

# HEATING PLANT - MAKE-UP AIR HANDLING UNIT



1 ALLIED DRIVE, BUILDING 2  
SUITE 2600  
LITTLE ROCK, AR 72202  
Phone: (501) 666-6776  
Fax: (501) 663-8888



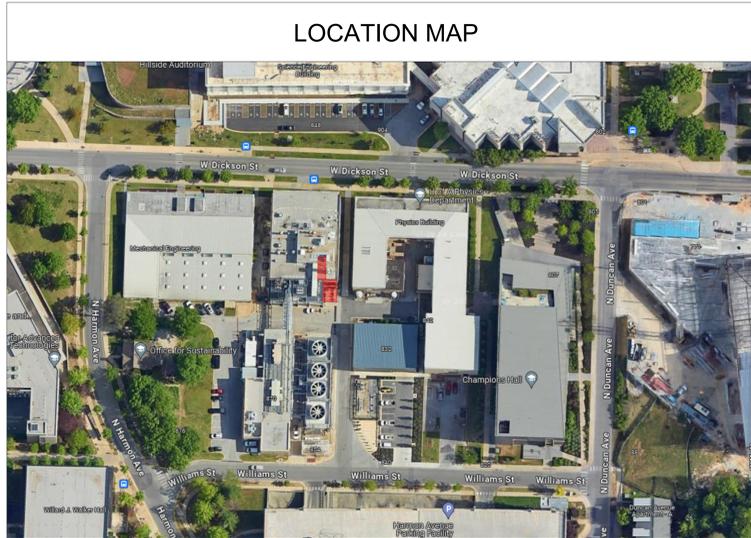
CORPORATE SEAL



ENGINEER SEAL

**HEATING PLANT - MAKE-UP AIR HANDLING UNIT**  
 UNIVERSITY OF ARKANSAS  
 FAYETTEVILLE, ARKANSAS

LOCATION MAP



SHEET NUMBER	SHEET TITLE
G101	COVER SHEET
M001	SCHEDULES AND LEGENDS - MECHANICAL
M201	FLOOR PLAN - UPPER - MECHANICAL
M202	FLOOR PLAN SECTIONS - UPPER - MECHANICAL
M401	DETAILS
M501	CONTROLS
M502	CONTROLS
M503	CONTROLS
E001	GENERAL NOTES, DETAILS AND LEGENDS - ELECTRICAL
E200	FLOOR PLANS - ELECTRICAL
E300	PANEL SCHEDULES - ELECTRICAL
S101	HEATING PLANT FRAMING PLAN

**OWNER REPRESENTATIVE:**  
 UNIVERSITY OF ARKANSAS  
 JAMES MILNER  
 (479)575-6183

**PROJECT MANAGER:**  
 ENFRA TME  
 JACK MEDFORD  
 (479)316-3507

**ELECTRICAL ENGINEER:**  
 ENFRA TME  
 GRANT LOGAN, PE  
 (479)521-8634

**MECHANICAL ENGINEER:**  
 ENFRA TME  
 ERIC UTTERSON, PE  
 (314)727-8760

MARK	DATE	DESCRIPTION

ISSUE DATE: 01/16/2026

PROJECT NUMBER: 04-25-0012

SHEET TITLE:  
COVER SHEET

SHEET NUMBER:  
**G101**



CORPORATE SEAL



ENGINEER SEAL

HEATING PLANT - MAKE-UP AIR HANDLING UNIT  
UNIVERSITY OF ARKANSAS  
FAYETTEVILLE, ARKANSAS

MARK	DATE	DESCRIPTION
ISSUE DATE:	01/16/2026	
PROJECT NUMBER:	04-25-0012	

SHEET TITLE:  
SCHEDULES AND LEGENDS - MECHANICAL

SHEET NUMBER:  
**M001**

**ONE LINE PIPE SYMBOLS**

—TWS—	SUPPLY FROM TOWER
—TWR—	RETURN TO TOWER
—HWS—	HEATING WATER SUPPLY
—HWR—	HEATING WATER RETURN
—DHWS—	DISTRICT HEATING WATER SUPPLY
—DHW—	DISTRICT HEATING WATER RETURN
—CHS—	CHILLED WATER SUPPLY
—CHR—	CHILLED WATER RETURN
—DCHS—	DISTRICT CHILLED WATER SUPPLY
—DCHR—	DISTRICT CHILLED WATER RETURN
—SCHS—	SECONDARY CHILLED WATER SUPPLY
—SCHR—	SECONDARY CHILLED WATER RETURN
—D—	CONDENSATE DRAIN
—S12—	STEAM SUPPLY (PRESSURE NOTED)
—SR12—	STEAM RETURN (PRESSURE NOTED)
—PSR—	PUMPED STEAM RETURN
—BFW—	BOILER FEEDWATER
-----	BELOW GRADE
-----	ABOVE GRADE
—B—	BALL VALVE
—B1—	BUTTERFLY VALVE (LEVER HANDLE)
—B2—	BUTTERFLY VALVE (GEAR OPERATOR)
—G—	GATE VALVE
—G1—	OS & Y GATE VALVE
—G2—	GLOBE VALVE
—C—	CHECK VALVE (SWING CHECK)
—C1—	CHECK VALVE (BUTTERFLY CHECK)
—PR—	PRESSURE REDUCING VALVE
—FL—	FLOW LIMITING VALVE
—CB—	CALIBRATED BALANCING VALVE
—V—	VALVE AT RISER
—S—	STRAINER W/ DRAIN VALVE
—U—	UNION
—A—	AIR TERMINAL / FAN COIL UNIT/HOT WATER RETURN CONTROL VALVE (2-WAY) ELECTRIC OR ELECTRONIC
—A1—	AIR TERMINAL / FAN COIL UNIT CONTROL VALVE (3-WAY) ELECTRIC OR ELECTRONIC
—C1—	CONTROL VALVE (2-WAY) ELECTRIC OR ELECTRONIC
—C2—	CONTROL VALVE (3-WAY) ELECTRIC OR ELECTRONIC

**ONE LINE PIPE SYMBOLS**

—C—	CONTROL VALVE (3-WAY) ELECTRIC OR ELECTRONIC
—C1—	CONTROL VALVE (2-WAY) PNEUMATIC
—C2—	CONTROL VALVE (3-WAY) PNEUMATIC
—S—	EMERGENCY SHUT-OFF VALVE WITH FUSIBLE LINK
—F—	FLEXIBLE PIPE CONNECTOR
—M—	METAL BELLOWS PUMP CONNECTOR
—A—	AIR VENT (A - AUTO, H - HAND)
—P—	PRESSURE AND TEMPERATURE TAP
—G—	PRESSURE GAUGE
—S—	PRESSURE GAUGE W/ SIPHON
—T—	THERMOMETER W/ INSERTION WELL
—X—	ANCHOR
—P—	PIPE GUIDE
—F—	FLANGE
—E—	ELBOW, TURNED UP
—D—	ELBOW, TURNED DOWN
—R—	RISE OR DROP IN PIPE
—E—	ELBOW
—T—	TEE, SIDE CONNECTION
—T1—	TEE, OUTLET UP
—T2—	TEE, OUTLET DOWN
—C—	CAPPED OUTLET
—P—	CAPPED PIPE
—R—	CONCENTRIC REDUCER
—E—	ECCENTRIC REDUCER
—S—	STEAM TRAP (DRIP LEG)
—S1—	STEAM TRAP
—D—	DIRECTION OF PITCH
—TFD—	PIPE TO FLOOR DRAIN
—EMS—	EMERGENCY MANAGEMENT SYSTEM INSERTION WELL

**TWO LINE PIPE SYMBOLS**

—E—	ELBOW - FLANGED LONG RADIUS 45°
—E1—	ELBOW - FLANGED LONG RADIUS 90°
—E2—	ELBOW - WELDED LONG RADIUS 45°
—E3—	ELBOW - WELDED LONG RADIUS 90°
—C—	END CAP
—F—	FLANGES - SLIP ON
—F1—	FLANGES - WELD NECK
—R1—	REDUCERS - FLANGED CONCENTRIC
—R2—	REDUCERS - FLANGED ECCENTRIC
—R3—	REDUCERS - WELDED CONCENTRIC
—R4—	REDUCERS - WELDED ECCENTRIC
—T—	TEE - FLANGED
—T1—	TEE - WELDED
—B1—	BUTTERFLY VALVE - LEVER OPERATOR
—B2—	BUTTERFLY VALVE - WORM GEAR OPERATOR
—B3—	BUTTERFLY VALVE - ACTUATOR
—C1—	CHECK VALVE - SWING CHECK
—C2—	CHECK VALVE - SILENT OR WAFER
—G1—	GATE VALVE - NON RISING STEM
—G2—	GATE VALVE - OUTSIDE STEM AND YOKE
—G3—	GLOBE VALVE
—S1—	STRAINER - Y
—S2—	STRAINER - BASKET
—S3—	SUCTION DIFFUSER
—F1—	FLEXIBLE CONNECTORS

**DUCTWORK SYMBOLS**

—T—	THERMOSTAT
—H—	THERMOSTAT WIRING
—H1—	HUMIDISTAT
—TS—	TEMPERATURE SENSOR
—FM—	GPM FLUID FLOW METER
—SA—	SUPPLY AIR DUCT
—RA—	RETURN AIR DUCT
—EA—	EXHAUST AIR DUCT
—CFM—	CUBIC FEET PER MINUTE
—EMS—	ENERGY MANAGEMENT SYSTEM
—ATC—	AUTOMATIC TEMP CONTROLS
—CO2—	CARBON DIOXIDE
—PPM—	PARTS PER MILLION
—Ø—	ROUND DIAMETER
—Ø1—	FLAT OVAL (MAJOR/MINOR)
—R1—	SHORT (1x) RADIUS ELL (RECTANGULAR OR ROUND) CENTERLINE RADIUS = 1d LONG (1.5x) RADIUS ELL (ROUND OR OVAL) CENTERLINE RADIUS = 1.5d
—S1—	SQUARE ELL
—S2—	ELL WITH TURNING VANES
—S3—	STREAMLINE TAP (RECTANGULAR)
—S4—	STREAMLINE TAP (ROUND)
—S5—	CONICAL TAP
—S6—	STRAIGHT TAP
—S7—	LATERAL TAP
—S8—	MANUAL VOLUME DAMPER
—S9—	MOTORIZED VOLUME DAMPER
—S10—	FIRE DAMPER (FD)
—S11—	SMOKE DAMPER
—S12—	COMBINATION FIRE / SMOKE DAMPER (FD/S)
—R1—	RECTANGULAR DUCT (WIDTH/DEPTH)
—R2—	ROUND DUCT OFFSET
—R3—	CHANGE IN ELEVATION (RISE, FALL)
—R4—	FLEXIBLE DUCT
—R5—	SUPPLY DUCT UP
—R6—	RETURN DUCT UP
—R7—	EXHAUST DUCT UP
—R8—	SUPPLY DUCT DOWN
—R9—	RETURN DUCT DOWN
—R10—	EXHAUST DUCT DOWN
—R11—	CEILING DIFFUSER
—R12—	RETURN AIR GRILLE
—R13—	EXHAUST AIR GRILLE
—R14—	ACCESS PANEL
—R15—	ACCESS PANEL IN ROUND OR OVAL DUCT
—R16—	DIGITAL ROOM PRESSURE MONITOR
—R17—	TYPE - CFM : SUPPLY/RETURN/EXHAUST AIR DEVICE
—R18—	DIFFERENTIAL PRESSURE SENSOR
—R19—	KEYED SWITCH
—R20—	DOOR SWITCH
—R21—	BALL IN TUBE PRESSURE MONITOR

**GENERAL MECHANICAL NOTES**

- ALL WORK IS TO CONFORM TO THE LATEST EDITIONS OF THE ARKANSAS STATE MECHANICAL CODE, NFPA, AND ALL LOCAL ORDINANCES.
- PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AND AS SPECIFIED AND REQUIRED BY CODE.
- CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
- THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED.
- INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
- PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.
- COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, ELECTRICAL WORK, ETC. SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
- ALL TESTS SHALL BE COMPLETED BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED.
- LOCATE ALL TEMPERATURE, PRESSURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH THE STRAIGHT SECTION OF PIPE OR DUCT UP AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR GOOD ACCURACY.
- COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL PIPING AND DUCT TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL PIPING AND DUCT DIMENSIONS BEFORE FABRICATION.
- ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND DIVISION 26 OF THE SPECIFICATION.
- PROVIDE ACCESS PANELS FOR INSTALLATION IN WALLS AND CEILINGS, WHERE REQUIRED, TO SERVICE DAMPERS, VALVES, SMOKE DETECTORS, AND OTHER CONCEALED MECHANICAL EQUIPMENT. ACCESS PANELS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR FOR INSTALLATION.
- MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT BE SUPPORTED FROM A METAL DECK.
- ALL MOTORS SERVING MECHANICAL EQUIPMENT THAT ARE POWERED BY A VARIABLE FREQUENCY DRIVE SHALL COME FACTORY EQUIPPED WITH AEGIS SHAFT GROUNDING RINGS FOR BEARING PROTECTION. THE CONTRACTOR SHALL PAY FOR AND INSTALL AEGIS SHAFT GROUNDING RINGS NOT FACTORY INSTALLED.

**HVAC/SHEET METAL NOTES**

- ALL DUCTWORK SHALL CLEAR DOORS AND WINDOWS.
- COORDINATE DIFFUSER, REGISTER, AND GRILLE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS, LIGHTING, AND OTHER CEILING ITEMS AND MAKE MINOR DUCT MODIFICATIONS TO SUIT.
- CERTAIN ITEMS SUCH AS RISES AND DROPS IN DUCTWORK, ACCESS DOORS, VOLUME DAMPERS, ETC., ARE INDICATED ON THE CONTRACT DOCUMENT DRAWINGS FOR CLARITY FOR A SPECIFIC LOCATION REQUIREMENT AND SHALL NOT BE INTERPRETED AS THE EXTENT OF THE REQUIREMENT FOR THESE ITEMS.
- LOCATE ALL MECHANICAL EQUIPMENT FOR UNOBSTRUCTED ACCESS TO UNIT ACCESS PANELS, CONTROLS, AND VALVING.
- ALL DUCTWORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS, INCLUDING DIVIDED DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- PROVIDE ACCESS DOORS IN DUCTWORK TO PROVIDE ACCESS FOR ALL SMOKE DETECTORS, FIRE DAMPERS, VOLUME DAMPERS, AND OTHER ITEMS LOCATED IN THE DUCTWORK THAT REQUIRE SERVICE AND/OR INSPECTION.
- SEE SPECIFICATIONS FOR DUCTWORK GAUGES, BRACING, HANGERS, AND OTHER REQUIREMENTS.
- UNLESS OTHERWISE SHOWN, LOCATE ALL ROOM THERMOSTATS 4'-0" (CENTERLINE) ABOVE THE FINISHED FLOOR. NOTIFY THE ENGINEER OF ANY ROOMS WHERE THE PRECEDING LOCATION CANNOT BE MAINTAINED OR WHERE THERE IS A QUESTION ON LOCATION.
- PROVIDE VOLUME BALANCING DAMPERS ON ALL RUNOUTS TO DIFFUSERS AND GRILLES.

