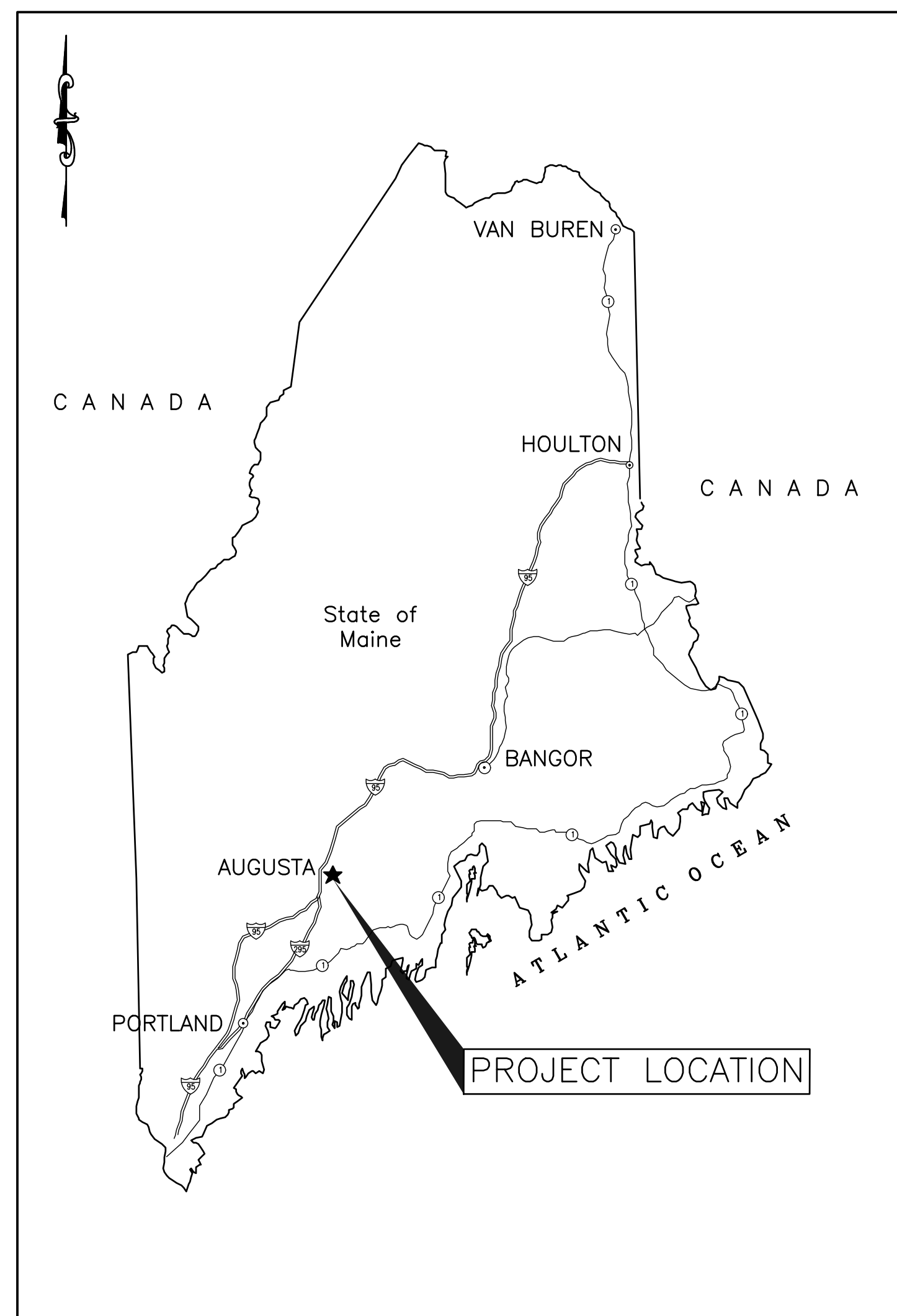


MAINE BUREAU OF REAL ESTATE MANAGEMENT (BREM)

AUGUSTA, MAINE

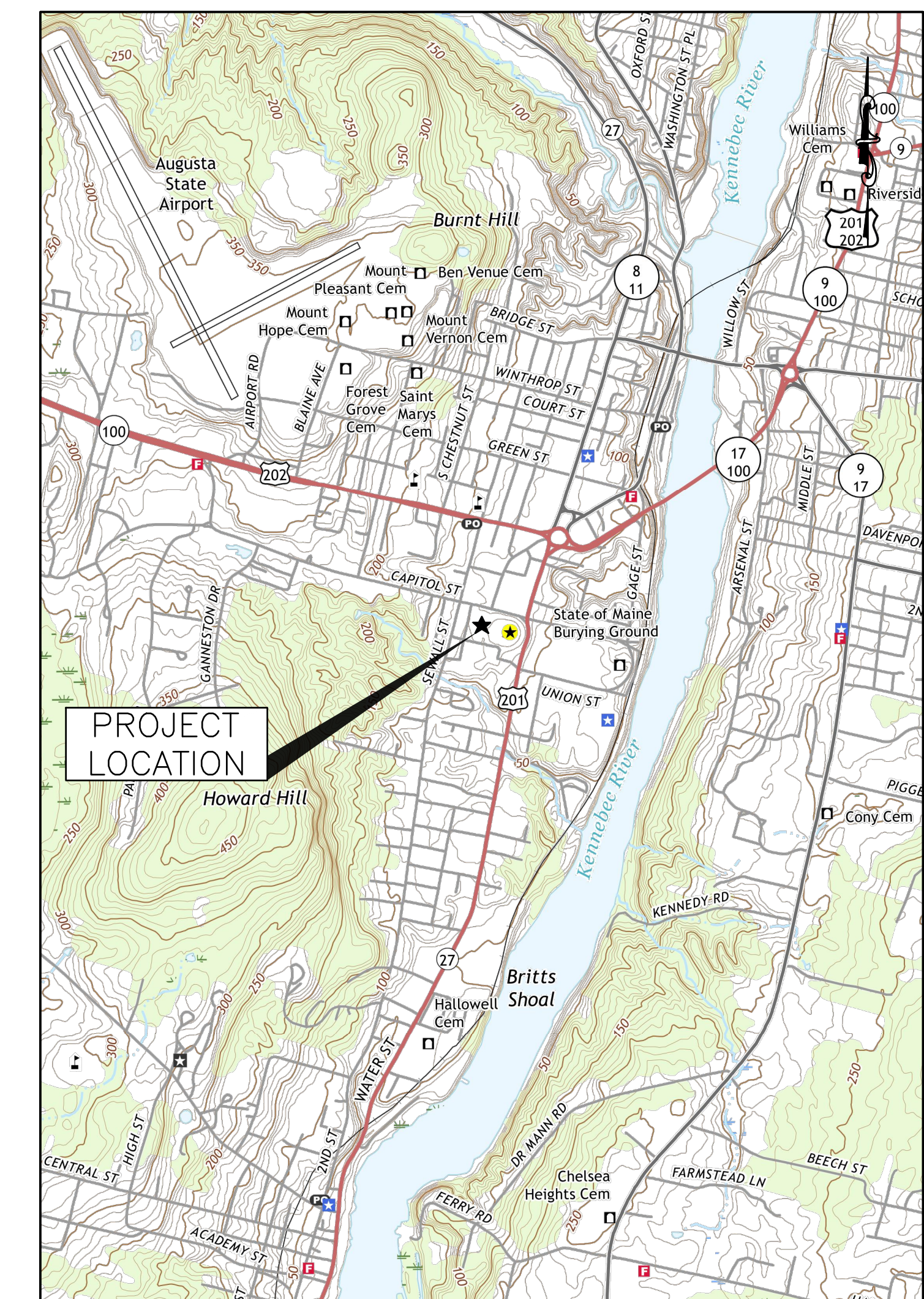
ISSUED FOR BID

CROSS BUILDING CHILLER REPLACEMENT




VICINITY MAP
SCALE: NTS

DRAWING INDEX		
DRAWING	TITLE	SHEET NUMBER
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LOCUS MAP
SCALE: 1"=1,500'

 47A York St Portland, ME 04101 207.553.7753	BREM AUGUSTA, MAINE CROSS BUILDING CHILLER REPLACEMENT		
	COVER SHEET		
0 ISSUED FOR BID REV DESCRIPTION	CSS RLM DWN APP DATE	10/31/18	PROJECT NO. 163.002.002 SHEET 1 OF 14
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ABBREVIATIONS:

⊙	AT
APPROX.	APPROXIMATELY
ARCH	ARCHITECTURAL
BOT.	BOTTOM
B.P.	BASEPLATE
C.O.	CONTROL JOINT
CL	CENTER LINE
CLR	CLEAR
CONC, CONC.	CONCRETE
CONN, CONN.	CONNECTION
COL, COL.	COLUMN
CONT.	CONTINUOUS
∅	DIAMETER
DIM.	DIMENSION
DN	DOWN
DWG.	DRAWING
(E)	EXISTING
EA.	EACH
EMBED	EMBEDMENT
EQ, EQ.	EQUAL
EQUIP.	EQUIPMENT
EXIST.	EXISTING
E.W.	EACH WAY
FT	FEET
GALV.	GALVANIZED
GEN.	GENERAL
GR.	GRADE
H.M.	HOLLOW METAL
HORIZ.	HORIZONTAL
IN.	INCH
LG	LONG
LLV	LONG LEG VERTICAL
MANUF.	MANUFACTURER
MAX.	MAXIMUM
MECH.	MECHANICAL
MIN.	MINIMUM
M.O.	MASONRY OPENING
NTS	NOT TO SCALE
O.C.	ON CENTER
PL, \square	PLATE
±	PLUS/MINUS
P.T.	PRESSURE TREATED
R, RAD.	RADIUS
REF, REF.	REFERENCE
REQ'D, REQ.	REQUIRED
SECT.	SECTION
SHT.	SHEET
SIM.	SIMILAR
SPEC.	SPECIFICATION
STD	STANDARD
TYP, TYP.	TYPICAL
VIF, V.I.F.	VERIFY IN FIELD

CONCRETE NOTES:

- CONCRETE WORK SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318)," AND "SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301)." GENERAL CONTRACTOR, CONSTRUCTION MANAGER AND/OR OWNER'S CLERK OF THE WORKS SHALL HAVE AVAILABLE ON SITE AT ALL TIMES A COPY OF ACI "FIELD REFERENCE MANUAL SP-15".
- CONCRETE SHALL BE PLACED IN THE PRESENCE OF A REPRESENTATIVE OF AN APPROVED TESTING AGENCY.
- PORTLAND CEMENT SHALL CONFORM TO ASTM C150 TYPE I OR II. AGGREGATES SHALL CONFORM TO ASTM C33 CLASS 3S.
- READY-MIX CONCRETE MUST COMPLY WITH THE REQUIREMENTS OF ASTM C94, AND AS SPECIFIED HEREIN. PROVIDE BATCH TICKET FOR EACH BATCH DISCHARGED AND USED IN WORK, INDICATING PROJECT NAME, MIX TYPE, MIX TIME, BATCH QUANTITY, AND PROPORTIONS OF INGREDIENTS. JOB-SITE MIXING WILL NOT BE PERMITTED.
- REINFORCING BARS SHALL CONFORM TO ASTM A615 GRADE 60 DEFORMED BARS AND SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH ACI 315, LATEST EDITION. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED.
- CONCRETE MIX DESIGN:
 - STRENGTH: $f_c' = 4500$ PSI
 - AGGREGATE: 3/4" NOMINAL
 - W/C RATIO: 0.40
 - ENTRAPPED AIR: 6% ± 1 1/2% FOR CONCRETE EXPOSED TO WEATHER OR SOIL, 3% OTHERWISE
 - SLUMP: 4" (±1") BEFORE ADDITION OF HIGH RANGE WATER REDUCER OR PLASTICIZER
 - ADD AIR ENTRAINING ADMIXTURE AT MANUFACTURER'S PRESCRIBED RATIO TO RESULT IN CONCRETE AT POINT OF PLACEMENT HAVING THE ABOVE NOTED AIR CONTENTS.
 - ADDITIONAL SLUMP MAY BE ACHIEVED BY THE ADDITION OF A MIDRANGE OR HIGH RANGE WATER REDUCING ADMIXTURE. MAXIMUM SLUMP AFTER ADDITION OF ADMIXTURE SHALL BE 8 INCHES.
 - MIX ADJUSTMENTS MAY BE REQUESTED BY THE CONTRACTOR, WHEN CHARACTERISTICS OF THE MATERIALS, JOB CONDITIONS, WEATHER OR OTHER CIRCUMSTANCES WARRANT, AT NO ADDITIONAL COST TO THE OWNER AND AS ACCEPTED BY THE ENGINEER. LABORATORY TEST DATA FOR THE REVISED MIX DESIGN AND STRENGTH DATA MUST BE SUBMITTED AND ACCEPTED BY THE ENGINEER BEFORE USING IN WORK.
 - WATER MAY BE ADDED AT THE PROJECT SITE ONLY IF THE MAXIMUM SPECIFIED WATER-CEMENT RATIO AND SLUMP ARE NOT EXCEEDED. CONTRACTOR SHALL HAVE BATCH TICKET INDICATING WATER AND CEMENT MIXED IN THE PLANT, AND SHALL RECORD THE WATER ADDED AS EVIDENCE THAT THE WATER-CEMENT RATIO HAS NOT BEEN EXCEEDED.
 - ADDITIONAL DOSES OF SUPER PLASTICIZER SHOULD BE USED WHEN DELAYS OCCUR AND REQUIRED SLUMP HAS NOT BEEN MAINTAINED. A MAXIMUM OF TWO ADDITIONAL DOSAGES ARE PERMITTED PER ACI 212.3R RECOMMENDATIONS.
- CONCRETE MUST NOT BE PLACED IN WATER. CONCRETE SHALL BE PLACED WITHOUT HORIZONTAL CONSTRUCTION JOINTS EXCEPT WHERE SHOWN OR NOTED. VERTICAL CONSTRUCTION JOINTS AND STOPS IN CONCRETE WORK SHALL BE MADE AT MIDSPAN OR AT POINTS OF MINIMUM SHEAR.
- COMPLETE SHOP DRAWINGS AND SCHEDULES OF ALL REINFORCING STEEL SHALL BE PREPARED BY THE CONTRACTOR AND SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW. PROVIDE NECESSARY ACCESSORIES TO HOLD REINFORCEMENT SECURELY IN POSITION.
- MINIMUM CONCRETE PROTECTIVE COVERING FOR REINFORCEMENT SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:
 - FORMED SURFACES IN CONTACT WITH EARTH OR EXPOSED TO WEATHER: 2"
 - SURFACES NOT IN CONTACT WITH EARTH OR EXPOSED TO WEATHER: 1 1/2"
- REINFORCEMENT SHALL BE CONTINUOUS AROUND CORNERS AND AT INTERSECTIONS. PROVIDE LAPPED BARS AT SPLICES OR HOOKED BARS AT DISCONTINUOUS ENDS. PROVIDE TENSION LAP SPLICES PER THE SCHEDULE FOR ALL REINFORCING UNLESS OTHERWISE SHOWN ON PLAN.
- INSTALLATION OF REINFORCEMENT SHALL BE COMPLETED AT LEAST 24 HOURS PRIOR TO THE SCHEDULED CONCRETE PLACEMENT. NOTIFY ENGINEER AND STRUCTURAL ENGINEER OF COMPLETION AT LEAST 24 HOURS PRIOR TO THE SCHEDULED COMPLETION OF THE INSTALLATION OF REINFORCEMENT.

GENERAL NOTES:

- THE NOTES ON THESE DRAWINGS ARE NOT INTENDED TO REPLACE SPECIFICATIONS. SEE SPECIFICATIONS FOR REQUIREMENTS IN ADDITION TO GENERAL NOTES. INCONSISTENCIES BETWEEN THESE DRAWINGS AND THE SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO PROCEEDING WITH THE AFFECTED PORTION OF THE WORK.
- STRUCTURAL DRAWINGS MUST BE USED IN CONJUNCTION WITH JOB SPECIFICATIONS AND ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING. CONSULT THESE DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS, CHASES, INSERTS, REGLETS, SLEEVES, DEPRESSIONS, AND OTHER DETAILS NOT SHOWN ON STRUCTURAL DRAWINGS.
- ALL DIMENSIONS AND CONDITIONS MUST BE VERIFIED IN THE FIELD. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PART OF THE WORK.
- THE STRUCTURE IS DESIGNED TO BE SELF SUPPORTING AND STABLE ONLY AFTER THE STRUCTURAL WORK CONTAINED IN THE DRAWINGS IS COMPLETED. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURES AND SEQUENCE TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENTS DURING ERECTION. THIS INCLUDES THE ADDITION OF NECESSARY SHORING, SHEETING, TEMPORARY BRACING, GUYS OR TIEDOWNS. SUCH MATERIAL SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER COMPLETION OF THE PROJECT.
- SECTIONS AND DETAILS SHOWN ON ANY STRUCTURAL DRAWINGS SHALL BE CONSIDERED TYPICAL FOR SIMILAR CONDITIONS.
- THE CONTRACTOR MUST SUBMIT COMPLETE SHOP DRAWINGS FOR ALL PARTS OF THE WORK, INCLUDING DESCRIPTION OF SHORING, AND CONSTRUCTION METHODS AND SEQUENCING WHERE APPLICABLE. NO PERFORMANCE OF THE WORK, SHALL COMMENCE WITHOUT REVIEW OF THE SHOP DRAWINGS BY THE ENGINEER AND ARCHITECT.
- ALL APPLICABLE FEDERAL, STATE, AND MUNICIPAL REGULATIONS SHALL BE FOLLOWED, INCLUDING THE FEDERAL DEPARTMENT OF LABOR OCCUPATIONAL SAFETY AND HEALTH ACT.

STRUCTURAL STEEL NOTES:

- STRUCTURAL STEEL FABRICATION, ERECTION, AND CONNECTION DESIGN MUST CONFORM TO AISC'S "SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL" 14TH EDITION AND STEEL CONSTRUCTION MANUAL.
- STRUCTURAL STEEL MUST CONFORM TO THE FOLLOWING:
 - PLATES AND OTHER SHAPES: ASTM A36
 - ANCHOR RODS: ASTM F1554, GRADE 36
- FIELD CONNECTIONS MUST BE BOLTED USING ASTM F3125 GRADE A325 OR A490 HIGH STRENGTH BOLTS, UNLESS NOTED OTHERWISE.
- U.N.O. BOLTS ARE BEARING-TYPE AND MAY BE EITHER SNUG TIGHTENED OR FULLY TENSIONED. BOLT HOLES MUST BE STANDARD SIZES UNLESS OTHERWISE APPROVED BY THE ENGINEER OF RECORD.
- WELDING MUST CONFORM TO AWS D1.1. WELDING ELECTRODES MUST COMPLY WITH AWS REQUIREMENTS.
- THE DESIGN OF CONNECTIONS NOT SHOWN ON THE DRAWINGS MUST BE PROVIDED BY THE FABRICATOR'S STRUCTURAL ENGINEER. CONNECTIONS MUST BE DESIGNED FOR THE FORCES SHOWN. CONNECTIONS MUST BE DESIGNED IN ACCORDANCE WITH AISC MANUAL OF STEEL CONSTRUCTION 14TH EDITION. DESIGN CALCULATIONS MUST BE PREPARED BY A REGISTERED PROFESSIONAL ENGINEER EXPERIENCED IN CONNECTION DESIGN. SUBMIT SEALED CALCULATIONS WITH SHOP DRAWINGS.
- ALL STEEL MUST BE FABRICATED AND SHIPPED AS SHOP PRIMED & PAINTED STEEL UNLESS NOTED OTHERWISE.
- STEEL MEMBERS MUST BE CUT FROM FULL LENGTH STOCK. UNAUTHORIZED SPLICES WILL BE CAUSE FOR REJECTION.

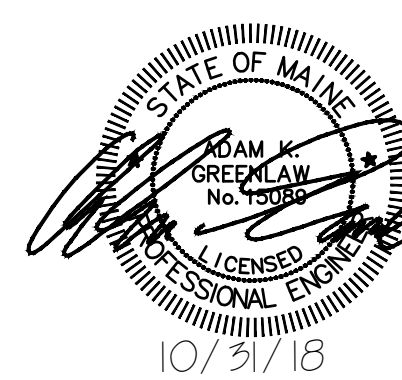
MASONRY NOTES:

- DEMOLISH INNER AND OUTER WYTHES OF BRICK SUFFICIENT TO REMOVE EXISTING STEEL HEADER AND DOOR ASSEMBLY.
- SAWCUT MASONRY JOINTS AT PERIMETER OF NEW OPENING LEAVING ONLY FULL BRICKS IN PLACE IN A SAWTOOTH PATTERN.
- AFTER LINTEL IS PLACED AT THE HEAD OF THE DOOR, INSTALL EXTERIOR BRICK OVER CONTINUOUS FLASHING WITH WEEP VENTS IN BOTTOM COURSE.
- INTERIOR AND EXTERIOR BRICK WORK SHALL MATCH ADJACENT MATERIALS, INCLUDING MORTAR.
- COORDINATE INSTALLATION OF SILL AND FLASHING WITH ROOF MATERIALS AS SHOWN ON DRAWINGS.
- DOOR FRAME TO BE ANCHORED USING JAMB INSERTS. MAY BE PRE-SET OR POST-INSTALLED.

DOOR, FRAME & HARDWARE NOTES:

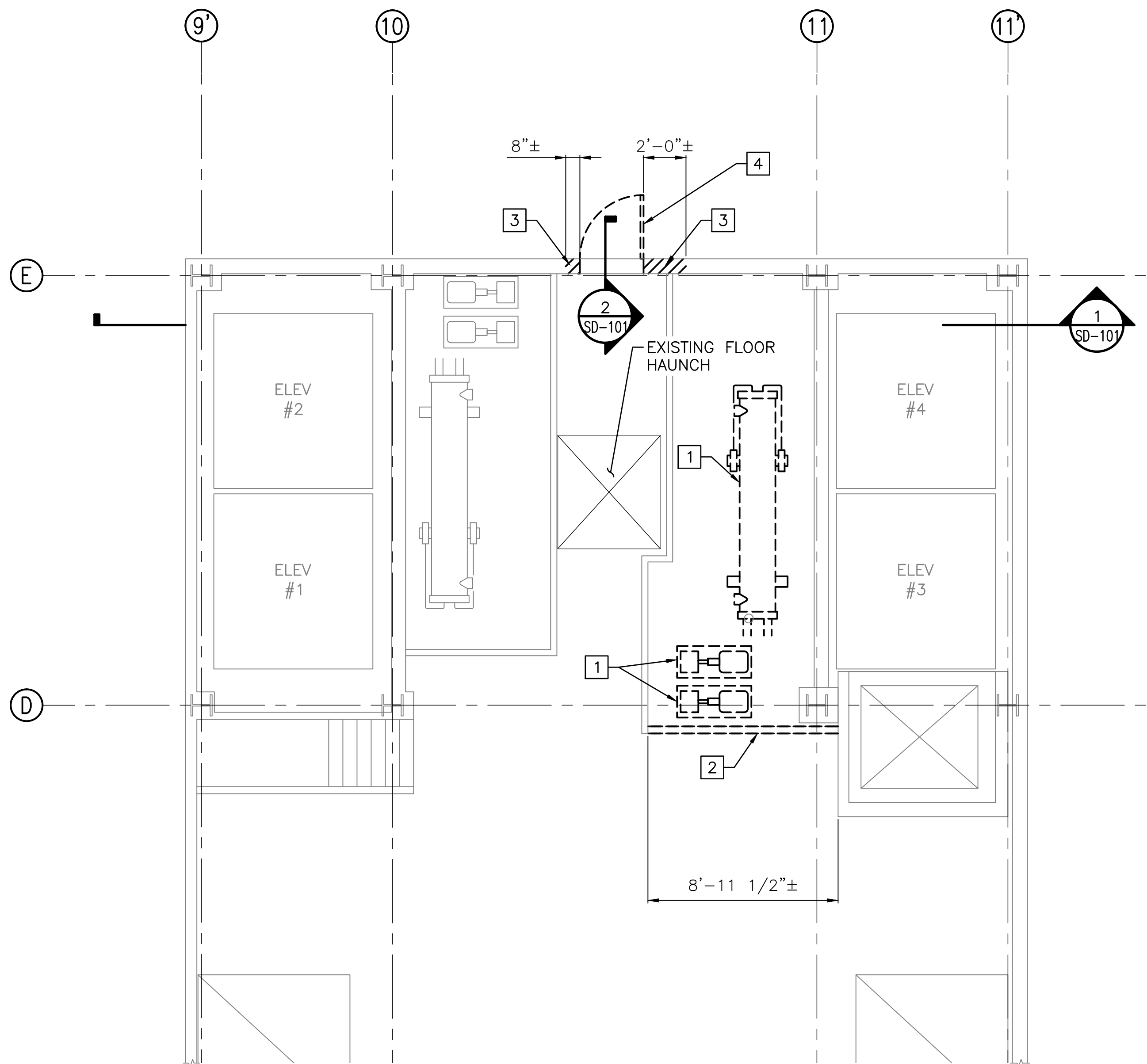
- LATCHSET & CLOSER MAY BE RETAINED AND REINSTALLED ON ACTIVE DOOR LEAF.
- ALL HARDWARE TO BE STAINLESS STEEL, GRADE 1.
- DOOR TO BE EXTRA HEAVY DUTY, 16 GA. FACES, FULLY INSULATED.
- FRAME TO BE 16 GA.
- DOOR AND FRAME TO BE GALVANIZED, THEN TWO-COAT FACTORY FINISHED.
- INACTIVE LEAF TO RECEIVE TOP AND BOTTOM FLUSH BOLTS AT INTERIOR.
- FRAME TO BE FULLY WEATHERSTRIPPED.

