

CCTC HEALTH SCIENCE HVAC REPLACEMENT

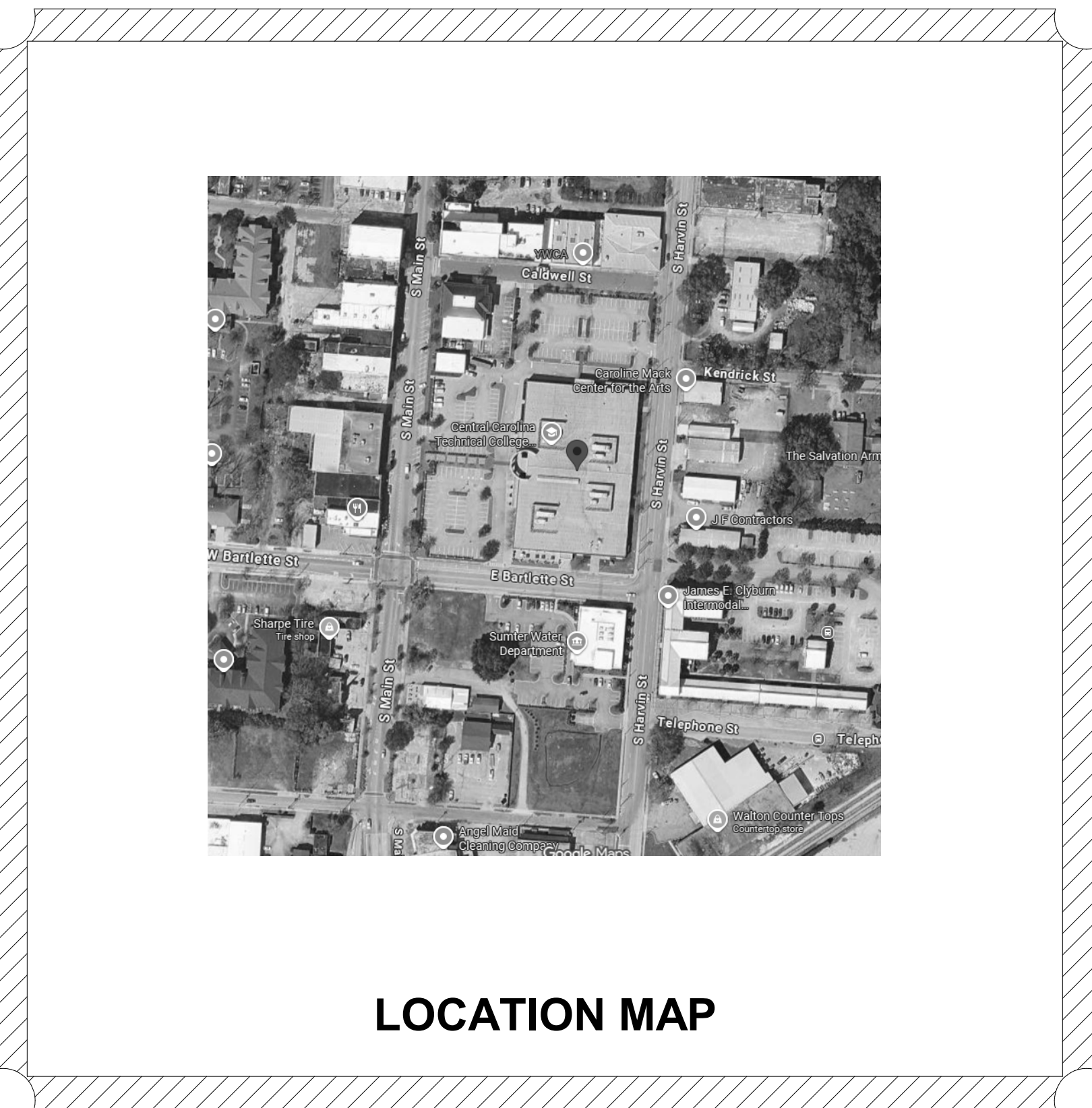
133 S MAIN ST. SUMTER, SC 29150

H59-N395-AT



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PROJECT SUMMARY:
1. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT AND SUPERVISION TO CONSTRUCT COMPLETE AND OPERABLE MECHANICAL AND ELECTRICAL SYSTEMS AS INDICATED ON THE DRAWINGS AND SPECIFIED IN THE PROJECT MANUAL. ALL MATERIALS AND EQUIPMENT USED SHALL BE NEW, UNDAMAGED AND FREE FROM ANY DEFECTS.
2. SCOPE INCLUDES REPLACEMENT OF THE ROOFTOP AIR HANDLING UNITS, BOILERS, AND ROOFTOP HEAT PUMP UNITS ALONG WITH THE ASSOCIATED CONTROLS AND ELECTRICAL INFRASTRUCTURE.
3. CONTRACTOR SHALL COORDINATE SYSTEM SHUTDOWN WITH CCTC STAFF. TO REDUCE SYSTEM SHUTDOWN TO A MINIMUM, REPLACE ONE UNIT AT A TIME AND START THE UNITS PRIOR TO DEMOLISHING THE NEXT UNIT. A COORDINATED SCHEDULE SHALL BE PROVIDED PRIOR TO ANY WORK. STAGING OF MATERIALS ON SITE IS PERMITTED WITH GUIDANCE AND APPROVAL OF CCTC STAFF.
4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING A CRANE SAFETY PLAN TO THE OWNER FOR THEIR REVIEW AND APPROVAL.
5. THE CONTRACTOR IS RESPONSIBLE TO CONTACT OBTAIN HOT WORK PERMITS TO ALLOW WELDING, GRINDING, BRAZING AND OTHER SMOKE OR DUST PRODUCING ACTIVITIES TO PREVENT ACCIDENTAL ACTIVATION OF FIRE ALARM SYSTEMS.
6. ALL MATERIALS AND EQUIPMENT SHALL BE DISCARDED IN A MANNER APPROVED BY THE OWNER AND ACCEPTABLE PER LOCAL REGULATIONS.
7. STARTUP OF UNITS AND BOILERS SHALL BE PROVIDED BY A FACTORY START UP AGENT. STARTUP DOCUMENTS SHALL BE PROVIDED TO THE CCTC PROJECT MANAGER.
8. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THRID PARTY INSPECTIONS OF THE NEW BOILER SYSTEMS PRIOR TO STARTUP.
9. NEW CONTROLS SHOWN ON THE DRAWINGS AND INTEGRATION WITH THE EXISTING BUILDING AUTOMATION SYSTEM SHALL BE PROVIDED BY THE OWNERS CONTROLS CONTRACTOR (CMI) TO BE HIRED DIRECTLY BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THEIR WORK WITH THE CONTROLS CONTRACTOR.



CENTRAL CAROLINA TECHNICAL COLLEGE
CCTC HEALTH SCIENCE HVAC REPLACEMENT
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DATE:	09/18/2026
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SHEET	NUMBER

T001

MECHANICAL SYSTEMS SEISMIC AND WIND REQUIREMENTS PER IBC-2021/ASCE 7-16					
A.	PER THE 2021 INTERNATIONAL BUILDING CODE, MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT AND COMPONENTS, INCLUDING THEIR SUPPORTS AND ATTACHMENTS, SHALL BE DESIGNED FOR SEISMIC FORCES IN ACCORDANCE WITH CHAPTER 13 OF ASCE 7.				
B.	EXTERIOR EQUIPMENT (INCLUDING ROOF CURBS, RAILS, SUPPORTS) EXPOSED TO WIND SHALL BE DESIGNED AND INSTALLED TO RESIST THE WIND PRESSURES DETERMINED IN ACCORDANCE WITH CHAPTER 26 TO 29 OF ASCE 7.				
C.	WHERE DESIGN FOR SEISMIC AND WIND LOADS IS REQUIRED, THE MORE DEMANDING FORCE MUST BE USED.				
D.	SEISMIC DESIGN CATEGORY - C ; RISK CATEGORY - III ; Ss - 0.51 ; WIND SPEED - 129 mph.				
E.	USE THE TABLE BELOW TO DETERMINE SEISMIC RESTRAINT REQUIREMENTS FOR EACH COMPONENT.				
F.	FOR ALL COMPONENTS REQUIRING SEISMIC RESTRAINT, THE COMPONENT SUPPORTS AND ATTACHMENTS SHALL BE DESIGNED BY A REGISTERED DESIGN PROFESSIONAL REGISTERED IN THE STATE THE JOB IS LOCATED. SUBMITTALS MUST INCLUDE STAMPED AND SIGNED DRAWINGS AND CALCULATIONS.				
G.	WHERE SEISMIC RESTRAINT IS REQUIRED, HOUSEKEEPING PADS NEEDED FOR THE INSTALLATION OF EQUIPMENT UNDER THIS CONTRACT MUST BE DESIGNED BY THE SEISMIC ENGINEER. DO NOT POUR ANY HOUSEKEEPING PADS PRIOR TO THE RECEIPT OF THE APPROVED SEISMIC SUBMITTAL.				
H.	SEISMIC RESTRAINTS FOR DUCTWORK, PIPING, CONDUIT, CABLE TRAYS AND BUS DUCT MUST BE SHOWN ON LAYOUT DRAWINGS SHOWING SPECIFIC RESTRAINT LOCATIONS ALONG WITH ACCOMPANYING DETAILS AND CALCULATIONS.				
MECHANICAL COMPONENT IMPORTANCE FACTOR (Ip) DESIGNATION					
Ip = 1.0			Ip = 1.5		
• ALL HVAC COMPONENTS EXCEPT AS NOTED IN Ip=1.5					
SEISMIC DESIGN CATEGORIES D,E,F					
		COMPONENT IMPORTANCE FACTOR (Ip)			
		1.0		1.5	
COMPONENT IDENTIFICATION		SEISMIC RESTRAINT REQUIREMENT	NOTES	SEISMIC RESTRAINT REQUIREMENT	NOTES
ROOF MOUNTED		RESTRAIN ALL	1	RESTRAIN ALL	-
FLOOR MOUNTED		RESTRAIN ALL	1, 2	RESTRAIN ALL	-
WALL MOUNTED		RESTRAIN ALL	1, 2	RESTRAIN ALL	-
COMPONENT SUPPORTS		RESTRAIN ALL	1	RESTRAIN ALL	-
SUSPENDED EQUIPMENT	INLINE W/ DUCT	RESTRAIN IF >75 LBS PROVIDE FLEX. CONN.	3	RESTRAIN IF >75 LBS PROVIDE FLEX. CONN.	3
	NOT INLINE W/ DUCT/PIPE	RESTRAIN ALL	1	RESTRAIN ALL	-
SUSPENDED DUCTILE PIPING (STEEL, ALUMINUM, COPPER, ETC.)		>3"	4	>1"	4
SUSPENDED NON DUCTILE PIPING (CAST IRON, PLASTIC, CERAMIC)		RESTRAIN ALL	4	RESTRAIN ALL	4
SUSPENDED PIPE ON TRAPEZE		RESTRAIN IF ANY PIPE ON TRAPEZE > 3" RESTRAIN IF TOTAL WEIGHT OF PIPES ON TRAPEZE >	4	RESTRAIN IF ANY PIPE ON TRAPEZE > 1" RESTRAIN IF TOTAL WEIGHT OF PIPES ON TRAPEZE > 10	4
DUCTWORK		6 SQ.FT. AND LARGER AND >17 LBS/FT	4,5	6 SQ.FT. AND LARGER AND > 17 LBS/FT	4,5
MULTIPLE DUCTS ON TRAPEZE		RESTRAIN IF TOTAL WEIGHT OF DUCTS ON TRAPEZE > 10 LBS/FT	4,5	RESTRAIN IF TOTAL WEIGHT OF DUCTS ON TRAPEZE > 10 LBS/FT	4,3
COMPONENT CERTIFICATION		NOT REQUIRED	-	REQUIRED	6
NOTES:					
1. EQUIPMENT 20 LBS. OR LESS IS EXEMPT IF THE COMPONENT IS POSITIVELY ATTACHED TO THE STRUCTURE AND FLEXIBLE CONNECTIONS ARE PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT.					
2. RESTRAINTS ARE NOT REQUIRED IF THE COMPONENT WEIGHS 400 LBS. OR LESS, IS MOUNTED WITH THE CENTER OF MASS LOCATED AT 4 FT. OR LESS ABOVE A FLOOR, IS POSITIVELY ATTACHED TO THE STRUCTURE AND HAS FLEXIBLE CONNECTIONS BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT.					
3. FLEXIBLE CONNECTIONS REQUIRED FOR PIPE CONNECTIONS ONLY.					
4. RESTRAINT IS NOT REQUIRED IF THE PIPING / DUCTWORK IS SUPPORTED BY HANGERS AND EACH HANGER IN THE PIPING RUN IS 12 IN. OR LESS IN LENGTH FROM THE TOP OF THE PIPE TO THE SUPPORTING STRUCTURE. WHERE PIPES ARE SUPPORTED ON A TRAPEZE, THE TRAPEZE SHALL BE SUPPORTED BY HANGERS HAVING A LENGTH OF 12 IN. OR LESS. WHERE ROD HANGERS ARE USED, THEY SHALL BE EQUIPPED WITH SWIVELS, EYE NUTS OR OTHER DEVICES TO PREVENT BENDING IN THE ROD.					
5. ALL DUCTWORK, REGARDLESS OF SIZE, DESIGNED TO CARRY TOXIC, HIGHLY TOXIC, OR EXPLOSIVE GASES OR USED FOR SMOKE CONTROL MUST BE RESTRAINED.					
6. COMPONENT CERTIFICATION MUST BE SUPPLIED BY THE EQUIPMENT MANUFACTURER AT TIME OF SUBMITTAL FOR REVIEW BY ENGINEER OF RECORD.					

GENERAL HVAC NOTES

1. THE DRAWINGS SHOW THE GENERAL ARRANGEMENT AND LOCATION OF EQUIPMENT, DUCTWORK, PIPING, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE MECHANICAL INSTALLATION W/ THE STRUCTURE AND OTHER TRADES AND SHALL PROVIDE ADDITIONAL OFFSETS AND FITTINGS AS NECESSARY.
2. THE HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS SHALL COMPLY WITH THE CODES LISTED ON THIS SHEET AS WELL AS ALL LOCAL CODE OFFICIAL REQUIREMENTS. IN THE EVENT OF A CONFLICT BETWEEN CODES, THE MOST STRINGENT SHALL ALWAYS GOVERN.
3. THE CONTRACTOR SHALL CHECK AND VERIFY ALL CLEARANCES PRIOR TO FABRICATION OR INSTALLATION OF EQUIPMENT, DUCTWORK, AND PIPING SYSTEMS. WHERE CONDITIONS REQUIRE A CHANGE IN DUCT OR PIPE ROUTING, NOTIFY THE ARCHITECT FOR AN ACCEPTABLE ALTERNATIVE METHOD. AVOID ROUTING DUCTWORK DIRECTLY OVER LIGHT FIXTURES, DIFFUSERS, AND OTHER CEILING MTD. DEVICES. LOCATE ALL MECHANICAL EQUIPMENT SO THAT FILTERS AND COMPONENTS REQUIRING ACCESS (SERVICE AND MAINTENANCE) ARE FULLY ACCESSIBLE.
4. PROVIDE CURVED RADIUS ELBOW AT FIRST SUPPLY & RETURN FITTING FOR ALL HVAC UNITS. PROVIDE TURNING VANES IN ALL 90 DEGREE ELBOWS IN ALL RECTANGULAR SUPPLY/RETURN/EXHAUST DUCT SYSTEMS. ANY OFFSETS REQUIRED IN DUCT SYSTEMS SHALL BE INSTALLED PER SMACNA 2020 4TH EDITION MANUAL . SHARP ANGLED TRANSITIONS OR OFFSETS "WILL NOT BE ALLOWED". PROVIDE DUCT ACCESS DOORS AS REQUIRED.
5. INSTALL ALL DUCT MOUNTED DEVICES (DAMPERS, ACCESS DOORS, ETC.) AND PIPING SPECIALTIES IN EASILY ACCESSIBLE LOCATIONS. ADVISE THE ENGINEER IN ADVANCE OF INSTALLATION IF ACCESS WILL BE HINDERED SO AN ALTERNATE LOCATION CAN BE SELECTED.
6. ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS WITH PRESCRIBED CLEARANCES FOR SERVICE AND MAINTENANCE. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IF RECOMMENDED CLEARANCES ARE NOT POSSIBLE BEFORE INSTALLING EQUIPMENT.
7. ALL ROTATING MECHANICAL EQUIPMENT SHALL BE PROVIDED WITH VIBRATION ISOLATION. PROVIDE FLEXIBLE NEOPRENE DUCT CONNECTORS BETWEEN DUCTWORK AND ISOLATED MECHANICAL EQUIPMENT.
8. THE CONTRACTOR SHALL FIRESTOP ALL PENETRATIONS OF FIRE RATED WALLS/FLOORS/CEILINGS BY DUCTWORK PIPING, ETC., WITH U.L. LISTED FIRE STOPPING MATERIAL TO MAINTAIN FIRE RATING OF THE BARRIER.
9. BALANCE ALL AIR SYSTEMS, RELIEF FANS, AND OUTSIDE AIR QUANTITIES AS SCHEDULED. SUPPLY AND RETURN AIRFLOW SHALL BE VERIFIED VIA MAIN DUCT TRAVERSE INSIDE THE BUILDING. PROVIDE FINAL TEST AND BALANCE REPORT BEFORE THE FINAL INSPECTION IS PERFORMED. SEE SPECIFICATIONS FOR FURTHER INFORMATION.
11. WIND LOAD PROTECTION OF ROOF MOUNTED EQUIPMENT AND DUCTWORK SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 16 OF THE INTERNATIONAL BUILDING CODE, 2021 EDITION. ALL WIND LOAD RESTRAINT AND BRACING SHALL BE SUBSTANTIATED BY MANUFACTURER'S SUBMITTALS PER THE SPECIFICATIONS
12. WHERE "APPROXIMATELY" IS USED TO DEFINE INSTALLATION LOCATIONS, CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES TO VERIFY THERE ARE NO CONFLICTS PRIOR TO INSTALLATION AT DIMENSION LISTED.