**PIPING NOTES**

- ALL BALANCING VALVES AND BUTTERFLY VALVES SHALL BE PROVIDED WITH POSITION INDICATORS AND THE MAXIMUM ADJUSTABLE STOPS.
- ALL VALVES SHALL BE ADJUSTED FOR SMOOTH AND EASY OPERATION.
- PROVIDE FLEX CONNECTORS IN ALL PIPING SYSTEMS CONNECTED TO EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION EXCEPT WATER COILS. FLEX CONNECTORS SHALL BE PROVIDED AS CLOSE TO THE EQUIPMENT AS POSSIBLE OR AS INDICATED ON THE DRAWINGS.
- ALL EQUIPMENT AND PIPING SHALL BE SUPPORTED AS DETAILED, SPECIFIED, AND REQUIRED TO PROVIDE A VIBRATION-FREE INSTALLATION.
- INSTALL ALL PIPING WITHOUT FORCING OR SPRINGING.
- ALL VALVES SHALL BE INSTALLED SO THAT THE VALVE REMAINS IN SERVICE WHEN EQUIPMENT OR PIPING ON THE EQUIPMENT SIDE OF THE VALVE IS REMOVED.
- INSTALL PIPING SO ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES, AND OTHER APPURTENANCES REQUIRING ACCESS ARE ACCESSIBLE.

**ABBREVIATIONS**

<b>A</b> A, AMPS A/C AC ADJ AF AFC AFF AFS AHU AIC AL ANSI ARCH AUX AWG	<b>B</b> BFC BFG BFS BKR BLDG	<b>C</b> C CATV CCTV C1 CKT CL CLG COORD CSA CU, CU	<b>D</b> DC DDC DEMO, DEMO DIA DISC, SW, DISC DN DWG  EA EFC EFC ELEC ENCL EPO EQUIP ETR EWC	<b>E</b> EA EFC EFC ELEC ENCL EPO EQUIP ETR EWC	<b>F</b> FA FAD FEP FLA FLEX FM	<b>G</b> G, GND, GRD GA GALV GENSET GFCI GFI	<b>H</b> HP HR, HRS HSD HTR HVAC HZ	<b>I</b> ID IEE IES IG	<b>J</b> J-BOX	<b>K</b> KAIC KMIL KO KV KVA KW KWH	<b>L</b> LF LRA LV	<b>M</b> MAX MCA MCB MD MDP MECH MFR, MANUFACTURER MLO MIN MOC, MOC MOUNTED	<b>N</b> N N.C. N.L.S. N/A NEC NEMA NFPA NIC	<b>O</b> O.C. OD	<b>P</b> PF PH, Ø PLBG PNL PVC	<b>Q</b> QTY	<b>R</b> RCP RE, REF REQD REV RGS RLA RM RTU	<b>S</b> SDBC SE SECT SHT SIM SPEC SQ, FT., S.F. STD SURF SUSP SW	<b>T</b> TELECOM TGB TGMB THD THRU TYP	<b>U</b> U/F U/G U/GE U/H UL UNO, UNO UPS	<b>V</b> VA VFD	<b>W</b> W W/O W/P X	<b>X</b> XFMR XSTG
--	--	---	---	--	---	--	---	------------------------------------	-------------------	--	-----------------------------	--	--	------------------------	---	-----------------	--	--	--	--	-----------------------	----------------------------------	--------------------------

NOTE: REFER TO INDUSTRY STANDARDS, APPLICABLE CODES, AND PLAN DOCUMENTS OF ALL DISCIPLINES FOR MORE INFORMATION ON ABBREVIATIONS AND NOMENCLATURE.

**DUCT CLASSIFICATION SCHEDULE**

DESCRIPTION	DUCT PRESSURE CLASS	SMACNA MINIMUM SEAL CLASS	SMACNA LEAKAGE CLASS	SMACNA DUCT CLEANLINESS LEVEL	DUCT LEAKAGE TEST
SUPPLY AIR-RECTANGULAR					
ALL DUCT	+5"	A	6	C	REQUIRED

NOTE: 28 AND 30 GAUGE SHEET METAL PROHIBITED.

**HEAT TRACE**

DESIGNATION	REFERENCE PRODUCT	LOCATION	SERVES	PIPE SIZE / MATERIAL	INSULATION TYPE / THICKNESS	VOLT / PHASE	MAXIMUM HEAT OUTPUT (W/FT)	MAINTENANCE TEMPERATURE (F)	MAXIMUM CIRCUIT POWER (W)	CIRCUIT BREAKER SIZE (A)	REMARKS
HT-1	CHROMOLOX SRLS-1C	MAU INTERSTITIAL SPACE	MAU EXTERIOR HYDRONIC PIPING	6" / SCH. 40 STEEL	FIBERGLASS WITH METAL JACKET / 2"	120 / 1	5.5	40	385	10	1

1. PROVIDE SPARE HEATING CABLE TERMINATED TO CONNECTION KITS. FURNISH WITH ALL REQUIRED APPURTENANCES FOR HEAT TRACE INSTALLATION.

**CONTROL VALVES SCHEDULE**

DESIGNATION	MANUFACTURER MODEL NUMBER	CONFIGURATION	ΔP (PSI)	WATER		SIZE		ACTUATOR			
				FLOW (GPM)	MIN CLOSE OFF (IP (PSI))	VALVE	Cv	CONTROL TYPE	SPRING RETURN	FAIL POSITION	VOLTAGE
CV-1	BELIMO B6500S-290	2-WAY	3.09	510	175	5"	290	MODULATING	YES	OPEN	24
CV-2	BELIMO B248	2-WAY	5.83	70	200	2"	29	MODULATING	YES	OPEN	24
CV-3	BELIMO B6500S-290	2-WAY	3.09	510	175	5"	290	MODULATING	NO	OPEN	24
CV-4	BELIMO F680	2-WAY	0.09	70	285	3"	228	TWO POSITION	YES	OPEN	24
CV-5	BELIMO F6150	2-WAY	0.10	510	285	6"	1579	TWO POSITION	NO	-	24

**HYDRONIC PUMP SCHEDULE**

DESIGNATION	REFERENCE PRODUCT	LOCATION	SERVES	TYPE	VFD	WATER FLOW RATE (GPM)	TOTAL HEAD (FT. WATER)	ROTATION (RPM)	EFFICIENCY (%)	OPERATING WEIGHT (LB)	MOTOR SIZE		ELECTRICAL	
											BHP	MHP	VOLTAGE	PHASE
CP-1	ARMSTRONG 4300	PENTHOUSE MEZZANINE	MAU -1	VERTICAL IN-LINE PUMP	VFD-CP-1	510	33	1735	70.12	398	6.06	7.5	480	3

**SUCTION DIFFUSER**

DESIGNATION	REFERENCE PRODUCT	SERVES	RATING	INLET SIZE (INCH)	OUTLET SIZE (INCH)	STRAINER FREE AREA (INCH2)	WEIGHT (LBS)	REMARKS
SD-1	ARMSTRONG SG-88	CP-1	ANSI 125	8	8	256.23	239	1

1. FLANGED SUCTION DIFFUSER WITH BUILT-IN STRAINER.



CORPORATE SEAL



ENGINEER SEAL

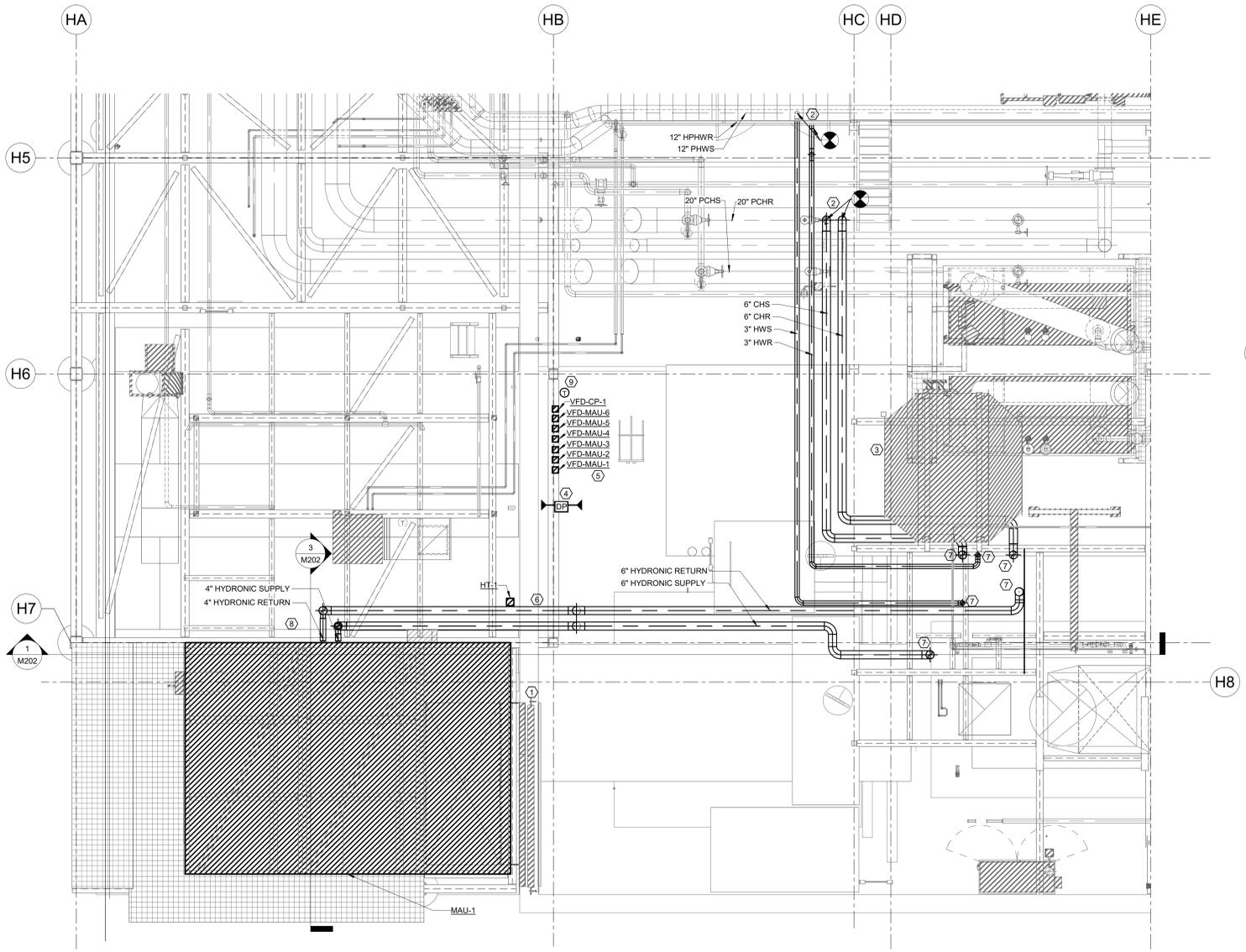
**HEATING PLANT - MAKE-UP AIR HANDLING UNIT**  
UNIVERSITY OF ARKANSAS  
FAYETTEVILLE, ARKANSAS

**GENERAL NOTES:**

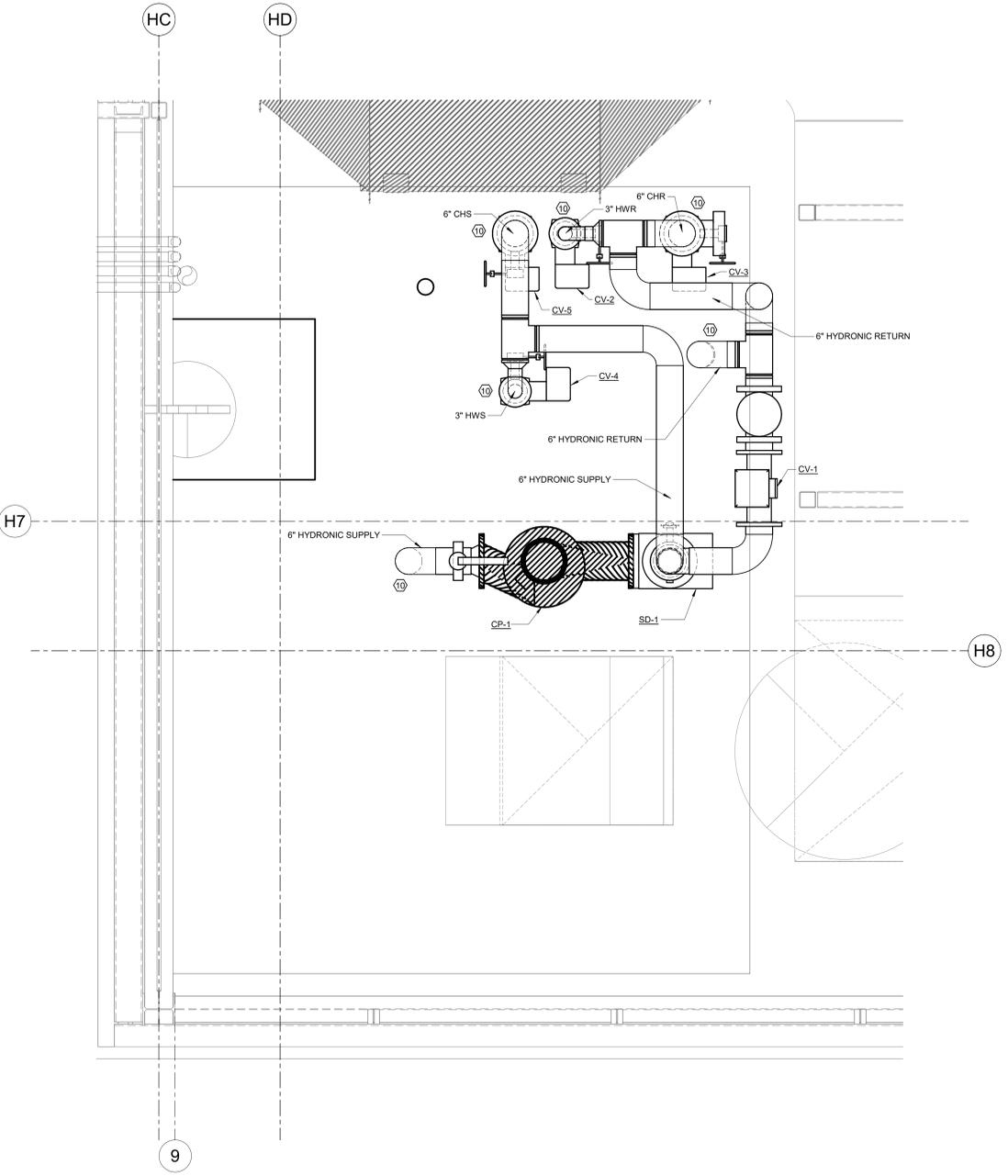
1. CONDUIT FOR THERMOSTAT SHALL BE BLUE EMT.
2. CONDUIT FOR FIRE ALARM CABLE SHALL BE RED EMT.

**KEYED NOTES:**

- ① CONNECT NEW 60" X 132" MAKE UP AIR DUCT TO EXISTING 192" X 151" LOUVER, BLANK OFF UNUSED PORTIONS OF LOUVER WITH SHEET METAL.
- ② PROVIDE NEW PIPE CONNECTION TO EXISTING TAPS INSTALLED IN PR#01.
- ③ EXISTING DUCT AND MECHANICAL EQUIPMENT TO AVOID.
- ④ COORDINATE DIFFERENTIAL PRESSURE SENSOR LOCATION WITH ENGINEER.
- ⑤ VFDs LOCATED ON THE GROUND LEVEL.
- ⑥ HEAT TRACE AND INSULATE ALL EXTERIOR HYDRONIC WATER PIPING, FITTINGS, AND VALVES. INSTALL SPARE HEATING CABLE TERMINATED TO CONNECTION KITS. INSTALL HEAT TRACE PER MANUFACTURER'S INSTALLATION RECOMMENDATIONS. REFER TO THE HEAT TRACE DIAGRAM ON SHEET E001.
- ⑦ HYDRONIC PIPING UP TO PUMP MEZZANINE.
- ⑧ PROVIDE DES CHAMPS HVAC AIR-TRAP CONDENSATE DRAIN. ROUTE CONDENSATE PIPING TO NEAREST SANITARY DRAIN.
- ⑨ MAU-1 THERMOSTAT LOCATED ON GROUND LEVEL ADJACENT TO VFDs
- ⑩ HYDRONIC PIPING DOWN FROM PUMP MEZZANINE.



