MECHANICAL SCOPE OF WORK SUMMARY

1. PROVIDE AND INSTALL HVAC AND RELATED PIPING SYSTEMS AS SHOWN ON THESE PLANS AND AS SPECIFIED IN THE PROJECT MANUAL.
2. PROVIDE AND INSTALL NEW HVAC EQUIPMENT AND APPURTENANCES AS SCHEDULED OR INDICATED INCLUDING DUCTWORK, SUPPLY AND RETURN GRILLES, INSULATION, SUPPORTS, SEALING PENETRATIONS, ETC. TO MAKE THE JOB COMPLETE AND FULLY FUNCTIONAL IN ACCORDANCE WITH THE DESIGN INTENT.

   NOTE THAT ALL MATERIALS SHALL BE SUITABLE FOR A COASTAL ENVIRONMENT AND BE ABLE TO WITHSTAND EXPOSURE TO SALTWATER SPRAY.
3. MECHANICAL CONTRACTOR TO PROVIDE ALL CONTROL DEVICES AND LOCAL PROGRAMMING SHOWN ON THE SCHEMATIC AND PLANS. THERE IS NO BAS.
4. WORK INCLUDES OBTAINING PERMITS, PROCUREMENT OF EQUIPMENT, MATERIALS, ETC. ; COORDINATING BETWEEN TRADES; DEMOLITION, INSTALLATION, STARTUP, REPORTING, SYSTEMS CHECKOUT; ASSISTING THE TEST, ADJUST AND BALANCE CONTRACTOR, AND RESOLVING DISCREPANCIES; PERFORMING SUBSTANTIAL AND FINAL COMPLETION ACTIVITIES, TRAINING, DEVELOPING AND SUBMITTING THE OPERATION AND MAINTENANCE MANUALS, AND PERFORMING PROJECT CLOSEOUT.

CODES

THE INSTALLATION SHALL COMPLY WITH THE INDICATED EDITION OF THE FOLLOWING CODES AND ORDINANCES. WHERE SPECIFIC EDITION IS NOT INDICATED, COMPLY WITH THE LATEST PUBLISHED EDITION.

NATIONAL FIRE PROTECTION ASSOCIATION - NFPA
- NFPA 70 - 2020; NATIONAL ELECTRICAL CODE
- NFPA 72 - 2019; NATIONAL FIRE ALARM AND SIGNALING CODE

FLORIDA BUILDING CODE
- FBC-B 2023; THE FLORIDA BUILDING CODE (8th EDITION)
- FPC 2023; THE FLORIDA FIRE PREVENTION CODE (8th EDITION)
  - INCLUDING NFPA 101 - 2021; THE LIFE SAFETY CODE
- FBC-M 2023; THE FLORIDA MECHANICAL CODE (8th EDITION)
- FBC-A 2023; THE FLORIDA BUILDING CODE, ACCESSIBILITY (8th EDITION)
- FBC-EC 2023; THE FLORIDA BUILDING CODE, ENERGY CONSERVATION (7th EDITION)
- FBC-FG 2023; THE FLORIDA BUILDING CODE, FUEL GAS (8th EDITION)
- FBC-P 2023; THE FLORIDA BUILDING CODE, PLUMBING (8th EDITION)
- FBC-EB 2023; THE FLORIDA BUILDING CODE, EXISTING BUILDING (8th EDITION)

STATE AND MUNICIPAL CODES AND REQUIREMENTS

GENERAL NOTES

THE WORK WILL BE COMPLETE, FULLY OPERATIONAL, AND SUITABLE FOR THE SERVICE REQUIRED. DRAWINGS INDICATE SCOPE AND DO NOT SHOW ALL DETAILS, DEVICES AND INCIDENTAL MATERIALS NECESSARY TO ACCOMPLISH THE WORK. IT IS UNDERSTOOD THAT SUCH DEVICES AND INCIDENTAL MATERIALS REQUIRED WILL BE FURNISHED.

INSTALLERS ARE EXPECTED TO PROVIDE PROFESSIONAL WORK PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND GOOD PRACTICE.

UPON COMPLETION OF THE WORK THE INSTALLERS WILL CLEAN SPACES THAT WERE OCCUPIED BY TEMPORARY WORK AND TEMPORARY FACILITIES. REMOVE DEBRIS, RUBBISH AND EXCESS MATERIALS FROM THE SITES. REPAIR DAMAGES CAUSED BY INSTALLATION OR USE OF TEMPORARY FACILITIES.

THE INSTALLERS WILL DELIVER TO THE OWNER, UPON SUBSTANTIAL COMPLETION OF THE WORK, ELECTRONIC COPIES OF DESCRIPTIVE LITERATURE RELATED TO THE EQUIPMENT INSTALLED UNDER THIS CONTRACT, INCLUDING PARTS LISTS, WIRING DIAGRAMS, MAINTENANCE AND OPERATION MANUALS AND WARRANTIES CUSTOMARILY SUPPLIED BY MANUFACTURERS FOR EQUIPMENT INCORPORATED IN THIS WORK.

THE CONTRACTOR SHALL GIVE PHYSICAL DEMONSTRATION AND VERBAL INSTRUCTIONS FOR PROPER OPERATION AND MAINTENANCE OF EQUIPMENT TO THE OWNER OR HIS DESIGNATED REPRESENTATIVE; SCHEDULE THESE DEMONSTRATIONS AND INSTRUCTIONS AT THE OWNER'S CONVENIENCE.

LAYOUT & COORDINATION:

INSTALLERS ARE EXPECTED TO COORDINATE IN ORDER TO AVOID INTERFERENCE BETWEEN TRADES. THE INSTALLERS ARE EXPECTED TO VERIFY CRITICAL DIMENSIONS AND FIELD FABRICATE PIPING AS NECESSARY TO ACCOMMODATE CONDITIONS. INSTALLERS ARE EXPECTED TO INSTALL EQUIPMENT SUCH THAT PROPER MAINTENANCE CLEARANCES ARE MAINTAINED FOR EQUIPMENT OF ALL TRADES.

THE CONTRACTOR SHALL TAKE FULL AND COMPLETE RESPONSIBILITY FOR AVOIDING CONFLICTS WITH EXISTING BUILDING STRUCTURE, PIPING AND EQUIPMENT. BEFORE FABRICATING ANY DUCTWORK OR PIPING, FIELD VERIFY THE SPACE AVAILABLE WHILE MAINTAINING REQUIRED ACCESS TO EQUIPMENT FROM ALL TRADES. ANY CHANGES REQUIRED SO THAT DUCTWORK OR PIPING WILL FIT EXISTING CONDITIONS AND ANY DUCTWORK OR PIPING RENDERED AS SCRAP BY FAILING TO VERIFY FIELD CONDITIONS WILL BE AT THE EXPENSE OF THE CONTRACTOR.

HAZARDOUS MATERIALS:

CONTRACTORS ARE EXPECTED TO NOTIFY THE OWNER WHENEVER THEY DISCOVER THAT THEIR WORK WILL EXPOSE THEM TO ANY MATERIALS THAT ARE THE LEAST BIT SUSPICIOUS. REMOVAL OF CONTAMINATED MATERIALS WILL BE THE RESPONSIBILITY OF THE OWNER. HOWEVER THE CONTRACTOR IS RESPONSIBLE TO INSPECT FUTURE WORK AREAS IN A TIMELY FASHION SO AS NOT TO BE HELD UP WAITING FOR ABATEMENT.

TEST, ADJUST AND BALANCE (TAB) SCOPE OF WORK AND COORDINATION

THE CONSTRUCTION MANAGER WILL CONTRACT WITH A PROFESSIONAL/AABB CERTIFIED TAB COMPANY TO TEST, ADJUST AND BALANCE THE NEW HVAC SYSTEMS.

THE MECHANICAL CONTRACTOR SHALL FULLY TEST THE OPERATION OF THE HVAC SYSTEM AND RESOLVE ALL KNOWN DISCREPANCIES PRIOR TO REQUESTING TAB SERVICES VIA THE CONSTRUCTION MANAGER.

THE MECHANICAL CONTRACTOR SHALL PARTICIPATE AND ASSIST THE TAB WORK , INCLUDING RESOLUTION OF TAB DISCREPANCIES.

TEST AND BALANCE CONTRACTOR SHALL PERFORM THE FOLLOWING TASKS:

A. MARK EQUIPMENT/DAMPER/VALVE POSITIONS TO SHOW FINAL SETTINGS. MARK WITH PAINT OR OTHER SUITABLE/PERMANENT IDENTIFICATION MATERIALS.

B. COMPLETE TESTING, ADJUSTING, AND BALANCING OF NEW HVAC SYSTEMS, INCLUDING HYDRONIC PIPING AND RELATED SYSTEMS INCLUDED IN THE SCOPE OF WORK.

