

LEGEND

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| <p>RTU-1 EQUIPMENT TAG</p> <p>M3 DETAIL TAG (*1* INDICATES IDENTIFICATION NUMBER; *M3* INDICATES THE SHEET NUMBER DRAWN ON)</p> <p>□ SHEET NOTE</p> <p>▨ SUPPLY DUCT SECTION POSITIVE PRESSURE</p> <p>▩ RETURN OR EXHAUST DUCT NEGATIVE PRESSURE</p> <p>AxB RECTANGULAR DUCT SIZE (*A* INDICATES SIDE SHOWN; *B* INDICATES SIDE NOT SHOWN)</p> <p>A/B FLAT OVAL DUCT SIZE (*A* INDICATES SIDE SHOWN; *B* INDICATES SIDE NOT SHOWN)</p> <p>∅ ROUND DUCT SIZE</p> <p>--- EXTERNALLY INSULATED DUCTWORK</p> <p>┌┐ DUCT ELBOW WITH TURNING VANES</p> <p>┌┐ RADIUS DUCT ELBOW</p> <p>┌┐ FLEXIBLE DUCT CONNECTION</p> <p>┌┐ MANUAL VOLUME BALANCING DAMPER</p> <p>▨▨ HIGH PRESSURE DUCTWORK</p> <p>▩▩ DOUBLE WALL HIGH PRESSURE DUCTWORK</p> <p>▨▨ FABRIC DISPERSION DUCTWORK</p> <p>▩▩ DOUBLE WALL SPIRAL DUCTWORK</p> <p>⌘ GATE VALVE</p> <p>⌘ BUTTERFLY VALVE</p> <p>⌘ TWO-WAY CONTROL VALVE</p> <p>⌘ THREE-WAY CONTROL VALVE</p> <p>⌘ STRAINER WITH BLOW DOWN VALVE AND CAP</p> <p>⌘ THERMOMETER</p> <p>⌘ THERMOMETER WELL OR PRESSURE TEMPERATURE PORT AS INDICATED</p> <p>VFD VARIABLE FREQUENCY DRIVE</p> <p>DDC DIGITAL CONTROLS ENCLOSURE</p> <p>⌘ BUTTERFLY VALVE - VALVE HANDLE OPENS IN DIRECTION OF FLOW HANDLE</p> <p>⌘ BALL VALVE - VALVE HANDLE OPENS IN DIRECTION OF FLOW</p> <p>R REFRIGERANT PIPE</p> <p>HPS HIGH PRESSURE STEAM</p> <p>LPS LOW PRESSURE STEAM</p> <p>SC STEAM CONDENSATE</p> <p>PC PUMPED CONDENSATE</p> <p>⌘ STEAM TRAP</p> | <p>M MOTORIZED DAMPER</p> <p>FD FIRE DAMPER WITH ACCESS DOOR</p> <p>SD SMOKE DAMPER WITH ACCESS DOOR</p> <p>FSD FIRE/SMOKE DAMPER WITH ACCESS DOOR</p> <p>BD BACKDRAFT DAMPER</p> <p>TE TEE WITH TURNING VANES AND BALANCING DAMPERS IN EACH LEG</p> <p>FLEX FLEX DUCT TAKE OFF WITH MVD RUNOUT SIZE EQUALS DIFFUSER NECK SIZE UNLESS OTHERWISE INDICATED</p> <p>BD BRANCH DUCT TAKEOFF WITH MVD</p> <p>AV AUTOMATIC AIR VENT</p> <p>PC PRESSURE GAUGE AND 1/4" BALL VALVE</p> <p>AFM AIRFLOW MEASURING STATION</p> <p>SR-1 AIR DEVICE TAG. TOP LINE INDICATES TYPE OF DEVICE BOTTOM LINE INDICATES AIRFLOW IN CFM</p> <p>(2)SR-1 AIR DEVICE TAG. TOP LINE INDICATES TYPE OF DEVICE BOTTOM LINE INDICATES AIRFLOW IN CFM (2) INDICATES TYPICAL OF TWO DEVICES</p> <p>SR-E EXISTING AIR DEVICE TAG. TOP LINE INDICATES TYPE OF DEVICE BOTTOM LINE INDICATES AIRFLOW IN CFM</p> <p>U UNION</p> <p>LPS LOW PRESSURE SUPPLY</p> <p>HPS HIGH PRESSURE SUPPLY</p> <p>XFR TRANSFER</p> <p>EH ELECTRIC HEATER</p> <p>TF TRANSFER FAN</p> <p>APD AIR PRESSURE DROP</p> <p>□ POINT OF CONNECTION TO EXISTING</p> <p>▨ HIGH PRESSURE DUCTWORK</p> <p>▩ LOW PRESSURE SUPPLY DUCTWORK</p> <p>--- RETURN DUCTWORK</p> <p>--- EXHAUST DUCTWORK</p> <p>--- OUTSIDE AIR DUCTWORK</p> | <p>TYP TYPICAL</p> <p>TEMP TEMPERATURE</p> <p>SA SUPPLY AIR</p> <p>RA RETURN AIR</p> <p>EA EXHAUST AIR</p> <p>OA OUTDOOR AIR</p> <p>TA TRANSFER AIR</p> <p>EF EXHAUST FAN</p> <p>CD CEILING DIFFUSER</p> <p>RG RETURN GRILLE</p> <p>EG EXHAUST GRILLE</p> <p>SWG SIDEWALL SUPPLY GRILLE</p> <p>L LOUVER</p> <p>CEF CEILING EXHAUST FAN</p> <p>AHU INDOOR AIR HANDLING UNIT</p> <p>CHWP CHILLED WATER PUMP</p> <p>HWP HEATING HOT WATER PUMP</p> <p>T THERMOSTAT, *1* INDICATES UNIT CONTROLLED.</p> <p>Ⓢ DUCT MOUNTED SMOKE DETECTOR</p> <p>UC UNDERCUT DOOR 1/2"</p> <p>16x16 DOOR GRILL</p> <p>N.I.C. NOT IN CONTRACT</p> <p>AFF ABOVE FINISHED FLOOR</p> <p>FD FLOOR DRAIN</p> <p>TC TRANSFER GRILLE</p> <p>SC SOFFIT GRILLE</p> <p>SWS SIDEWALL SUPPLY GRILLE</p> <p>SWR SIDEWALL RETURN GRILLE</p> <p>DDC DIRECT DIGITAL CONTROL</p> <p>CHW CHILLED WATER</p> <p>CHWS CHILLED WATER SUPPLY</p> <p>CHWR CHILLED WATER RETURN</p> <p>HW HOT WATER</p> <p>HWS HOT WATER SUPPLY</p> <p>HWR HOT WATER RETURN</p> <p>NO NORMALLY OPEN</p> <p>NC NORMALLY CLOSED</p> <p>VEM VENTURI FLOW MEIER</p> <p>AI ANALOG INPUT</p> <p>AO ANALOG OUTPUT</p> <p>DI DIGITAL INPUT</p> <p>DO DIGITAL OUTPUT</p> <p>TAB TESTING, ADJUSTING AND BALANCING</p> <p>TU TERMINAL UNIT</p> <p>NOM NOMINAL</p> <p>VFD VARIABLE FREQUENCY DRIVE</p> <p>E EXISTING</p> <p>FCU FAN COIL UNIT</p> <p>FD HORIZONTAL FIRE DAMPER</p> <p>BCU BLOWER COIL UNIT</p> <p>MVD MANUAL VOLUME DAMPER</p> <p>UH UNIT HEATER</p> <p>Ⓜ HUMIDITY SENSOR</p> <p>Ⓢ SPEED CONTROLLER</p> <p>Ⓢ CARBON MONOXIDE SENSOR</p> <p>Ⓢ NITROGEN DIOXIDE SENSOR</p> <p>ZC ZONE CONTROLLER</p> <p>CREF CEILING ROOF EXHAUST FAN</p> |
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CARBON MONOXIDE AND NITROGEN DIOXIDE ZONE SENSOR SCHEDULE

| CONTROLLER | ZONE | EXHAUST FAN | SQUARE FEET |
|------------|------|-------------|-------------|
| 1 | 1 | EF-1-2 | 828.3 |

1. REFER TO SEQUENCE OF OPERATIONS.
2. PROVIDE HONEYWELL 301C 24 VOL/1 PHASE CONTROLLER.
3. PROVIDE SENSORS WITH UL 2075 LISTING.