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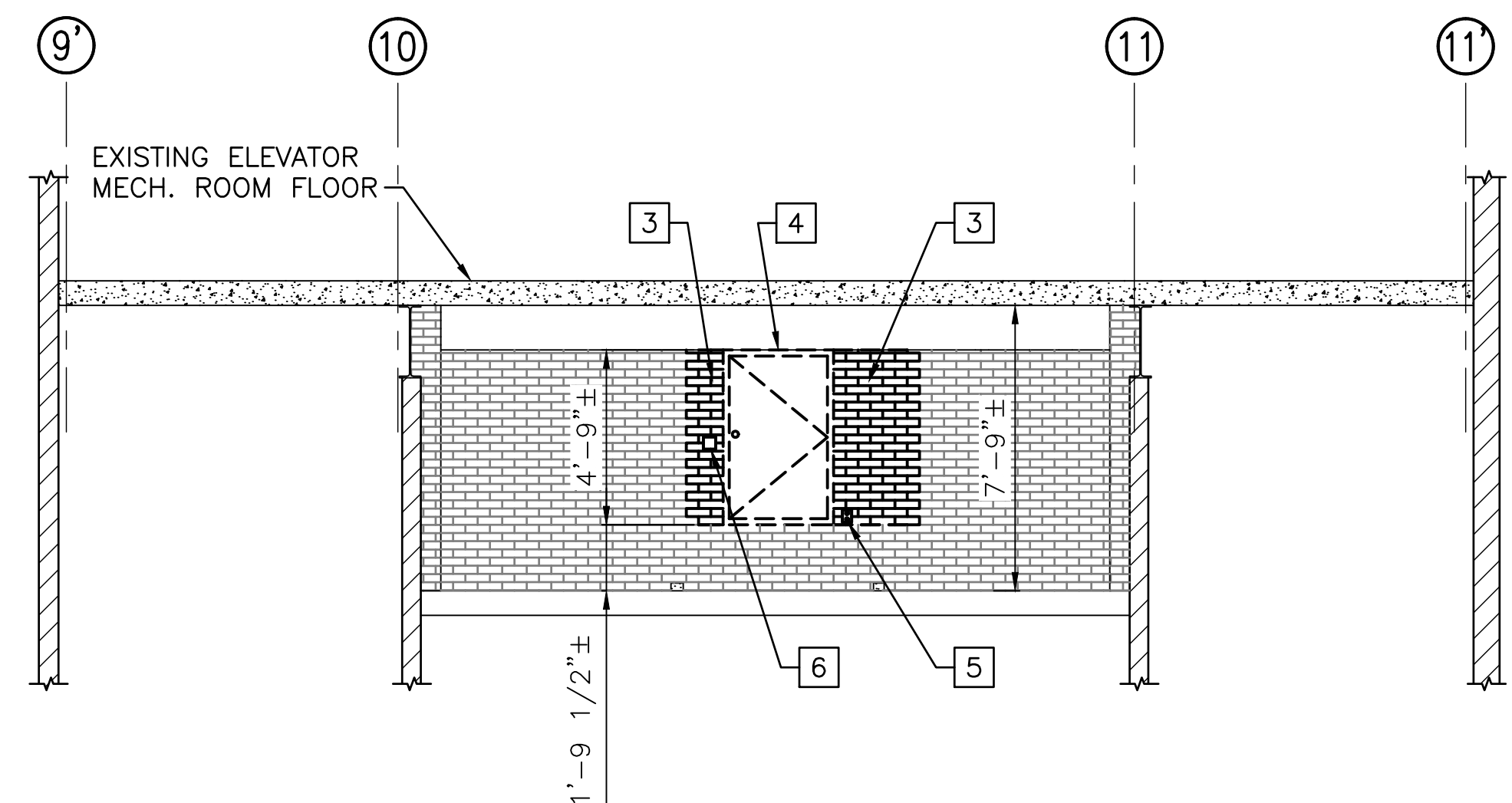


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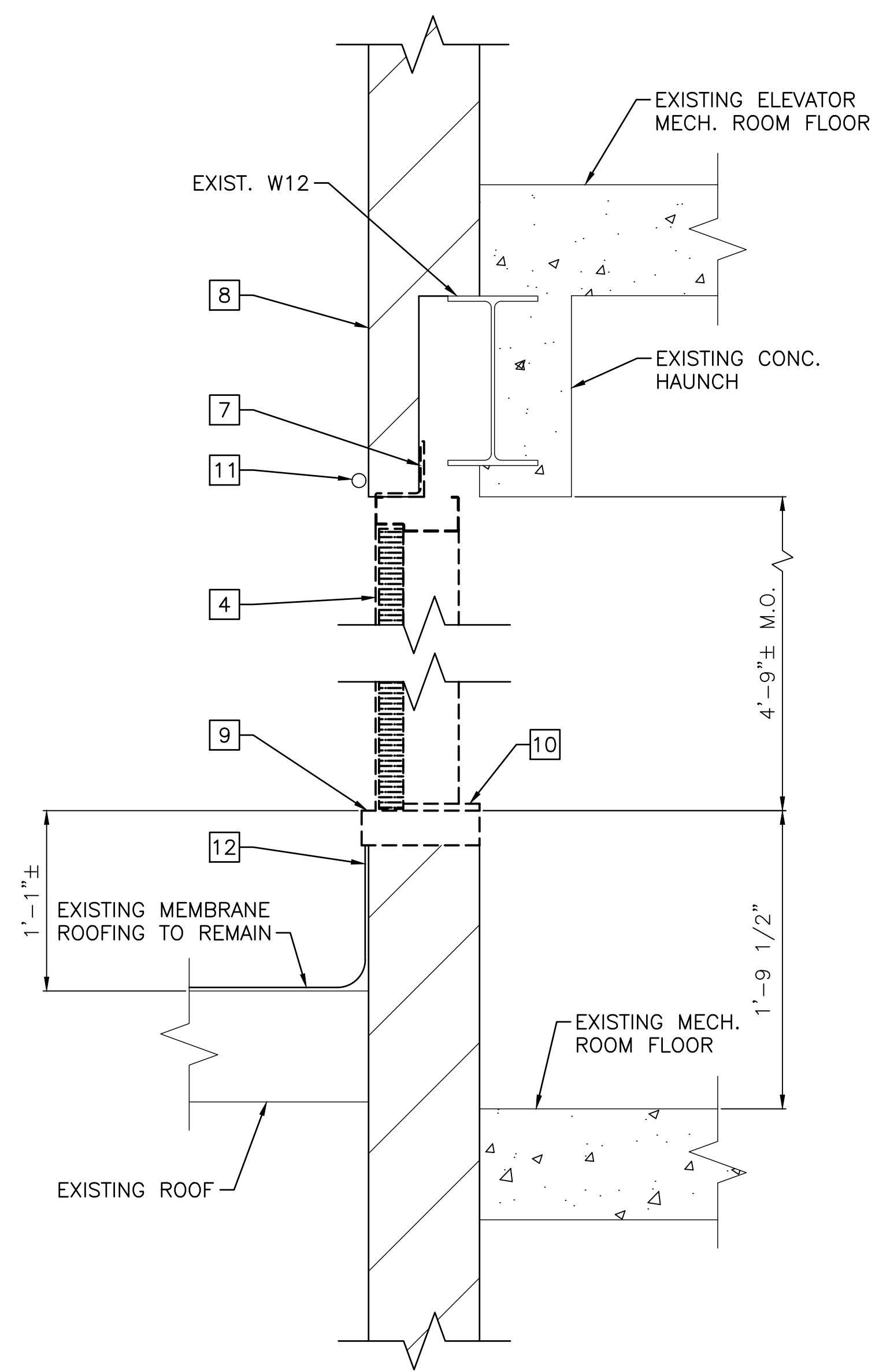
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				CROSS BUILDING CHILLER REPLACEMENT			
				STRUCTURAL GENERAL NOTES & ABBREVIATIONS			
0	ISSUED FOR BID	CRD	BJB	10/31/18			
REV	DESCRIPTION	DWN	APP	DATE	PROJECT NO.	DRAWING NO.	
					163.002.002	S-001	
					SHEET		
					2 OF 14		
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PENTHOUSE DEMOLITION PLAN
SCALE: 1/4" = 1'-0"



PENTHOUSE DEMOLITION SECTION
SCALE: 1/4" = 1'-0" SD-101



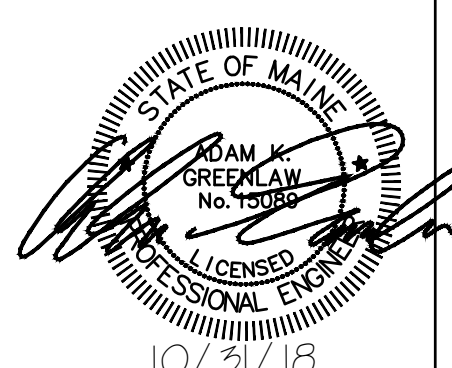
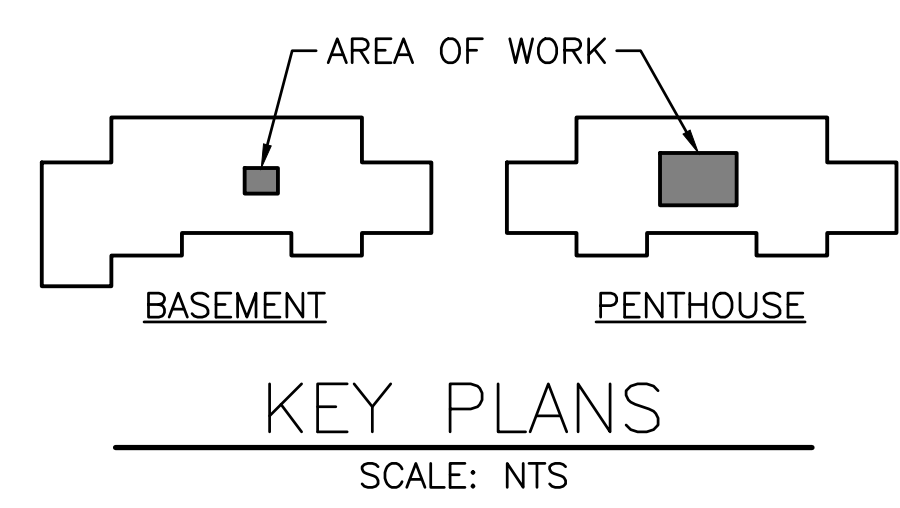
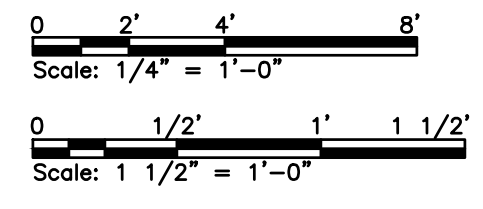
PENTHOUSE DOOR DEMOLITION SECTION
SCALE: 1 1/2" = 1'-0" SD-101

NOTES:

- 1. SEE SHEET S-001 FOR ABBREVIATIONS AND GENERAL NOTES.

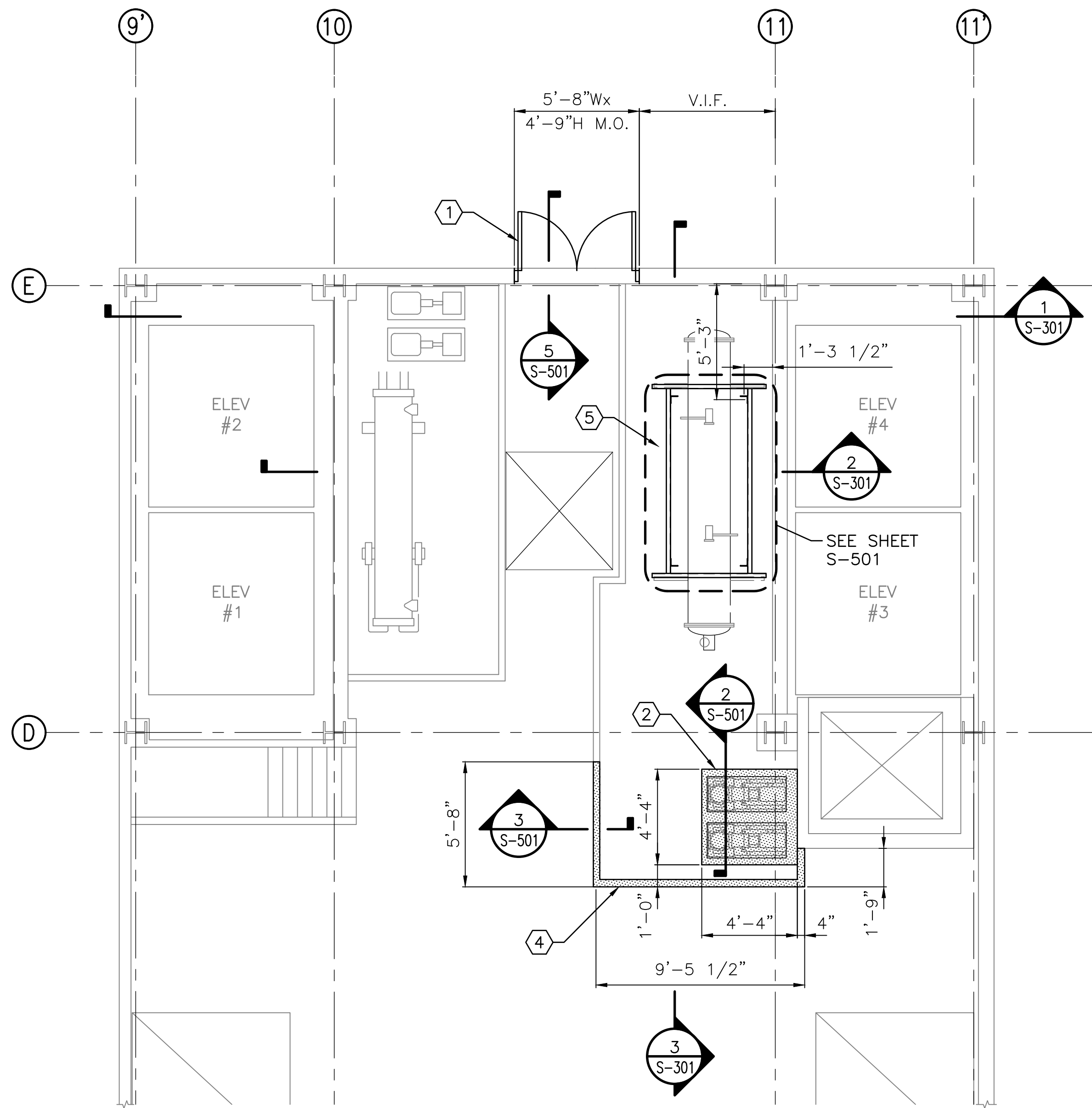
DEMOLITION KEYED NOTES:

- 1 REMOVE EXISTING MECHANICAL EQUIPMENT, ASSOCIATED PIPING AND ELECTRICAL. SEE ELECTRICAL AND MECHANICAL.
- 2 REMOVE PORTION OF EXISTING CONCRETE CURB.
- 3 REMOVE PORTION OF MASONRY BRICK WALL. SAWCUT MORTAR JOINTS AT EDGES. USE SAWTOOTH PATTERN LEAVING FULL SIZED BRICK IN PLACE.
- 4 REMOVE EXISTING DOOR, FRAME AND HARDWARE.
- 5 REMOVE EXISTING ELECTRICAL OUTLET AND ASSOCIATED CONDUIT. SEE ELECTRICAL.
- 6 REMOVE EXISTING ELECTRONIC CARD READER AND ASSOCIATED CONDUIT. SEE ELECTRICAL.
- 7 REMOVE EXISTING STEEL LINTEL.
- 8 REMOVE EXISTING MASONRY BRICK AS REQUIRED TO REMOVE STEEL LINTEL 7 AND TO INSTALL NEW LINTEL.
- 9 REMOVE EXISTING CAST IN PLACE CONCRETE SILL.
- 10 REMOVE EXISTING WOOD SILL.
- 11 REMOVE EXISTING CONDUIT AS REQUIRED TO REMOVE EXISTING BRICK 8. REINSTALL AFTER BRICK IS INSTALLED.
- 12 DISLodge VERTICAL ROOF MEMBRANE, FLASHING AND TERMINATION BAR BENEATH SILL AND ADJACENT TO EXISTING DOOR OPENING.

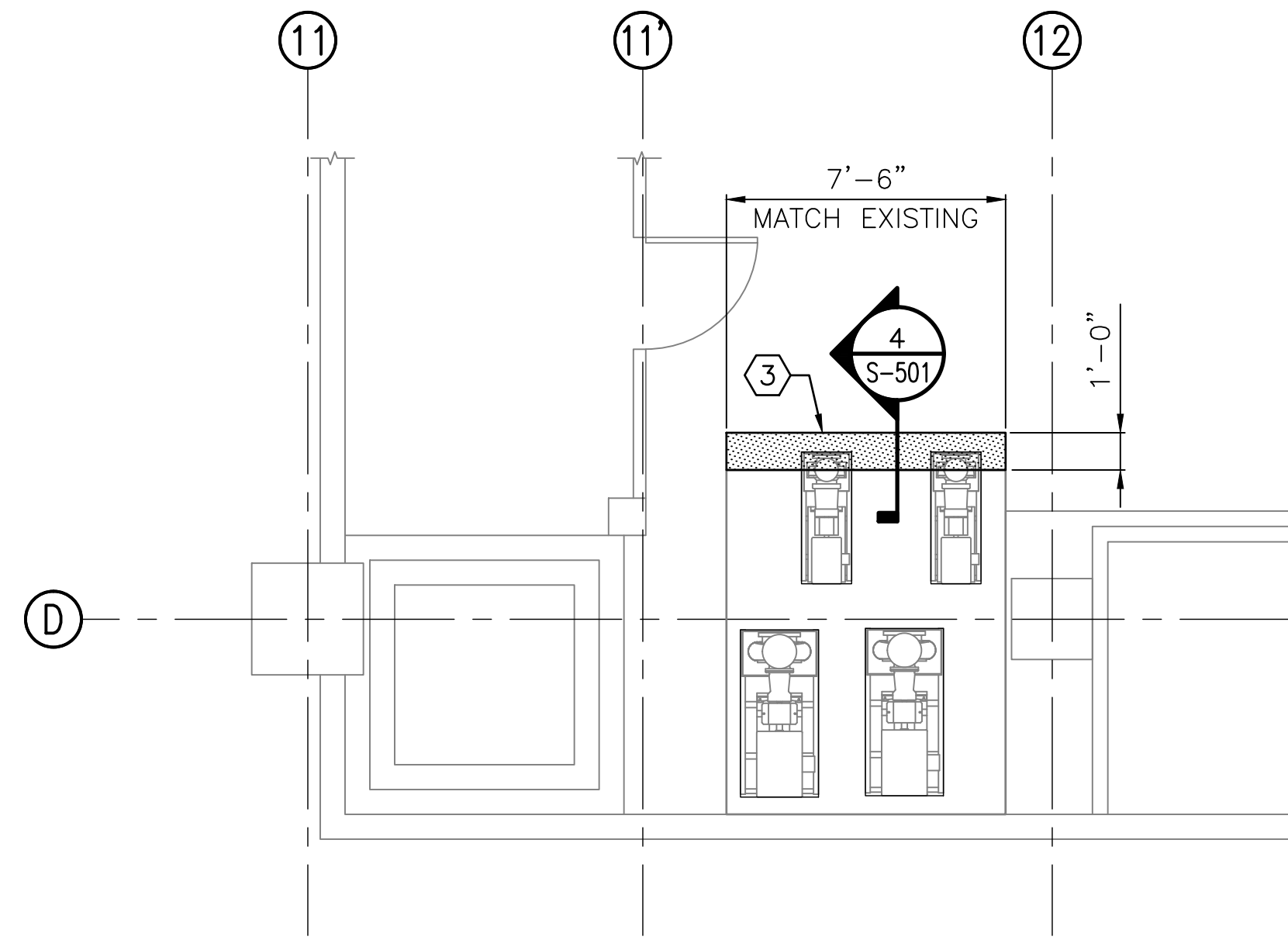


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PENTHOUSE EQUIPMENT PAD PLAN
SCALE: 1/4" = 1'-0"



BASEMENT EQUIPMENT PAD PLAN
SCALE: 1/4" = 1'-0"

NOTES:

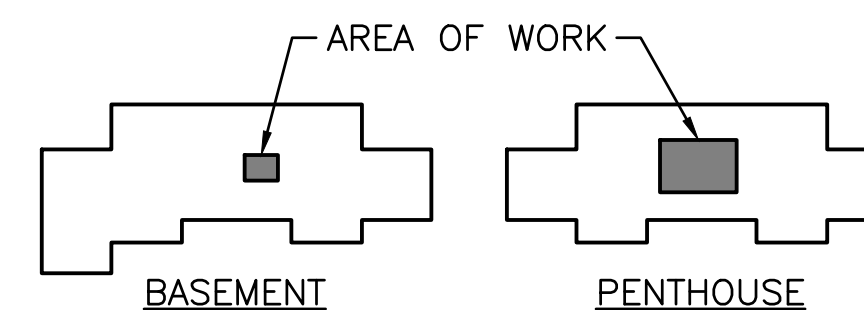
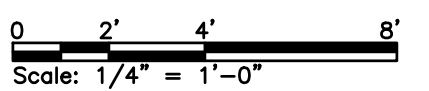
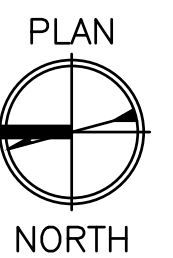
- SEE SHEET S-001 FOR ABBREVIATIONS AND GENERAL NOTES.

KEYED NOTES:

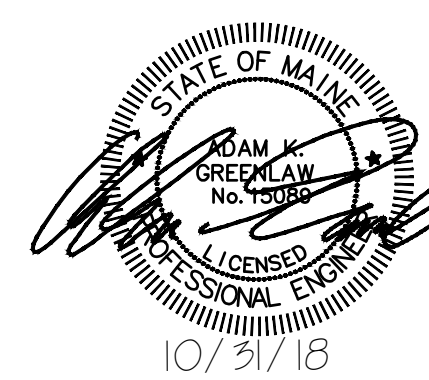
- PROVIDE AND INSTALL NEW DOOR, FRAME AND HARDWARE.
- INSTALL REINFORCED CONCRETE EQUIPMENT PAD.
- INSTALL REINFORCED CONCRETE EQUIPMENT PAD EXTENSION.
- INSTALL REINFORCED CONCRETE CURBING.
- PROVIDE AND INSTALL EQUIPMENT SUPPORT FRAME.

NOTE:

- SEE SHEET S-001 FOR ABBREVIATIONS AND GENERAL NOTES.