C. MEASURE AND BALANCE CHILLED WATER & HOT WATER TO AIR HANDLER AND PUMP.

TEST AND BALANCE CONTRACTOR SHALL PROVIDE ONE (1) PAPER AND ELECTRONIC COPY OF THE PRELIMINARY REPORT TO THE ENGINEER FOR REVIEW/COMMENTS. DISCREPANCIES SHALL BE RESOLVED, THE TAB CONTRACTOR SHALL RETEST SYSTEMS AS NEEDED AND ISSUE THREE (3) FINAL SIGNED AND SEALED REPORTS PLUS ONE ELECTRONIC COPY AFTER ALL ISSUES ARE RESOLVED TO THE SATISFACTION OF THE ENGINEER. ITERATIVE PRELIMINARY COPIES MAY BE REQUIRED.

DUCTWORK:

- ALL WORK SHALL COMPLY WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE. STATIC PRESSURE REQUIREMENTS FOR VAV SINGLE-ZONE SYSTEMS: SUPPLY (2") AND RETURNS (-1"). OUTSIDE AIR DUCT SHALL BE CAPABLE OF 3" STATIC PRESSURE DOWNSTREAM OF FAN.
- USE EITHER ROUND OR RECTANGULAR DUCT WITH EQUAL OR GREATER EQUIVALENT FREE AREA TO ACCOMMODATE EXISTING STRUCTURE.
- FLEXIBLE DUCT ON RUNOUTS SHALL NOT EXCEED 10'. USE SPIRAL ROUND DUCT FOR LONGER RUNS.
- DUCT SIZES MAY BE CHANGED TO ACCOMMODATE CONDITION AS LONG AS THE INTERNAL FREE AREA IS NOT DIMINISHED.
- RUN-OUT DUCTS TO DIFFUSERS SHALL BE EQUAL TO DIFFUSER NECK SIZE.
- TAG ALL DAMPER LOCATIONS WITH ORANGE FLAG TAPE.
- PERMANENTLY MARK ALL DAMPER SHAFTS TO INDICATE DAMPER POSITION.

DUCTWORK INSULATION:

- INSULATION IN CONCEALED/ACCESSIBLE INTERIOR SPACES SHALL BE BLANKET TYPE. SECURE INSULATION WITH IMPALE PINS WHEN DUCT IS OVER 24" WIDE.
- BLANKET INSULATION SHALL BE 2.2" THICK (OUT OF PACKAGE) FOIL BACKED R-6 (INSTALLED) INSULATION. SEAL ALL JOINTS, SEAMS, ETC. PER THE MANUFACTURER'S RECOMMENDATIONS. SEALING TAPE SHALL BE UL 181 LISTED PRESSURE-SENSITIVE TYPE.
- INSULATION IN MECHANICAL ROOMS AND ON DUCTS PENETRATING WALLS (WITHOUT FIRE DAMPERS) SHALL BE RIGID FIBERGLASS TO 7 FEET ABOVE FINISHED FLOOR. EXTEND INSULATION 6" BEYOND WALL THEN TRANSITION TO DUCT WRAP (WHEN CONCEALED). USE CLIP ANGLES AT WALL TO SEAL OPENING (BOTH SIDES) UOS. SEAL PENETRATION TO COMPLY WITH THE WALL RATING, SEE ARCHITECTURAL SHEETS.
- RIGID INSULATION ON SUPPLY DUCTWORK SHALL BE 1.5" THICK TO PROVIDE AN R-VALUE EQUAL TO 6 (MINIMUM).
- RIGID INSULATION ON RETURN AND OUTSIDE AIR DUCTWORK SHALL BE 1" THICK.
- INSULATE OUTSIDE AIR PLENUMS, LOUVER COVERS, OA DUCTS, ETC. WITH 1" RIGID INSULATION. SECURE INSULATION WITH MECHANICAL FASTENERS (IMPALE PINS) ON DUCTS OVER 24" WIDE. SEAL ALL RIGID EDGES WITH ALUMINUM TAPE AND MASTIC AT TAPE EDGES.
- MECHANICAL FASTENERS (IMPALE PINS) SHALL BE ADHERED WITH MASTIC SPACED ON 18" CENTERS.
  NOTE: SELF-ADHESIVE TYPE IMPALE PINS ARE PROHIBITED.
- ALL DUCTWORK CONVEYING CONDITIONED OR OUTSIDE AIR AIR SHALL BE EXTERNALLY INSULATED UNLESS SPECIFIED OTHERWISE.
- PROVIDE INCOMPRESSIBLE INSULATION/INSERTS AT ALL TRAPEZE-TYPE SUPPORTS TO PREVENT INSULATION COMPRESSION.
- INSTALL INSULATION PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY BEST PRACTICES FOR THE INTENDED PURPOSE.
- PROVIDE COMPOSITE MECHANICAL INSULATION (INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES) HAVING FLAME SPREAD INDEX OF 25 OR LESS, AND SMOKE DEVELOPED INDEX OF 50 OR LESS, AS TESTED BY ASTM E 84 (NFPA 255) METHODS.
- VAPOR BARRIERS SHALL BE MAINTAINED COMPLETE AND CONTINUOUS. SEAL ALL GAPS, JOINTS, SEAMS, ETC.
- INSTALL INSULATION AFTER THE DUCT SYSTEMS HAVE BEEN SEALED WITH MASTIC, PRESSURE TESTED AND FOUND FREE OF ALL LEAKS.
- SURFACES SHALL BE CLEAN AND DRY BEFORE APPLYING INSULATION MASTICS OR INSULATION.
- RATED PARTITIONS & WALLS SHALL BE PENETRATED ONLY WITH INSULATION MATERIALS AND TECHNIQUES THAT ARE UL LISTED TO MAINTAIN FIRE RATING. ANY QUESTIONS SHALL BE REFERRED TO THE ARCHITECT/ENGINEER.

SMOKE DETECTORS:

-DUCT SMOKE DETECTORS ARE PROVIDED AND WIRED TO THE FIRE ALARM BY DIVISION 26.

- THE MECHANICAL SUBCONTRACTOR WILL BE RESPONSIBLE FOR MOUNTING DUCT FIRE/SMOKE DAMPERS/ DETECTORS AND WIRING TO THE AHU FOR SYSTEM SHUTDOWN ON ANY GENERAL FIRE ALARM.

EQUIPMENT INSTALLATION

GENERAL EQUIPMENT INSTALLATION REQUIREMENTS:

PROVIDE ENGRAVED PLASTIC LABELS INDICATING EQUIPMENT DESIGNATION FOR EACH PIECE OF EQUIPMENT SCHEDULED WITH A UNIQUE IDENTIFICATION.

PROVIDE PHENOLIC PIPE LABELS INDICATING CONTENTS AND DIRECTION OF FLOW.

INSTALL UNIT IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. CONTRACTOR IS REQUIRED TO HAVE EQUIPMENT INSTALLATION INSTRUCTIONS ON SITE FOR ALL EQUIPMENT THAT IS ON SITE.

ALL EQUIPMENT SHALL BE SECURED TO PADS OR BUILDING STRUCTURE. INSURE THAT PROPER ACCESS TO THE UNIT IS MAINTAINED. DO NOT RUN PIPING IN FRONT OF ACCESS PANELS.

INSTALL MISCELLANEOUS DEVICES SHIPPED LOOSE.

COORDINATE CONTROLS AND POWER WIRING INSTALLATION.

START-UP ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

CLEAN FACTORY-FINISHED SURFACES. REPAIR ANY MARRED OR SCRATCHED SURFACES WITH MANUFACTURER'S TOUCH-UP PAINT. TURNOVER ANY SPECIAL TOOLS PROVIDED BY THE EQUIPMENT MANUFACTURER.

DX SPLIT SYSTEM INSTALLATION:

SET CONDENSING UNITS ON 1/2" THICK NEOPRENE PADS, ONE AT EACH CORNER, AND SECURE UNIT TO EQUIPMENT RAILS DESIGNATED FOR THAT PURPOSE, (OR OTHERWISE AS PROVIDED FOR WITH THE EQUIPMENT) SEE DETAIL.

PIPE CONDENSATE TO NEAREST SAFE WASTE AND SECURE PIPING TO FLOOR ON 4' MAXIMUM CENTERS.

PROVIDE EACH PRIMARY CONDENSATE DRAIN WITH TRAP AND DOWN STREAM CLEAN-OUT CAP. DEPTH OF SEAL SHALL EXCEED MAX FAN STATIC, SEE TRAP DETAIL.

PRIOR TO START-UP, REMOVE DEBRIS FROM INSIDE THE UNIT, VACUUM INTERIOR SURFACES, WIPE DOWN INTERIOR WITH DAMP CLOTH, AND INSTALL CLEAN FILTERS.

INSTALL CLEAN FILTER AND PERFORM START UP IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. COMPLETE AND SUBMIT START UP REPORT.

PROGRAM AND TEST HUMIDISTATS/CONTROLS. CORRECT SYSTEM DEFICIENCIES.

AIR HANDLER UNIT INSTALLATION:

LOCATE UNIT TO PROVIDE PROPER CLEARANCE TO ACCESS PANELS, PIPING, CONTROLS, ETC. OPTIMIZE AVAILABLE SPACE.

SET UNIT ON 1/2" THICK NEOPRENE VIBRATION-ISOLATION PADS ON 2' CENTERS UNDER MAIN SUPPORTS.

