otherwise noted.
- A. Grab Bars: Provide stainless steel grab bars with wall thickness not less than 18 gage, outside diameter 1-1/2", concealed mounting, with #4 polished satin finish. Refer to Drawings for configurations and size of grab bars. Provide concealed anchors for each flange as per manufacturer's recommendations. **(B-6806-36; B-6806-42; Two Wall Grab Bar B-68616 (24" x 36"))**
- B. Stainless Steel Framed Mirrors: Fabricate frame with angle shapes of not less than 18 gage (.050"), with square corners mitered to hairline joints and mechanically interlocked; tamper-resistant concealed wall hanger. Provide in No. 4 satin polished finish. **(B-165 1836 18" x 36")**
- C1. Compact Twin Roll Tissue Dispenser: Compact side-by-side 2 Roll dispenser by Georgia-Pacific professional that uses compact Coreless tissue. Overall dimensions: 11" w x 7" H x 6.75"D.
- C2. Compact Vertical 2-Roll Tissue Dispenser: Surface mounted toilet tissue dispenser model 56790A by Georgia Pacific Pro. Overall dimensions: 6" w x 13.5" H x 6.5"D
- C3. Compact Vertical 4-Roll Tissue Dispenser: Surface mounted toilet tissue dispenser model 56744A by Georgia Pacific Pro that uses compact Coreless tissue. Overall dimensions: 11.75" w x 13.25" H x 6.9"D
- D. Surfaced Mounted Paper Towel Dispenser: Surface mounted paper towel dispenser model 59589 by Georgia Pacific Pro. Pacific Ble Ultra mechanical high capacity paper tower dispenser. Overall dimensions: 12.9" w x 16" H x 9"D
- E. Surface Mounted Soap Dispenser: Two-tone black and grey. Valve dispenses all-purpose soaps. Vandalresistant lid has keyless locking device, pivots up for easy top filling. Translucent container provides visible soap level. Capacity: 40-fl oz (1.2-L). Concealed mounting, removable for cleaning. Unit 5 13/16" W, 6 7/8" H (150 x 175mm); wall to push-button, 3 3/16" (80mm). **(B-40)**
- F. Surfaced Mounted Waste Receptacle: Surface mounted waste receptacle shall be Type 304 stainless steel. Exposed surfaces shall have satin finish. Waste receptacle shall have bottom edges hemmed and be equipped with four interior hooks. Unit shall be furnished with a removable heavy-gauge vinyl liner and shall have a capacity of 6.5 gal. **(B-279)**
- G. Surface Paper Towel Dispenser with Trash Receptacle: Fabricate of Type 304, 22 gauge stainless steel with satin finish. Welded construction. Door to have full length stainless steel piano hinge and a knob to retain door. 2 gallon waste capacity, and shall dispense 350 C-fold or 475 multi-fold towels. **(B-3699)**
- H. Shower Rod: Heavy-duty 20 gauge, Type 304 stainless steel, satin finish, 1" diameter rod. In lengths indicated on the drawings. **(B-6107)**

SECTION 102800 - TOILET AND BATH ACCESSORIES (continued):

- I. Shower Curtain Hooks: Hooks to be Type 304 stainless steel for use on the specified shower curtain rod. **(B-204-1)**
- J. Vinyl Shower Curtain: Shower curtain shall be opaque, matte white vinyl .008" thick, containing antibacterial and flame-retardant agents, and shall have nickel-plated brass grommets along top. Bottom and sides shall be hemmed. **(B204-2 (42"w) or B-204-3 (72"w)**
- K. Reversible Solid Phenolic Folding Shower Seat: Designed to fold up against wall when not in use. Provide support braces, hinges, frame and fasteners of Type 304 stainless steel. Construct frame of all welded tubular construction for maximum strength. Seat shall be one-piece 1/2" thick, solid phenolic with matte finish, ivory colored, melamine surfaces and black phenolic-resin core. Reversible for left or right hand installation in the field. **(B-5181)**
- L. Shower / Dressing Area Seat: Similar to B519, except with 5/16" thick solid phenolic, water-resistant seat. **(B-5191)**
- M. Mop and Broom Holder/Utility Shelf: Combination unit with 18-gage (.050") Type 304 stainless steel shelf with 1/2" returns, 16-gage (.062") support brackets for wall mounting, provide 16-gage stainless steel hooks for wiping rags on front of shelf, together with spring-loaded rubber cam type mop/broom holders; 1/4" diameter stainless steel drying rod suspended beneath shelf. Provide 34" long unit with 3 mop/broom holders and 4 hooks. **(B-239 x 34)** Provide 44" long unit with 4 mop/broom holders and five hooks. **(B-239 x 44)**
- N. Surface Mounted Napkin Disposal: Construct of Type 304 stainless steel. Exposed surfaces shall have satin finish. Self-closing door shall be secured to cabinet with full length, stainless steel piano hinge and equipped with a tumbler lock. Unit shall have a self-closing panel covering disposal opening. Panel shall be secured to door with a spring-loaded, full-length stainless steel piano-hinge. Unit shall be furnished with a removable, leak-proof molded polyethylene receptacle with a capacity of 1.2 gal. **(B-254)**
- O. Hook and Door Stop: Coat hook shall be constructed of solid aluminum with satin finish. Unit shall be equipped with hard rubber bumper. **(B-212)**
- P. Towel Bar: : "square towel bar x 24" long, projecting 3c" from the wall and being bright polished stainless steel. **(B-7673-24)**
- Q. Double Robe Hook: Type 304 stainless steel with bright polished finish. Flange and support arm shall be 22 gauge with concealed mounting bracket. Cap shall be 14 gauge welded to support arm. **(B-7672)**
- R. Stainless Steel Shelf: Shelf shall be constructed entirely of Type 304, 18 gauge stainless steel with satin finish. Mounting brackets, welded to shelf shall be 16 gauge stainless steel. Shelf shall be 8" wide with 3/4" return edges. Length of shelf shall be 24" unless otherwise noted on drawings. **(B-298 x 24)**
- S. Folding Utility Shelf: Utility shelf shall be Type 304 stainless steel with all-welded construction; exposed surfaces shall have satin finish. Shelf shall be equipped with a heavy-duty internal spring. Mounting bracket shall be Type 304 stainless steel with satin finish. Shelf shall automatically return to upright position when not in use. **(B-287)**
- T. Diaper Changing Station: Diaper changing station shall be high-impact grey polyethylene with foam core. Unit shall be equipped with a pneumatic cylinder. Bed shall be secured to back plate with concealed, full-length stainless hinge rode with steel bushings embedded in the plastic. Bed shall have nylon safety straps, two hooks and universal instruction graphics. Unit shall support loads up to 250 lb. Unit can be surfaced mounted or semi-recessed. **(KB-200-01SS)**

SECTION 102800 - TOILET AND BATH ACCESSORIES (continued):

PART 3 - EXECUTION

3.01 INSTALLATION:

- a. Install toilet accessory units in accordance with manufacturer's instructions, using fasteners appropriate to substrate and recommended by manufacturer of unit. Install units plumb and level, firmly anchored in locations indicated and in accordance with the requirements of ADA.

3.02 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Remove temporary labels and protection coatings.
- C. Clean and polish exposed surfaces according to manufacturer=s written recommendations.

END OF SECTION 102800

SECTION 104416 - FIRE EXTINGUISHERS, CABINETS, AND ACCESSORIES

PART 1 - GENERAL

- 1.01 UL-Listed Products: Provide new UL-listed fire extinguishers bearing UL "Listing Mark" for type, rating, and classification of extinguishers indicated.
- 1.02 Submittals: Submit product data and finish samples.

PART 2 - PRODUCTS

- 2.01 Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- | | |
|----------------------------------------|---------------------------------------|
| Allenco | Larsen's Manufacturing Co |
| Ansul Fire Protection, Wormald US Inc. | Modern Metal Products by Muckle |
| Badger-Powhatan | Potter-Roemer, Inc. |
| Bobrick Washroom Equipment, Inc. | Walter Kidde, Division of Kidde, Inc. |
| J.L. Industries | |
- 2.02 Fire Extinguishers: Provide fire extinguishers for each extinguisher cabinet and other locations indicated on Life Safety Plans.
- A. Contractor's Option: Contractor has option to provide rated fire extinguisher cabinets in rated walls OR provide 5-sided gypsum board box in rated walls.
- 2.03 Multipurpose Dry Chemical Type:
- A. Typical Areas: UL-rated 3A-20 B: C min., in enameled steel containers.
- B. Labs, Shops, Boiler Rooms, Bulk Storage, Electrical and Equipment Rooms: UL-rated 3A-40 B: C min., in enameled steel containers.
- C. Bulk Paper Storage: UL-rated 4A-60 B:C, in enameled steel containers.
- ~~D. Kitchens: UL-rated 3A-40 B:C min.~~
- 2.04 Mounting Brackets: Provide brackets for extinguishers not located in cabinets.
- 2.05 Fire Extinguisher Cabinets: Provide fire extinguisher cabinets where indicated, of suitable size for housing fire extinguishers of types and capacities indicated.
- A. Semi-Recessed: Cabinet box (tub) recessed in walls of sufficient depth to suit style of trim indicated,
- Exposed Trim: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).
 - Rolled Edge Trim with 2-1/2 inch backbend depth.
 - Trim Metal: Of same metal and finish as door.
 - Locations: Corridors; must not be more than 4”.
- B. Surface Mounted: Cabinet box fully exposed and mounted directly on wall; with no trim.
- 2.06 Door Material and Construction: Manufacturer's standard door construction, of material indicated, coordinated with cabinet types and trim styles selected.
- A. Enameled Steel: Manufacturer's standard finish, hollow steel door construction with tubular stiles and rails.

SECTION 104416 - FIRE EXTINGUISHERS, CABINETS AND ACCESSORIES (continued):

- B. Identify fire extinguisher in cabinet with lettering spelling "FIRE EXTINGUISHER" applied by silkscreen method to door. Provide lettering to comply with requirements indicated for letter style, color, size, spacing, and location or as selected by Architect from manufacturer's standard arrangements. Lettering shall be vertical and red. Cabinet shall be white.
 - C. Door Style: Manufacturer's standard full flush solid panel of material indicated.
 - D. Door Hardware: Provide manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated. Provide either lever handle with cam action latch, or door pull, exposed or concealed, and friction latch. Provide concealed or continuous-type hinge permitting door to open 180 deg.
- 2.07 Factory Finishing of Fire Extinguisher Cabinet: Comply with NAAMM "Metal Finishes Manual" to provide uniformly finished products. Protect mechanical finishes on exposed surfaces from damage by application of strippable, temporary protective covering prior to shipment. Cabinet shall be mounted 48" A.F.F. to center of cabinet handle.
- 2.08 Fire Blanket and Cabinet: Provide fire blanket and surface mounted cabinet "FB 1016" by Larsen's Manufacturing Company OR approved equal. Each cabinet shall be constructed of cold-rolled steel with a red baked acrylic enamel finish. Each cabinet shall have a 62" x 80" fire blanket made of a rugged blend of reprocessed wool. Cabinet shall be mounted 48" A.F.F. to center of cabinet handle.

PART 3 - EXECUTION

3.01 Installation:

- A. Install items included in this section in locations and at mounting heights indicated, or if not indicated, at heights to comply with applicable regulations of governing authorities.
- B. Prepare recesses in walls for fire extinguisher cabinets as required by type and size of cabinet and style of trim and to comply with manufacturer's instructions.
- C. Securely fasten mounting brackets and fire extinguisher cabinets to structure, square and plumb, to comply with manufacturer's instructions.

END OF SECTION 104416

SECTION 105310 - ALUMINUM WALKWAY CANOPY SYSTEM

PART 1 - GENERAL

1.01 SUBMITTALS

- A. Data: Provide manufacturer's data for all materials that indicates the method of fabrication. Data shall be provided indicating that all materials meet or exceed the specified requirements.
- B. Samples: For color selection purposes, submit complete sets of samples illustrating the full range of color and textures to be expected in the completed work. Provide samples of the following minimum size:
6 inches by 5 inches of sheet material.

For verification purposes, submit a complete set of all components to be incorporated in the work. Samples shall have the proper finish, but need not be in the proper color. Provide samples of the following minimum size:

6 inches by 5 inches of sheet material

6 inch length of each extrusion

1 each of all castings, fasteners or factory made accessory components

- C. Shop Drawings: Submit complete shop drawings for fabrication and installation of metal walkway cover units. Indicate member dimensions, cross-section, reinforcement size and location, and other special features such as openings, splice locations and connection details.

Provide layout, dimensions, and identification of each unit corresponding to sequence and procedure of installation.

Provide location and details of anchorage devices that are to be embedded in other construction. Furnish templates and/or block-outs if required for accurate placement.

Shop drawings shall be reviewed by the manufacturers engineer to verify member sizing, span/load criteria and connection details to assure compliance with the code criteria qualifications.

Shop drawings for walkway covers shall be signed, sealed, and dated by a professional engineer registered in the State of Florida.

1.02 QUALITY ASSURANCE

- A. Applicable Standards:
1. SMACNA: "Architectural Sheet metal Manual" Sheet Metal and Air Conditioning Contractors National Association, Inc.
 2. Aluminum Association.
 3. SBBCI.
 4. Design Wind Speed: V_{ult} shall be 145 mph to meet ASCE 7-10. See Sheet S0.1.
- B. Manufacturer: Provide aluminum walkway canopies by a single firm which has successfully specialized in production of this type of work for not less than 3 years. Provide accessory items only as produced or recommended by manufacturer of primary products.
- C. Installer: Firm with not less than 3 years of successful experience in the installation of products similar to those required for this project and which is acceptable to or licensed by manufacturer of the primary products used.
- D. Specified Product Warranty: Submit manufacturer's standard warranty for each item of equipment required, with Owner's name listed as warrantee and beginning date of warranty period corresponding to Date of Substantial Completion.

SECTION 105310 - ALUMINUM WALKWAY CANOPY SYSTEM (continued):

1.03 DELIVERY, STORAGE AND HANDLING

- A. Products shall be shop fabricated and field assembled in as large of sections as possible for the location.
- B. All exposed metal sections shall be protected from weather damage and installation damage continuously during on-site temporary storage and erection.
- C. Handling shall be done in a manner to prevent damage. All damaged areas shall be repaired and painted to match original colors.

PART 2 - PRODUCTS

2.01 GENERAL: Walkway canopy shall have drainage from deck to gutter and downspout through the posts. All accessories shall be aluminum.

2.02 ACCEPTABLE MANUFACTURERS

- A. Architectural Metal Systems, P.O. Box 720039, Orlando, FL 32872-0039
- B. Crown Metal Industries, P.O. Box 8, 201 Morrow Avenue, Trussville, AL 35173. Phone No.(205) 655-5505
- C. Peachtree Protective Covers, 1477 Rosedale Drive, Hiram, GA 30141. Phone No.(770) 439-2120
- D. Perfection Architectural Systems, Inc., 4460 N. Goldenrod Road., Winter Park, FL 32792. Phone No.(800) 238-7207
- F. Superior Metal Products Company. Phone No. (205) 945-1200.
- G. Royal Aluminum Inc., Leesburg, Florida (800) 342-3622.
- H. OR approved equal.

2.03 MATERIALS

- A. Aluminum extrusions shall be 6063 alloy, heat-treated to a T-6 temper.
- B. Roll-formed aluminum shall be 29 ksi minimum yield 3005 H-28 sheet aluminum.
- C. All fasteners and hardware less than 1/4" diameter nominal size shall be hot-dipped galvanized to withstand 200 hours salt spray test for maximum resistance to rust and corrosion. All fasteners and hardware 1/4" diameter and larger shall be stainless steel.

2.04 ROOF DECK: Load bearing roof deck shall be 3" deep extruded caps and pans and properly supported by the primary framing members. Roof deck shall be "roll-locked" using interlocking joints designed and fabricated to provide structural continuity and self-flashing. Gauge shall be .060 or greater to meet required design loads.

2.05 FASCIA GUTTER (Gutter/Beam): Fascia gutters shall serve as a built-in gutter for roof drainage. Fascia gutter shall be an extruded aluminum open gutter system with a .110 wall thickness minimum and a 5" minimum throat opening for easy cleaning by hand. Corners shall be shop fabricated with welded miter joint. Gutter splices shall be fastened at each end and coated with sealant for ease of installation. All exposed portions of fasteners within the gutter shall be coated with sealant.

2.06 POSTS: Posts shall be 4" x 4" x .150 (minimum) extruded aluminum or greater to meet required design loads with welded gutter anchor plates and fasteners. They shall be used as wet bents to drain water.

SECTION 105310 - ALUMINUM WALKWAY CANOPY SYSTEM (continued):

- 2.07 **BEAMS:** Beams shall be extruded aluminum tubes 4" x 6" x .150 (minimum) or greater to meet required design loads.
- 2.08 **FINISH:** Finish on all posts, fascia and fascia gutters shall be clear anodized. Roof deck shall be either clear anodized or as specified by option.

PART 3 - EXECUTION

3.01 **EXAMINATION**

- A. Examine substrates and conditions under which products of this section are to be installed and verify that installation may be made in accordance with approved shop drawings and manufacturer's instructions.
- B. In the event that discrepancies are discovered, notify Architect. Do not proceed with installation until discrepancies have been fully resolved.

- 3.02 **INSTALLATION:** Erection shall be scheduled after all adjacent construction has been completed. Foundations, anchor bolts and plates when required are the responsibility of others. Post spacing per shop drawings. When applicable, column interiors shall be filled with grout to the lowest edge of the "drain hole", and the grout sloped to drain prior to the installation of the deflector plates. Miter and "butt-cut" joints shall be done in a workman like manner. Special cuts may be done in the field.

3.03 **CLEANING**

- A. During progress of the work, remove from project site all discarded materials, rubbish and debris resulting from the work. Upon completion, clean all surfaces which have become soiled or coated as a result of work of this section, using proper methods which will not scratch or otherwise damage finished surfaces.
- B. Protect work against damage until final acceptance. Replace or repair to the satisfaction of the Architect, any work that becomes damaged prior to final acceptance.
- C. Touch up minor scratches and abrasions.
- D. Clean top surface of deck free of all metal shavings and debris.

END OF SECTION 105310

SECTION 109900 - MISCELLANEOUS SPECIALTIES

PART 1 - GENERAL

- 1.01 This is a "Green Globe" project.
- A. Use products, adhesives and sealants with low or no VOCs.
- 1.02 Description: This section includes the following items:
- Pre-cast Medallions Window Blinds
- 1.03 Submittals: Product data for each type of accessory specified, with installation instructions for each unit built-in or connected to other construction.
- A. Submit documentation of VOC content of products, adhesives and sealants within the building envelop.
- 1.04 Shop Drawings: Provide shop drawings showing installation details of accessories permanently affixed to construction, including full scale installation details of special conditions.
- 1.05 Delivery, Storage and Handling: Deliver materials to project site in original factory wrappings and containers, clearly labeled with identification of manufacturer, brand name, and lot number. Store materials in original undamaged packages and containers, inside well-ventilated area protected from weather, moisture, soiling, extreme temperatures, humidity; laid flat, blocked off ground to prevent sagging and warping.
- 1.06 Sequence and Scheduling: Sequence accessory installation with other work to minimize possibility of damage and soiling during remainder of construction period.