VENTILATION SCHEDULE

| SPACE TYPE | VENTILATION CFM/S.F. | VENTILATION CFM/PERSON |
|------------------|----------------------|------------------------|
| OFFICE | 0.06 | 5 |
| CONFERENCE ROOM | 0.06 | 5 |
| RESTROOM | 0 | 50/FIXTURE |
| SHOWER | 0 | 20/FIXTURE |
| JANITORS CLOSETS | 1 | 0 |
| LOBBY | 0.06 | 5 |
| STORAGE | 0.06 | 5 |

NOTE: VENTILATION AIR HAS BEEN REDUCED IN COMPLIANCE WITH ASHRAE STANDARD 62.1-2019 INDOOR AIR QUALITY METHOD. THE INDOOR AIR QUALITY METHOD IS UTILIZED AS A MEANS OF REDUCTION IN OUTDOOR AIR AND IS SUBMITTED FOR APPROVAL AS AN ALTERNATE DESIGN IN ACCORDANCE WITH FBC 104.11. BIPOLAR IONIZATION IS UTILIZED TO CLEAN INDOOR AIR AND MAINTAIN ACCEPTABLE INDOOR AIR QUALITY WITH REDUCTION IN OUTDOOR AIR FLOW.

LOUVER SCHEDULE

| MARK | AIRFLOW CFM (MAX) | LOUVER SIZE (WxH) INCHES | FREE AREA FT² (MIN) |
|-----------|-------------------|--------------------------|---------------------|
| LVR-1 CFM | 470 | 16x24 | 1.07 |
| LVR-2 CFM | 1075 | 44x24 | 3.41 |
| LVR-3 CFM | 1415 | 44x44 | 6.94 |
| LVR-4 CFM | 2590 | 64x84 | 19.69 |

1. PROVIDE RUSKIN MODEL 'EME3625DF' (OR EQUAL) EXTRUDED ALUMINUM, WIND-DRIVEN RAIN RESISTANT, STATIONARY LOUVER WITH BIRDSCREEN AND FLORIDA PRODUCT APPROVAL.
2. FINISH TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD COLORS.

MINI SPLIT SYSTEM AIR HANDLING UNIT SCHEDULE

| UNIT | BASIS OF DESIGN | MODEL | TYPE | NOMINAL COOL CAPACITY (BTUH) | DESIGN COOLING EAT °F DB/WB | DESIGN COOLING CAPACITY (BTUH) COOLING TOTAL | DESIGN COOLING CAPACITY (BTUH) COOLING SENSIBLE | NOMINAL HEAT CAPACITY (BTUH) | DESIGN HEATING TOTAL CAPACITY (BTUH) | DESIGN HEATING EAT °F DB | AIRFLOW (CFM) | VOLTS/PHASE | FAN (WATTS) | FAN FLA (AMPS) | NOTES |
|--------|-----------------|------------|------------|------------------------------|-----------------------------|--|---|------------------------------|--------------------------------------|--------------------------|---------------|-----------------|-------------|----------------|-------------------|
| WM-2-1 | MITSUBISHI | PKA-A18LA1 | WALL MOUNT | 18000 | 72.6/44.8 | 6900 | 6900 | NA | NA | 25.0 | 450 | FED FROM CU-2-1 | 30 | 0.19 | 1,2,3,4,5,6,7,8,9 |

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| <ol style="list-style-type: none"> 1. NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 80/67°F (DB/WB), OUTDOOR OF 95°F (DB) 2. NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 70°F (DB), OUTDOOR OF 43°F (WB) | <ol style="list-style-type: none"> 3. DESIGN COOLING CONDITIONS ARE AT 95°F AMBIENT; DESIGN HEATING CONDITIONS ARE AT 26°F AMBIENT 4. DESIGN CAPACITY IS NET CAPACITY FOR INSTALLATION ACCOUNTING FOR 65 FT PIPE RUN LENGTHS, ETC. | <ol style="list-style-type: none"> 5. CALCULATE REFRIGERANT LINE SIZES BASED UPON FINAL FIELD PIPING LAYOUT. 6. EXPOSED (INDOOR OR OUTDOOR) REF PIPING SHALL BE HARD DRAWN COPPER. | <ol style="list-style-type: none"> 7. PROVIDE HARD WIRED REMOTE THERMOSTAT. 8. PROVIDE CONDENSATE PUMP. 9. PROVIDE DISCONNECT. |
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AIR PURIFICATION EQUIPMENT SCHEDULE

| ZONE | SUPPLY CFM | OA CFM | PRESS. IN. W.C. | BASIS OF DESIGN | MODEL | QUANTITY | ELECTRICAL | | NOTES |
|---------|------------|--------|-----------------|-----------------|----------|----------|-------------|-------|---------|
| | | | | | | | VOLTS/PHASE | WATTS | |
| AHU-1-1 | 10125 | 1415 | <0.01 | GPS | GPS-IMOD | 1 | 120/1 | 14.4 | 1,2,3,4 |
| AHU-2-1 | 16850 | 2590 | <0.01 | GPS | GPS-IMOD | 1 | 120/1 | 14.4 | 1,2,3,4 |

1. PROVIDE PRODUCT BY BASIS OF DESIGN, GLOBAL PLASMA SOLUTIONS OR NU-CALCON.
2. PROVIDE BASIS OF DESIGN OR EQUAL LISTED IN SPECIFICATIONS.
3. BI-POLAR IONIZATION SYSTEMS REQUIRING PERISHABLE GLASS TUBES ARE NOT ACCEPTABLE.
4. MANUFACTURER MUST PASS UL-867-2007 OZONE CHAMBER TESTING BY EITHER UL OR ETL.