PROVIDE EACH PRIMARY CONDENSATE DRAIN WITH P-TRAP AND DOWN STREAM CLEAN-OUT CAP. DEPTH OF SEAL SHALL EXCEED MAX FAN STATIC, SEE TRAP DETAIL.

INSTALL DUCTWORK.

REMOVE ALL DEBRIS, DUST, METAL SHAVINGS, ETC. FROM INTERIOR OF UNIT PRIOR TO STARTUP.

PERFORM START-UP IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND COMPLETE A STARTUP REPORT.

PROGRAM AND TEST CONTROLS, DAMPERS, AND SAFETIES.

PROVIDE NEW FILTERS AT SUBSTANTIAL COMPLETION.

REFRIGERANT PIPING INSTALLATION:

REFRIGERANT PIPING SHALL BE ACR TYPE L. PROVIDE HARD DRAWN COPPER TUBING WITH BRAZED LONG RADIUS WROUGHT COPPER FITTINGS AT ALL AIR HANDLING UNITS, CONDENSING UNITS, IN MECHANICAL ROOMS AND OTHER EXPOSED LOCATIONS. WHERE CONCEALED, REFRIGERANT PIPING MAY BE SOFT COPPER.

PROVIDE SIGHT GLASS AND FILTER DRYER FOR EACH REFRIGERANT CIRCUIT. TAKE CARE NOT TO DOUBLE UP WHERE FILTER DRYER IS PROVIDED WITH CONDENSING UNIT.

LEAK TEST ALL REFRIGERANT PIPING. EVACUATE, DEHYDRATE AND CHARGE SYSTEM PER MANUFACTURER'S INSTRUCTIONS.

SUPPORT HORIZONTAL REFRIGERANT SUCTION PIPING 4 FEET ON CENTER. LIQUID LINE MAY BE STRAPPED TO THE INSULATED SUCTION LINE WITH DUCT TAPE.

INSURE THAT EXPOSED METAL PIPES DO NOT CONTACT METAL OR CONCRETE SURFACES. PROVIDE INSULATION MATERIALS OR SLEEVES AT ANY SUCH LOCATIONS.

DO NOT CONCEAL ANY REFRIGERANT PIPING INSIDE BUILDING MATERIALS UNTIL IT HAS BEEN INSPECTED BY THE ENGINEER.

CONCRETE HOUSEKEEPING PADS:

FOR NEW OUTDOOR CONDENSING UNITS, INSTALL A CONCRETE PAD PER DETAIL. VERIFY EQUIPMENT FOOT PRINT WITH SUBMITTAL AND SIZE PAD ACCORDINGLY. POUR 4" CONCRETE SLAB W/ WELDED WIRE REINFORCING. CHAMFER EDGES

HVAC SYMBOLS/LEGEND

DESIGNATION	DESCRIPTION
8"Ø	ROUND DUCT WITH SIZE INDICATED
(T)	THERMOSTAT/TEMPERATURE SENSOR & WIREWAY
(T/H)	TEMP/RELATIVE HUMIDITY SENSOR AND WIREWAY
8"Ø	INSULATED FLEXIBLE DUCTWORK & SIZE/DIA.
12X12	RECTANGULAR DUCTWORK & INTERNAL SIZE (FREE AREA)
FD	FIRE DAMPER
FSD	COMBINATION FIRE/SMOKE DAMPER
SD	SMOKE DAMPER
	FLEXIBLE DUCT CONNECTION
D	DUCT SMOKE DETECTOR
	POINT OF CONNECTION TO EXISTING
	DEMOLITION WORK TERMINATION POINT
M	MANUAL VOLUME DAMPER WITH LOCKING QUADRANT
E	ELECTRIC OPERATED CONTROL DAMPER
→	FLOW DIRECTION
OR	DUCT TURNING DOWN
OR	DUCT TURNING UP
	AIR FLOW DIRECTION
D 375	GRILLE AND FLOWRATE (CFM) DESIGNATION
EF-	CENTRIFUGAL INLINE CABINET EXHAUST FAN
UP OR DN	DUCT RISE UP OR DOWN
	SERVICE AREA - MAINTAIN CLEAR
R (R)	RELOCATE AND RELOCATED, RESPECTIVELY

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AHAP	AS HIGH AS POSSIBLE
AS	AIR SEPARATOR
BAS	BLDG AUTOMATION SYSTEM
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSE POWER
BTUH	BRITISH THERMAL UNIT/HOUR
CFM	CUBIC FEET PER MINUTE
C/D	CLEAN/DIRTY
CL	CHAIN LINK
CONC	CONCRETE
CU	CONDENSER UNIT
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
CNTRL	CONTROL
CR	CLASSROOM
DB	DRY BULB
DIA OR Ø	DIAMETER
DG	DOOR GRILLE
DW	DOUBLE WALL
EA	EXHAUST AIR
EF	EXHAUST FAN
ET	EXPANSION TANK
ETR	EXISTING TO REMAIN
EX OR (E)	EXISTING
EXT	EXTERNAL OR EXTERIOR
FCU	FAN COIL UNIT
FL	FLOOR
FJ	FLEXIBLE JOINT
FPM	FEET PER MINUTE
GPM	GALLONS PER MINUTE
GV	GOOSENECK VENT
H	HIGH
HDG	HOT-DIP GALVANIZED
HP	HORSE POWER
HPU	HEAT PUMP UNIT
KW	KILOWATT
L	LONG
LAT	LEAVING AIR TEMPERATURE
MU	MAKE UP WATER
MAX	MAXIMUM
MBH	1000 BTU/HOUR
MIN	MINIMUM
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NPS	NOMINAL PIPE SIZE
OA	OUTSIDE AIR
PD	PRESSURE DROP
PH	PHASE
PNL	PANEL
PRS	PRESS REDUCING STATION
RA	RETURN AIR
RAG	RETURN AIR GRILLE
RLA	RATED LOAD AMPS
RV	ROOF VENT
SA	SUPPLY AIR
SAG	SUPPLY AIR GRILLE
SP	STATIC PRESSURE
SQ	SQUARE
SST	STRUCTURAL STEEL TUBING
T	TEMPERATURE
TEFC	TOTALLY ENCL. FAN COOLED
THK	THICK
TOD	TOP OF DUCT
TYP	TYPICAL
UG	UNDERGROUND
UOS	UNLESS OTHERWISE SPECIFIED
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
V	VOLTS
WB	WET BULB
WG	WATER GAUGE
WTR HTR	WATER HEATER
XFA	TRANSFER AIR

SYMBOL	REVISION	DATE

SYMBOL	REVISION	DATE

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3800 Commonwealth Blvd., Tallahassee, FL 32399 (850) 245-2300

ISSUE DATE: 08/23/2024
COMP. FILE No.:
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REVIEWED BY: JB

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PROFESSIONAL REGISTRATION

JON M. BARBER LICENSE No. 55427 STATE OF FLORIDA PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by **Jon Barber, PE** on 8/20/24. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

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ALLSTATE CONSTRUCTION
09-24-2024

EDWARD BALL WAKULLA SPRINGS STATE PARK

SHEET TITLE
MECHANICAL
GENERAL NOTES AND LEGEND

PROJECT TITLE
INTERPRETIVE CENTER

SHEET NO.
M100

CONSTRUCTION DOCUMENTS

DX SPLIT SYSTEM SCHEDULE w/ HGRH

DESIGNATION		AHU-1 / HPU-1
AREA SERVED		INTERPRETIVE CENTER
TYPE UNIT		SPLIT HEAT PUMP
MANUFACTURER		TRANE
CONDENSING UNIT MODEL		TWA120 HEAT PUMP
COMPRESSOR TYPE/QTY.		SCROLL / 2
FAN COIL UNIT MODEL		TWE120, 2 STG, SZVAV
COIL TYPE		DUAL CIRCUIT
SUPPLY AIR FLOW RATE (DESIGN)	CFM	4000
VENTILATION AIR FLOW RATE	CFM	800
FAN STATIC (EXTERNAL)	IN W.G.	1.0
FAN NOMINAL MOTOR SIZE	HP	2
TOTAL COOLING CAPACITY	MBH	120.0
SENSIBLE COOLING LOAD	MBH	79.4
LATENT COOLING LOAD	MBH	40.6
ENTERING AIR TEMP	°F DB / °F WB	79°F / 64°F
LEAVING AIR TEMP	°F DB / °F WB	59°F / 54°F
IEER / EER	BTUH/WATT	14.1 / 11.2
HEATING CAPACITY	MBH	80.0
HEATING HSPF / COP	BTUH/WATT	3.4
ELECTRIC HEAT STRIP	KW @ 208V	12
FCU-ELECTRICAL CHARACTERISTICS	V/Ø/HZ	208/3/60
FCU-FAN MIN CIRCUIT AMPS	AMPS	52
FCU-MAX. CIRCUIT BRKR	AMPS	60
CU-ELECTRICAL CHARACTERISTICS	V/Ø/HZ	208/3/60
CU-MIN. CIRCUIT AMPS	MCA	42
CU-MAX. CIRCUIT BREAKER	AMPS	50
SUCTION/LIQUID LINE SIZE	IN	2 @ 1-1/8" / 2 @ 1/2"
NOTES/OPTIONS		ALL