1 HEATING PLANT UPPER - MECHANICAL  
1/4" = 1'-0"



2 HEATING PLANT UPPER - MEZZANINE  
3/4" = 1'-0"

MARK	DATE	DESCRIPTION
ISSUE DATE:	01/16/2026	
PROJECT NUMBER:	04-25-0012	

SHEET TITLE:  
FLOOR PLAN - UPPER - MECHANICAL

SHEET NUMBER:  
**M201**



CORPORATE SEAL



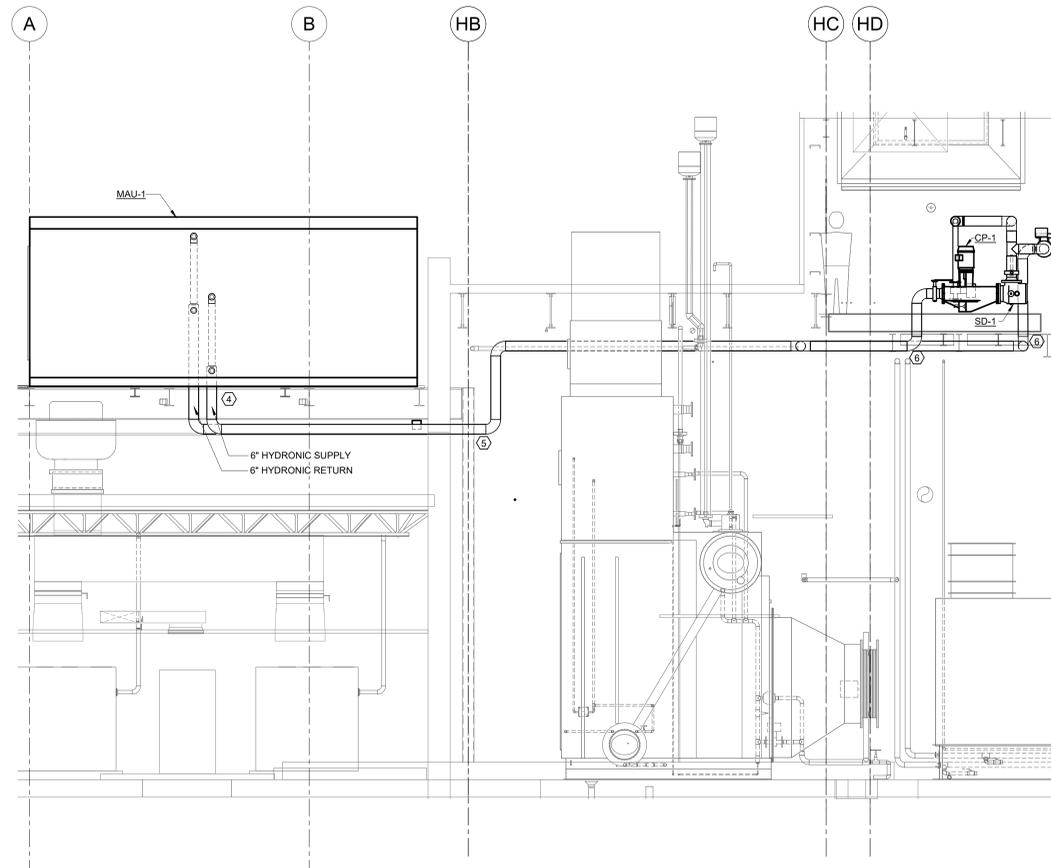
ENGINEER SEAL

**GENERAL NOTES:**

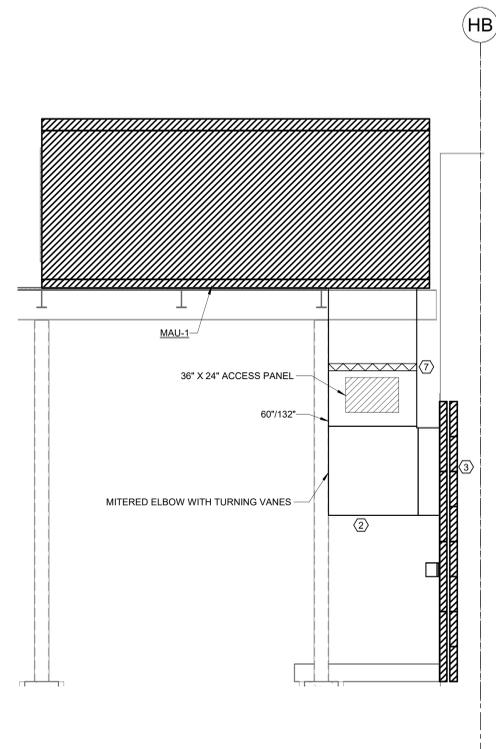
1. CONDUIT FOR THERMOSTAT SHALL BE BLUE EMT.
2. CONDUIT FOR FIRE ALARM CABLE SHALL BE RED EMT.

**KEYED NOTES:**

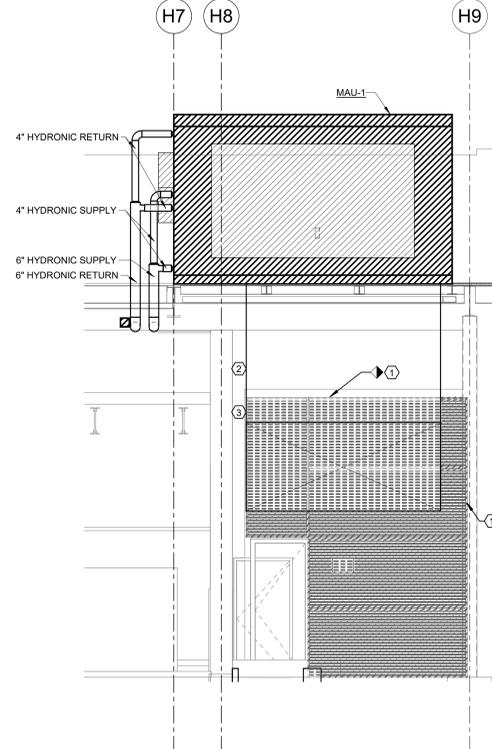
- ① DEMO LOUVER FOR NEW 60" X 132" DUCT OPENING. BLANK OFF UNUSED PORTIONS OF LOUVER WITH SHEET METAL.
- ② ALL DUCTWORK TO BE DOUBLE-WALL OR BE INSULATED WITH EMBOSSED ALUMINUM JACKET.
- ③ COVER DUCT OPENING WITH 1/2" BIRDSCREEN.
- ④ PIPE PENETRATION THROUGH METAL GRATE AND IS ROUTED THROUGH THE INTERSTITIAL AREA BETWEEN THE GRATE ABOVE AND THE ROOF BELOW.
- ⑤ PIPE PENETRATION THROUGH BUILDING WALL, SEAL AND FLASH PENETRATION.
- ⑥ PIPE PENETRATION THROUGH METAL GRATE TO MECHANICAL MEZZANINE.
- ⑦ PROVIDE AIR FLOW MEASURING STATION IN DUCT.



① PIPE ELEVATION SECTION  
1/4" = 1'-0"



② MAKE-UP AIR UNIT NORTH VIEW  
1/4" = 1'-0"



③ MAKE-UP AIR UNIT EAST VIEW  
1/4" = 1'-0"

**HEATING PLANT - MAKE-UP AIR HANDLING UNIT**  
UNIVERSITY OF ARKANSAS  
FAYETTEVILLE, ARKANSAS

MARK	DATE	DESCRIPTION

ISSUE DATE: 01/16/2026

PROJECT NUMBER: 04-25-0012

SHEET TITLE:  
FLOOR PLAN SECTIONS - UPPER - MECHANICAL

SHEET NUMBER:

**M202**





CORPORATE SEAL



ENGINEER SEAL

GENERAL NOTES APPLICABLE TO ALL CONTROL DIAGRAMS:

- ALL CONTROL DEVICES SHOWN ON THE CONTROL DIAGRAMS ARE FURNISHED BY THE ATC CONTRACTOR UNLESS OTHERWISE NOTED OR SPECIFIED.
- ALL COMPONENTS REQUIRED FOR THE SEQUENCES OF OPERATION, SHOWN ON THE CONTROL DIAGRAMS, DESCRIBED IN THE SPECIFICATION, OR AS REQUIRED FOR A PROPERLY OPERATING SYSTEM SHALL BE FURNISHED AND INSTALLED BY THE ATC CONTRACTOR UNLESS OTHERWISE NOTED, SHOWN, OR SPECIFIED.
- ATC CONTRACTOR IS RESPONSIBLE TO FURNISH, INSTALL, AND WIRE ALL COMPONENTS REQUIRED FOR INTEGRATION OF INFORMATION SHOWN TO BE ACCESSED BY THE EMS FROM OTHER SYSTEMS AND EQUIPMENT UNLESS OTHERWISE NOTED OR SPECIFIED.
- ALL POWER WIRING AND TRANSFORMERS FOR SENSORS, ACTUATORS, AND OTHER CONTROL COMPONENTS AS REQUIRED FOR THE EMS AND/OR DDC SYSTEMS TO FUNCTION PROPERLY, SHALL BE FURNISHED AND INSTALLED BY THE ATC CONTRACTOR UNLESS OTHERWISE SHOWN, NOTED, OR SPECIFIED.
- ALL POWER WIRING FOR SENSORS, ACTUATORS, AND OTHER DEVICES SHALL BE FROM THE DDC PANEL OR THE FEP PANEL OF THE ASSOCIATED SYSTEM.
- ALL CONTROL, INTERLOCK, AND POWER WIRING SHALL BE INSTALLED PER THE ELECTRICAL SPECIFICATION, LOCAL, STATE, AND NATIONAL CODES. RACEWAY SHALL BE INSTALLED PER THE ELECTRICAL SPECIFICATIONS.
- ALL CONTROL POINTS SHOWN ON THE CONTROL DIAGRAMS SHALL BE PROVIDED AND INTEGRATED INTO AN EMS SYSTEM GRAPHIC REPRESENTATIVE OF THE CONTROL DIAGRAMS.
- ALL CONTROL BANDS, SETPOINTS, SETPOINT LIMITS, SETPOINT INCREMENT VALUES, SETPOINT DECREMENT VALUES, ALARM LIMITS, AND OTHER PARAMETERS SHALL BE ADJUSTABLE FROM THE EMS.
- ALL CONTROL BANDS, SETPOINTS, TIME DELAYS, CONTROL LOOPS, AND OTHER PARAMETERS SHALL BE COMMISSIONED BY THE ATC CONTRACTOR TO PROVIDE STABLE CONTROL OF ALL SYSTEMS.
- ALL SETPOINTS SHALL BE ADJUSTABLE FROM THE EMS SYSTEM GRAPHIC(S).
- SPACE SETPOINTS SHALL BE ADJUSTABLE FROM THE ROOM SENSOR UNLESS OTHERWISE SHOWN ON DRAWINGS OR SPECIFIED.
- THE EMS SYSTEM GRAPHICS SHALL BE LINKED WITH ASSOCIATED BUILDING FLOOR PLANS FROM THE SPACE SENSOR OR AREA SERVED.
- WHERE ONE SYSTEM IS ASSOCIATED WITH ANOTHER SYSTEM, THE SYSTEM GRAPHIC SHALL BE LINKED TO THE ASSOCIATED GRAPHIC AS WELL AS THE BUILDING FLOOR PLAN GRAPHIC. EXAMPLE - AN AIR HANDLING UNIT SYSTEM GRAPHIC SHALL BE LINKED TO THE CHILLED WATER SYSTEM GRAPHIC IN ADDITION TO BOTH BEING LINKED TO THE BUILDING FLOOR PLAN.
- THE BUILDING FLOOR PLAN SHALL DISPLAY THE SPACE TEMPERATURE AT EACH SPACE SENSOR LOCATION WITH AREA SERVED DISPLAYED IN SEPARATE COLORS BASED ON THE CONDITION OF THE ZONE. EXAMPLE - ALARM, NORMAL, HIGH OR LOW TEMPERATURE, HIGH OR LOW HUMIDITY, ETC.
- ALL BUILDING FLOOR PLANS AND SYSTEM GRAPHICS SHALL DISPLAY OUTSIDE AIR TEMPERATURE AND HUMIDITY.
- THE FLOOR PLAN GRAPHICS SHALL BE LINKED TO A BUILDING GRAPHIC WITH A DIGITAL PHOTOGRAPH BACKGROUND OF THE ACTUAL BUILDING. DURING CONSTRUCTION A TEMPORARY GRAPHIC MAY BE USED THAT IS REPRESENTATIVE OF THE BUILDING.
- THE BUILDING GRAPHIC SHALL BE LINKED WITH A CAMPUS MAP FOR THOSE FACILITIES WITH MORE THAN ONE BUILDING OR FACILITY.
- ALL GRAPHICS SHALL BE SUBMITTED IN COLOR WITH THE ATC SUBMITTAL. FAILURE TO INCLUDE ALL GRAPHICS IN SUBMITTAL SHALL BE CAUSE FOR REJECTION OF COMPLETE SUBMITTAL.
- VARIABLE FREQUENCY DRIVES ARE FURNISHED BY THE ATC CONTRACTOR, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR. REFER TO VARIABLE FREQUENCY DRIVE SCHEDULE. VERIFY ALL EXISTING MOTOR HORSEPOWER AND ELECTRICAL RATINGS PRIOR TO SUBMITTAL AND ORDERING VARIABLE FREQUENCY DRIVES.
- POWER WIRING (PWR) FROM POWER SOURCE TO VARIABLE FREQUENCY DRIVES AND FROM VARIABLE FREQUENCY DRIVES TO MOTORS SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
- POWER WIRING (PWR) FROM POWER SOURCE TO MOTOR STARTERS AND FROM MOTOR STARTERS TO MOTORS SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
- POWER WIRING (PWR) FROM POWER SOURCE TO DDC, AND FEP PANELS SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED ON DRAWINGS.
- SYMBOLS USED IN THE LEGEND ARE INCLUDED FOR REFERENCE AND MAY NOT ALL BE USED ON THIS SPECIFIC PROJECT.
- DETAILS SHOWN ON THE DETAIL SHEETS ARE INCLUDED FOR REFERENCE AND MAY NOT ALL BE USED ON THIS SPECIFIC PROJECT.
- GLOBAL DDC SYSTEM POINTS ARE DEFINED AS A SINGLE POINT USED IN ALL SYSTEMS IN A BUILDING OR CAMPUS TO MAINTAIN CONSISTENCY OF CONTROL ACTIONS THROUGHOUT THE BUILDING OR CAMPUS. EXAMPLE: OUTSIDE AIR TEMPERATURE POINT SAMPLED ON THE NORTH SIDE OF A BUILDING USED TO ENABLE/DISABLE AIRSIDE ECONOMIZER OPERATION THROUGHOUT THE BUILDING OR CAMPUS.