PART 2 - PRODUCTS

- 2.01 Cast stone Medallions & Friezes: All cast stone ornaments shall be manufactured by Pineapple Grove Designs or approved equal and composed of a matrix of ingredients including cement, crushed and graded stone, virgin polypropylene fiber, iron oxide pigment, and admixtures necessary to achieve required physical properties. Provide all material, labor, accessories and appliances necessary for the complete installation of the cast stone ornaments.
- 2.02 Window Blinds: Provide vertical blinds
- A. Mfr: Springs Window Fashions OR approved equal.
- B. Type: Graber Ultra-View Vertical Blinds.
- C. Headrail: 1-3/16" in height x 1-3/8" in width, bright dip anodized aluminum alloy 3063-T5, with a wall thickness of 0.050".
- D. Carriers: Carriers shall be molded acetal with a detachable self-aligning carrier stem which is molded in clear, non-yellowing high impact resistant nylon. Carriers traverse on self-lubricating wheels and have stems positioned in the center.
- E. Rotation Control: Shall have a #6 nickel plated steel bead chain.
- F. Traversing and Spacing of Louvers: Stainless steel spacer system connecting each carrier body. Louvers shall overlap no less than 3/8". Traverse cord shall be Danskord 1.8mm in diameter with a minimum tensile strength of 125 pounds and shall be equipped with a cord tension pulley.
- G. Louvers: Louvers shall be 3-1/2" wide PVC.

SECTION 10990 - MISCELLANEOUS SPECIALTIES (continued):

- H. Installation Clips: Mounting on window head inside window opening, zinc plated, heat treated spring steel.
- I. Size Limitations: Maximum width is 191” for 3-1/2” louvers. Maximum drop is 144” except for channel panel louvers, which is 120”.
- J. Chain and Cord Control Options: One-way draw, stack left or right.
- K. Color: To be selected by Architect.
- L. Locations: All exterior windows.

PART 3 - EXECUTION

- 3.01 Installation: Verify that materials are those specified before installing. Install accessories after other finishing operations have been completed and as indicated from manufacturer's instructions and recommendations.

END OF SECTION 109900

SECTION 142400 - HYDRAULIC ELEVATOR

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK:

- A. Scope of work:
1. Provide labor, material, equipment and supervision necessary to complete elevator work.
 2. Pertinent portions of the entire Contract Documents shall be observed.
- B. Intent:
1. This specification is intended to provide one (1) complete holeless Hydraulic passenger elevator.
 2. All work including the accessory items listed herein performed in a first-class, workmanlike manner, includes materials, work as shown on drawings or described hereinafter.
 3. In all cases, where a device or part of equipment is herein referred to in singular number, it is intended that such reference shall apply to as many such devices as are required to complete installation.
 4. Work shall be performed as per latest revised edition of American National Standard Code for Elevators, Dumbwaiters, Escalators and moving Walks (ANSI A-17.1), National Electrical Code or such State, Local Codes as may be applicable.
 5. In the interest of unified responsibility, Elevator Contractor shall be one regularly engaged in business of manufacturing, installing and servicing elevators of the type, character required by these specifications. The equipment shall be of a single manufacturer including, but not limited to the following: power unit, controller, oil control valves, jack unit, car platform and sling, guide shoes, car and hoistway door operator, interlocks, door hangers and closers, signal fixtures, sound isolated couplings, muffler, mainline strainer, hoistway leveling switches and shall be standard components.

1.02 RELATED DOCUMENTS:

- A. The general provisions of the contract, including General and Supplementary Conditions and General Requirements apply to the work in this section.
- B. The following sections contain requirements that relate to this section and are performed by trades other than the elevator manufacturer/installer.
1. Section 01 50 00 – Temporary Facilities and Controls: protection of floor openings and personnel barriers; temporary power and lighting.
 2. Section 03 30 00 – Cast-In-Place Concrete: elevator pit, elevator motor and pump foundation, and grouting thresholds.
 3. Section 05 50 00 – Metal Fabrications: pit ladder, divider beams, supports for entrances and rails, and hoisting beam at top of elevator hoistway.
 4. Section 07 16 00 – Cementitious Waterproofing: waterproofing of elevator pit.
 5. Section 23 50 00 – Heat Generation Equipment: ventilation and temperature control of elevator equipment areas.
 6. Section 26 05 00 – Common Work Results for Electrical:
 - a. Main disconnects for each elevator.
 - b. Electrical power for elevator installation and testing.
 - c. Disconnecting device to elevator equipment prior to activation of sprinkler system.
 - d. The installation of dedicated GFCI receptacles in the pit and overhead.
 - e. Lighting in controller area, machine area and pit.
 - f. Wiring for telephone service to controller.
 7. Section 26 30 00 – Emergency (Standby) Power Supply Systems: emergency generator for elevator operation.

SECTION 142400 - HYDRAULIC ELEVATOR (continued):

8. Section 27 30 00 – Voice Communications: ADAAG-required emergency communications equipment.
9. Section 28 31 00 – Fire Alarm Systems: fire and smoke detectors at required locations and interconnecting devices; fire alarm signal lines to contacts in the machine area.
10. Section 31 10 00 – Site Clearing: excavation for cylinder well casing.

1.03 **QUALITY ASSURANCE:**

- A. **Manufacturer Qualifications:** An approved manufacturer with minimum fifteen years experience in manufacturing, installing, and servicing elevators of the type required for the project.
 1. Must be the manufacturer of the power unit, controller, signal fixtures, door operators cab, entrances, and all other major parts of the elevator operating equipment.
 - a. The major parts of the elevator equipment shall be manufactured in the United States, and not be an assembled system.
 2. The manufacturer shall have a documented, on-going quality assurance program.
 3. **Manufacturer:** Elevator manufacturer shall be ISO 9001 certified.
 4. Manufacturer shall have a minimum of fifteen years of experience in the fabrication, installation and service of elevators.
 5. **Permits, Inspections and Certificates:** The Elevator Contractor shall obtain and pay for necessary Municipal or State Inspection and permit as required by the elevator inspection authority, and make such tests as are called for by the regulations of such authorities. These tests shall be made in the presence of such authorities or their authorized representatives.
- B. **Installer Qualifications:** Either the elevator manufacturer or a licensee of the manufacturer, who has not less than 15 years successful experience with the installation of similar elevators.
- C. **Unified Responsibility:** Elevator Contractor shall be one regularly engaged in business of manufacturing, installing and servicing elevator of the type, character required by these specifications. The equipment shall be of a single manufacturer including, but not limited to the following: power unit, controller, oil control valves, jack unit, car platform and sling, guide shoes, car and hoistway door operator, interlocks, door hangers and closers, signal fixtures, around isolated couplings, muffler, mainline strainer, hoistway leveling switches and shall be standard components.
- D. **Regulatory Requirements:**
 1. **Elevator Code:** Except for more stringent requirements as indicated or imposed by governing regulations (which must be compiled with, comply with applicable requirements of ANSI/ASME A17.1, B44 Safety Code for Elevators, and Escalators (hereinafter referred to as the "Code").
 2. **NFPA Code:** Comply with applicable NFPA codes, and specifically with sections relating to electrical work and elevators.
 3. ADAAG, American Disabilities Act Accessibility Guidelines.
 4. ANSI A117.1, Building and Facilities, Providing Accessibility and Usability for Physically Handicapped People.
 5. ANSI/NFPA 70, (NEC) National Electrical Code.
 6. ANSI/UL 10B, Standard for Fire Test of Door Assemblies.
 7. ANSI/NFPA 80, Standard for Fire Doors and Other Opening Protectives.
 8. Building Codes FBC.
 9. All Local Jurisdictional applicable codes.
- E. **Fire-rated Entrance Assemblies:** Opening protective assemblies including frames, hardware, and operation shall comply with ASTM E2074, UL10(B), and NFPA 80. Provide entrance assembly units bearing Class B or 1 1/2 hour label by a Nationally Recognized Testing Laboratory.

SECTION 142400 - HYDRAULIC ELEVATOR (continued):

1.04 SUBMITTAL:

- A. Product Data: Submit manufacturer's detailed technical product and installation instructions for each principal component or product, and include certified test reports on required testing. List and describe features of control system, performances, and operating characteristics and as follows:
1. Signal and operating fixtures, operating panels and indicators.
 2. Cab design, dimensions and layout.
 3. Hoistway-door and frame details.
 4. Electrical characteristics and connection requirements.
 5. Expected heat dissipation of elevator equipment in hoistway (BTU).
- B. Shop Drawings:
1. Show equipment arrangement in the machine room/control space, pit and hoistway. Provide plans, elevations, sections and details of assembly, erection, anchorage, and equipment location.
 2. Show floors served, travel distances, maximum loads imposed on the building structure at points of support and all similar considerations of the elevator work.
 4. Indicate electrical power requirements and branch circuit protection device recommendations.
 5. Car, guide rails, buffers, and other components in hoistway.
 6. Maximum rail bracket spacing.
 6. Maximum loads imposed on guide rails requiring load transfer to building structure.
 7. Clearances and travel of car.
 8. Clear inside hoistway and pit dimensions.
 9. Location and sizes of access doors, hoistway entrances and frames.
- C. Powder Coat Paint selection: Submit manufacturer's standard selection charts for exposed finishes and materials.
- D. Plastic laminate selection: Submit manufacturer's standard selection charts for exposed finishes and materials.
- E. Metal Finishes: Upon request, standard metal samples provided.
- F. Samples: Submit samples of exposed finishes of car enclosures, hoistway entrances, and signal equipment. Provide 6" to 8" square samples of sheet materials and 10" to 12" length of running trim members.
- G. Maintenance Manuals: Submit bound manual for each elevator or group of elevators, with operating and maintenance instructions, parts listing, recommended parts inventory, listing, purchase source listing for major and critical components, emergency instructions, and similar information.
- H. Certificates and Permits: Provide owner with copies of all inspection/acceptance certificates and operating permits as required by governing authorities to allow normal, unrestricted use of elevators.

1.05 INSURANCE REQUIREMENTS: The Elevator Maintenance Contractor shall take out and maintain, at its sole expense and for the duration of the contract term, the following insurance coverage written in companies and on policy forms acceptable to the "Purchaser".

- A. Worker's Compensation in accordance with applicable state laws and regulations and Employer's Liability Insurance with a limit of not less than \$500,000.00.
- B. Comprehensive General Liability Insurance covering all operations and services under the contract with limits of bodily injury coverage of not less than \$1,000,000 per person and \$5,000,000 per occurrence and a limit of property damage coverage of not less than \$1,000,000 per occurrence.

SECTION 142400 - HYDRAULIC ELEVATOR (continued):

- C. Comprehensive Automobile Liability Insurance, including owner, non-owned and hired vehicle coverage and with the same limits of liability as specified for General Liability Insurance, if operations and services under the contract involve the use or operation of automotive vehicles on the purchaser's premises (not less than \$500,000 for each accident).

1.06 WORK BY OTHERS:

Following work shall be provided by General Contractor:

1. Legal hoistway, properly framed, enclosed, including pit of proper depth, provided with ladder, drains, lights, access doors, waterproofing as required. Suitable machine room, adequate for elevator equipment including floors, gratings, foundations, lighting, ventilation, heat to maintain room at temperatures of 55 degrees Fahrenheit minimum to 90 degrees Fahrenheit maximum. Adequate supports, foundations to carry loads of equipment, including supports for guide rail brackets, machine beams of overhead sheaves (if furnished).
2. Suitable connections from power mains to each controller or motor generator set starter, signal equipment feeders are required, including necessary circuit breakers, fused mainline disconnect switches.
3. Outlets at center of hoistway for lighting in car. Electric power without charge, for construction, testing, adjusting of same characteristics as permanent supply.
4. Cutting of walls, floors, etc., removal of such obstructions as may be necessary for proper installation of elevator. Setting of anchors, sleeves, pockets or blockouts for signal fixtures.
5. Finished floors and entrance walls are not to be constructed until after sills and door frames are in place. Consult elevator contractor for rough opening size. The general contractor shall supply the drywall framing so that the wall fire resistance rating is maintained, when drywall construction is used.
6. Painting, except as otherwise specified.
7. Temporary enclosures or other protection from open hoistways during time elevator is being installed.
8. Proper trenching, backfilling for any underground piping or conduit.
9. Elevator contractor to provide wires in traveling cable for telephone hook-up. These wires are to terminate in the elevator equipment room for connection to telephone circuit wiring provided by the Structured Cabling System Contractor from the serving communications room. The Elevator Contractor shall make the final connection to the elevator phone wiring in the elevator equipment room and shall in coordination with the Structured Cabling System Contractor test each elevator phone for proper operation.
10. Smoke and heat detectors (manual reset type) to be furnished at all floors, top of shaft, and machine room with necessary wiring furnished and terminated at controller.
11. Supply necessary conductors for telephone hook-up to each elevator junction box in elevator equipment room (telephone instrument to be supplied with the elevator package).
12. Where jack hole is required, remove all spoils from jack hole drilling. Spoil removal by others.
13. Elevator hoist beam to be provided at top of elevator shaft. Beam must be able to accommodate proper loads and clearances for elevator installation and operation.
14. Supply in ample time for installation by other trades, inserts, anchors, bearing plates, brackets, supports and bracing including all setting templates and diagrams for placement.
15. Hatch walls require a minimum two hours of fire rating. Hoistway should be clear and plumb with variations not to exceed 1/2" at any point.
16. Install bevel guards at 75° on all recesses, projections or setbacks over 2" (4" for A17.1 2000 areas) except for loading or unloading.
17. Provide rail bracket supports at pit, each floor and roof. For guide rail bracket supports, provide divider beams between hoistway at each floor and roof.
18. Pit floor shall be level and free of debris. Reinforce dry pit to sustain normal vertical forces from rails and buffers.
19. Where pit access is by means of the lowest hoistway entrance, a vertical ladder of non-combustible material extending 42" minimum, shall be provided at the same height, above sill of access door or handgrips.
20. Access to the machinery space and machine room must be in accordance with the governing authority or

SECTION 142400 - HYDRAULIC ELEVATOR (continued):

- code.
21. Provide an 8" x 16" cutout through machine room wall, for oil line and wiring duct, coordinated with elevator contractor at the building site.
 22. All wire and conduit should run remote from either the hoistways or the machine room.
 23. Install and furnish finished flooring in elevator cab.
 24. Where sheet rock or drywall construction is used for front walls, it shall be of sufficient strength to maintain the doors in true lateral alignment. Drywall contractor to coordinate with elevator contractor.
 25. Before erection of rough walls and doors; erect hoistway sills, headers, and frames. After rough walls are finished; erect fascias and toe guards. Set sill level and slightly above finished floor at landings.
 26. The elevator wall shall interface with the hoistway entrance assembly and be in strict compliance with the elevator contractor's requirements.
 27. General Contractor shall fill and grout around entrances, as required.
 28. Elevator sill supports shall be provided at each opening.
 29. All walls and sill supports must be plumb where openings occur.
 30. For applications with jack hole, free and clear access to the elevator pit area for the jack hole-drilling rig is required.
 31. When not provided by Elevator Contractor, jack hole shall accommodate the jack unit. If required the jack hole is to be provided in strict accordance with the elevator contractor's shop drawings.
 32. Locate a light fixture and convenience outlet in pit with switch located adjacent to the access door.
 33. A light switch and fused disconnect switch for each elevator should be located inside the machine room adjacent to the door, where practical, per the National Electrical Code (NFPA No. 70).
 34. For signal systems and power operated door: provide ground and branch wiring circuits, including main line switch. For car light and fan: provide a feeder and branch wiring circuits, including main line switch.
 35. Wall thickness may increase when fixtures are mounted in drywall. These requirements must be coordinated between the general contractor and the elevator contractor.
 36. Provide supports, patching and recesses to accommodate hall button boxes, signal fixtures, etc..

1.07 **MAINTENANCE SERVICE:**

- A. Elevator Contractor shall furnish maintenance callback service on each elevator after it is completed, placed in operation for a period of twenty-four (24) months.
 1. Manufacturer shall have a service office and full time service personnel within a 100 mile radius of the project site.
- B. This service shall consist of examinations of equipment, adjustments, lubrication, except such adjustments, parts or repairs made necessary by abuse, misuse or any other causes beyond control of Elevator contractor.
- C. A five-year Full Maintenance Agreement shall be provided by the awarding elevator contract.
- D. All work shall be done by trained employees of the Elevator Contractor during the regular working hours of the trade.
- E. The elevator control system must:
 1. Provide in the controller the necessary devices to run the elevator on inspection operation.
 2. Provide on top of the car the necessary devices to run the elevator in inspection operation.

1.08 **WARRANTY:**

- A. Elevator Contractor shall warrant equipment installed by them for no less than 1 year under these specifications against defects in material, workmanship and will correct any defects not due to ordinary wear or tear or improper use or care which may develop within one year from date of final acceptance of building by Architect, each elevator is completed and placed in operation.

1.09 **TEST:**

- A. Elevator Contractor shall, in presence of Architect, make complete running test to determine whether elevators, as installed, meet speed, capacity, motor horse power & other requirements of specifications.

SECTION 142400 - HYDRAULIC ELEVATOR (continued):

1.10 TEMPORARY SERVICE:

- A. Should service of any elevator be required before completion, final acceptance, permission must first be obtained from Architect. In addition, User agrees to sign Elevator Contractor's temporary acceptance form, be bound by terms, conditions thereof.

1.11 GENERAL:

- A. Painting: All exposed metal work furnished by the Elevator Contractor under these specifications shall be properly painted after installation, except as otherwise specified.
- B. Permits and Licenses: All applicable permit fees and licenses, as of date bids are taken, shall be paid for by Elevator Contractor.
- C. Storage: A dry and protected area, conveniently located to the elevator hoistway, will be assigned to the Elevator Contractor for storage of his materials and tools.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Provide elevator equipment by Otis, ThyssenKrupp OR approved equal.

2.02 MATERIALS, GENERAL

- A. Colors, patterns, and finishes: As selected by the Architect from manufacturer's standard colors, patterns, and finish charts.
- B. Steel:
 - 1. Shapes and bars: Carbon.
 - 2. Sheet: Cold-rolled steel sheet, commercial quality, Class 1, matte finish.
 - 3. Finish: Factory-applied baked enamel.
- C. Plastic laminate: Decorative high-pressure type, complying with NEMA LD3, Type GP-50 General Purpose Grade, nominal 0.050" thickness.
- D. Telephones: provide one in each elevator car.
- E. VT: By others.

2.03 HOISTWAY EQUIPMENT

- A. Platform: Fabricated frame of formed or structural steel shapes, gusseted and rigidly welded with a wood subfloor. Underside of the platform shall be fireproofed. The car platform shall be designed and fabricated to support one-piece loads weighing up to 25% of the rated capacity.
- B. Sling: Steel stiles affixed to a steel crosshead and bolstered with bracing members to remove strain from the car enclosure.
- C. Guide Rails: Steel, omega shaped, fastened to the building structure with steel brackets.
- D. Guide Shoes: Slide guides shall be mounted on top and bottom of the car.
- E. Buffers: Provide substantial buffers in the elevator pit. Mount buffers on a steel template that is fastened to the pit floor or continuous channels fastened to the elevator guide rail or securely anchored to the pit floor. Provide

SECTION 142400 - HYDRAULIC ELEVATOR (continued):

extensions if required by project conditions.