GENERAL NOTES

1. ALL DUCT DIMENSIONS ARE NET INSIDE.
2. VERIFY COLLAR SIZES ON ALL AIR TERMINALS, EQUIPMENT OUTLETS AND INLETS. TRANSITION DUCTWORK AS NECESSARY. EXTERNALLY INSULATE TRANSITIONS AT EQUIPMENT CONNECTIONS.
3. FIELD VERIFY CLEAR SPACE AVAILABLE, ROUTING PATH, AND CONFLICTS WITH STRUCTURE AND THE WORK OF OTHER TRADES PRIOR TO FABRICATING DUCTWORK. PROVIDE OFFSETS IN DUCTWORK AS REQUIRED, WHETHER SPECIFICALLY INDICATED ON DRAWINGS OR NOT. SUBMIT SHOP DRAWINGS ON DUCTWORK LAYOUT PRIOR TO COMMENCING WORK. MAINTAIN CLEARANCE AROUND ALL LIGHT FIXTURES AS REQUIRED TO REMOVE AND SERVICE FIXTURES. COORDINATE WITH ROOF TRUSSES/STRUCTURE. PRESSURE TEST ALL DUCTWORK FOR LEAKS. SEE SPECIFICATIONS.
4. CONTRACTOR SHALL INSTALL ALL EQUIPMENT, PIPING, AND DUCTWORK SUCH THAT MANUFACTURERS' RECOMMENDED CLEARANCES ARE MET FOR ALL ACCESS PANELS, MOTORS, FANS, BELTS, FILTERS AND AIR INTAKES. CONDENSATE LINES SHALL BE CLEAR OF FILTER RACK ACCESS.
5. PROVIDE DUCT FLEX CONNECTIONS & VIBRATION ISOLATION FOR ALL UNITS NOT INTERNALLY ISOLATED.
6. WASTE VENT STACKS, EXHAUST FANS, ETC. SHALL BE A MINIMUM OF 10 FT. FROM OUTSIDE AIR INTAKES.
7. ALL SUPPLY, RETURN, EXHAUST AND OUTSIDE AIR INTAKE DUCTWORK SHALL BE GALVANIZED SHEET METAL.
8. ALL AHU FILTERS SHALL BE OF A READILY AVAILABLE SIZE, OF DISPOSABLE TYPE, AND BE ACCESSIBLE WITHOUT THE USE OF SCREWS OR OTHER MECHANICAL DEVICES REQUIRING TOOLS.
9. PROVIDE ACCESS PANELS IN HARD CEILINGS AS REQUIRED FOR MAINTENANCE AND ADJUSTMENT OF EQUIPMENT LOCATED ABOVE CEILING.
10. ALL BIRD AND INSECT SCREENS SHALL BE ANODIZED ALUMINUM.
11. BECAUSE OF THE SMALL SCALE OF CONTRACT DOCUMENTS IT IS NOT POSSIBLE TO SHOW ALL OFFSETS, TRANSITIONS, ETC. THE CONTRACT DOCUMENTS ARE ESSENTIALLY DIAGRAMATIC. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS COORDINATED WITH THE STRUCTURE AND ARCHITECTURAL WORK FOR REVIEW PRIOR TO COMMENCING WORK.
12. THIS PROJECT SHALL INCLUDE COMMISSIONING OF THE HVAC, CONTROLS, AND RELATED ELECTRICAL SYSTEMS. UNDER THIS CONTRACT, THE PRIME CONTRACTOR, SUBCONTRACTORS, AND EQUIPMENT MANUFACTURERS SHALL PROVIDE LABOR AND MATERIAL AS REQUIRED TO ASSIST AND PARTICIPATE IN THE COMMISSIONING PROCESS FOR THE SCOPE OF WORK AS DESCRIBED IN SECTION 230800 OF THE PROJECT SPECIFICATIONS.
13. ALL WORK SHALL COMPLY WITH 2023 FLORIDA BUILDING CODE (8TH EDITION).

DUCTWORK AND INSULATION GENERAL NOTES

1. ALL ROUND FLEXIBLE DUCT SHALL BE FLEXMASTER TYPE 8M OR ENGINEER APPROVED EQUAL. MAXIMUM LENGTH OF ANY FLEXIBLE DUCT RUNOUT SHALL BE 5'-0". WHERE LENGTH REQUIRED EXCEEDS 5'-0", INSTALL EXTERNALLY INSULATED ROUND SNAPLOCK DUCT FOR BALANCE OF DISTANCE TO SPIN-IN TAP AT MAIN DUCT TRUNK.
2. SEAL ALL DUCT PENETRATIONS OF WALLS AND FLOORS AIRTIGHT, REGARDLESS OF WHETHER WALLS AND FLOORS ARE FIRE RATED OR NOT.
3. UNLESS OTHERWISE INDICATED, ALL SUPPLY AIR DUCTWORK UPSTREAM OF TERMINAL UNITS SHALL BE OVAL OR ROUND, SMACNA STATIC PRESSURE CLASS 3" W.G., SEAL CLASS A, SPIRAL. DUCT SIZES INDICATED ARE INSIDE CLEAR DIMENSIONS.
4. ALL SUPPLY AIR DUCTWORK DOWNSTREAM OF TERMINAL UNITS (EXCEPT TAKEOFFS TO SUPPLY AIR DIFFUSERS) SHALL BE LOW PRESSURE RECTANGULAR, SMACNA STATIC PRESSURE CLASS 2" W.G., SEAL CLASS A, EXTERNALLY INSULATED. DUCT SIZES INDICATED ARE INSIDE CLEAR DIMENSIONS.
5. ALL RETURN AIR DUCTWORK SHALL BE LOW PRESSURE RECTANGULAR, SMACNA STATIC PRESSURE CLASS 2" W.G., SEAL CLASS A, EXTERNALLY INSULATED. DUCT SIZES INDICATED ARE INSIDE CLEAR DIMENSIONS. PROVIDE ACOUSTICAL DUCT LINER WHERE INDICATED.
6. ALL OUTSIDE AIR INTAKE DUCTWORK SHALL BE LOW PRESSURE RECTANGULAR, SMACNA STATIC PRESSURE CLASS 2" W.G., SEAL CLASS A, EXTERNALLY INSULATED. DUCT SIZES INDICATED ARE INSIDE CLEAR DIMENSIONS.
7. STANDARD EXHAUST AIR DUCTWORK SHALL BE LOW PRESSURE RECTANGULAR, SMACNA STATIC PRESSURE CLASS 1/2" W.G., SEAL CLASS A, INSULATION NOT REQUIRED.
8. AVOID ROUTING DUCTWORK AND TL'S WITHIN 6" OF TOP OF LIGHT FIXTURES WHEREVER POSSIBLE. MAINTAIN CLEARANCE BETWEEN TL'S AND DUCT INSULATION TO TOP OF LIGHTS. PROVIDE CLEARANCE ALL AROUND AIR TERMINAL UNITS AS REQUIRED FOR ROUTINE MAINTENANCE.
9. PROVIDE MVD'S AT ALL TAKEOFFS FROM MAIN DUCTS.
10. TAKEOFFS TO AIR DEVICES FROM BOTTOM OF DUCT IS PROHIBITED.
11. ALL DUCTWORK AND AIR DEVICES IN EXPOSED AREAS SHALL BE PAINTED. REFER TO ARCHITECTURAL FOR COLOR.

REVISIONS

| NO. | DESCRIPTION | DRAWN | CHECKED | DATE |
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PHASE

| PHASE | DRAWN | CHECKED | DATE |
|--------------------------------------|-------|---------|----------|
| SCHEMATIC DESIGN SUBMITTAL | | | 05/31/24 |
| DESIGN DEVELOPMENT | ISL | KAJ | 08/06/24 |
| 10% CONSTRUCTION DOCUMENTS | ISL | KAJ | 12/20/24 |
| CONSTRUCTION DOCUMENTS (Rev. 3/1/25) | ISL | KAJ | 03/07/25 |

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PROJECT:
HOWARD HALL RENOVATIONS
FLORIDA A&M UNIVERSITY
TALLAHASSEE, FLORIDA

SHEET TITLE:
HVAC LEGEND, SCHEDULES, AND NOTES

SHEET NUMBER:
M0.1

CUSTOM AIR HANDLING UNIT SCHEDULE

| UNIT DESIGNATION | TYPE | FAN TYPE | FAN DATA | | | | | | | CHILLED WATER COIL DATA | | | | | | | | | | FILTER SECTION | | | WEIGHT (LBS) | NOTES | | | | | |
|------------------|------|----------|--------------------|---------------------|---------------------|----------------------|------------------------|---------------------|------------------------------|-------------------------|--------------------------|---------------------------|------------------------------|-------------|---------|---------|------------|------------|----------|-------------------|-----------------------------------|-----------------------------|--------------|---------|-------------------|--------------------|----------------|------|----------------------------|
| | | | AIR VOLUME CONTROL | MAX. AIR FLOW (CFM) | MIN. AIR FLOW (CFM) | MIN. OA DAMPER (CFM) | APPROX. ESP (IN. W.G.) | TOTAL SP (IN. W.G.) | MAXIMUM FAN MOTOR HORSEPOWER | NOM. MOTOR RPM | MAX. FACE VELOCITY (FPM) | UNIT TOTAL CAPACITY (MBH) | UNIT SENSIBLE CAPACITY (MBH) | AIR SIDE | | | | WATER SIDE | | | | | | | TYPE | FILTER EFF. (MERV) | THICKNESS (IN) | | |
| | | | | | | | | | | | | | EAT (°F) DB | LAT (°F) WB | (°F) DB | (°F) WB | FLOW (GPM) | EWI (°F) | LWT (°F) | MAX. WPD (FT H2O) | CONTROL VALVE (BY DDC CONTRACTOR) | CONTROL VALVE PRESSURE DROP | | | | | | | |
| AHU-1-1 | HDT | PF | VAV | 10125 | 3045 | 1415 | 3.75 | 6.35 | (2) 10.0 | 3600 | 500 | 366.6 | 256.0 | 75.6 | 63.5 | 50.4 | 49.4 | 61.1 | 45 | 57 | 5.0 | | 2-WAY | 11.5 FT | CARTRIDGE/PLEATED | 15/8 | 12/2 | 3655 | 1,2,3,4,5,6,7,8,9,10,11,12 |
| AHU-2-1 | HDT | PF | VAV | 16850 | 5055 | 2590 | 4.04 | 7.35 | (2) 20.0 | 1800 | 515 | 611.1 | 463.6 | 76.0 | 62.1 | 48.9 | 47.8 | 101.9 | 45 | 57 | 14.2 | | 2-WAY | 11.5 FT | CARTRIDGE/PLEATED | 15/8 | 12/2 | 4765 | 1,2,3,4,5,6,7,8,9,10,11,12 |