NOTES/OPTIONS:

1. CONDENSING UNIT TO BE RATED FOR SALT SPRAY.
2. AIR HANDLER TO BE SUPPLIED WITH FACTORY MIXING BOX, R/A & O/A DAMPERS, AND LOGIC FOR DEMAND CONTROL VENTILATION.
3. UNIT CONTROLS SHALL INCLUDE PROGRAMMABLE THERMIDISTAT FOR TEMPERATURE AND HUMIDITY CONTROL, AND DCV.
4. ELECTRIC HEAT WITH INTERNAL CIRCUIT BREAKER PROTECTION.
5. VARIABLE-SPEED INDOOR (ECM) FAN .
6. INTERNAL FILTER RACK TO ACCEPT 2" MERV 13 FILTER. (SIZE TO MATCH AHU)
7. DUAL COMPRESSORS / DUAL CIRCUIT W/ SERVICE VALVES TO ISOLATE CIRCUITS
8. PROVIDE ANY LONG-LINE APPLICATION DEVICES WHERE REQUIRED.
9. SINGLE-POINT POWER ENTRY KIT FOR AHU.
10. INCLUDE SINGLE ZONE VARIABLE AIR VOLUME (SZVAV), VARIABLE SPEED FAN, WITH SYMBIO CONTROLLER
11. PROVIDE MFR SUB BASE FOR MOUNTING VERTICAL FCU 6" ABOVE THE FLOOR.
12. THERMOSTAT TO BE MOUNTED INSIDE A LOCKABLE, WALL-MOUNTED ENCLOSURE.
13. PROVIDE STANDARD 1-YR PARTS & LABOR WARRANTY, PLUS 5-YR COMPLETE PARTS WARRANTY.

DIFFUSER & GRILLE SCHEDULE

TYPE	QTY	DESCRIPTION	MODEL	REMARKS	AIR PATTERN	DAMPER
A	6	LINEAR 1-SLOT DIFFUSER (JET THROW)	TITUS FL-20-JT	SIDEWALL MOUNT (EXPOSED FLANGE BORDER 66), SINGLE 2" SLOT, ALUMINUM CONSTRUCTION, FACTORY SUPPLIED INSULATED PLENUM, 48" NOMINAL LENGTH, 10" ROUND INLET	HORIZ.	NO
B	6	LINEAR 3-SLOT RETURN	TITUS MLR-39	SIDEWALL MOUNT (EXPOSED FLANGE), 3 SLOT, 1" SLOT WIDTH, ALUMINUM CONSTRUCTION, FACTORY SUPPLIED PLENUM, 48" NOMINAL LENGTH, 12" ROUND DUCT CONNECTION	NA	NO
C	4	PERFORATED RETURN AIR GRILLE	TITUS PAR	TYPE 1 SURFACE-MOUNT, 3/16" Ø HOLES ON 1/4" CENTERS, ALUMINUM CONSTRUCTION, WHITE FINISH, 24x24 MODULE SIZE, 10" ROUND NECK SIZE	NA	NO
D	4	ARCHITECTURAL SQUARE PLAQUE SUPPLY AIR GRILLE	TITUS OMNI-AA	LAY-IN TYPE 3, SQUARE PLAQUE, ALUMINUM CONSTRUCTION, WHITE FINISH, 24x24 MODULE SIZE, WITH OPTIONAL FACTORY MOLDED INSULATION BLANKET. SEE PLANS FOR NECK SIZE.	4-WAY	NO
E	3	ARCHITECTURAL SQUARE PLAQUE SUPPLY AIR GRILLE	TITUS OMNI-AA	SURFACE MOUNT TYPE 1, SQUARE PLAQUE, ALUMINUM CONSTRUCTION, WHITE FINISH, 12x12 MODULE SIZE, WITH OPTIONAL FACTORY MOLDED INSULATION BLANKET. SEE PLANS FOR NECK SIZE.	4-WAY	NO
G	2	LOUVERED SUPPLY GRILLE	TITUS 301FL	SURFACE MOUNT TYPE-1, ALUMINUM CONSTRUCTION, 3/4" BLADE SPACING, 35° FIXED BLADE, SINGLE DEFLECTION, WHITE FINISH, SEE PLANS FOR SIZE	NA	NO
H	1	ARCHITECTURAL SQUARE PLAQUE SUPPLY AIR GRILLE	TITUS OMNI-AA	SURFACE MOUNT TYPE 1, SQUARE PLAQUE, ALUMINUM CONSTRUCTION, WHITE FINISH, 24x24 MODULE SIZE, WITH OPTIONAL FACTORY MOLDED INSULATION BLANKET. SEE PLANS FOR NECK SIZE.	4-WAY	NO

NOTES:

1. COORDINATE FINISHES WITH ARCHITECT.
2. ALL SUPPLY GRILLES WILL BE ADJUSTABLE AT TAKEOFF UOS.

LAY-IN SUPPLY AIR GRILLE NECK SIZES

AIR FLOW RANGE (CFM)	NECK SIZE SIZE (IN)
25-120	6"Ø
125-225	8"Ø
230-350	10"Ø
351-500	12"Ø

NOTES:
1. EQUIVALENT SQUARE/RECT SIZES ARE ACCEPTABLE.

LAY-IN RETURN/EXHAUST/TRANSFER AIR GRILLE CONNECTION SIZES (UOS)

AIR FLOW RANGE (CFM)	NECK/DUCT CONNECTION SIZE (UOS) (IN)
0-100	6"Ø
101-175	8"Ø
176-300	10"Ø
301-450	12"Ø
451-750	14"Ø

FAN SCHEDULE

DESIGNATION		EF-1	EF-2	EF-3	HVLS-1	
AREA/ROOM SERVED & BUILDING		RESTROOMS	RESTROOMS	JANITORS CLOSET	EXHIBIT	
SERVICE		TOILET EXHAUST	TOILET EXHAUST	JANITOR EXHAUST	COOLING	
MANUFACTURER		GREENHECK	GREENHECK	GREENHECK	BIG ASS FAN	
MODEL		SP-A50-VG	SP-A390-VG	SP-A50-VG	POWERFOIL D	
TYPE		CEILING	CEILING	CEILING	CEILING	
FAN CONSTRUCTION		PPA & GALV.	PP & GALV.	PP & GALV.	ALUMINUM	
DRIVE TYPE		DIRECT	DIRECT	DIRECT	DIRECT / VFD	
AIR FLOWRATE DESIGN	CFM	70	140	50	N/A	
DESIGN STATIC PRESSURE	IN	0.5	0.75	0.4	N/A	
DESIGN FAN SPEED	RPM	838	1218	808	200	
RADIATED SOUND POWER	SONES	2.0	4.0	2.0	2.0	
ELECTRICAL CHARACTERISTICS	V/Ø/HZ	115/1/60	115/1/60	115/1/60	277/1/60	
MOTOR POWER	HP / W	6W	28W	6W	-	
MCA	AMPS	0.4	1.9	0.4	-	
REQUIRED BREAKER	AMPS	15	15	15	10	
OPTIONS		1,2,3,4	2,3,4	1,2,3,4	6,7,8,9	
CONTROL NOTES		1	1	2	3	
PROJECT QTY.	# FANS	3	2	1	2	

OPTIONS

1. ALUMINUM GRILLE.
2. PREWIRED MOTOR DISCONNECT SWITCH, NEMA-1.
3. BACKDRAFT DAMPER
4. VARI-GREEN MOTOR
5. WALL BRACKET FOR SIDE-WALL MOUNTING
6. FAN TO BE MOUNTED OUTDOORS, UNDER COVER
7. MOTOR AND DRIVE TO BE IP66 RATED
8. PROVIDE STANDARD MFR CONTROLLER FOR ON/OFF AND SPEED CONTROL
9. ASSEMBLY HEIGHT: 60"; BOTTOM OF FAN: 11'-4' ABOVE FLOOR

CONTROL NOTES:

1. FAN SHALL OPERATE VIA OCCUPANCY SENSOR.
2. FAN WILL OPERATE VIA PROGRAMMABLE TIME CLOCK.
3. FAN WILL OPERATE WITH WALL CONTROLLER.