LEGEND

- THREE PHASE POWER WIRING; FURNISHED AND INSTALLED BY ELECTRICAL (PWR)
- SINGLE PHASE POWER WIRING; FURNISHED AND INSTALLED BY ELECTRICAL (PWR)
- CONTROL AND INTERLOCK WIRING; FURNISHED AND INSTALLED BY ATC CONTRACTOR (ILK)
- EMS ETHERNET LAN COMMUNICATION WIRING; FURNISHED AND INSTALLED BY ATC CONTRACTOR (EMS)
- EMS SUB-NETWORK COMMUNICATION WIRING; FURNISHED AND INSTALLED BY ATC CONTRACTOR (EMS RS)
- BSDM SENSOR COMMUNICATION WIRING; FURNISHED AND INSTALLED BY ATC CONTRACTOR (EMS RS)
- COMMUNICATION WIRING FOR OTHER HVAC SYSTEMS; FURNISHED AND INSTALLED BY ATC CONTRACTOR (EMS OTH)
- PNEUMATIC CONTROL TUBING; FURNISHED AND INSTALLED BY ATC CONTRACTOR
- CONTROL PIPING; FURNISHED AND INSTALLED BY ATC CONTRACTOR
- LOCAL AREA NETWORK DATA PORT DROP; FURNISHED AND INSTALLED BY ELECTRICAL
- NORMALLY CLOSED - POWERED OPEN
- NORMALLY OPEN - POWERED CLOSED
- NORMALLY CLOSED - POWERED OPEN RELAY CONTACT
- NORMALLY OPEN - POWERED CLOSED RELAY CONTACT
- TO FLOOR DRAIN
- PNEUMATIC CONTROL SUPPLY AIR CONNECTION
- EMERGENCY (ESSENTIAL) ELECTRICAL POWER

DIRECT DIGITAL CONTROL POINT TYPES

- |      |  |        |   |
|------|--|--------|---|
| (AI) | DDC SYSTEM ANALOG INPUT POINT TYPE             | (G AI) | GLOBAL DDC SYSTEM ANALOG INPUT POINT TYPE             |
| (AO) | DDC SYSTEM ANALOG OUTPUT POINT TYPE            | (G AO) | GLOBAL DDC SYSTEM ANALOG OUTPUT POINT TYPE            |
| (DI) | DDC SYSTEM DIGITAL OR BINARY INPUT POINT TYPE  | (G DI) | GLOBAL DDC SYSTEM DIGITAL OR BINARY INPUT POINT TYPE  |
| (DO) | DDC SYSTEM DIGITAL OR BINARY OUTPUT POINT TYPE | (G DO) | GLOBAL DDC SYSTEM DIGITAL OR BINARY OUTPUT POINT TYPE |

ANALOG INPUT SENSORS

- |           |   |             |   |
|-----------|---|-------------|---|
| (T)       | DUCT TEMPERATURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY THE ATC CONTRACTOR.   | (T)         | AVERAGING DUCT TEMPERATURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR. REFER TO DETAIL I.  |
| (T)       | OUTSIDE AIR TEMPERATURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY THE ATC CONTRACTOR.  | (T)         | PIPE TEMPERATURE SENSOR; FURNISHED AND WIRED BY THE ATC CONTRACTOR. THERMAL WELL INSTALLED IN THE PIPING BY THE MECHANICAL CONTRACTOR.  |
| (STM P)   | STEAM PRESSURE SENSOR WITH STEAM SIPHON; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR. TAP AND ISOLATION VALVE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR.             | (AIR P)     | AIR PRESSURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR. TAP AND ISOLATION VALVE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR.                                   |
| (VAC P)   | VACUUM PRESSURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR. TAP AND ISOLATION VALVE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR.                              | (GAS P)     | GAS PRESSURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR. TAP AND ISOLATION VALVE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR. COORDINATE PRESSURE REQUIREMENTS. |
| (T)       | ROOM TEMPERATURE SENSOR WITH SETPOINT, OVERRIDE PUSHBUTTON, AND DIGITAL DISPLAY; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR.   | (H)         | ROOM HUMIDITY SENSOR WITH DIGITAL DISPLAY; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR.   |
| (T)       | ROOM TEMPERATURE SENSOR WITH SETPOINT, AND OVERRIDE PUSHBUTTON; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR.  | (H)         | ROOM HUMIDITY SENSOR; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR.  |
| (BSP)     | BUILDING STATIC PRESSURE SENSOR WITH DIGITAL DISPLAY; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR. REFER TO DETAIL F.   | (DSP)       | DUCT STATIC PRESSURE SENSOR WITH DIGITAL DISPLAY; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR.  |
| (DPSI WM) | DIFFERENTIAL PRESSURE SENSOR FOR WET MEDIA WITH DIGITAL DISPLAY; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR. ISOLATION VALVES AND TAPS IN PIPING BY MECHANICAL CONTRACTOR. | (DPS)       | DIFFERENTIAL PRESSURE SENSOR WITH DIGITAL DISPLAY; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR.   |
| (H)       | DUCT RELATIVE HUMIDITY SENSOR; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR.   | (CO2)       | ROOM CARBON DIOXIDE SENSOR WITH DIGITAL DISPLAY; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR.   |
| (T)       | STRAP ON TEMPERATURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY THE ATC CONTRACTOR.   | (CO2)       | DUCT CARBON DIOXIDE SENSOR WITH DIGITAL DISPLAY; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR.   |
| (FM LIQ)  | LIQUID FLOW METER - FURNISHED AND WIRED BY THE ATC CONTRACTOR. INSTALLED IN PIPING BY MECHANICAL CONTRACTOR.  | (FM GAS)    | GAS FLOW METER - FURNISHED AND WIRED BY THE ATC CONTRACTOR. INSTALLED IN PIPING BY MECHANICAL CONTRACTOR.   |
| (FM STM)  | STEAM FLOW METER - FURNISHED AND WIRED BY THE ATC CONTRACTOR. INSTALLED IN PIPING BY MECHANICAL CONTRACTOR.   | (FHC)       | FUME HOOD CONTROL WITH DISPLAY AND KEYPAD; FURNISHED, INSTALLED, AND WIRED BY THE ATC CONTRACTOR.   |
| (RPS)     | ROOM PRESSURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY THE ATC CONTRACTOR.  | (HOOD PROX) | FUME HOOD PROXIMITY SENSOR; FURNISHED, INSTALLED, AND WIRED BY THE ATC CONTRACTOR.  |
| (RPM)     | ROOM PRESSURE MONITOR; FURNISHED, INSTALLED, AND WIRED BY THE ATC CONTRACTOR.   |             |   |

DIGITAL INPUT SENSORS

- |          |  |           |  |
|----------|--|-----------|--|
| (TLL)    | LOW LIMIT TEMPERATURE SWITCH WITH MANUAL RESET; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR. DPDT SWITCH FOR HARDWIRE INTERLOCK TO FANS AND DDC MONITORING. REFER TO DETAIL H. | (HSL)     | HIGH STATIC PRESSURE LIMIT SWITCH WITH MANUAL RESET; FURNISHED, INSTALLED, AND WIRED BY THE ATC CONTRACTOR. DPDT SWITCH FOR HARDWIRE INTERLOCK TO FANS AND DDC MONITORING. ORIENT FOR STATIC PRESSURE SENSING. |
| (OCC)    | OCCUPANCY SENSOR; FURNISHED AND WIRED BY THE ATC CONTRACTOR. INSTALLED IN LIGHTING CIRCUIT BY ELECTRICAL CONTRACTOR.   | (CSR)     | CURRENT SENSING RELAY; FURNISHED, INSTALLED, AND WIRED BY THE ATC CONTRACTOR.  |
| (ES)     | END SWITCH; FURNISHED, INSTALLED AND WIRED BY ATC CONTRACTOR UNLESS OTHERWISE NOTED, SHOWN ON THE DRAWINGS, OR SPECIFIED.  | (FLDR SW) | FILTER DIFFERENTIAL PRESSURE SWITCH; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR.  |
| (WFS)    | WATER FLOW SWITCH SPECIFIED TO BE FURNISHED WITH HVAC EQUIPMENT; WIRED BY ATC CONTRACTOR.  | (Lp SW)   | DIFFERENTIAL PRESSURE SWITCH FOR WET MEDIA; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR. PRESSURE TAPS IN PIPING BY MECHANICAL CONTRACTOR.   |
| (RM OCC) | WALL MOUNTED ROOM OCCUPANCY SWITCH; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR.   | (RM OCC)  | CEILING MOUNTED ROOM OCCUPANCY SWITCH; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR.  |
| (MS)     | MOISTURE SENSOR; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR.  | (PE SW)   | PRESSURE TO ELECTRIC SWITCH; FURNISHED, INSTALLED, PNEUMATIC PIPING, AND ELECTRICAL WIRING BY THE ATC CONTRACTOR.  |
| (KS)     | KEYED SWITCH; FURNISHED, INSTALLED AND WIRED BY THE ATC CONTRACTOR.  | (EFS)     | ELECTRONIC WATER FLOW SENSOR; FURNISHED, INSTALLED AND WIRED BY ATC CONTRACTOR. INSTALLED IN PIPING BY MECHANICAL CONTRACTOR.  |

OUTPUT DEVICES

- |            |  |             |  |
|------------|--|-------------|--|
| (VA)       | CONTROL VALVE (2-WAY) WITH ELECTRIC OR ELECTRONIC ACTUATOR; FURNISHED AND WIRED BY ATC CONTRACTOR. INSTALLED IN PIPING BY MECHANICAL CONTRACTOR.                         | (VA ES)     | CONTROL VALVE (2-WAY) WITH ELECTRIC OR ELECTRONIC ACTUATOR AND INTEGRAL END SWITCH; FURNISHED AND WIRED BY ATC CONTRACTOR. INSTALLED IN PIPING BY MECHANICAL CONTRACTOR.           |
| (VA)       | CONTROL VALVE (3-WAY) WITH ELECTRIC OR ELECTRONIC ACTUATOR AND INTEGRAL END SWITCH; FURNISHED AND WIRED BY ATC CONTRACTOR. INSTALLED IN PIPING BY MECHANICAL CONTRACTOR. | (VA ES)     | CONTROL VALVE (3-WAY) WITH ELECTRONIC ACTUATOR AND INTEGRAL END SWITCH; FURNISHED AND WIRED BY ATC CONTRACTOR. INSTALLED IN PIPING BY MECHANICAL CONTRACTOR.                       |
| (VA)       | BUTTERFLY CONTROL VALVE (2-WAY) WITH ELECTRONIC ACTUATOR; FURNISHED AND WIRED BY ATC CONTRACTOR. INSTALLED IN PIPING BY MECHANICAL CONTRACTOR.                           | (VA ES)     | BUTTERFLY CONTROL VALVE (2-WAY) WITH ELECTRONIC ACTUATOR AND INTEGRAL END SWITCH; FURNISHED AND WIRED BY ATC CONTRACTOR. INSTALLED IN PIPING BY MECHANICAL CONTRACTOR.             |
| (VA)       | BUTTERFLY CONTROL VALVE (3-WAY) WITH ELECTRONIC ACTUATOR; FURNISHED AND WIRED BY ATC CONTRACTOR. INSTALLED IN PIPING BY MECHANICAL CONTRACTOR.                           | (VA ES)     | BUTTERFLY CONTROL VALVE (3-WAY) WITH ELECTRONIC ACTUATOR AND INTEGRAL END SWITCH; FURNISHED AND WIRED BY ATC CONTRACTOR. INSTALLED IN PIPING BY MECHANICAL CONTRACTOR.             |
| (DA)       | DAMPER ACTUATOR; FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR UNLESS OTHERWISE NOTED ON DRAWINGS OR IN SPECIFICATIONS.  | (DA ES)     | DAMPER ACTUATOR WITH INTEGRAL END SWITCH(S); FURNISHED, INSTALLED, AND WIRED BY ATC CONTRACTOR UNLESS OTHERWISE NOTED ON DRAWINGS OR IN SPECIFICATIONS.                            |
| (SDA)      | SMOKE DAMPER ACTUATOR(S) FURNISHED AND INSTALLED BY SHEETMETAL CONTRACTOR. REFER TO DETAIL G.  | (SDA ES)    | SMOKE DAMPER ACTUATOR(S) WITH INTEGRAL END SWITCH; FURNISHED AND INSTALLED BY SHEETMETAL CONTRACTOR. REFER TO DETAIL G.  |
| (FSDA)     | FIRE/SMOKE DAMPER ACTUATOR(S); FURNISHED AND INSTALLED BY SHEETMETAL CONTRACTOR. REFER TO DETAIL G.  | (FSDA ES)   | FIRE/SMOKE DAMPER ACTUATOR(S) WITH INTEGRAL END SWITCH; FURNISHED AND INSTALLED BY SHEETMETAL CONTRACTOR. REFER TO DETAIL G.   |
| (VA PNEU)  | PNEUMATIC VALVE ACTUATOR(S); FURNISHED, INSTALLED, AND PNEUMATIC PIPING BY ATC CONTRACTOR.   | (DA PNEU)   | PNEUMATIC DAMPER ACTUATOR(S); FURNISHED, INSTALLED, AND PNEUMATIC PIPING BY ATC CONTRACTOR.  |
| (SDA PNEU) | PNEUMATIC SMOKE DAMPER ACTUATOR(S); FURNISHED AND INSTALLED BY SHEETMETAL CONTRACTOR. PNEUMATIC PIPING BY THE ATC CONTRACTOR.  | (FSDA PNEU) | PNEUMATIC FIRE/SMOKE DAMPER ACTUATOR(S); FURNISHED AND INSTALLED BY SHEETMETAL CONTRACTOR. PNEUMATIC PIPING FOR FIRE/SMOKE DAMPERS BY ATC CONTRACTOR.                              |
| (EPT)      | ELECTRIC TO PRESSURE TRANSDUCER; FURNISHED, INSTALLED, PIPED, AND WIRED BY THE ATC CONTRACTOR.   | (AFMS ATC)  | AIR FLOW MEASURING STATION WITH INTEGRAL CONTROL DAMPER; FURNISHED AND WIRED BY THE ATC CONTRACTOR. INSTALLED BY THE SHEETMETAL CONTRACTOR.  |
| (AFMS ATC) | AIR FLOW MEASURING STATION WITH INTEGRAL CONTROL DAMPER; FURNISHED AND WIRED BY THE ATC CONTRACTOR. INSTALLED BY THE SHEETMETAL CONTRACTOR.                              | (NC)        | EXHAUST AIRFLOW MEASURING DEVICE; FURNISHED BY THE ATC CONTRACTOR. INSTALLED BY THE SHEETMETAL CONTRACTOR. DIFFERENTIAL PRESSURE SENSOR FURNISHED AND INSTALLED BY ATC CONTRACTOR. |

OTHER CONTROL DEVICES

- |       |   |       |  |
|-------|---|-------|--|
| (FEP) | FIELD EQUIPMENT PANEL (FEP); FURNISHED AND INSTALLED BY ATC CONTRACTOR. POWER WIRING TO FEP BY ELECTRICAL CONTRACTOR. | (DDC) | DIRECT DIGITAL CONTROL PANEL (DDC); FURNISHED AND INSTALLED BY ATC CONTRACTOR. POWER WIRING TO DDC PANEL BY ELECTRICAL CONTRACTOR. |
| (F)   | FILTER GAGE; FURNISHED WITH FILTERS; INSTALLATION AND INSTRUMENT PIPING BY ATC CONTRACTOR.                            | (S)   | BALL-IN-TUBE VISUAL OFFSET INDICATOR FURNISHED AND INSTALLED BY ATC CONTRACTOR.  |