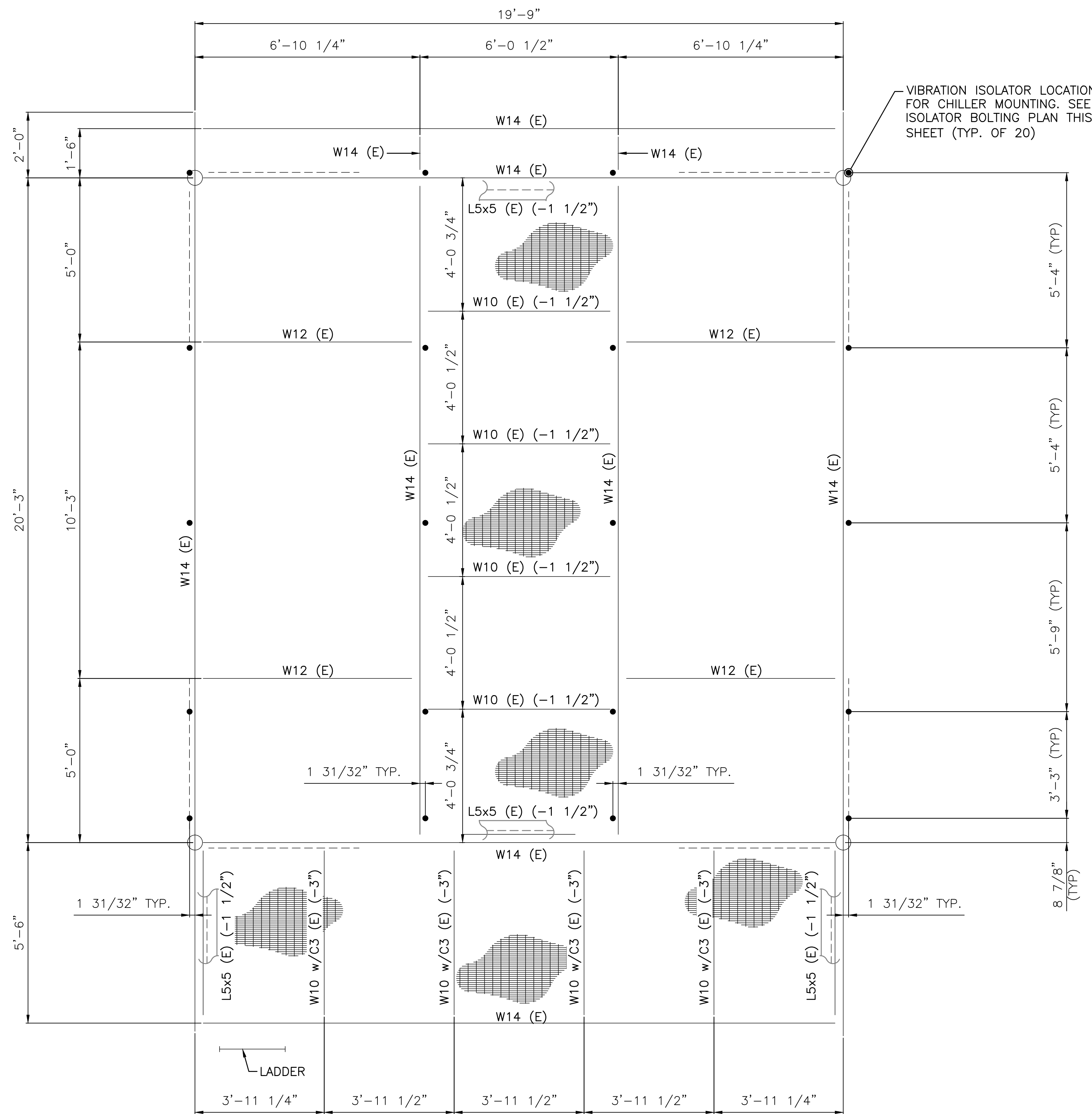
KEY PLANS
SCALE: NTS



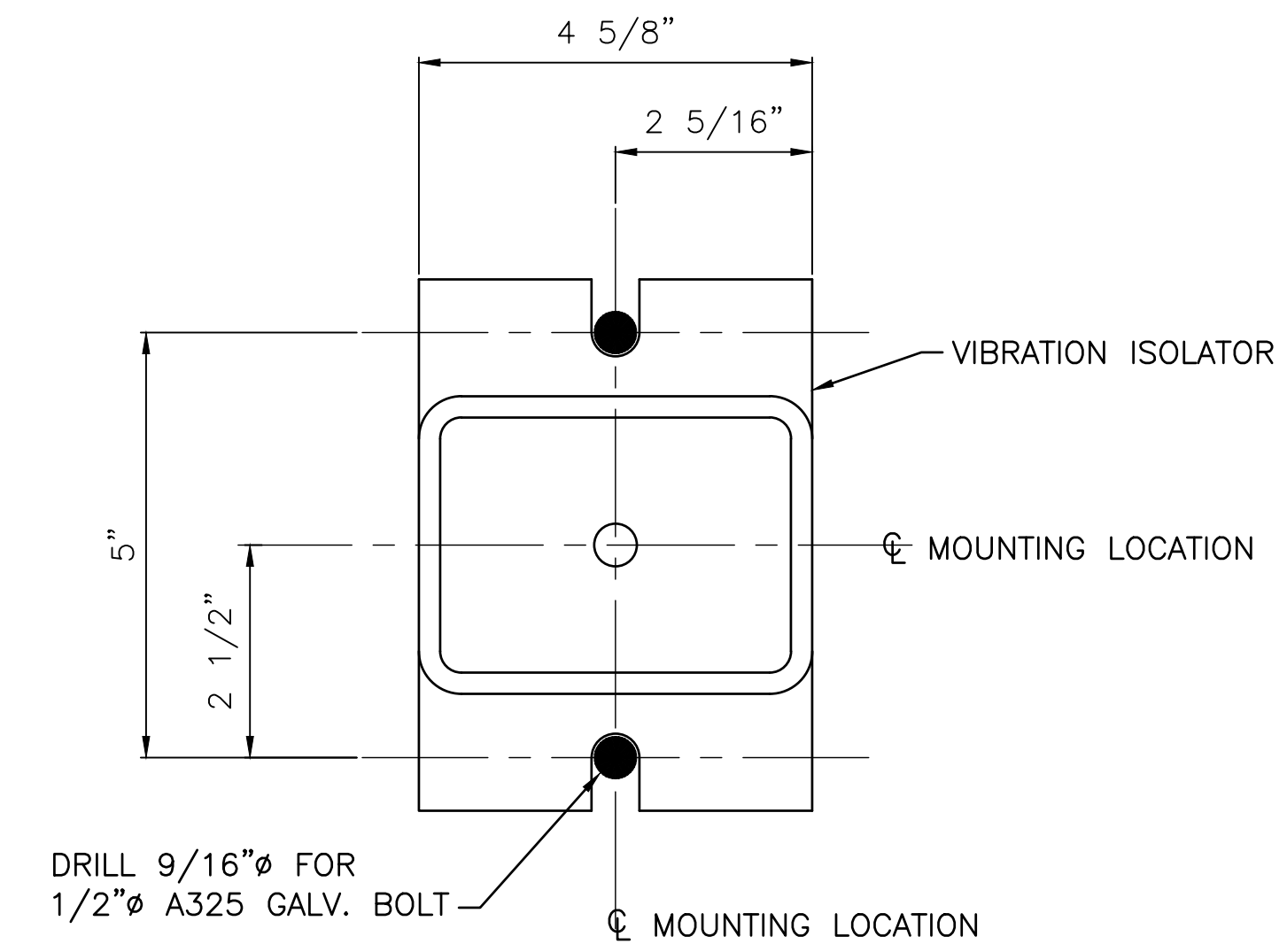
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				BREM AUGUSTA, MAINE			
				CROSS BUILDING CHILLER REPLACEMENT			
				PARTIAL BASEMENT & PENTHOUSE FLOOR PLANS			
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				DES BY: AKG			
				DWN BY: CRD			
				CKD BY: BJB			

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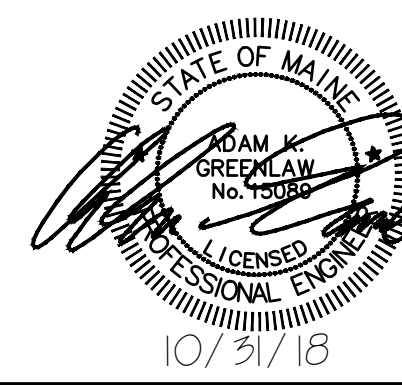
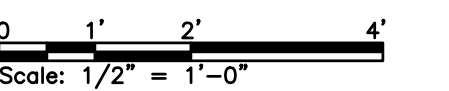
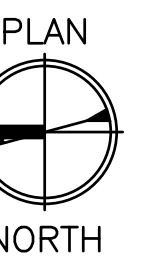
CHILLER SUPPORT FRAMING
SCALE: 1/2" = 1'-0"



ISOLATOR BOLTING PLAN
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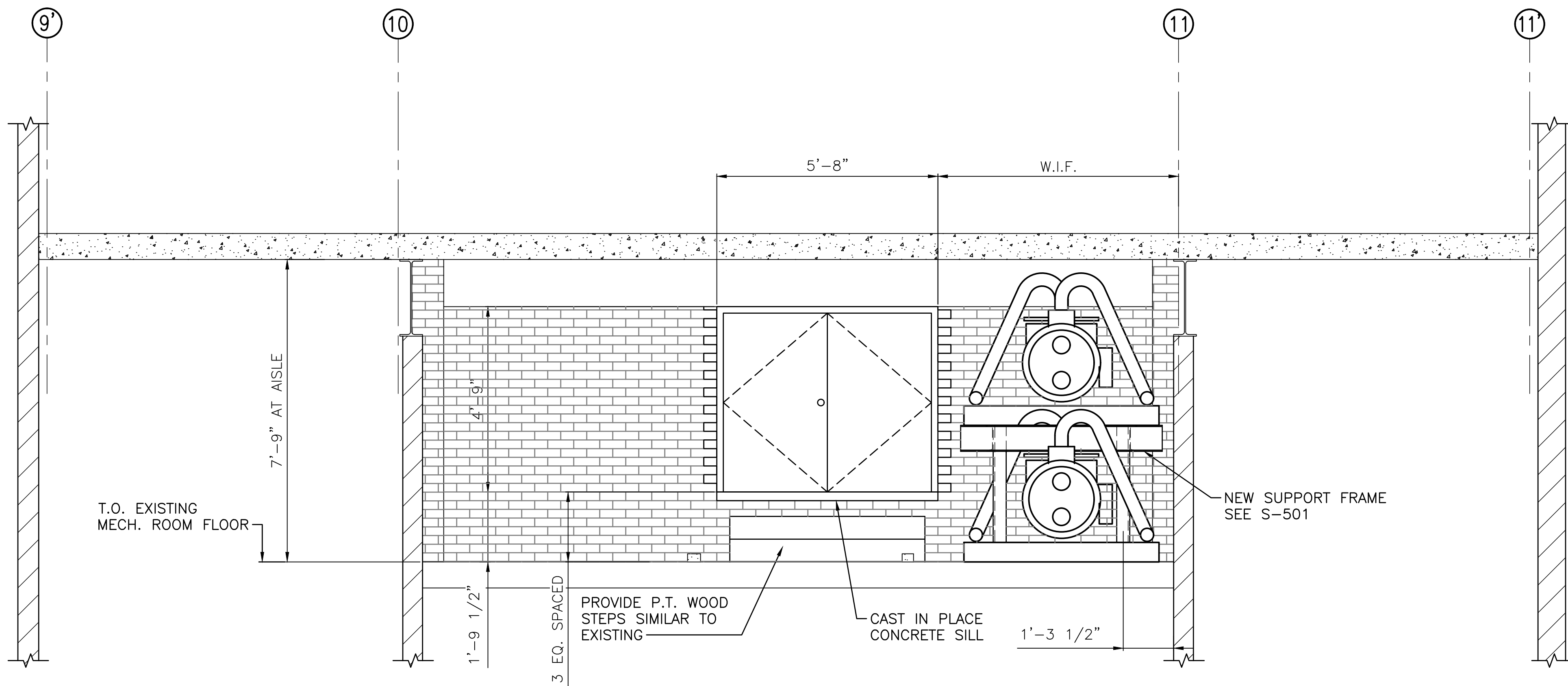
NOTE:

- SEE SHEET S-001 FOR ABBREVIATIONS AND GENERAL NOTES.

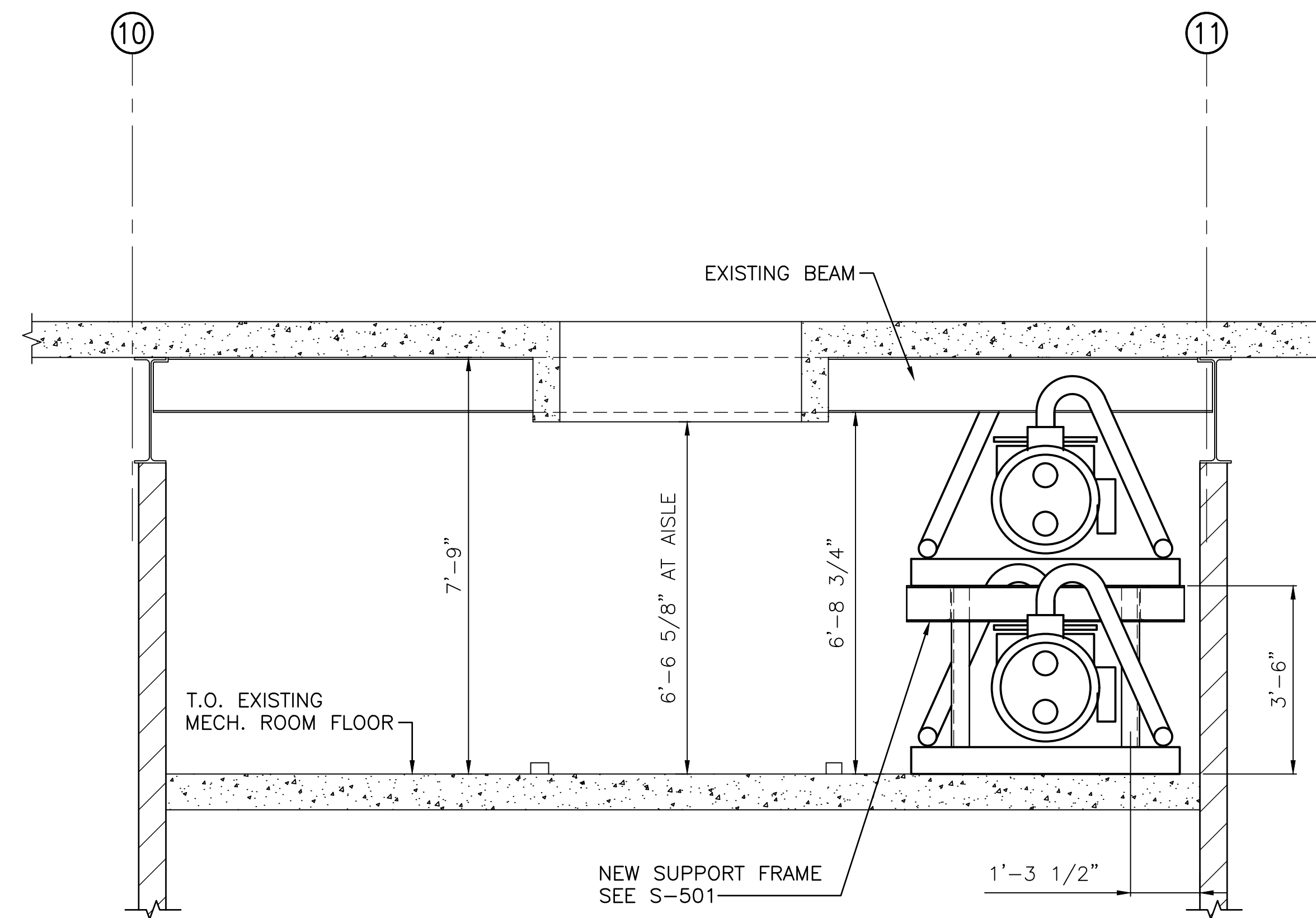


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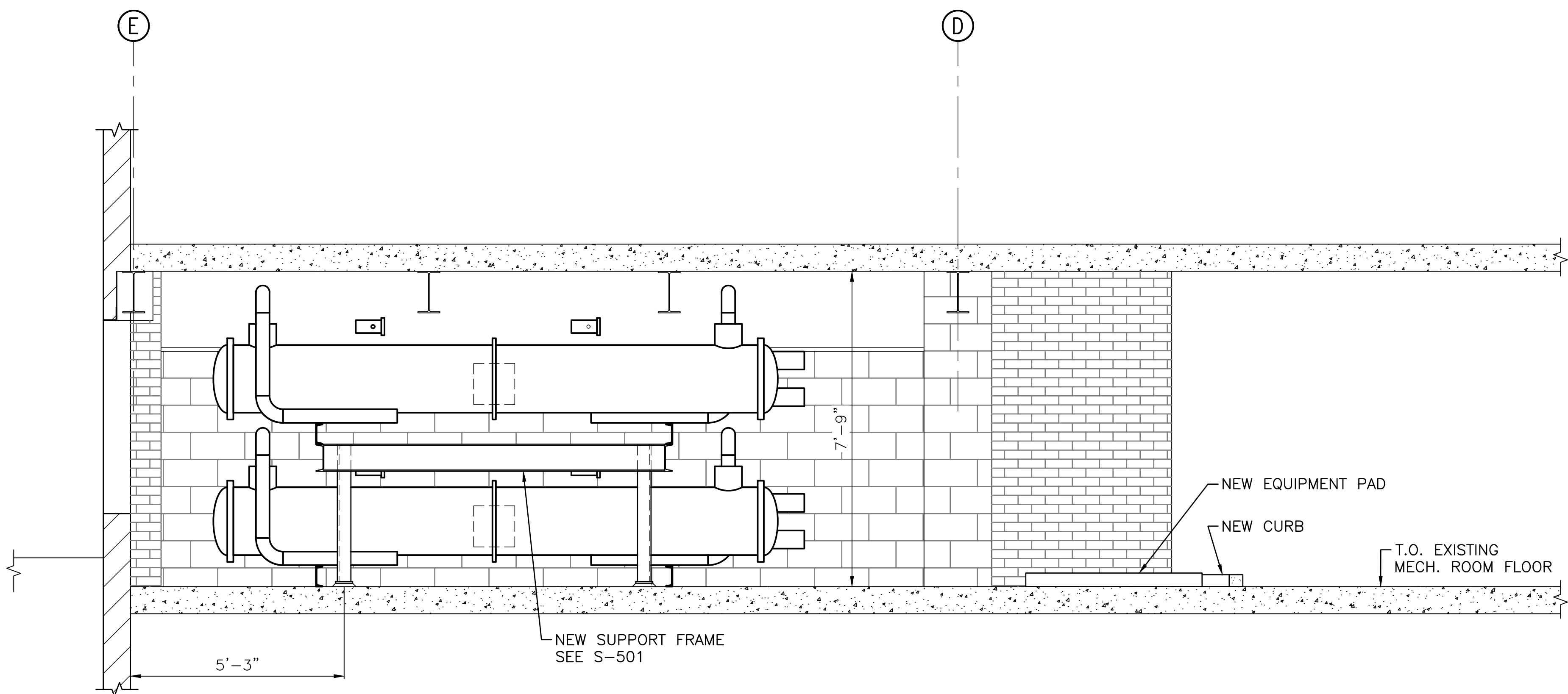
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				CROSS BUILDING CHILLER REPLACEMENT			
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1 SECTION PENTHOUSE DOOR (INTERIOR)
 S-301 SCALE: 1/2" = 1'-0" S-101

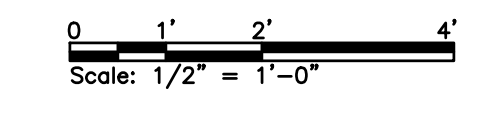


2 SECTION PENTHOUSE (AT HATCH)
 S-301 SCALE: 1/2" = 1'-0" S-101



3 SECTION PENTHOUSE (INTERIOR SOUTH WALL)
 S-301 SCALE: 1/2" = 1'-0" S-101

- NOTES:**
- SEE SHEET S-001 FOR ABBREVIATIONS AND GENERAL NOTES.
 - SEE MECHANICAL FOR ADDITIONAL EQUIPMENT DETAILS.



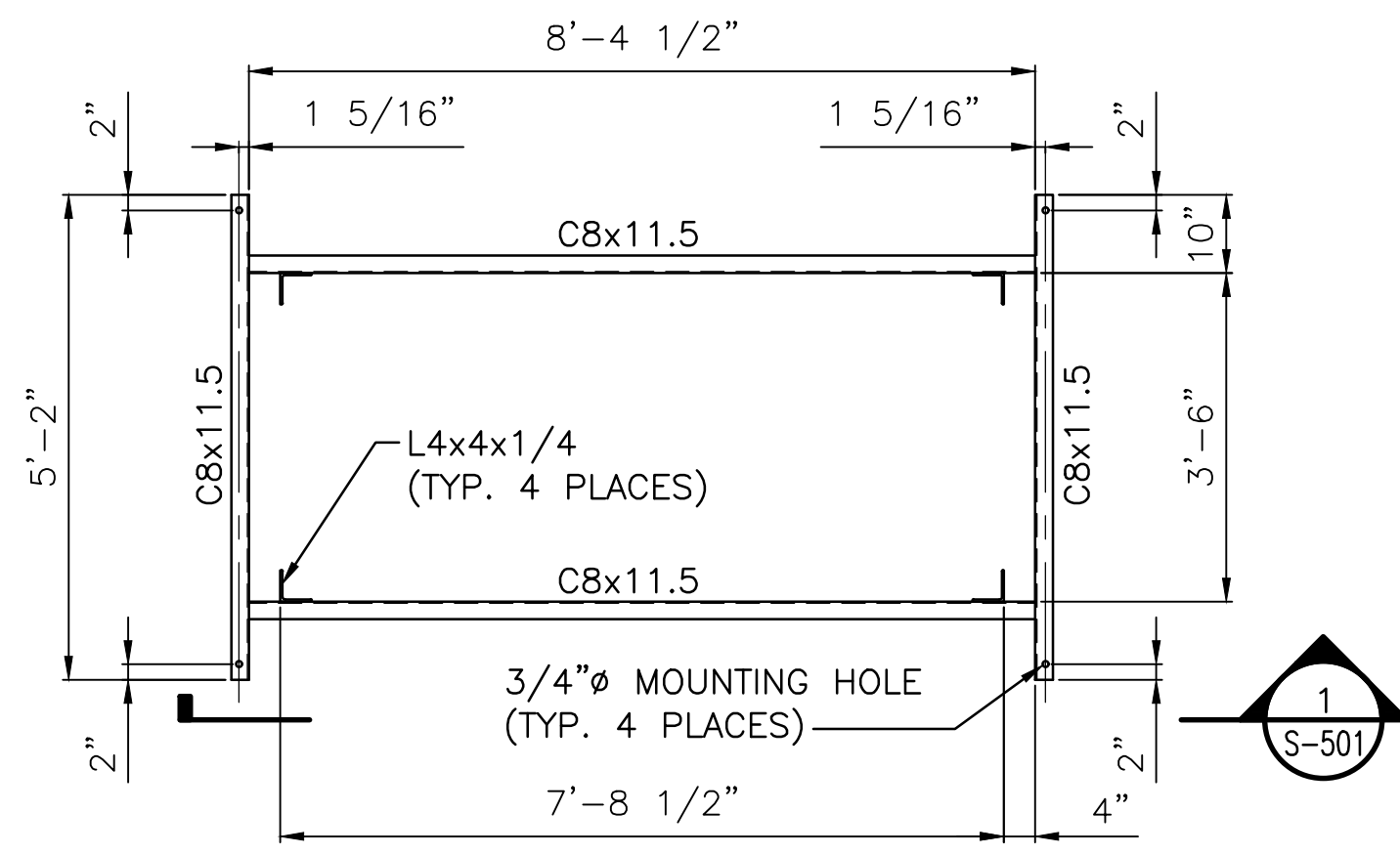
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COBY COMPANY, LLC
CCE
 engineering & design

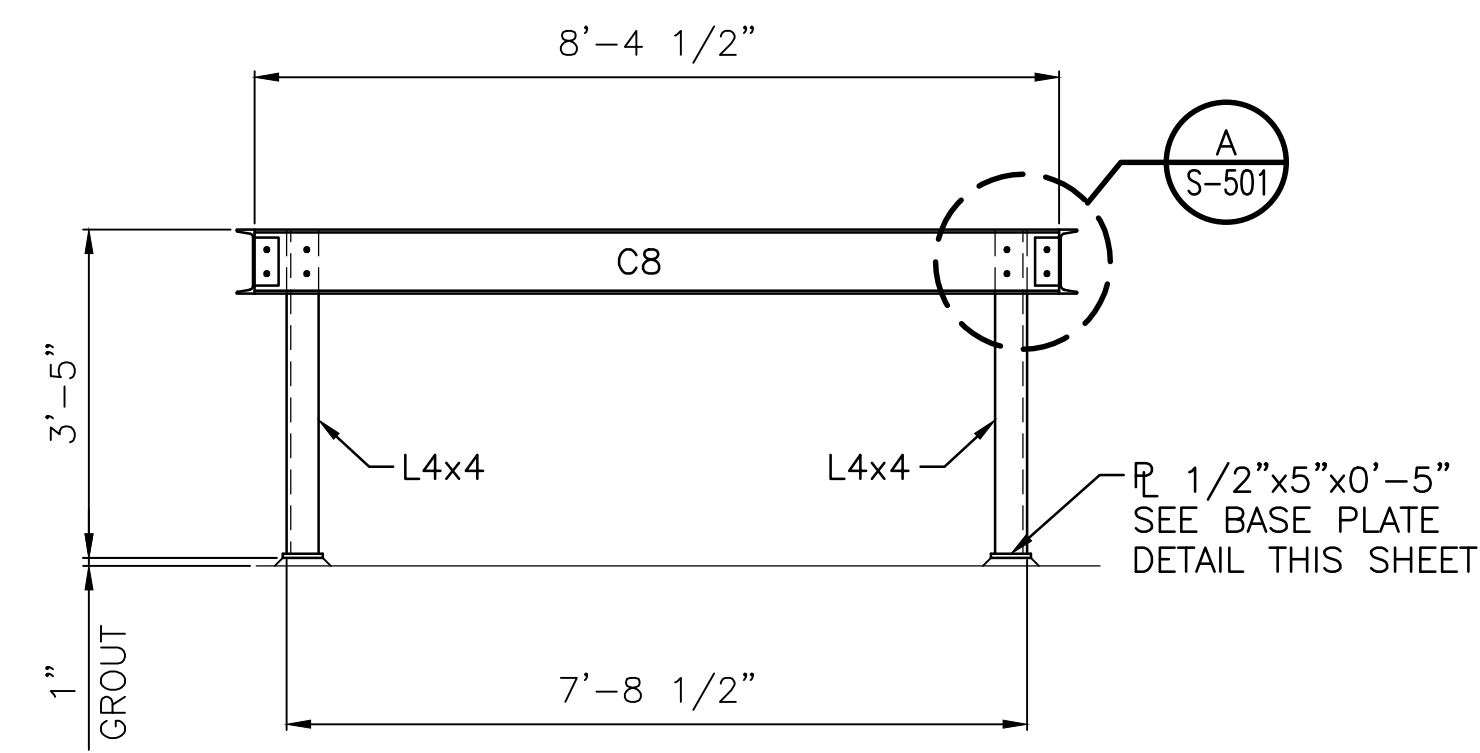
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10/31/18