- F. Jack: Jack unit shall be of sufficient size to lift the gross load the height specified. Factory test jack to insure adequate strength and freedom from leakage. Brittle material, such as gray cast iron, is prohibited in the jack construction. Provide the following jack type: Twin post holeless telescopic 2-stage. Two jacks piped together, mounted one on each side of the car with each having two telescopic sections designed to extend in a synchronized manner when oil is pumped into the Assembly. Each jack section will be guided from within the casing or the plunger assembly used to house the section. Each plunger shall have a high pressure sealing system which will not allow for seal movement or displacement during the course of operation. Each Jack Assembly shall have a check valve built into the assembly to allow for automatically re-syncing the two plunger sections by moving the jack to its fully contracted position. The jack shall be designed to be mounted on the pit floor or in a recess in the pit floor. Each jack section shall have a bleeder valve to discharge any air trapped in the section.
- G. Automatic Self-Leveling: Provide each elevator car with a self-leveling feature to automatically bring the car to the landings and correct for overtravel or undertravel. Self-leveling shall, within its zone, be automatic and independent of the operating device. The car shall be maintained approximately level with the landing irrespective of its load.
- H. Wiring, Piping, and Oil: Provide all necessary hoistway wiring in accordance with the National Electrical Code. All necessary code compliant pipe and fittings shall be provided to connect the power unit to the jack unit. Provide proper grade oil as specified by the manufacturer of the power unit.

2.04 POWER UNIT

- A. Power Unit (Oil Pumping and Control Mechanism): A self-contained unit consisting of the following items:
 - 1. Oil reservoir with tank cover.
 - 2. An oil hydraulic pump.
 - 3. An electric motor.
 - 4. Oil control valve with the following components built into single housing; high pressure relief valve, check valve, automatic unloading up start valve, lowering and leveling valve, and electro-magnetic controlling solenoids.
- B. Pump: Positive displacement type pump specifically manufactured for oil-hydraulic elevator service. Pump shall be designed for steady discharge with minimum pulsation to give smooth and quiet operation. Output of pump shall not vary more than 10 percent between no load and full load on the elevator car.
- C. Motor: Standard manufacture motor specifically designed for oil-hydraulic elevator service. Duty rating shall be selected for specified speed and load.
- D. Control System: Shall be microprocessor based and protected from environmental extremes and excessive vibrations in a NEMA 1 enclosure.
- E. Oil Control Unit: The following components shall be built into a single housing. Welded manifolds with separate valves to accomplish each function are not acceptable. Adjustments shall be accessible and be made without removing the assembly from the oil line.
 - 1. Relief valve shall be externally adjustable and be capable of bypassing the total oil flow without increasing back pressure more than 10 percent above that required to barely open the valve.
 - 2. Up start and stop valve shall be adjustable and designed to bypass oil flow during start and stop of motor pump assembly. Valve shall close slowly, gradually diverting oil to or from the jack unit, ensuring smooth up starts and up stops.
 - 3. Check valve shall be designed to close quietly without permitting any perceptible reverse flow.
 - 4. Lowering valve and leveling valve shall be adjustable for down start speed, lowering speed, leveling speed and stopping speed to ensure smooth "down" starts and stops. The leveling valve shall be designed to level the car to the floor in the direction the car is traveling after slowdown is initiated.

SECTION 142400 - HYDRAULIC ELEVATOR (continued):

- F. Solid State Starting: Provide an electronic starter featuring adjustable starting currents.

2.05 HOISTWAY ENTRANCES

- A. Doors and Frames: Provide complete hollow metal type hoistway entrances at each hoistway opening bolted/knock down construction.
 - 1. Manufacturer's standard entrance design consisting of hangers, doors, hanger supports, hanger covers, fascia plates, sight guards, and necessary hardware.
 - 2. Main landing door & frame finish: Stainless steel panels, no. 4 brushed finish.
 - 3. Typical door & frame finish: Stainless steel panels with no. 4 brushed finish.
- B. Interlocks: Equip each hoistway entrance with an approved type interlock tested as required by code. Provide door restriction devices as required by code.
- C. Door Hanger and Tracks: Provide sheave type two point suspension hangers and tracks for each hoistway horizontal sliding door.
 - 1. Sheaves: Polyurethane tires with ball bearings properly sealed to retain grease.
 - 2. Hangers: Provide an adjustable device beneath the track to limit the up-thrust of the doors during operation.
 - 3. Tracks: Drawn steel shapes, smooth surface and shaped to conform to the hanger sheaves.
- D. Hoistway Sills: Extruded metal, with groove(s) in top surface. Provide mill finish on aluminum.

2.06 CAR ENCLOSURE

- A. Car Enclosure:
 - 1. Walls: Cab type TKLP, durable wood core finished on both sides with high pressure plastic laminate.
 - 2. Canopy: Cold-rolled steel with hinged exit.
 - 3. Ceiling: Suspended type, LED lighting with translucent diffuser mounted in a metal frame.
 - 4. Cab Fronts, Return, Transom, Soffit and Strike: Provide panels faced with brushed stainless steel.
 - 5. Doors: Horizontal sliding car doors reinforced with steel for panel rigidity. Hang doors on sheave type hangers with polyurethane tires that roll on a polished steel track and are guided at the bottom by non-metallic sliding guides.
 - a. Door Finish: Stainless steel panels: No. 4 brushed finish.
 - b. Cab Sills: Extruded aluminum, mill finish.
 - 6. Handrail: Provide 1.5" diameter cylindrical metal on side and rear walls on front opening cars. Handrails shall have a stainless steel, no. 4 brushed finish.
 - 7. Ventilation: Manufacturer's standard exhaust fan, mounted on the car top.
- B. Car Top Inspection: Provide a car top inspection station with an "Auto-Inspection" switch, an "emergency stop" switch, and constant pressure "up and down" direction and safety buttons to make the normal operating devices inoperative. The station will give the inspector complete control of the elevator. The car top inspection station shall be mounted in the door operator assembly.

2.07 DOOR OPERATION

- A. Door Operation: Provide a direct current motor driven heavy duty operator designed to operate the car and hoistway doors simultaneously. Door movements shall be electrically cushioned at both limits of travel and the door operating mechanism shall be arranged for manual operation in event of power failure. Doors shall automatically open when the car arrives at the landing and automatically close after an adjustable time interval or when the car is dispatched to another landing. Closed-loop, microprocessor controlled motor-driven linear door operator, with adjustable torque limits, also acceptable. AC controlled units with oil checks or other deviations are not acceptable.
 - 1. No Un-Necessary Door Operation: The car door shall open only if the car is stopping for a car or hall call, answering a car or hall call at the present position or selected as a dispatch car.

SECTION 142400 - HYDRAULIC ELEVATOR (continued):

2. Door Open Time Saver: If a car is stopping in response to a car call assignment only (no coincident hall call), the current door hold open time is changed to a shorter field programmable time when the electronic door protection device is activated.
 3. Double Door Operation: When a car stops at a landing with concurrent up and down hall calls, no car calls, and no other hall call assignments, the car door opens to answer the hall call in the direction of the car's current travel. If an onward car call is not registered before the door closes to within 6 inches of fully closed, the travel will reverse and the door will reopen to answer the other call.
 4. Nudging Operation: The doors shall remain open as long as the electronic detector senses the presence of a passenger or object in the door opening. If door closing is prevented for a field programmable time, a buzzer will sound. When the obstruction is removed, the door will begin to close at reduced speed. If the infra-red door protection system detects a person or object while closing on nudging, the doors will stop and resume closing only after the obstruction has been removed.
 5. Limited Door Reversal: If the doors are closing and the infra-red beam(s) is interrupted, the doors will reverse and reopen partially. After the obstruction is cleared, the doors will begin to close.
 6. Door Open Watchdog: If the doors are opening, but do not fully open after a field adjustable time, the doors will recycle closed then attempt to open six times to try and correct the fault.
 7. Door Close Watchdog: If the doors are closing, but do not fully close after a field adjustable time, the doors will recycle open then attempt to close six times to try and correct the fault.
 8. Door Close Assist: When the doors have failed to fully close and are in the recycle mode, the door drive motor shall have increased torque applied to possibly overcome mechanical resistance or differential air pressure and allow the door to close.
- B. Door Protection Devices: Provide a door protection system using 150 or more microprocessor controlled infra-red light beams. The beams shall project across the car opening detecting the presence of a passenger or object. If door movement is obstructed, the doors shall immediately reopen.

2.08 CAR OPERATING STATION

- A. Car Operating Station, General: The main car control in each car shall contain the devices required for specific operation mounted in an integral swing return panel requiring no applied faceplate. Swing return shall have a brushed stainless steel finish. The main car operating panel shall be mounted in the return and comply with handicap requirements. Pushbuttons that illuminate using long lasting LED's shall be included for each floor served, and emergency buttons and switches shall be provided per code. Switches for car light and accessories shall be provided.
- B. Emergency Communications System: Integral phone, text and camera system provided.
- C. Auxiliary Operating Panel: Not Required
- D. Column Mounted Car Riding Lantern: A car riding lantern shall be installed in the elevator cab and located in the entrance. The lantern, when illuminated, will indicate the intended direction of travel. The lantern will illuminate and a signal will sound when the car arrives at a floor where it will stop. The lantern shall remain illuminated until the door(s) begin to close.
- E. Special Equipment: Not Applicable

2.09 CONTROL SYSTEMS

- A. Controller: The elevator control system shall be microprocessor based and software oriented. Control of the elevator shall be automatic in operation by means of push buttons in the car numbered to correspond to floors served, for registering car stops, and by "up-down" push buttons at each intermediate landing and "call" push buttons at terminal landings.
- B. Automatic Light and Fan shut down: The control system shall evaluate the system activity and automatically turn off the cab lighting and ventilation fan during periods of inactivity. The settings shall be field programmable.

SECTION 142400 - HYDRAULIC ELEVATOR (continued):

- C. Special Operation: Not Applicable
- D. NOTE: PROPRIETARY CONTROLLER EQUIPMENT WILL NOT BE ACCEPTABLE. YOU MUST PROVIDE ALL TOOLS, COMPUTERS, HAND HELD DEVICES, SOFTWARE FOR THE ELEVATOR SYSTEM. THIS EQUIPMENT WILL BE THE PROPERTY OF BAY DISTRICT SCHOOLS.
- E. Automatically cause the elevator car to descend to the lowest terminal landing if car stops or fails to move for any reason while set for the up direction with power circuits to motor energized. The car and hoistway doors will automatically open when car reaches lowest landing to allow passengers to alight. Doors will then automatically close and all control buttons, except door open button in car station, shall be made inoperable. Malfunctions should then be corrected and elevator placed back in service through the mainline disconnect switch. The protective device shall eliminate passengers being "stuck" in the elevator car because of certain possible malfunctions in the up-cycle and at the same time, prevent damage to the motor pump assembly before damage can occur.

2.10 HALL STATIONS

- A. Hall Stations, General: Vandal resistant buttons with center jewels which illuminate to indicate that a call has been registered at that floor for the indicated direction. Each button shall be provided with an internal automatic stop to prevent damage of switches that register the call. Provide 1 set of pushbutton risers. All fixtures shall be vandal resistant type.
Provide one pushbutton riser with faceplates having a brushed stainless steel finish.
 - 1. Phase 1 firefighter's service key switch, with instructions, shall be incorporated into the hall station at the designated level.
 - 2. Keyed access on hall stations
- B. Floor Identification Pads: Provide door jamb pads at each floor. Jamb pads shall comply with Americans with Disabilities Act (ADA) requirements.
- C. Hall Position Indicator: Not Applicable
- D. Hall lanterns: Not Applicable
- E. Special Equipment: Not Applicable

2.11 MISCELLANEOUS ELEVATOR COMPONENTS

- A. Oil Hydraulic Silencer: Install an oil hydraulic silencer (muffler device) at the power unit location. The silencer shall contain pulsation absorbing material inserted in a blowout proof housing arranged for inspecting interior parts without removing unit from oil line
- B. Provide elevator Pads and hanging devices to match the cab system, similar to Palmer Pads Inc, in the closest school color.

2.12 ELEVATOR SCHEDULE

- A. Elevator Qty. 1
 - 1. Elevator Model: LVM 2500T
 - 2. Rated Capacity: 2500 lbs.
 - 3. Rated Speed: 100 ft./min.
 - 4. Operation System: TAC32
 - 5. Travel: 16'-0"
 - 6. Landings: 2 total
 - 7. Openings:
 - a. Front: 2
 - b. Rear: 0

SECTION 142400 - HYDRAULIC ELEVATOR (continued):

8. Clear Car Inside: 6' - 8" wide x 4' - 4" deep
9. Cab Height: 8'-6" nominal
10. Hoistway Entrance Size: 3' - 0" wide x 7'-4" high
11. Door Type: Right Opening
12. Power Characteristics: 480 volts, 3 Phase.
13. Lighting Power Supply: 120 volts, 1-phase, 15 amp, 60 Hz
14. Seismic Requirements: Zone 1
15. Fixture & Button Style: Vandal Resistant Signal Fixtures
16. Special Operations: Solid State Starting, Micro light protection, keyed access hall stations. Using a microprocessor-based controller, operation shall be automatic by means of the car and hall buttons. If all calls in the system have been answered, the car shall park at the last landing served

PART 3 EXECUTION

3.01 EXAMINATION

- A. Before starting elevator installation, inspect hoistway, hoistway openings, pits and machine rooms/control space, as constructed and verify all critical dimensions, and examine supporting structures and all other conditions under which elevator work is to be installed. Do not proceed with elevator installation until unsatisfactory conditions have been corrected in a manner acceptable to the installer.
- B. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance.

3.02 INSTALLATION

- A. Install elevator systems components and coordinate installation of hoistway wall construction.
 1. Work shall be performed by competent elevator installation personnel in accordance with ASME A17.1, manufacturer's installation instructions and approved shop drawings.
 2. Comply with the National Electrical Code for electrical work required during installation.
- B. Jack unit excavation (if required by the type of jack provided): Drill or otherwise excavate below elevator pit construction as required to install the jack unit.
 1. Install casing for jack unit.
 2. Provide HDPE jack protection system for all in ground jacks.
 3. Set casing for jack unit assembly plumb, and partially fill with water-settled sand, eliminating voids. Back fill depth shall be sufficient to hold the bottom of the jack in place over time.
- C. Coordination: Coordinate elevator work with the work of other trades, for proper time and sequence to avoid construction delays. Use benchmarks, lines, and levels designated by the Contractor, to ensure dimensional coordination of the work.
- D. Alignment: Coordinate installation of hoistway entrances with installation of elevator guide rails for accurate alignment of entrances with cars. Where possible, delay final adjustment of sills and doors until car is operable in shaft. Reduce clearances to minimum safe, workable dimensions at each landing.
- E. Lubricate operating parts of system where recommended by manufacturer.

3.03 FIELD QUALITY CONTROL

- A. Acceptance testing: Upon completion of the elevator installation and before permitting use of elevator, perform acceptance tests as required by ASME A17.1 Code and local authorities having jurisdiction. Perform other tests, if any, as required by governing regulations or agencies.
- B. Advise Owner, Contractor, Architect, and governing authorities in advance of dates and times tests are to be performed on the elevator.

SECTION 142400 - HYDRAULIC ELEVATOR (continued):

3.04 ADJUSTING

- A. Make necessary adjustments of operating devices and equipment to ensure elevator operates smoothly and accurately.

3.05 CLEANING

- A. Before final acceptance, remove protection from finished surfaces and clean and polish surfaces in accordance with manufacturer's recommendations for type of material and finish provided. Stainless stall shall be cleaned with soap and water and dried with a non-abrasive surface; shall not be cleaned with bleached-based cleansers.
- B. At completion of elevator work, remove tools, equipment, and surplus materials from site. Clean equipment rooms and hoistway. Remove trash and debris.

3.06 PROTECTION

- A. At time of Substantial Completion of elevator work, or portion thereof, provide suitable protective coverings, barriers, devices, signs, or other such methods or procedures to protect elevator work from damage or deterioration. Maintain protective measures throughout remainder of construction period.

3.07 DEMONSTRATION

- A. Instruct Owner's personnel in proper use, operations, and daily maintenance of elevators. Review emergency provisions, including emergency access and procedures to be followed at time of failure in operation and other building emergencies. Train Owner's personnel in normal procedures to be followed in checking for sources of operational failures or malfunctions.
- B. Make a final check of each elevator operation, with Owner's personnel present, immediately before date of substantial completion. Determine that control systems and operating devices are functioning properly.

END OF SECTION 142400

SECTION 211300 - BUILDING SPRINKLER SYSTEMS

1 GENERAL

- 1.1 Drawings and General provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- 1.2 Division-23 Basic Mechanical Requirements and Basic Mechanical Materials and Methods sections apply to work of this section.
- 1.3 Extent of fire protection work is indicated on drawings and schedules, and by requirements of this section.
- 1.4 Refer to Division-2 sections for site fire protection piping and appurtenances; not work of this section.
- 1.5 Refer to other Division-21 sections for site fire protection piping and appurtenances; not work of this section.
- 1.6 Refer to Division-9 sections for painting of fire protection piping; not work of this section.
- 1.7 Refer to Division-26 sections for the following work; not work of this section.
 - 1.7.1 Fire alarm connections for all flow switches, pressure switches, and supervisory (tamper) switches.
- 1.8 Codes and Standards:
 - 1.8.1 NFPA Compliance: Install fire protection systems in accordance with NFPA 13 "Standard for the Installation of Sprinkler Systems"
 - 1.8.2 UL Compliance: Provide fire protection products in accordance with UL standards; provide UL label on each product.
 - 1.8.3 Fire Department/Marshal Compliance: Install fire protection systems in accordance with local regulations of fire department or fire marshal.
 - 1.8.4 Screw Thread Connections: Comply with local Fire Department/Fire Marshal regulations for sizes, threading and arrangement of connections for fire department equipment to sprinkler systems.
- 1.9 Experience: Contractor shall have a minimum of ten years continuous experience under their current operating name and license number.
 - 1.9.1 Home Office: The home office for the contractor shall be located within 125 miles of the project site.
- 1.10 Approval Submittals:
 - 1.10.1 Product Data: Submit manufacturer's technical product data and installation instructions for:
 - Pipe and fittings
 - Basic pipe supports and hangers
 - Basic valves
 - Special valves
 - Pressure gauges
 - Automatic sprinklers
 - Cabinets

- 1.10.2 Working (Shop) Drawings: Prepare working (shop) drawings of fire protection systems indicating pipe sizes, pipe locations, pipe elevations, fittings, shutoffs, hangers, equipment, and coordination with other building systems. Submittal shall show all requirements per NFPA-13.
- 1.11 Test Reports and Verification Submittals:
- 1.11.1 Certificate: Submit certificate of Aboveground Installation upon completion of fire protection piping work which indicates that work has been tested in accordance with NFPA 13 and that system is operational, complete, and has no defects.
- 1.11.2 Tag: Submit a copy of the sprinkler system tag. The installing fire sprinkler contractor shall be licensed in accordance with State Fire Marshal (SFM) Rule 4A-46. At the conclusion of the project and prior to the final inspection by the SFM the Contractor shall tag the fire sprinkler system in accordance with 4A-46.041.
- 1.12 O&M Data Submittals:
- 1.12.1 Record Drawings: At project closeout, submit record drawings of installed fire protection piping and products.
- 1.12.2 Maintenance Data: Submit a copy of all approval submittals. Submit maintenance data and parts lists for basic valves and special valves. Include these data in O&M manual.
- 1.12.3 NFPA 25: Provide a copy of NFPA 25 in each O&M Manual.