CONTROL DEVICES FURNISHED BY OTHER TRADES:

- |           |   |           |   |
|-----------|---|-----------|---|
| (HHL EQ)  | HUMIDITY HIGH LIMIT SENSOR; FURNISHED AND INSTALLED WITH THE STEAM HUMIDIFIER. INSTALLED AND WIRED BY ATC CONTRACTOR.   | (P)       | PLENUM FAN INLET BELL HOUSING AIRFLOW MEASURING STATION FURNISHED AND INSTALLED BY THE FAN MANUFACTURER.  |
| (LVL FOS) | FUEL OIL SYSTEM LEVEL SENSOR; FURNISHED AND INSTALLED BY THE FUEL OIL SYSTEM SUPPLIER. WIRED BY ATC CONTRACTOR.   | (LVL EG)  | CENTRIFUGAL FAN INLET BELL HOUSING AIRFLOW MEASURING STATION FURNISHED AND INSTALLED BY THE FAN MANUFACTURER.   |
| (SV FOS)  | FUEL OIL SYSTEM SOLENOID VALVE; FURNISHED AND INSTALLED BY THE FUEL OIL SYSTEM SUPPLIER. WIRED BY ATC CONTRACTOR.   | (LVL EG)  | EMERGENCY GENERATOR FUEL OIL LEVEL SENSOR; FACTORY FURNISHED, INSTALLED, AND WIRED WITH THE EMERGENCY GENERATOR.  |
| (VA WSP)  | WATER SOURCE HEAT PUMP ISOLATION VALVE; FURNISHED WITH THE WSP. INSTALLED BY THE MECHANICAL CONTRACTOR. WIRED BY ATC CONTRACTOR.  | (SV EG)   | EMERGENCY GENERATOR SOLENOID VALVE; FURNISHED AND INSTALLED BY THE FUEL OIL SYSTEM SUPPLIER. WIRED BY ATC CONTRACTOR.   |
| (LVL CDP) | CONDENSATE PUMP LEVEL SENSOR; FACTORY FURNISHED WITH THE CONDENSATE PUMP. WIRED BY ATC CONTRACTOR.  | (LEAK EC) | EMERGENCY GENERATOR FUEL OIL LEAK DETECTOR; FACTORY FURNISHED, INSTALLED, AND WIRED WITH THE EMERGENCY GENERATOR.   |
| (FS FOS)  | FUEL OIL SYSTEM FLOW SWITCH; FURNISHED AND INSTALLED WITH FUEL OIL SYSTEM BY MECHANICAL CONTRACTOR. WIRED BY ATC CONTRACTOR.  | (T EQ)    | EQUIPMENT STRAP ON TEMPERATURE SENSOR; FURNISHED AND INSTALLED BY THE ATC CONTRACTOR.   |
| (AFMS EQ) | AIR FLOW MEASURING STATION; FURNISHED AND INSTALLED BY THE AIR HANDLING UNIT MANUFACTURER. WIRING FROM THE AFMS TO THE DDC PANEL BY ATC CONTRACTOR. POWER WIRING BY ELECTRICAL CONTRACTOR.  | (AFMS SM) | AIR FLOW MEASURING STATION; FURNISHED AND INSTALLED BY THE SHEETMETAL CONTRACTOR. WIRING FROM THE AFMS TO THE DDC PANEL BY ATC CONTRACTOR. POWER WIRING BY ELECTRICAL CONTRACTOR.   |
| (VA EQ)   | CONTROL VALVE (2-WAY) WITH ELECTRIC OR ELECTRONIC ACTUATOR; FURNISHED WITH EQUIPMENT (EQ); WIRED BY ATC CONTRACTOR. INSTALLED IN PIPING BY MECHANICAL CONTRACTOR.   | (NC)      | CONTROL DAMPER; FURNISHED AND INSTALLED BY THE SHEETMETAL CONTRACTOR. DAMPER ACTUATOR FURNISHED AND INSTALLED BY THE SHEETMETAL CONTRACTOR.   |
| (AFMS EQ) | AIR FLOW MEASURING STATION WITH INTEGRAL CONTROL DAMPER; FURNISHED AND INSTALLED BY THE AIR HANDLING UNIT MANUFACTURER. WIRING TO DDC SYSTEM BY ATC CONTRACTOR.   | (AFMS SM) | AIR FLOW MEASURING STATION WITH INTEGRAL CONTROL DAMPER; FURNISHED AND INSTALLED BY THE SHEETMETAL CONTRACTOR.  |
| (FAR SMK) | FIRE ALARM PROGRAMMABLE RELAY (FAR) FOR SMOKE PURGE OPERATION (SMK); FURNISHED, INSTALLED, AND PROGRAMMED BY FIRE ALARM CONTRACTOR. FAR SHALL BE LOCATED IN SAME ROOM AS HVAC EQUIPMENT SERVED PER NFPA. ALL WIRING FROM FAR TO FIRE ALARM SYSTEM BY FIRE ALARM CONTRACTOR. INTERLOCK WIRING FROM FAR TO ATC PANEL BY ATC CONTRACTOR. | (FAR)     | FIRE ALARM PROGRAMMABLE RELAY (FAR); FURNISHED, INSTALLED, AND PROGRAMMED BY FIRE ALARM CONTRACTOR. FAR SHALL BE LOCATED IN SAME ROOM AS HVAC EQUIPMENT SERVED PER NFPA. ALL WIRING FROM FAR TO FIRE ALARM SYSTEM BY FIRE ALARM CONTRACTOR. INTERLOCK WIRING FROM FAR TO ATC PANEL BY ATC CONTRACTOR. |
| (DSD)     | DUCT MOUNTED SMOKE DETECTOR(S); FURNISHED, INSTALLED, AND WIRED BY FIRE ALARM CONTRACTOR AS PART OF THE FIRE ALARM SYSTEM.  |           |   |

DETAIL: CONTROL SYMBOL LEGEND  
NOT TO SCALE

NOTE: SYMBOLS ARE FOR REFERENCE ONLY AND MAY NOT ALL BE USED ON THIS SPECIFIC PROJECT.

HEATING PLANT - MAKE-UP AIR HANDLING UNIT  
UNIVERSITY OF ARKANSAS  
FAYETTEVILLE, ARKANSAS

MARK	DATE	DESCRIPTION
ISSUE DATE:	01/16/2026	
PROJECT NUMBER:	04-25-0012	
SHEET TITLE:		
CONTROLS		
SHEET NUMBER:		
M501		



CORPORATE SEAL



ENGINEER SEAL

**HEATING PLANT - MAKE-UP AIR HANDLING UNIT**  
UNIVERSITY OF ARKANSAS  
FAYETTEVILLE, ARKANSAS

**CONTROL DIAGRAM SYMBOL**

**B DETAIL: NOT USED**  
NOT TO SCALE

**CONTROL DIAGRAM SYMBOL**

**C DETAIL: VARIABLE FREQUENCY DRIVE INTERLOCK**  
NOT TO SCALE

**CONTROL DIAGRAM SYMBOL**

**D DETAIL: PIPING HEAT TRACE CONTROL DIAGRAM**  
NOT TO SCALE

**CONTROL DIAGRAM SYMBOL**

**E DETAIL: UVC LIGHT(S) AND CONTROL PANEL**  
NOT TO SCALE

**CONTROL DIAGRAM SYMBOL**

**F DETAIL: BUILDING PRESSURE SENSOR**  
NOT TO SCALE

**CONTROL DIAGRAM SYMBOL**

**G DETAIL: NOT USED**  
NOT TO SCALE

**CONTROL DIAGRAM SYMBOL**

**H DETAIL: TEMPERATURE LOW LIMIT SWITCH**  
NOT TO SCALE

**CONTROL DIAGRAM SYMBOL**

**I DETAIL: DUCT AVERAGING TEMPERATURE SENSOR**  
NOT TO SCALE

**CONTROL DIAGRAM SYMBOL**

**J DETAIL: SPACE DIFFERENTIAL PRESSURE SENSOR**  
NOT TO SCALE

**CONTROL DIAGRAM SYMBOL**

**K DETAIL: DUCT STATIC PRESSURE HIGH LIMIT SWITCH**  
NOT TO SCALE

**CONTROL DIAGRAM SYMBOL**

**L DETAIL: DUCT STATIC PRESSURE LOW LIMIT SWITCH**  
NOT TO SCALE

**CONTROL DIAGRAM SYMBOL**

**N DETAIL: FIRE ALARM RELAY (FAR)**  
NOT TO SCALE

NOTE: DETAILS ARE FOR REFERENCE ONLY AND MAY NOT ALL BE USED ON THIS SPECIFIC PROJECT.

MARK	DATE	DESCRIPTION
ISSUE DATE:	01/16/2026	
PROJECT NUMBER:	04-25-0012	
SHEET TITLE:		
CONTROLS		
SHEET NUMBER:		
<b>M502</b>		



**ABBREVIATIONS**

<b>A</b>	AMPERS AIR CONDITIONING ALTERNATING CURRENT ADJUSTABLE AMPERE FUSE ABOVE FINISHED CEILING ABOVE FINISHED FLOOR ABOVE FINISHED GRADE AIR HANDLING UNIT AMPERE INTERRUPTING CURRENT ALUMINUM AMERICAN NATIONAL STANDARDS INSTITUTE ARCHITECT, ARCHITECTURAL AUXILIARY AMERICAN WIRE GAUGE	<b>G</b>	GND, GRD GROUND GA GAUGE GALV GALVANIZED GENSET GENERATOR SET GFCI GROUND FAULT CIRCUIT INTERRUPTER GFI GROUND FAULT INTERRUPTER	<b>P</b>	PF POWER FACTOR PH, Ø PHASE PLB PLUMBING PNL PANEL PVC POLYVINYL CHLORIDE
<b>B</b>	BELOW FINISHED CEILING BELOW FINISHED GRADE (EARTH) BELOW FLOOR SLAB BREAKER BUILDING	<b>H</b>	HP HORSEPOWER HR, HRS HOUR, HOURS HSD HOUSE SIDE OPTICS HTR HEATER HVAC HEATING, VENTILATION, AND AIR CONDITIONING HERTZ	<b>Q</b>	QTY QUANTITY
<b>C</b>	CONDUIT CABLE TELEVISION SYSTEM CLOSED CIRCUIT TELEVISION CUBIC INCHES CIRCUIT CENTERLINE CEILING COORDINATE COLOR SELECTED BY ARCHITECT COPPER, CONDENSING UNIT	<b>I</b>	INSIDE DIAMETER INSTITUTE OF ELECTRICAL AND ELECTRONICS ILLUMINATING ENGINEERING SOCIETY ISOLATED GROUND	<b>R</b>	REFLECTED CEILING PLAN REFERENCE, REFER REQUIRED REVISED, REVISION, REVISE RIGID GALVANIZED STEEL RUNNING LOAD AMPS ROOM ROOF TOP UNIT
<b>D</b>	DIRECT CURRENT HVAC DIGITAL CONTROL PANEL DEMO, DEMO'D DEMOLISHED DIA DIAMETER DISC. SW., DIS DISCONNECT SWITCH DN DOWN DWG DRAWING	<b>J</b>	JUNCTION BOX	<b>S</b>	SDBC SOFT DRAWN BARE COPPER SE SERVICE ENTRANCE SECT SECTION SHT SHEET SIM SIMILAR SPEC SPECIFICATIONS SQ. FT., S.F. SQUARE FEET SS STAINLESS STEEL STD STANDARD SURF SURFACE SUSP SUSPEND SW SWITCH
<b>E</b>	EACH ELECTRICAL CONTRACTOR EXH FAN EXHAUST FAN ELEC ELECTRICAL EM EMERGENCY FIXTURE ENCL ENCLOSURE EPO EMERGENCY POWER OFF EQUIP EQUIPMENT ETR EXISTING EQUIPMENT TO REMAIN EWC ELECTRICAL WATER COOLER	<b>K</b>	1000 AMPS INTERRUPTING CURRENT 1000 CIRCULAR MILS KNOCKOUT KILOVOLT KILOWATT-AMPERE KILOWATT KILOWATT-HOUR	<b>T</b>	TELECOM TELECOMMUNICATIONS TGB TELECOM GROUNDING BUSBAR TGM TOTAL HARMONIC DISTORTION THRU THROUGH TYP TYPICAL
<b>F</b>	FIRE ALARM FACP FIRE ALARM CONTROL PANEL FD FIRE DAMPER FEP HVAC FIELD EQUIP RELAY PANEL FLA FULL LOAD AMPS FLEX FLEXIBLE FM FACTORY MUTUAL	<b>L</b>	LINEAR FEET LOCKED ROTOR AMPS LOW VOLTAGE	<b>U</b>	UNDERFLOOR UNDERGROUND UNDERGROUND ELECTRIC UNIT HEATER UNDERWRITERS LABORATORIES, INC. UNO UNINTERRUPTIBLE POWER SUPPLY
		<b>M</b>	MAXIMUM MINIMUM CIRCUIT AMPACITY MAIN CIRCUIT BREAKER MOTORIZED DAMPER MAIN DISTRIBUTION PANEL MECH MECHANICAL MFR, MANUF. MANUFACTURER MLO MAIN LUGS ONLY MIN MINUTE, MINIMUM MOCP, MOCP'D MAX. OVERCURRENT PROTECTIVE DEVICE MOUNTED	<b>V</b>	VOLT VOLT-AMPERE VARIABLE FREQUENCY DRIVE
		<b>N</b>	NEUTRAL NORMALLY CLOSED NIGHT LIGHT (FIXTURE ON 24 HRS) NOT TO SCALE NOT APPLICABLE NATIONAL ELECTRIC CODE NATIONAL ELECTRIC MANUFACTURER'S ASSOCIATION NON-FUSED NATIONAL FIRE PROTECTION ASSOCIATION NOT IN CONTRACT	<b>W</b>	WATT, WIDTH WITH WITHOUT WATER HEATER WEATHER-PROOF
		<b>O</b>	ON CENTER OUTSIDE DIAMETER	<b>X</b>	TRANSFORMER EXISTING

NOTE: REFER TO INDUSTRY STANDARDS, APPLICABLE CODES, AND PLAN DOCUMENTS OF ALL DISCIPLINES FOR MORE INFORMATION ON ABBREVIATIONS AND NOMENCLATURE.