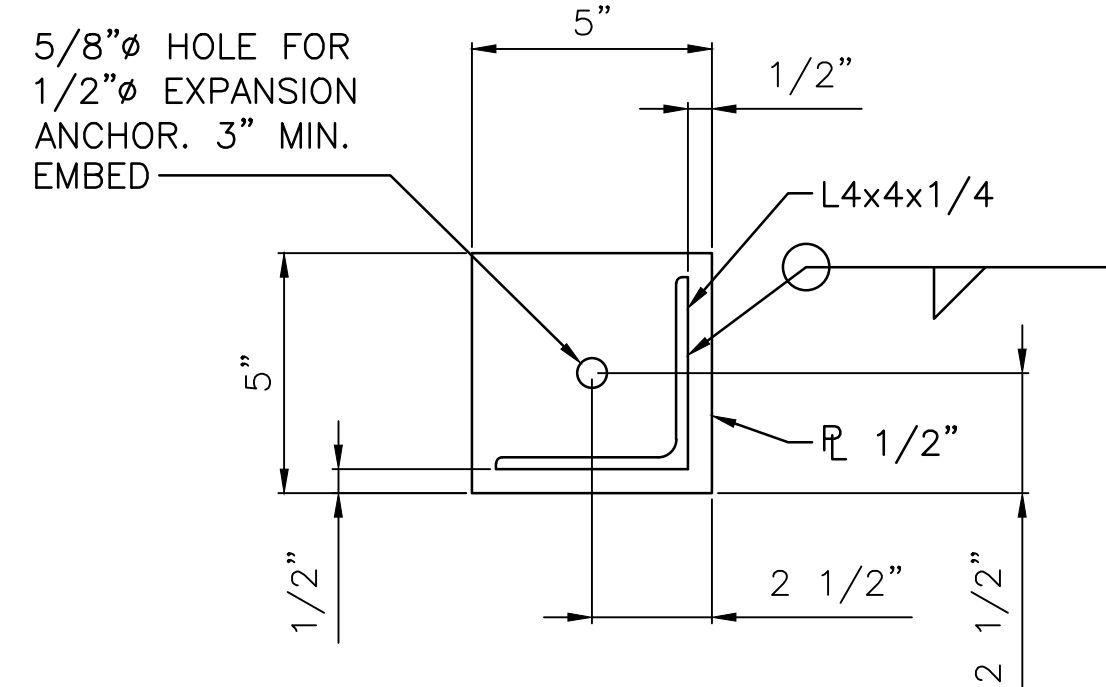
						BREM AUGUSTA, MAINE	
						CROSS BUILDING CHILLER REPLACEMENT	
						STRUCTURAL BUILDING SECTIONS	
0	ISSUED FOR BID	CRD	BJB	10/31/18	PROJECT NO. 163.002.002		DRAWING NO. S-301
REV	DESCRIPTION	DWN	APP	DATE	SHEET 6 OF 14		
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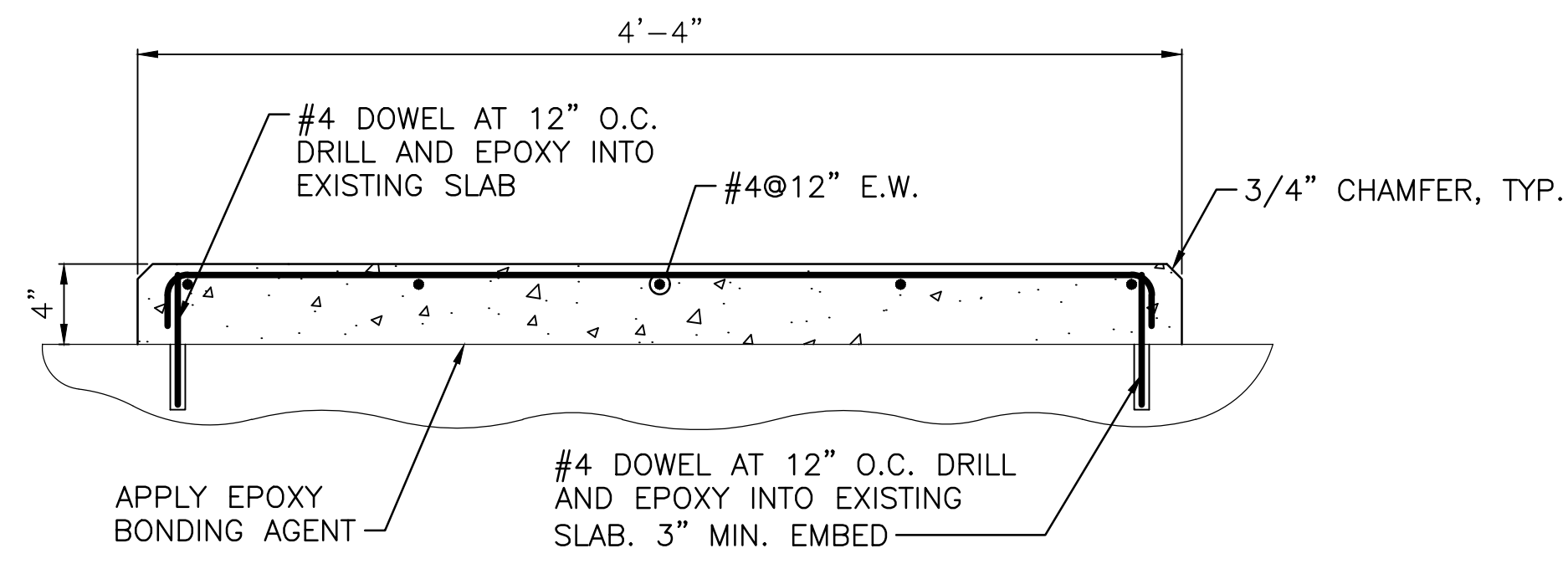
PLAN - EQUIPMENT SUPPORT FRAME
SCALE: 1/2" = 1'-0"



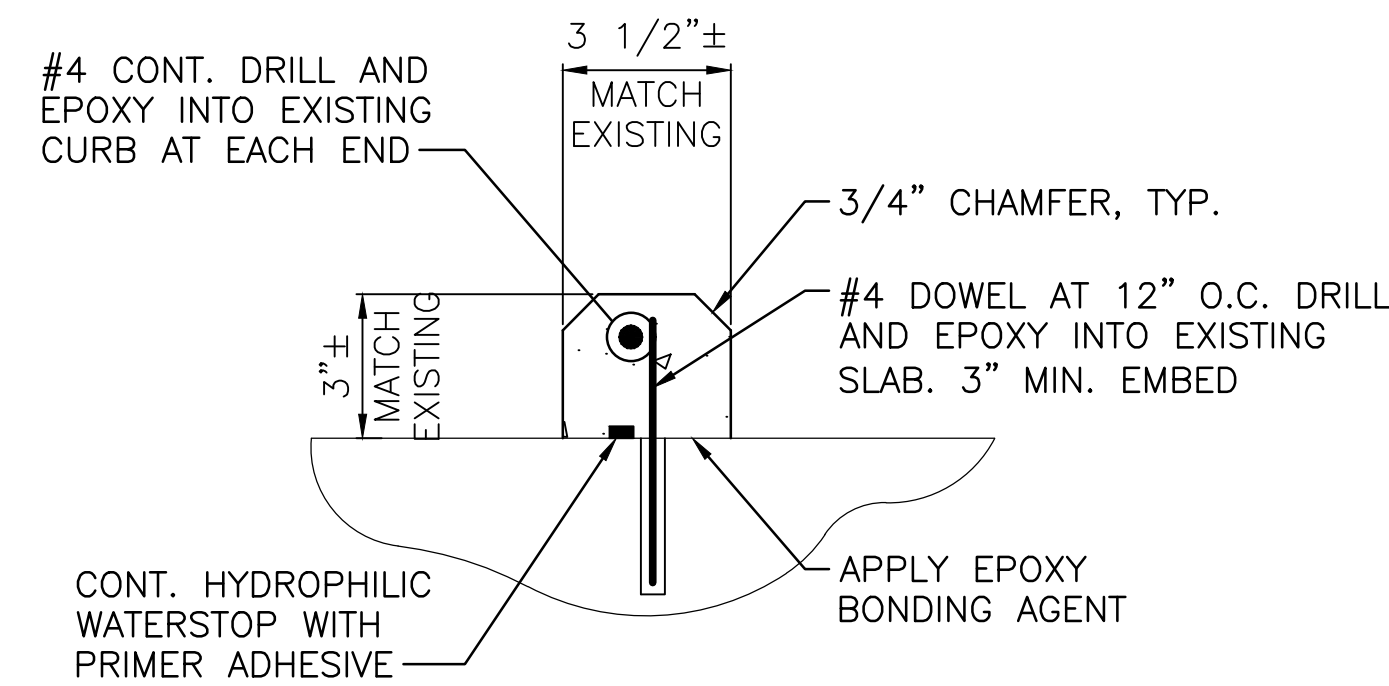
SECTION - SUPPORT FRAME
SCALE: 1/2" = 1'-0"



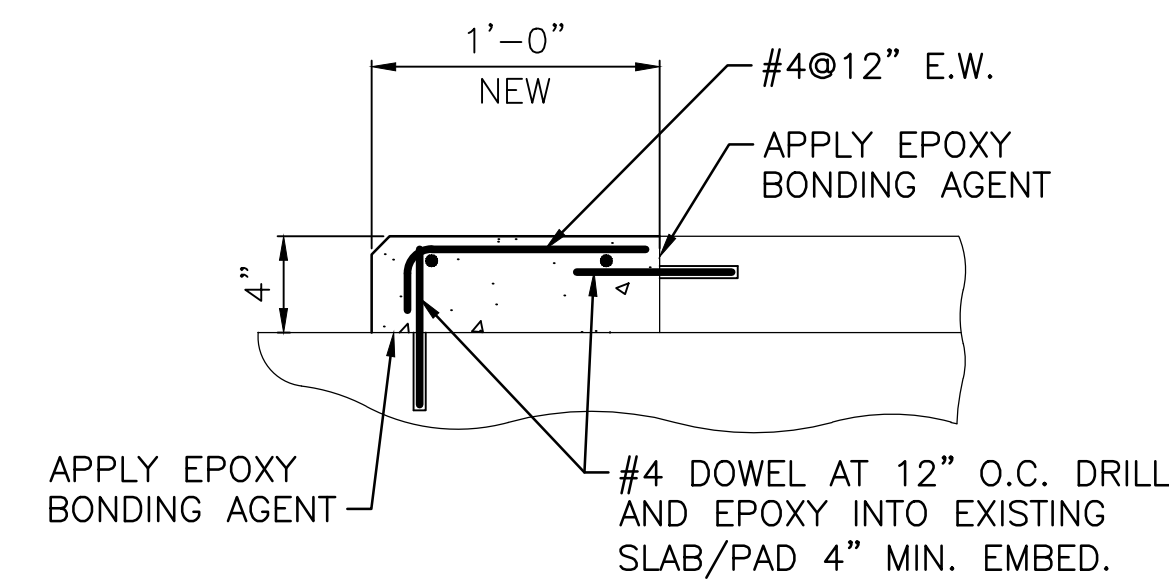
DETAIL - BASE PLATE
SCALE: 3" = 1'-0"



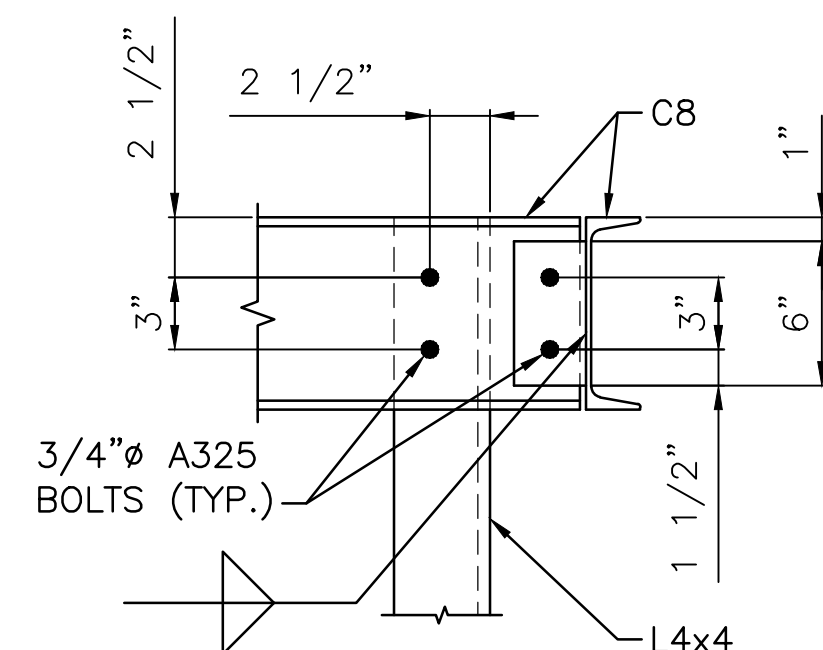
SECTION - EQUIPMENT PAD
SCALE: 1 1/2" = 1'-0"



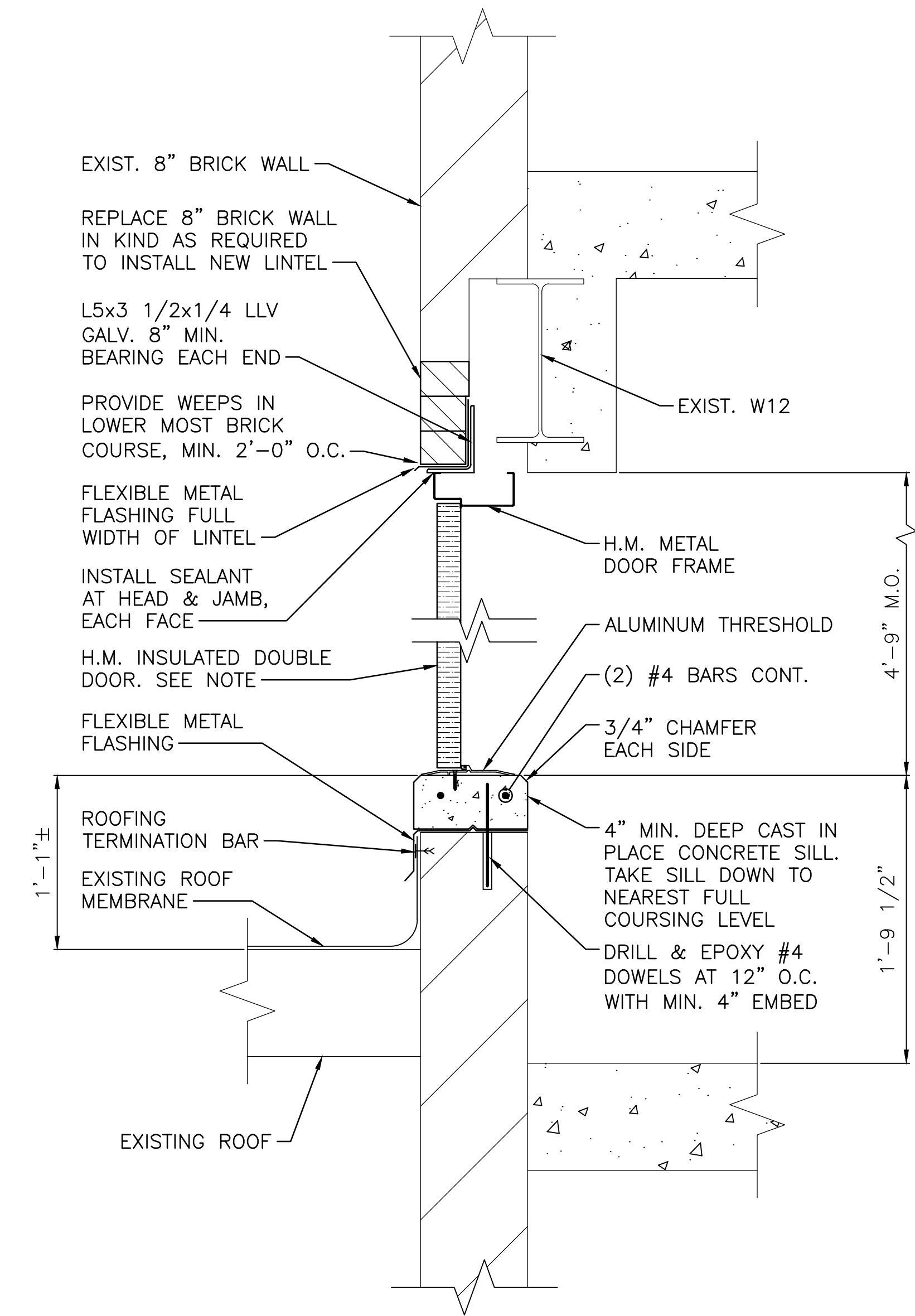
SECTION - CURB
SCALE: 3" = 1'-0"



SECTION - EQUIPMENT PAD
SCALE: 1 1/2" = 1'-0"



DETAIL - CONNECTION
SCALE: 1 1/2" = 1'-0"



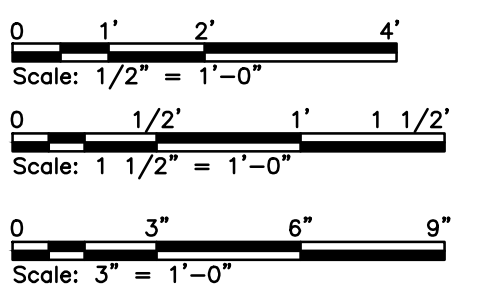
SECTION - DOOR
SCALE: 1 1/2" = 1'-0"

NOTE:

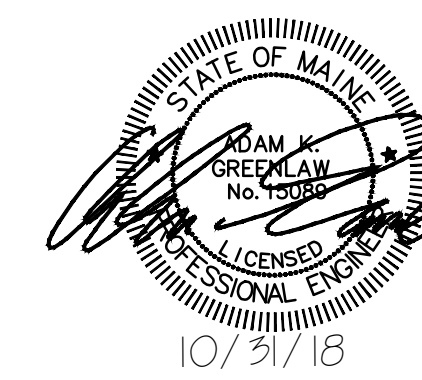
DOOR OPENING IS A CUSTOM SIZE, NOMINAL 5'-4"Wx4'-9"H. COORDINATE ACTUAL SIZE WITH MASONRY COURSING AND SILL DEPTH.

NOTE:

1. SEE SHEET S-001 FOR ABBREVIATIONS AND GENERAL NOTES.



X:\163 Maine Bureau of Real Estate Management\163.002.002 - Cross BLDG Chiller Drawings\Sheets\S-501.dwg - 10/31/2018 12:38 PM - COREY DEWITT



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REV	DESCRIPTION	CRD	BJB	10/31/18
0	ISSUED FOR BID	CRD	BJB	10/31/18

BREM AUGUSTA, MAINE	
CROSS BUILDING CHILLER REPLACEMENT	
STRUCTURAL SECTIONS AND DETAILS	
PROJECT NO. 163.002.002	DRAWING NO. S-501
SHEET 7 OF 14	

ABBREVIATIONS

A	AMP
ACCU	AIR COOLED CHILLER UNIT
ACS	ACCESS
AFF	ABOVE FINISHED FLOOR
AMU	AIR MAKEUP UNIT
APD	AIR PRESSURE DROP
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BHP	BRAKE HORSEPOWER
CFM	CUBIC FEET PER MINUTE
CLG	COOLING
COND	CONDENSATE
CUH	CABINET UNIT HEATER
DB	DRY BULB
DC	DRY COOLER
DEG.	DEGREE
DIA, Ø	DIAMETER
DN	DOWN
DP,DPS	DIFFERENTIAL-PRESSURE SENSOR
EA	EACH
EAT	ENTERING AIR TEMPERATURE
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE
ETR	EXISTING TO REMAIN
EUH	ELECTRIC UNIT HEATER
EWT	ENTERING WATER TEMPERATURE
F	FAHRENHEIT
FT	FEET
GA	GAUGE
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
HR	HOUR
HTG	HEATING
HZ	HERTZ
IN	INCHES
LB	POUND
LCP	LOCAL CONTROL PANEL
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	1000 BTU PER HOUR
MCP	MAIN CONTROL PANEL
MEZZ	MEZZANINE
MIN	MINIMUM
NC	NOISE CRITERIA
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OA	OUTSIDE AIR
PD	PRESSURE DROP
PDS	PRESSURE DIFFERENTIAL SWITCH
PH	PHASE
PS	PRESSURE SWITCH
PT	PRESSURE TRANSMITTER
RE	REMOTE EVAPORATOR
RPM	REVOLUTIONS PER MINUTE
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
SP	STATIC PRESSURE
SS	STAINLESS STEEL
T	TEMPERATURE SENSOR, THERMOSTAT
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
VFD	VARIABLE FREQUENCY DRIVE
W/	WITH
WB	WET-BULB
WC	WATER COLUMN
WG	WATER GAUGE
WPD	WATER PRESSURE DROP

PIPING SYMBOLS

	BALANCING VALVE
	BUTTERFLY VALVE
	GATE VALVE
	BALL VALVE
	TWO-WAY AUTOMATIC CONTROL VALVE
	PRESSURE REDUCTION VALVE
	SAFETY RELIEF VALVE
	CHECK VALVE
	STRAINER W/BALL DRAIN VALVE, HOSE BIB AND CAP
	UNION OR FLANGE AS DICTATED BY PIPE SIZE
	PIPE TEE FROM TOP
	PIPE TEE FROM BOTTOM
	PIPE RISE
	PIPE DROP
	END CAP
	THERMOMETER TEMPERATURE/PRESSURE WELL
	P/T PORT (PRESSURE/TEMPERATURE)
	MANUAL AIR VENT
	REDUCER (ECCENTRIC-FOB OR FOT)
	REDUCER (CONCENTRIC)
	DIRECTION OF FLOW OF PIPE
	PUMP
	BUCKET TRAP
	PRESSURE GAUGE
	FLANGE CONNECTION
	FLEXIBLE CONNECTION
	VENT TO ATMOSPHERE
	VIBRATION ISOLATOR
	AUTOMATIC AIR VENT
	UPRIGHT SPRINKLER HEAD

SPECIFICATIONS AND NOTES

- GENERAL**
- GENERAL NOTES, SYMBOLS AND DETAILS ARE APPLICABLE TO DRAWINGS MARKED M-#.
 - PERFORM WORK IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
 - CONTRACTOR SHALL MAKE ARRANGEMENTS TO VISIT THE SITE PRIOR TO BIDDING TO DETERMINE PRE-EXISTING CONDITIONS AND WORK NECESSARY FOR THE PROJECT.
 - CONTRACTOR SHALL NOTIFY OWNER IN WRITING OF ANY CONFLICTS IN THE CONTRACT DOCUMENTS AND, EXCEPT IN CASE OF EMERGENCY, AWAIT THE OWNER'S DETERMINATION BEFORE PROCEEDING.
 - DRAWINGS ARE DIAGRAMMATIC; OFFSETS, OBSTRUCTIONS, AND EXISTING CONFIGURATIONS AND CONSTRAINTS MUST BE FIELD VERIFIED.
 - IT IS THE INTENT OF THESE CONTRACT DOCUMENTS TO PROVIDE SYSTEMS THAT ARE FULLY TESTED AND OPERATIONAL. ANY COMPONENTS OR LABOR NOT MENTIONED IN THE CONTRACT DOCUMENTS BUT REQUIRED FOR FUNCTIONING SYSTEMS SHALL BE PROVIDED. THE CONTRACTOR SHALL REFER TO THE ENGINEER FOR RESOLUTION BEFORE START OF ANY WORK THAT APPEARS TO HAVE DISCREPANCIES OR IF THERE IS ANY QUESTION OF INTENT.
 - THE CONTRACTOR SHALL HOLD A LICENSE TO PERFORM THE WORK AS REQUIRED BY THE CITY OF AUGUSTA. APPLY FOR AND OBTAIN ALL REQUIRED PERMITS AND INSPECTIONS AND PAY FEES AND CHARGES, INCLUDING SERVICE CHARGES FOR THE STATE OF MAINE.
 - THE CONTRACTOR MUST KEEP ALL CONSTRUCTION AREAS CLEAN AND FREE OF ACCUMULATION OF WASTE MATERIAL OR DEBRIS RELATED TO THIS PROJECT. OCCUPIED AREAS MUST MAINTAIN AN ENVIRONMENT OF EXTREME CLEANLINESS AND THE CONTRACTOR MUST ADHERE TO THE OWNER'S REGULATIONS REGARDING PROCEDURES ON THE PREMISES.
 - ITEMS AND MATERIALS INDICATED FOR REMOVAL OR DEMOLITION SHALL BE DISPOSED OF OFF-SITE IN A LEGAL MANNER.
 - WORK MUST BE COORDINATED WITH TRADES INVOLVED. OFFSETS IN PIPING AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
 - VERIFY EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. FIELD VERIFY AND COORDINATE DIMENSIONS BEFORE FABRICATION.
 - INSTALL WORK SO THAT ITEMS ARE OPERABLE AND SERVICEABLE. DO NOT OBSTRUCT EXISTING EQUIPMENT OR COMPONENTS THAT REQUIRE SERVICE. MAINTAIN MANUFACTURER RECOMMENDED CLEARANCES.
 - INSTALL EQUIPMENT AND PIPING AS REQUIRED TO PROVIDE A VIBRATION FREE INSTALLATION AND TO FACILITATE EQUIPMENT ACCESS AS REQUIRED BY EQUIPMENT MANUFACTURER.
 - COORDINATE ELECTRICAL POWER REQUIREMENTS FOR MOTORS.
 - PROVIDE REQUIRED SUPPORTS, ANGLES, HANGERS, RODS, BASES, BRACES, AND OTHER ITEMS AS NEEDED TO PROPERLY SUPPORT THE CONTRACT WORK.
 - INSTRUCT DESIGNATED MAINTENANCE PERSONNEL ON PROPER OPERATION AND CARE OF THE SYSTEMS AND EQUIPMENT.
 - CONTRACTOR SHALL WARRANTY WORKMANSHIP AND MATERIALS FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM THE DATE OF PROJECT COMPLETION OR UNTIL A SINGLE COOLING SEASON HAS BEEN COMPLETED WITH THE NEW EQUIPMENT IN OPERATION, WHICHEVER HAS THE LONGEST DURATION.
 - REFRIGERANT FROM REMOVED EQUIPMENT SHALL BE RECLAIMED BY A LICENSED REFRIGERATION MECHANIC IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.

- SUBMITTALS**
- SUBMIT MANUFACTURER'S PRODUCT DATA, O&M DATA, INCLUDING SPARE PARTS LIST FOR EACH PRODUCT USED INCLUDING BUT NOT LIMITED TO, CHILLERS, PUMPS, CONTROLS, PIPING, PIPING ACCESSORIES, INSULATION, ETC.
 - PROVIDE THREE (3) OPERATION AND MAINTENANCE MANUALS THAT INCLUDE SHOP DRAWINGS, WIRING DIAGRAMS, SPARE PARTS LISTS, AS-BUILT DRAWINGS, AND MANUFACTURER'S INSTRUCTIONS. O&M MANUALS SHALL ADHERE TO ASHRAE GUIDELINE 4-2008.

- FIRE PROTECTION**
- SPRINKLER WORK SHALL COMPLY WITH NFPA 13.