2 PRODUCTS

- 2.1 General: Provide piping materials and factory-fabricated piping products of sizes, types, pressure ratings, temperature ratings, and capacities as indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide sizes and types matching piping and equipment connections; provide fittings of materials which match pipe materials used in fire protection systems. Where more than one type of material or products are indicated, selection is Installer's option.
- 2.2 Basic Identification: Provide identification complying with Division-23 Basic Mechanical Materials and Methods section "Mechanical Identification", in accordance with the following listing:
- Fire Protection Piping: Plastic pipe markers. Fire piping exposed in mechanical and electrical rooms shall be painted red.
- Fire Protection Valves: Plastic or brass valve tags
- Fire Protection Signs: Provide the following signs:
- At each sprinkler valve, sign indicating what portion of system valve controls and hydraulic design data.
- At each auxiliary drain, a sign indicating location.
- 2.3 Basic Pipes and Pipe Fittings: Provide pipes and pipe fittings complying with Division-23 Basic Mechanical Materials and Methods section "Pipes and Pipe Fittings", in accordance with the following listing. Where multiple listings are made for a particular type system, the material is the Installer's

option.

2.4 Wet Pipe: Black steel pipe; Schedule 40 for less than 8"; Schedule 30 for 8" and larger. Fittings and joints shall be as follows.

- 1 Class 125, cast-iron threaded fittings with threaded joints.
- 2 Mechanical grooved pipe coupling and fittings; cut-groove type with mechanical joints.
- 3 Wrought steel butt welding fittings with welded joints.

2.4.1 Wet Pipe: Black steel pipe; Schedule 10 for 5" and smaller; 0.134" wall thickness for 6"; and 0.188" wall thickness for 8" and 10".

- 1 Class 125, cast-iron threaded fittings with threaded joints, sizes 2½" and larger.
- 2 Mechanical grooved pipe couplings and fittings; roll-groove or mechanical locking type with mechanical joints.
- 3 Wrought steel butt welding fittings with welded joints.

2.5 Basic Piping Specialties: Provide piping specialties complying with Division-23 Basic Mechanical Materials and Methods section "Piping Specialties".

2.6 Basic Supports and Anchors: Provide supports and anchors complying with Division-23 Basic Mechanical Materials and Methods section "Supports and Anchors", in accordance with the following listing:

Adjustable steel clevis hangers or adjustable steel band hangers for horizontal-piping hangers and supports.

Two-bolt riser clamps for vertical piping supports.

Steel turnbuckles and malleable iron sockets for hanger-rod attachments.

Concrete inserts, top-beam C-clamps, side beam or channel clamps or center beam clamps for building attachments.

2.7 Basic Valves: Provide interior valves complying with Division-23 Basic Mechanical Materials and Methods section "Valves", in accordance with the following listing:

2.7.1 Standard Service Code-Required OS&Y Valves: GA-6, GA-7.

2.7.2 Standard Service Sectional Valves: GA-6, GA-7. BF-6, BF-7.

2.7.3 Standard Service Indicating Valves: GA-6, GA-7, BA-6.

2.7.4 Standard Service Trim Valves: GA-6, BA-4.

2.7.5 Standard Service Check Valves: CK-4, CK-5.

2.8 Special Valves:

2.8.1 General: Provide valves, UL listed, in accordance with the following listing. Provide sizes and types which mate and match piping and equipment connections.

- 2.8.2 Alarm Check Valve: Provide cast-iron water flow alarm check valve, 175 psi working pressure, with retard chamber.
- 2.8.3 Hose Outlet Valves: Provide angle hose valves, 2-1/2" size where not otherwise indicated. Provide chrome plated with escutcheons where mounted in cabinet. Provide chain and cap.
- 2.8.4 Ball Drip Check Valve: Provide fire department connection iron swing check valve, 175 psi rated working pressure, of size and end type indicated, with ball drip.
- 2.9 Basic Meters and Gauges: Provide meters and gauges complying with Division-23 Basic Mechanical Materials and Methods section "Meters and Gauges", in accordance with the following listing:
- 2.9.1 Pressure gauges, 0-250 psi range.
- 2.10 Fire Protection Specialties: Provide fire protection specialties, UL listed, in accordance with the following listing. Provide sizes and types which mate and match piping and equipment connections.
- 2.10.1 Water Flow Indicators: Provide vane type water flow switches, with adjustable retard.
- 2.10.2 Supervisory Switches: Provide products recommended by manufacturer for use in service indicated.
- 2.10.3 Acceptable Manufacturers: Subject to compliance with requirements, provide fire protection specialties of one of the following:
- Grinnell Fire Protection Systems Co., Inc.
 Grunau Sprinkler Mfr. Co., Inc.
 Guardian Fire Equipment, Inc.
 Potter Roemer, Inc.
 Reliable
 Viking Corporation
- 2.11 Automatic Sprinklers: Provide automatic sprinklers and escutcheons of type indicated on drawings, and in accordance with the following listing. Provide quick response type automatic sprinklers. Provide fusible links for 165°F unless otherwise indicated.
- 2.11.1 Sprinkler Types
- Upright.
 Pendant.
 Concealed pendent.
 Extended Coverage Pendent-20x20 Maximum Coverage Area (Classrooms Only)
 Horizontal sidewall.
- 2.11.2 Finish: White for concealed heads in occupied areas. Chrome-plated for pendant heads in exposed occupied areas. Cast brass for unoccupied areas.
- 2.11.3 Sprinkler Cabinet and Wrench: Furnish steel, baked red enameled, sprinkler box with capacity to store 10 sprinklers and wrench sized to sprinklers.
- 2.11.4 Acceptable Manufacturers: Subject to compliance with requirements, provide automatic sprinklers of one of the following:

Central Sprinkler Corp.
Grinnell Fire Protection Systems Co., Inc.
Star Sprinkler Mfg. Co. Inc.
Reliable
Viking Corp.
Tyco

3 EXECUTION

- 3.1 General: Examine areas and conditions under which fire protection materials and products are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer. Any installation, modification, or alteration of the sprinkler system shall be performed only by a person under a certificate of competency issued by the State Fire Marshal.
- 3.2 Installation of Basic Identification: Install mechanical identification in accordance with Division-23 Basic Mechanical Materials and Methods section "Mechanical Identification." Install fire protection signs on piping in accordance with NFPA 13 requirements. Continuously paint exposed fire piping red in mechanical and electrical rooms.
- 3.3 Installation of Pipes and Pipe Fittings:
- 3.3.1 General: Install pipes and pipe fittings in accordance with Division-23 Basic Mechanical Materials and Methods section "Pipes and Pipe Fittings."
- 3.3.2 Comply with requirements of NFPA 13 for installation of fire protection piping materials. Install piping products where indicated, in accordance with manufacturer's written instructions, and in accordance with recognized industry practices to ensure that piping systems comply with requirements and serve intended purposes.
- 3.3.3 Coordinate with other work as necessary to interface components of fire protection piping properly with other work.
- 3.3.4 Install drain piping at low points of piping system. Provide dry drum drips where indicated.
- 3.3.5 Install sectional valves in inlet piping, at bottom of each riser, and in loops as indicated.
- 3.3.6 Install fire department connection valves in piping where fire department connections are indicated.
- 3.3.7 Install water flow indicators where indicated.
- 3.3.8 Mount supervisory switches on each sectional valve.
- 3.3.9 Install manual shutoff at each audible alarm station.
- 3.3.10 Install valved hose connections of sizes indicated, or ¾" size if not otherwise indicated, on sprinkler at ends of branch lines and cross mains and at locations where indicated. The intent is to meet the requirements of NFPA 13 and to achieve a fully drainable system.
- 3.3.13 Install Inspector's test connection where indicated, or at most remote point from riser.
- 3.4 Installation of Piping Specialties: Install piping specialties in accordance with Division-23 Basic Mechanical Materials and Methods section "Piping Specialties."

- 3.5 Installation of Supports and Anchors: Install supports and anchors, in accordance with Division-23 Basic Mechanical Materials and Methods section, "Supports and Anchors."
- 3.6 Installation of Valves: Install valves in accordance with Division-23 Basic Materials and Methods section "Valves." Provide valves to isolate each riser and elsewhere as required by NFPA 13 .
- 3.7 Installation of Meters and Gauges: Install meters and gauges in accordance with Division-23 Basic Mechanical Materials and Methods section "Meters and Gauges."
- 3.8 Installation of Fire Protection Specialties: Install fire protection specialties as indicated, and in accordance with NFPA 13. Furnish wiring requirements to electrical Installer for electrical wiring of supervisory switches.
- 3.9 Field Quality Control:
- 3.9.1 Sprinkler Piping Flushing: Prior to connecting sprinkler risers for flushing, flush feed mains, lead-in connections and control portions of sprinkler piping. After fire sprinkler piping installation has been completed and before piping is placed in service, flush entire sprinkler system, as required to remove foreign substances, under pressure as specified in NFPA 13. Continue flushing until water is clear, and check to ensure that debris has not clogged sprinklers.
- 3.9.2 Hydrostatic Testing: After flushing system, test fire sprinkler piping hydrostatically, for period of 24 hours, at not less than 200 psi or at 50 psi in excess of maximum static pressure when maximum static pressure is in excess of 150 psi. Check system for leakage of joints. Measure hydrostatic pressure at low point of each system or zone being tested.
- 3.9.3 Repair or replace piping system as required to eliminate leakage in accordance with NFPA standards for "little or no leakage" and retest as specified to demonstrate compliance.
- 3.10 Cleaning and Inspecting: Clean and inspect fire protection systems in accordance with requirements of Division-23 Basic Mechanical Materials and Methods section "Testing, Cleaning, and Sterilization of Piping Systems".
- 3.11 Extra Stock:
- 3.11.1 Heads: For each style and temperature range required, furnish additional sprinkler heads, amounting to one unit for every 100 installed units, but not less than 5 units of each.
- 3.11.2 Wrenches: Furnish 2 spanner wrenches for each type and size of valve connection and fire hose coupling. Obtain receipt from Owner that extra stock has been received.
- 3.12 Owner Instruction: Provide technical services for one 4-hour period to instruct Owner's personnel in operation and maintenance of building sprinkler systems. Schedule training date with Owner. Provide at least 7-day notice to Engineer and Owner of training date.

SECTION 220100 - PLUMBING GENERAL

1 GENERAL

- 1.1 The work covered by this division consists of providing all labor, equipment and materials and performing all operations necessary for the installation of the plumbing work as herein called for and shown on the drawings.
- 1.2 Related Documents:
- 1.2.1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.
- 1.2.2 This is a Basic Plumbing Requirements Section. Provisions of this section apply to work of all Division-22 sections. Provisions of Division-23 Basic Mechanical Requirements Sections apply to work of all Division-22 sections.
- 1.2.3 Review all other contract documents to be aware of conditions affecting work herein.
- 1.2.4 Definitions:
- 1.2.4.1 Provide: Furnish and install, complete and ready for intended use.
- 1.2.4.2 Furnish: Supply and deliver to project site, ready for subsequent requirements.
- 1.2.4.3 Install: Operations at project site, including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar requirements.
- 1.3 Permits and Fees: Contractor shall obtain all necessary permits, meters, and inspections required for his work and pay all fees and charges incidental thereto.
- 1.4 Verification of Owner's Data: Prior to commencing any work the Contractor shall satisfy himself as to the accuracy of all data as indicated in these plans and specifications and/or as provided by the Owner. Should the Contractor discover any inaccuracies, errors, or omissions in the data, he shall immediately notify the Architect/Engineer in order that proper adjustments can be anticipated and ordered. Commencement by the Contractor of any work shall be held as an acceptance of the data by him after which time the Contractor has no claim against the Owner resulting from alleged errors, omissions or inaccuracies of the said data.
- 1.5 Delivery and Storage of Materials: Materials delivered to site shall be inspected for damage, unloaded, and stored with a minimum of handling. All material shall be stored to provide protection from the weather and accidental damage.
- 1.6 Extent of work is indicated by the drawings, schedules, and the requirements of the specifications. Singular references shall not be constructed as requiring only one device if multiple devices are shown on the drawings or are required for proper system operation.
- 1.7 Field Measurements and Coordination:
- 1.7.1 The intent of the drawings and specifications is to obtain a complete and satisfactory installation. Separate divisional drawings and specifications shall not relieve the Contractor or subcontractors from full compliance of work of his trade indicated on any of the drawings or in any section of the specifications.
- 1.7.2 Verify all field dimensions and locations of equipment to insure close, neat fit with other trades' work. Make use of all contract documents and approved shop drawings to verify exact dimension and locations.

- 1.7.3 Coordinate work in this division with all other trades in proper sequence to insure that the total work is completed within contract time schedule and with a minimum cutting and patching.
- 1.7.4 Locate all apparatus symmetrical with architectural elements. Install to exact height and locations when shown on architectural drawings. When locations are shown only on plumbing drawings, be guided by architectural details and conditions existing at job and correlate this work with that of others.
- 1.7.5 Install work as required to fit structure, avoid obstructions, and retain clearance, headroom, openings and passageways. Cut no structural members without written approval.
- 1.7.6 Carefully examine any existing conditions, piping, and premises. Compare drawings with existing conditions. Report any observed discrepancies. It shall be the Contractor's responsibility to properly coordinate the work and to identify problems in a timely manner. Written instructions will be issued to resolve discrepancies.
- 1.7.7 Because of the small scale of the drawings, it is not possible to indicate all offsets and fittings or to locate every accessory. Drawings are essentially diagrammatic. Study carefully the sizes and locations of structural members, wall and partition locations, trusses, and room dimensions and take actual measurements on the job. Locate piping, ductwork, equipment and accessories with sufficient space for installing and servicing. Contractor is responsible for accuracy of his measurements and for coordination with all trades. Contractor shall not order materials or perform work without such verification. No extra compensation will be allowed because field measurements vary from the dimensions on the drawings. If field measurements show that equipment or piping cannot be fitted, the Architect/Engineer shall be consulted. Remove and relocate, without additional compensation, any item that is installed and is later found to encroach on space assigned to another use.
- 1.8 Guarantee:
- 1.8.1 The Contractor shall guarantee labor, materials and equipment for a period of one (1) year from Final Completion, or from Owner's occupancy, whichever is earlier. Contractor shall make good any defects and shall include all necessary adjustments to and replacement of defective items without expense to the Owner.
- 1.8.2 Owner reserves right to make emergency repairs as required to keep equipment in operation without voiding Contractor's Guarantee Bond nor relieving Contractor of his responsibilities during guarantee period.
- 1.9 Approval Submittals:
- 1.9.1 When approved, the submittal control log and submittals shall be an addition to the specifications herewith, and shall be of equal force in that no deviation will be permitted except with the approval of the Architect/Engineer.
- 1.9.1.1 Shop drawings, product literature, and other approval submittals will only be reviewed if they are submitted in full accordance with the General and Supplementary Conditions and Division 1 Specification sections and the following.
- 1.9.1.1.1 Submittals shall be properly organized in accordance with the approved submittal control log.
- 1.9.1.1.2 Submittals shall not include items from more than one specification section in the same submittal package unless approved in the submittal control log.
- 1.9.1.1.3 Submittals shall be properly identified by a cover sheet showing the project name, Architect and Engineer names, submittal control number, specification section, a list of products or item names with model numbers in the order they appear in the package, and spaces for approval stamps. A sample cover sheet is included at the end of this section.

- 1.9.1.1.4 Submittals shall have been reviewed and approved by the General Contractor (or Prime Contractor). Evidence of this review and approval shall be an "Approved" stamp with a signature and date on the cover sheet.
- 1.9.1.1.5 Submittals that include a series of fixtures or devices (such as plumbing fixtures or valves) shall be organized by the fixture number or valve type and be marked accordingly. Each fixture must include all items associated with that fixture regardless of whether or not those items are used on other fixtures.
- 1.9.1.1.6 The electrical design shown on the drawings supports the plumbing equipment basis of design specifications at the time of design. If plumbing equipment is submitted with different electrical requirements, it is the responsibility of the plumbing contractor to resolve all required electrical design changes (wire and conduit size, type of disconnect or overload protection, point(s) of connection, etc.) and clearly show the new electrical design on the plumbing submittal with a written statement that this change will be provided at no additional cost. Plumbing submittals made with no written reference to the electrical design will be presumed to work with the electrical design. Any corrections required will be at no additional cost.
- 1.9.2 If the shop drawings show variation from the requirements of contract because of standard shop practice or other reasons, the Contractor shall make specific mention of such variation in writing in his letter of transmittal and on the submittal cover sheet in order that, if acceptable, Contractor will not be relieved of the responsibility for executing the work in accordance with the contract.
- 1.9.3 Review of shop drawings, product literature, catalog data, or schedules shall not relieve the Contractor from responsibility for deviations from contract drawings or specifications, unless he has in writing called to the attention of the Architect/Engineer each such deviation in writing at the time of submission, nor shall it relieve him from responsibility for errors of any sort in shop drawings, product literature, catalog data, or schedules. Any feature or function specified but not mentioned in the submittal shall be assumed to be included per the specification.
- 1.9.4 Submit shop drawings as called for in other sections after award of the contract and before any material is ordered or fabricated. Shop drawings shall consist of plans, sections, elevations and details to scale (not smaller than 1/4" per foot), with dimensions clearly showing the installation. Direct copies of small scale project drawings issued to the Contractor are not acceptable. Drawings shall take into account equipment furnished under other sections and shall show space allotted for it. Include construction details and materials.
- 1.10 Test Reports and Verification Submittals: Submit test reports, certifications and verification letters as called for in other sections. Contractor shall coordinate the required testing and documentation of system performance such that sufficient time exists to prepare the reports, submit the reports, review the reports and take corrective action within the scheduled contract time.
- 1.11 O&M Data Submittals: Submit Operation and Maintenance data as called for in other sections. When a copy of approval submittals is included in the O&M Manual, only the final "Approved" or "Approved as Noted" copy shall be used. Contractor shall organize these data in the O&M Manuals tabbed by specification number. Prepare O&M Manuals as required by Division 1 and as described herein.. Submit manuals at the Substantial Completion inspection.

2 PRODUCTS

- 2.1 All materials shall be new or Owner-supplied reused as shown on the drawings, the best of their respective kinds, suitable for the conditions and duties imposed on them at the building and shall be of reputable manufacturers. The description, characteristics, and requirements of materials to be used shall be in accordance with qualifying conditions established in the following sections.
- 2.2 Equipment and Materials:
- 2.2.1 Shall be new and the most suitable grade for the purpose intended. Equipment furnished under this division shall be the product of a manufacturer regularly engaged in the manufacture of such items for a period of three years. Where practical, all of the components shall be products of a single manufacturer

in order to provide proper coordination and responsibility. Where required, Contractor shall furnish proof of installation of similar units or equipment.