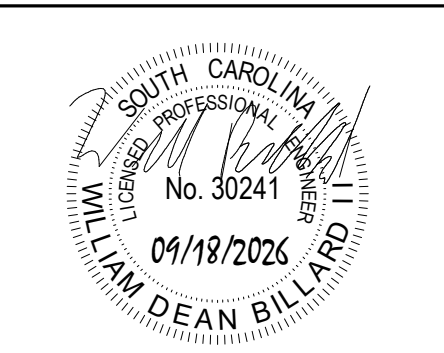
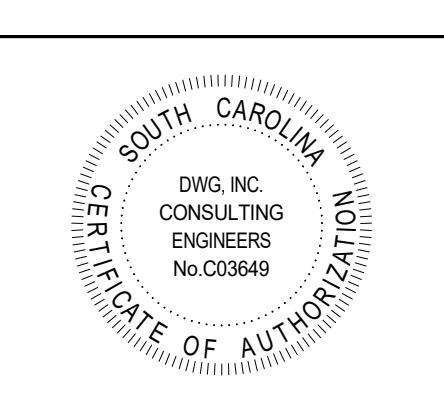
MECHANICAL ABBREVIATIONS	
ABBR	DESCRIPTION
(E)	EXISTING
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AH	AIR HANDLER
AHU	AIR HANDLING UNIT
APD	AIR PRESSURE DROP
BHP	BRAKE HORSE POWER
BMS	BUILDING MANAGEMENT SYSTEM
BOD	BASIS OF DESIGN
BOP	BOTTOM OF PIPE
C	DOMESTIC COLD WATER SUPPLY
CCR	COOLING CONDENSATE RETURN
CFM	CUBIC FEET PER MINUTE
CHF	CHEMICAL FEED
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CO	CLEANOUT
CP	CENTRAL PLANT
CR	CONDENSER WATER RETURN
CS	CONDENSER WATER SUPPLY
CU	CONDENSING UNIT
D	CONDENSATE DRAIN LINE
DB	DECIBELS
DCW	DOMESTIC COLD WATER
DDC	DIRECT DIGITAL CONTROLS
DIA	DIAMETER
DRN	DRAIN
EA	EXHAUST AIR
EC	ELECTRICAL CONTRACTOR
EDH	ELECTRICAL DUCT HEATER
EF	EXHAUST FAN
EH	ELECTRIC HEATER
EMCS	ENERGY MANAGEMENT CONTROL SYSTEM
EQ	EQUALIZER
ESP	EXTERNAL STATIC PRESSURE
FD	FLOOR DRAIN
FD	FIRE DAMPER
FFM	FEET PER MINUTE
FRPM	FAN ROTATIONS PER MINUTE
FT	FEET
GPM	GALLONS PER MINUTE
H	DOMESTIC HOT WATER SUPPLY
HD	HUB DRAIN
HP	HEAT PUMP
HP	HORSEPOWER
HR	DOMESTIC HOT WATER RETURN
HWR	HEATING HOT WATER RETURN
HWS	HEATING HOT WATER SUPPLY
IN	INCHES
LAT	LEAVING AIR TEMPERATURE
MBH	THOUSANDS OF BTU'S PER HOUR
MC	MECHANICAL CONTRACTOR
MD	MANUAL DAMPER
NC	NOISE CRITERIA
NG	NATURAL GAS PIPING
NO	NORMALLY OPEN
OA	OUTSIDE AIR
OF	OVER FLOW
PC	PLUMBING CONTRACTOR
PD	PRESSURE DROP
PS	PIPE SUPPORT
RA	RETURN AIR
REFR	REFRIGERANT
RH	RELATIVE HUMIDITY
RM	REMOTE MONITOR
RPM	ROTATIONS PER MINUTE
RTU	ROOF TOP UNIT
RW	RAIN WATER
SA	SUPPLY AIR
SF	SUPPLY FAN
TDV	TRIPLE DUTY VALVE
TW	TEMPERED WATER
TWR	TOWER SEPARATOR RETURN
TWS	TOWER SEPARATOR SUPPLY
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
VFD	VARIABLE FREQUENCY DRIVE
VNT	VENT
W/	WITH
WMS	WIRE MESH SCREEN
WSPH	WATER SOURCE HEAT PUMP
°F	DEGREES FAHRENHEIT

HVAC SYMBOL LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	AIR TERMINAL TAG, X=TYPE MARK, Y=CFM	---	COMPONENT TO BE DEMOLISHED
	AIR TERMINAL DIFFUSER (CEILING MOUNTED)		DUCTWORK (X" = WIDTH, Y" = HEIGHT)
	AIR TERMINAL RETURN GRILLE (CEILING MOUNTED)		TURNING VANES
	AIR TERMINAL EXHAUST GRILLE (CEILING MOUNTED)		CONDENSING UNIT
	AIR TERMINAL ROUND CONE DIFFUSER		ROOFTOP UNIT
	SIDEWALL REGISTER / GRILLE		SINGLE DUCT AIR TERMINAL UNIT
	THERMOSTAT		ROOF CAP
	HUMIDISTAT		CEILING MOUNTED EXHAUST FAN
	CO2 SENSOR	+++++	PREINSULATED FLEXIBLE DUCT
	FAN POWERED BOX		CABLE OPERATED DAMPER
	DUCT MOUNTED SMOKE DETECTOR (BY E.C.)		PITCH POCKET
	EQUIPMENT CLEARANCE		
	FD FIRE DAMPER		FLEXIBLE DUCT CONNECTION
	MANUAL DAMPER		CONNECTION TO EXISTING SYSTEM
	THERMOSTAT (DUCT MOUNTED)		MOTORIZED DAMPER
	HUMIDISTAT (DUCT MOUNTED)		

HVAC PIPING SPECIALTIES SYMBOL LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	AUTOMATIC AIR VENT		AUTOMATIC BALANCING CONTROL VALVE
	BACKFLOW PREVENTER		BALL VALVE
	BASKET STRAINER		CIRCUIT SENSOR
	CIRCUIT SETTER		CONCENTRIC REDUCER/INCREASER
	DIRECTION OF PIPING FLOW		DOUBLE SUCTION PUMP
	DRAIN VALVE W/ HOSE CONNECTION		EARTHQUAKE VALVE
	ECCENTRIC REDUCER/INCREASER		END SUCTION PUMP
	FLANGE CONNECTION		GATE VALVE
	HOSE BIBB		MOTORIZED BALL VALVE
	MOTORIZED BUTTERFLY VALVE		PIPE CAP
	PIPING SLOPE		PLUG VALVE
	PRESSURE REDUCING VALVE		PUMP CONNECTOR/FLEX CONNECTOR
	PUMP SUCTION DIFFUSER		RELIEF VALVE
	RINSE VALVE		SANITARY SEWER
	SOLENOID VALVE		STORM SEWER
	SWING CHECK VALVE		TRIPLE DUTY VALVE
	UNION		WAFER CHECK VALVE
	WYE STRAINER		WYE STRAINER W/BLOWDOWN BALL VALVE WITH HOSE CONNECTION
	2-WAY CONTROL VALVE		3-WAY CONTROL VALVE

MECHANICAL CODES AND STANDARDS (WITH ALL SOUTH CAROLINA MODIFICATIONS)	
CODE	DESCRIPTION
IBC (2021)	INTERNATIONAL BUILDING CODE
IECC (2009)	INTERNATIONAL ENERGY CONSERVATION CODE
IMC (2021)	INTERNATIONAL MECHANICAL CODE
NFPA 90A (2021)	STANDARD FOR THE INSTALLATION AIR-CONDITIONING & VENTILATING SYSTEMS
SMACNA (2020)	HVAC DUCT CONSTRUCTION STANDARDS MANUAL, FOURTH EDITION

DESIGN CONDITIONS	
SUMMER	OUTDOOR: 96°F DB / 76°F WB INDOOR: 74°F DB / 60% RH
WINTER	OUTDOOR: 21°F DB INDOOR: 70°F DB

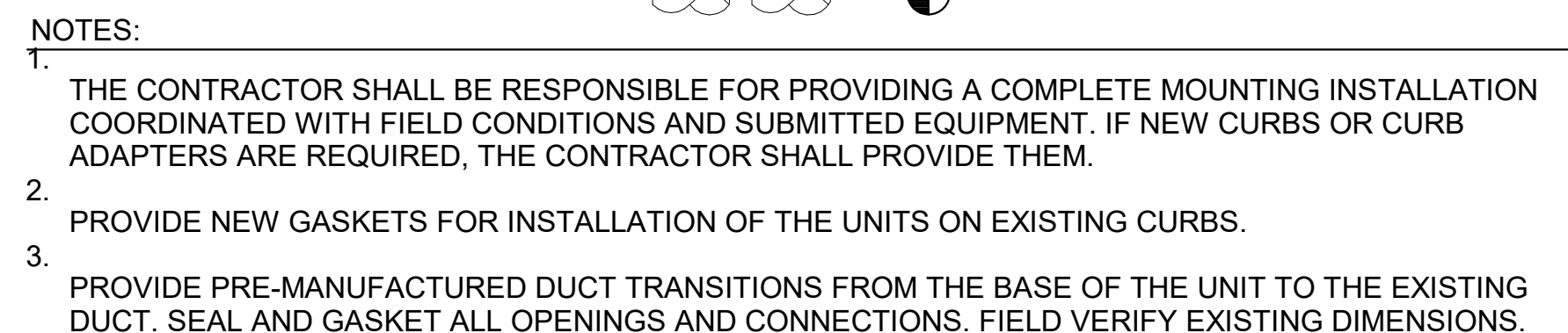


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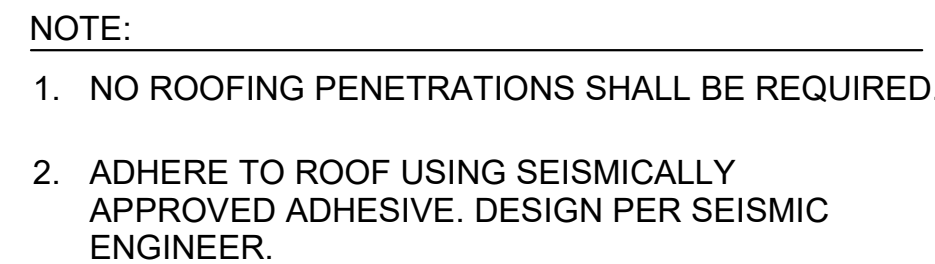
MECHANICAL NOTES & LEGENDS

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JOB No.	H59-N395-AT	
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M001



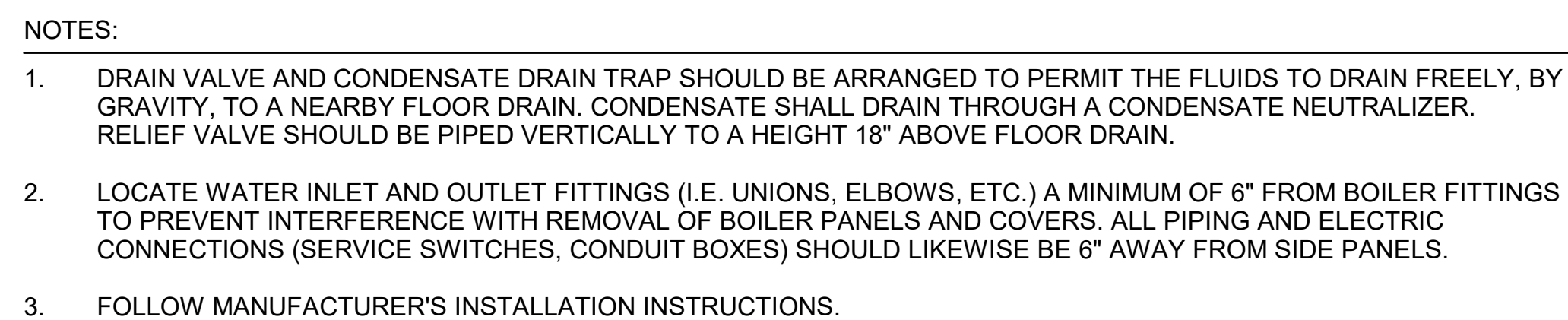
M003 SCALE: NOT TO SCALE



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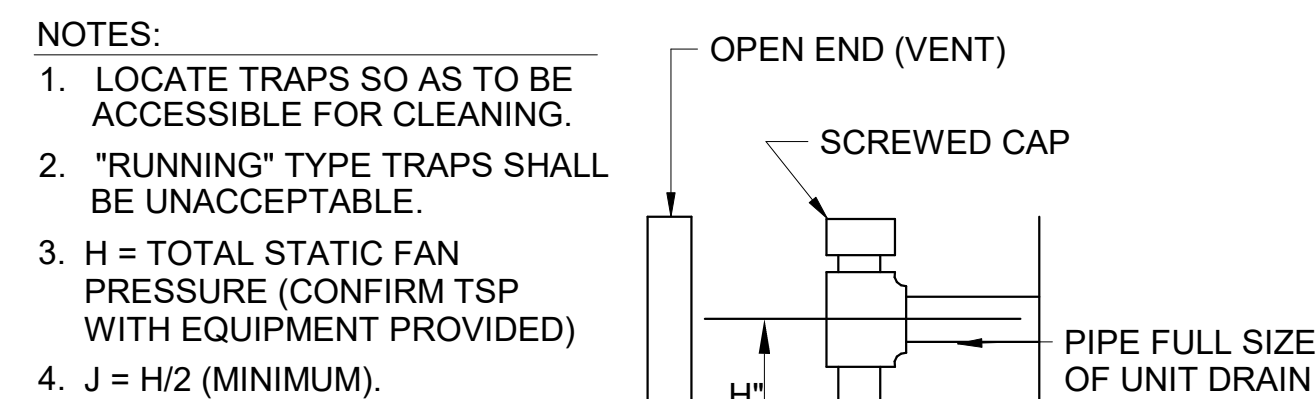
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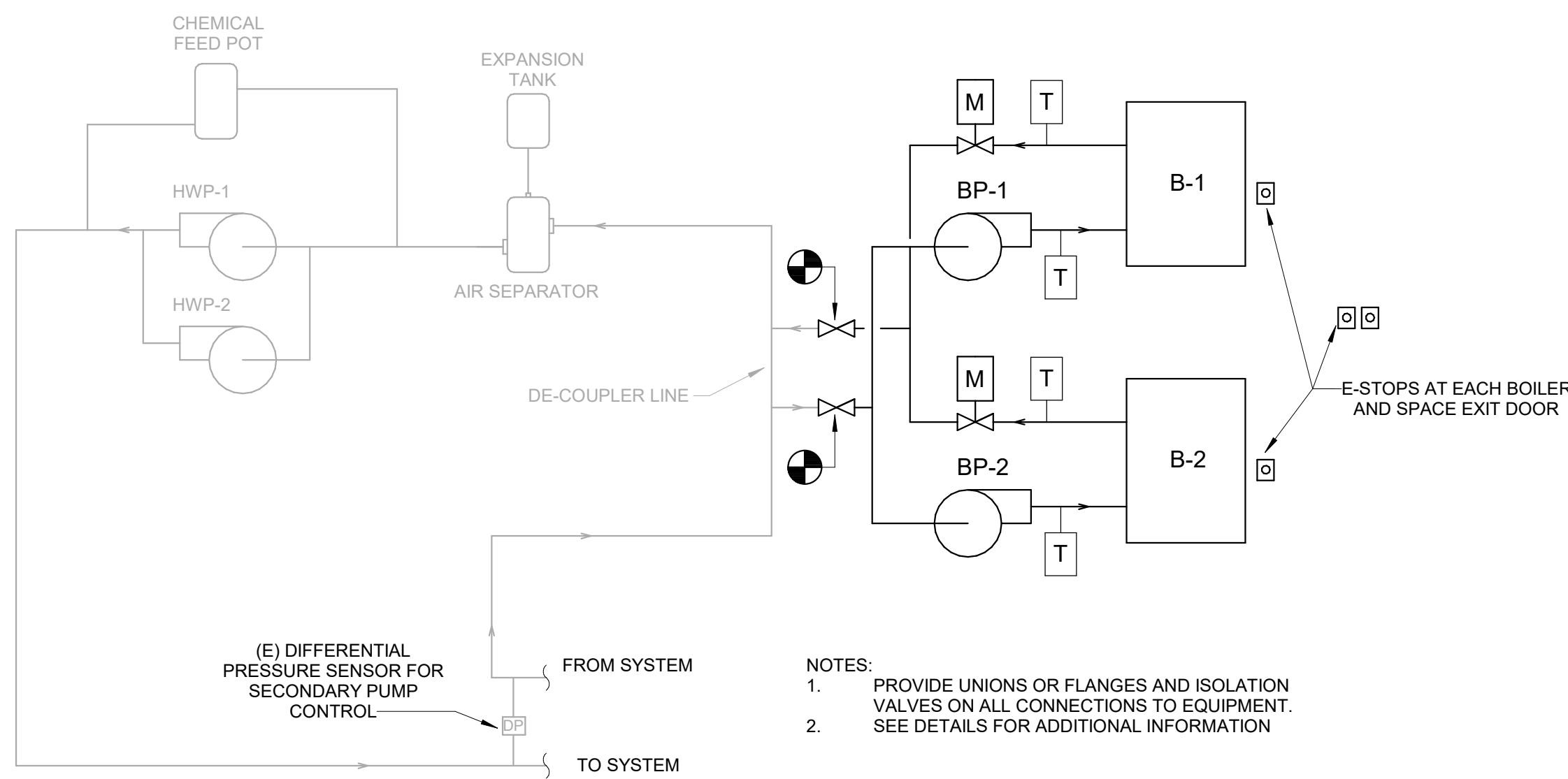
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M003 SCALE: NOT TO SCALE