SCHEDULE LEGEND:

HDT - HORIZONTAL DRAW THRU
 SDU - STACKED DEHUMIDIFICATION UNIT
 FC - FORWARD CURVED
 PF - PLENUM FAN
 BC - BACKWARD CURVED

SZVAV - VARIABLE AIR VOLUME, SINGLE ZONE
 VAV - VARIABLE AIR VOLUME, MULTIPLE ZONES
 CV - CONSTANT VOLUME

SCHEDULE NOTES:

- ESP DOES NOT INCLUDE PRESSURE DROP THROUGH AHU CASING OR COILS.
- TOTAL SP INCLUDES PRESSURE DROP THROUGH CASING AND COILS.

SCHEDULE NOTES:

- AVERAGE ATMOSPHERIC DUST SPOT EFFICIENCY BASED ON ASHRAE 52-76.
- BASIS OF DESIGN: IRANE PSCA
- 30% PRE FILTERS AND SPECIFIED FINAL FILTERS.
- VARIABLE FREQUENCY DRIVE WITH 3 CONTACT BYPASS AND BUILT IN

SCHEDULE NOTES:

- DISCONNECT FOR FAN MOTOR PROVIDED BY DDC CONTRACTOR
- 208V/3 PHASE
- MAXIMUM DIMENSIONS OF SHIPPING SECTIONS TO BE 6'-8"x7'-6".
- PROVIDE FAN ARRAY WITH TWO TOTAL FANS

SCHEDULE NOTES:

- MAXIMUM FAN HP IS LISTED PER FAN.
- PROVIDE UV LIGHTS FOR AIR STREAM DISINFECTION WITH 120V ELECTRICAL CONNECTION. UVDI V-MAX GRID OR APPROVED EQUAL. PROVIDE DOOR SAFETY SWITCH.
- PROVIDE 7 ROWS OF UV LIGHTS.

SCHEDULE NOTES:

EACH CONSISTING OF ONE 21" LIGHT AND ONE 61" LIGHT.

PIPING GENERAL NOTES

- BUTTERFLY VALVES INDICATED FOR FLOW BALANCING AND SHUT OFF SERVICE SHALL BE PROVIDED WITH INFINITE POSITION THROTTLING HANDLE AND MEMORY STOP. AFTER HYDRONIC TEST AND BALANCE HAS BEEN COMPLETED, THE CONTRACTOR SHALL POSITION THE MEMORY STOP AT THE FINAL BALANCE POINT OF EACH VALVE. PROVIDE STAMPED ALUMINUM TAG FOR EACH VALVE INDICATING "BALANCING VALVE - DO NOT REMOVE MEMORY STOP - RETURN TO BALANCE SETTING."
- PROVIDE AIR CHAMBER AND AUTOMATIC AIR VENTS AT ALL HIGH POINTS IN SYSTEM, PIPE TO FLOOR DRAIN WITH COPPER TUBING. SEE "TYPICAL AIR CHAMBER DETAIL."
- BUTTERFLY VALVES FOR SHUT OFF SERVICE SHALL BE PROVIDED WITH STAMPED ALUMINUM TAG INDICATING "SERVICE VALVE."
- ALL CONNECTIONS TO AIR VENTS AND PRESSURE GAGES SHALL BE MADE WITH BRASS PIPING.
- INSTALL PIPE HANGERS NEXT TO AND ON BOTH SIDES OF ALL EQUIPMENT.
- SEAL ALL PIPE PENETRATIONS OF WALLS AND FLOORS AIR TIGHT REGARDLESS OF WHETHER WALLS OR FLOORS ARE FIRE RATED OR NOT.
- UNDERGROUND CHILLED WATER PIPING SHALL BE FACTORY FABRICATED PREINSULATED PLASTIC CARRIER PIPE WITH POLYURETHANE INSULATION AND HDPE JACKET.
- REFER TO ARCHITECTURAL LIFE SAFETY PLANS FOR LOCATIONS OF ALL FIRE AND SMOKE WALLS. REFER TO M3.2, M3.3 AND M3.4 FOR FIRE AND SMOKE WALL PENETRATION DETAILS.
- PROVIDE TRAINING OF PP-RCT PIPE MAINTENANCE AND INSTALL AND TOOLS TO BE TURNED OVER TO FAMU MAINTENANCE DEPARTMENT.

PUMP SCHEDULE

| DESIGNATION | CHWP-1 | CHWP-2 |
|------------------------|-----------------------------|-----------------------------|
| USE | CHILLED WATER DISTRIBUTION | CHILLED WATER DISTRIBUTION |
| MANUFACTURER - MODEL | BELL & GOSSETT - E-1510-2EB | BELL & GOSSETT - E-1510-2EB |
| TYPE | FRAME MOUNTED | FRAME MOUNTED |
| SUCTION SIZE (IN.) | 3 | 3 |
| DISCHARGE SIZE (IN.) | 2 | 2 |
| PUMP TYPE | END SUCTION | END SUCTION |
| CAPACITY (GPM) | 163.0 | 163.0 |
| TOTAL HEAD (FT. H2O) | 89.7 | 89.7 |
| RPM | 1800 | 1800 |
| MINIMUM EFFICIENCY (%) | 68.2 | 68.2 |
| MOTOR HP (MAX) | 7.5 | 7.5 |
| VOLTAGE/PHASE | 208/3 | 208/3 |

- NOTES:
 1. ALL PUMPS SHALL BE BRONZE FITTED.
 2. ALL PUMPS SHALL HAVE ENERGY EFFICIENT INVERTER READY MOTORS.