- 2.2.2 Each item of equipment shall bear a name plate showing the manufacturer's name, trade name, model number, serial number, ratings and other information necessary to fully identify it. This plate shall be permanently mounted in a prominent location and shall not be concealed, insulated or painted.
- 2.2.3 The label of the approving agency, such as UL, IBR, ASME, ARI, AMCA, by which a standard has been established for the particular item shall be in full view.
- 2.2.4 The equipment shall be essentially the standard product of a manufacturer regularly engaged in the production of such equipment and shall be a product of the manufacturer's latest design.
- 2.2.5 A service organization with personnel and spare parts shall be available within two hours for each type of equipment furnished.
- 2.2.6 Install in accordance with manufacturer's recommendations. Place in service by a factory trained representative where required.
- 2.2.7 Materials and equipment are specified herein by a single or by multiple manufacturers to indicate quality, material and type of construction desired. Manufacturer's products shown on the drawings have been used as basis for design; it shall be the Contractor's responsibility to ascertain that alternate manufacturer's products, or the particular products of named manufacturers, meet the detailed specifications and that size and arrangement of equipment are suitable for installation.
- 2.2.8 Model Numbers: Catalog numbers and model numbers indicated in the drawings and specifications are used as a guide in the selection of the equipment and are only listed for the contractor's convenience. The contractor shall determine the actual model numbers for ordering materials in accordance with the written description of each item and with the intent of the drawings and specifications.
- 2.3 Requests for Substitution:
 - 2.3.1 Where a particular system, product or material is specified by name, consider it as standard basis for bidding, and base proposal on the particular system, product or material specified.
 - 2.3.2 Requests by Contractor for substitution will be considered only when reasonable, timely, fully documented, and qualifying under one or more of the following circumstances.
 - 2.3.2.1 Required product cannot be supplied in time for compliance with Contract time requirements.
 - 2.3.2.2 Required product is not acceptable to governing authority, or determined to be non-compatible, or cannot be properly coordinated, warranted or insured, or has other recognized disability as certified by Contractor.
 - 2.3.2.3 Substantial cost advantage is offered Owner after deducting offsetting disadvantages including delays, additional compensation for redesign, investigation, evaluation and other necessary services and similar considerations.
 - 2.3.3 All requests for substitution shall contain a "Comparison Schedule" and clearly and specifically indicate any and all differences or omissions between the product specified as the basis of design and the product proposed for substitution. Differences shall include but shall not be limited to data as follows for both the specified and substituted products:
 - Principal of operation.
 - Materials of construction or finishes.
 - Thickness of gauge of materials.
 - Weight of item.
 - Deleted features or items.
 - Added features or items.

Changes in other work caused by the substitution.
Performance curves.

If the approved substitution contains differences or omissions not specifically called to the attention of the Architect/Engineer, the Owner reserves the right to require equal or similar features to be added to the substituted products (or to have the substituted products replaced) at the Contractor's expense.

3 EXECUTION

3.1 Workmanship: All materials and equipment shall be installed and completed in a first-class workmanlike manner and in accordance with the best modern methods and practice. Any materials installed which do not present an orderly and reasonably neat and/or workmanlike appearance, or do not allow adequate space for maintenance, shall be removed and replaced when so directed by the Architect/Engineer.

3.2 Coordination:

3.2.1 The Contractor shall be responsible for full coordination of the plumbing systems with shop drawings of the building construction so the proper openings and sleeves or supports are provided for piping, ductwork, or other equipment passing through slabs or walls.

3.2.2 Any additional steel supports required for the installation of any plumbing equipment, piping, or ductwork shall be furnished and installed under the section of the specifications requiring the additional supports.

3.2.3 It shall be the Contractor's responsibility to see that all equipment such as valves, dampers, filters and such other apparatus or equipment that may require maintenance and operation are made easily accessible, regardless of the diagrammatic location shown on the drawings.

3.2.4 All connections to fixtures and equipment shown on the drawings shall be considered diagrammatic unless otherwise indicated by detail. The actual connections shall be made to fully suit the requirements of each case and adequately provide for expansion and servicing.

3.2.5 The contractor shall protect equipment, material, and fixtures at all times. He shall replace all equipment, material, and fixtures which are damaged as a result of inadequate protection.

3.2.6 Prior to starting and during progress of work, examine work and materials installed by others as they apply to work in this division. Report conditions which will prevent satisfactory installation.

3.2.7 Start of work will be construed as acceptance of suitability of work of others.

3.3 Interruption of Service: Before any equipment is shut down for disconnecting or tie-ins, arrangements shall be made with the Architect/Engineer and this work shall be done at the time best suited to the Owner. This will typically be on weekends and/or holidays and/or after normal working hours. Services shall be restored the same day unless prior arrangements are made. All overtime or premium costs associated with this work shall be included in the base bid.

3.4 Phasing: Provide all required temporary valves, piping, ductwork, equipment and devices as required. Maintain temporary services to areas as required. Remove all temporary material and equipment on completion of work unless Engineer concurs that such material and equipment would be beneficial to the Owner on a permanent basis.

3.5 Cutting and Patching: Notify General Contractor to do all cutting and patching of all holes, chases, sleeves, and other openings required for installation of equipment furnished and installed under this section. Utilize experienced trades for cutting and patching. Obtain permission from Architect/Engineer before cutting any structural items.

3.6 Equipment Setting: Bolt equipment directly to concrete pads or vibration isolators as required, using hot-dipped galvanized anchor bolts, nuts and washers. Level equipment.

- 3.7 Painting: Touch-up factory finishes on equipment located inside and outside shall be done under Division 22. Obtain matched color coatings from the manufacturer and apply as directed. If corrosion is found during inspection on the surface of any equipment, clean, prime, and paint, as required.
- 3.8 Clean-up: Thoroughly clean all exposed parts of apparatus and equipment of cement, plaster, and other materials and remove all oil and grease spots. Repaint or touch up as required to look like new. During progress of work, contractor is to carefully clean up and leave premises and all portions of building free from debris and in a clean and safe condition.
- 3.9 Start-up and Operational Test: Start each item of equipment in strict accordance with the manufacturer's instructions; or where noted under equipment specification, start-up shall be done by a qualified representative of the manufacturer. Alignment, lubrication, safety, and operating control shall be included in start-up check.
- 3.10 Record Drawings:
- 3.10.1 During the progress of the work the Contractor shall record on their field set of drawings the exact location, as installed, of all piping, ductwork, equipment, and other systems which are not installed exactly as shown on the contract drawings.
- 3.10.2 Upon completion of the work, record drawings shall be prepared as described in the General Conditions, Supplementary Conditions, and Division 1 sections.
- 3.11 Acceptance:
- 3.11.1 Punch List: Submit written confirmation that all punch lists have been checked and the required work completed.
- 3.11.2 Instructions: At completion of the work, provide a competent and experienced person who is thoroughly familiar with project, for one day to instruct permanent operating personnel in operation of equipment and control systems. This is in addition to any specific equipment operation and maintenance training.
- 3.11.3 Operation and Maintenance Manuals: Furnish four complete manuals bound in ring binders with Table of Contents, organized, and tabbed by specification section. Manuals shall contain:
- Detailed operating instructions and instructions for making minor adjustments.
 - Complete wiring and control diagrams.
 - Routine maintenance operations.
 - Manufacturer's catalog data, service instructions, and parts lists for each piece of operating equipment.
 - Copies of approved submittals.
 - Copies of all manufacturer's warranties.
 - Copies of test reports and verification submittals.
- 3.11.4 Record Drawings: Submit record drawings.
- 3.11.5 Control Diagrams: Frame under glass and mount on equipment room wall.

END OF SECTION 220100

SECTION 220700 - INSULATION FOR PLUMBING EQUIPMENT AND PIPING

1 GENERAL

1.1 Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 Division-22 Basic Plumbing Materials and Methods Sections apply to work of this section.

1.3 Division-23 Basic Mechanical Materials and Methods Sections apply to work of this section.

1.4 Approval Submittals:

1.4.1 **Product Data:** Submit a producer's data sheets and installation instructions on each insulation system including insulation, coverings, adhesives, sealers, protective finishes, and other material recommended by the manufacturer for applications indicated. Submit for:

Fiberglass pipe insulation
Flexible unicellular piping insulation

1.5 **O&M Data Submittals:** Submit a copy of all approval submittals. Include in O&M Manual.

2 PRODUCTS

2.1 **Acceptable Manufacturers:** Subject to compliance with requirements, provide insulation products by Armstrong, Johns Manville, Knauf, Owens Corning, Pittsburgh Corning, U.S. Rubber, or approved equal. All products shall be asbestos-free.

2.2 **Flame/Smoke Ratings:** Provide composite mechanical insulation (insulation, jackets, coverings, sealers, mastics, and adhesive) with a flame-spread rating of 25 or less, and a smoke-developed rating of 50 or less, as tested by ANSI/ASTM E84.

2.3 Pipe Insulation Materials:

2.3.1 **Fiberglass Pipe Insulation:** ASTM C547, Class 1 unless otherwise indicated. (Preformed sleeving with white all-service jacket, suitable for temperatures up to 450°F)

2.3.2 **Flexible Unicellular Pipe Insulation:** ASTM C534, Type I. (Tubular, suitable for use to 200°F.)

2.3.3 **Staples, Bands, Wires, and Cement:** As recommended by the insulation manufacturer for applications indicated.

2.3.4 **Adhesives, Sealers, Protective Finishes:** Products recommended by the insulation manufacturer for the application indicated.

2.3.5 **Jackets:** ASTM C921, Type I (vapor barrier) for piping below ambient temperature, Type II (vapor permeable) for piping above ambient temperature. Type I may be used for all piping at Installer's option.

3 EXECUTION

3.1 General:

3.1.1 Install thermal insulation products in accordance with manufacturer's written instructions, and in compliance with recognized industry practices to ensure that insulation serves intended purpose.

3.1.2 Install insulation materials with smooth and even surfaces and on clean and dry surfaces. Redo poorly fitted joints. Do not use mastic or joint sealer as filler for gapping joints and excessive voids resulting from poor workmanship.

- 3.1.3 Maintain integrity of vapor-barrier on insulation and protect it to prevent puncture and other damage. Label all insulation "ASBESTOS FREE".
- 3.1.4 Do not apply insulation to surfaces while they are hot or wet.
- 3.1.5 Do not install insulation until systems have been checked and found free of leaks. Surfaces shall be clean and dry before attempting to apply insulation. A professional insulator with adequate experience and ability shall install insulation.
- 3.1.6 Do not install insulation on pipe systems until acceptance tests have been completed except for flexible unicellular insulation. Do not install insulation until the building is "dried-in".
- 3.2 Fiberglass Pipe Insulation:
 - 3.2.1 Insulate the following piping systems (indoor locations):
 - 3.2.1.1 Domestic hot water greater than 140°, less than 180° F: up to 2" pipe - 1½" thick, over 2" pipe 2" thick.
 - 3.2.1.2 Domestic hot and tempered water less than 140° F: up to 3" pipe - 1½" thick, over 3" pipe - 2" thick.
 - 3.2.2 Apply insulation to pipe with all side and end joints butted tightly. Seal longitudinal lap by pressurizing with plastic sealing tool. Apply 3 inch wide self sealing butt strips to joints between insulation sections. Insulate all fittings, flanges, valves and strainers with premolded insulation. Apply coat of insulating cement to fittings and wrap with glass cloth overlapping each wrap 1" and adjacent pipe 2". Finish with heavy coat of general purpose mastic. Premolded PVC covers may also be used, but no flexible inserts are allowed.
 - 3.2.3 Provide hanger or pipe support shields of 16 gauge (minimum) galvanized steel over the insulation which extends halfway up the pipe insulation cover and at least 6" on each side of the hanger.
 - 3.2.4 Omit insulation on exposed plumbing fixture runouts from faces of wall or floor to fixture; on unions, flanges, strainer blowoffs, flexible connections and expansion joints.
- 3.3 Flexible Unicellular Pipe Insulation:
 - 3.3.1 Insulate the following piping systems:
 - 3.3.1.1 Horizontal above-grade waste piping receiving condensate from air conditioning units to points of connection receiving waste from 4 or more fixtures - ½" thick.
 - 3.3.1.2 Horizontal above grade waste piping receiving discharge from ice machines, coolers, freezers or similar units to points of connection receiving waste form 4 or more fixtures - ½" thick.
 - 3.3.1.3 Floor drain bodies located above ceiling or above grade and receiving condensate from air conditioning units.
 - 3.3.2 Apply insulation in accordance with the manufacturer's recommendations and instructions. Mitre cut insulation to fit pipe fittings. Use approved cement to seal all joints and ends in the insulation.

END OF SECTION 220700

SECTION 221113 - POTABLE WATER SYSTEM

1 GENERAL

- 1.1 Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- 1.2 Division-22 Basic Plumbing Requirements and Basic Plumbing Materials and Methods sections apply to work of this section.
- 1.3 Division-23 Basic Mechanical Materials and Methods Sections apply to work of this section.
- 1.4 Extent of potable water systems work, is indicated on drawings and schedules, and by requirements of this section.
- 1.5 Refer to other Division-22 sections for site water distribution system; not work of this section unless noted.
- 1.6 Refer to appropriate Division-2 sections for exterior potable water system; not work of this section unless noted.
- 1.7 Insulation for potable water piping is specified in other Division-22 sections, and is included as work of this section. Insulation requirements include:
 - 1.7.1 Domestic hot water piping
- 1.8 Excavation and backfill required in conjunction with water piping is specified in other Division-23 sections, and is included as work of this section.
- 1.9 Code Compliance: Comply with applicable portions of Florida Building Code-Plumbing pertaining to selection and installation of plumbing materials and products. Comply with local utility requirements.
- 1.10 Approval Submittals:
 - 1.10.1 Product Data: Submit manufacturer's technical product data and installation instructions for:
 - Valves
 - Strainers
 - Hose bibbs
 - Wall hydrants
 - Water hammer arresters
 - Meters and gauges
 - Relief valves
 - Trap primers
 - Access doors
 - 1.11 Test Reports and Verification Submittals:
 - 1.11.1 Disinfection: Submit report by Health Department.
 - 1.12 O&M Data Submittals: Submit a copy of all approval submittals. Submit maintenance data and parts lists for valves, trap primers. Include these data in O&M manual.

2 PRODUCTS

- 2.1 General: Provide piping materials and factory-fabricated piping products of sizes, types, pressure ratings, temperature ratings, and capacities as indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide materials and products

complying with Florida Building Code-Plumbing where applicable. Provide sizes and types matching pipe materials used in potable water systems. Where more than one type of materials or products is indicated, selection is Installer's option.

- 2.2 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following listed for each item.
- 2.3 Identification: Provide identification complying with Division-23 Basic Mechanical Materials and Methods section "Mechanical Identification". Provide manufacturer's standard permanent, bright-colored, continuous-printed plastic tape, intended for direct burial service; not less than 6" wide x 4 mils thick. Provide blue tape with black printing reading "CAUTION WATER LINE BURIED BELOW".
- 2.4 Pipes and Fittings: Provide pipes and pipe fittings complying with Division-22 Basic Plumbing Materials and Methods section "Pipes and Pipe Fittings", in accordance with the following listing:
 - 2.4.1 Interior Water Piping:
 - 2.4.1.1 Above Grade: Copper tube; Type L, hard-drawn temper; wrought-copper fittings, solder-joints.
 - 2.4.1.2 Below Grade: Copper tube; Type L, soft-annealed temper; no joints below floor.
 - 2.4.2 Exterior Water Piping:
 - 2.4.2.1 Copper tube: Type L, hard-drawn temper; wrought-copper fittings, solder-joints.
 - 2.4.3 Solder joints shall be made with 95-5 solder.
- 2.5 Piping Specialties: Provide piping specialties complying with Division-22 Basic Plumbing Materials and Methods section "Piping Specialties".
- 2.6 Supports and Anchors: Provide supports and anchors complying with Division-22 Basic Plumbing Materials and Methods section "Supports and Anchors".
- 2.7 Interior Valves: Provide valves complying with Division-22 Basic Plumbing Materials and Methods section "Valves", in accordance with the following listing:
 - 2.7.1 Sectional and Shutoff Valves: GA1, GA2, GA3, BA1, BA2.
 - 2.7.2 Drain Valves: GA1, GA2, BA1, BA2.
 - 2.7.3 Throttling Valves: BA1, BA2.
 - 2.7.4 Check Valves: CK1, CK2, CK3.
- 2.8 Hose Bibbs: Provide complete bronze body hose bibbs inside stainless steel box with hinged access door with cylinder lock and "WATER" stamped on cover. Provide key operated control valve with all bronze interior parts, replaceable seat washer, screwdriver operated stop valve in supply, and 3/4" male threaded hose connection. Zurn Z1350 or equal by Acorn or Woodford.
- 2.9 Wall Hydrants: Provide complete bronze body hose bibbs inside stainless steel box with hinged access door with cylinder lock and "WATER" stamped on cover. Provide key operated control valve with all bronze interior parts, replaceable seat washer, screwdriver operated stop valve in supply, and 3/4" male threaded hose connection. Zurn Z1350 or equal by Acorn or Woodford.
- 2.10 Water Hammer Arresters: Provide bellows type water hammer arresters, stainless steel casing and bellows, pressure rated for 250 psi, tested and certified in accordance with PDI Standard WH-201. Precision Plumbing Products, Josam, Zurn, Amtrol, Wade, Jay R. Smith, or approved equal.
- 2.11 Meters and Gauges: Provide meters and gauges complying with Division-22 Basic Plumbing Materials

and Methods section "Meters and Gauges", in accordance with the following listing:

Thermometers
Pressure gauges
Calibrated balancing cocks

- 2.12 Combined Pressure-Temperature Relief Valves: Provide relief valves as indicated, of size and capacity as selected by Installer for proper relieving capacity, in accordance with ASME Boiler and Pressure Vessel Code. Provide bronze body, test lever and thermostat complying with ANSI Z21.22 listing requirements for temperature discharge capacity. Provide temperature relief at 210°F, and pressure relief at 150 psi. Watts, Cash, Zurn, or approved equal.
- 2.13 Trap Primers: Provide brass trap primers and distribution units to seal floor drains indicated on drawings. Trap primer valves shall be automatic, self contained type with no springs or diaphragms and shall not require adjustment. Trap primer valves shall be the type that can be installed anywhere on cold water piping. Distribution units shall supply 1-4 floor drains. Trap primer valves shall comply with ASSE 1018. Precision Plumbing Products PR-500, or approved equal. Where P-trap primers are indicated use "Prime-Eze" by Jay R. Smith, or approved equal.

- 2.14 Access Doors: Provide access doors to service all valves and other devices as required in accordance with Division-23 Basic Mechanical Materials and Methods Section "Access Doors".

3 EXECUTION

- 3.1 General: Examine areas and conditions under which potable water systems are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.
- 3.2 Install plumbing identification in accordance with Division-23 Basic Mechanical Materials and Methods section "Mechanical Identification". Install underground plastic pipe markers during backfill, 6"-8" below grade.
- 3.3 Install water distribution piping in accordance with Division-23 Basic Mechanical Materials and Methods section "Pipes and Pipe Fittings".
- 3.3.1 Install piping with 1/32" per foot (¼%) downward slope towards drain point.
- 3.3.2 Locate groups of pipes parallel to each other, spaced to permit applying full insulation and servicing of valves.
- 3.4 Install exterior water piping in compliance with local governing regulations. Water piping shall be installed with a minimum of 30 inches of cover unless otherwise indicated.
- 3.5 Install piping specialties in accordance with Division-23 Basic Mechanical Materials and Methods section "Piping Specialties".
- 3.6 Install supports and anchors in accordance with Division-23 Basic Mechanical Materials and Methods section "Supports and Anchors".
- 3.7 Install valves in accordance with Division-23 Basic Mechanical Materials and Methods section "Valves".
- 3.7.1 Sectional Valves: Install on each branch and riser, close to main, where branch or riser serves two or more plumbing fixtures or equipment connections, and elsewhere as indicated.
- 3.7.2 Shutoff Valves: Install on inlet of each plumbing equipment item, and on inlet of each plumbing fixture, and elsewhere as indicated.
- 3.7.3 Drain Valves: Install on each plumbing equipment item located to completely drain equipment for service or repair. Install at base of each riser, at base of each rise or drop in piping system, and

elsewhere where indicated or required to completely drain potable water system.