M003 CONDENSATE
SCALE: NOT TO SCALE



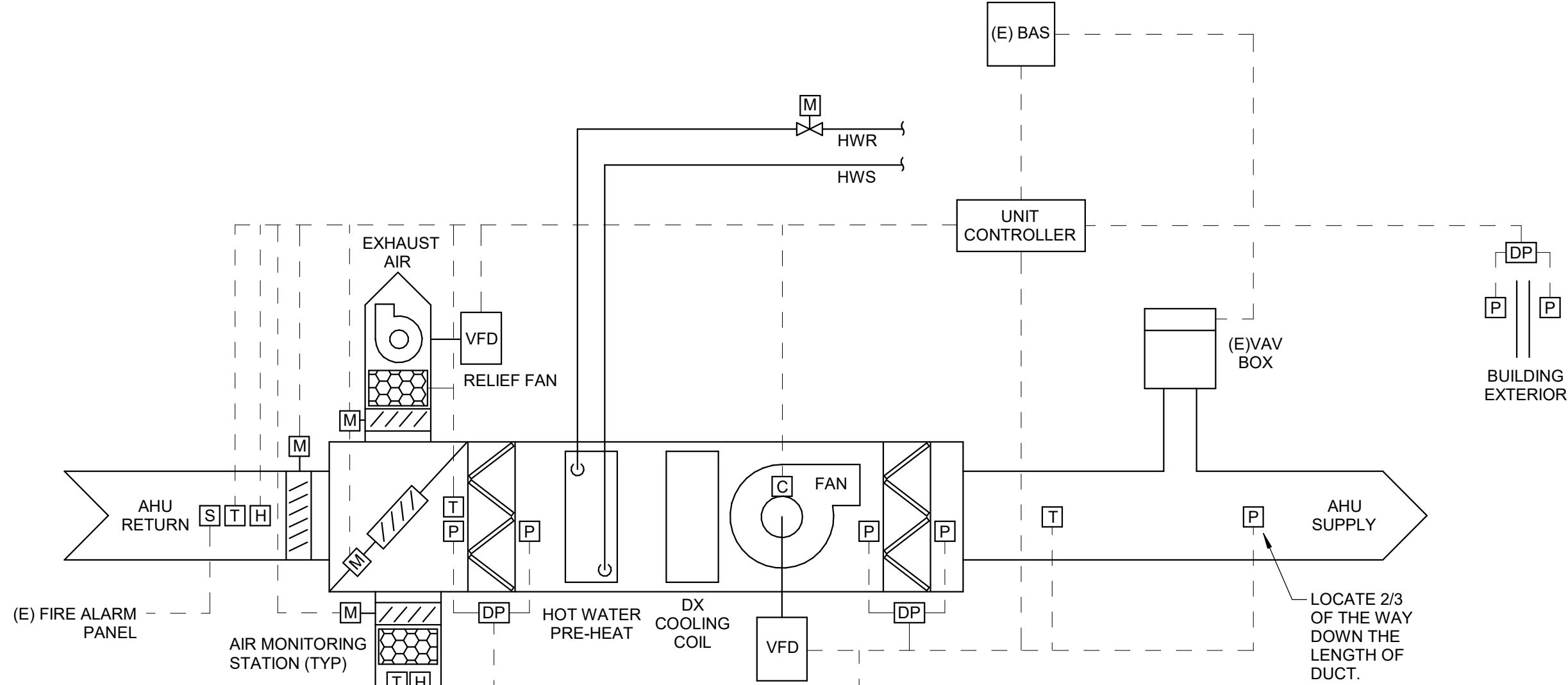
SEQUENCE OF OPERATIONS: HOT WATER SYSTEM (B-1 & B-2)

THE HOT WATER SYSTEM PUMPS AND BOILER SHALL BE ENERGIZED TO PROVIDE HEATING HOT WATER.

THE BAS SYSTEM SHALL INTERFACE TO THE BOILER SYSTEM CONTROL UTILIZING BACKNET. THE BAS SHALL ENABLE THE BOILER SYSTEM CONTROLLER. THE BOILER SYSTEM CONTROLLER SHALL CONTROL THE BOILER CIRCULATION PUMPS, ROTATE THE LEAD AND STAND-BY BOILERS TO EQUALIZE RUN TIME, AND ALSO SHALL PROVIDE STAGING OF THE HEATING BASED ON BUILDING HOT WATER SUPPLY TEMPERATURE. IN THE EVENT OF LEAD BOILER FAILURE THE STAND-BY BOILER SHALL BE ENERGIZED AND GENERATE AN ALARM AT THE OPERATOR'S WORKSTATION. OUTDOOR TEMPERATURE RESET SCHEDULE SHALL BE CONTROLLED THROUGH THE BAS WITH MIN SETPOINT (ADJ.), MAX SETPOINT (ADJ.), AND THE ABILITY TO DISABLE/ENABLE THE RESET MODE FOR A FIXED HOT WATER SUPPLY TEMPERATURE. THE BAS SHALL MONITOR THE SYSTEM BOILER ALARMS AND RELAY/GENERATE ANY AND ALL SYSTEM ALARMS AT THE OPERATOR'S WORKSTATION.

THE FULLY REDUNDANT SECONDARY BUILDING HOT WATER PUMPS SHALL BE CONTROLLED THROUGH THE BAS. THE BAS SHALL ROTATE THE LEAD AND STAND-BY HOT WATER PUMPS ON A MONTHLY BASIS TO EQUALIZE RUN-TIME HOURS. IN THE EVENT OF THE LEAD HOT WATER PUMP FAILURE THE BAS SHALL ENERGIZE THE STAND-BY HOT WATER PUMP AND GENERATE AN ALARM AT THE OPERATOR'S WORKSTATION. THE HOT WATER PUMPS SHALL PROVIDE PROOF OF OPERATION AT THE OPERATOR'S WORKSTATION THROUGH THE USE OF A CURRENT SWITCH.

SECONDARY HOT WATER SYSTEM SHALL RUN AT VARIABLE FLOW TO SATISFY THE REQUIREMENTS OF THE NEW DIFFERENTIAL PRESSURE SENSOR.



AHU POINTS LIST

- | | |
|---------------------------------|---|
| DI-1 AHU FAN STATUS (CURRENT) | DO-1 START/STOP AHU |
| DI-2 FIRE ALARM PANEL CONTACT | AO-1 DISCHARGE STATIC PRESSURE SETPOINT |
| AI-1 MIXED AIR TEMP | AO-2 SUPPLY AIR TEMP SETPOINT |
| AI-2 DISCHARGE AIR TEMP | AO-3 OA MOTORIZED DAMPER |
| AI-3 DUCT STATIC PRESSURE | AO-4 RA MOTORIZED DAMPER |
| AI-4 OUTDOOR AIR FLOWRATE (CFM) | AO-5 VARIABLE FREQUENCY DRIVE |

LEGEND

- | | |
|------|------------------------------|
| (E) | EXISTING |
| (T) | TEMPERATURE SENSOR |
| (H) | HUMIDITY SENSOR |
| (P) | PRESSURE SENSOR |
| (DP) | DIFFERENTIAL PRESSURE SENSOR |
| (C) | CURRENT SWITCH |
| (S) | DUCT SMOKE DETECTOR |
| (M) | MOTORIZED ACTUATOR |
| BAS | BUILDING AUTOMATION SYSTEM |
| VFD | VARIABLE FREQUENCY DRIVE |

SEQUENCE OF OPERATION: MULTI-ZONE VAV AIR HANDLING UNITS (AHU'S 1 - 4)

BUILDING AUTOMATION SYSTEM INTERFACE:
THE BUILDING AUTOMATION SYSTEM (BAS) SHALL SEND THE CONTROLLER OCCUPIED BYPASS, PRE-COOL, OCCUPIED/UNOCCUPIED AND HEAT/COOL MODES. THE BAS SHALL ALSO SEND THE DISCHARGE AIR TEMPERATURE SETPOINT AND THE DUCT STATIC PRESSURE SETPOINT. IF BAS COMMUNICATION IS LOST, THE CONTROLLER SHALL OPERATE USING DEFAULT MODES AND SETPOINTS.

OCCUPIED:
DURING OCCUPIED PERIODS, THE SUPPLY FAN SHALL RUN CONTINUOUSLY, AND THE OUTSIDE AIR DAMPERS SHALL OPEN TO ITS MINIMUM SETTING DETERMINED BY TAB. THE RELIEF AIR FAN SHALL RUN AND BE MODULATED TO MAINTAIN THE BUILDING DIFFERENTIAL PRESSURE SETPOINT DETERMINED BY TAB. THE DX COOLING COIL AND HOT WATER PRE-HEAT COIL SHALL MODULATE TO MAINTAIN THE DISCHARGE AIR TEMPERATURE SETPOINT OF 55°F (ADJ.).

UNOCCUPIED:
WHEN SPACE VAV BOXES ARE CALLING FOR HEATING OR COOLING BASED ON THEIR UNOCCUPIED SETPOINTS, THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED AND THE SUPPLY FAN SHALL START TO OPERATE NORMALLY TO MAINTAIN THE DUCT STATIC PRESSURE SETPOINT. HEATING AND COOLING COILS SHALL MODULATE NORMALLY TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINTS.

OPTIMAL START:
THE BAS SHALL MONITOR THE SCHEDULED OCCUPIED TIME, OCCUPIED SPACE SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL START OCCURS.

OPTIMAL STOP:
THE BAS SHALL MONITOR THE SCHEDULED UNOCCUPIED TIME, OCCUPIED SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL STOP OCCURS. WHEN THE OPTIMAL STOP MODE IS ACTIVE THE UNIT CONTROLLER SHALL MAINTAIN THE SPACE TEMPERATURE TO THE SPACE TEMPERATURE OFFSET SETPOINT. OUTSIDE AIR DAMPER SHALL REMAIN ENABLED TO PROVIDE MINIMUM VENTILATION.

HEAT/COOL MODE:
EITHER THE PRE-HEAT COIL OR DX COOLING COIL SHALL BE OPERATED BY THE CONTROLLER TO MODULATE THE COILS BASED ON THE DISCHARGE AIR TEMPERATURE SETPOINT.

ECONOMIZER MODE:
ENABLE: OUTSIDE AIR (OA) ENTHALPY SHALL BE COMPARED WITH RETURN AIR (RA) ENTHALPY POINT. THE ECONOMIZER SHALL ENABLE WHEN OA ENTHALPY IS LESS THAN RA ENTHALPY - 2.0 BTU/LB. THE ECONOMIZER SHALL DISABLE WHEN OA ENTHALPY IS GREATER THAN RA ENTHALPY. ECONOMIZER SHALL BE DISABLED WHEN THE OUTSIDE AIR DRY BULB TEMPERATURE IS BELOW 54°F (ADJ.). DURING ECONOMIZER THE SUPPLY AND RELIEF FANS SHALL STILL MODULATE TO THEIR SETPOINTS AS NORMAL.

DISCHARGE AIR TEMPERATURE RESET CONTROL:
THE DISCHARGE AIR TEMPERATURE SETPOINT SHALL BE RESET TO THE OPTIMAL SETPOINT COMMUNICATED BY THE BAS. THE BAS SHALL RESET THE DISCHARGE AIR TEMPERATURE SETPOINT BASED ON THE CURRENT OUTSIDE AIR TEMPERATURE BUT SHALL OVERRIDE THIS RESET FUNCTION AND RETURN THE DISCHARGE AIR TEMPERATURE SETPOINT TO 55.0 DEG. F (ADJ.) IF MORE THAN TWO (ADJ.) ZONES BEGIN TO OVERHEAT. ALSO, THE BAS SHALL OVERRIDE THIS RESET FUNCTION WHENEVER OUTDOOR DEW POINT IS HIGHER THAN 60.0 DEG. F (ADJ.) OR INDOOR HUMIDITY (MEASURED AT THE SOURCE OF CONTROL) IS HIGHER THAN 60% RH (ADJ.). IF THE DISCHARGE AIR TEMPERATURE DROPS BELOW THE MINIMUM LIMIT, A LOW TEMPERATURE ALARM SHALL ANNUNCIATE, AND THE UNIT SHALL SHUT DOWN. IF THE DISCHARGE AIR TEMPERATURE RISES ABOVE THE MAXIMUM LIMIT, A HIGH TEMPERATURE ALARM SHALL ANNUNCIATE.

SUPPLY FAN:
THE FAN SHALL BE CONTROLLED FROM A HAND-OFF-AUTO "H.O.A." SWITCH INTEGRAL TO THE VFD. WHEN THE SWITCH IS IN THE 'AUTO' POSITION, THE FAN SHALL BE STARTED, STOPPED AND SPEED CONTROLLED BY THE BAS SEQUENCE. WHEN THE SWITCH IS IN THE 'HAND' POSITION THE FAN SHALL RUN AND THE SPEED SHALL HAVE THE ABILITY TO BE ADJUSTED MANUALLY THROUGH THE VFD. WHEN THE SWITCH IS IN THE 'OFF' POSITION THE FAN SHALL REMAIN OFF. WHEN THE STARTING CIRCUIT IS ACTIVATED BY THE BAS OR BY PLACING THE SELECTOR SWITCH IN 'HAND' POSITION, THE VFD WILL START UNLOADED AND WILL RAMP UP TO SPEED AS PROGRAMMED INTO THE VFD'S SAFETY CIRCUIT.

THE SUPPLY FAN VFD WILL BE MODULATED TO MAINTAIN THE SUPPLY DUCT STATIC PRESSURE SETPOINT AS SENSED BY DUCT STATIC PRESSURE SENSOR LOCATED DOWNSTREAM IN THE SUPPLY MAIN. UPON STARTUP, THE VFD WILL BE IN THE 'UNLOADED' POSITION. THE VFD SPEED WILL BE ADJUSTED THROUGH A CONTROL LOOP IN RESPONSE TO THE DUCT STATIC PRESSURE SETPOINT. AS THE DUCT STATIC PRESSURE RISES ABOVE SETPOINT, THE FAN SPEED WILL BE REDUCED THROUGH THE VFD SPEED SIGNAL CONTROLLER DOWN TO THE PROGRAMMED MINIMUM SPEED (ADJ.). AS THE STATIC PRESSURE DECREASES BELOW THE ACTIVE SETPOINT, THE FAN SPEED WILL BE INCREASED. BOTH THE DUCT STATIC PRESSURE SETPOINT AND SUPPLY FAN MINIMUM SPEED SHALL BE DETERMINED DURING TAB WITH HELP FROM THE CONTROLS CONTRACTOR. DUCT STATIC PRESSURE SETPOINT SHALL RESET BETWEEN AN ADJUSTABLE MINIMUM AND MAXIMUM SETPOINT. RESET OF STATIC PRESSURE SETPOINT SHALL BE BASED UPON AIRFLOW DEMANDS FROM VAV ZONES. IF THE FAN SPEED IS AT 100 PERCENT AND THE SUPPLY DUCT STATIC PRESSURE IS STILL BELOW SETPOINT, THE DISCHARGE AIR TEMPERATURE RESET CONTROL LOOP WILL BE OVERRIDDEN TO DECREASE THE ACTIVE DISCHARGE AIR TEMPERATURE SETPOINT UNTIL THE STATIC PRESSURE SETPOINT IS SATISFIED.

BUILDING PRESSURE CONTROL (RELIEF AIR):
EACH UNIT SHALL BE CONNECTED TO A CORRESPONDING BUILDING DIFFERENTIAL PRESSURE SENSOR. RELIEF AIR FANS SHALL USE THE DIFFERENTIAL PRESSURE SETPOINTS TO MODULATE ITS SPEED TO MAINTAIN THE ACTIVE SETPOINT. THE BUILDING STATIC PRESSURE SETPOINT SHALL BE DETERMINED BY TAB, AFTER BALANCING THE OUTSIDE AIR DAMPER. THE RELIEF FAN AIRFLOW SHALL BE 85% OF THE OUTSIDE UNLESS NOTED OTHERWISE IN THE SCHEDULE. TAB SHALL ALSO DETERMINE THE RELIEF FAN SPEED AT 75% AHU DESIGN SUPPLY CONDITIONS AS A DEFAULT SPEED UPON FAILURE OF THE BUILDING DIFFERENTIAL PRESSURE SENSOR. BUILDING DIFFERENTIAL PRESSURE SENSORS SHALL BE REPLACED AND BE ADJUSTABLE FROM THE BAS.