FAN SCHEDULE

| UNIT | TYPE | CFM | MAX. FAN RPM | ESP (IN. H2O) | MAX. MOTOR POWER | SONES/db (MAX.) | BASIS OF DESIGN | MODEL | CONTROL | ELECTRICAL VOLTS/PHASE | NOTES |
|--------|--------|------|--------------|---------------|------------------|-----------------|-----------------|---------------|-------------------------|------------------------|---------------|
| EF-1-1 | INLINE | 1060 | 1847 | 0.87 | 1 HP | 10.9 | GREENHECK | SO-9-M1-VG | DDC CONTROLLED | 115/1 | 1,2,3,4,5,7 |
| EF-1-2 | WALL | 625 | 1237 | 0.26 | 1/4 HP | 6.3 | GREENHECK | SE1-12-432-VG | DDC CONTROLLED | 115/1 | 1,4,9,10,11 |
| EF-2-1 | INLINE | 1075 | 1628 | 0.56 | 1/4 HP | 10.0 | GREENHECK | SO-9-M1-VG | DDC CONTROLLED | 115/1 | 1,2,3,4,5,7 |
| EF-2-2 | CEF | 120 | 846 | 0.35 | 128 WATTS | 1.5 | GREENHECK | SP-B150 | INTERLOCKED WITH LIGHTS | 115/1 | 1,2,3,4,5,7,8 |
| EF-2-3 | CEF | 120 | 844 | 0.34 | 128 WATTS | 1.4 | GREENHECK | SP-B150 | INTERLOCKED WITH LIGHTS | 115/1 | 1,2,3,4,5,7,8 |
| EF-2-4 | CEF | 100 | 701 | 0.35 | 23 WATTS | 1.5 | GREENHECK | SP-A200 | INTERLOCKED WITH LIGHTS | 115/1 | 1,2,3,4,5,7,8 |
| EF-2-5 | CEF | 30 | 807 | 0.33 | 10 WATTS | 0.4 | GREENHECK | SP-A70 | INTERLOCKED WITH LIGHTS | 115/1 | 1,2,3,4,5,7,8 |
| EF-2-6 | CEF | 115 | 634 | 0.27 | 17 WATTS | 1.2 | GREENHECK | SP-A200 | INTERLOCKED WITH LIGHTS | 115/1 | 1,2,3,4,5,7,8 |

- PROVIDE DISCONNECT
- PROVIDE SOLID STATE SPEED CONTROLLER.
- PROVIDE BACK DRAFT DAMPER
- PROVIDE THERMAL OVERLOAD
- PROVIDE DIRECT DRIVE FAN
- PROVIDE 10 MINUTE TIME DELAY
- PROVIDE ECM FAN MOTOR WITH EXTERNAL SIGNAL SPEED CONTROL.
- PROVIDE ALUMINUM CEILING GRILLE.
- PROVIDE VIBRATION ISOLATION HANGERS.
- PROVIDE WALL HOUSING WITH OSHA FAN GUARD AND MOTORIZED SHUTTER.
- BELT DRIVEN FAN.

MINI SPLIT SYSTEM CONDENSING UNIT SCHEDULE

| UNIT | BASIS OF DESIGN | MODEL | NOMINAL COOL CAPACITY (BTUH) | DESIGN COOLING OUTDOOR TEMP DB | SEER2 | NOMINAL HEAT CAPACITY (BTUH) | DESIGN HEATING OUTDOOR TEMP DB | HSPF2 | VOLTS/PHASE | MCA (AMPS) | MOP (AMPS) | NOTES |
|--------|-----------------|------------|------------------------------|--------------------------------|-------|------------------------------|--------------------------------|-------|-------------|------------|------------|-------|
| CU-2-1 | MITSUBISHI | PUY-A18KA7 | 18000 | 95.0 | 20.2 | NA | 25 | NA | 208/1 | 11.0 | 28 | 1,2,3 |

- NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 80/67°F (DB/WB), OUTDOOR OF 95°F (DB)
- NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 70°F (DB), OUTDOOR OF 45°F (WB)
- EFFICIENCY VALUES FOR EER, IEER, AND COP ARE BASED ON AHRI 1230 TEST METHOD FOR MIXTURE OF DUCTED AND NON-DUCTED INDOOR UNITS.

AIR DEVICE SCHEDULE

| MARK | MAX AIRFLOW CFM | AIR DEVICE SIZE | DUCT CONNECTION SIZE | TITUS MODEL |
|--------------------------|-----------------|-----------------|----------------------|-------------|
| CD-1 CFM | 80 | 9x9 | 60 | TDC |
| CD-2 CFM | 245 | 12x12 | 80 | TDC |
| CD-3 CFM | 350 | 12x12 | 100 | TDC |
| CD-4 CFM | 470 | 15x15 | 120 | TDC |
| SWG-1 CFM | 210 | 8x6 | 8x6 | 272FL |
| SWG-2 CFM | 400 | 12X8 | 12X8 | 272FL |
| RG,EG,SG,IG,RR,ER | | | | |
| xx-1 CFM | 450 | 12x12 | 12x12 | 350FL |
| xx-2 CFM | 1705 | 22x22 | 22x22 | 350FL |
| xx-3 CFM | 450 | 8x6 | 8x6 | 350FL |
| xx-4 CFM | 350 | 12x8 | 12x8 | 350FL |
| xx-5 CFM | 930 | 18x14 | 18x14 | 350FL |
| xx-6 CFM | 2890 | 42x20 | 42x20 | 350FL |

- NOTES:
 1. MAX NC=20
 2. PROVIDE 2x2 LAY IN PANEL FOR AIR DEVICES IN LAY IN CEILINGS.
 3. PROVIDE BEVELED MOUNTING FRAME FOR CEILING DIFFUSERS IN HARD CEILINGS.
 4. PROVIDE FLAT MOUNTING FRAME FOR GRILLES LOCATED IN HARD CEILINGS.

TERMINAL UNIT SCHEDULE NOTES:

- ALL VAV TERMINAL UNITS SHALL BE PRESSURE INDEPENDENT.
- PROVIDE ALL VAV TERMINAL UNITS WITH ACCESS PANEL TO ALLOW SERVICING OF AIR VALVE WITHOUT DISCONNECTING DUCT WORK.
- PROVIDE ALL VAV TERMINAL UNITS WITH FOIL FACED INSULATION.
- SOUND DATA FOR DISCHARGE NC BASED ON 10 dB ROOM ABSORPTION, 15' UNLINED DUCT (12"x12") WITH 1 ELBOW, 5' LINED FLEX DUCT (8") TO DIFFUSER, 8" END REFLECTION, 5000 CUBIC FOOT ROOM VOLUME, DISTANCE OF 8", AND MAX 300 CFM PER DIFFUSER.
- SOUND DATA FOR RADIATED NC BASED ON 10 dB ROOM ABSORPTION, 3" DEEP CEILING CAVITY, AND 5/8" THICK, 20 LB/CU. FT. FIBER CEILING TILE.
- PROVIDE VAV TERMINAL UNITS WITH FACTORY MULTIPOINT FLOW SENSOR.
- PROVIDE FACTORY MOUNTED CONTROLS TRANSFORMER AT VOLTAGE SHOWN IN SCHEDULE TO SUPPLY 24 VOLT POWER TO DAMPER ACTUATOR AND CONTROLS.