- PUMPS**
- FACTORY-ASSEMBLED AND TESTED, CENTRIFUGAL, OVERHUNG-IMPELLER, SEPARATELY COUPLED, END-SUCTION PUMP DESIGNED FOR BASE MOUNTING, WITH PUMP AND MOTOR SHAFTS HORIZONTAL.
 - CASING: RADIALLY SPLIT, CAST IRON, WITH THREADED GAGE TAPPINGS AT INLET AND OUTLET, DRAIN PLUG AT BOTTOM AND AIR VENT AT TOP OF VOLUTE, AND FLANGED CONNECTIONS. PROVIDE INTEGRAL MOUNT ON VOLUTE TO SUPPORT CASING, AND PROVIDE ATTACHED PIPING TO ALLOW REMOVAL AND REPLACEMENT OF IMPELLER WITHOUT DISCONNECTING PIPING OR REQUIRING THE REALIGNMENT OF PUMP AND MOTOR SHAFT.
 - IMPELLER: ASTM B 584, CAST BRONZE; STATICALLY AND DYNAMICALLY BALANCED, KEYED TO SHAFT, AND SECURED WITH A LOCKING CAP SCREW. FOR PUMPS NOT FREQUENCY-DRIVE CONTROLLED, TRIM IMPELLER TO MATCH SPECIFIED PERFORMANCE.
 - PUMP SHAFT: STEEL, WITH COPPER-ALLOY SHAFT SLEEVE.
 - SEAL: MECHANICAL SEAL CONSISTING OF CARBON ROTATING RING AGAINST A CERAMIC SEAT HELD BY A STAINLESS-STEEL SPRING, AND EPT BELLOWES AND GASKET.
 - SHAFT COUPLING: MOLDED-RUBBER INSERT AND INTERLOCKING SPIDER CAPABLE OF ABSORBING VIBRATION. COUPLINGS SHALL BE DROP-OUT TYPE TO ALLOW DISASSEMBLY AND REMOVAL WITHOUT REMOVING PUMP SHAFT AND MOTOR. EPDM COUPLING SLEEVE FOR VARIABLE-SPEED APPLICATIONS.
 - COUPLING GUARD: DUAL RATED; ANSI B15.1, SECTION 8; OSHA 1910.219 APPROVED; STEEL; REMOVABLE; ATTACHED TO MOUNTING FRAME.
 - MOUNTING FRAME: WELDED-STEEL FRAME AND CROSS MEMBERS, FACTORY FABRICATED FROM ASTM A 36/A 36M CHANNELS AND ANGLES. FABRICATE TO MOUNT PUMP CASING, COUPLING GUARD, AND MOTOR.
 - MOTOR: PREMIUM EFFICIENCY, SINGLE SPEED, SECURED TO MOUNTING FRAME, ADJUSTABLE ALIGNMENT, OPEN DRIPPROOF ENCLOSURE AND PERMANENTLY LUBRICATED OR GREASE-LUBRICATED BEARINGS. MOTORS FOR P-3, P-4, P-22 AND P-23 SHALL BE VFD COMPATIBLE.

- PIPING**
- PIPING SHALL BE PRESSURE TESTED PER ASME B31.9 BEFORE INSULATION IS APPLIED.
 - SUPPORT PIPING IN ACCORDANCE WITH MSS STANDARD PRACTICE SP-58.
 - ANY PIPE WELDING SHALL BE PERFORMED IN ACCORDANCE WITH ASME B31.9.
 - REFRIGERANT PIPING SHALL BE ASTM B88 TYPE L COPPER TUBING WITH ASME B16.22 WROUGHT-COPPER FITTINGS. BRAZING FILLER METALS SHALL CONFORM WITH AWS A5.8/A5.8M.
 - CHILLED WATER PIPING SHALL BE ASTM A53/A53M, SCHEDULE 40 STEEL PIPE, WROUGHT-STEEL FITTINGS AND WROUGHT-CAST OR FORGED-STEEL FLANGES AND FLANGE FITTINGS, AND WELDED AND FLANGED JOINTS.
 - CONFORM TO ASME/ANSI PIPE LABELING REQUIREMENTS. PROVIDE PLASTIC IDENTIFICATION TAGS FOR ALL PIPE COMPONENTS, SPECIALTIES, AND EQUIPMENT.
 - PROVIDE CLAMPS, OFFSETS, EXPANSION JOINTS, ANCHORS, AND GUIDES AS NECESSARY TO PREVENT STRESS ON PIPING.

CHILLERS
REFER TO SPECIFICATION SECTION 236426.13 AIR-COOLED, ROTARY-SCREW WATER CHILLERS.

- INSULATION**
- PROVIDE 1/2" THICK FLEXIBLE ELASTOMERIC INSULATION ON HOT GAS LINE FOR PERSONNEL PROTECTION AND ON INTERIOR REFRIGERANT LIQUID LINE. PROVIDE ALUMINUM JACKET ON EXTERIOR PIPING. JACKETING SHALL BE WATERTIGHT. PROVIDE 1" THICK FLEXIBLE ELASTOMERIC INSULATION ON CHILLED WATER PIPING, PUMPS, VALVES AND ACCESSORIES.

- TESTING, ADJUSTING AND BALANCING (TAB)**
- TEST, ADJUST, AND BALANCE ACCU-3, RE-3, ACCU-4, RE-4, P-3, P-4, P-7, P-8, P-22 AND P-23 IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, BUILDING OWNER REQUIREMENTS, AND NEBB OR AABC PROCEDURAL STANDARDS.
 - THE TAB AGENCY SHALL ASSIST THE CONTROLS CONTRACTOR IN VERIFYING THE OPERATION AND CALIBRATION OF HVAC AND TEMPERATURE CONTROL SYSTEMS.

- CONTROLS**
- THE EXISTING CHILLER PLANT CONTROL SYSTEM IS TRACER SUMMIT MANUFACTURED BY TRANE. MECHANICAL CONTRACTOR TO ACQUIRE BID FROM TRANE TO PERFORM ALL CONTROLS WORK. INSTALL CONTROLS WIRING AND CONDUIT IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE AND AUTHORITY HAVING JURISDICTION (AHJ).
 - SYSTEM CONTROLS SHALL BE INTEGRATED INTO THE STATE OF MAINE'S CONTROL CENTER (HONEYWELL ENTERPRISE BUILDINGS INTEGRATOR (EBI)). USE OF ONE OF THE FOLLOWING COMMUNICATIONS PROTOCOLS IS ACCEPTABLE FOR INTEGRATION: MOD BUS, BACNET, OPC.
 - CONTROL WIRING SHALL BE INSTALLED IN METAL CONDUIT.
 - ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO TRAIN OWNER'S MAINTENANCE PERSONNEL TO ADJUST, OPERATE, AND MAINTAIN HVAC INSTRUMENTATION AND CONTROLS.
 - COORDINATE WITH TAB CONTRACTOR FOR SYSTEM REBALANCING.
 - COMPLETE PRE-FINAL AND FINAL TESTING FOR SYSTEMS AFFECTED BY THIS SCOPE OF WORK.
 - CONTROLS SHALL BE BACNET COMPATIBLE. CONTROLS SHALL BE ABLE TO COMMUNICATE WITH THE EXISTING CHILLERS (ACCU-1, ACCU-2, ACCU-5 AND ACCU-6) THROUGH TRANE PROPRIETARY PROTOCOL.
 - CHILLER PLANT CONTROL. PROVIDE APPLICATIONS SOFTWARE TO PROPERLY SEQUENCE THE CHILLER PLANT TO MINIMIZE ENERGY USE. THIS APPLICATION SHALL PERFORM THE FOLLOWING FUNCTIONS:
 - THE CHILLER PLANT CONTROL APPLICATION SHALL HAVE THE ABILITY TO CONTROL UP TO 25 CHILLERS AS DETAILED IN THE SEQUENCE OF OPERATIONS.
 - THIS APPLICATION SHALL BE ABLE TO CONTROL BOTH CONSTANT AND VARIABLE FLOW SYSTEMS INCLUDING VARIABLE PRIMARY FLOW AS WELL AS PARALLEL, SERIES AND DECOUPLED PIPING CONFIGURATIONS.
 - THE CHILLER PLANT CONTROL APPLICATION SHALL BE ABLE TO CONTROL MULTIPLE CHILLER PLANTS PER SITE.
 - DIAGNOSTICS/PROTECTION - THE CHILLER PLANT APPLICATION PROGRAM SHALL BE ABLE TO INTEGRATE INDIVIDUAL CHILLER DIAGNOSTICS INTO CONTROL ACTION DECISIONS.
 - EVENT PROCESSING - ALL CHILLER PLANT CONTROL AND STATUS EVENTS SHALL BE RECORDED, AT THE OPERATOR'S SELECTION, IN THE BUILDING MANAGEMENT SYSTEM EVENT LOG TO FACILITATE TROUBLESHOOTING.
 - ALARM INDICATIONS - THE CHILLER PLANT CONTROL STATUS SCREENS SHALL DISPLAY CHILLER PLANT AND INDIVIDUAL CHILLER ALARM MESSAGES.
 - ADD/SUBTRACT ACTIONS - THE STATUS SCREENS SHALL PROVIDE INFORMATION ON WHEN THE NEXT CHILLER ADD OR SUBTRACT ACTION WILL OCCUR. THE OPERATOR SHALL HAVE THE ABILITY TO MANUALLY FORCE A CHILLER ADDITION OR A CHILLER SUBTRACTION.
 - ROTATION OF CHILLERS BASED ON EITHER RUNTIME OR SCHEDULE
 - AUTO RESET OF CHILLER PLANT APPLICATION AFTER FAILURE WHEN RESET AT CHILLER UNIT CONTROL
 - POINT CONTROL. USER SHALL HAVE THE OPTION TO SET THE UPDATE INTERVAL, MINIMUM ON/OFF TIME, EVENT NOTIFICATION, CUSTOM PROGRAMMING ON CHANGE OF EVENTS.
 - TIMED OVERRIDE. A STANDARD APPLICATION SHALL BE UTILIZED TO ENABLE/DISABLE TEMPERATURE CONTROL WHEN A USER SELECTS ON/CANCEL AT THE ZONE SENSOR, OPERATOR INTERFACE, OR THE LOCAL OPERATOR DISPLAY. THE AMOUNT OF TIME THAT THE OVERRIDE TAKES PRECEDENCE WILL BE SELECTABLE FROM THE OPERATOR INTERFACE.
 - ANTI-SHORT CYCLING. ALL BINARY OUTPUT POINTS SHALL BE PROTECTED FROM SHORT CYCLING
 - CHILLED WATER SYSTEM. AN OPERATOR SHALL BE ABLE TO VIEW AND CONTROL (WHERE APPLICABLE) THE FOLLOWING PARAMETERS VIA THE OPERATOR INTERFACE:
 - SYSTEM MODE OF THE CHILLER PLANT
 - CHILLER ENABLE/DISABLE STATUS
 - SYSTEM SUPPLY WATER SETPOINT
 - SYSTEM SUPPLY AND RETURN WATER TEMPERATURE
 - SYSTEM CHILLED WATER PUMP STATUS
 - SYSTEM CHILLED WATER FLOW
 - MESSAGES AS TO WHEN AN ADDITIONAL CHILLER WILL BE ADDED OR REMOVED FROM OPERATIONAL SEQUENCE
 - CHILLER OR SYSTEM FAILURE INFORMATION
 - CHILLER ROTATION INFORMATION
 - OVERRIDE CAPABILITIES TO FORCE AN ADDED CHILLER, SUBTRACT A CHILLER, OR CHANGE OF SEQUENCE.
 - CONTROL TO REMOVE A CHILLER FROM A SEQUENCE TEMPORARILY FOR SERVICE PURPOSES.
 - CUSTOM GRAPHIC EDITOR. PROVIDE THE TOOLS TO CREATE, MODIFY, AND DEBUG CUSTOM GRAPHICS. THE OPERATOR SHALL BE ABLE TO CREATE, EDIT, AND DOWNLOAD CUSTOM GRAPHICS AT THE SAME TIME THAT ALL OTHER SYSTEM APPLICATIONS ARE OPERATING. THE SYSTEM SHALL BE FULLY OPERABLE WHILE CUSTOM GRAPHICS ARE EDITED, COMPILED, AND DOWNLOADED.

MECHANICAL SYMBOLS

	SECTION NUMBER
	DRAWING WHERE SECTION IS DRAWN
	SYMBOL PER ABBREVIATION LIST EQUIPMENT SEQUENCE NUMBER
	DIFFERENTIAL PRESSURE SENSOR
	TEMPERATURE SENSOR
	CONNECT TO EXISTING

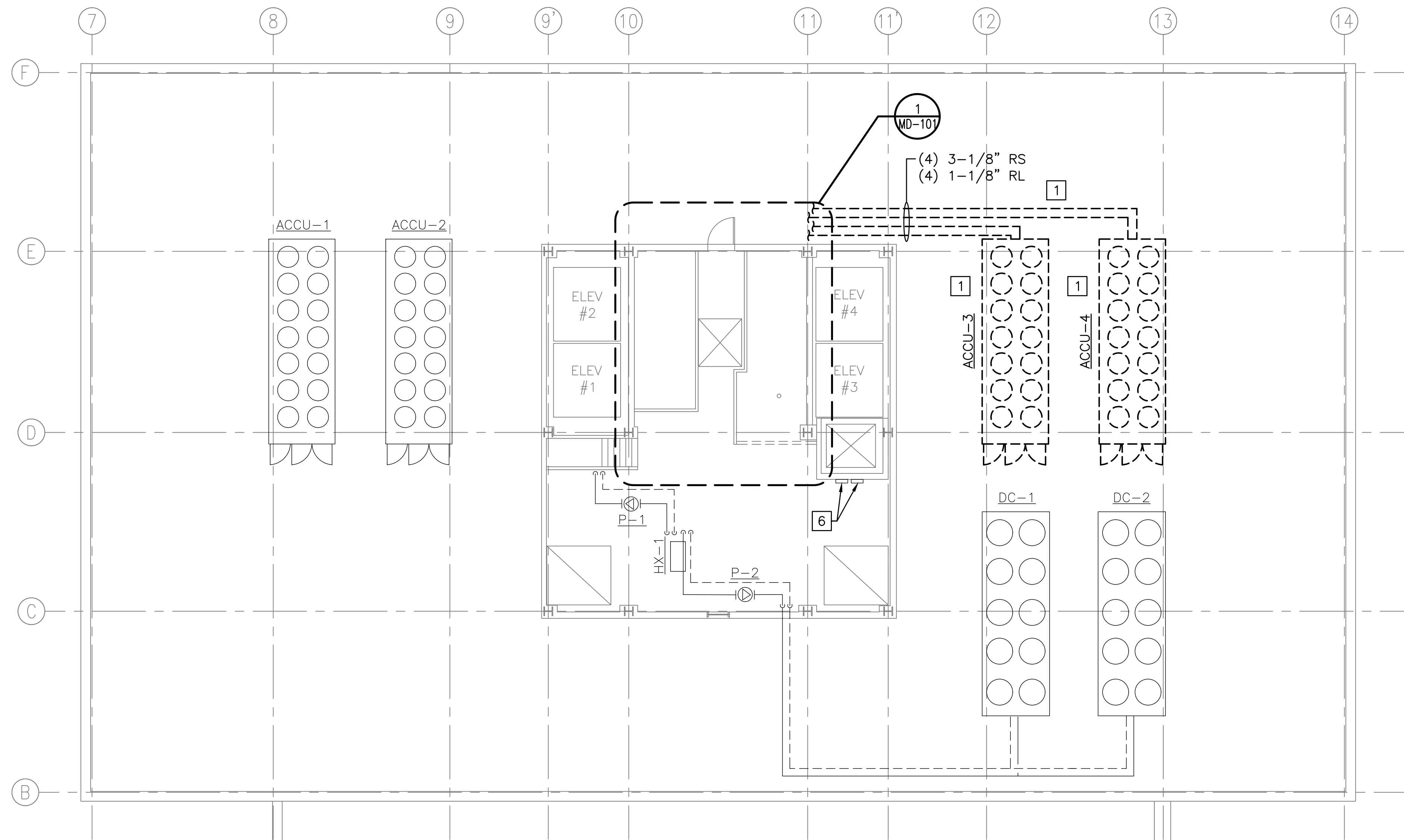
APPLICABLE CODES AND STANDARDS

- ASHRAE 90.1
- ASHRAE 15
- NFPA 13

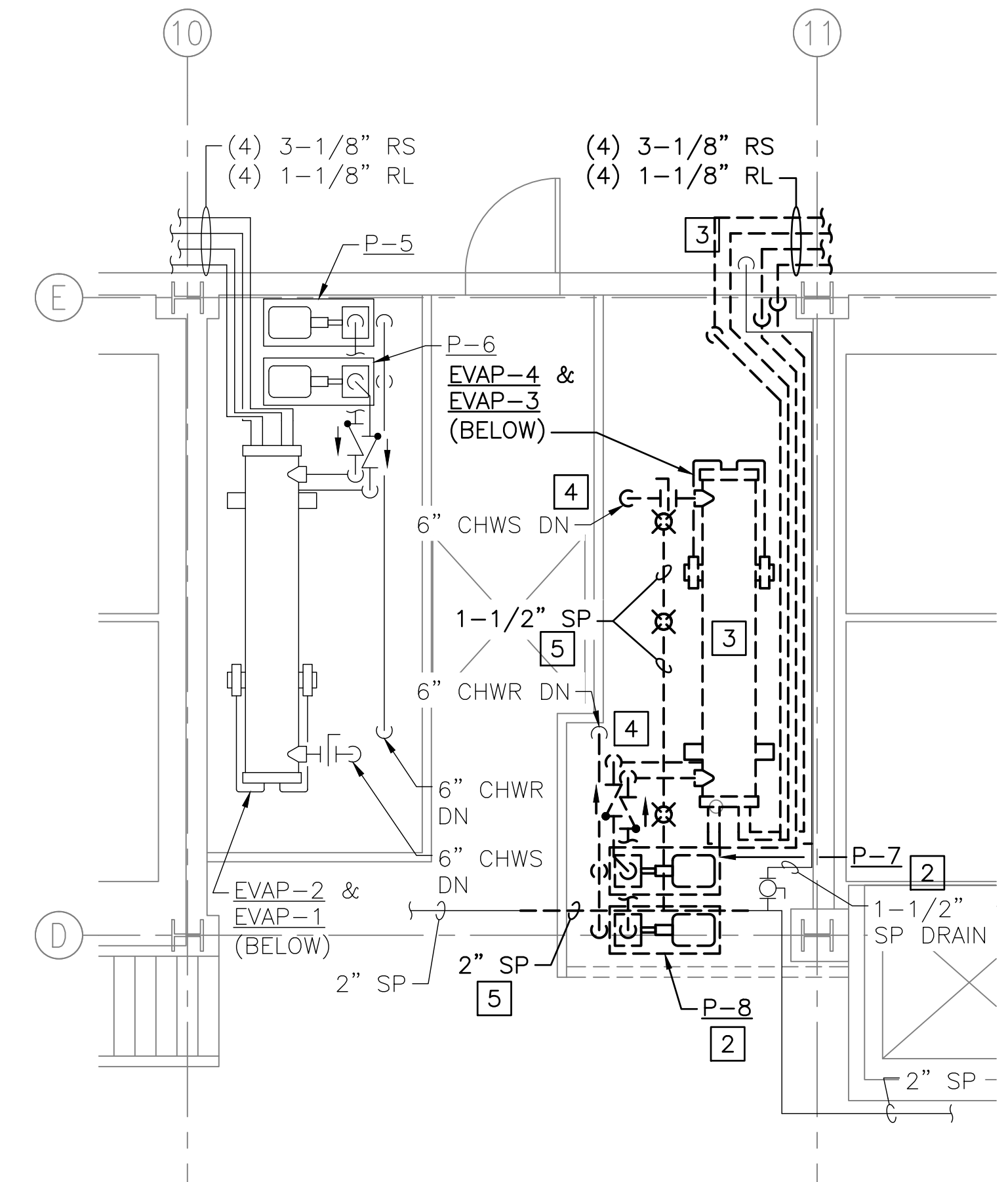
MECHANICAL LINE TYPE LEGEND

	EXISTING ITEMS TO REMAIN
	ITEMS TO BE REMOVED
	ITEMS TO BE PROVIDED
	HIDDEN ITEMS
	CONTROL WIRING

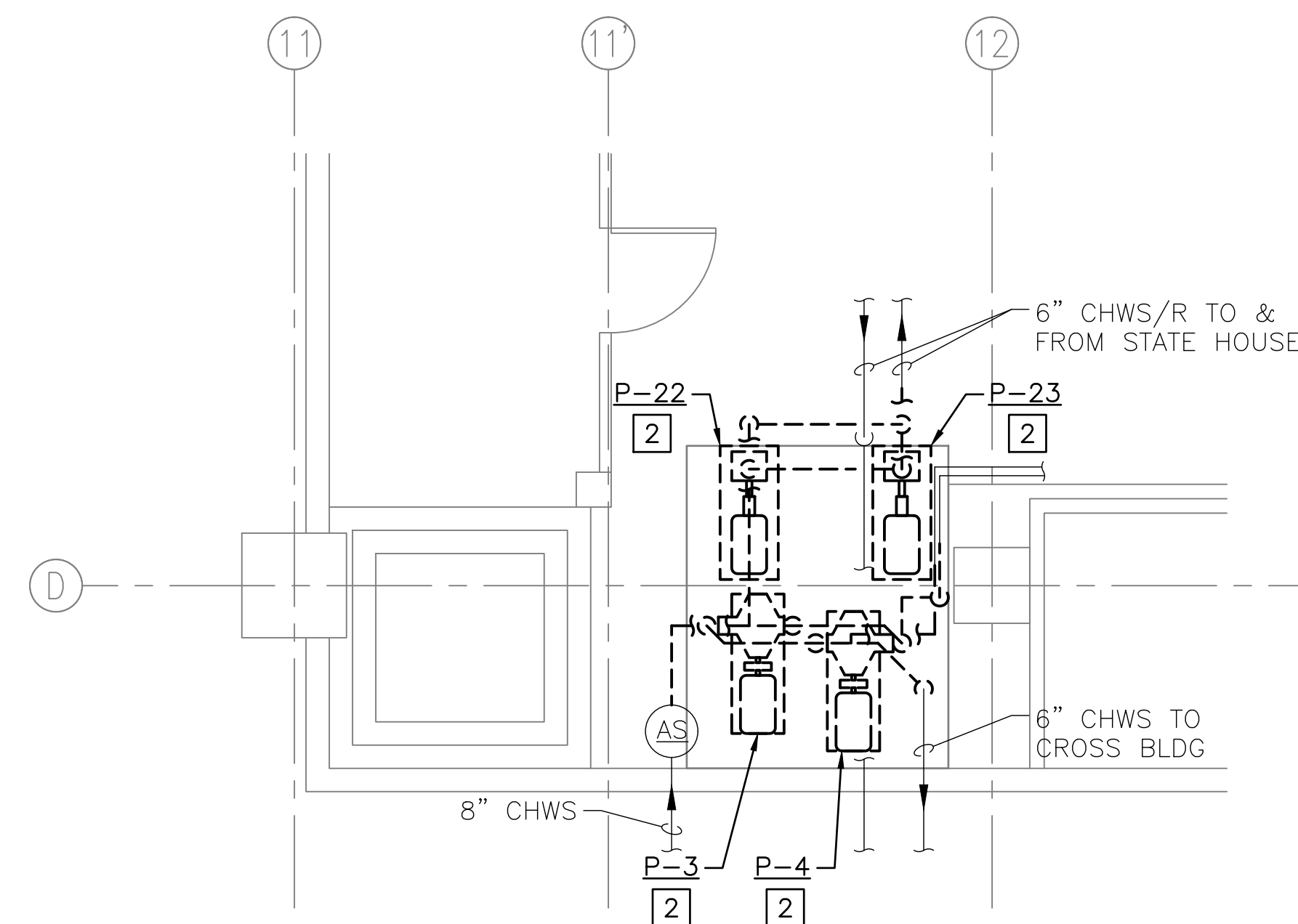
				47A York St Portland, ME 04101 207.553.7753				
								RICHARD L. McCALLUM No. 958 LICENSED ENGINEER 10-31-18
0 ISSUED FOR BID		CSS	RLM	10/31/18	MECHANICAL LEGEND, ABBREVIATIONS, GENERAL NOTES AND SPECIFICATIONS			
REV		DESCRIPTION	DWN	APP				DATE
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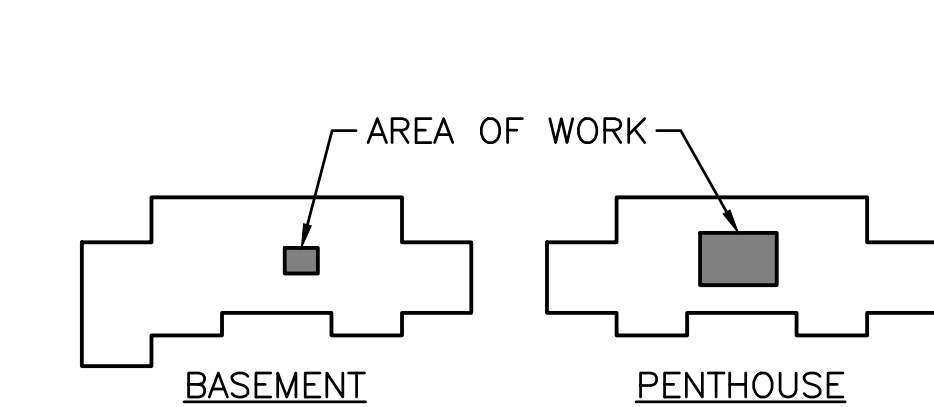
PENTHOUSE MECHANICAL DEMOLITION PLAN
SCALE: 1/8" = 1'-0"



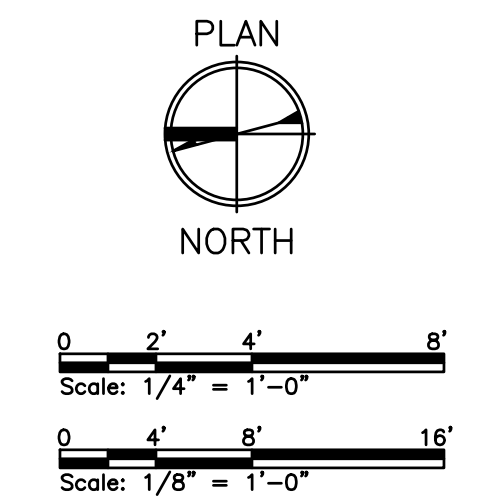
PENTHOUSE MECHANICAL DEMOLITION PART PLAN
SCALE: 1/4" = 1'-0" MD-101



BASEMENT MECHANICAL DEMOLITION PLAN
SCALE: 1/4" = 1'-0"