MIXED AIR LOW LIMIT:
THE INITIAL DAMPER OPENING RATE SHALL BE LIMITED TO 2% PER MINUTE (ADJ.) UNTIL THE DAMPER HAS REACHED ITS MINIMUM VENTILATION POSITION. THE OUTSIDE AIR DAMPER SHALL MODULATE TO A POSITION LESS THAN THE MINIMUM DAMPER POSITION IF THE MIXED AIR TEMPERATURE DROPS BELOW 50°F (ADJ.). IF THE MIXED AIR TEMPERATURE SENSOR FAILS AN ALARM SHALL ANNUNCIATE AT THE BAS AND THE OUTSIDE AIR DAMPER SHALL RETURN TO THE MINIMUM POSITION.

FREEZE PROTECTION:
A HARDWIRED, LOW LIMIT TEMPERATURE SWITCH SHALL BE ELECTRICALLY INTERLOCKED WITH THE VARIABLE SPEED DRIVE. IF THE LOW LIMIT TEMPERATURE SWITCH IS TRIPPED 38.0 DEG. F (ADJ.), THE FAN SHALL BE COMMANDED OFF AND THE OUTSIDE AIR DAMPER SHALL CLOSE. ALL VALVES SHALL BE COMMANDED OPEN TO 100% (ADJUST PER CLIMATE). AN ALARM SHALL ANNUNCIATE AT THE BAS AND MANUAL RESET OF THE LOW LIMIT TEMPERATURE SWITCH SHALL BE REQUIRED TO RESTART THE FAN.

CONDENSATE OVERFLOW MONITORING:
IF THE CONDENSATE LEVEL REACHES THE TRIP POINT, A CONDENSATE OVERFLOW DIAGNOSTIC SHALL ANNUNCIATE AT THE BAS. TO PREVENT THE CONDENSATE DRAIN PAN FROM OVERFLOWING AND CAUSING WATER DAMAGE TO THE BUILDING THE FAN SHALL BE DISABLED AND THE CHILLED WATER VALVE SHALL CLOSE.

FILTER STATUS:
A DIFFERENTIAL PRESSURE SWITCH SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FILTER(S) WHEN THE FAN IS RUNNING. IF THE SWITCH CLOSURES DURING NORMAL OPERATION A DIRTY FILTER ALARM SHALL ANNUNCIATE AT THE BAS.

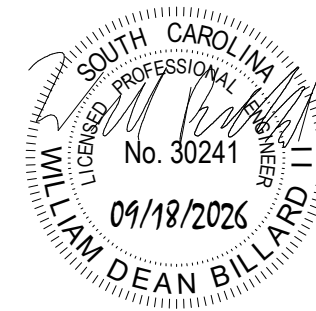
SMOKE DETECTOR SHUTDOWN:
THE UNIT SHALL SHUT DOWN IN RESPONSE TO A SIGNAL FROM THE SMOKE DETECTOR INDICATING THE PRESENCE OF SMOKE. THE SMOKE DETECTOR SHALL BE INTERLOCKED TO THE UNIT THROUGH THE DRY CONTACTS OF THE SMOKE DETECTOR. A MANUAL RESET OF THE SMOKE DETECTOR SHALL BE REQUIRED TO RESTART THE UNIT.



- ## GENERAL NOTES

MECHANICAL ROOF DEMOLITION PLAN

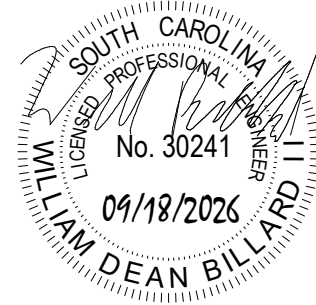
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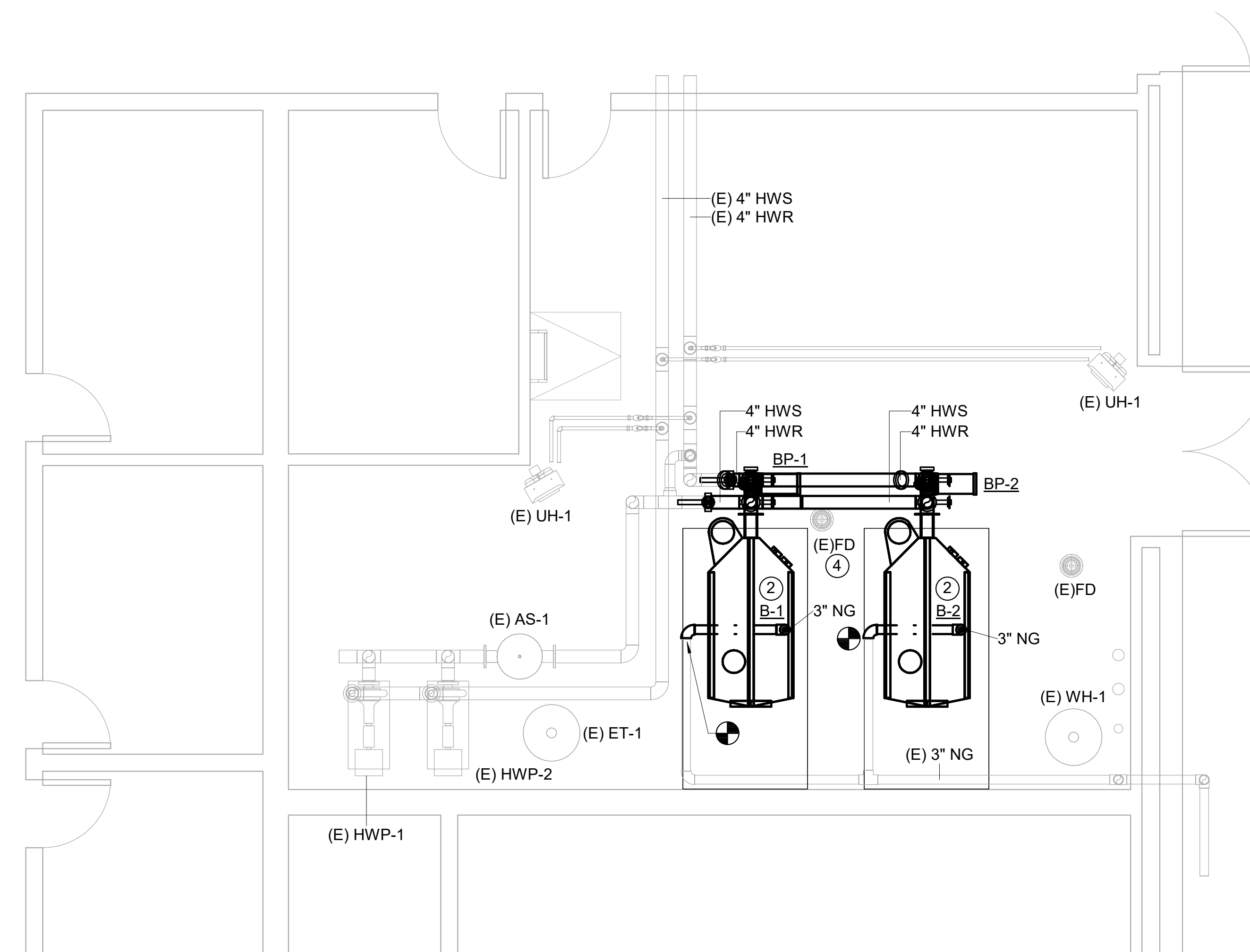
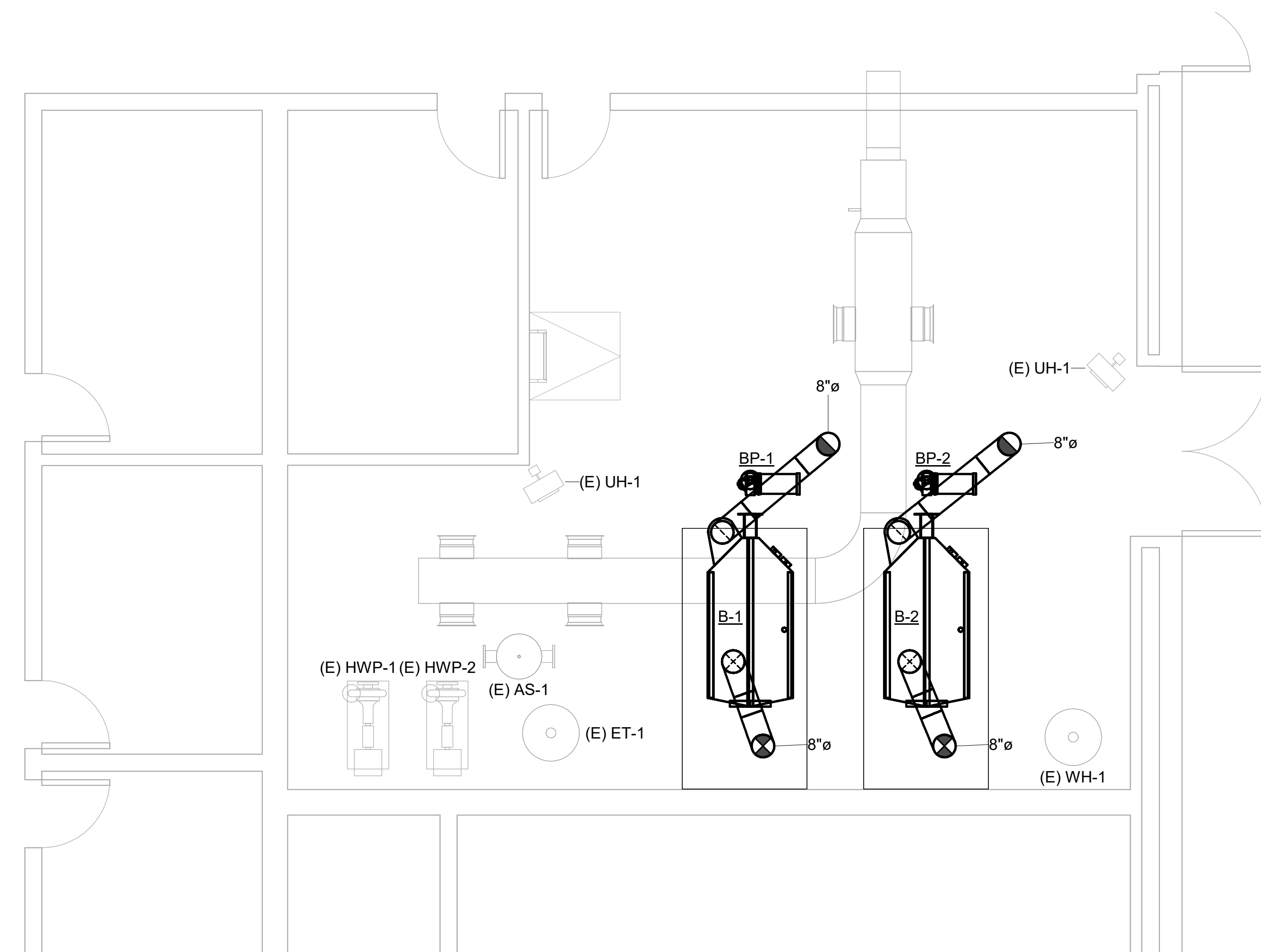
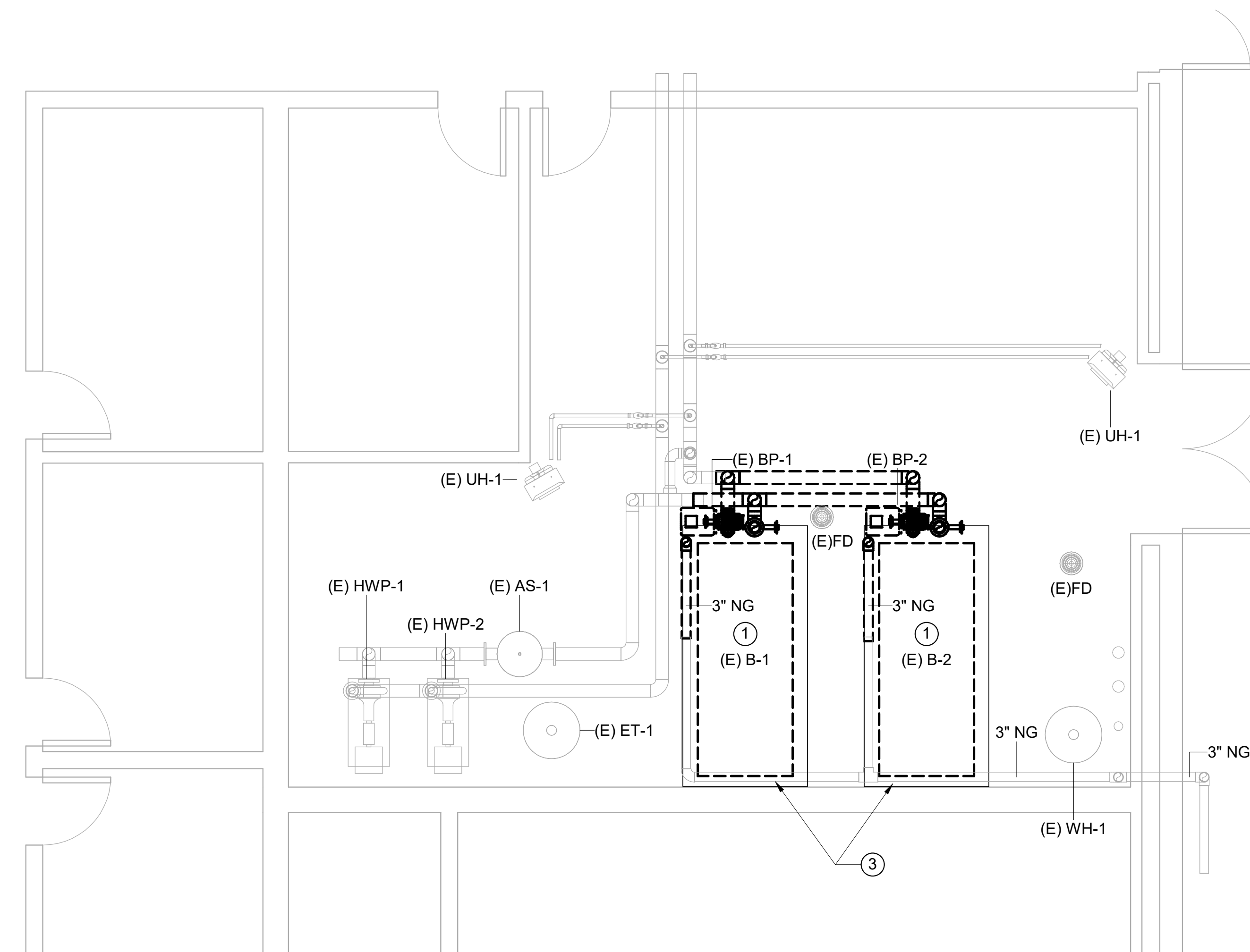
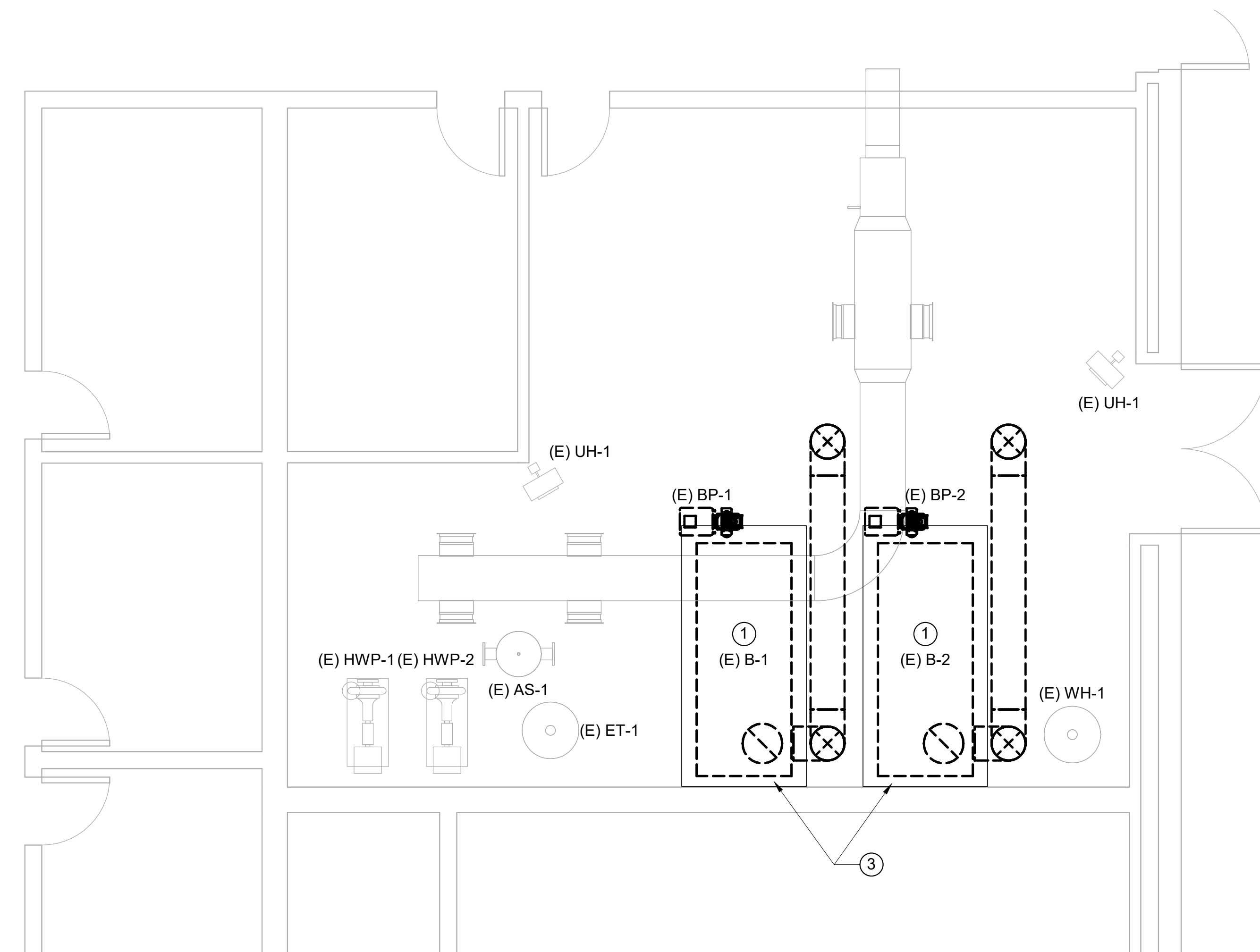
- ① INSTALL NEW AHU ON THE EXISTING CURB AND SUPPORTS PER THE DELEGATED DESIGN. CONFIRM SIZING IN THE FIELD PRIOR TO PROVIDING SUBMITTALS.
- ② FIELD VERIFY THE EXISTING DUCT SIZE AND LOCATIONS. PROVIDE PRE-FABRICATED DUCT CONNECTIONS TO THE EXISTING.
- ③ USE THE EXISTING ROOF PENETRATION LOCATIONS FOR THE NEW BOILER EXHAUST. PROVIDE STAINLESS STEEL ROOF TERMINATIONS THAT ARE LISTED AS APPROVED IN THE BOILERS INSTALLATION MANUAL. SEE FLUE DETAIL FOR MORE INFORMATION.
- ④ EXTEND HW/S/R IN THE CEILING SPACE BELOW THE UNIT FROM THE DEMOLISHED VENTILATION UNIT TO THE NEW AHU BOTTOM COIL CONNECTION. PROVIDE ALL NEW PIPE ACCESSORIES PER THE COIL CONNECTION DETAIL.
- ⑤ DASHED LINES INDICATE APPROXIMATE FOOTPRINT OF THE EXISTING CURB. CONTRACTOR SHALL FIELD VERIFY. PROVIDE A CURB ADAPTER, AND COORDINATE THE REQUIRED DUCT CONNECTION TRANSITIONS.
- ⑥ ROUTE CONDENSATE PIPING ALONG THE ROOF TO THE GUTTER. USE UV RESISTANT PVC PIPE AND SUPPORTS.
- ⑦ USE THE EXISTING ROOF PENETRATION LOCATIONS FOR THE NEW BOILER INTAKE. PROVIDE WITH A GRAVITY VENTILATOR. BASIS OF DESIGN: GREENHECK® GSR-10 WITH INTEGRAL BRIDSCREEN. SEE DETAIL FOR MORE INFORMATION.