- 3.7.4 Check Valves: Install where indicated.
- 3.8 Hose Bibbs and Wall Hydrants: Install on concealed piping where indicated with vacuum breaker. Mount 18 inches above grade or finished floor.
- 3.9 Install meters and gauges in accordance with Division-23 Basic Mechanical Materials and Methods section "Meters and Gauges".
- 3.10 Install relief valves on each water heater, and where indicated in accordance with the manufacturer's instructions. Pipe full size outside or to floor drain. Cut the end of the pipe at a 45° angle and terminate 6 inches above the floor or grade.
- 3.11 Piping Runouts to Fixtures: Provide hot and cold water piping runouts to fixtures of sizes indicated, but in no case smaller than required by Florida Building Code-Plumbing.
- 3.12 Plumbing Equipment Connections: Connect hot and cold water piping system to plumbing equipment as indicated, and comply with equipment manufacturer's installation instructions. Provide shutoff valve and union for each connection, provide drain valve on drain connection.
- 3.13 Install water hammer arresters in upright position, in locations and of sizes indicated in accordance with PDI Standard WH-201.
- 3.14 Install trap primers as indicated, and in accordance with manufacturer's installation instructions. Provide access panels to all trap primers unless accessible through a lay-in ceiling or inside mechanical room.
- 3.15 Locate and coordinate installation of access doors for all valves and devices in accordance with Division-23 Basic Mechanical Materials and Methods section "Access Doors".
- 3.16 Piping Tests: Test, clean, and sterilize potable water piping in accordance with testing requirements of Division-23 Basic Mechanical Materials and Methods section "Testing, Cleaning, and Sterilization of Piping Systems".

END OF SECTION 221113

SECTION 221316 - SOIL, WASTE AND VENT SYSTEM

1 GENERAL

- 1.1 Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- 1.2 Division-22 Basic Plumbing Requirements and Basic Plumbing Materials and Methods sections apply to work of this section.
- 1.3 Division-23 Basic Mechanical Materials and Methods Sections apply to work of this section.
- 1.4 Extent of soil waste and vent systems work is indicated on drawings and schedules, and by requirements of this section.
- 1.5 Refer to appropriate Division-2 sections for exterior sanitary sewer system required in conjunction with soil and waste systems; not work of this section.
- 1.6 Insulation for soil and waste systems is specified in other Division-22 sections, and is included as work of this section. Insulation requirements include:
 - 1.6.1 Horizontal above grade waste pipes receiving discharge from ice machines, coolers, freezers or similar units to points of connection receiving waste from 4 or more fixtures.
 - 1.6.2 Horizontal above grade waste pipes receiving condensate from air conditioning equipment to point of connection receiving waste from 4 or more fixtures.
- 1.7 Excavation and backfill required in conjunction with soil, waste and vent piping is specified in other Division-23 sections and is included as work of this section.
- 1.8 Refer to Division-7 section "Flashing and Sheet Metal" for flashings required in conjunction with soil and waste systems; not work of this section.
- 1.9 Code Compliance: Comply with applicable portions of Florida Building Code-Plumbing pertaining to plumbing materials, construction and installation of products. Comply with local utility requirements.
- 1.10 Approval Submittals:
 - 1.10.1 Product Data: Submit manufacturer's technical product data for:
 - Cleanouts
 - Floor drains
 - Grease Interceptors

2 PRODUCTS

- 2.1 General: Provide piping materials and factory-fabricated piping products of sizes, types, pressure ratings, and capacities as indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide sizes and types matching piping and equipment connections; provide fittings of materials which match pipe materials used in soil and waste systems. Where more than one type of materials or products is indicated, selection is Installer's option.

Underground-Type Plastic Line Marker: Manufacturer's standard permanent, bright-colored, continuous-printed plastic tape, intended for direct-burial service; not less than 6" wide x 4 mils thick. Provide green tape with black printing reading "CAUTION SEWER LINE BURIED BELOW".
 - 2.2 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following listed for each item.
 - 2.3 Pipes and Fittings: Provide pipes and pipe fittings complying with Division-23 Basic Mechanical Materials
- Deane Bozeman School** **221316-1**
Classroom Addition & Site Work

and Methods section "Pipes and Pipe Fittings", in accordance with the following listing:

- 2.3.1 Above Ground Soil, Waste, and Vent Piping:
 - 2.3.1.1 Polyvinyl chloride plastic pipe (PVC); Type DWV; PVC plastic type DWV socket-type fitting, solvent cement joints. Do not use in fire-rated assemblies or return air plenums.
- 2.3.2 Underground Building Drain Piping (within 5 feet of the building):
 - 2.3.2.1 Pipe Size 6" and Smaller: Polyvinyl chloride sewer pipe (PVC); Type DWV; PVC plastic type DWV socket-type.
- 2.4 Pipe Specialties: Provide piping specialties complying with Division-23 Basic Mechanical Materials and Methods section "Piping Specialties".
- 2.5 Supports and Anchors: Provide supports and anchors complying with Division-23 Basic Mechanical Materials and Methods section "Supports and Anchors".
- 2.6 Cleanouts: Provide factory-fabricated drainage piping products of size and type indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements and governing regulations. Josam, Jay R. Smith, Wade, Zurn.
 - 2.6.1 Cleanout Plugs: Cast-bronze or brass, threads complying with ANSI B2.1 countersunk head.
 - 2.6.2 Cleanout for PVC Systems:
 - 2.6.2.1 Floor Cleanouts: Cast-iron body with adjustable head, brass plug, and scoriated nick-brass cover. Furnish with carpet flange for carpeted floors. Furnish with recessed cover for tile floors. Furnish with clamping ring for floors with membrane. Wade W-6030 hub outlet for push-on.
 - 2.6.2.2 Cleanouts in Piping: PVC cleanout adaptor with threaded PVC plug.
 - 2.6.2.3 Wall Cleanouts: PVC cleanout adaptor with tapped, countersunk, threaded brass plug. Square 9"x9" wall access cover, with scoriated nickel bronze finish.
 - 2.6.2.4 Grade Cleanouts: PVC cleanout adaptor with countersunk, threaded brass plug. Wade W-8590-D plug. In sidewalks and other finished concrete, provide access cover frames with a non-tilting tractor cover. Wade W-7035-Z or equal.
 - 2.6.2.5 Cleanouts in Paved Areas: Cast iron body, adjustable housing, ferrule with plug and round loose scoriated tractor cover. Wade W-8300-MF. Coordinate concrete depth at site with adjustable flange.
- 2.7 Floor Drains: Provide floor drains of size as indicated on drawings; and type, including features, as specified herein. Josam, Jay R. Smith, Wade, Zurn.
 - 2.7.1 Floor Drains: Provide inside caulk bottom outlet or TY-Seal hub outlet with adaptor for cast iron trap installation and a 4" deep trap seal. Provide clamping rings for floors with membrane.
 - 2.7.2 Strainer: Provide 5" satin-nickel bronze strainer.
 - 2.7.3 Trap Primer Connection: Provide ½" trap primer tapping.
 - 2.7.4 Funnel: Provide funnel where shown on the drawings.
 - 2.7.5 Basis of Design: Wade Series 1100.
- 2.8 Floor Sinks: 12" x 12" x 8" deep, enameled cast iron (inside only enameled) with chrome plated brass beehive strainer (less grate), 3" outlet connection. Provide running trap under floor with cleanout flush to floor finish material, coordinate with architectural finish schedule. Zurn Z-1901-1 or equal.

3 EXECUTION

- 3.1 Examine substrates and conditions under which soil and waste systems are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected.
- 3.2 Piping Installation:
- 3.2.1 Install above grade soil and waste piping in accordance with Division-22 Basic Plumbing Materials and Methods section "Pipes and Pipe Fittings", and with Florida Building Code-Plumbing.
- 3.2.2 Install underground soil and waste pipes as indicated and in accordance with Florida Building Code-Plumbing. Lay underground piping beginning at low point of systems, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install required gaskets in accordance with manufacturer's recommendations for use of lubricants, cements, and other special installation requirements. Clean interior of piping of dirt and other superfluous material as work progresses. Maintain swab or drag in line and pull past each joint as it is completed. Place plugs in ends of uncompleted piping at end of day or whenever work stops.
- 3.2.3 Install building soil and vent piping pitched to drain at minimum slope of ¼" per foot (2%) for piping smaller than 3", and 1/8" per foot (1%) for piping 3" and larger.
- 3.3 Install piping specialties in accordance with Division-23 Basic Mechanical Materials and Methods section "Piping Specialties".
- 3.4 Install supports and anchors in accordance with Division-23 Basic Mechanical Materials and Methods section "Supports and Anchors".
- 3.5 Installation of Cleanouts: Install in above ground piping and building drain piping as indicated, as required by Florida Building Code-Plumbing; and at each change in direction of piping greater than 45°; at minimum intervals of 50' for piping 4" and smaller and 100' for larger piping; and at base of each vertical soil or waste stack. Install floor and wall cleanout covers for concealed piping, select type to match adjacent building finish.
- 3.5.1 Size: Cleanouts shall be full size up to 4". Piping over 4" shall have a reducing fitting to accommodate a 4" cleanout unless indicated otherwise on drawings.
- 3.5.2 Install cleanouts to allow adequate clearance for rodding.
- 3.5.3 Protect all finished surfaces of cleanouts with a suitable adhesive covering until construction is completed.
- 3.5.4 Cleanouts to Grade: Provide an 18" x 18" x 8" thick concrete pad around the cleanout. Set the cleanout ferrule, adapter, or access cover frame in the concrete as required. The cleanout shall be extended to the finished grade. The concrete pad shall slope away from the cleanout in all directions approximately one inch. Cover pad with fill to finished grade.
- 3.5.5 Cleanouts in Paved Areas: Provide concrete pad similar to cleanout to grade and coordinate concrete depth at site with adjustable flange. Access cover frames are required.
- 3.6 Flashing Flanges: Install flashing flange and clamping device with each stack and cleanout passing through waterproof membranes.
- 3.7 Vent Flashing Sleeves: Install on stack passing through roof, secure to stack flashing in accordance with manufacturer's instructions. For metal roofs, sleeves and flashing are by Division-7.
- 3.8 Installation of Floor Drains: Install floor drains in accordance with manufacturer's written instructions and in locations indicated.
- 3.8.1 Coordinate flashing work with work of waterproofing and adjoining substrate work.

- 3.8.2 Install floor drains at low points of surface areas to be drained, or as indicated. Set tops of drains flush with finished floor.
- 3.8.3 Install drain flashing collar or flange so that no leakage occurs between drain and adjoining flooring. Maintain integrity of waterproof membranes, where penetrated.
- 3.8.4 Position drains so that they are accessible and easy to maintain.
- 3.9 Connection of Trap Primers: Connect trap primers as indicated, and in accordance with manufacturer's installation instructions. Pitch piping towards drain trap, minimum of 1/8" per foot (1%). Adjust trap primer for proper flow.
- 3.10 Piping Runouts to Fixtures: Provide soil and waste piping runouts to plumbing fixtures and drains, with approved trap, of sizes indicated, but in no case smaller than required by Florida Building Code-Plumbing.
- 3.11 Test, clean, flush, and inspect soil and waste piping in accordance with requirements of Division-23 Basic Mechanical Materials and Methods section "Testing, Cleaning and Sterilization of Piping Systems".

END OF SECTION 221316

SECTION 221600 – FUEL GAS SYSTEM

1 GENERAL

- 1.1 Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specifications sections, apply to work of this section.
- 1.2 Division-22 Basic Plumbing Requirements and Basic Mechanical Materials and Methods sections apply to work of this section.
- 1.3 Division-23 Basic Mechanical Materials and Methods Sections apply to work of this section.
- 1.4 Extent of fuel gas systems work, is indicated on drawings and schedules, and by requirements of this section.
- 1.5 Excavation and backfill required in conjunction with gas service piping is specified in Division-23 sections, and is included as work of this section.
- 1.6 Codes and Standards
- 1.6.1 NFPA Compliance: Fabricate and install gas systems in accordance with NFPA 54 "National Fuel Gas Code".
- 1.6.2 Utility Compliance: Fabricate and install gas systems in accordance with local gas utility company requirements and standards.
- 1.7 Approval Submittals:
- 1.7.1 Product Data: Submit manufacturer's technical product data and installation instructions as follows:
 - Gas cocks and/or ball valves
 - Gas vents
 - Gas regulators
 - Access doors
- 1.8 O&M Data Submittals: Submit a copy of approval submittals. Submit maintenance data and parts lists for gas cocks, ball valves, gas vents, regulators. Include these data in O&M manual.

2 PRODUCTS

- 2.1 General: Provide piping materials and factory-fabricated piping products of sizes, types, pressure ratings, and capacities as indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide materials and products complying with NFPA 54 where applicable. Base pressure rating on gas piping system maximum design pressures. Provide sizes and types matching piping and equipment connections; provide fittings of materials which match pipe materials used in gas systems. Where more than one type of materials or products are indicated, selection is Installer's option.
- 2.2 Identification: Provide identification complying with Division-23 Basic Mechanical Materials and Methods section "Mechanical Identification".
- 2.3 Pipes and Fittings: Provide pipes and pipe fittings complying with Division-23 Basic Mechanical Materials and Methods section "Pipes and Pipe Fittings", in accordance with the following listing:
 - 2.3.1 Gas Service Piping: Refer to civil site utility plans.
 - 2.3.2 Building Distribution Piping:
 - 2.3.2.1 Pipe Size 2" and Smaller: Black steel pipe; Schedule 40; malleable-iron threaded fittings.

- 2.3.2.2 Pipe Size 2½" and Larger: Black steel pipe; Schedule 40; wrought-steel butt welding fittings.
- 2.4 Piping Specialties: Provide piping specialties complying with Division-23 Basic Mechanical Materials and Methods section "Piping Specialties".
- 2.5 Sealants: Provide UL-listed or AGA approved sealants for gas piping.
- 2.6 Supports and Anchors: Provide supports and anchors complying with Division-23 Basic Mechanical Materials and Methods section "Supports and Anchors".
- 2.7 Valves: Provide valves complying with Division-23 Basic Mechanical Materials and Methods section "Valves" and in accordance with the following listing.
- 2.7.1 Gas Cocks 2" and Smaller: UL-listed, AGA approved, 150 psi non-shock WOG, full port, bronze straightway cock, flat or square head, threaded ends.
- 2.7.2 Gas Cocks 2½" and Larger: UL-listed, CGA approved, MSS SP-78; 175 psi, lubricated plug type, full port, semi-steel body, single gland, wrench operated, flanged ends.
- 2.7.3 Wrenches: Provide operating wrenches for all gas cocks serving boilers.
- 2.7.4 Acceptable Manufacturers for gas cocks: Subject to compliance with requirements, provide products of one of the following: Resun R1430 and R1431, Milliken 200M and 201M or approved equal.
- 2.7.5 Master Gas Control Valve: Bronze or aluminum body, packless, single seat, suitable for fuel gas, solenoid operated, normally closed, UL-approved, manual reset, 24 volt DC. The valve shall close when de-energized by the FACP. Acceptable Manufacturer: Subject to compliance with requirements, provide products of one of the following: Automatic Switch Co., Bulletin 8044, or approved equal.
- 2.8 Kitchen Gas Appliance Connectors: Furnished with the kitchen equipment.
- 2.9 Gas Appliance Tube Connectors: Provide commercial grade appliance connectors with a 2 year manufacturer's warranty. Tubing shall be Type 304 stainless steel tubing with type 304 stainless steel braiding to protect tubing from elongation. Tubing shall be complete with factory installed end connectors. Provide products that are AGA or CGA approved. Indicate maximum BTU input for each length and size used on submittal.
- 2.10 Gas Vents: Provide stainless steel special gas vent system for gas-fired appliances, except where noted otherwise on the drawings. The system shall include pipe, top, flashing cone, storm collar, joist shield, support plates, firestops, and fittings as required by the manufacturer for a complete installation. Acceptable Manufacturer: Subject to compliance with requirements, provide products of one of the following: Metalbestos, Hart and Cooley or approved equal.
- 2.11 Gas Meter and Regulator: Provided by local utility company.
- 2.12 Access Doors: Provide access doors to service all valves and other devices as required in accordance with Division-23 Basic Materials and Methods Section "Access Doors".
- 3 EXECUTION
- 3.1 Examine areas and conditions under which gas systems materials and products are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer. Coordinate with gas supplier prior to starting work.
- 3.2 Install mechanical identification in accordance with Division-23 Basic Mechanical Materials and Methods section "Mechanical Identification".
- 3.3 Install gas piping in accordance with Division-23 Basic Mechanical Materials and Methods section "Pipes and Pipe Fittings".

- 3.3.1 Use sealants on metal gas piping threads which are chemically resistant to gas. Use sealants sparingly, and apply to only male threads of metal joints.
- 3.3.2 Remove cutting and threading burrs before assembling piping.
- 3.3.3 Do not install defective piping or fittings. Do not use pipe with threads which are chipped, stripped or damaged. Do not use bushings in the gas system.
- 3.3.4 Plug each gas outlet, including valves, with threaded plug or cap immediately after installation and retain until continuing piping, or equipment connections are completed.
- 3.3.5 Ground gas piping electrically and continuously within project, and bond tightly to grounding connection.
- 3.3.6 Install drip-legs in gas piping where indicated, and where required by code or gas company requirements.
- 3.3.7 Install "Tee" fitting with bottom outlet plugged or capped, at bottom of pipe risers.
- 3.3.8 Use dielectric unions where dissimilar metals are joined together.
- 3.3.9 Install piping with 1/64" per foot (1/8%) downward slope in direction of flow.
- 3.4 Gas Service: Arrange with utility company to provide gas service to indicated location with meter, pressure regulator and shutoff at terminus. Consult with utility as to extent of its work, costs, fees, and permits involved. The Contractor shall pay such costs and fees and obtain permits.
- 3.5 Install piping specialties in accordance with Division-23 Basic Mechanical Materials and Methods section "Piping Specialties".
- 3.6 Install supports and anchors in accordance with Division-23 Basic Mechanical Materials and Methods section "Supports and Anchors".
- 3.7 Installation of Valves:
 - 3.7.1 Gas Cocks: Provide at connection to gas train for each gas-fired equipment item; and on risers and branches where indicated.
 - 3.7.2 Locate gas cocks where easily accessible, and where they will be protected from possible injury.
- 3.8 Equipment Connections: Connect gas piping to each gas-fired equipment item, with drip leg and shutoff gas cock. Comply with equipment manufacturer's instructions.
- 3.9 Appliance Connectors: Install tubing, valves, connectors, fittings in accordance with their listing and as furnished with the kitchen equipment. Hose, fittings and valves shall not restrict gas flow and shall be rated for the capacity of the appliance they serve. Hoses shall not be crimped. Hoses behind movable appliances shall not be crimped when appliance is extended from wall or when appliance is set in working position. Appliance restraining device shall set to engage just prior to the connector being fully extended. Check all tubing, piping, fittings & valves for leakage at less than 50 part per million.
- 3.10 Locate and coordinate installation of access doors for all valves and devices in accordance with Division-23 Basic Mechanical Materials and Methods section "Access Doors".
- 3.11 Gas Vent Installation:
 - 3.11.1 Install gas vents for all draft gas-fired appliances in accordance with NFPA 54 and the manufacturer's instructions. Provide all flashing and related materials.