LOUVER SCHEDULE

DESIGNATION		L1	L2
SERVICE		INTAKE	EXHAUST
NOMINAL SIZE (WXH)	IN	4'-0"x3'-4"	2'-0"x1'-4"
FREE AREA (DESIGN MINIMUM)	SQ FT	3.5	1.1
AIR FLOW RATE	CFM	800	540
DEPTH	IN	5	5
TYPE		EXTERIOR	EXTERIOR
MATERIAL/CONSTRUCTION		ALUMINUM	ALUMINUM
BASIS OF DESIGN MANUFACTURER		RUSKIN	RUSKIN
BASIS OF DESIGN MODEL		EME520MD	EME520MD
NOTES		1 - 7	1 - 5

NOTES:

1. COORDINATE LOUVERS WITH ARCHITECTURAL DRAWINGS
2. CONSTRUCTED OF 6063T6 EXTRUDED ALUMINUM WITH 0.095" NOMINAL WALL THICKNESS. BLADE CONSTRUCTION 6063T6, 0.062" WALL THICKNESS, POSITIONED HORIZONTALLY.
3. EXPANDED, FLATTENED ALUMINUM BIRD SCREEN, 1/2"X0.063"
4. MIAMI-DADE CERTIFIED.
5. MILL FINISH
6. PROVIDE 2" THICK INSULATED BLANK-OFF PANEL.
7. HEXAGONAL LOUVER

SYMBOL	REVISION	DATE

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3800 Commonwealth Blvd., Tallahassee, FL 32399 (850) 245-2300

ISSUE DATE: 08/23/2024
COMP. FILE No.:
STATE PROJECT No.: 61426C

DESIGNER :
DRAWN BY: MH
REVIEWED BY: JB

Consultant :
McGINNISS + FLEMING ENGINEERING
JON BARBER, PE 55427 | BRIAN WALLACE, PE 75562
820 EAST PARK AVE, I-200, TALLAHASSEE, FL 32301
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PROFESSIONAL REGISTRATION

JON M. BARBER LICENSE No. 55427 STATE OF FLORIDA PROFESSIONAL ENGINEER

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ALLSTATE CONSTRUCTION
09-24-2024

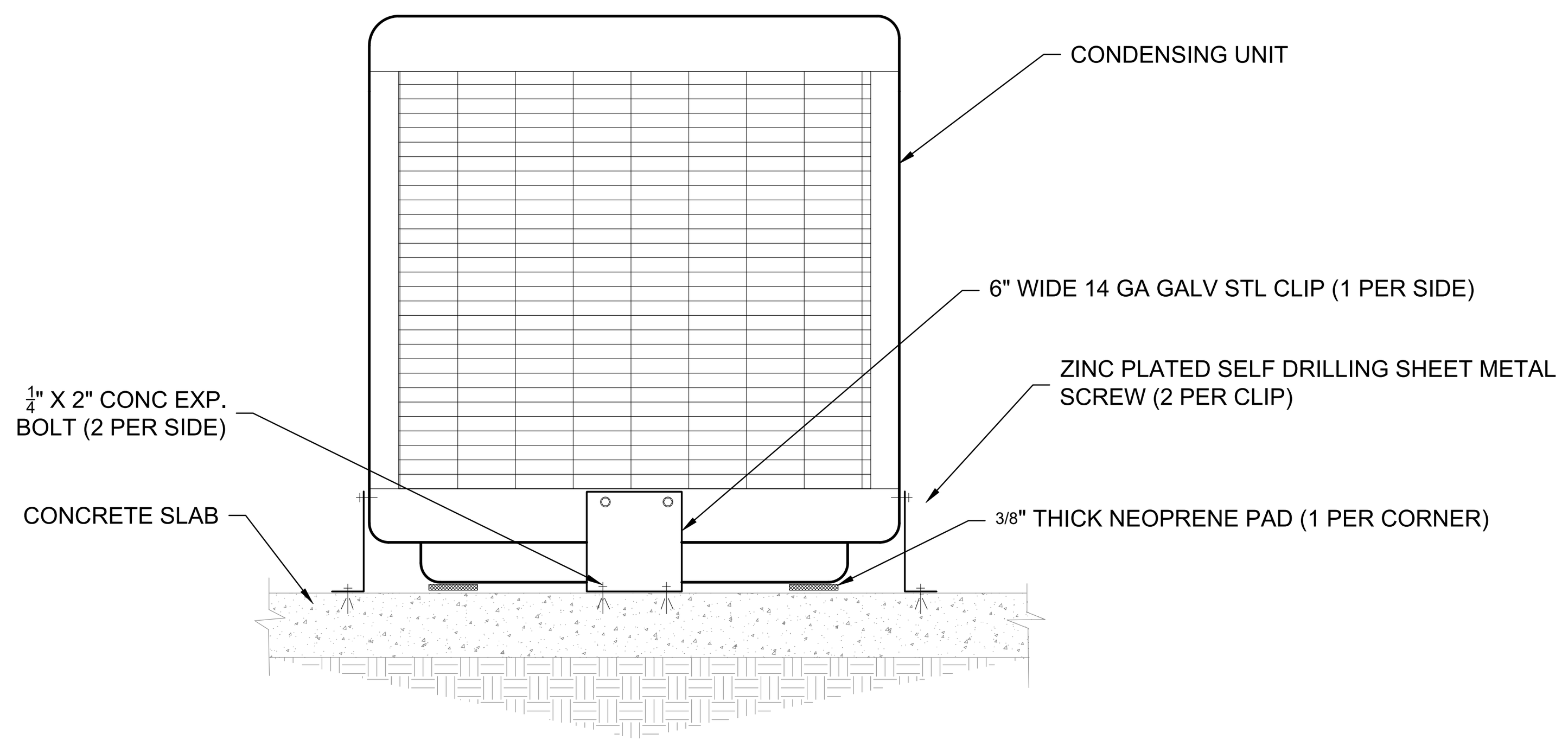
EDWARD BALL WAKULLA SPRINGS STATE PARK

SHEET TITLE
MECHANICAL SCHEDULES

PROJECT TITLE
INTERPRETIVE CENTER

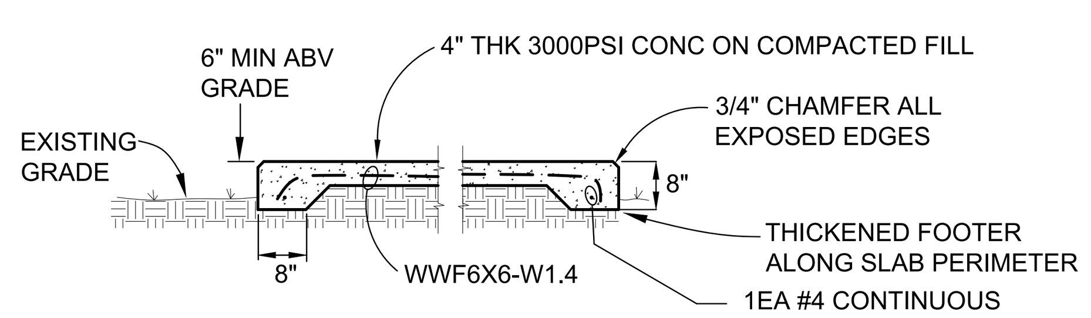
SHEET NO.
M101

CONSTRUCTION DOCUMENTS



CONDENSING UNIT ANCHORING DETAIL

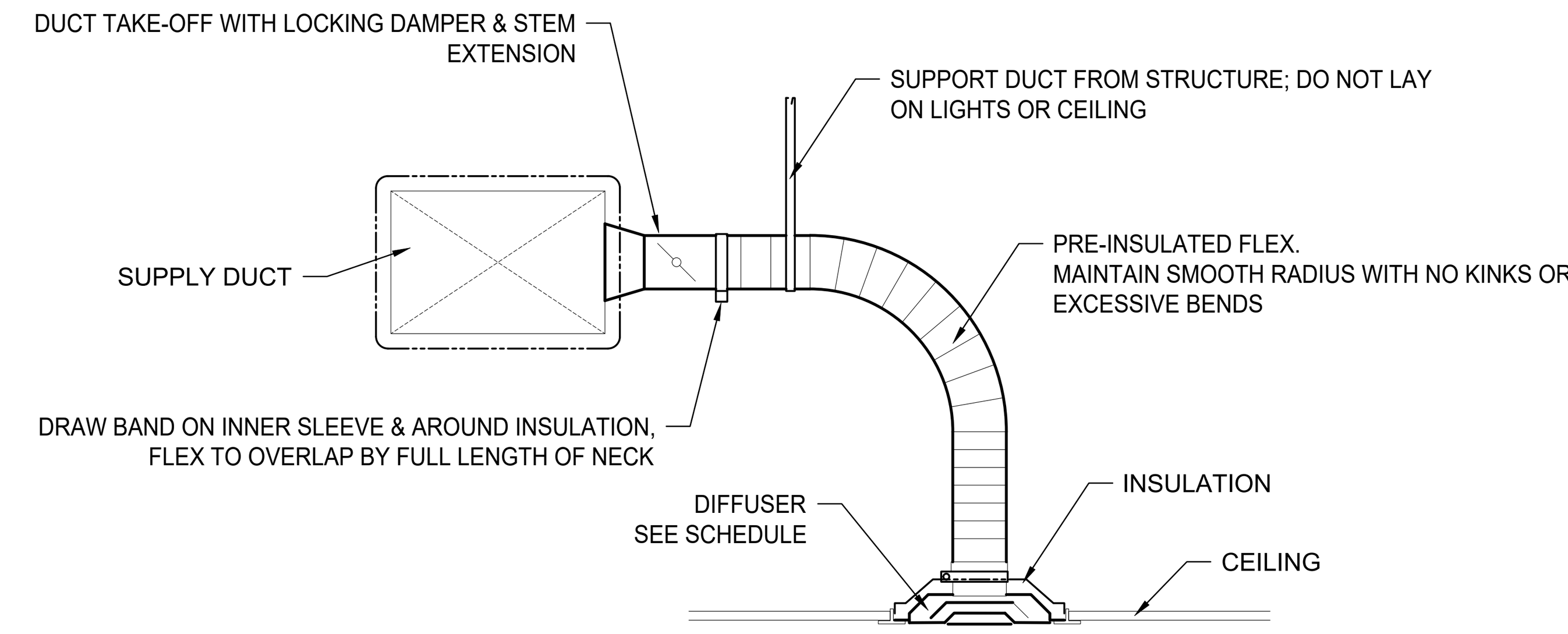
NOTES:
1. PLACE UNIT ON 3/8" X 4" SQ. THICK NEOPRENE ISOLATION PADS, ONE AT EACH CORNER UNDER EACH SUPPORT/STANDOFF. USE ADDITIONAL PADS TO RAISE UNIT AS NEEDED TO MAKE THE SIDES PLUMB.
2. SECURE UNIT TO CONCRETE WITH GALVANIZED STEEL CLIP ANGLES AS SHOWN. USE 1/2" X 2" LONG CONCRETE EXPANSION BOLTS IN CONCRETE AND HEAVY DUTY SHEET METAL SCREWS INTO UNIT CASING/CABINET.