A graphic scale bar and a north arrow. The north arrow is a circle with a crosshair, with the letter 'N' above it. The scale bar is a horizontal bar with alternating black and white segments, with markings at 0, 4', 8', 16', and 32'. Below the scale bar, the text 'Scale: 1/8" = 1'-0"' is printed.



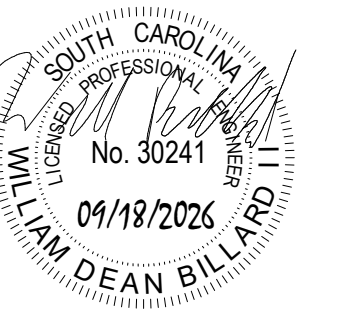
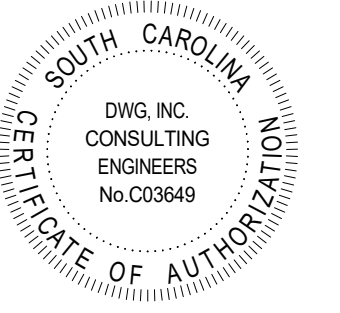
MECHANICAL ROOF NEW WORK PLAN

#	Description	01/01/01
JOB No.		H59-N395-AT
DATE:		09/18/2026
DRAWN BY:		CPM
CHECKED BY:		WDB
SHEET		NUMBER
M101		



KEYNOTES

- ① DEMOLISH THE EXISTING BOILERS AND ASSOCIATED PIPING, PUMPS, AND VENTS AS SHOWN.
- ② SEE THE BOILER CONNECTION DETAIL FOR ADDITIONAL INFORMATION.
- ③ BOILER PAD TO REMAIN FOR RE-USE.
- ④ ROUTE BOILER AND PIPE DRAINS TO THE EXISTING FLOOR DRAIN.



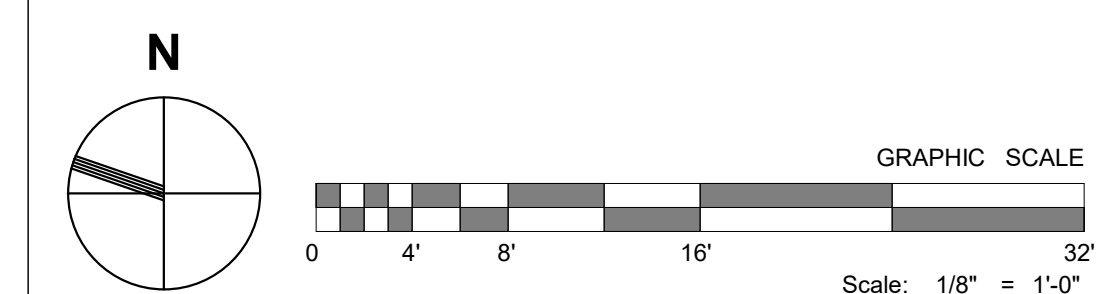
GENERAL NOTES

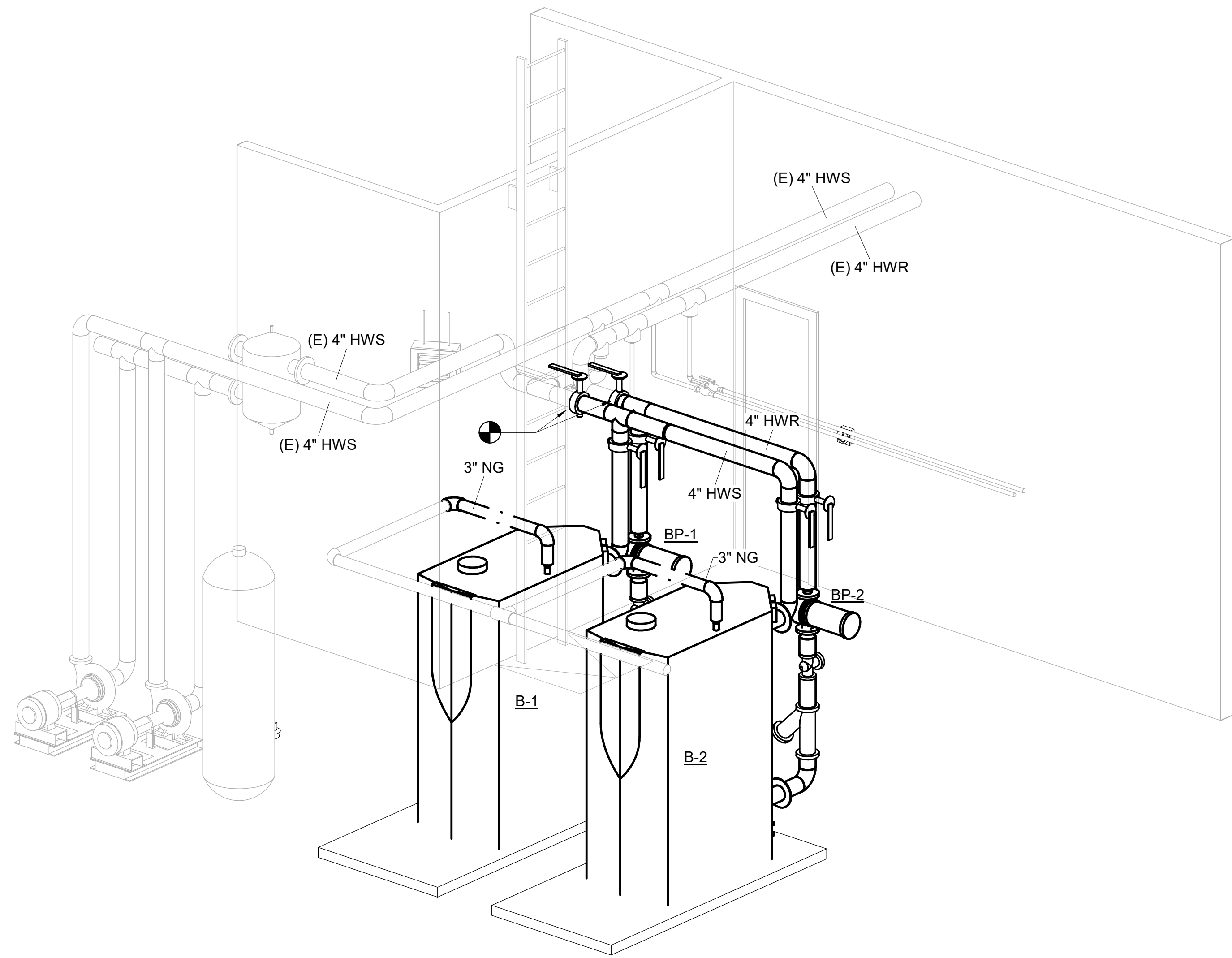
CCTC HEALTH SCIENCE HVAC REPLACEMENT
133 S MAIN ST. SUMTER, SC 29150

MECHANICAL ROOM DUCT AND PIPE PLANS

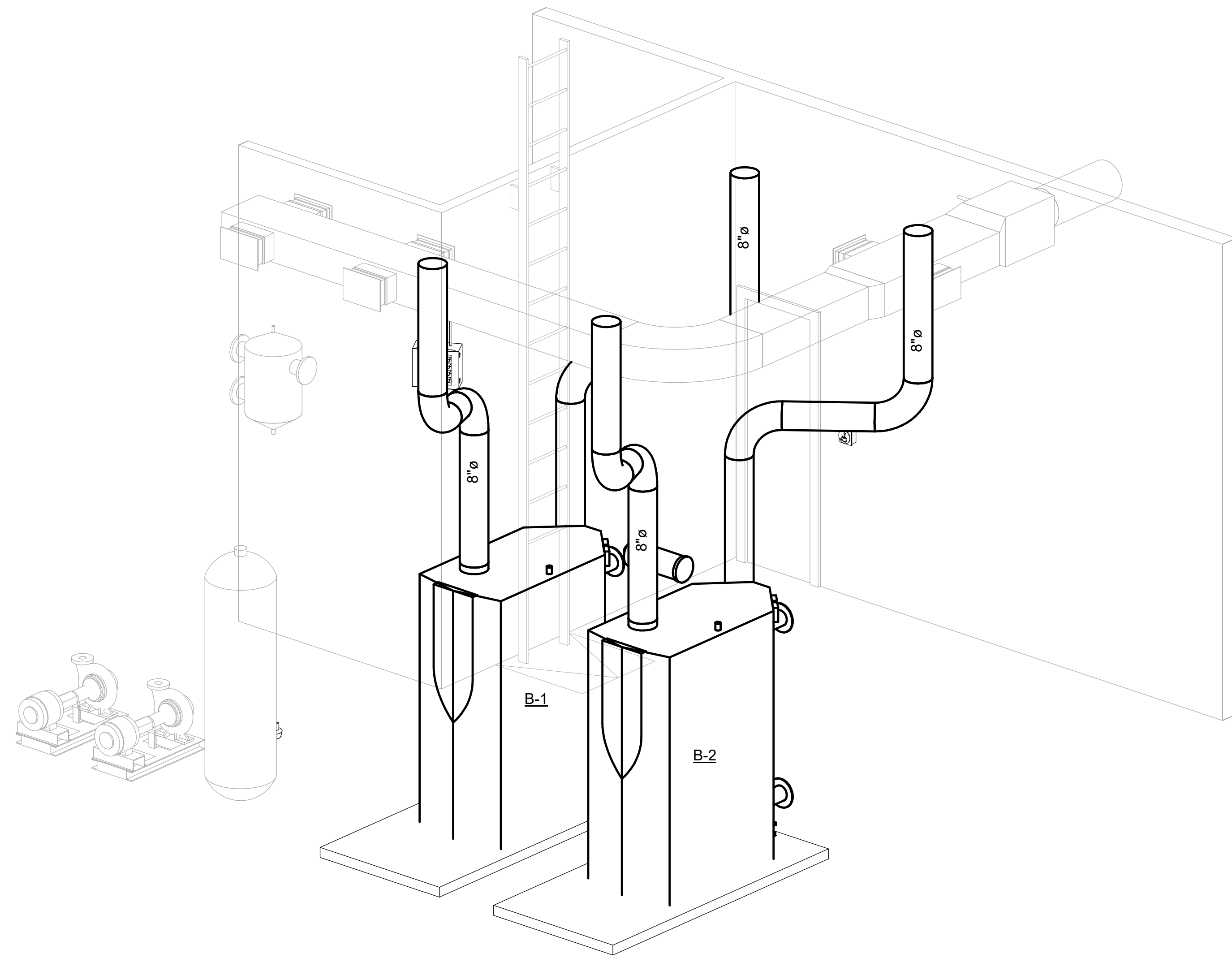
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JOB No.		H59-N395-AT
DATE:		09/18/2026
DRAWN BY:		CPM
CHECKED BY:		WDB
SHEET	NUMBER	

M102





1 MECHANICAL ISOMETRIC - PIPING
M103 SCALE:



2 MECHANICAL ISOMETRIC - DUCTWORK
M103 SCALE:

CCTC HEALTH SCIENCE HVAC REPLACEMENT
133 S MAIN ST. SUMTER, SC 29150

MECHANICAL ISOMETRICS

#	Description	01/01/01
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JOB No.	H59-N395-AT
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DATE:	09/18/2026
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DRAWN BY:	CPM
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CHECKED BY:	WDB
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SHEET	NUMBER
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M103

ELECTRICAL SYSTEMS
SEISMIC REQUIREMENTS
PER IBC-2021/ASCE 7-16

- A. PER THE 2021 INTERNATIONAL BUILDING CODE, MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT AND COMPONENTS, INCLUDING THEIR SUPPORTS AND ATTACHMENTS, SHALL BE DESIGNED FOR SEISMIC FORCES IN ACCORDANCE WITH CHAPTER 13 OF ASCE 7.
- B. EXTERIOR EQUIPMENT (INCLUDING ROOF CURBS, RAILS, SUPPORTS) EXPOSED TO WIND SHALL BE DESIGNED AND INSTALLED TO RESIST THE WIND PRESSURES DETERMINED IN ACCORDANCE WITH CHAPTER 26 TO 29 OF ASCE 7.
- C. WHERE DESIGN FOR SEISMIC AND WIND LOADS IS REQUIRED, THE MORE DEMANDING FORCE MUST BE USED.
- D. REFERENCE THE MECHANICAL DRAWINGS FOR SITE SPECIFIC INFORMATION ON SEISMIC DESIGN CATEGORY, WIND SPEEDS, ETC.
- E. USE THE TABLE BELOW TO DETERMINE SEISMIC RESTRAINT REQUIREMENTS FOR EACH COMPONENT.
- F. FOR ALL COMPONENTS REQUIRING SEISMIC RESTRAINT, THE COMPONENT SUPPORTS AND ATTACHMENTS SHALL BE DESIGNED BY A REGISTERED DESIGN PROFESSIONAL REGISTERED IN THE STATE THE JOB IS LOCATED. SUBMITTALS MUST INCLUDE STAMPED AND SIGNED DRAWINGS AND CALCULATIONS.
- G. WHERE SEISMIC RESTRAINT IS REQUIRED, HOUSEKEEPING PADS NEEDED FOR THE INSTALLATION OF EQUIPMENT UNDER THIS CONTRACT MUST BE DESIGNED BY THE SEISMIC ENGINEER. DO NOT POUR ANY HOUSEKEEPING PADS PRIOR TO THE RECEIPT OF THE APPROVED SEISMIC SUBMITTAL.
- H. SEISMIC RESTRAINTS FOR DUCTWORK, PIPING, CONDUIT, AND BUS DUCT MUST BE SHOWN ON LAYOUT DRAWINGS SHOWING SPECIFIC RESTRAINT LOCATIONS ALONG WITH ACCOMPANYING DETAILS AND CALCULATIONS.