- 3.11.2 Gas vents shall terminate at least 3 feet above the roof and 2 feet higher than any portion of a building within a horizontal distance of 10 feet.
- 3.11.3 Minimum vertical gas vent length is 5 feet.
- 3.11.4 Slope horizontal gas vent connectors upward at least ¼ inch per foot.
- 3.12 Piping Tests: Inspect, test, and purge gas systems in accordance with NFPA 54, local utility requirements, and Division-23 Basic Mechanical Materials and Methods section "Testing, Cleaning and Sterilization of Piping Systems". DO NOT INTRODUCE AIR INTO THE SYSTEM, VENT OR PURGE WITH NITROGEN. DISCHARGE VENT OR PURGE GASES TO THE EXTERIOR OF THE BUILDING.

END OF SECTION 221600

SECTION 223000 - PLUMBING FIXTURES, EQUIPMENT, TRIM & SCHEDULE

1 GENERAL

- 1.1 Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- 1.2 Division-22 Basic Plumbing Requirements and Basic Plumbing Materials and Methods sections apply to work of this section.
- 1.3 Division-23 Basic Mechanical Materials and Methods Sections apply to work of this section.
- 1.4 Extent of plumbing fixtures work required by this section is indicated on drawings and schedules, and by requirements of this section.
- 1.5 Refer to Division-26 sections for field-installed electrical wiring required for plumbing fixtures; not work of this section.
- 1.6 Codes and Standards:
 - 1.6.1 Plumbing Fixture Standards: Comply with applicable portions of Florida Building Code-Plumbing pertaining to materials and installation of plumbing fixtures.
 - 1.6.2 ANSI Standards: Comply with applicable ANSI standards pertaining to plumbing fixtures and systems.
 - 1.6.3 PDI Compliance: Comply with standards established by PDI pertaining to plumbing fixture supports.
 - 1.6.4 UL Listing: Construct plumbing fixtures requiring electrical power in accordance with UL standards and provide UL-listing and label.
 - 1.6.5 ARI Compliance: Construct and install water coolers in accordance with ARI Standard 1010 "Drinking-Fountains and Self-Contained Mechanically-Refrigerated Drinking-Water Coolers", and provide Certification Symbol.
 - 1.6.6 ANSI Compliance: Construct and install barrier-free plumbing fixtures in accordance with ANSI Standard A117.1 "Specifications for Making Buildings and Facilities Accessible To and Usable By Physically Handicapped People".
- 1.7 Approval Submittals:
 - 1.7.1 Product Data: Submit manufacturer's technical product data, including rated capacities of selected model clearly indicated, furnished specialties and accessories; and installation instructions. Submit manufacturer's assembly-type drawings indicating dimensions, roughing-in requirements, required clearances, and methods of assembly of components and anchorages. The submittal shall be organized by "fixture number" and each fixture package shall be so identified. Each fixture package shall include all of the required fitting and trim, even if such devices are used for more than one fixture.
- 1.8 O&M Data Submittals: Submit a copy of approval submittals. Submit maintenance data and parts lists for each type of plumbing fixture and accessory; including "trouble-shooting" maintenance guide. Include these data in O&M manual.
- 1.9 Handle plumbing fixtures carefully to prevent breakage, chipping and scoring fixture finish. Do not install damaged plumbing fixtures; replace and return damaged units to equipment manufacturer.

2 PRODUCTS

- 2.1 General: Provide factory-fabricated fixtures of type, style and material indicated. For each type fixture, provide trim, carrier, seats, and valves as specified. Where not specified, provide products as recommended by manufacturer, and as required for complete installation. Where more than one type is

indicated, selection is Installer's option; but, all fixtures of same type must be furnished by single manufacturer. Where type is not otherwise indicated, provide fixtures complying with governing regulations.

- 2.2 Model Numbers: Basis of design model numbers of a particular manufacturer are listed in the fixture schedule as an aid to contractors. Where conflicts between the model number and the written description occur, the written description shall govern. Where acceptable manufacturers are listed, products are subject to compliance with requirements.
- 2.3 Materials:
- 2.3.1 Provide materials which have been selected for their surface flatness and smoothness. Exposed surfaces which exhibit pitting seam marks, roller marks, foundry sand holes, stains, decoloration, or other surface imperfections on finished units are not acceptable.
- 2.3.2 All fixtures shall be white vitreous china unless otherwise specifically noted. Where enameled iron fixtures are specified, they shall be furnished with acid resisting enamel.
- 2.3.3 Where fittings, trim and accessories are exposed or semi-exposed provide bright chrome-plated or polished stainless steel units. Provide copper or brass where not exposed.
- 2.3.4 Stainless Steel Sheets: ASTM A 167, Type 302/304, hardest workable temper. Finish shall be No. 4, bright, directional polish on exposed surfaces.
- 2.3.5 Vitreous China: High quality, free from fire cracks, spots, blisters, pinholes and specks; glaze exposed surfaces, and test for crazing resistance in accordance with ASTM C 554.
- 2.3.6 Synthetic Stone: High quality, free from defects, glaze on exposed surfaces, stain resistant.
- 2.4 Plumbing Fittings, Trim and Accessories:
- 2.4.1 Faucets: At locations where water is supplied (by manual, automatic or remote control), provide commercial quality chrome-plated, cast-brass faucets, valves, or other dispensing devices, of type and size indicated, and as required to operate as indicated.
- 2.4.1.1 Aerators: Provide aerators of types approved by Health Department having jurisdiction.
- 2.4.1.2 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item. American Standard, Chicago Faucet Co., Kohler Co., Speakman Co., T & S Brass and Bronze Works, Water Saver Faucet Co., Zurn.
- 2.4.2 Stops: Provide chrome-plated brass, angle type, manual shutoff valves and 3/8" chrome-plated flexible supply pipes to permit fixture servicing without shutdown of water supply piping systems for all fixtures. Coordinate with fixture requirements.
- 2.4.2.1 Provide loose key stops.
- 2.4.2.2 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item. Zurn or approved equal.
- 2.4.3 Waste Outlets: Provide removable P-traps, drains, waste arms, tailpieces and wastes-to-wall where drains are indicated for direct connection to drainage system for all fixtures unless otherwise noted. Provide drains, tailpieces and waste arms where indirect drains are indicated. Waste outlets shall be full size of fixture drain connection.
- 2.4.3.1 Provide chrome-plated cast-brass P-traps and drains with cleanout.
- 2.4.3.2 P-traps, wastes and drains of all types shall be 17-gauge.

- 2.4.3.3 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item. Zurn, or approved equal.
- 2.4.4 Flush Valves: Provide quiet-flush, chrome-plated, cast-brass flush valves with vacuum breaker and screwdriver stop. Where handicap service is indicated, provide ADA compliant handles with the handle on the approach side of the stall.
- 2.4.4.1 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item. Sloan Valve Co. or Zurn.
- 2.4.5 Carriers: Provide cast-iron supports for fixtures of either graphitic gray iron, ductile iron, or malleable iron or steel as indicated. Coordinate with specific fixture requirements and conditions of the project.
- 2.4.5.1 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item. Josam, Wade, Zurn, J.R. Smith.
- 2.4.6 Fixture Bolt Caps: Provide manufacturer's standard exposed fixture bolt caps finished to match fixture finish.
- 2.4.7 Escutcheons: Where fixture supplies and drains penetrate walls in exposed locations, provide chrome-plated brass escutcheons with friction clips.
- 2.4.8 Comply with additional fixture requirements listed for each fixture and as required for a complete and functional system.
- 2.5 Water Closets:
- 2.5.1 General: Provide white china siphon jet type unless otherwise noted.
- 2.5.1.1 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item. American Standard, Crane, Kohler, or Zurn.
- 2.5.2 Fixture Seats: Provide white, heavy molded plastic fixture seats with stainless steel self-sustaining check hinges.
- 2.5.2.1 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item. Bemis Mfg. Co., Beneke Corp., Church or Comfort Seats.
- 2.5.3 Water Closet Schedule:
- WC-1 WATER CLOSET, FLOOR-MOUNT (ADULT HANDICAP, MANUAL VALVE):

Vitreous china, 1.28 gallons per flush, elongated, high efficiency siphon jet, white, water saver bowl with 1-1/2" top spud, 17" high for handicapped. Exposed chrome plate flush valve, with screwdriver stop, vacuum breaker, quiet flush feature, with sweat solder kit and cast wall flange. Heavy molded plastic, white, elongated, open front seat less cover, with stainless steel, self-sustaining check hinges. Hold centerline flush valve assembly off finish wall for grab bar clearances, coordinate with Architectural drawings.

Water closet	Zurn Z5665BWL
Valve	Zurn Z6000PL-HET
Seat	Zurn Z5955SS-EL-STS
Closet Bolt/Wax Ring Kit	Z5972-COMB

WC-2 WATER CLOSET, FLOOR-MOUNT (STANDARD, MANUAL VALVE):

Vitreous china, 1.28 gallons per flush, elongated, high efficiency siphon jet, white, water saver bowl with 1-1/2" top spud. 15" high . Exposed chrome plate flush valve, with screwdriver stop, vacuum

breaker, quiet flush feature, with sweat solder kit and cast wall flange. Heavy molded plastic, white, elongated, open front seat less cover, with stainless steel, self-sustaining check hinges.

Water closet	Zurn Z5655-BWL
Valve	Zurn Z6000PL-HET
Seat	Zurn Z5955SS-EL-STS
Closet Bolt/Wax Ring Kit	Z5972-COMB

2.6 Urinals:

2.6.1 General: Provide white china siphon jet wall hung type with ¾" top spud and 2" outlet unless otherwise noted. Provide short foot carrier with top and bottom hanger plates.

2.6.2 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item. American Standard, Crane, Kohler, or Zurn.

2.6.3 Urinal Schedule:

UR-1 URINAL, WALL-MOUNT (HANDICAP, MANUAL VALVE):

Vitreous china, 0.5 gallons per flush, siphon jet flush, ¾" top spud, and 2" outlet urinal. Exposed chrome plated flush valve with screwdriver stop, vacuum breaker and quiet flush feature. Mount to satisfy ADA requirements, coordinate with Architectural drawings (toilet room elevations) for final mounting height. Furnish floor mounted single carrier with hanger plate, bearing plate, adjustable supporting rods, structural uprights and block bases, secure base to floor for rigid connection with 1/2" x 3-3/4" threaded zinc plated steel heavy duty wedge anchors, complete with stainless steel clip, washer and threaded nut, conforming to federal spec. FF-S-325.

Urinal	Zurn Z5738-U
Valve	Zurn Z6003AV
Urinal Flange Kit	Zurn Z5976-URINAL
Carrier	Zurn Z-1222
Base Anchorage	B-Line Anchors AWA-50-375

UR-2 URINAL, WALL-MOUNT (STANDARD, MANUAL VALVE):

Vitreous china, 0.5 gallons per flush, siphon jet flush, ¾" top spud, and 2" outlet urinal. Exposed chrome plated flush valve with screwdriver stop, vacuum breaker and quiet flush feature. See Architectural drawings (toilet room elevations) for mounting height. Furnish floor mounted single carrier with hanger plate, bearing plate, adjustable supporting rods, structural uprights and block bases, secure base to floor for rigid connection with 1/2" x 3-3/4" threaded zinc plated steel heavy duty wedge anchors, complete with stainless steel clip, washer and threaded nut, conforming to federal spec. FF-S-325.

Urinal	Zurn Z5738-U
Valve	Zurn Z6003AV-EWS
Urinal Flange Kit	Zurn Z5976-URINAL
Carrier	Zurn Z-1222
Base Anchorage	B-Line Anchors AWA-50-375

2.7 Lavatories:

2.7.1 General: Provide white china lavatories.

2.7.2 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item. American Standard, Crane, Kohler, or Zurn.

2.7.3 Lavatory Schedule:

L-1 LAVATORY, WALL-MOUNT (HANDICAP):

Vitreous china 20" x 18", color "white", center hole setting, front overflow, for concealed arm support. Furnish floor-mounted single carrier with concealed arms, leveling and securing screws, structural uprights and block bases, secure base to floor for rigid connection with 1/2" x 3-3/4" threaded zinc plated steel heavy duty wedge anchors, complete with stainless steel clip, washer and threaded nut, conforming to federal spec. FF-S-325. Provide chrome plated 1/2" IPS x 3/8"OD, loose key operated, angle stop to wall with chrome plated 3/8" flexible copper risers, integral perforated cast brass strainer with elbow and 1-1/4" offset tailpiece, chrome plated 17 gauge cast brass P-trap with cleanout and tube waste to wall. Polished chrome plated cast brass single water metering faucet with cover plate, 0.5 gpm aerator outlet and push button. Lavatory P-trap and angle valve assemblies shall be insulated with fully molded insulation kit, and light gray color with 3-piece interlocking rap assembly and 2-piece interlocking angle valve assembly. Fasteners shall be nylon-type supplied with kit. Lavatory shall be mounted with a clearance of at least 28" from floor to bottom of the apron. Knee and toe clearances shall be as follows: 27" clear height shall be provided from finished floor to a point on underside of bowl 8" in from front apron. Toe clearance shall be a minimum height of 9" under P-trap and supplies or stops. See Architectural drawings for final mounting height. Under sink mixing valve with threaded or soldered connection, bronze body, limits hot water between 80°F & 120°F, double throttling, integral inlet filter washers & check valves, tamper resistant locking cap. Meets ASSE 1070 standards.

Lavatory	Zurn Z5341
Faucet	Zurn Z-86300-3M
Supply w/stop	Zurn Z8802LRLK-PC
P-Trap	Zurn Z8700-PC
Strainer/tailpiece	Zurn Z8746
Insulation kit	Zurn Z8946-3-NT
Carrier	Zurn Z-1231
Base Anchorage	B-Line Anchors AWA-50-375
Mixing Valve	Watts MMV-UT-M1 or MMV-US-M1

L-2 LAVATORY, WALL-MOUNT (STANDARD):

Vitreous china 20" x 18", color "white", center hole setting, front overflow, for concealed arm support. Furnish floor-mounted single carrier with concealed arms, leveling and securing screws, structural uprights and block bases, secure base to floor for rigid connection with 1/2" x 3-3/4" threaded zinc plated steel heavy duty wedge anchors, complete with stainless steel clip, washer and threaded nut, conforming to federal spec. FF-S-325. Provide chrome plated 1/2" IPS x 3/8"OD, loose key operated, angle stop to wall with chrome plated 3/8" flexible copper risers, integral perforated cast brass strainer with elbow and 1-1/4" offset tailpiece, chrome plated 17 gauge cast brass P-trap with cleanout and tube waste to wall. Polished chrome plated cast brass single water metering faucet with cover plate, 0.5 gpm aerator outlet and push button. See Architectural drawings for final mounting height. Under sink mixing valve with threaded or soldered connection, bronze body, limits hot water between 80°F & 120°F, double throttling, integral inlet filter washers & check valves, tamper resistant locking cap. Meets ASSE 1070 standards.

Lavatory	Zurn Z5341
Faucet	Zurn Z-86300-3M
Supply w/stop	Zurn Z8802LRLK-PC
P-Trap	Zurn Z8700-PC
Strainer/tailpiece	Zurn Z8746
Carrier	Zurn Z-1231
Base Anchorage	B-Line Anchors AWA-50-375
Mixing Valve	Watts MMV-UT-M1 or MMV-US-M1

L-3 LAVATORY, WALL-MOUNT (HANDICAP):

Vitreous china 20" x 18", color "white" faucet, on 8" centers, front overflow, for concealed arm support. Furnish floor-mounted single carrier with concealed arms, leveling and securing screws, structural uprights and block bases, secure base to floor for rigid connection with 1/2" x 3-3/4" threaded zinc plated steel heavy duty wedge anchors, complete with stainless steel clip, washer and threaded nut, conforming to federal spec. FF-S-325. Provide chrome plated 1/2" IPS x 3/8"OD, loose key operated, angle stop to wall with chrome plated 3/8" flexible copper risers, integral perforated cast brass strainer with 1-1/4" offset 17 gauge tailpiece, 1-1/2" chrome plated 17 gauge cast brass P-trap with 1-1/4" reducing washer and trap primer connection, cleanout, tube waste to wall, and water saver trap primer with stainless steel primer hose. Polished chrome plated cast brass widespread faucet with 4" wrist blade handles, and 0.5 gpm aerator. Lavatory P-trap and single valve assemblies shall be insulated with fully molded insulation kit, light gray color with 3-piece interlocking rap assembly and 2-piece interlocking angle valve assembly. Fasteners shall be nylon-type supplied with kit. Lavatory shall be mounted with a clearance of at least 28" from floor to bottom of the apron. Knee and toe clearances shall be as follows: 27" clear height shall be provided from finished floor to a point on underside of bowl 8" in from front apron. Toe clearance shall be a minimum height of 9" under P-trap and supplies or stops. See Architectural plans for final mounting height. Under sink mixing valve with threaded connection, bronze body, limits hot water between 80° F & 120° F, double throttling, integral inlet filter washers & check valves, tamper resistant locking cap. Meets ASSE 1070 standards.

Lavatory	Zurn Z5348
Faucet	Zurn Z831R4-XL-3M
Supply w/stop	Zurn Z8802LRLK-PC
Drain	Zurn Z8746
P-Trap	Zurn Z1021
Insulation kit	Zurn Z8946-3-NT
Carrier	Zurn Z-1231
Base Anchorage	B-Line Anchors AWA-50-375
Mixing Valve	Watts MMV-UT-M1

2.8 Showers:

2.8.1 General:

2.8.2 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item. Leonard Valve Co., MCC Powers Process Controls, Symmons, Speakman Co.

2.8.3 Shower Schedule:

SH-1 SHOWER (STANDARD):

Single handle pressure-balancing mixing valve. Ceramic control cartridge with stainless steel balancing piston must hold shower temperature steady with pressure fluctuations up to 85%. Double seal packing with adjustable brass packing nut. Brass adjustable limit stop screw to prohibit valve handle from being turned to excessive hot discharge temperatures. All trim to be copper nickel chrome plated. Service stops to be brass and cast integral with valve body. Large brass head with arm and flange.

Shower	Zurn Z-7301-SS-MT
Drain	Zurn ZN-415 2" NL 5" B

SH-2 SHOWER (HANDICAP):

Single handle pressure-balancing mixing valve. Ceramic control cartridge with stainless steel balancing piston. Must hold shower temperature steady with pressure fluctuations up to 85%. packing with Brass adjustable limit stop screw to prohibit valve handle from being turned to excessive hot discharge temperatures. All trim to be copper nickel chrome plated. Service stops to be brass and cast integral with valve body. Two-way chrome diverter valve. Brass shower head with arm and flange. Wall/hand shower with flexible metal hose, in-line vacuum breaker, wall connection and flange, 30" slide bar for hand shower mounting.