**GENERAL NOTES**

- EACH CIRCUIT SHALL HAVE AN EQUIPMENT GROUNDING CONDUCTOR, AND MULTI-WIRE CIRCUITS OF DIFFERENT PHASES MAY SHARE EQUIPMENT GROUND CONDUCTOR. EQUIPMENT GROUND CONDUCTOR SIZE SHALL NOT BE LESS THAN #12 AWG OR AS INDICATED ON THE DRAWINGS.
- ALL CONDUCTORS #10 AND SMALLER SHALL BE SOLID COPPER, AND ALL CONDUCTORS #8 AND LARGER SHALL BE STRANDED COPPER USING BOLTED LUGS AT TERMINALS.
- MINIMUM CONDUIT SIZE SHALL BE 3/4" UNLESS OTHERWISE NOTED.
- ALL WIRING DEVICES SHALL BE INSTALLED PLUMB, SQUARE, AND TRUE; AND ALL DEVICES INSTALLED AT A SINGLE LOCATION SHALL BE ALIGNED.
- MINIMUM WIRE SIZE SHALL BE #12 AWG UNLESS OTHERWISE SPECIFIED.
- ALL WORK SHALL COMPLY WITH THE 2020 EDITION OF THE NATIONAL ELECTRICAL CODE.
- ALL EXISTING BRANCH CIRCUITS NOT USED SHALL BE REMOVED BACK TO PANEL. THE CIRCUIT BREAKERS SHALL BE LABELED AS SPARE, AND EXISTING CONDUIT SHALL REMAIN FROM PANEL TO ABOVE ACCESSIBLE CEILING SPACE.
- THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION IN AREAS OF RENOVATION. ALL WIRING DEVICES, LIGHT FIXTURES, WIRE, AND CONDUIT THAT IS TO BE REMOVED SHALL BE STORED AS DIRECTED BY THE OWNER, OR RELOCATED, AS SHOWN ON THE NEW FLOOR PLANS. APPROPRIATE MEASURES SHALL BE TAKEN TO ASSURE CONTINUITY OF EXISTING CIRCUITS WHERE REQUIRED. ALL OUTAGES WHICH MAY RESULT SHALL BE COORDINATED WITH THE OWNER PRIOR TO THE WORK.
- THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR UPDATING SCHEDULES IN ALL ELECTRICAL PANELS THAT ARE AFFECTED BY THIS WORK. UPDATED SCHEDULES ARE TO BE TYPEWRITTEN.
- THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR MARKING ALL SWITCHES, RECEPTACLES, AND FIXED EQUIPMENT WITH THE BRANCH CIRCUIT PANEL NAME AND NUMBER SERVING EACH DEVICE.
- ALL CONDUIT SHALL BE INSTALLED AS HIGH AS POSSIBLE (MOUNT TO BOTTOM OF STRUCTURE) TO AVOID CONFLICTS WITH DUCTWORK AND PIPING. THE ELECTRICAL CONTRACTOR SHALL COORDINATE INSTALLATION WITH THE MECHANICAL CONTRACTOR.
- ON THREE PHASE, FOUR WIRE SYSTEMS, DO NOT USE A COMMON NEUTRAL. MORE THAN THREE CIRCUITS IN ANY ONE CONDUIT IS NOT ALLOWED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.

**ELECTRICAL LEGEND**

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	BRANCH CIRCUIT IN CONDUIT - HOT LEG, SWITCH LEG, NEUTRAL, AND EQUIPMENT GROUND		DUPLEX RECEPTACLE		JUNCTION BOX
	BRANCH CIRCUIT HOMERUN - PANEL & CIRCUIT NUMBER INDICATED		DUPLEX RECEPTACLE - EMERGENCY POWER		NON-FUSED DISCONNECT SWITCH - SIZE NOTED ON PLAN
	CONDUIT CONCEALED IN OR BELOW FLOOR SLAB		DUPLEX RECEPTACLE WITH ISOLATED GROUND		COMBINATION MOTOR STARTER AND DISCONNECT SWITCH
	QUADRUPLEX RECEPTACLE		DUPLEX RECEPTACLE - GROUND FAULT INTERRUPTING AND WEATHER-PROOF TYPES AS INDICATED ON PLANS		ABOVE FINISHED FLOOR ABOVE FINISHED GRADE
	DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER TOP - VERIFY MOUNTING HEIGHT WITH ARCH. DRAWINGS		FUSED DISCONNECT		SURFACE MOUNTED PANEL BOARD
	ELECTRIC MOTOR				



1 ALLIED DRIVE, BUILDING 2  
SUITE 2600  
LITTLE ROCK, AR 72202  
Phone: (501) 666-6776  
Fax: (501) 663-8888



CORPORATE SEAL

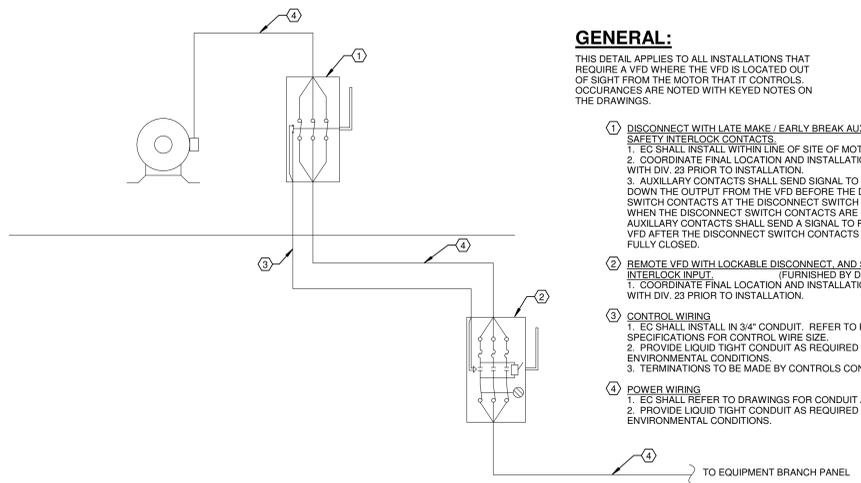


ENGINEER SEAL

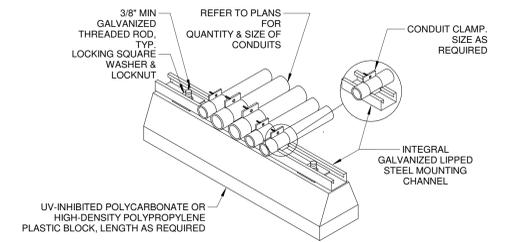
**GENERAL:**

THIS DETAIL APPLIES TO ALL INSTALLATIONS THAT REQUIRE A VFD WHERE THE VFD IS LOCATED OUT OF SIGHT FROM THE MOTOR THAT IT CONTROLS. OCCURRENCES ARE NOTED WITH KEYED NOTES ON THE DRAWINGS.

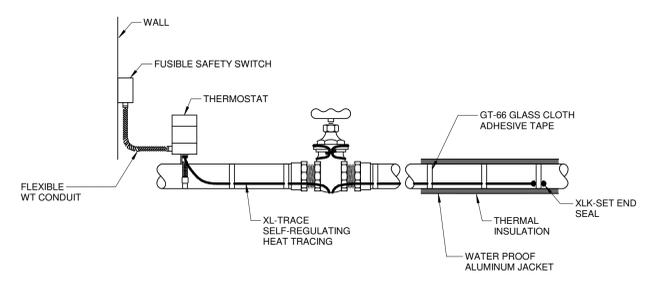
- DISCONNECT WITH LATE MAKE / EARLY BREAK AUXILIARY SAFETY INTERLOCK CONTACTS.**  
1. EC SHALL INSTALL WITHIN LINE OF SITE OF MOTOR.  
2. COORDINATE FINAL LOCATION AND INSTALLATION METHOD WITH DIV. 23 PRIOR TO INSTALLATION.  
3. AUXILIARY CONTACTS SHALL SEND SIGNAL TO VFD TO SHUT DOWN THE OUTPUT FROM THE VFD BEFORE THE DISCONNECT SWITCH CONTACTS AT THE DISCONNECT SWITCH ARE OPENED. WHEN THE DISCONNECT SWITCH CONTACTS ARE CLOSED, THE AUXILIARY CONTACTS SHALL SEND A SIGNAL TO RESTART THE VFD AFTER THE DISCONNECT SWITCH CONTACTS HAS BEEN FULLY CLOSED.
- REMOTE VFD WITH LOCKABLE DISCONNECT, AND SAFETY INTERLOCK INPUT (FURNISHED BY DIV. 23)**  
1. COORDINATE FINAL LOCATION AND INSTALLATION METHOD WITH DIV. 23 PRIOR TO INSTALLATION.
- CONTROL WIRING**  
1. EC SHALL INSTALL IN 3/4" CONDUIT. REFER TO PROJECT SPECIFICATIONS FOR CONTROL WIRE SIZE.  
2. PROVIDE LIQUID TIGHT CONDUIT AS REQUIRED BY ENVIRONMENTAL CONDITIONS.  
3. TERMINATIONS TO BE MADE BY CONTROLS CONTRACTOR.
- POWER WIRING**  
1. EC SHALL REFER TO DRAWINGS FOR CONDUIT AND WIRE SIZE.  
2. PROVIDE LIQUID TIGHT CONDUIT AS REQUIRED BY ENVIRONMENTAL CONDITIONS.



1 REMOTE VFD / DISCONNECT WIRING DETAIL  
NOT TO SCALE



2 ROOF MOUNTED CONDUIT SUPPORT DETAIL  
NOT TO SCALE



NOTE:  
REFER TO MECHANICAL PLANS TO DETERMINE THE AMOUNT OF EXPOSED PIPING REQUIRING HEAT TRACE.

3 HEAT TRACE DIAGRAM  
NOT TO SCALE

HEATING PLANT - MAKE-UP AIR HANDLING UNIT  
UNIVERSITY OF ARKANSAS  
FAYETTEVILLE, ARKANSAS

MARK	DATE	DESCRIPTION
ISSUE DATE:	01/16/2026	
PROJECT NUMBER:	04-25-0012	

SHEET TITLE:  
GENERAL NOTES,  
DETAILS AND  
LEGENDS -  
ELECTRICAL

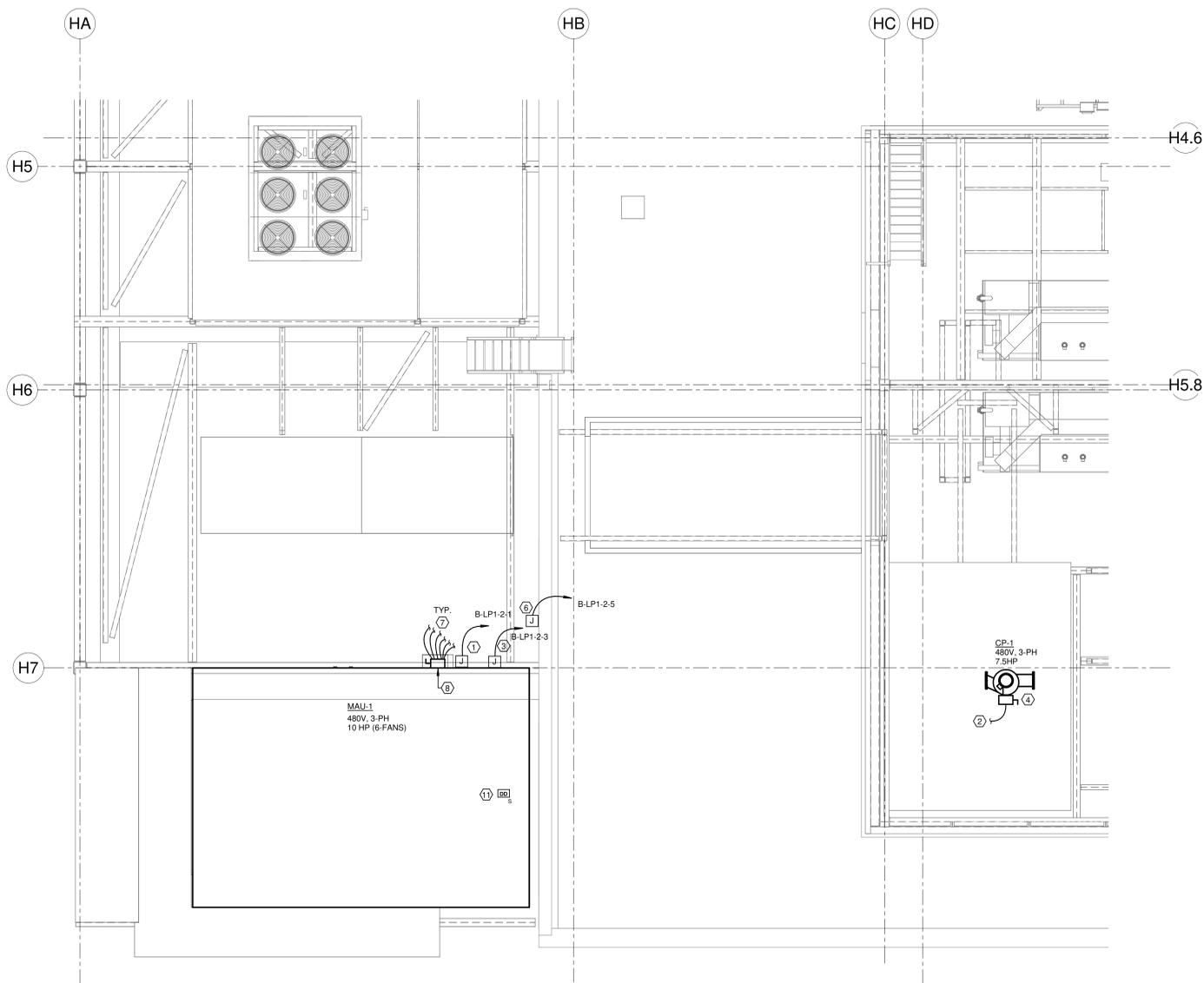
SHEET NUMBER:  
**E001**

**GENERAL NOTES:**

- REFER TO SHEET E001 FOR GENERAL ELECTRICAL NOTES.
- DEVICES SHOWN IN HALF-TONE ARE EXISTING TO REMAIN.
- ALL CONDUIT PENETRATIONS THROUGH THE WEATHER BARRIER SHALL BE SOLID AND CONDUIT SHALL BE SEALED. COORDINATE WITH GENERAL CONTRACTOR AS REQUIRED.