ELECTRICAL COMPONENT IMPORTANCE FACTOR (Ip) DESIGNATION

Ip = 1.0

Ip = 1.5

- ALL ASSOCIATED ELECTRICAL WORK UNLESS NOTED OTHERWISE

- FIRE ALARM

SEISMIC DESIGN CATEGORIES C

COMPONENT IMPORTANCE FACTOR (Ip)

1.0

1.5

COMPONENT IDENTIFICATION	SEISMIC RESTRAINT REQUIREMENT	NOTES	SEISMIC RESTRAINT REQUIREMENT	NOTES
ROOF MOUNTED	NOT REQUIRED	1	RESTRAIN ALL	-
FLOOR MOUNTED	NOT REQUIRED	1,2	RESTRAIN ALL	-
WALL MOUNTED	NOT REQUIRED	1,2	RESTRAIN ALL	-
COMPONENT SUPPORTS	NOT REQUIRED	1	RESTRAIN ALL	-
SUSPENDED EQUIPMENT	NOT REQUIRED	1	RESTRAIN ALL	-
SINGLE CONDUIT	NOT REQUIRED	3	RESTRAIN IF > 2.5"	3
CABLE TRAY/BUS DUCT TRAPEZED CONDUIT	NOT REQUIRED	3	RESTRAIN IF ANY CONDUIT ON TRAPEZE > 2.5". RESTRAIN IF TOTAL WEIGHT OF SUSPENDED COMPONENT > 10 LBS/FT	3
COMPONENT CERTIFICATION	NOT REQUIRED	-	REQUIRED	4

NOTES:

1. EQUIPMENT 20 LBS. OR LESS IS EXEMPT IF THE COMPONENT IS POSITIVELY ATTACHED TO THE STRUCTURE AND FLEXIBLE CONNECTIONS ARE PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING AND CONDUIT.
2. RESTRAINTS ARE NOT REQUIRED IF THE COMPONENT WEIGHS 400 LBS. OR LESS, IS MOUNTED WITH THE CENTER MASS AT 4' OR LESS ABOVE A FLOOR, IS POSITIVELY ATTACHED TO THE STRUCTURE, AND HAS FLEXIBLE CONNECTIONS BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING AND CONDUIT.
3. RESTRAINT IS NOT REQUIRED IF THE CONDUIT IS SUPPORTED BY HANGERS AND EACH HANGER IN THE RUN IS 12" IN. OR LESS IN LENGTH FROM THE PIPE TO THE SUPPORTING STRUCTURE. WHERE PIPES ARE SUPPORTED ON A TRAPEZE, THE TRAPEZE SHALL BE SUPPORTED BY HANGERS HAVING A LENGTH OF 12" IN. OR LESS. WHERE ROD HANGERS ARE USED, THEY SHALL BE EQUIPPED WITH SWIVELS, EYE NUTS OR OTHER DEVICES TO PREVENT BENDING IN THE ROD.
4. COMPONENT CERTIFICATION MUST BE SUPPLIED BY THE EQUIPMENT MANUFACTURER AT TIME OF SUBMITTAL FOR REVIEW BY ENGINEER OF RECORD.

GENERAL ELECTRICAL NOTES

1. BRANCH CIRCUIT WIRING FOR 20A CIRCUITS SHALL BE SIZED PER WIRE SIZING CHART. WHERE CONDUCTOR AND RACEWAY SIZE ARE SHOWN AT HOMERUN, SUCH SIZE SHALL BE USED FOR THE ENTIRE CIRCUIT. EXCEPTION: FINAL CONNECTION TO DEVICES IN OUTLET BOXES IS NOT REQUIRED TO BE LARGER THAN #12.
2. PRIOR TO ROUGH-IN, COORDINATE THE LOCATION AND MOUNTING HEIGHT OF ALL WALL MOUNTED DEVICES WITH THE MILLWORK SHOP DRAWINGS. IN THE EVENT OF A CONFLICT, NOTIFY THE ENGINEER. MINOR ADJUSTMENTS IN DEVICE LOCATION, SUCH AS 5'-0" IN ANY DIRECTION, SHALL BE DONE AT NO ADDITIONAL COST TO THE OWNER.
3. RACEWAYS SHALL BE INSTALLED CONCEALED IN NEW WALL CONSTRUCTION, ABOVE CEILINGS, BELOW FLOOR AND IN OTHER CAVITIES TO THE GREATEST EXTENT POSSIBLE. EXPOSED RACEWAYS MAY BE USED IN UNFINISHED SPACES, WHERE EXPLICITLY NOTED ON PLANS AND WHERE APPROVED BY THE ENGINEER. LAY OUT EXPOSED RACEWAYS TO MINIMIZE THE NUMBER OF VERTICAL RUNS.
4. BRANCH CIRCUITS ROUTING SHALL COMPLY WITH DETAILS ON DRAWINGS AND SHALL BE COORDINATED WITH THE WORK OF OTHER TRADES BEFORE AND DURING CONSTRUCTION. FEEDER CONDUITS AND BRANCH CIRCUITS SHALL BE ROUTED OVERHEAD UNLESS PRIOR APPROVAL HAS BEEN GRANTED BY THE ENGINEER.
5. THE USE OF MC CABLE IS NOT ALLOWED, UNLESS NOTED OTHERWISE.
6. WHEREVER THE WORD "PROVIDE" IS USED ON THE ELECTRICAL DRAWINGS, IT SHALL BE INFERRED TO MEAN "FURNISH AND INSTALL", UNLESS NOTED OTHERWISE.
7. THE ARRANGEMENT, GROUPING, AND ROUTING OF BRANCH CIRCUITS SHALL BE PROVIDED AT THE CONTRACTOR'S DISCRETION IN ACCORDANCE WITH GENERALLY ACCEPTED PRACTICE FOR ELECTRICAL WORK, THE NATIONAL ELECTRICAL CODE REQUIREMENTS, LOCAL ORDINANCES, AND THE FOLLOWING: 1 - A COMMON NEUTRAL MAY BE INSTALLED IN A HOMERUN FOR 2 OR 3 BRANCH CIRCUITS ONLY IF A MEANS TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE POINT OF ORIGIN IS PROVIDED PER NEC 210.4.B. 2 - MULTIPLE SINGLE-POLE BRANCH CIRCUITS (UP TO 3 HOTS, 3 NEUTRALS AND 1 GROUND) RATED FOR 30A OR LESS MAY BE PULLED INTO A SINGLE RACEWAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SIZING THE RACEWAYS AND DE-RATING CONDUCTORS PER NEC 310.15. 3 - A GROUND CONDUCTOR SHALL BE PROVIDED IN ALL RACEWAYS UNLESS NOTED OTHERWISE.

GENERAL DEMOLITION NOTES

1. ALL ELECTRICAL EQUIPMENT TO BE REMOVED SHALL REMAIN THE PROPERTY OF THE OWNER. THE CONTRACTOR SHALL NOT DISPOSE OF ANY MATERIALS UNTIL RELEASED BY THE OWNER'S PROJECT MANAGER. MATERIALS THAT THE OWNER'S PROJECT MANAGER CHOOSES TO RETAIN SHALL BE DELIVERED BY THE CONTRACTOR TO A LOCATION DESIGNATED BY THE PROJECT MANAGER. ALL OTHER MATERIALS SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR.

GENERAL EXISTING CONDITION NOTES

1. AREAS OF WORK EXIST FOR THIS PROJECT WHICH WERE NOT ACCESSIBLE OR HAD LIMITED ACCESS DURING DESIGN. AS SUCH, CONTRACTOR SHALL VERIFY ALL UTILITIES IN AREA OF WORK BEFORE DEMOLITION OF ANY SERVICE. ANY ELECTRICAL COMPONENTS NOT SHOWN SHALL BE IDENTIFIED AND THE ENGINEER SHALL BE NOTIFIED AS SOON AS POSSIBLE. NO ELECTRICAL REWORK SHALL BE COMMENCED WITHOUT COORDINATION OF THE ENGINEER. WHERE INFORMATION SHOWN ON THESE DRAWINGS CONFLICTS WITH VERIFIED FIELD CONDITIONS, IT SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
2. IN AREAS WHERE THE EXISTING CEILINGS ARE NOT SLATED TO BE REPLACED, THE CONTRACTOR SHALL WORK THROUGH THE EXISTING CEILINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ANY DAMAGED TILE OR GRID THAT IS A RESULT OF THEIR WORK. ALL WORK PERFORMED ABOVE EXISTING CEILINGS SHALL BE SCHEDULED WITH THE OWNER IN ADVANCE.
3. PROVIDE JUNCTION BOX COVERS ON ALL EXISTING JUNCTION BOXES ABOVE THE CEILING IN THE CONSTRUCTION AREA.

GENERAL HVAC CONTROLS CONDUIT NOTES

1. PROVIDE CONDUIT FOR HVAC CONTROL CIRCUITS AS REQUIRED TO INTERCONNECT HVAC UNIT TO CONTROL CIRCUITS. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH MECHANICAL CONTRACTOR AND CONTROLS PROVIDER TO DETERMINE SCOPE OF CONDUITS REQUIRED FOR HVAC CONTROLS. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL REQUIRED CONDUIT. COORDINATE POINTS OF CONNECTION WITH DIVISION 23. PROVIDE PULL CORD IN ALL EMPTY CONDUITS. SEE MECHANICAL PLANS FOR EXACT LOCATIONS OF ALL HVAC EQUIPMENT (AHU, HP, CU, RTU, DUCT SMOKE DETECTORS, VAV, FCU, THERMOSTATS, ETC).
2. THESE DOCUMENTS MAY NOT INCLUDE ENTIRE ELECTRICAL INFRASTRUCTURE REQUIRED TO SUPPORT THE BUILDING AUTOMATION SYSTEM. COORDINATE WITH BAS PROVIDER ON ALL NECESSARY INFRASTRUCTURE FOR A COMPLETE AND WORKING SYSTEM.

GENERAL FIRE ALARM SYSTEM NOTES

1. PROVIDE ALL DUCT SMOKE DETECTORS AND ACCESSORIES NECESSARY FOR INTERLOCKING WITH MECHANICAL EQUIPMENT (AHU'S, SMOKE DAMPERS, ETC). COORDINATE WITH MECHANICAL PLANS FOR LOCATIONS AND REQUIREMENTS.
2. INSTALL DUCT SMOKE DETECTORS TO COMPLY WITH NFPA 72. WHERE TWO DETECTOR LOCATIONS ARE SHOWN AT A SINGLE PIECE OF EQUIPMENT, INSTALL ONE DETECTOR IN THE SUPPLY DUCTWORK AND ONE DETECTOR IN THE RETURN DUCTWORK. COORDINATE MOUNTING LOCATION WITH THE MECHANICAL CONTRACTOR. PROVIDE WEATHERPROOF ENCLOSURE FOR DUCT DETECTORS INSTALLED IN EXTERIOR DUCTWORK. LOCATION SHOWN IS FOR REFERENCE ONLY.

POWER AND TELECOMMUNICATIONS SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	DUPLEX RECEPTACLE "X" INDICATES RECEPTACLE TYPE		THERMOSTAT (WALL MOUNTED, ROUGH-IN ONLY)
	GFCI DUPLEX RECEPTACLE "X" INDICATES RECEPTACLE TYPE		HUMIDISTAT (WALL MOUNTED, ROUGH-IN ONLY)
	JUNCTION BOX (WALL MOUNTED) "X" INDICATES JUNCTION BOX TYPE		METER
	DISCONNECT SWITCH (FUSIBLE OR NON-FUSIBLE)		PANELBOARD - BRANCH, SURFACE MOUNTED
	PANELBOARD - DISTRIBUTION, SURFACE MOUNTED		TRANSFORMER
	SWITCHBOARD		

SYSTEMS SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	CONTROL PANEL, "X" INDICATES TYPE		SMOKE DETECTOR (DUCT MOUNTED)

WIRE SIZING CHART
20 AMP BRANCH CIRCUITS

DISTANCE, 120V	MINIMUM WIRE SIZE
0 - 90 FEET	#12 AWG
90 - 230 FEET	#10 AWG
230 - 446 FEET	#8 AWG

LINE LEGEND

SYMBOL	DESCRIPTION
	EXISTING TO REMAIN
	NEW CONSTRUCTION
	DEMOLISH

ELECTRICAL CODES AND STANDARDS
(WITH ALL SOUTH CAROLINA MODIFICATIONS)

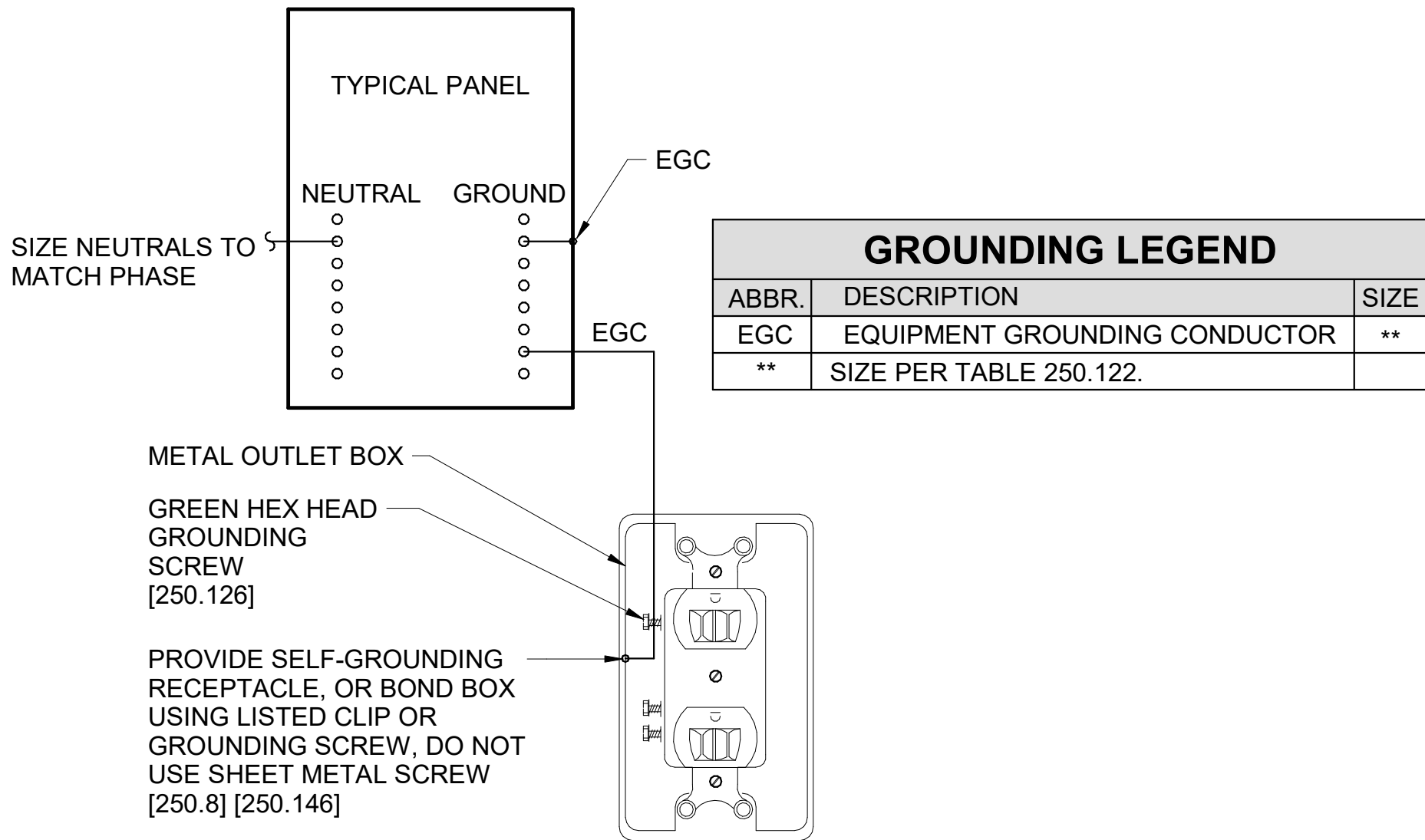
CODE	DESCRIPTION
IBC (2021)	INTERNATIONAL BUILDING CODE
NFPA 70 (2020)	NATIONAL ELECTRICAL CODE
NFPA 72 (2019)	NATIONAL FIRE ALARM AND SIGNALING CODE

ELECTRICAL ABBREVIATIONS

ABBR	DESCRIPTION
(E)	EXISTING
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
BAS	BUILDING AUTOMATION SYSTEM
BOD	BOTTOM OF DEVICE
CLG	CEILING
GFCI	GROUND-FAULT CIRCUIT-INTERRUPTING
GP	GENERAL PURPOSE
J-BOX	JUNCTION BOX
KW	KILOWATTS
NEC	NATIONAL ELECTRICAL CODE
NFDS	NON-FUSED DISCONNECT SWITCH
OC	ON CENTER
UNO	UNLESS NOTED OTHERWISE
VFD	VARIABLE FREQUENCY DRIVE
W/	WITH
WH	WATER HEATER
WP	WEATHERPROOF
XFMR	TRANSFORMER