VARIABLE AIR VOLUME TERMINAL UNIT SCHEDULE

| MARK | TOTAL CFM | COOL CFM MIN. | HEATING CFM MAX. | ELECTRIC HEATING COIL | | | | | | SOUND POWER AT 0.5' | | | INLET SIZE (IN.) | MANUFACTURER | MODEL NUMBER | |
|-----------|-----------|---------------|------------------|-----------------------|------|------|-------------|------|-----|---------------------|----------|--------------|------------------|--------------|--------------|-------------|
| | | | | EAT | LAT | KW | VOLTS/PHASE | MCA | MOP | MAX UNIT APD (IN.) | REF. CFM | DISCHARGE NC | | | | RADIATED NC |
| | | | | (°F) | (°F) | | | | | | | | | | | |
| TU-2-1.1 | 815 | 245 | 245 | 46.0 | 85 | 3.0 | 208/3 | 10.4 | 15 | 0.3 | 815 | 23 | 20 | 9 | TITUS | DESV |
| TU-2-1.2 | 435 | 130 | 390 | 46.0 | 85 | 5.0 | 208/3 | 17.3 | 20 | 0.3 | 435 | - | 22 | 7 | TITUS | DESV |
| TU-2-1.3A | 1565 | 470 | 470 | 46.0 | 85 | 6.0 | 208/3 | 20.8 | 25 | 0.3 | 1565 | - | 25 | 12 | TITUS | DESV |
| TU-2-1.3B | 1565 | 470 | 470 | 46.0 | 85 | 6.0 | 208/3 | 20.8 | 25 | 0.3 | 1565 | - | 25 | 12 | TITUS | DESV |
| TU-2-1.3C | 1565 | 470 | 470 | 46.0 | 85 | 6.0 | 208/3 | 20.8 | 25 | 0.3 | 1565 | - | 25 | 12 | TITUS | DESV |
| TU-2-1.4 | 885 | 265 | 360 | 46.0 | 85 | 4.5 | 208/3 | 15.6 | 20 | 0.3 | 885 | 14 | 22 | 9 | TITUS | DESV |
| TU-2-1.5 | 1125 | 340 | 370 | 46.0 | 85 | 5.0 | 208/3 | 17.3 | 20 | 0.3 | 1125 | - | 22 | 12 | TITUS | DESV |
| TU-2-1.6 | 1060 | 320 | 370 | 46.0 | 85 | 5.0 | 208/3 | 17.3 | 20 | 0.3 | 1060 | 10 | 22 | 12 | TITUS | DESV |
| TU-2-1.7 | 1525 | 450 | 1105 | 46.0 | 85 | 14.0 | 208/3 | 48.6 | 50 | 0.3 | 1525 | 10 | 25 | 12 | TITUS | DESV |
| TU-2-1.8 | 955 | 285 | 290 | 46.0 | 85 | 4.0 | 208/3 | 13.9 | 15 | 0.3 | 955 | 10 | 23 | 9 | TITUS | DESV |
| TU-2-1.9 | 690 | 210 | 360 | 46.0 | 85 | 4.5 | 208/3 | 15.6 | 20 | 0.3 | 690 | - | 24 | 8 | TITUS | DESV |
| TU-2-1.10 | 1445 | 435 | 470 | 46.0 | 85 | 6.0 | 208/3 | 20.8 | 25 | 0.3 | 1445 | - | 24 | 12 | TITUS | DESV |
| TU-2-1.11 | 915 | 275 | 275 | 46.0 | 85 | 3.5 | 208/3 | 12.1 | 15 | 0.3 | 915 | - | 22 | 9 | TITUS | DESV |
| TU-2-1.12 | 1370 | 410 | 780 | 46.0 | 85 | 10.0 | 208/3 | 34.7 | 35 | 0.3 | 1370 | - | 24 | 12 | TITUS | DESV |
| TU-2-1.13 | 935 | 280 | 435 | 46.0 | 85 | 5.5 | 208/3 | 19.1 | 20 | 0.3 | 935 | - | 23 | 9 | TITUS | DESV |

REVISIONS

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| SCHEMATIC DESIGN SUBMITTAL | | | 05/31/24 |
| DESIGN DEVELOPMENT | ISL | KAJ | 08/06/24 |
| 10% CONSTRUCTION DOCUMENTS | ISL | KAJ | 12/20/24 |
| CONSTRUCTION DOCUMENTS (Rev. 3/11/25) | ISL | KAJ | 03/07/25 |

JRA ARCHITECTS 2551 BLAIRSTONE PINES DR.
 TALLAHASSEE, FL 32301
 PHONE: (850) 878-1891
 Commission Number: 24849

CONSULTANTS:

WATFORD ENGINEERING

4402 Orion Street, Tallahassee, Florida 32346 Florida Certificate of Authorization: 27825
 850.926.3447 Project Number: 20240107 Keith A. Johnson, PE Florida License #66617

PROJECT:
HOWARD HALL RENOVATIONS
FLORIDA A&M UNIVERSITY
 TALLAHASSEE, FLORIDA

SHEET TITLE:
HYAC SCHEDULES

SHEET NUMBER:
M02

SHEET NOTES

- ① PROVIDE 18"x44" WALL ACCESS DOOR. COORDINATE WITH ARCHITECT COLOR OF DOOR.
- ② REFER TO M2.2 FOR CONTINUATION OF REFRIGERANT TO FLOOR ABOVE.
- ③ OFFSET REFRIGERANT UP ABOVE CEILING OF ELEC 101A.
- ④ CAP, SEAL, AND INSULATE REMAINING BACK AREA OF LOUVER. MATCH TO EXISTING SURROUNDING CONDITIONS.

REVISIONS

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PHASE

| NO. | DESCRIPTION | DRAWN | CHECKED | DATE |
|-----|---------------------------------------|-------|---------|----------|
| 1 | SCHEMATIC DESIGN SUBMITTAL | | | 05/31/24 |
| 2 | DESIGN DEVELOPMENT | ISL | KAJ | 08/06/24 |
| 3 | 10% CONSTRUCTION DOCUMENTS | ISL | KAJ | 12/20/24 |
| 4 | CONSTRUCTION DOCUMENTS (Rev. 3/11/25) | ISL | KAJ | 03/07/25 |

JRA ARCHITECTS 2551 BLAIRSTONE PINES DR.
TALLAHASSEE, FL 32301
PHONE: (850) 878-1891
Commission Number: 24849

CONSULTANTS:

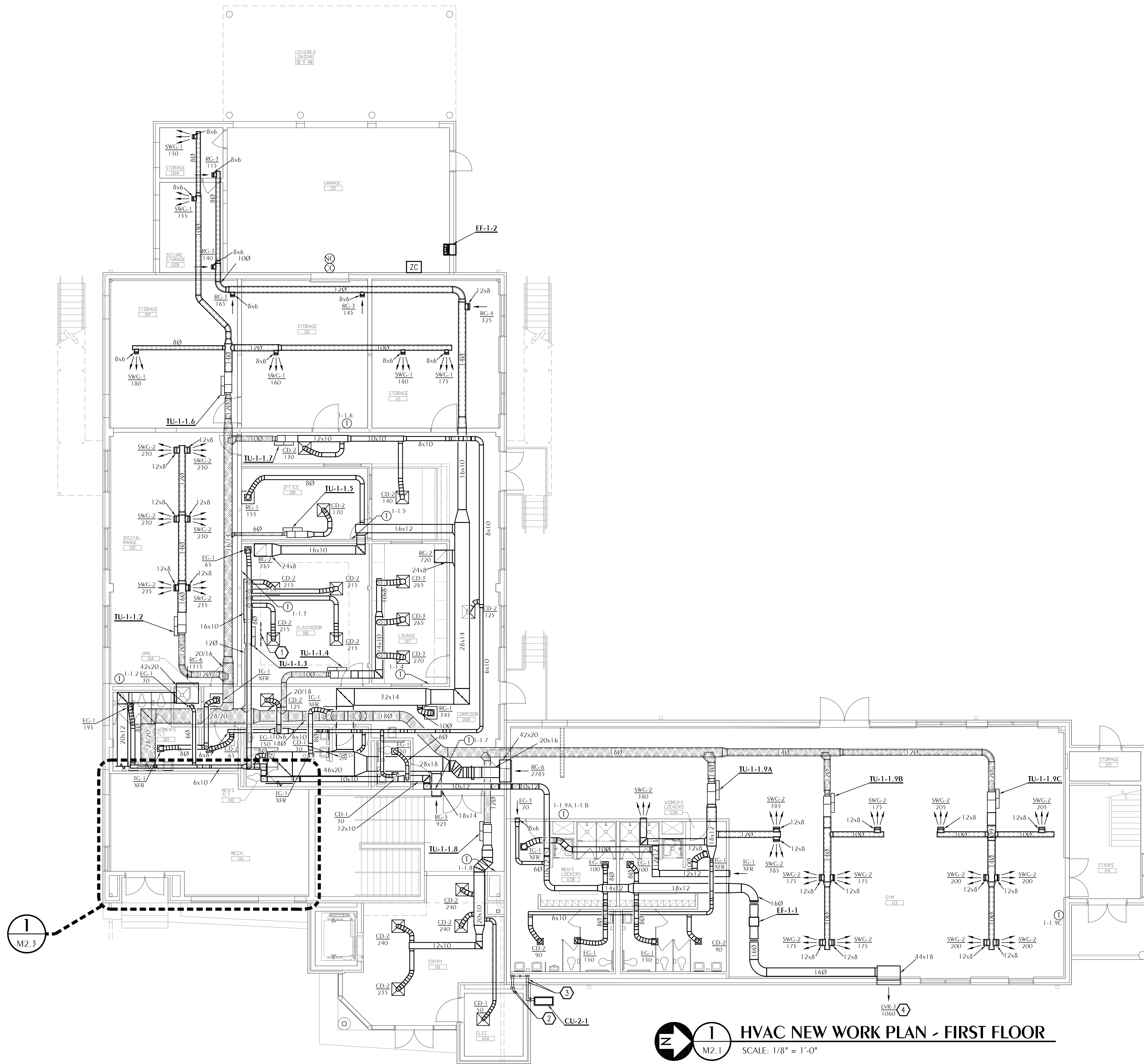


PROJECT:
HOWARD HALL
RENOVATIONS
FLORIDA A&M UNIVERSITY
TALLAHASSEE, FLORIDA

SHEET TITLE:
HVAC FIRST FLOOR
NEW WORK PLAN

SHEET NUMBER:

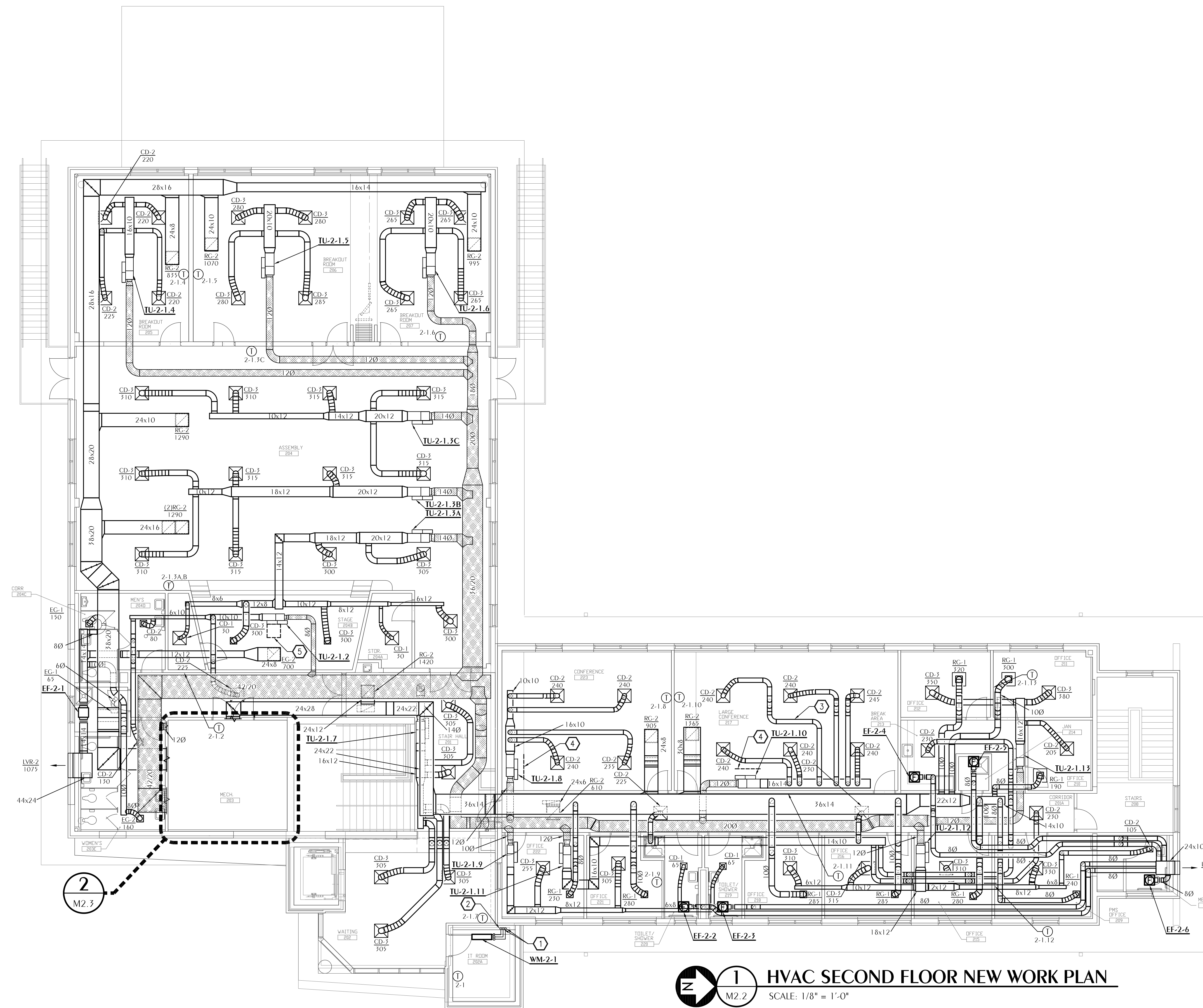
M2.1



1 M2.1 HVAC NEW WORK PLAN - FIRST FLOOR
SCALE: 1/8" = 1'-0"

SHEET NOTES

- ① CONTINUE ROUTING REFRIGERANT FROM FLOOR BELOW. REFER TO 1/M2.1 FOR CONTINUATION.
- ② ROUTE CONDENSATE TO ADJACENT UTILITY BOX. REFER TO PLUMBING DRAWINGS FOR CONTINUATION.
- ③ ROUTE DUCTWORK THROUGH STRUCTURE TO AIR DEVICE. TYPICAL.
- ④ PROVIDE 18"x44" WALL ACCESS DOOR. COORDINATE WITH ARCHITECT COLOR OF DOOR.
- ⑤ PROVIDE 24"x 24" ACCESS DOOR. COORDINATE COLOR OF DOOR WITH ARCHITECT.



REVISIONS

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| SCHEMATIC DESIGN SUBMITTAL | | | 05/31/24 |
| DESIGN DEVELOPMENT | ISL | KAJ | 08/06/24 |
| 10% CONSTRUCTION DOCUMENTS | ISL | KAJ | 12/20/24 |
| CONSTRUCTION DOCUMENTS (Rev. 3/11/25) | ISL | KAJ | 03/07/25 |

JRA ARCHITECTS 2551 BLAIRSTONE PINES DR. TALLAHASSEE, FL 32301
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 Commission Number: 24849

CONSULTANTS:



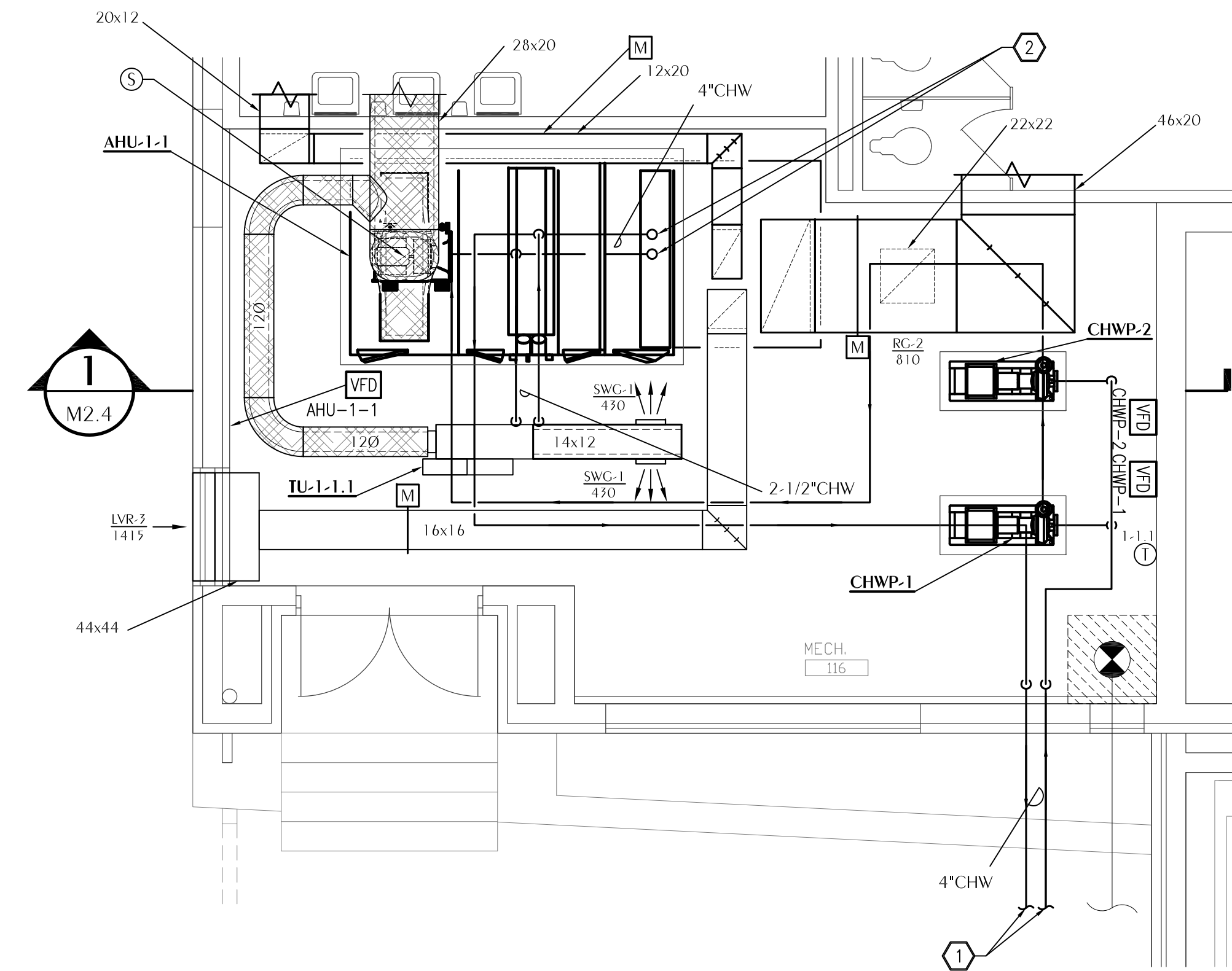
PROJECT:
 HOWARD HALL RENOVATIONS
 FLORIDA A&M UNIVERSITY
 TALLAHASSEE, FLORIDA

SHEET TITLE:
 HVAC SECOND FLOOR
 NEW WORK PLAN

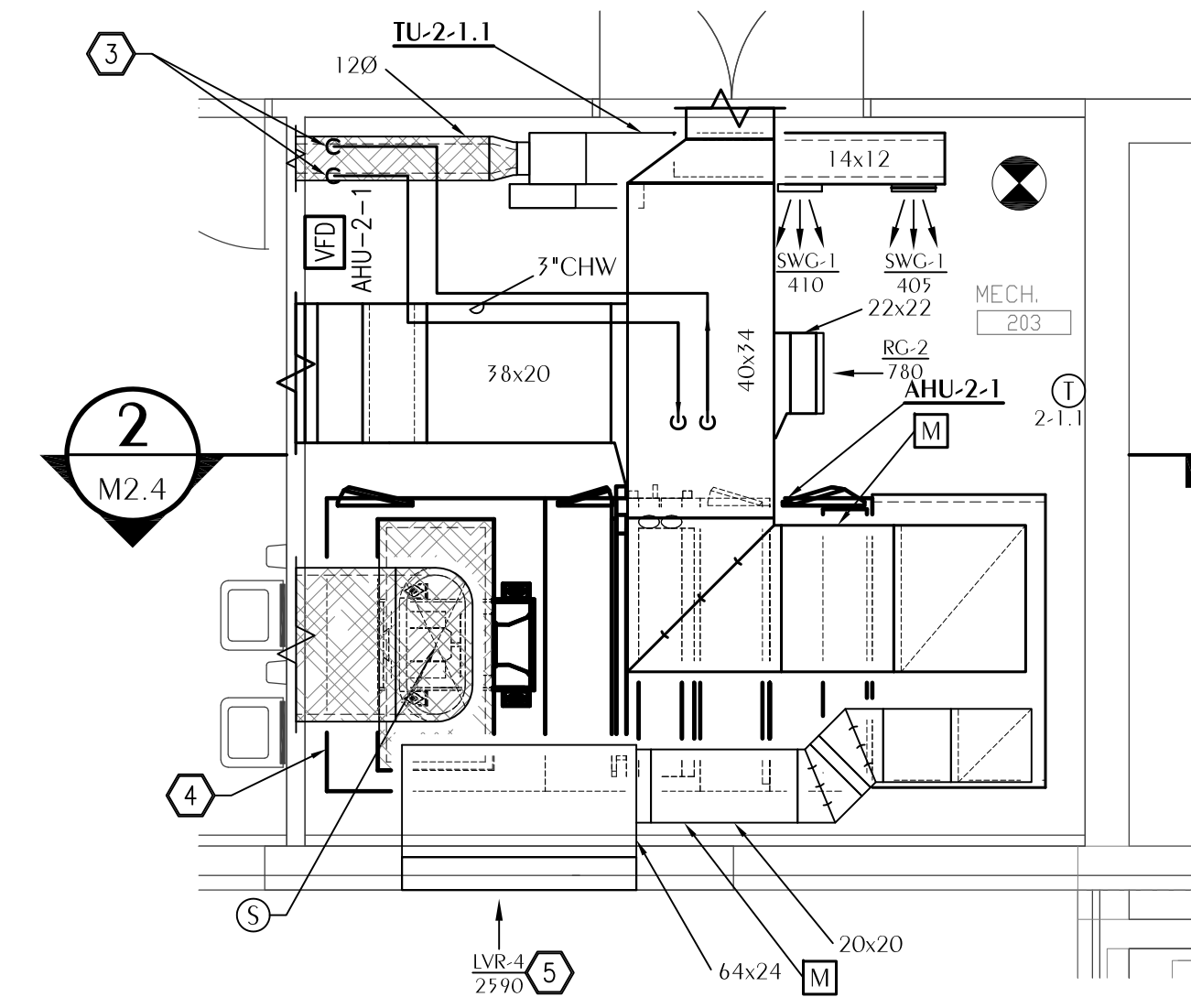
SHEET NUMBER:
 M2.2

SHEET NOTES

- ① CONNECT 4"Ø CHILLED WATER SUPPLY AND RETURN TO CAMPUS MAIN. REFER TO CIVIL.
- ② 3"Ø CHILLED WATER SUPPLY AND RETURN UP TO SECOND FLOOR. REFER TO 2/M2.3 FOR CONTINUATION.
- ③ 3"Ø CHILLED WATER SUPPLY AND RETURN DOWN TO FIRST FLOOR. REFER TO 1/M2.3 FOR CONTINUATION.
- ④ SEAL AND FLASH AROUND AHU-2.1.
- ⑤ CAP, SEAL, AND INSULATE REMAINING BACK AREA OF LOUVER. MATCH TO EXISTING SURROUNDING CONDITIONS.



1 HVAC ENLARGED MECH 116 ROOM
 SCALE: 1/4" = 1'-0"



2 HVAC ENLARGED MECH 203 ROOM
 SCALE: 1/4" = 1'-0"

| REVISIONS | | | | |
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CONSULTANTS:

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4432 Clinton Street, Marietta, Florida 32846 Florida Certificate of Authorization: 27825
 850.255.3447 Project Number: 2024037 Keith A. Johnson, PE Florida License #6462

PROJECT:
 HOWARD HALL
 RENOVATIONS
 FLORIDA A&M UNIVERSITY
 TALLAHASSEE, FLORIDA

SHEET TITLE:
 HVAC ENLARGED PLANS

SHEET NUMBER:
 M2.3