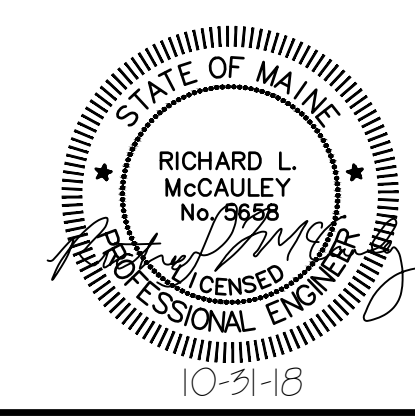
KEY PLANS
SCALE: NTS

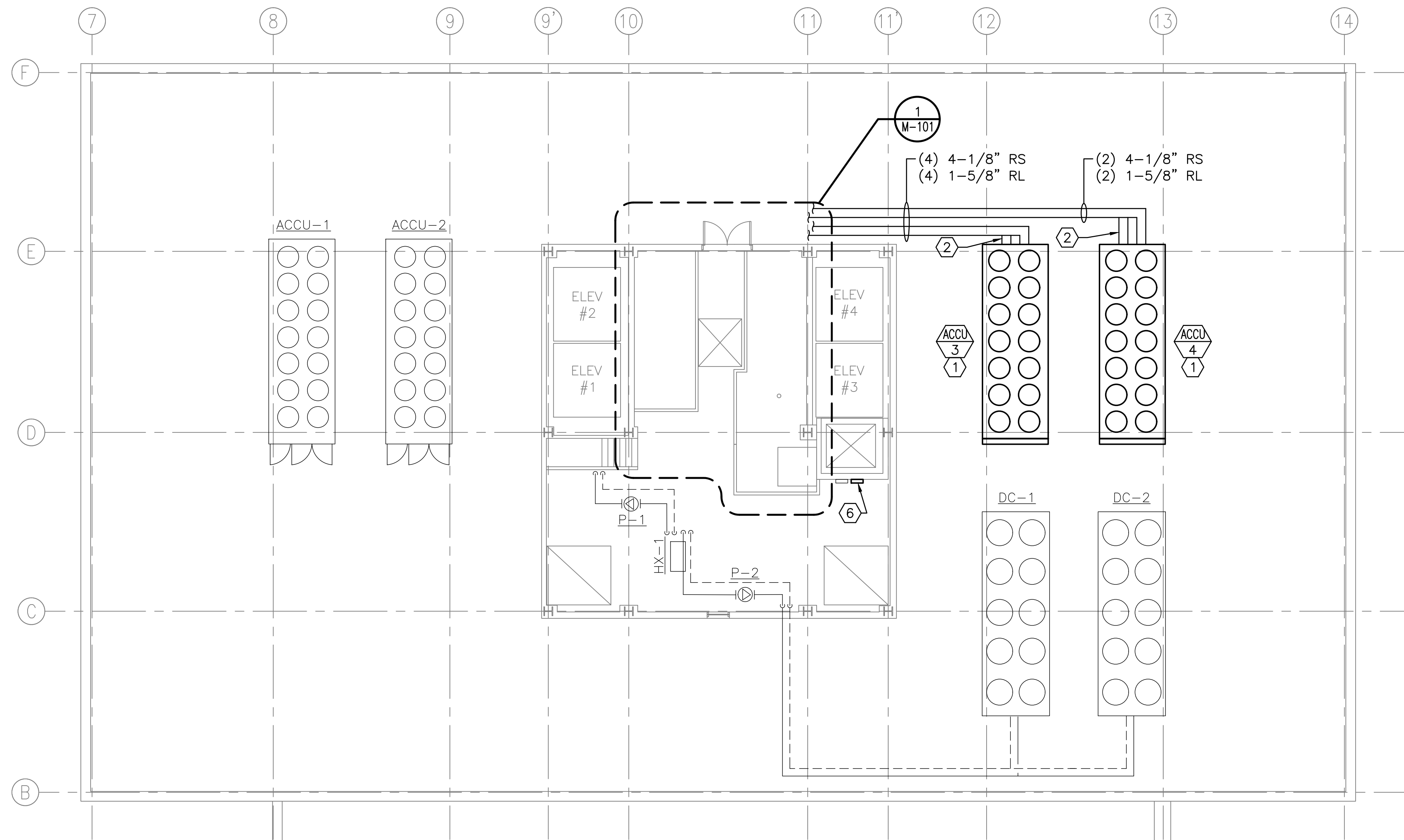


- NOTES:**
- SEE SHEET M-001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- DEMOLITION KEYED NOTES:**
- REMOVE AIR COOLED CONDENSING UNIT AND ASSOCIATED REFRIGERANT PIPING, VALVES AND CONTROLS.
 - REMOVE PUMP AND ASSOCIATED PIPING, VALVES AND CONTROLS.
 - REMOVE EVAPORATOR 4 AND 3 (BELOW) AND ASSOCIATED PIPING, VALVES, CONTROLS AND STEEL FRAME.
 - REMOVE PIPE TO 12" AFF. PROVIDE FLANGE ON EXISTING PIPE TO REMAIN. PROVIDE BLIND FLANGE TO CAP PIPE.
 - REMOVE SECTION OF SPRINKLER PIPE AND SPRINKLER HEADS FOR THE INSTALLATION OF RE-4.
 - EXISTING TRANE TRACER CHILLER PLANT CONTROLS.

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0 ISSUED FOR BID		CSS	SMC	10/31/18	MECHANICAL DEMOLITION PLANS
REV	DESCRIPTION	DWN	APP	DATE	
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		DATE:	10/31/18	163.002.002	MD-101
		DES BY:	SMC	SHEET	
		DWN BY:	CSS	9 OF 14	
		CKD BY:	ERP		

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PENTHOUSE MECHANICAL PLAN

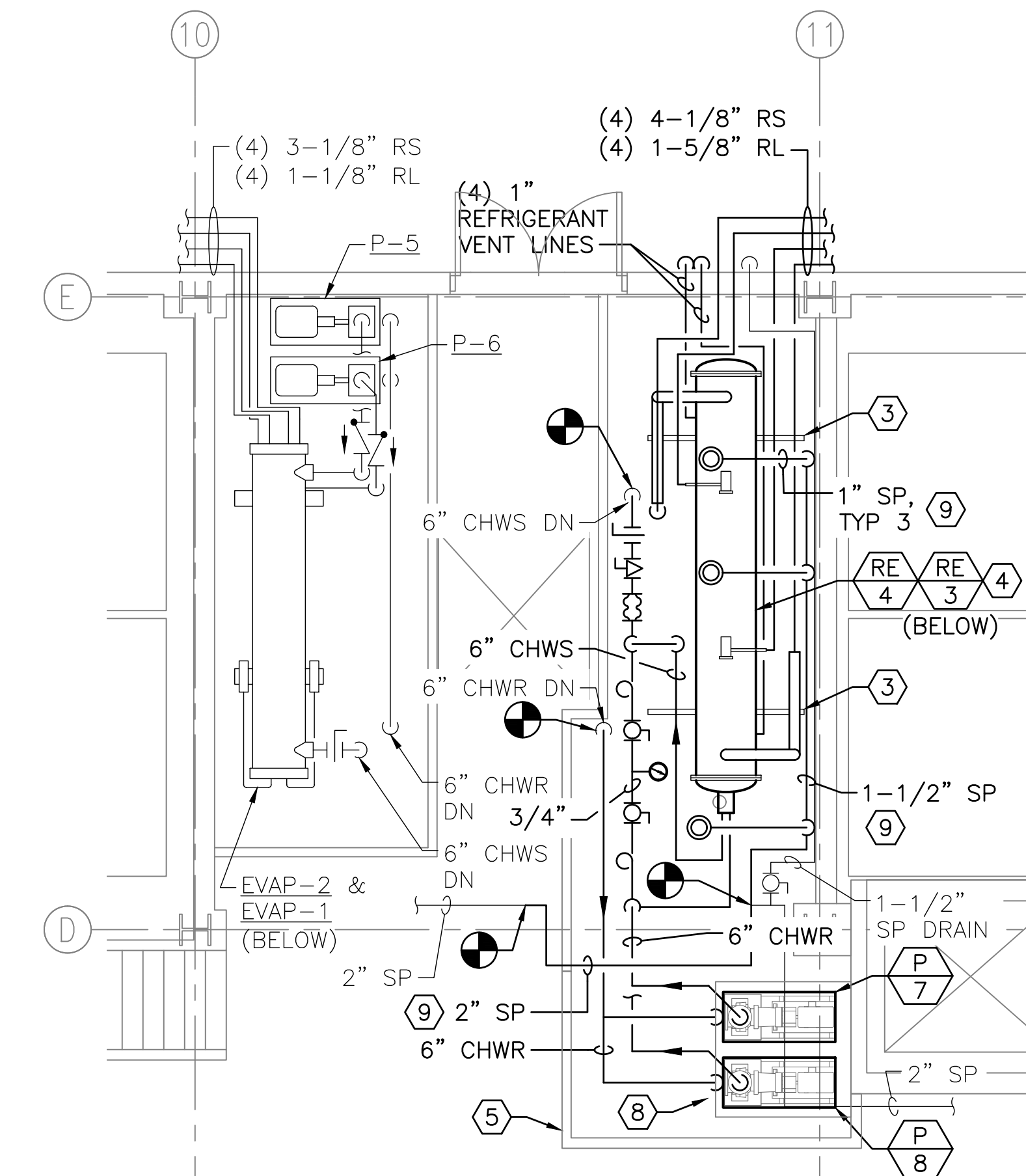
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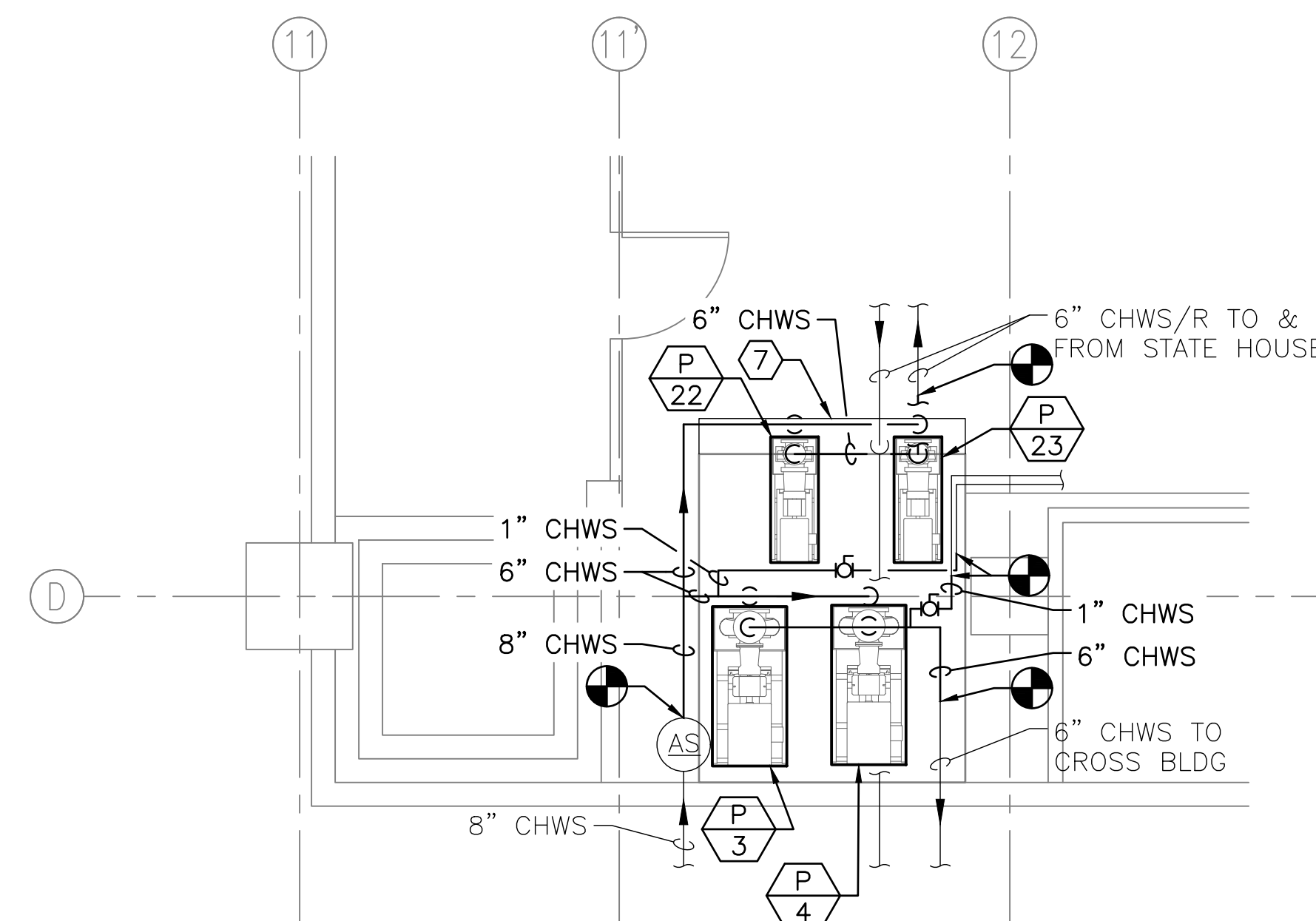
- SEE SHEET M-001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- SEAL EXTERIOR WALL PENETRATIONS WATERTIGHT.

KEYED NOTES:

- MOUNT AIR-COOLED CONDENSING UNITS, ACCU-1 AND ACCU-2, ON EXISTING STEEL STRUCTURE.
- PROVIDE REFRIGERANT LIQUID LINE TRAP AS RECOMMENDED BY MANUFACTURER.
- PROVIDE STEEL FRAME TO SUPPORT RE-4 AND RE-3. RE-3 SHALL BE MOUNTED TO THE CONCRETE FLOOR. REFER TO STRUCTURAL.
- PIPING ARRANGEMENT FOR RE-3 (NOT SHOWN) SHALL BE SIMILAR TO RE-4.
- EXTEND CONCRETE CURB AS INDICATED. REFER TO STRUCTURAL SHEET S-501.
- UPGRADE TRANE TRACE SUMMIT PANEL TO LATEST VERSION. PANEL SHALL BE BACNET COMPATIBLE. PANEL SHALL ALSO BE ABLE TO COMMUNICATE WITH THE EXISTING CHILLERS (ACCU-1 AND ACCU-2) THROUGH TRANE PROPRIETARY PROTOCOL.
- EXTEND EXISTING CONCRETE PAD BY 12". REFER TO STRUCTURAL.
- CONCRETE PAD. REFER TO STRUCTURAL.
- RELOCATE SPRINKLER LINE AND HEADS TO ACCOMMODATE THE INSTALLATION OF RE-4.

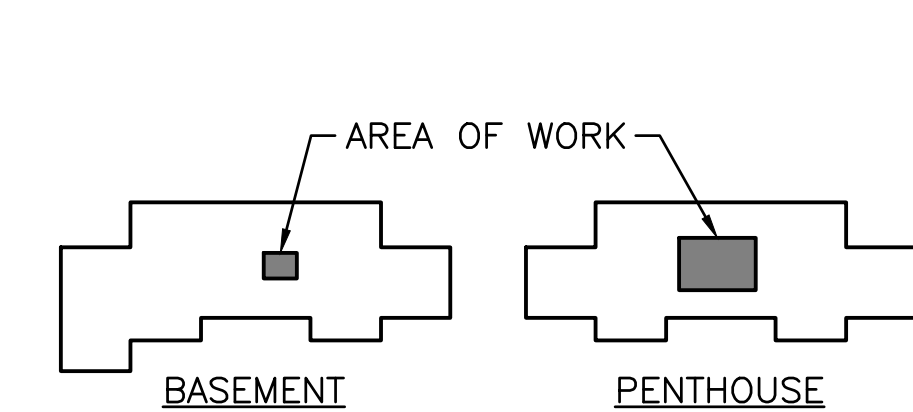


1 M-101 PENTHOUSE MECHANICAL PART PLAN
SCALE: 1/4" = 1'-0" M-101

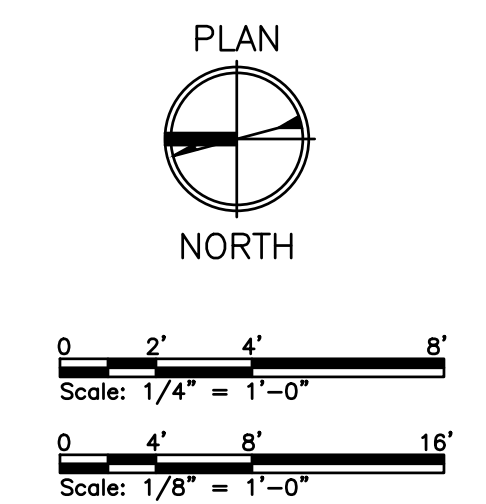


BASEMENT MECHANICAL PLAN

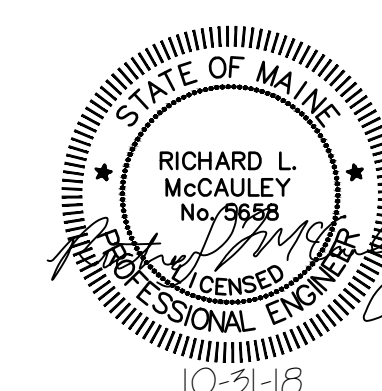
SCALE: 1/4" = 1'-0"



KEY PLANS
SCALE: NTS



		BREM AUGUSTA, MAINE CROSS BUILDING CHILLER REPLACEMENT		MECHANICAL PLANS	
				PROJECT NO. 163.002.002	DRAWING NO. M-101
REV	DESCRIPTION	DWN	APP	DATE	SHEET
0	ISSUED FOR BID	CSS	SMC	10/31/18	10 OF 14
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47A York St Portland, ME 04101 207.553.7753		DWN BY: CSS	CKD BY: ERP		



X:\163 Maine Bureau of Real Estate Management\163.002.002 - Cross Bldg Chiller Drawings\Sheets\M-101.dwg - 10/31/2018 12:08 PM - CRAIG SMITH

AIR COOLED CHILLER SCHEDULE

UNIT NO	LOCATION	SERVES	REFRIGERANT TYPE	RATED CAPACITY (TONS)	IPLV EER	REMOTE EVAPORATOR (RE) DATA						CONDENSER DATA			COMPRESSORS		SOUND		ELECTRICAL DATA				WEIGHT (LB)	MANUFACTURER AND MODEL ①	NOTES
						UNIT NO	EWT (°F)	LWT (°F)	GPM	MIN GPM	WPD (FT)	EAT (°F)	# FANS	FAN KW	TYPE	TOTAL KW	WEIGHTED SOUND POWER (dBa)	MCA	MOCP	V/PH/HZ	STARTER TYPE				
ACCU-3	ROOF	CROSS/STATE HOUSE	R-134A	200	14.36	RE-3	54	42	400	217	11.6	95	14	20.4	SCREW	211.3	98	423	500	460/3/60	WYE-DELTA	14,721	RTAC2004	1	
ACCU-4	ROOF	CROSS/STATE HOUSE	R-134A	200	14.36	RE-4	54	42	400	217	11.6	95	14	20.4	SCREW	211.3	98	423	500	460/3/60	WYE-DELTA	14,721	RTAC2004	1	

NOTES:
 1. CHILLER CONTROLS SHALL HAVE BACNET PROTOCOL COMMUNICATIONS INTERFACE. CHILLER SHALL BE CONTROLLED THROUGH THE UPGRADED, EXISTING TRACER SUMMIT CHILLER PLANT CONTROLS BY TRANE. CHILLERS SHALL RUN ON THE EXISTING SEQUENCE OF OPERATION. ENSURE THAT THE ECONOMIZER COOLING SEQUENCE FOR THE EXISTING DRY COOLERS (DC-1 AND DC-2) IS INTEGRATED INTO THE NEW CHILLER CONTROL PER THE EXISTING CONTROL POINT PARAMETERS.

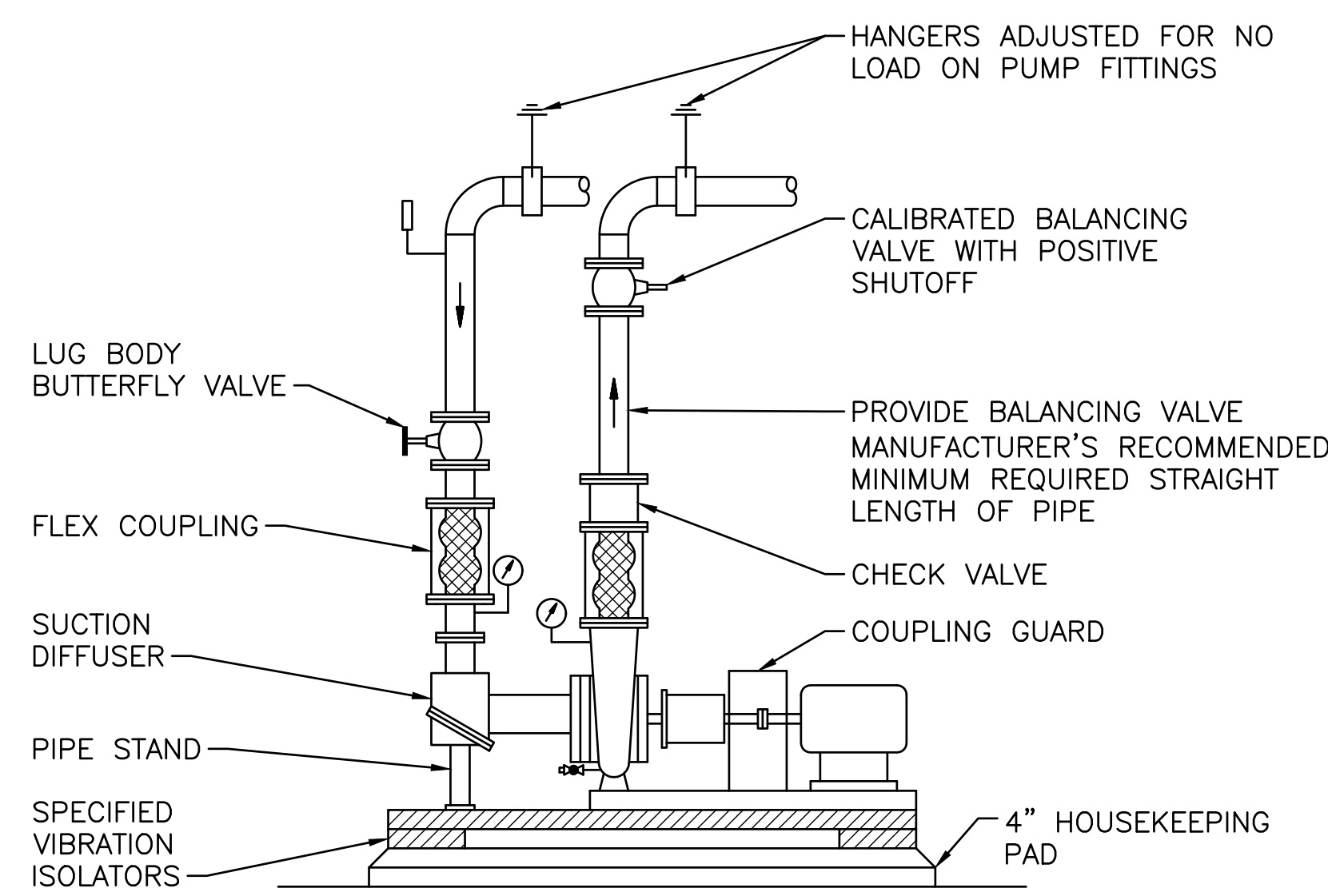
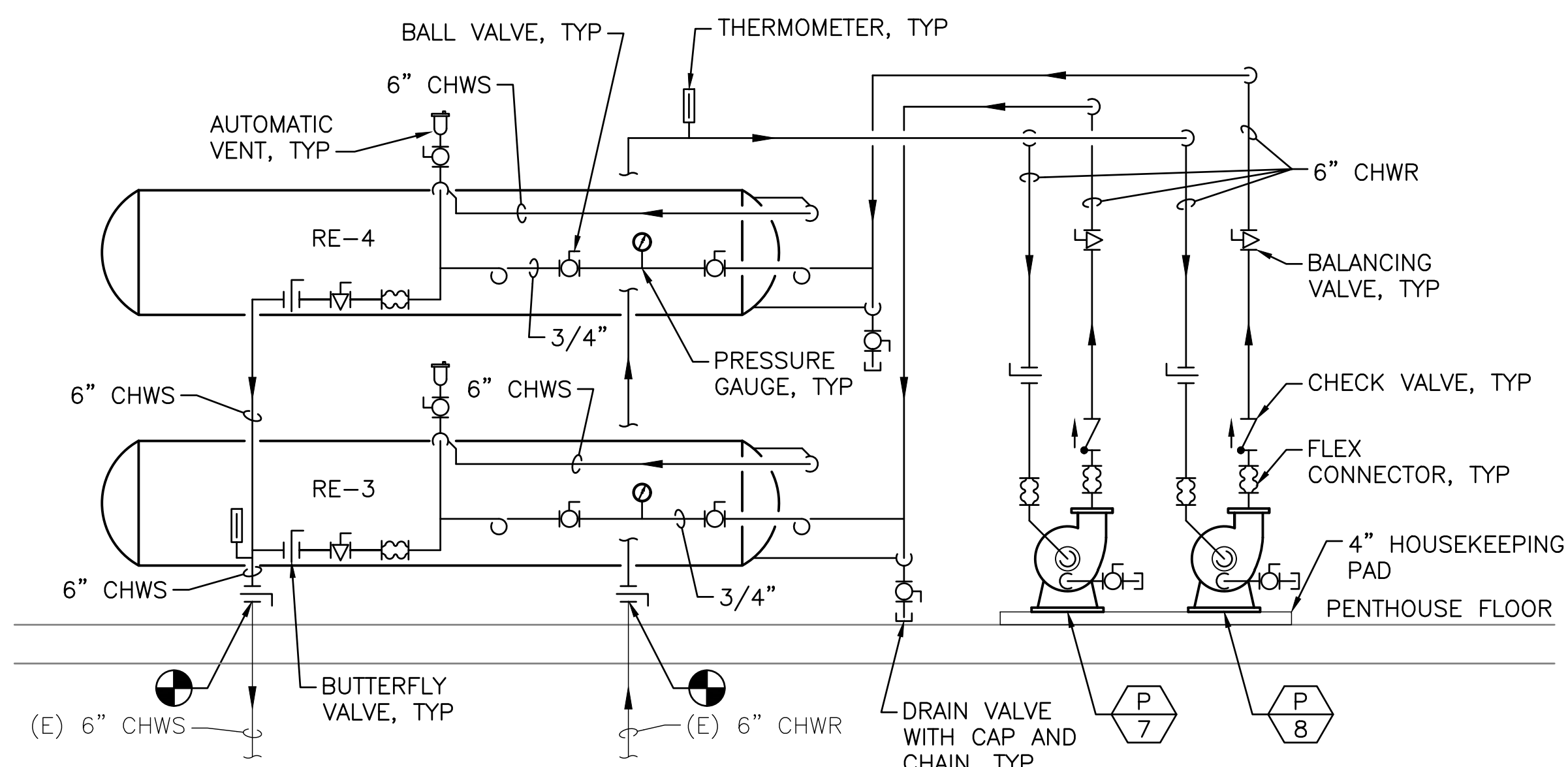
PUMP SCHEDULE