CONCRETE PAD (EXTERIOR) DETAIL

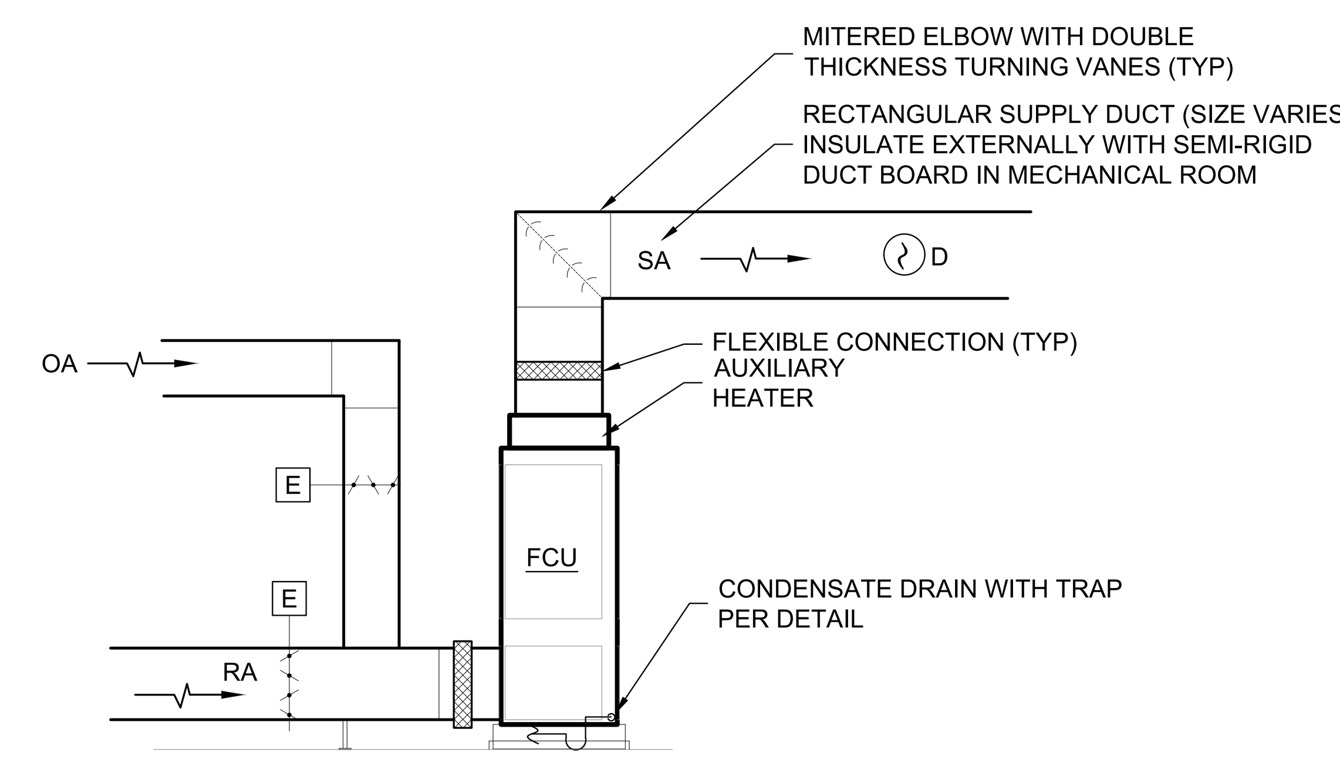
SCALE: NTS

NOTES:
1. USE 3000 PSI (MIN) CONCRETE PLACED ON COMPACTED FILL.
2. DIMENSIONS OF PAD SHALL BE 6" WIDER THAN EQUIPMENT ON ALL SIDES.
3. SECURE EQUIPMENT TO PAD WITH EXPANSION BOLTS PER THE MANUFACTURER'S RECOMMENDATIONS OR AS SPECIFIED.



DIFFUSER INSTALLATION DETAIL

NOTES:
1. FLEXIBLE DUCT SHOWN, BUT RECTANGULAR DUCT IS SIMILAR.
2. SEAL INSULATION EDGES, SEAMS, JOINTS, ETC. WITH TAPE.
3. EXHAUST DUCTS WILL NOT BE INSULATED, BUT GRILLE WILL HAVE FACTORY INSULATION.