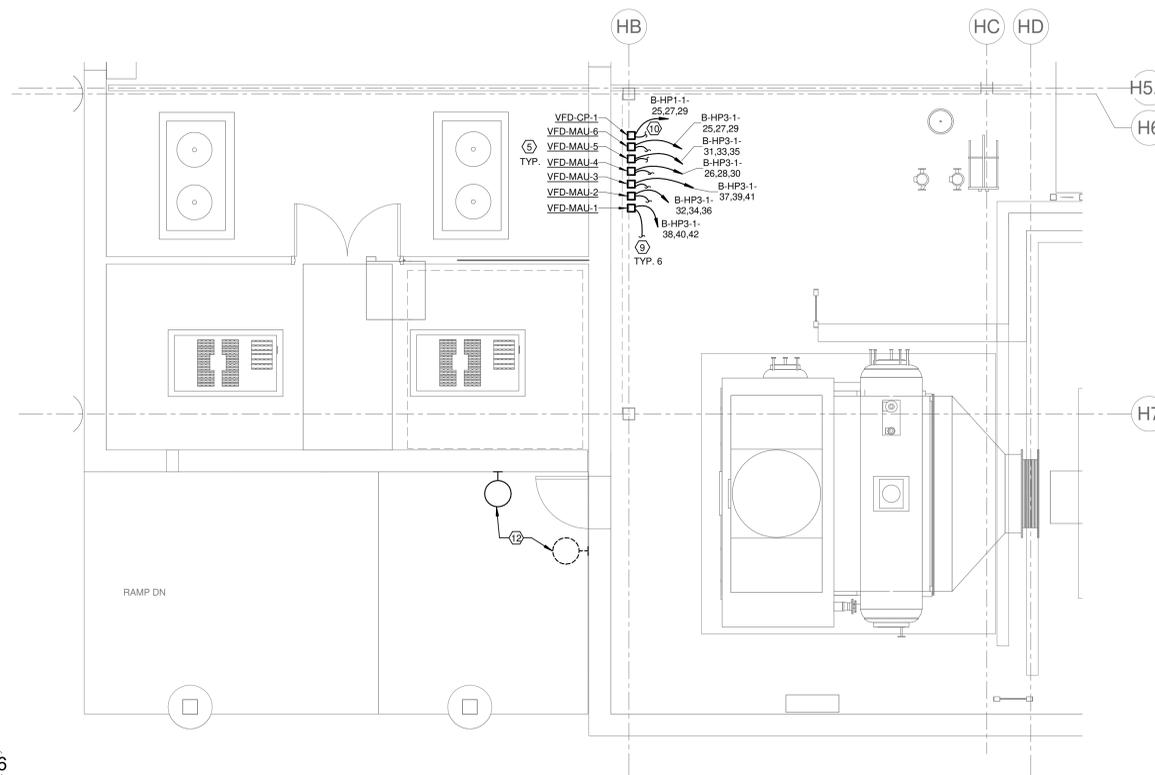
**KEYED NOTES:**

- PROVIDE AND INSTALL J-BOX FOR POWER CONNECTION TO INTEGRAL UNIT LIGHTS, RECEPTACLE AND CONTROLS. COORDINATE EXACT LOCATION AND CONNECTION REQUIREMENTS WITH MECHANICAL CONTRACTOR.
- CIRCUIT CONTINUES TO VFD ON LEVEL BELOW. REFER TO DETAIL 3 ON THIS SHEET FOR VFD LOCATION. REFER TO REMOTE VFD/DISCONNECT DETAIL ON SHEET E001.
- PROVIDE AND INSTALL J-BOX FOR POWER CONNECTION TO INTEGRAL UNIT UV LIGHTS. COORDINATE EXACT LOCATION AND CONNECTION REQUIREMENTS WITH MECHANICAL CONTRACTOR.
- PROVIDE AND INSTALL 600V, 30A, 3-POLE, NEMA 1 NON-FUSED DISCONNECT SWITCH.
- VFD PROVIDED BY MECHANICAL CONTRACTOR. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
- POWER CONNECTION TO HEAT TAPE CONTROL PANEL. COORDINATE EXACT LOCATION AND CONNECTION REQUIREMENTS WITH MECHANICAL CONTRACTOR.
- CIRCUIT TO CONTINUE TO VFD LOCATED IN GROUND LEVEL. REFER TO REMOTE VFD/DISCONNECT DETAIL ON SHEET E001.
- UNIT PROVIDED WITH MOTOR DISCONNECT POWER PANEL. COORDINATE EXACT LOCATION WITH MANUFACTURER.
- CIRCUIT CONTINUES TO MAU-1 ON ROOF LEVEL. REFER TO REMOTE VFD/DISCONNECT DETAIL ON SHEET E001.
- CIRCUIT CONTINUES TO PUMP CP-1.
- FIRE ALARM DUCT SMOKE DETECTOR WITH RELAY AND REMOTE INDICATORS FOR FIRE SMOKE DAMPER OPERATION. COORDINATE WITH MECHANICAL CONTRACTOR FOR CONNECTION AND LOCATIONS. ALL FIRE ALARM CABLES SHALL BE IN RED EMT.
- EXISTING LIGHT FIXTURE (DASHED) TO BE RELOCATED TO OPPOSITE SIDE. MOUNT FIXTURE AT THE SAME HEIGHT AND EXTEND CONDUIT AND WIRING AS NEEDED.



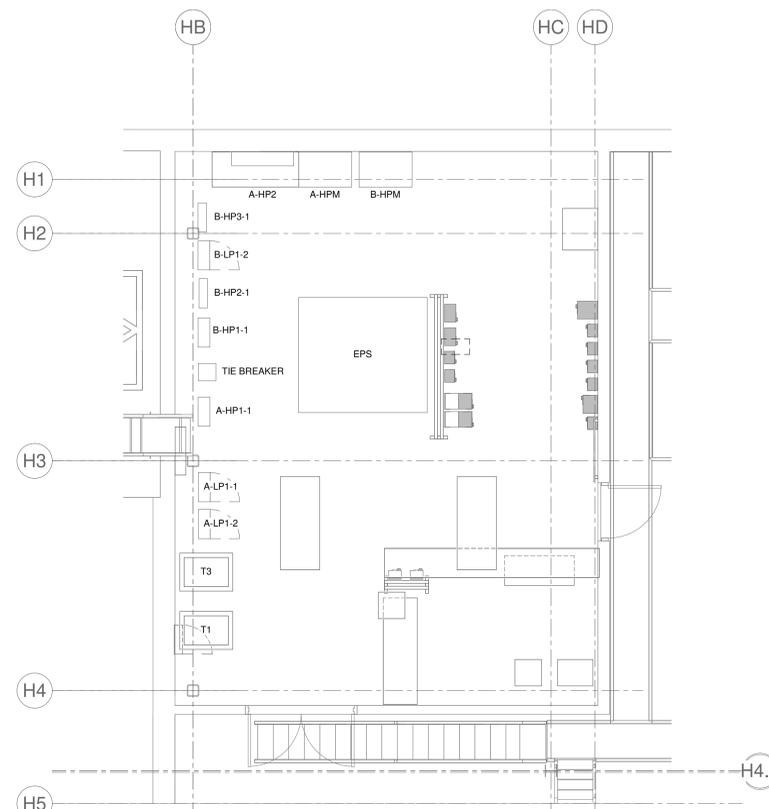
**1 HEATING PLANT UPPER - ELECTRICAL NEW**

1/4" = 1'-0"



**3 PARTIAL HEATING PLANT FLOOR PLAN - LOWER - POWER NEW**

1/4" = 1'-0"



**2 HEATING PLANT ELECTRICAL ROOM - ELECTRICAL POWER**

1/4" = 1'-0"



CORPORATE SEAL



ENGINEER SEAL

**HEATING PLANT - MAKE-UP AIR HANDLING UNIT**

**UNIT**

UNIVERSITY OF ARKANSAS  
FAYETTEVILLE, ARKANSAS

MARK	DATE	DESCRIPTION
ISSUE DATE:	01/16/2026	
PROJECT NUMBER:	04-25-0012	
SHEET TITLE:		
FLOOR PLANS - ELECTRICAL		
SHEET NUMBER:		
<b>E200</b>		



CORPORATE SEAL



ENGINEER SEAL

HEATING PLANT - MAKE-UP AIR HANDLING UNIT

UNIVERSITY OF ARKANSAS  
FAYETTEVILLE, ARKANSAS

**Branch Panel: B-HP3-1**

Location: B-HPM  
Supply From: B-HPM  
Mounting: SURFACE  
Enclosure: NEMA 1

Volts: 480/277 Wye  
Phases: 3  
Wires: 4  
Manufacturer: EATON  
Model: PRL3A

A.I.C. Rating: 65000  
Mains Type: MLO  
Mains Rating: 400 A

Notes:  
EXISTING PANEL TO REMAIN IN PLACE. NEW CIRCUIT CONNECTIONS SHOWN IN BOLD TEXT.

CKT	Circuit Description	Trip (A)	Poles	"A" PHASE (VA)	"B" PHASE (VA)	"C" PHASE (VA)	Poles	Trip (A)	Circuit Description	CKT
1	LUBE OIL COOLER (ETR)	20	3	3047	3047	3047	3	20	LUBE OIL COOLER (ETR)	2
3		--	--				--	--		4
5		--	--				--	--		6
7	DRIVER VENTILATION FAN (ETR)	60	3	7479	3333	7479	3	20	LUBE OIL TANK HEATER (ETR)	8
9		--	--				--	--		10
11		--	--				--	--		12
13	AC PRE-POST LUBE PUMP MOTOR (ETR)	20	3	942	26667	942	3	150	TURBINE FUEL FILTER HEATER (ETR)	14
15		--	--				--	--		16
17		--	--				--	--		18
19	VFD-PHWP-3 (ETR)	200	3	0	8333	0	3	40	BOILER FUEL FILTER HEATER (ETR)	20
21		--	--				--	--		22
23		--	--				--	--		24
25	VFD-MAU-6 (1)	20	3	3880	3880	3880	3	20	VFD-MAU-4 (1)	26
27		--	--				--	--		28
29		--	--				--	--		30
31	VFD-MAU-5 (1)	20	3	3880	3880	3880	3	20	VFD-MAU-2 (1)	32
33		--	--				--	--		34
35		--	--				--	--		36
37	VFD-MAU-3 (1)	20	3	3880	3880	3880	3	20	VFD-MAU-1 (1)	38
39		--	--				--	--		40
41		--	--				--	--		42
				<b>Total Load:</b>	73342 VA	73342 VA				
				<b>Total Amps:</b>	265 A	265 A				

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
HVAC	85169 VA	100.00%	85169 VA	
POWER	134879 VA	100.00%	134879 VA	
				<b>Total Conn. Load:</b> 220027 VA
				<b>Total Est. Demand:</b> 220027 VA
				<b>Total Conn. Current:</b> 265 A
				<b>Total Est. Demand Current:</b> 265 A

Notes:  
ETR = EXISTING TO REMAIN  
(1) PROVIDE COMPATIBLE CIRCUIT BREAKER WITH ALL HARDWARE AND ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION. CONTRACTOR MAY USE SPARE OWNER STOCK FOR NOTED BREAKER IF AVAILABLE. EC TO COORDINATE AVAILABLE BREAKER TYPES/SIZES WITH OWNER

**Branch Panel: B-HP1-1**

Location: HEATING PLANT ELEC. RM  
Supply From: B-HPM  
Mounting: SURFACE  
Enclosure: NEMA-1

Volts: 480/277 Wye  
Phases: 3  
Wires: 4

A.I.C. Rating: 65000  
Mains Type: MLO  
Mains Rating: 400 A

Notes:  
EXISTING PANEL TO REMAIN  
NEW CIRCUIT CONNECTIONS SHOWN IN BOLD TEXT.

CKT	Circuit Description	Trip (A)	Poles	"A" PHASE (VA)	"B" PHASE (VA)	"C" PHASE (VA)	Poles	Trip (A)	Circuit Description	CKT	
1	PHWP-2 (ETR)	200	3	43212	5817	43212	3	50	CP-3 (ETR)	2	
3		--	--				--	--		4	
5		--	--				--	--		6	
7	VFD-FWP-11 (ETR)	90	3	9400	15512	9400	3	80	DA-2 (ETR)	8	
9		--	--				--	--		10	
11		--	--				--	--		12	
13	VFD-FWP-12 (ETR)	90	3	9400	0	9400	3	20	SPARE	14	
15		--	--				--	--		16	
17		--	--				--	--		18	
19	LIGHTING (ETR)	20	1	910	0	9400	0	3	30	GAS PVR SKID (ETR)	20
21	SPARE	20	2	0	0	0	0	--	--	22	
23		--	--				--	--		24	
25	VFD-CP-1 (1)	20	3	3048	0	3048	3	30	GLYCOL PUMP (ETR)	26	
27		--	--				--	--		28	
29		--	--				--	--		30	
31	SPARE	20	2	0	6300	0	3	110	T3 (ETR)	32	
33		--	--				--	--		34	
35	SPARE	20	2	0	0	0	4761	--	--	36	
37		--	--				--	--		38	
39	SPARE	20	2	0	0	0	0	110	T2 (ETR)	40	
41		--	--				--	--		42	
				<b>Total Load:</b>	93599 VA	94369 VA					
				<b>Total Amps:</b>	339 A	342 A					

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
HVAC	0 VA	0.00%	0 VA	
LIGHTING	910 VA	100.00%	910 VA	
Motor	129636 VA	100.00%	129636 VA	
Other	0 VA	0.00%	0 VA	
POWER	144336 VA	100.00%	144336 VA	
RECEPTACLES	4140 VA	100.00%	4140 VA	
				<b>Total Conn. Load:</b> 279024 VA
				<b>Total Est. Demand:</b> 279021 VA
				<b>Total Conn. Current:</b> 337 A
				<b>Total Est. Demand Current:</b> 336 A

Notes:  
ETR = EXISTING TO REMAIN  
(1) PROVIDE COMPATIBLE CIRCUIT BREAKER WITH ALL HARDWARE AND ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION. CONTRACTOR MAY USE SPARE OWNER STOCK FOR NOTED BREAKER IF AVAILABLE. EC TO COORDINATE AVAILABLE BREAKER TYPES/SIZES WITH OWNER

**Branch Panel: B-LP1-2**

Location: HEATING PLANT ELEC. RM  
Supply From: T3  
Mounting: SURFACE  
Enclosure: NEMA-1

Volts: 120/208 Wye  
Phases: 3  
Wires: 4

A.I.C. Rating: 65000  
Mains Type: MCB  
Mains Rating: 225 A  
MCB Rating: 225 A

Notes:  
EXISTING PANEL TO REMAIN. NEW CIRCUIT CONNECTIONS SHOWN IN BOLD TEXT.  
NEW CIRCUITS ARE SHOWN IN BOLD TEXT.  
\* = PROVIDE GFPE CIRCUIT BREAKER.

CKT	Circuit Description	Trip (A)	Poles	"A" PHASE (VA)	"B" PHASE (VA)	"C" PHASE (VA)	Poles	Trip (A)	Circuit Description	CKT
1	MAU-1 LIGHTING & CONTROLS (1)	20	1	500	0	0	3	45	SPARE	2
3	MAU-1 UV LIGHTS (1)	20	1		500	0	--	--	--	4
5	HEAT TRACE PANEL (1) *	20	1			385	0	--	--	6
7	SPARE	20	1	0	0	0	3	30	SPARE	8
9	SPARE	20	1		0	0	--	--	--	10
11	SPARE	20	1			0	0	--	--	12
13	SPARE	30	3	0	600	0	1	20	RECEPTACLE FUEL SKID AREA	14
15		--	--				--	--		16
17		--	--				--	--		18
19	SPARE	20	2	0	500	0	600	1	20	BOILER FUEL SKID CONTROLS
21		--	--				--	--		22
23	RECEPT @ BOILERS 7, 8 AND 9	20	1			180	1620	1	20	GENERATOR SPACE HEATER
25	HT	20	1	500	1000			1	20	MOTOR STARTER CONTROLS
27	AIR COMPRESSOR CONTROL PANEL	20	1		500	500		1	20	VENT FAN MTR - SPACE HTR / STARTER...
29	RECEPTACLES LOWER LEVEL	20	1			900	500	1	20	PRE-POST LUBE PUMP HTR / STARTER...
31	RECEPTACLES LOWER LEVEL	20	1	720	900			1	20	RECEPTACLES
33	DESSICANT DRYER	20	1		180	3800		1	40	BATTERY CHARGER
35	DESSICANT DRYER	20	1			180	120	1	20	COMBUSTION AIR FILTER
37	RECEPTACLES MEZZANINE	20	1	1080	500			1	20	HRSG
39	TURBINE ENCLOSURE LIGHTING	20	1		900	0		1	20	AHJ1 & 2 CONTROL VALVES
41	TURBINE VFD CONTROL POWER	20	1			500	0	1	20	SPARE
				<b>Total Load:</b>	6300 VA	7980 VA				
				<b>Total Amps:</b>	54 A	68 A				

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
POWER	14833 VA	100.00%	14833 VA	
RECEPTACLES	4140 VA	100.00%	4140 VA	
				<b>Total Conn. Load:</b> 19041 VA
				<b>Total Est. Demand:</b> 18956 VA
				<b>Total Conn. Current:</b> 54 A
				<b>Total Est. Demand Current:</b> 53 A