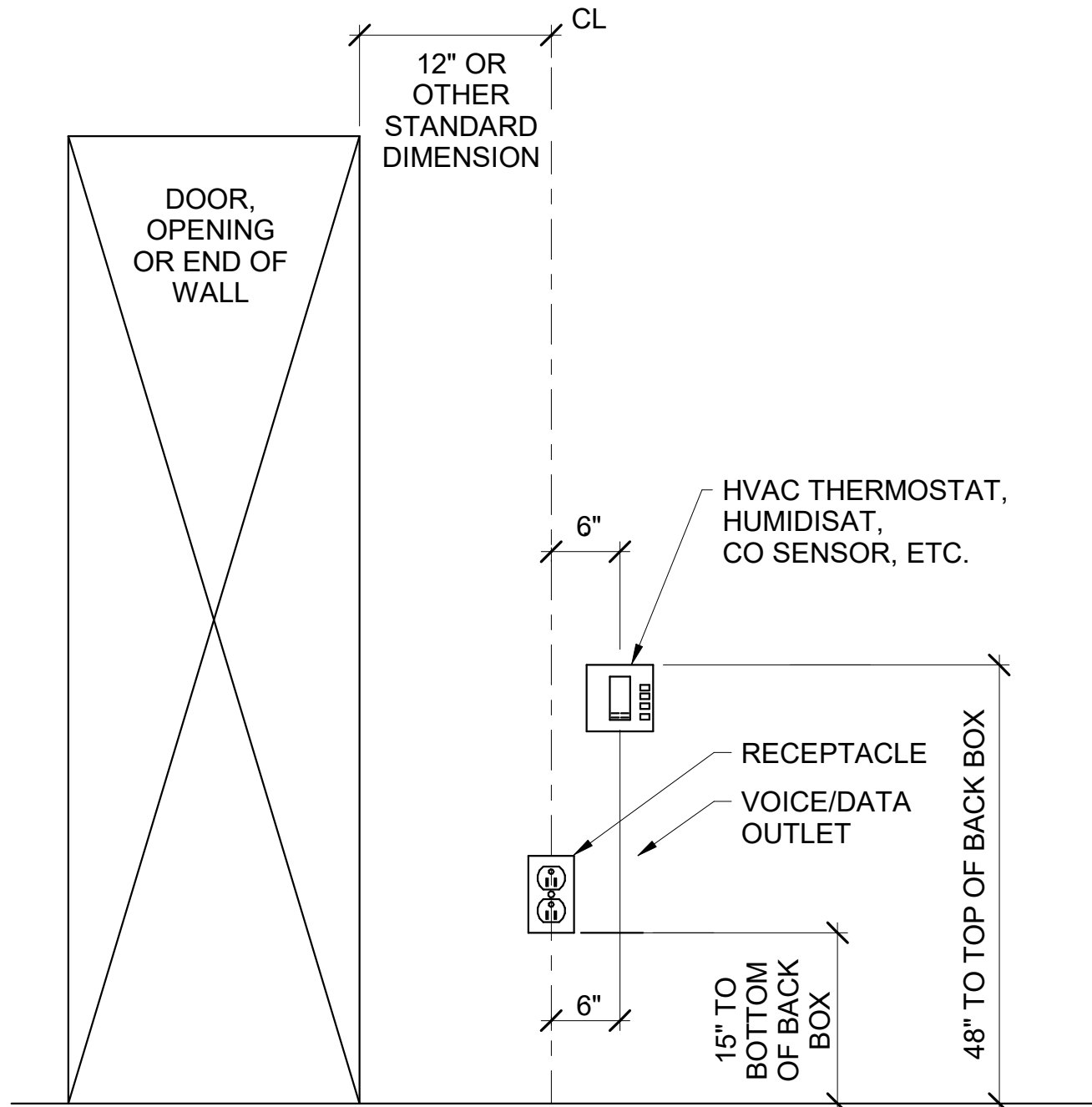
CONTROL PANELS	DESCRIPTION
FACP	FIRE ALARM CONTROL PANEL

RECEPTACLE	DESCRIPTION
WP	WEATHERPROOF



GROUNDING NOTES:

1. NUMBERS IN BRACKETS REFER TO SPECIFIC SECTIONS OF THE NATIONAL ELECTRICAL CODE.
2. ALL UNDERGROUND OR OTHERWISE INACCESSIBLE GROUND CONNECTIONS AND SPLICES SHALL BE EXOTHERMICALLY WELDED [250.68].
3. GROUND ELECTRODE FOR SEPARATELY DERIVED SYSTEMS SHALL BE THE NEAREST METAL WATER PIPE OR STRUCTURAL METAL. IF EITHER IS NOT AVAILABLE, PROVIDE GROUNDING CONDUCTOR BACK TO MAIN GROUND BUS AT SERVICE ENTRANCE.
4. PROVIDE A GROUND WIRE IN ALL CONDUITS.
5. EARTH SHALL NOT BE USED AS THE SOLE GROUND RETURN PATH FOR ANY EQUIPMENT POWERED UNDER THIS PROJECT. OTHERWISE OVERCURRENT PROTECTION MIGHT NOT WORK, OR IT MIGHT CAUSE POWER QUALITY PROBLEMS.
6. NO ALUMINUM SHALL BE USED FOR GROUNDING WORK WITHOUT THE SPECIFIC WRITTEN PERMISSION OF THE ENGINEER. EXCEPTION: ALUMINUM BUILDING STRUCTURAL MATERIALS SHALL BE BONDED WITH LISTED ALUMINUM EQUIPMENT WITH ALUMINUM TO COPPER CONNECTORS FOR ROUTING COPPER EGC'S. ALL METAL ENCLOSURES AND RACEWAYS SHALL BE BONDED [250.86]. FOR CIRCUITS OVER 250V PROVIDE BOND PER [250.97]. STANDARD LOCKNUTS ARE NOT ACCEPTABLE.
8. PROVIDE EGC CONNECTED TO ANY JUNCTION BOX WHERE SPLICE IS MADE [250.148].
9. PROVIDE BOND TO EXPOSED METAL ON ALL MOTORS, PUMPS, AND LIGHTING FIXTURES PER [250.112].

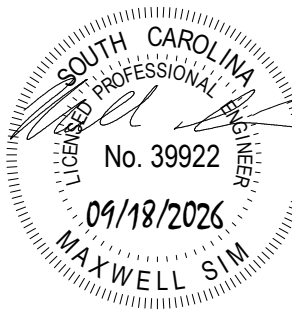


NOTE 1: DEVICES SHOWN WITHIN 48" OF EACH OTHER ON ALL ELECTRICAL PLANS SHALL BE ALIGNED PER THIS DETAIL. IF DEVICES ARE SHOWN IN MIDDLE OF WALL, THEN CENTER DEVICES ON WALL.

1
E001
GROUNDING DETAIL
NOT TO SCALE

2
E001
DEVICE ALIGNMENT DETAIL
NOT TO SCALE

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ELECTRICAL NOTES, LEGENDS AND DETAILS

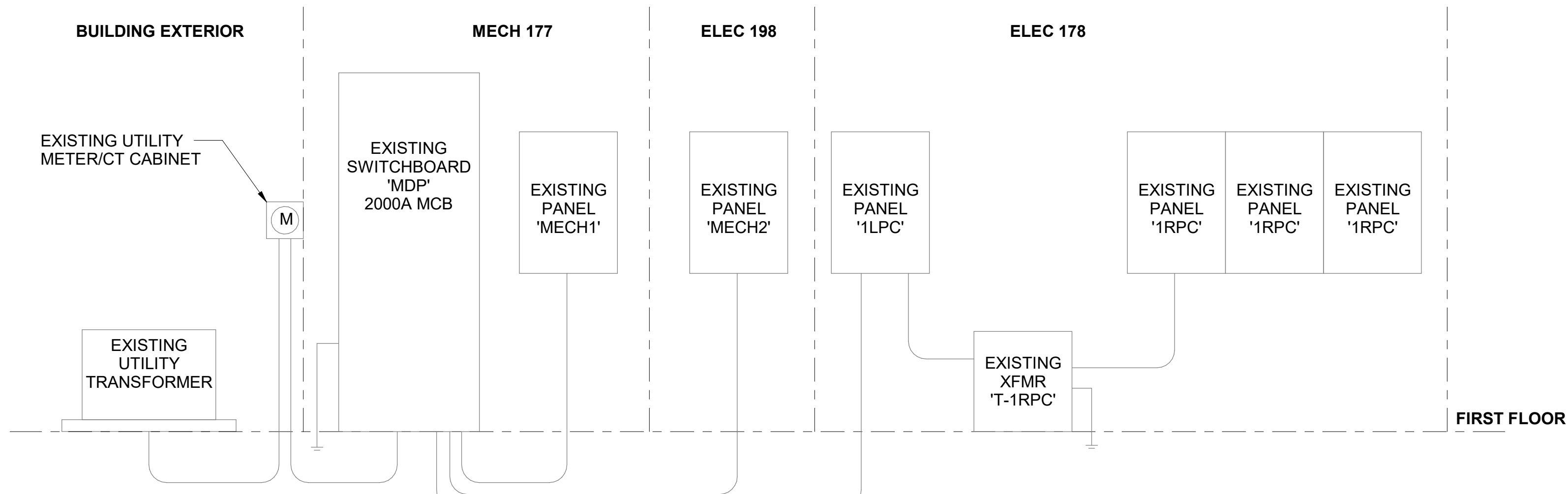
Description 01/01/01

JOB No. H59-N395-AT
DATE: 09/18/2026
DRAWN BY: AMH
CHECKED BY: MHS
SHEET NUMBER

E001

ONE LINE DIAGRAM GENERAL NOTES

- ONE LINE DIAGRAM SHOWS EQUIPMENT RELATED TO SCOPE OF WORK.
- ONE LINE DIAGRAM SHOWN FOR REFERENCE ONLY AND SHALL BE VERIFIED IN FIELD.



1 PARTIAL ONE-LINE DIAGRAM
E010 NOT TO SCALE

EXISTING SWITCHBOARD SCHEDULE

NAME: MDP LOCATION: MECH 177 SOURCE: (E) UTILITY TRANSFORMER MOUNTING: FREE-STANDING			VOLTS: 480/277 Wye PHASES: 3 WIRES: 4 ENCLOSURE: TYPE 1			A.I.C. RATING: 65,000 MAINS RATING: 2000 A MAINS TYPE: (E) MAIN CIRCUIT BREAKER EXISTING PANEL: NOTE 1		
CKT NO.	CIRCUIT DESCRIPTION		POLES	FRAME SIZE	TRIP RATING	Load		
1	(E) EXISTING		3	150 A	150 A	0		
2	(E) EXISTING		3	250 A	250 A	0		
3	(E) EXISTING		3	150 A	150 A	0		
4	(E) MECH1		3	250 A	200 A	0		
5	(E) MECH2		3	800 A	800 A	277266		
6	(3*) AHU-3		3	250 A	150 A	116726		
7	(3*) AHU-2		3	250 A	250 A	160540		
8	(E) PREPARED SPACE		3	--	--	--		
9	(E) PREPARED SPACE		3	--	--	--		
10	(E) PREPARED SPACE		3	--	--	--		
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
TOTAL CONNECTED LOAD:						554532		
TOTAL AMPS:						667 A		

EXISTING DISTRIBUTION PANELBOARD SCHEDULE

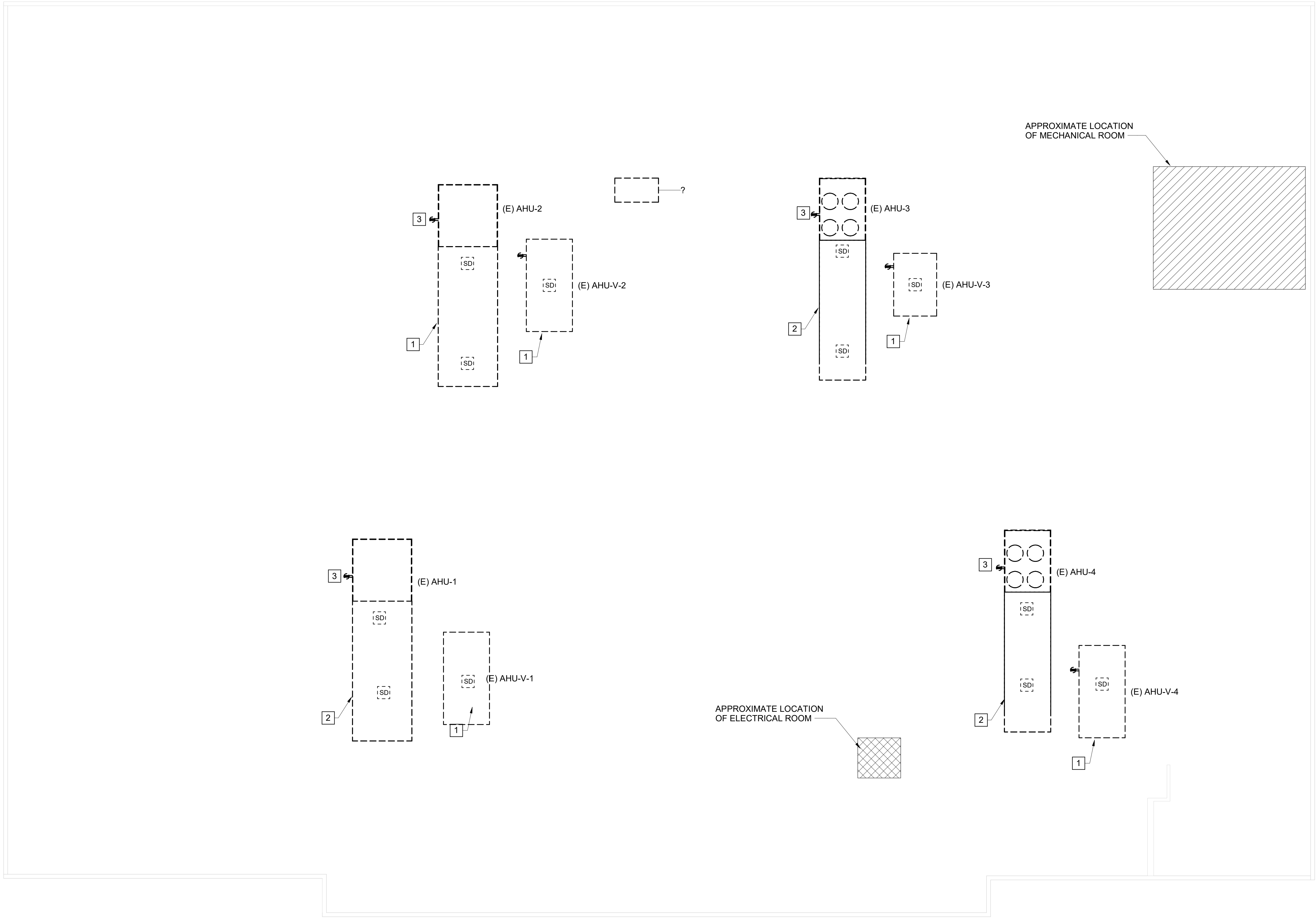
NAME: MECH1 LOCATION: MECH 177 SOURCE: MDP MOUNTING: SURFACE			VOLTS: 480/277 Wye PHASES: 3 WIRES: 4 ENCLOSURE: TYPE 1			A.I.C. RATING: 65,000 MAINS RATING: 200 A MAINS TYPE: MAIN LUGS ONLY EXISTING PANEL: NOTE 1		
CKT NO.	CIRCUIT DESCRIPTION		POLES	TRIP RATING	A	B	C	
1,2,3	(4*) SPARE		3	110 A	0	0	0	
4,5,6	(4*) SPARE		3	60 A	0	0	0	
7,8,9	(E) EXISTING		3	30 A	0	0	0	
10,11,12	(E) EXISTING		3	30 A	0	0	0	
13,14,15	PREPARED SPACE		3	--	--	--	--	
16,17,18	PREPARED SPACE		3	--	--	--	--	
19,20,21	PREPARED SPACE		3	--	--	--	--	
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								
TOTAL CONNECTED PHASE LOAD:					0	0	0	
TOTAL PHASE AMPS:					0 A	0 A	0 A	
TOTAL CONNECTED LOAD:					0			
TOTAL AMPS:					0 A			