UNIT NO	LOCATION	SERVES	TYPE	FLUID	GPM	HEAD (FT)	HP	ELECTRICAL			MANUFACTURER AND MODEL ①	NOTES
								VOLTS	PHASE	HZ		
P-3	BASEMENT MECH RM	CROSS BUILDING	END SUCTION	WATER	1140	35	15	460	3	60	TACO FI6011D	1
P-4	BASEMENT MECH RM	CROSS BUILDING	END SUCTION	WATER	1140	35	15	460	3	60	TACO FI6011D	1
P-7	PENTHOUSE MECH RM	RE-3	END SUCTION	WATER	400	35	5	460	3	60	TACO FI4007	2
P-8	PENTHOUSE MECH RM	RE-4	END SUCTION	WATER	400	35	5	460	3	60	TACO FI4007	2
P-22	BASEMENT MECH RM	STATE HOUSE BUILDING	END SUCTION	WATER	450	60	10	460	3	60	TACO FI3009C	1
P-23	BASEMENT MECH RM	STATE HOUSE BUILDING	END SUCTION	WATER	450	60	10	460	3	60	TACO FI3009C	1

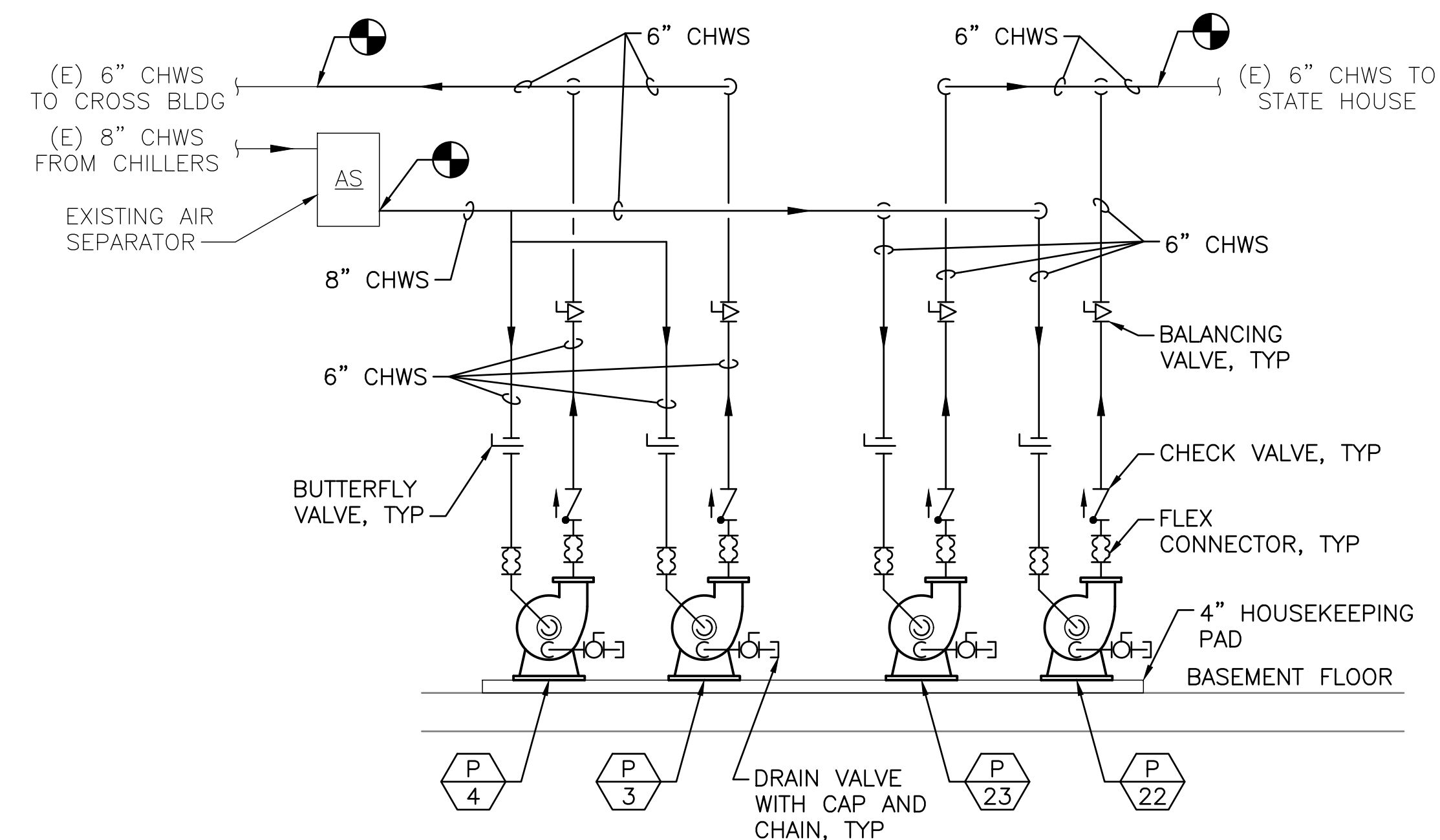
NOTES:
 1. PUMP SHALL BE FED FROM AND CONTROLLED BY THE EXISTING VARIABLE FREQUENCY DRIVE. PUMP SHALL RUN ON THE EXISTING SEQUENCE OF OPERATION.
 2. PUMP SHALL BE FED FROM AND CONTROLLED BY THE EXISTING HAND-OFF-AUTO CONTROL STATION. PUMP SHALL RUN ON THE EXISTING SEQUENCE OF OPERATION.

KEYED NOTE:

① MANUFACTURERS NAME AND MODEL NUMBER ARE USED FOR DESCRIPTIVE PURPOSES ONLY AND ARE INTENDED TO INDICATE THE STANDARD OF MATERIAL OR ARTICLES REQUIRED. DESIGN IS PREDICATED AROUND LISTED MANUFACTURERS AS NOTED ON SCHEDULES AND IS NOT INTENDED TO LIMIT THE CONTRACTOR TO ONE MANUFACTURER UNLESS OTHERWISE NOTED. ANY ADJUSTMENTS TO PIPING, WIRING OR CONFIGURATION DUE TO THE SELECTION OF A MANUFACTURER OTHER THAN THAT LISTED WILL BE ACCOMPLISHED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.



NOTES:
 1. ALL PRESSURE-GUAGE FACES SHALL BE WITHIN 12 INCHES ELEVATION OF EACH OTHER.



COBY COMPANY, LLC engineering & design		BREM AUGUSTA, MAINE	
47A York St Portland, ME 04101 207.553.7753		CROSS BUILDING CHILLER REPLACEMENT	
RICHARD L. McCAULEY No. 9588 LICENSED PROFESSIONAL ENGINEER 10-31-18		MECHANICAL SCHEDULES AND DETAILS	
0 ISSUED FOR BID	CSS	SMC	10/31/18
REV	DESCRIPTION	DWN	APP DATE
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		DATE: 10/31/18	DRAWING NO. M-601
		DES BY: SMC	SHEET 11 OF 14
		DWN BY: CSS	
		CKD BY: ERP	

POWER/LIGHTING:

- 60 □ (4) NON-FUSED SAFETY SWITCH
NEMA ENCLOSURE
AMPERE RATING
- (4) F 60AS 40AF FUSED SAFETY SWITCH, TOP NUMBER INDICATES SWITCH AMPERE RATING, LOWER NUMBER INDICATES FUSE RATING
NEMA ENCLOSURE
- ⊠ (4) MAGNETIC MOTOR STARTER, FVNR UNLESS INDICATED OTHERWISE
NEMA ENCLOSURE
NEMA SIZE (TYP.)
- ⊠ CB 20/1 COMBINATION FUSED DISCONNECT/MAGNETIC MOTOR STARTER
FIRST NUMBER INDICATES CIRCUIT BREAKER AMPERE RATING
SECOND NUMBER INDICATES CIRCUIT NEMA STARTER SIZE
- ⊠ F 20/1 COMBINATION FUSED DISCONNECT/MAGNETIC MOTOR STARTER
NUMBERS INDICATE DISCONNECT AMPERE RATING/FUSE RATING/NEMA STARTER SIZE
- ⊠ 20/1 NON-FUSED DISCONNECT/MAGNETIC MOTOR STARTER
FIRST NUMBER INDICATES AMPERE RATING
SECOND NUMBER INDICATES NEMA STARTER SIZE
- ⊠ 5 XP ELECTRIC MOTOR, NUMBER INDICATES HORSEPOWER RATING
XP - EXPLOSION PROOF
- PANELBOARD, NORMAL POWER
- ⊠ CB 100A ENCLOSED CIRCUIT BREAKER
AMPERE RATING
- ⊠ HS H/O/A LOCAL SELECTOR SWITCH
H/O/A - HAND/OFF/AUTO
- ⊠ JUNCTION BOX
- ⊠ M OL MANUAL MOTOR STARTER, TOGGLE OPERATED, SINGLE PHASE. 1,2 OR 3 POLE AS REQUIRED
OVERLOAD PROTECTION
- ⊠ PB PUSH BUTTON STATION
- ⊠ T TRANSFORMER
- ⊠ MCB MAIN CIRCUIT BREAKER
- ⊠ VFD VARIABLE FREQUENCY DRIVE
- ⊠ Duplex Duplex RECEPTACLE, NEMA 5-20R
- ⊠ 1x4 LIGHT FIXTURE
- HOME RUN

ABBREVIATIONS:

- | | |
|-------|--------------------------------|
| AMP | AMPERE |
| AFF | ABOVE FINISHED FLOOR |
| AHJ | AUTHORITY HAVING JURISDICTION |
| AIC | AMPERE INTERRUPTING CAPACITY |
| AWG | AMERICAN WIRE GAUGE |
| BLDG | BUILDING |
| C | CONDUIT |
| CB | CIRCUIT BREAKER |
| CU | COPPER |
| DISC | DISCONNECT |
| EMT | ELECTRICAL METALLIC TUBING |
| EQP | EQUIPMENT |
| EXIST | EXISTING |
| FBO | FURNISHED BY OTHERS |
| FWE | FURNISHED WITH EQUIPMENT |
| G | GROUND |
| GFCI | GROUND FAULT CIRCUIT INTERRUPT |
| GND | GROUND |
| HP | HORSEPOWER |
| HTR | HEATER |
| IG | ISOLATED GROUND |
| K | KILO |
| KCMIL | THOUSAND CIRCULAR MILS |
| KV | KILOVOLT |
| KVA | KILOVOLT-AMPERE |
| KVAR | KILOVOLT-AMPERE REACTIVE |
| KW | KILOWATT |
| KWH | KILOWATT-HOUR |
| LTG | LIGHTING |
| MC | METAL CLAD |
| MCB | MAIN CIRCUIT BREAKER |
| MFR | MANUFACTURER |
| MTD | MOUNTED |
| NEC | NATIONAL ELECTRICAL CODE |
| NTS | NOT TO SCALE |
| PF | POWER FACTOR |
| PH | PHASE |
| PVC | POLYVINYL CHLORIDE |
| RSC | RIGID STEEL CONDUIT |
| SWBD | SWITCHBOARD |
| V | VOLT |
| VA | VOLT-AMPERE |
| WP | WEATHER PROOF |
| XFMR | TRANSFORMER |

EQUIPMENT TAGS:

- ⬡ EF 3 MECHANICAL/PLUMBING SYSTEM EQUIPMENT TAG (SEE MECHANICAL/PLUMBING SHEETS)
TOP INDICATES EQUIPMENT DESIGNATION
BOTTOM INDICATES UNIQUE IDENTIFIER

LINE TYPES:

- EXISTING
- NEW
- DEMOLITION
- MATCHLINE
- PART PLAN OUTLINE
- ELECTRICAL UNDERGROUND POWER

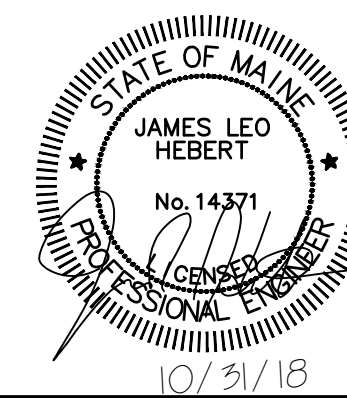
GENERAL NOTES:

1. ALL GENERAL NOTES, SYMBOL LISTS AND DETAILS ARE TO BE CONSIDERED AS APPLICABLE TO ALL ELECTRICAL, DRAWINGS FOR THIS PROJECT. SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY AND DO NOT INDICATE THEIR INCORPORATION IN THE DESIGN.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH NFPA-70, NATIONAL ELECTRICAL CODE (NEC) 2017.
3. REMOVE ALL ELECTRICAL EQUIPMENT COMPLETELY WHERE INDICATED. REMOVE ALL CIRCUIT CONDUCTORS, SWITCHES, LIGHTING FIXTURES AND MISCELLANEOUS APPLIANCES BACK TO ENERGIZING SOURCE OR JUNCTION BOX WHERE MULTIPLE EQUIPMENT IS POWERED.
4. ALL CONDUCTOR MATERIAL, INCLUDING WIRING, PANELBOARD BUSES, TRANSFORMER WINDINGS, AND GROUNDING SHALL BE COPPER. ALUMINUM CONDUCTORS SHALL NOT BE ALLOWED.
5. FLEXIBLE CONNECTIONS TO MOTORS MUST BE LIQUID TIGHT FLEXIBLE METAL CONDUIT, UNLESS OTHERWISE NOTED. LENGTH LIMITED TO 6 FEET.
6. ALL INTERIOR DISTRIBUTION AND BRANCH WIRING MUST BE 600V, COPPER WITH THHN/THWN INSULATION. ALL EXTERIOR DISTRIBUTION AND BRANCH WIRING MUST BE 600V, COPPER WITH XHHW INSULATION.
7. ALL INTERIOR CONDUIT MUST BE TYPE EMT AND ALL EXTERIOR CONDUIT SHALL BE TYPE RGS. FINAL CONNECTIONS TO MOTORS MUST BE TYPE LFMC. FLEXIBLE CONNECTIONS LIMITED TO 6 FEET.
8. ALL EQUIPMENT DISCONNECTS AND MANUAL MOTOR STARTERS ARE PROVIDED BY ELECTRICAL CONTRACTOR UNLESS NOTED AS FURNISHED WITH EQUIPMENT (FWE). MOUNT ALL DISCONNECTS AND MOTOR STARTERS IN AN ACCESSIBLE LOCATION WITHIN SIGHT OF THE LOAD SERVED.
9. ALL PENETRATIONS THROUGH FLOORS, RATED WALLS AND PARTITIONS SHALL BE SEALED WITH UL APPROVED FIRE SEALANT MATERIAL TO MAINTAIN THE RATING OF SEPARATION.
10. EQUIPMENT CONNECTIONS ARE SHOWN FOR BASIS-OF-DESIGN PRODUCTS. CONTRACTOR SHALL COORDINATE ALL EQUIPMENT CONNECTIONS - INCLUDING DISCONNECTING MEANS, OVERCURRENT PROTECTION, AND WIRE SIZING - WITH SELECTED MANUFACTURER'S RECOMMENDED INSTRUCTIONS.
11. CONTRACTOR SHALL COORDINATE FINAL DEVICE LOCATIONS WITH EQUIPMENT LAYOUT AND CONNECTION REQUIREMENTS. DEDICATED OUTLETS SHALL BE WITHIN REACH OF EQUIPMENT POWER CORD.
12. CONTRACTOR SHALL PROVIDE ALL MOUNTING HARDWARE NECESSARY FOR A COMPLETE INSTALLATION. MOUNT EQUIPMENT AND ROUTE CONDUIT SO AS NOT TO INTERFERE WITH OPERATIONS SUCH AS OVERHEAD DOORS, DOOR SWINGS, ETC.
13. COORDINATE BRANCH CIRCUIT SIZES WITH EQUIPMENT REQUIREMENTS.

GENERAL NOTES CONTINUED:

14. ALL DISTRIBUTION EQUIPMENT SHALL BE SUPPLIED BY THE SAME MANUFACTURER. APPROVED MANUFACTURERS INCLUDE SQUARE D, EATON/CUTLER-HAMMER, SIEMENS, OR APPROVED EQUAL.
15. ALL EQUIPMENT ENCLOSURES, SWITCHES, RECEPTACLES, AND DEVICES SHALL BE LABELED WITH THE SOURCE CIRCUIT AND EQUIPMENT CONTROLLED WHERE APPLICABLE. ALL PANELBOARDS AND SWITCHBOARDS SHALL HAVE APPROPRIATE ARC-FLASH LABELS INSTALLED.

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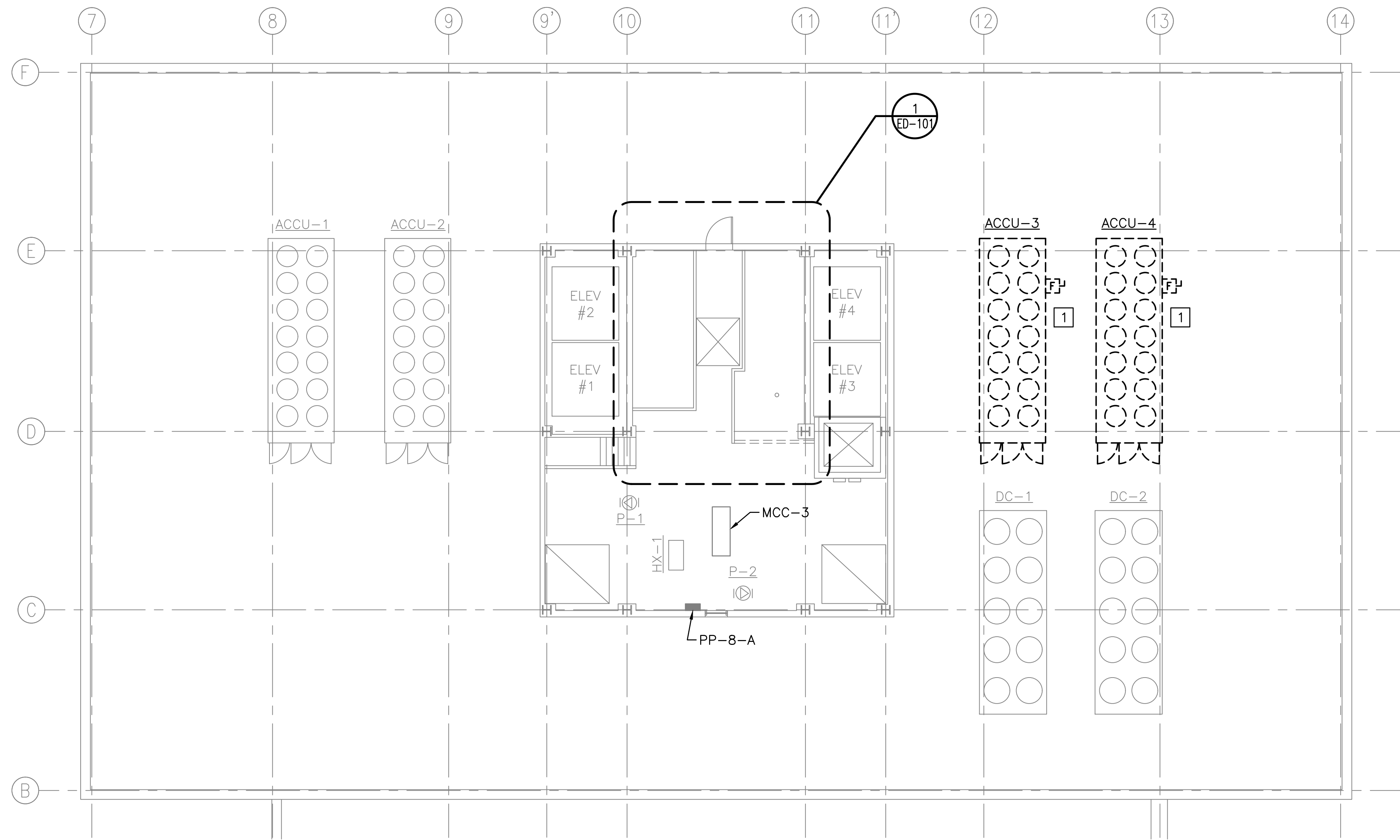
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207.553.7753

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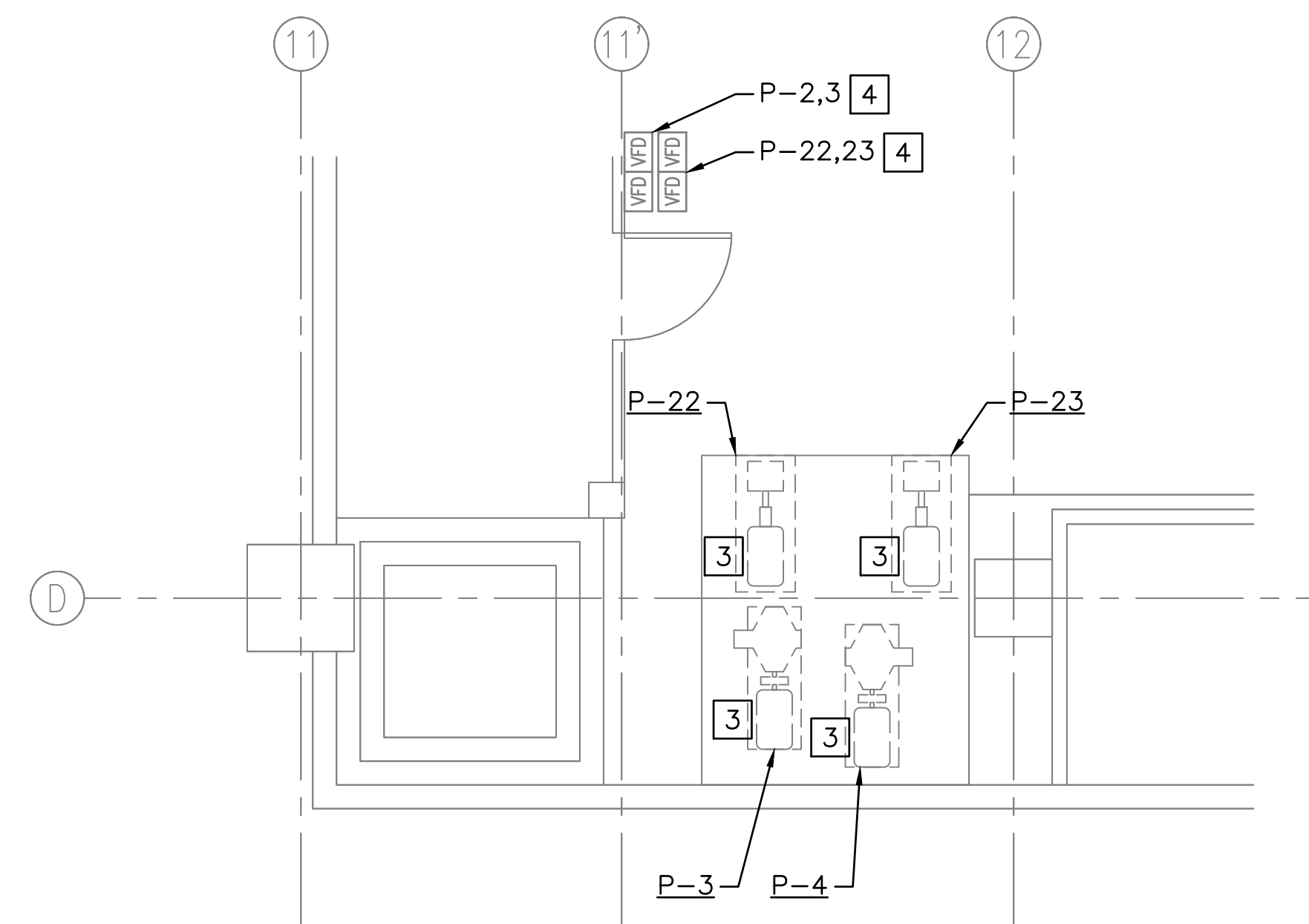
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SIZE: ANSI D
DATE: 10/31/18
DES BY: JLH
DWN BY: CAW
CKD BY: JMB

BREM AUGUSTA, MAINE	
CROSS BUILDING CHILLER REPLACEMENT	
LEGEND, ABBREVIATIONS AND GENERAL NOTES	
PROJECT NO. 163.002.002	DRAWING NO. E-001
SHEET 12 OF 14	



PENTHOUSE ELECTRICAL DEMOLITION PLAN
SCALE: 1/8" = 1'-0"



BASEMENT ELECTRICAL DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

NOTES:

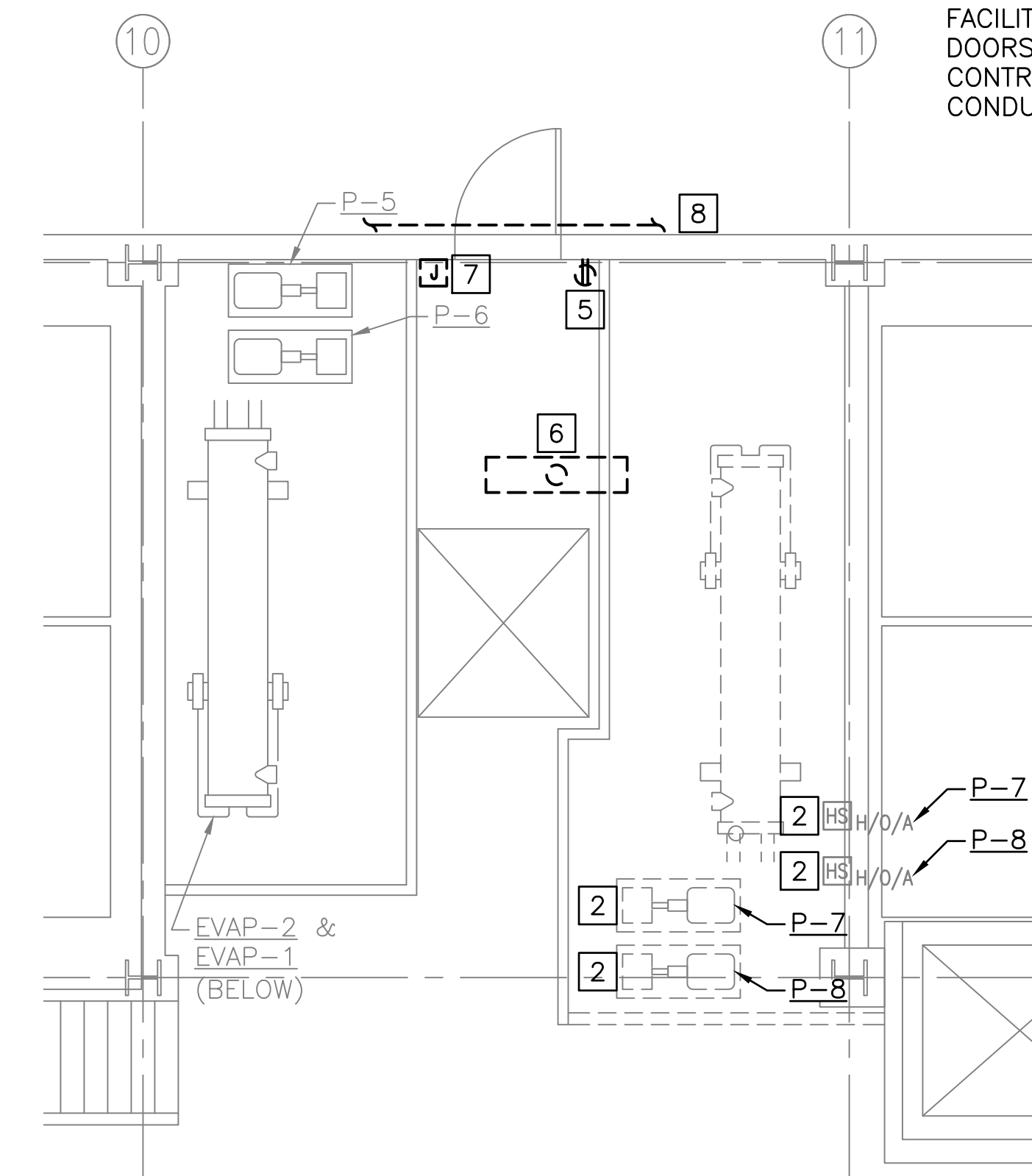
- SEE SHEET E-001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- CONTRACTOR TO LOCKOUT/TAGOUT EQUIPMENT PRIOR TO WORK.