Notes:  
(1) PROVIDE COMPATIBLE CIRCUIT BREAKER WITH ALL HARDWARE AND ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION. CONTRACTOR MAY USE SPARE OWNER STOCK FOR NOTED BREAKER IF AVAILABLE. EC TO COORDINATE AVAILABLE BREAKER TYPES/SIZES WITH OWNER

MARK | DATE | DESCRIPTION

ISSUE DATE: 01/16/2026

PROJECT NUMBER: 04-25-0012

SHEET TITLE:  
PANEL SCHEDULES - ELECTRICAL

SHEET NUMBER:  
**E300**



CORPORATE SEAL

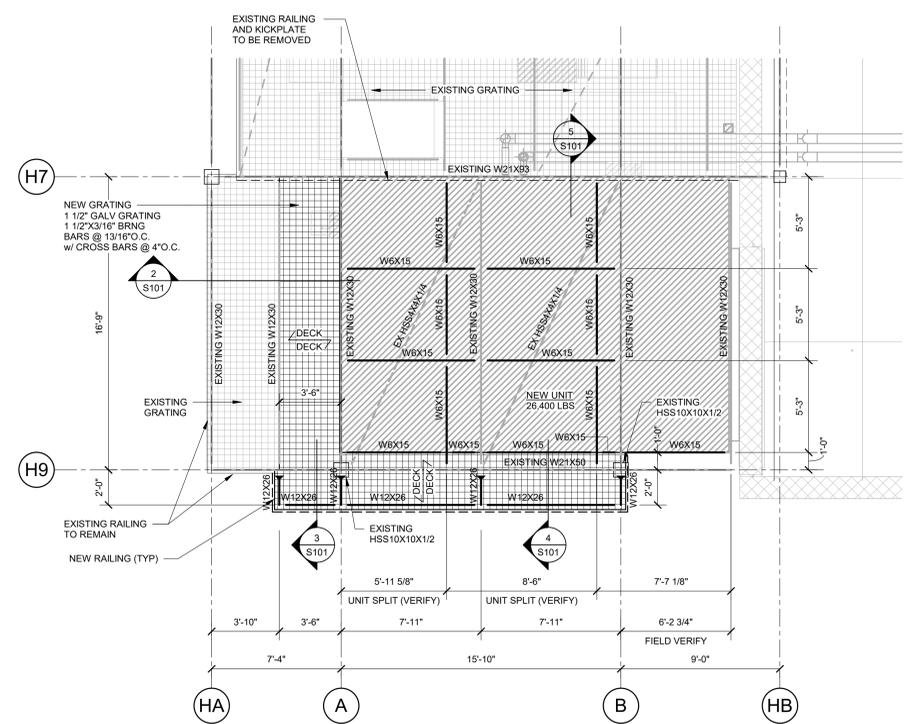


ENGINEER SEAL

**HEATING PLANT - MAKE-UP AIR HANDLING UNIT**  
UNIVERSITY OF ARKANSAS  
FAYETTEVILLE, ARKANSAS

**STEEL FRAMING NOTES**

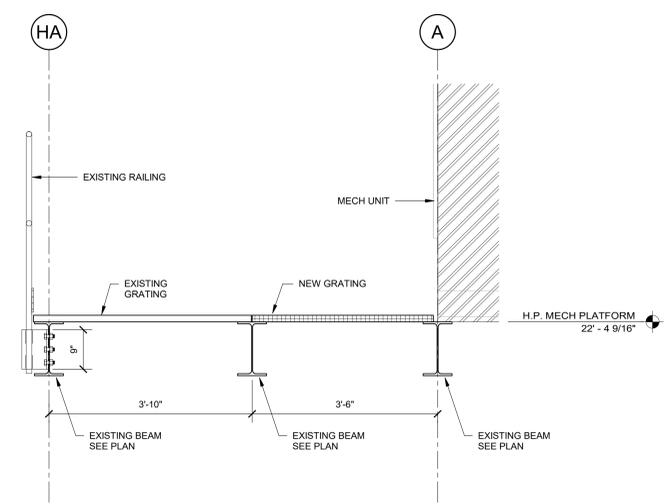
- UNLESS SPECIFICALLY NOTED OTHERWISE, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH AISC SPECIFICATIONS, LATEST EDITION.
- ALL STRUCTURAL STEEL HSS SQUARE/RECT SECTIONS SHALL BE ASTM A500, GRADE B (F<sub>y</sub>=46 ksi). ALL STRUCTURAL STEEL WIDE FLANGE SHALL BE ASTM A992 GRADE 50. CHANNEL SHAPES AND ALL OTHER MISCELLANEOUS STEEL SHALL BE ASTM A36 OR A572. ALL STRUCTURAL STEEL HSS ROUND SHALL BE ASTM A500, GRADE B (F<sub>y</sub>=42 ksi).
- ALL STRUCTURAL BOLTS CONNECTING STRUCTURAL STEEL SHALL BE ASTM A325 TYPE 1 WITH THREADS ALLOWED IN THE SHEAR PLANE, EXCEPT ANCHOR BOLTS SHALL BE ASTM F1554 GR55. MUST MEET ST WELDABILITY REQUIREMENT OR GR58 AS NOTED.
- WELD ELECTRODES SHALL BE E70XX.
- THE FABRICATOR SHALL BE RESPONSIBLE FOR THE DESIGN AND ADEQUACY OF ALL CONNECTIONS THAT ARE NOT DESIGNED OR FULLY DETAILED ON THE CONTRACT DOCUMENTS. SHOP DRAWINGS, DEPICTING THE CONFIGURATION AND FABRICATION DETAILS, ALONG WITH CALCULATIONS SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE IN WHICH THE PROJECT IS LOCATED, SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD FOR REVIEW.
- UNLESS DETAILED OTHERWISE OR REACTIONS ARE INDICATED, BEAM CONNECTIONS SHALL BE SELECTED TO SUPPORT 70% THE TOTAL UNIFORM LOAD CAPACITY SHOWN IN THE "ALLOWABLE UNIFORM LOAD TABLES" IN PART 7 OF THE AISC STEEL CONSTRUCTION MANUAL, LATEST EDITION. FOR THE GIVEN BEAM SIZE, SPAN, AND STEEL SPECIFICATION OR FOR THE BEAM REACTION SHOWN ON THE DRAWINGS, WHICHEVER IS GREATER. THE MINIMUM BEAM CONNECTION SHALL NOT BE SMALLER THAN THOSE LISTED IN TABLES 10-1 & 10-2 OF THE AISC STEEL CONSTRUCTION MANUAL, LATEST EDITION FOR THE GIVEN BEAM DEPTH, BOLT DIAMETER, AND WELD SPECIFICATION.
- THE MINIMUM DESIGN LOAD FOR ANY CONNECTION SHALL BE SIX (6) KIPS (ASD) OR TEN (10) KIPS (LRFD) REGARDLESS OF THE BEAMS REACTION(S) SHOWN ON THE PLANS.
- UNLESS DETAILED OTHERWISE, ALL SHOP CONNECTIONS SHALL BE WELDED. UNLESS DETAILED OTHERWISE, ALL FIELD CONNECTIONS SHALL BE MADE USING 3/4"Ø AND 1"Ø WHERE INDICATED. ASTM A325-N (OR ASTM F1852) HIGH STRENGTH BOLTS ("N" INDICATES BEARING TYPE WITH THREADS INCLUDED IN SHEAR PLANE). WASHERS SHALL BE INSTALLED UNDER NUTS WHEN REQUIRED BY THE SPECIFICATIONS OF STRUCTURAL JOINTS.
- WHERE FIELD AND SHOP WELDS ARE INDICATED ON THE DRAWINGS, THEY SHALL BE THE SIZE AND TYPE NOTED. ALL WELDING OF STRUCTURAL STEEL SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF AWS D1.1 CORRESPONDING TO THE AISC SPECIFICATION USED AND ALL WELDS INCLUDING FIELD WELDS SHALL BE MADE BY CERTIFIED WELDERS USING E70XX ELECTRODES.
- ALL STEEL MEMBERS EXPOSED TO WEATHER SHALL BE PAINTED WITH TNEPEC EPOXY SYSTEM OR SIMILAR SYSTEM MEETING THE REQUIREMENTS FOR PAINTING STRUCTURAL STEEL. PROVIDE REFERENCE PAINT SPEC FROM PPG INDUSTRIES OR EQUIVALENT. PAINT ME-OP-3A-FERROUS METALS, UNPRIMED, ALKYD, 3 COAT:  
1. PPG AQUAPON ZINC RICH PRIMER 97-670 SERIES (TO BE SHOP APPLIED)  
2. PPG PITT-GUARD DIRECT-TO-RUST EPOXY MASTIC COATINGS 97-145  
3. PPG PITTTHANE ULTRA GLOSS URETHANE ENAMELS 95-812 SERIES.
- FIELD CUTTING, DRILLING, OR OTHER MODIFICATION OF STRUCTURAL STEEL COMPONENTS IS NOT PERMITTED WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD. WHERE BEAM PENETRATIONS CANNOT BE AVOIDED OR WHERE CUTTING IS REQUIRED, THE CONTRACTOR SHALL SUBMIT, TO THE STRUCTURAL ENGINEER OF RECORD, ALL PERTINENT INFORMATION INCLUDING PENETRATION SHAPE, SIZE, LOCATION, AND METHOD OF CUTTING THE OPENINGS.
- SUBMIT STEEL SHOPS DRAWINGS FOR REVIEW.
- CONNECTION OF UNIT TO STRUCTURAL STEEL TO BE DESIGNED AND PROVIDED BY UNIT SUPPLIER OR MECH CONTRACTOR. SUBMIT CONNECTION FOR REVIEW.



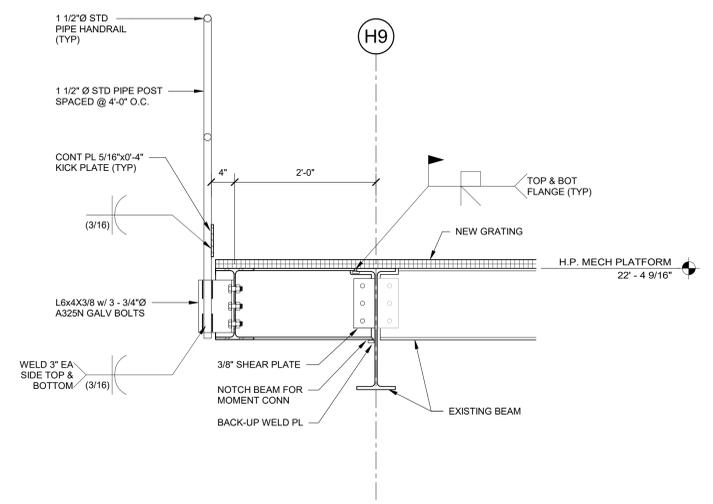
① H.P. MECH PLATFORM  
1/4" = 1'-0"

**NOTES:**

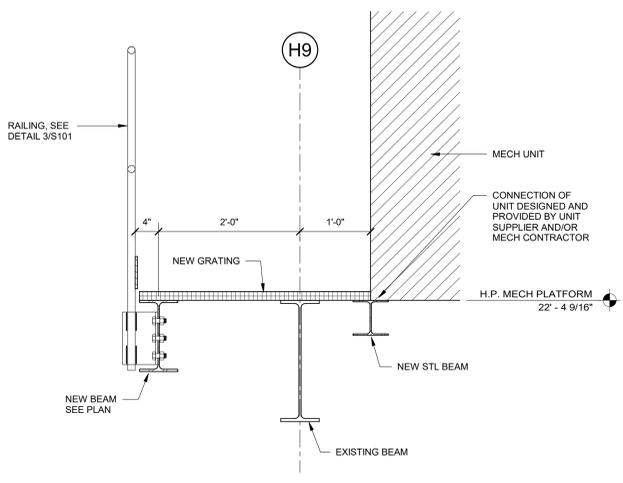
- ALL STEEL EXPOSED TO WEATHER ON THIS SHEET TO HAVE HIGH PERFORMANCE EXTERIOR FINISH.
- PAINT STEEL TO OWNERS SPECIFICATIONS.
- SADDLE CLIPS, ANCHOR CLIPS, WELD LUGS OR EQUIVALENT MAY BE USED FOR INSTALLATIONS WHERE GRATING IS SUBJECT TO REMOVAL. **DO NOT WELD GRATING TO SUPPORTS.** SUBMIT GRATING CONNECTION FOR OWNER & ENFRA TME TO REVIEW.
- CONTRACTOR TO FIELD VERIFY MECH UNIT SIZE BEFORE PLACING STEEL TO ASSURE PROPER LOCATION OF STEEL MEMBERS.



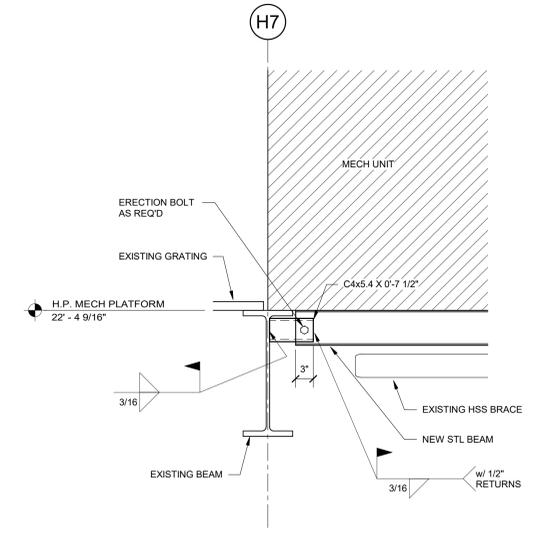
② FRAMING SECTION  
3/4" = 1'-0"



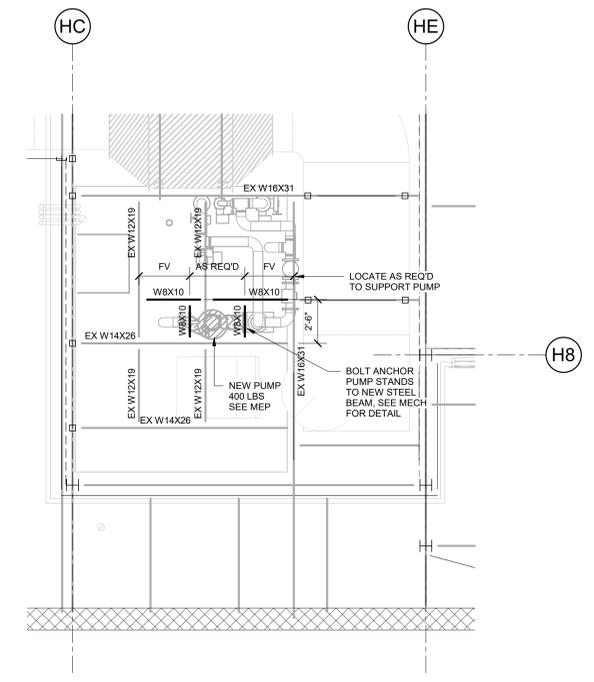
③ FRAMING SECTION  
1" = 1'-0"



④ FRAMING SECTION  
1" = 1'-0"



⑤ FRAMING SECTION  
1" = 1'-0"



⑥ H.P. MECH PLATFORM AT PUMPS  
1/4" = 1'-0"

MARK	DATE	DESCRIPTION
ISSUE DATE:	01/16/2026	
PROJECT NUMBER:	04-25-0012	
SHEET TITLE:		
HEATING PLANT FRAMING PLAN		
SHEET NUMBER:		
<b>S101</b>		