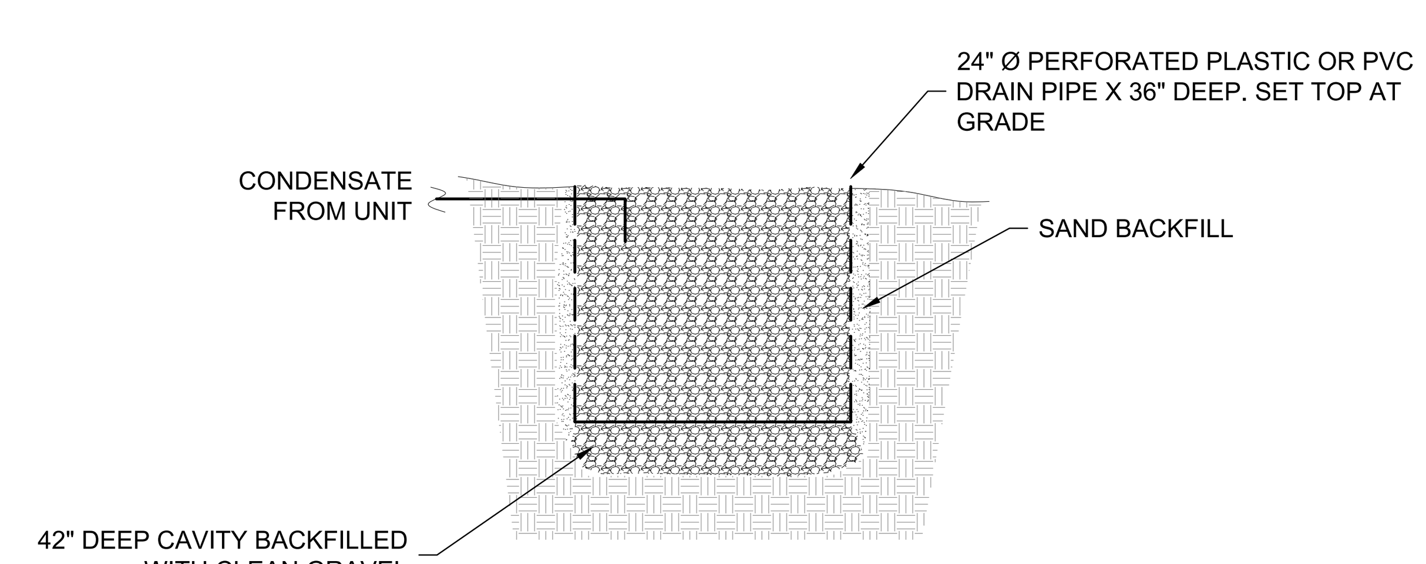


DX VERTICAL RETURN DUCT DETAIL

SCALE: NTS

7.5-TON & LARGER

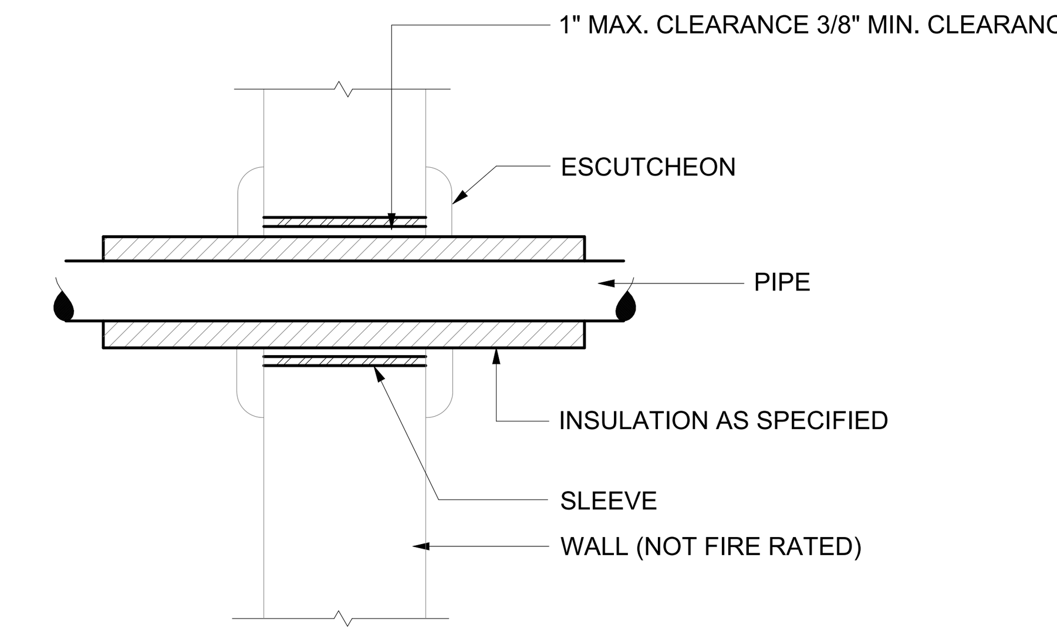
NOTES:
1. LOCATE UNITS AND PROVIDE ACCESS PER THE MANUFACTURER'S RECOMMENDATIONS.
2. MAINTAIN ACCESS FOR FILTER REMOVAL/REPLACEMENT.
3. SEAL ALL DUCT/WALL PENETRATIONS SMOKE TIGHT.
4. PROVIDE AND INSTALL SMOKE DETECTORS ON UNITS WHERE INDICATED.
5. PIPE CONDENSATE WITH P-TRAP TO STORM WATER SYSTEM.



CONDENSATE DRYWELL INSTALLATION DETAIL

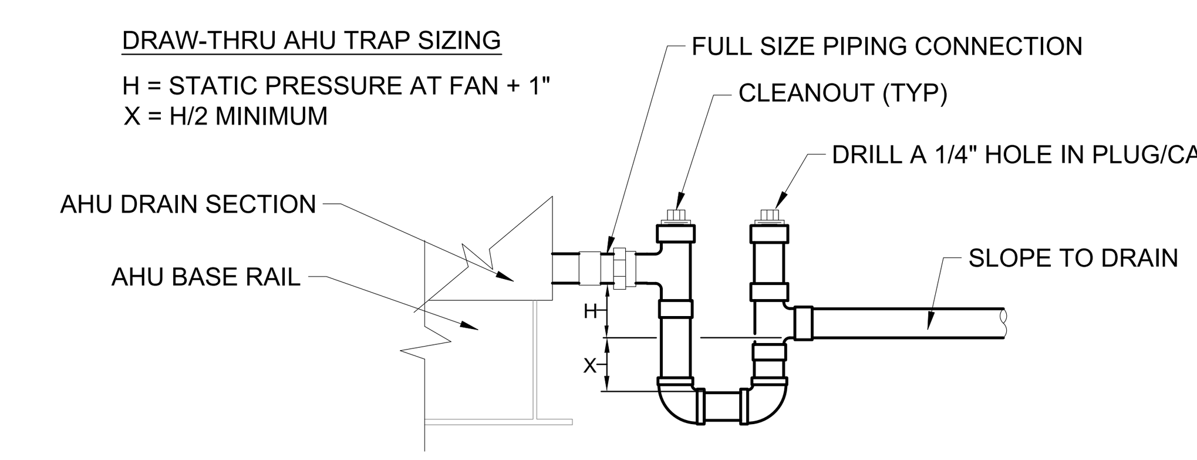
SCALE: NTS

NOTES:
1. VERIFY EXISTING CONDITIONS AND UTILITIES PRIOR TO EXCAVATING.
2. LOCATE DRYWELL 3' MINIMUM FROM BUILDING FOUNDATION.



NON-RATED WALL PENETRATION

NOTES:
1. SUBMIT MANUFACTURER'S UL LISTED APPROVAL FOR WALL SYSTEM AND RATING TO ARCHITECT/ENGINEER FOR REVIEW/APPROVAL.
2. SEE PLAN FOR WALL RATINGS.
3. INSTALL PRODUCTS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS AND RATING.



CONDENSATE P-TRAP DETAIL

SCALE: NTS

NOTES:
1. CONDENSATE PIPING SHALL BE FULL SIZE DWV OR TYPE L COPPER WITH CAST DWB OR PRESSURE SOLDER JOINTS.
2. ROUTE CONDENSATE PIPING TO CONDENSATE DRAIN.
3. SLOPE CONDENSATE PIPING 1/4" PER FOOT TOWARD DRAIN.
4. INSULATE PIPING WITH ARMAFLEX

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JON M. BARBER LICENSE No. 55427 STATE OF FLORIDA PROFESSIONAL ENGINEER

PROFESSIONAL REGISTRATION

RECEIVED ALLSTATE CONSTRUCTION 09-24-2024

Department of Environmental Protection
Division of Recreation and Parks
Bureau of Design and Construction
3800 Commonwealth Blvd., Tallahassee, FL 32399 (850) 245-2300