EXISTING DISTRIBUTION PANELBOARD SCHEDULE

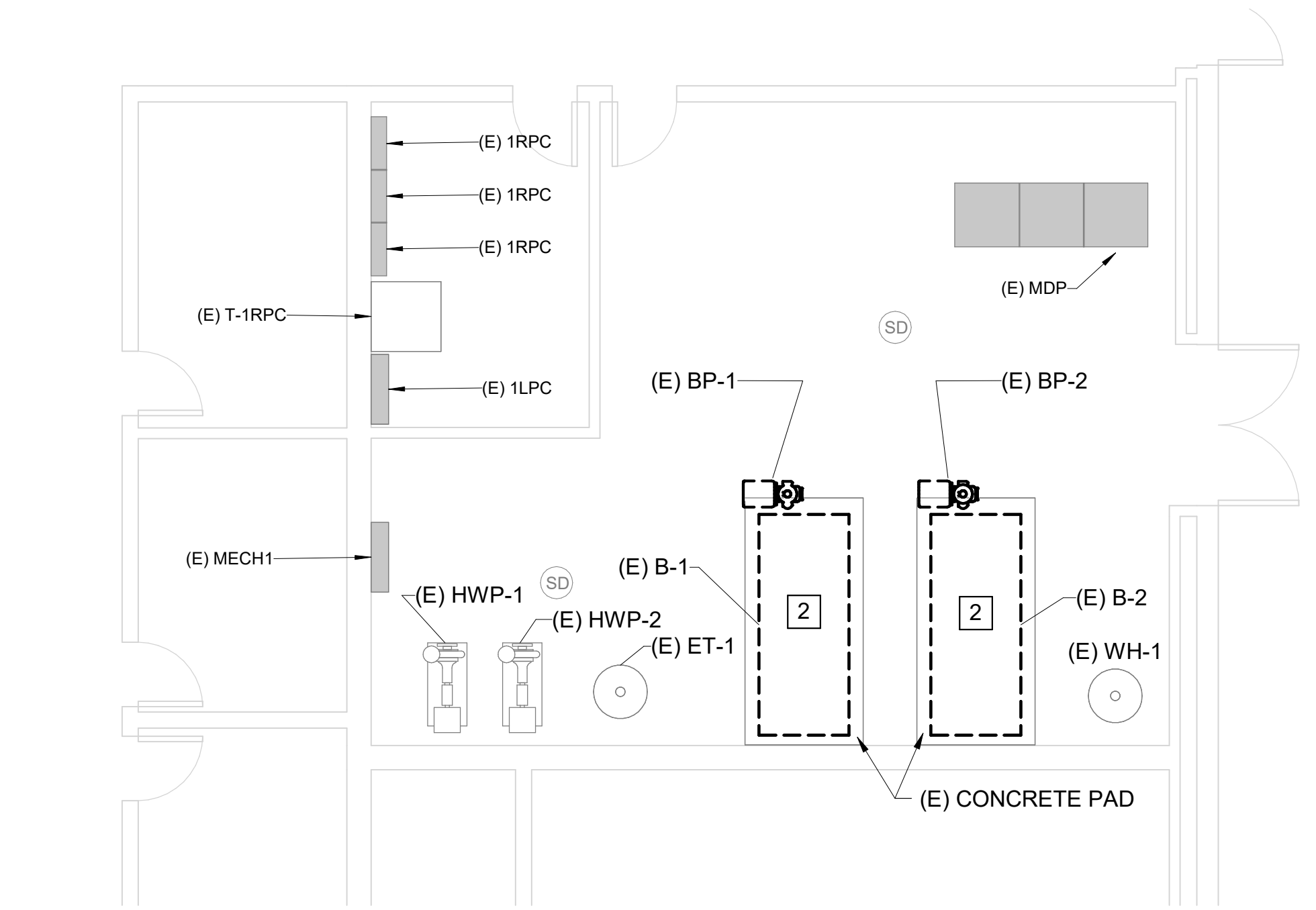
NAME: MECH2 LOCATION: ELEC. 198 SOURCE: MDP MOUNTING: SURFACE				VOLTS: 480/277 Wye PHASES: 3 WIRES: 4 ENCLOSURE: TYPE 1				A.I.C. RATING: 65,000 MAINS RATING: 800 A MAINS TYPE: MAIN LUGS ONLY EXISTING PANEL: NOTE 1			
CKT NO.	CIRCUIT DESCRIPTION			POLES	TRIP RATING	A	B	C			
1,2,3	(2*)	AHU-1		3	250 A	53513	53513	53513			
4,5,6	(4*)	SPARE		3	125 A	0	0	0			
7,8,9	(3*)	AHU-4		3	150 A	38909	38909	38909			
10,11,12	(4*)	SPARE		3	110 A	0	0	0			
13,14,15	(E)	PREPARED SPACE		3	--	--	--	--			
16,17,18	(E)	PREPARED SPACE		3	--	--	--	--			
19,20,21	(E)	PREPARED SPACE		3	--	--	--	--			
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
TOTAL CONNECTED PHASE LOAD:						92422	92422	92422			
TOTAL PHASE AMPS:						334 A	334 A	334 A			
TOTAL CONNECTED LOAD:							277296				
TOTAL AMPS:							333 A				

PLOT DATE: 09/18/2026

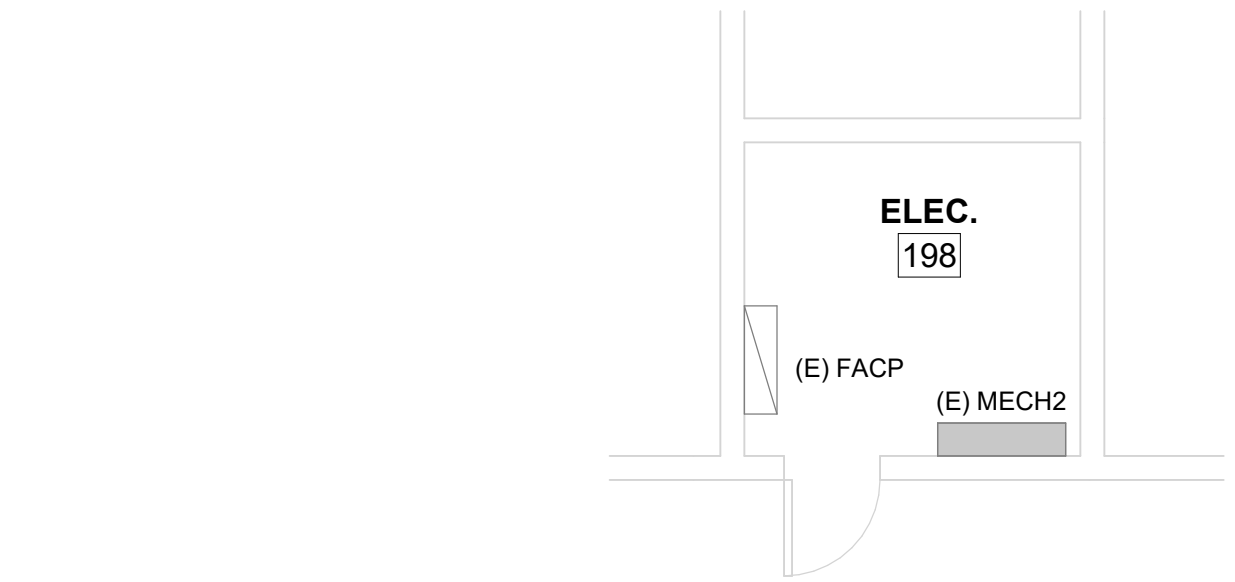
1 ROOF POWER & SYSTEMS DEMOLITION PLAN
E100 SCALE: 1/8" = 1'-0"



2 MECHANICAL ROOM POWER & SYSTEMS DEMOLITION PLAN
E100 SCALE: 1/4" = 1'-0"



3 ELECTRICAL ROOM POWER & SYSTEMS DEMOLITION PLAN
E100 SCALE: 1/4" = 1'-0"

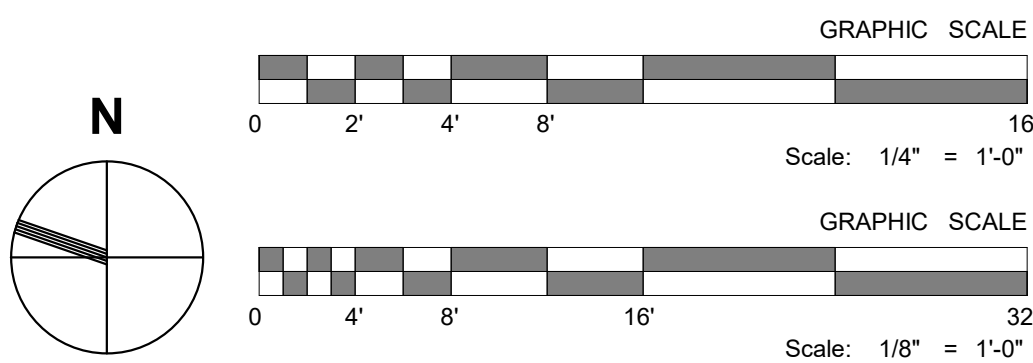


DEMOLITION KEYNOTES

- 1 DEMOLISH EXISTING UNIT AND ALL ASSOCIATED WIRE, CONDUIT AND DISCONNECT BACK TO SOURCE.
- 2 DEMOLISH EXISTING UNIT AND CORRESPONDING DISCONNECT. CAP WIRING AND CONDUIT FOR CONNECTION OF NEW EQUIPMENT IN SAME LOCATION DURING RENOVATION PHASE.
- 3 DEMOLISH EXISTING RECEPTACLE BACK TO NEAREST JUNCTION BOX. CAP WIRING AND CONDUIT FOR RE-USE DURING THE RENOVATION PHASE.

GENERAL NOTES

1. REMOVE EXISTING LIGHTNING PROTECTION AS NECESSARY AND STORE DURING DEMOLITION PHASE.
2. MAINTAIN CIRCUIT CONTINUITY FOR CIRCUITS WHERE DEVICES ARE DEMOLISHED BUT THE ENTIRE CIRCUIT IS NOT.



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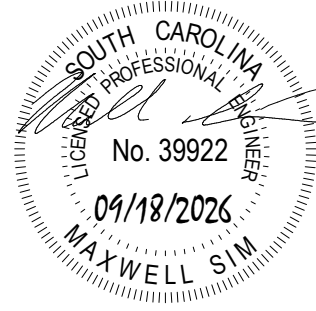
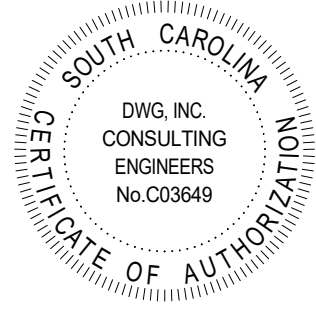
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POWER & SYSTEMS DEMOLITION PLANS

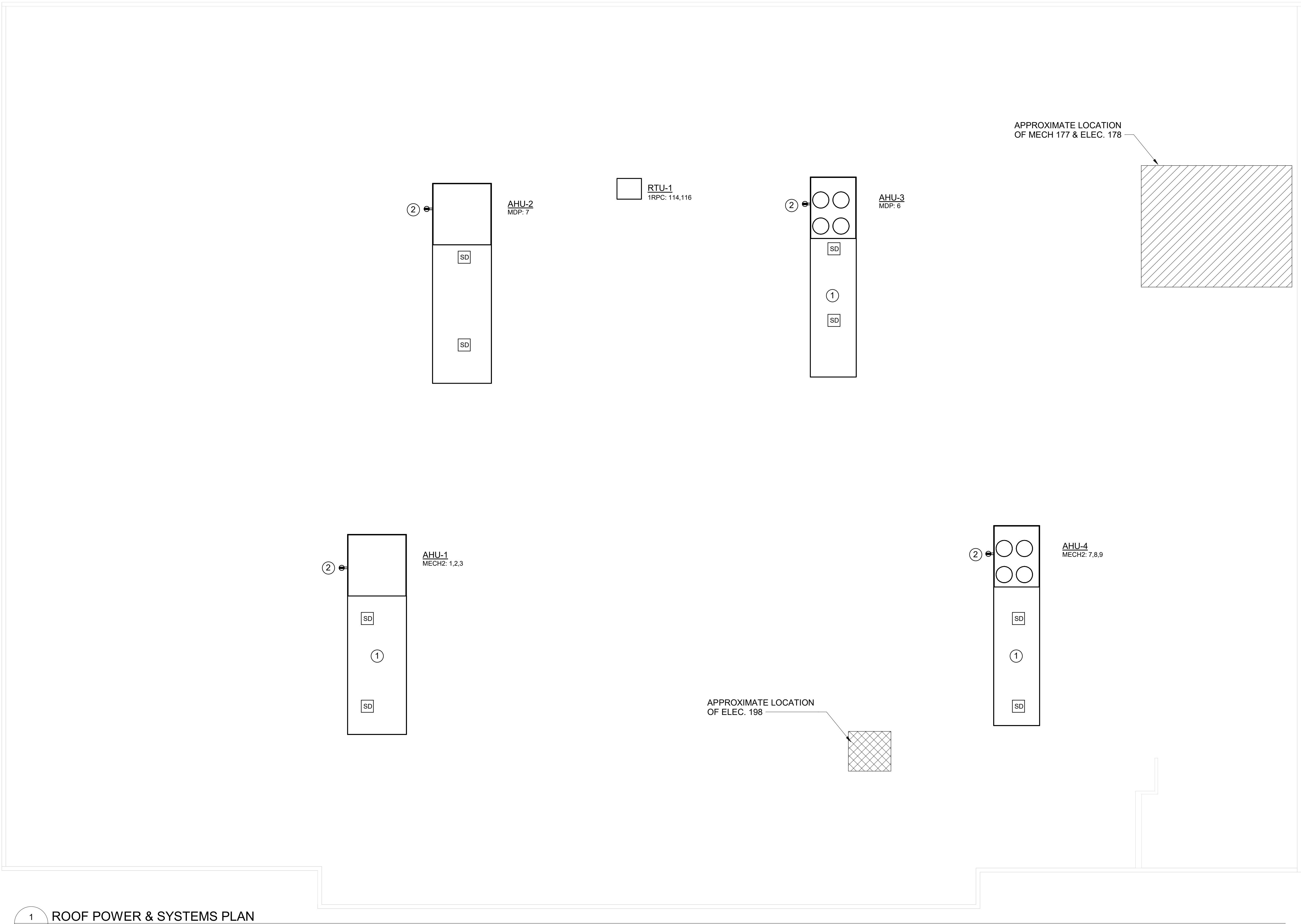
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1 ROOF POWER & SYSTEMS PLAN
SCALE: 1/8" = 1'-0"

2 MECHANICAL ROOM POWER & SYSTEMS PLAN
SCALE: 1/4" = 1'-0"

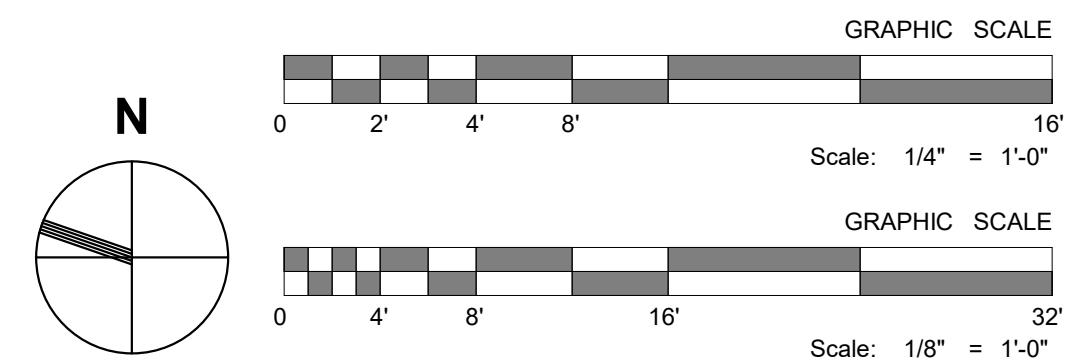
3 ELECTRICAL ROOM POWER & SYSTEMS PLAN
SCALE: 1/4" = 1'-0"

RENOVATION KEYNOTES

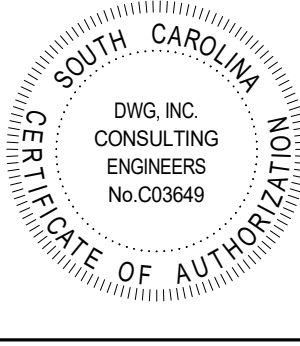
- 1 PROVIDE FINAL CONNECTION TO NEW UNIT. MODIFY AND EXTEND EXISTING WIRE AND CONDUIT AS NECESSARY TO PROVIDE POWER TO NEW UNIT.
- 2 PROVIDE POWER TO NEW RECEPTACLE FROM EXISTING RECEPTACLE CIRCUIT. MODIFY AND EXTEND EXISTING WIRE AND CONDUIT AS NECESSARY TO PROVIDE POWER TO NEW RECEPTACLE.
- 3 REPLACE EXISTING SMOKE DETECTOR IN ROOM WITH DUAL CARBON MONOXIDE / SMOKE DETECTOR CONNECTED INTO EXISTING FIRE ALARM SYSTEM. RE-CERTIFY AT COMPLETION OF MODIFICATIONS.
- 4 PROVIDE EMERGENCY STOP (E-STOP) PUSH BUTTONS AT EACH BOILER AND ADJACENT TO THE MECHANICAL ROOM EGRESS DOORS FOR SHUTOFF OF THE BOILERS.
- 5 EXISTING RECEPTACLE. REPLACE WITH GFCI TO SERVE AS MAINTENANCE POWER FOR HVAC/PLUMBING UNITS.

GENERAL NOTES

1. REINSTALL AND BOND PREVIOUSLY REMOVED LIGHTNING PROTECTION TO NEW HVAC EQUIPMENT ONCE INSTALLED. RE-CERTIFY U.L. LISTED LIGHTNING PROTECTION SYSTEM.
2. PRIOR TO ORDERING OR INSTALLING ANY FIRE ALARM EQUIPMENT, VERIFY THE EXISTING FIRE ALARM CONTROL PANEL MANUFACTURER, MODEL, AND SYSTEM CONFIGURATION. PROVIDE NEW DEVICES AND ACCESSORIES THAT ARE COMPATIBLE WITH THE EXISTING FIRE ALARM SYSTEM.



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POWER & SYSTEMS PLANS

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E101