Shower Zurn Z-7301-SS-MT-DV-2P-HW
 Drain Zurn ZN-415 2" with 5" B

2.9 Electric Water Coolers:

2.9.1 General: Provide self-contained electric water cooler with entire water system free of lead. All joints shall be made using silver solder. Units shall be complete with an air-cooled refrigeration system consisting of a hermetic compressor, cooler, pre-cooler, condenser fan, thermostat safety controls and all other related devices. The unit shall have a capacity of 8 gallons per hour. The cabinet shall be stainless steel with vermin proof insulation. The top shall be fabricated of stainless steel with a No. 4 finish. Where handicap units are indicated, the bubbler and fountain shall be ADA compliant.

2.9.2 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item. Elkay Mfg. Co., Halsey Taylor Div., Haws Drinking Faucet Co., Sunroc, Oasis.

2.9.3 Electric Water Cooler Schedule:

EWC-1 ELECTRIC WATER COOLER (DUAL PURPOSE/TWO LEVELS/BOTTLE STATION):

Wall mount, dual-purpose unit, self-contained electric water cooler with sensor-activated bottle filling station. Furnish floor mounted two levels double carrier with bearing plate, hangar plate, adjustable supporting rods, structural uprights and block bases, secure to floor with 1/2" bolts and anchors. Unit to be complete with hermetic air cooled refrigeration system, cooler pre-cooler, thermostat, safety controls, condenser fan motor, silver ion antimicrobial protection on key plastic components, flexi-guard safety bubbler, vermin proof insulation, heavy gauge steel cabinet, moisture resistant finish, quiet operation. Top of cooler shall be No. 3 satin finish stainless steel. Cooler capacity shall be 8.0 gph, laminar flow, visual kilter monitor, cooling 80-degree F water to 50 degree F. Provide one-year warranty on entire cooler. Provide chrome plated stop to wall with chrome plated 3/8" flexible supply. Provide 1-1/2" chrome plated 17 gauge cast brass P-trap with cleanout. Chrome plated loose key angle stop to wall with 3/8" chrome plated flexible hot and cold water supplies. 115V/60hz, single phase, 5 full load amps, 370 rated watts, hermetically-sealed reciprocating compressor. Verify final location and mounting height with Architectural drawings. Finish to be selected by Architect. Certified to NSF/ANSI 42, 53, 61, & 372. UL 399 requirements. *Provide with cane apron to extend to 27" above finished floor to comply with ADA guidelines*

EDF	Elkay LZSTL8WSSP
Trap	Zurn Z-8702-PC
Supplies	Zurn Z-8800LK
Carrier	Z1225 BL
<i>Cane Apron</i>	<i>LKAPREZL</i>

EWC-2 ELECTRIC WATER COOLER (DUAL PURPOSE/TWO LEVELS):

Wall mount, exterior, frost resistant, dual-purpose unit, self-contained electric water cooler. Furnish floor mounted two levels double carrier with bearing plate, hangar plate, adjustable supporting rods, structural uprights and block bases, secure to floor with 1/2" bolts and anchors. Unit to be complete with hermetic air-cooled refrigeration system, cooler pre-cooler, thermostat, safety controls, condenser fan motor, frost resistant heating element, silver ion antimicrobial protection on key plastic components, flexi-guard safety bubbler, vermin proof insulation, heavy gauge steel cabinet, moisture resistant finish, quiet operation. Top of cooler shall be no. 3 satin finish stainless steel. Cooler capacity shall be 8.0 gph, laminar flow, cooling 80-degree F water to 50 degree F. Provide one-year warranty on entire cooler. Provide chrome plated stop to wall with chrome plated 3/8" flexible supply. Provide 1-1/2" chrome plated 17 gauge cast brass p-trap with cleanout. Provide chrome plated 1/2" IPS x 3/8" od angle stop to wall with chrome plated flexible copper supply risers and loose key operator. 115v/60hz, single phase, 7,2 full load amps, hermetically-sealed reciprocating compressor. Verify final location and mounting height with architectural drawings. Finish to be selected by architect. Certified to NSF/Ansi 42, 53, 61, & 372. UL 399 requirements.

EDF	Elkay VRCTLRFR8SC
-----	-------------------

Trap	Zurn Z-8702-PC
Supplies	Zurn Z-8802LK
Carrier	Zurn Z1225-BL

2.10 Drinking Fountains:

2.10.1 General: Provide 18-gauge stainless steel drinking fountain with the entire water system free of lead. Where handicap units are indicated, the bubbler and fountain shall be ADA compliant. Where indicated, provide remote chiller with a capacity of 8 gph. Provide hemetic compressor, complete refrigerant system, galvanized steel cabinet and all required interconnecting piping and devices.

2.10.2 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item. Elkay Mfg. Co., Halsey Taylor Div., Haws Drinking Faucet Co., Sunroc, Oasis.

2.10.3 Drinking Fountain Schedule:

DF-1 DRINKING FOUNTAIN (SINGLE LEVEL):

Wall mount, exterior, self-contained drinking fountain. Furnish floor mounted single level carrier with bearing plate, hangar plate, adjustable supporting rods, structural uprights and block bases, secure to floor with 1/2" bolts and anchors. Furnish complete with vandal resistant bubbler and mechanical front bubbler button activation. Provide one-year warranty on entire cooler. Provide chrome plated stop to wall with chrome plated 3/8" flexible supply. Provide 1-1/2" chrome plated 17 gauge cast brass p-trap with cleanout. Provide chrome plated 1/2" IPS x 3/8" od angle stop to wall with chrome plated flexible copper supply risers and loose key operator. 115v/60hz, single phase, 7,2 full load amps, hermetically-sealed reciprocating compressor. Verify final location and mounting height with architectural drawings. Finish to be selected by architect. Certified to NSF/Ansi 42, 53, 61, & 372. UL 399 requirements.

EDF	Elkay VRCDS
Trap	Zurn Z-8702-PC
Supplies	Zurn Z-8802LK
Carrier	Zurn Z1225-BL

2.11 Mop Receptors:

2.11.1 General: Provide one piece mop receptors with 3" integral stainless steel grid drain. Provide wall-mounted faucet with arm handles, vacuum breaker, stops, hose connection and hose bracket. Provide 30" hose.

2.11.2 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item. Stern-Williams Co., or Acorn.

2.11.3 Mop Receptor Schedule:

MR-1 SERVICE SINK (FLOOR TYPE):

24" x 24" x 12" deep, floor mount, terrazzo with 20 gauge stainless steel integral cast cap, 3" cast brass outlet drain with stainless steel strainer. Rough chrome plated 8" faucet with top brace, straight lever handles, swivel inlets, bucket hook, vacuum breaker, stops and hose end. Chrome plated loose key angle stop to wall with 3/8" chrome plated flexible hot and cold water supplies.

Sink	Acorn TSH24
Faucet	Zurn Z843 M1 RC
Supply	Zurn Z8800-LRLK

2.12 Service Sinks:

2.12.1 General: Provide acid resistant service sinks with back and wall hanger. Provide double faucet with bucket hook, vacuum breaker, stops and hose end. Provide 3" trap to wall, enameled inside, painted outside with foot support. Provide stainless steel rim guard. Paint outside of sink and trap black.

2.12.2 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item. American Standard, Crane co., Eljer co., Fiat Products, Kohler Co., Stern-Williams Co.

2.12.3 Service Sink Schedule:

SS-1 SERVICE SINK (WALL MOUNT):

22" x 18" x 12-3/4" enameled cast iron service sink with 8" on center, back, stainless steel rim guard and wall hanger. Rough chrome plated faucet with top brace, bucket hook, vacuum breaker, stops and hose end, 3" trap with cleanout to wall inside with foot support. Chrome plated loose key angle stop to wall with 3/8" chrome plated flexible hot and cold water supplies.

Sink	Zurn Z5888
Faucet	Zurn Z843 M1 RC
Drain Assembly	Zurn TS 2900-IP3
Hose&Bracket/Mop Hanger	-HH,-MH
Supply	Zurn Z-8800-LRLK

2.13 Stainless Steel Sinks:

2.13.1 General: Provide Type 304, 18 gauge self-rimming stainless steel back ledge with No. 4 finish . Provide sound deadening material on the sides and bottom of the sink. Provide grid drain or strainer with removable crumb cup and stopper as indicated.

2.13.2 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item. Elkay, Just

2.13.3 Stainless Steel Sink Schedule:

SK-1 SINGLE COMPARTMENT SCULLERY SINK :

72" x 29-1/2" x 14" deep, bowl 24"x24"x14" deep, floor mounted stainless steel scullery sink, with four 1-5/8" diameter stainless steel legs with 1" adjustable bullet feet. Provide with twist waste drain assembly, 1-1/2" drain opening, backsplash mount swing gooseneck faucet with lever handles, and indirect drain to floor sink.

Sink	Advance Tabco FS-1-2424-24RL
Faucet	Zurn Z843G1-XL
Twist waste	Zurn Z89600

2.14 Water Heaters:

2.14.1 Accessories: VB, relief, pan, stand, etc.

2.14.2 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item. Ruud, Rheem, Mor-Flo, State, A.O. Smith.

2.14.3 Water Heater Schedule:

EW-1 ELECTRIC WATER HEATER:

ASHRAE Standard 90, glass lined tank Suitable for 150 psi working pressure, 300-psi test. Finish of durable high gloss baked enamel. Blanket glass fiber insulation over entire tank. Control circuit transformer and manual reset high temperature limit control. ASME pressure and temperature relief valve. Water heater shall be acceptable for commercial application by manufacturer. Provide 3 full year

warranty, snap action automatic immersion mounted thermostats, immersion type heating elements and magnesium anode rod. Provide unit mounted disconnect switch. Provide inlet and outlet shut-off valves, vacuum relief valve on inlet water supply. Provide galvanized steel drip pan. Provide pre-charged expansion tank, outer steel shell (flexible diaphragm type), on cold water inlet side of water heater for thermal expansion control, tank volume in gallons shall be of sufficient size to accommodate water heater size in gallons. 30 gal 9kw 480v/3 phase. Wired for simultaneous operation.

Water Heater	A. O. Smith DEN 30
Vacuum Relief	Watts 36A
Expansion Tank	Amtrol "Therm-X-Trol"

EWH-2 ELECTRIC WATER HEATER:

ASHRAE Standard 90, glass lined tank Suitable for 150 psi working pressure, 300-psi test. Finish of durable high gloss baked enamel. Blanket glass fiber insulation over entire tank. Control circuit transformer and manual reset high temperature limit control. ASME pressure and temperature relief valve. Water heater shall be acceptable for commercial application by manufacturer. Provide 3 full year warranty, snap action automatic immersion mounted thermostats, immersion type heating elements and magnesium anode rod. Provide unit mounted disconnect switch. Provide inlet and outlet shut-off valves, vacuum relief valve on inlet water supply. Provide galvanized steel drip pan. Provide pre-charged expansion tank, outer steel shell (flexible diaphragm type), on cold water inlet side of water heater for thermal expansion control, tank volume in gallons shall be of sufficient size to accommodate water heater size in gallons. 80 gal 15kw 480v/3 phase

Water Heater	A. O. Smith DRE 80
Vacuum Relief	Watts 36A
Expansion Tank	Amtrol "Therm-X-Trol"

EWH-3 ELECTRIC WATER HEATER:

ASHRAE Standard 90, glass lined tank Suitable for 150 psi working pressure, 300-psi test. Finish of durable high gloss baked enamel. Blanket glass fiber insulation over entire tank. Control circuit transformer and manual reset high temperature limit control. ASME pressure and temperature relief valve. Water heater shall be acceptable for commercial application by manufacturer. Provide 3 full year warranty, snap action automatic immersion mounted thermostats, immersion type heating elements and magnesium anode rod. Provide unit mounted disconnect switch. Provide inlet and outlet shut-off valves, vacuum relief valve on inlet water supply. Provide galvanized steel drip pan. Provide pre-charged expansion tank, outer steel shell (flexible diaphragm type), on cold water inlet side of water heater for thermal expansion control, tank volume in gallons shall be of sufficient size to accommodate water heater size in gallons. 30 gal 9kw 208v/3 phase. Wired for simultaneous operation.

Water Heater	A. O. Smith DEL 30
Vacuum Relief	Watts 36A
Expansion Tank	Amtrol "Therm-X-Trol"

IWH-1 INSTANTANEOUS WATER HEATER:

3 KW at 208V/1 phase. Commercial electric water heater with integrated flow meter to ensure accurate turn on/turn off flow rate, 3/8" compression fittings, LED error/fault indicator, Visible Led indicator communicates system status and heater operation feedback, safestart technology to help avoid dry-fire occurrence, low activation flow starting at 0.25 gpm turn on, and High temperature limit switch for safe operation. Provide 5 year limited warranty.

Water Heater	Eemax SPEX3208
--------------	----------------

2.15 Thermostatic Mixing Valves:

2.15.1 General:

2.15.2 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item.

2.15.3 Thermostatic Mixing Valve Schedule:

MV-1 WATER MIXING VALVE (THERMOSTATIC MIXING):

Under sink mixing valve with threaded or soldered connection, bronze body, limits hot water between 80°F & 120°F, double throttling, integral inlet filter washers & check valves, tamper resistant locking cap. Meets ASSE 1070 standards.

MV Threaded	Watts MMV-UT-M1
MV Soldered	Watts MMV-US-M1

2.16 Miscellaneous Fixtures

2.16.1 General:

2.16.2 Acceptable Manufacturers: Subject to compliance with requirements, provide products of one of the following for each item.

2.16.3 Fixture Schedule

CP-1 CIRCULATOR PUMP (INLINE TYPE):

Infinitely variable circulator made of composite casing, housing, impeller, ceramic shaft, and carbon bearings. A 44 watt ECM permanent magnet motor and electrical characteristics are 120v/1 phase, 60 hz., with 1" connections, maximum operating pressure of 150 PSI, UL standard 778 and NSF certified. Digital timer with circulator programming. Temperature aquastat, maintains water temperature between 95°F and 115°F. Circuit Setter calibrated balance valve, lead-free brass, with 1/4" NPT tapped drain port, memory stop feature, set at 1 gpm. Provide Circuit Solver a self-acting thermostatic recirculation valve set at 110°F.

Circulator	TACO 006e3
Timer	TACO 265-3
Aquastat	TACO 563-2
Circuit setter	Xylem CB-1/2S LF
Recirculation Valve (TVC)	Circuit Solver CS-1/2-110,

UB-1 RECESSED UTILITY BOX (CLOTHES WASHER SPACE):

Factory fabricated 16 gauge steel with epoxy finish washing machine wall box with hot and cold water supply and 2" drain. Verify mounting height with Architectural Elevations. Make final connections this contract.

Wall box	Guy Gray B200
----------	---------------

UB-2 ICE MAKER HOOK-UP (REFRIGERATOR SPACE):

Recessed metal wall box constructed and suitable for fire rated partitions, complete with factory installed shank valve with 1/4" O.D. copper outlet tested @ 100 P.S.I. Provide approximately 5'-0" of 1/4" O.D. soft copper tubing with compression fitting in tight coil. Anchor box to wall structure. Verify location and mounting height with Architectural drawings or mount to manufacturers recommendations.

Wall box	Guy Gray BIM 875
----------	------------------

FD-1 FLOOR DRAIN:

Dura-coated cast iron body, bottom outlet and trap primer connection. Type B polished nickel bronze strainer, membrane clamp & adjustable collar with slots.

Floor Drain Zurn Z-415B-P

HDFD HEAVY DUTY FLOOR DRAIN:

Dura-coated cast iron body and top, bottom outlet, sediment bucket, and trap primer connection. membrane clamp & adjustable collar with slots.

Floor Drain Zurn Z-541

FS-1 FLOOR SINK:

12" x 12" x 8" deep, enameled cast iron (inside only enameled) with chrome plated brass beehive strainer (less grate), 3" outlet connection. Provide running trap under floor with cleanout flush to floor finish material, coordinate with architectural finish schedule.

Floor Sink Zurn Z-1901-1

SP-1 SUMP PUMP:

Submersible sump pump, bronze with I.P.S. connection, capacity of 50 GPM @ 14 ft. discharge head, provide with magnetic starters, 3450 RPM, integral submersible switch with rod and float for automatic control. Furnish with metal frame and steel cover, size to be for 24"x24"x30" deep concrete pit, coordinate with structural and architectural elevator wall footing details.

Sump Pump Liberty ELV280
Remote alarm Liberty OTC-115

OAD-1 OIL ALERT DEVICE (THREE ZONE):

Provide three zone oil sensor control and alarm with remote notification to prevent oil from being discharged into sanitary system. Provide ABS sensor housing with stainless steel probe and PVC float, Type 1 control panel enclosure with 6' power cord for plug in to 120 VAC 15 Amp circuit. Provide remote alarm panel in Type 1 enclosure with 120VAC power cord, battery backup, LED indicators, and audible alarm mounted in elevator room. Provide auxiliary contacts for monitoring by the building automation system. Coordinate with mechanical controls contractor.

Oil Sensor/Alarm/Control Alderon 7411

3 EXECUTION

3.1 Examine roughing-in work of potable water and waste piping systems to verify actual locations of piping connections prior to installing fixtures. Also examine floors and substrates, and conditions under which fixture work is to be accomplished. Correct any incorrect locations of piping, and other unsatisfactory conditions for installation of plumbing fixtures. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 Install plumbing fixtures of types indicated where shown and at indicated heights. Install in accordance with fixture manufacturer's written instructions, roughing-in drawings, and with recognized industry practices. Install in accordance with ADA and applicable handicap code requirements. Ensure that plumbing fixtures comply with requirements and serve intended purposes. Comply with applicable requirements of Florida Building Code-Plumbing pertaining to installation of plumbing fixtures. Furnish templates for cut-outs in countertops. Coordinate exact fixture locations with countertop shop drawings.

3.3 Fasten plumbing fixtures securely to indicated supports or building structure; and ensure that fixtures are level and plumb. Secure plumbing supplies behind or within wall construction so as to be rigid, and not

subject to pull or push movement. Mount at heights shown on the drawings. Fixture heights are floor-to-rim distance. Fitting heights are to centerline.

- 3.4 Install stop valve in water supply to each fixture.
- 3.5 After fixtures are set, the crack between the fixture and wall shall be caulked with DAP silicone-based caulking, or approved product specified by the architect.
- 3.6 Protect installed fixtures from damage during remainder of construction period.
- 3.7 Upon completion of installation of plumbing fixtures and after units are water pressurized, test fixtures to demonstrate capability and compliance with requirements. When possible, correct malfunctioning units at site, then retest to demonstrate compliance; otherwise, remove and replace with new units and proceed with retesting.
- 3.8 Inspect each installed unit for damage to finish. If feasible, restore and match finish to original at site; otherwise, remove fixture and replace with new unit. Feasibility and match to be judged by Architect/Engineer. Remove cracked or dented units and replace with new units.
- 3.9 Clean plumbing fixtures, trim, aerators, and strainers of dirt and debris upon completion of installation.
- 3.10 Adjust water pressure at drinking fountains, faucets, shower valves, and flush valves to provide proper flow stream and specified gpm.
- 3.11 Adjust or replace washers to prevent leaks at faucets and stops.

END OF SECTION 223000

THIS PAGE INTENTIONALLY LEFT BLANK