DEMOLITION KEYED NOTES:

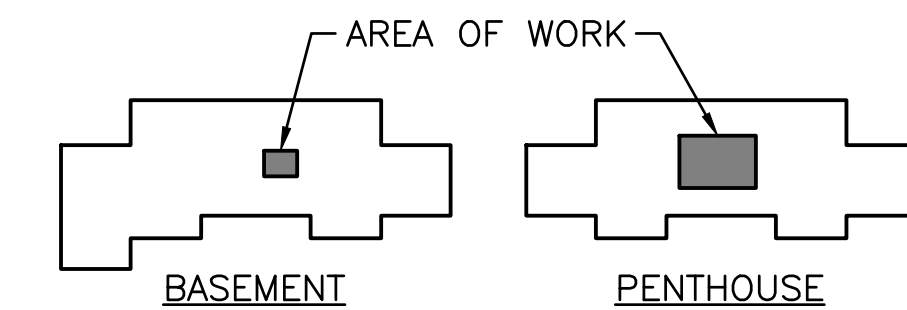
- DISCONNECT POWER AND CONTROL FEEDERS TO CHILLERS 3 & 4. SALVAGE/MAINTAIN CIRCUITS FOR RECONNECTION TO NEW EQUIPMENT. SEE SHEET E-101 FOR DETAIL. CIRCUITS FED FROM MCC-3.
- DISCONNECT POWER AND CONTROL FEEDERS TO PUMPS #7 & #8 TO NEAREST JUNCTION BOX. SALVAGE/MAINTAIN CIRCUITS, AND H/O/A SWITCHES, FOR RECONNECTION TO NEW PUMPS. SEE SHEET E-101 FOR DETAIL.
- DISCONNECT POWER AND CONTROL FEEDERS TO PUMPS #2, #3, #22, & #23 TO NEAREST JUNCTION BOX. SALVAGE/MAINTAIN CIRCUITS, AND VFDS, FOR RECONNECTION TO NEW PUMPS. SEE SHEET E-101 FOR DETAIL.
- EXISTING VFDS FOR PUMPS 2,3,22,23 TO REMAIN FOR RECONNECTION TO NEW PUMPS. SEE DRAWING E-101 FOR DETAIL.

DEMOLITION KEYED NOTES (CONTINUED):

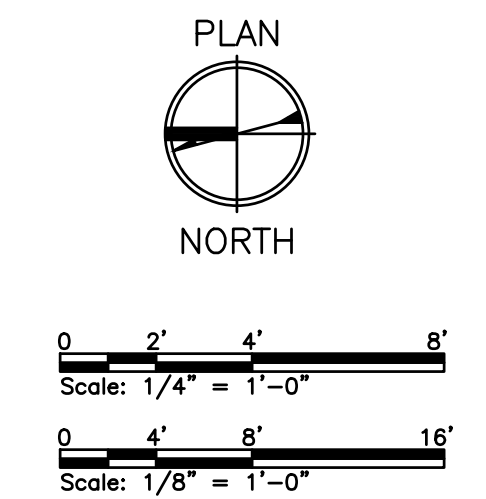
- REMOVE AND SALVAGE DUPLEX RECEPTACLE FOR DEMOLITION OF EXISTING PENTHOUSE DOORWAY TO ROOF. REMOVE CONDUIT AND CONDUCTORS BACK TO NEAREST JUNCTION BOX NOT AFFECTED BY DEMOLITION WORK. SAVE DEVICE FOR REINSTALLATION AND RECONNECTION TO EXISTING CIRCUIT UNDER NEW WORK. EXISTING CIRCUIT FED FROM PANEL PP7NA CIRCUIT #7.
- REMOVE AND SALVAGE LIGHT FIXTURE FOR MECHANICAL DEMOLITION COORDINATION. REMOVE CONDUIT AND CONDUCTORS BACK TO NEAREST JUNCTION BOX NOT AFFECTED BY DEMOLITION WORK. SAVE LIGHT FIXTURE FOR REINSTALLATION AND RECONNECTION TO EXISTING POWER AND SWITCHING CIRCUIT UNDER NEW WORK. EXISTING CIRCUIT FED FROM PANEL ELP7 CIRCUIT #5.
- REMOVE AND SALVAGE ELECTRONIC CARD READER DEVICE AND ASSEMBLY BACK TO NEAREST JUNCTION BOX FOR MECHANICAL DEMOLITION COORDINATION. SAVE DEVICE AND ASSEMBLY FOR REINSTALLATION AND RECONNECTION UNDER NEW WORK. SEE SHEET E-101 FOR DETAIL.
- TEMPORARILY REMOVE EXISTING CONDUIT MOUNTING BRACKETS AND CONDUIT TO HELP FACILITATE INSTALLATION OF NEW DOUBLE DOORS. COORDINATE WITH STRUCTURAL CONTRACTOR IN THE FIELD TO ENSURE CONDUIT IS NOT DAMAGED.



PENTHOUSE ELECTRICAL DEMOLITION PART PLAN
SCALE: 1/4" = 1'-0"

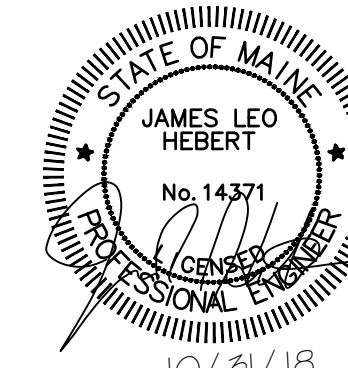


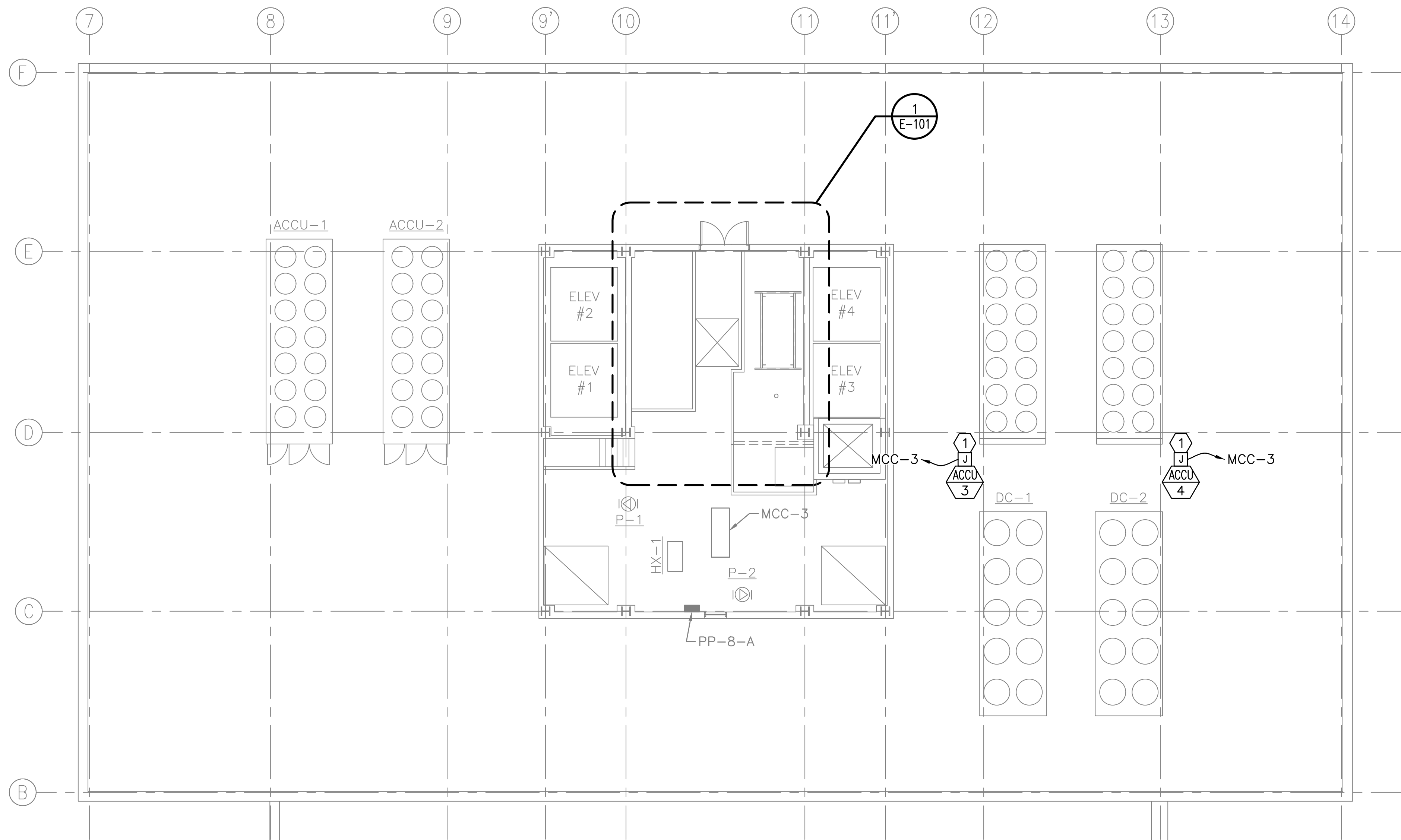
KEY PLANS
SCALE: NTS



				BREM	
				AUGUSTA, MAINE	
				CROSS BUILDING	
				CHILLER REPLACEMENT	
				ELECTRICAL DEMOLITION PLANS	
0	ISSUED FOR BID	CAW	RLM	10/31/18	
REV	DESCRIPTION	DWN	APP	DATE	
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		DATE:	10/31/18		163.002.002
		DES BY:	JLH		SHEET
		DWN BY:	CAW		13 OF 14
		CKD BY:	JMB		

ED-101





PENTHOUSE ELECTRICAL PLAN
SCALE: 1/8" = 1'-0"

NOTES:

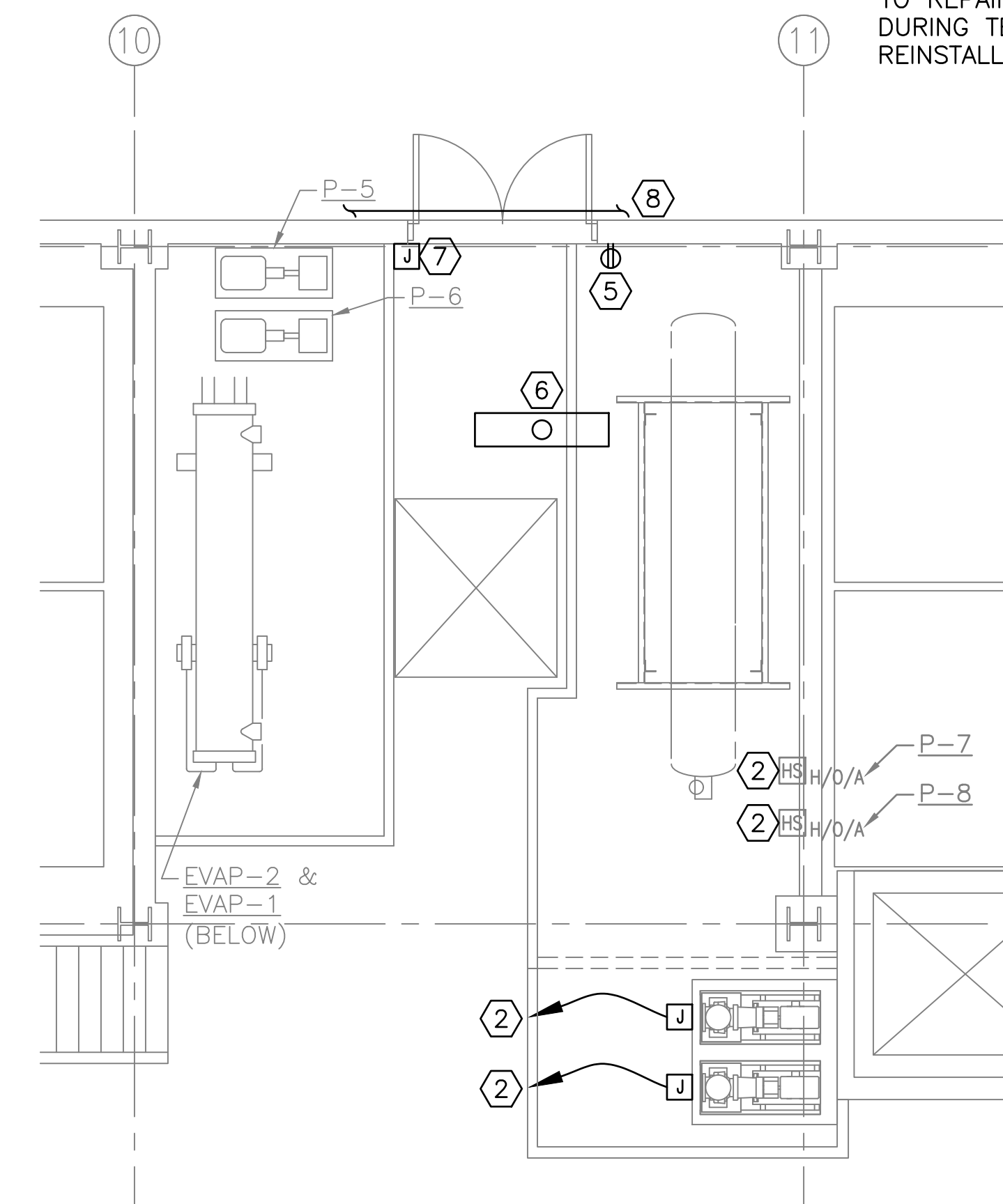
- SEE SHEET E-001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- CONTRACTOR TO LOCKOUT/TAGOUT EQUIPMENT PRIOR TO WORK.
- PANELS PP-HVAC-A AND PP-HVAC-B ARE LOCATED IN "MECHANICAL ROOMS A AND B" RESPECTIVELY. LINEAR DISTANCE TO EACH ROOM FROM PUMPS IS 150'. COORDINATE LOCATION WITH OWNER.

KEYED NOTES:

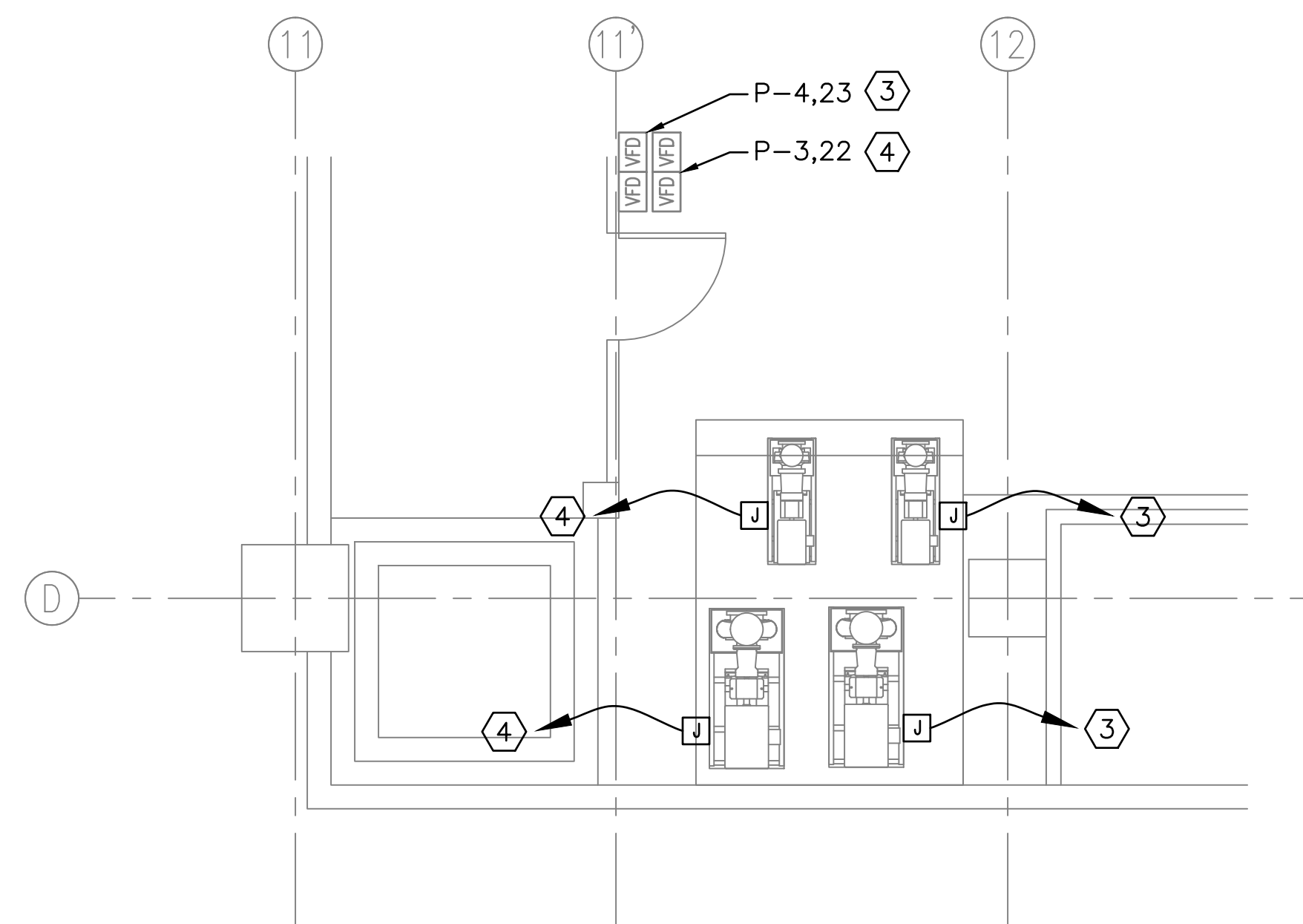
- PROVIDE JUNCTION BOX AND NEW CONDUCTORS (MIN. SIZE 2 SETS OF 300KCMIL) AS REQUIRED TO RECONNECT NEW CHILLERS TO EXISTING POWER AND CONTROL FEEDERS FED FROM MCC-3.
- PROVIDE JUNCTION BOX AND NEW CONDUCTORS (MIN. SIZE 2 SETS OF 300KCMIL) AS REQUIRED TO RECONNECT NEW PUMPS P-7 AND P-8 TO EXISTING POWER AND CONTROL FEEDERS FED FROM EXISTING H/O/A SWITCHES AND MCC-3.
- PROVIDE JUNCTION BOX AND NEW CONDUCTORS (MIN. SIZE #12AWG) AS REQUIRED TO RECONNECT EXISTING PUMPS 4 AND 23 TO EXISTING POWER AND CONTROL FEEDERS FROM EXISTING VFDS AND PANEL PP-HVAC-B. PANEL IS LOCATED APPROXIMATELY 150' AWAY FROM EQUIPMENT.

KEYED NOTES (CONTINUED):

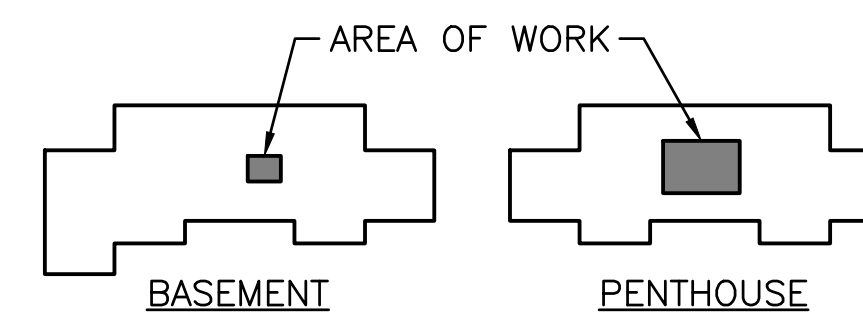
- PROVIDE JUNCTION BOX AND NEW CONDUCTORS (MIN. SIZE #12AWG) AS REQUIRED TO RECONNECT EXISTING PUMPS 3 AND 22 TO EXISTING POWER AND CONTROL FEEDERS FROM EXISTING VFDS AND PANEL PP-HVAC-A. PANEL IS LOCATED APPROXIMATELY 150' AWAY.
- REINSTALL DUPLEX RECEPTACLE AND CONNECT TO PANEL PF7NA CIRCUIT #7. PROVIDE ADDITIONAL CONDUCTORS AND JUNCTION BOXES TO FACILITATE SPLICING WITH EXISTING. CONDUCTORS MUST NOT BE SMALLER THAN #12AWG.
- REINSTALL LIGHT FIXTURE AND CONNECT TO PANEL ELP7 CIRCUIT #5. PROVIDE ADDITIONAL CONDUCTORS AND JUNCTION BOXES TO FACILITATE SPLICING WITH EXISTING. CONDUCTORS MUST NOT BE SMALLER THAN #12AWG.
- REINSTALL CARD READER AND DOOR HARDWARE, PROVIDE ADDITIONAL CONTROL DEVICE TO ACCOMMODATE ADDITIONAL DOOR. PROVIDE CONDUCTORS THAT MATCH EXISTING IN ORDER TO SPLICE AND RECONNECT TO NORMAL FUNCTION.
- REINSTALL CONDUIT MOUNTS AND CONDUIT TO EXTERIOR WALL AFTER INSTALLATION OF NEW DOUBLE DOORS. CONTRACTOR RESPONSIBLE TO REPAIR/REPLACE ANY DAMAGE TO CONDUIT DURING TEMPORARY REMOVAL AND REINSTALLATION.



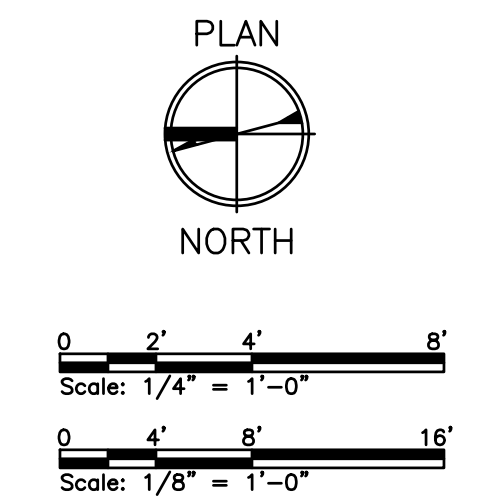
PENTHOUSE ELECTRICAL PART PLAN
SCALE: 1/4" = 1'-0"
E-101



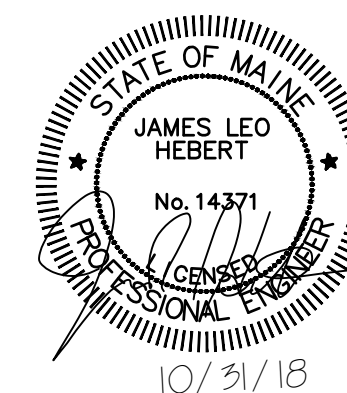
BASEMENT ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"



KEY PLANS
SCALE: NTS



		BREM AUGUSTA, MAINE	
		CROSS BUILDING CHILLER REPLACEMENT	
ELECTRICAL FLOOR PLANS		E-101	
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