DATE	REVISION	SYMBOL	DATE	REVISION	SYMBOL

ISSUE DATE: 08/23/2024
COMP. FILE No.:
STATE PROJECT No.: 61426C

DESIGNER:
DRAWN BY: MH
REVIEWED BY: JB

Consultant: McGINNISS + FLEMING ENGINEERING

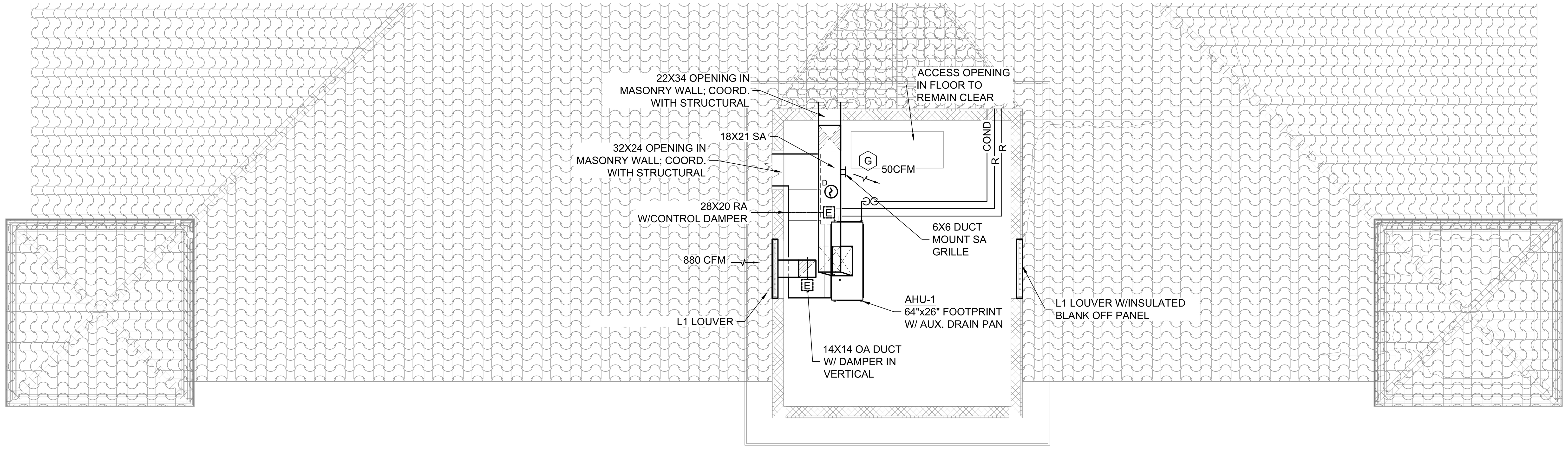
EDWARD BALL WAKULLA SPRINGS STATE PARK

SHEET TITLE
MECHANICAL DETAILS

PROJECT TITLE
INTERPRETIVE CENTER

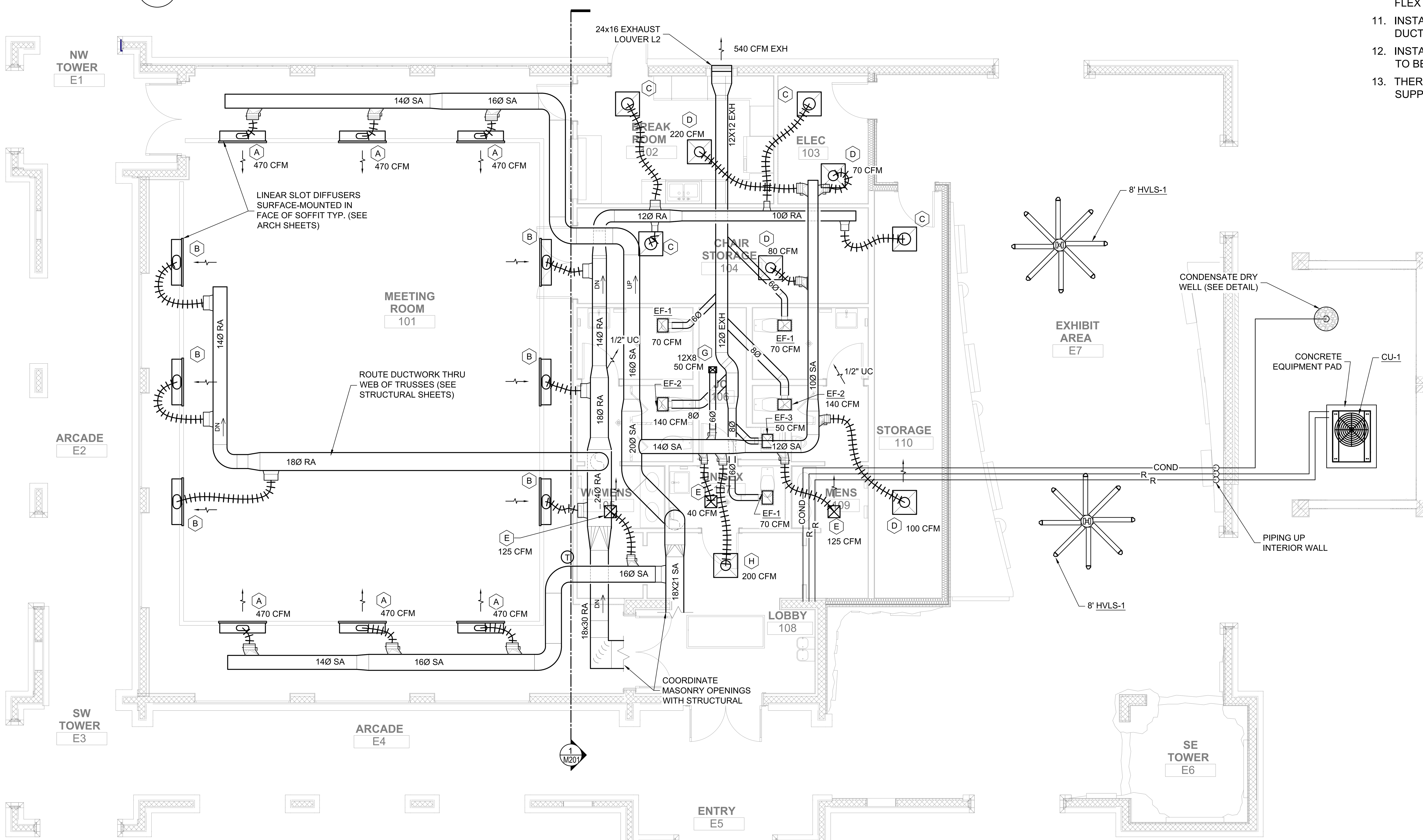
SHEET NO.
M102

CONSTRUCTION DOCUMENTS



1 **FLOOR PLAN - EQUIPMENT PLATFORM**

SCALE: 3/16" = 1'-0"



2 **MECHANICAL - NEW WORK PLAN**

SCALE: 3/16" = 1'-0"

SHEET NOTES:

1. INSTALL THE DX SPLIT SYSTEM VERTICAL AIR HANDLER AS REPRESENTED. INSTALL UNIT IN AN AUXILIARY DRAIN PAN WITH FLOAT SWITCH. PROVIDE ACTUATED BALANCING DAMPERS FOR RETURN AIR AND OUTSIDE AIR, AND A CO2 SENSOR IN R/A DUCT - ALL DEVICES ARE TO BE TERMINATED IN THE AHU CONTROLLER.
2. SUPPLY DUCT SHALL HAVE DUCT SMOKE DETECTOR.
3. ALL DUCTWORK WITHIN MECHANICAL MEZZANINE AND THROUGH WALL TO BE EXTERNALLY LINED WITH RIGID FIBERGLASS INSULATION. ALL OTHER DUCTWORK WILL USE FOIL BACKED DUCT WRAP.
4. INSTALL 6X6 DUCT MOUNTED SUPPLY GRILLE ON SUPPLY DUCT IN MEZZANINE, WITH BALANCING DAMPER.
5. INSTALL PROGRAMMABLE THERMOSTAT IN MEETING ROOM 101 AND CONNECT TO AHU.
6. INSTALL LIQUID AND SUCTION LINES FOR DUAL CIRCUIT CONDENSING UNIT.
7. OUTSIDE AIR DUCT WILL CONNECT TO THE LOUVER IN THE MECHANICAL ROOM. FABRICATE AND INSTALL A TAPERED PLENUM ON THE LOUVER TO LIMIT OBSTRUCTIONS UNDER 7 FEET ABOVE FLOOR. THIS LOUVER IS SUPPLIED WITH AN INSULATED PANEL - MODIFY PANEL FOR ATTACHMENT OF PLENUM.
8. INSTALL CONDENSING UNIT ON CONCRETE EQUIPMENT PAD IN LOCATION SHOWN.
9. ROUTE CONDENSATE FROM AIR HANDLER TO DRY WELL. LINE TO BE SELF DRAINING DOWNSTREAM OFTRAP.
10. COORDINATE SUPPLY AND RETURN DUCTWORK TO AVOID TRUSSES, LIGHTS, SPRINKLERS, WALL, ETC. DUCTWORK SHALL BE FULLY INSULATED. FLEX DUCT RUNOUTS SHALL NOT EXCEED 10 FEET.
11. INSTALL CEILING EXHAUST FANS IN LOCATIONS SHOWN. ROUTE EXHAUST DUCTS TO COMMON DUCT THROUGH EXHAUST LOUVER.
12. INSTALL FAN HVLS-1 PER MANUFACTURER'S INSTRUCTIONS. CONTROLLER TO BE INSTALLED IN ELECTRICAL ROOM.
13. THERE IS NO CEILING IN JANITOR'S CLOSET; SUPPORT EXHAUST FAN AND SUPPLY GRILLE FROM STRUCTURE WITH THREADED HANGER ROD.

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JON M. BARBER — LICENSE — No. 55427 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

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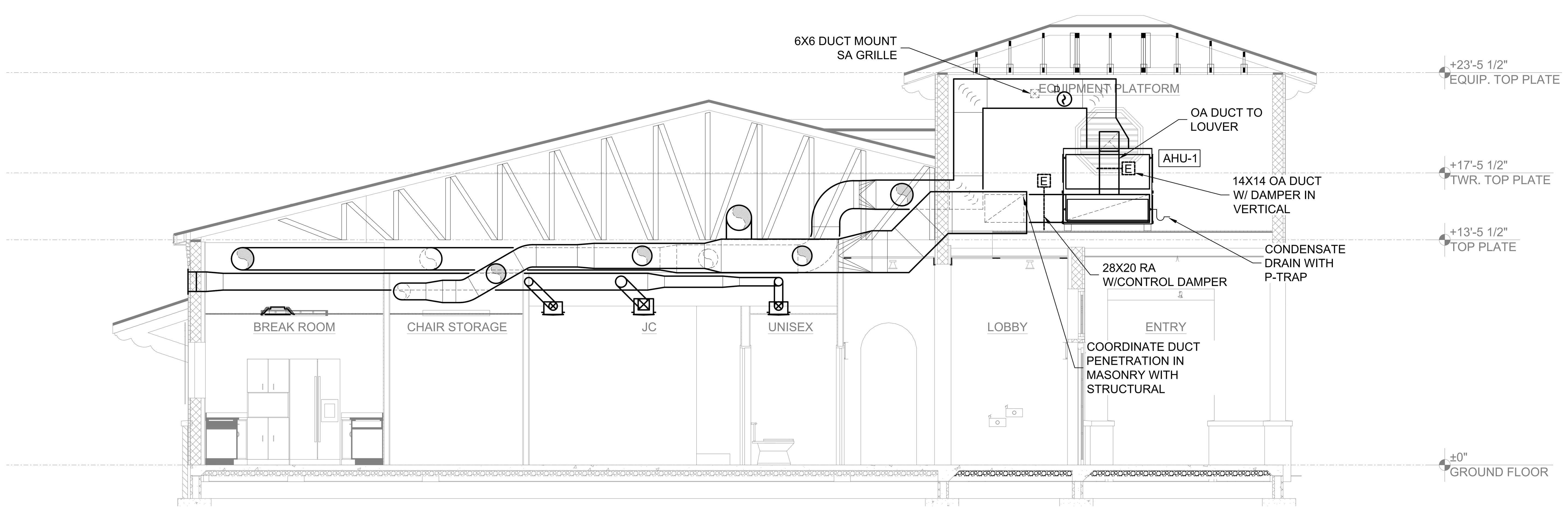
EDWARD BALL WAKULLA SPRINGS STATE PARK

SHEET TITLE
MECHANICAL FLOOR PLAN - HVAC

PROJECT TITLE
INTERPRETIVE CENTER

SHEET NO.
M200

CONSTRUCTION DOCUMENTS



1 **SECTION VIEW THROUGH EQUIP MEZZANINE - EAST**

SCALE: 3/16" = 1'-0"

SYMBOL	REVISION	DATE

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EDWARD BALL WAKULLA SPRINGS STATE PARK

SHEET TITLE
MECHANICAL SECTION VIEW

PROJECT TITLE
INTERPRETIVE CENTER

SHEET NO.
M201

CONSTRUCTION DOCUMENTS