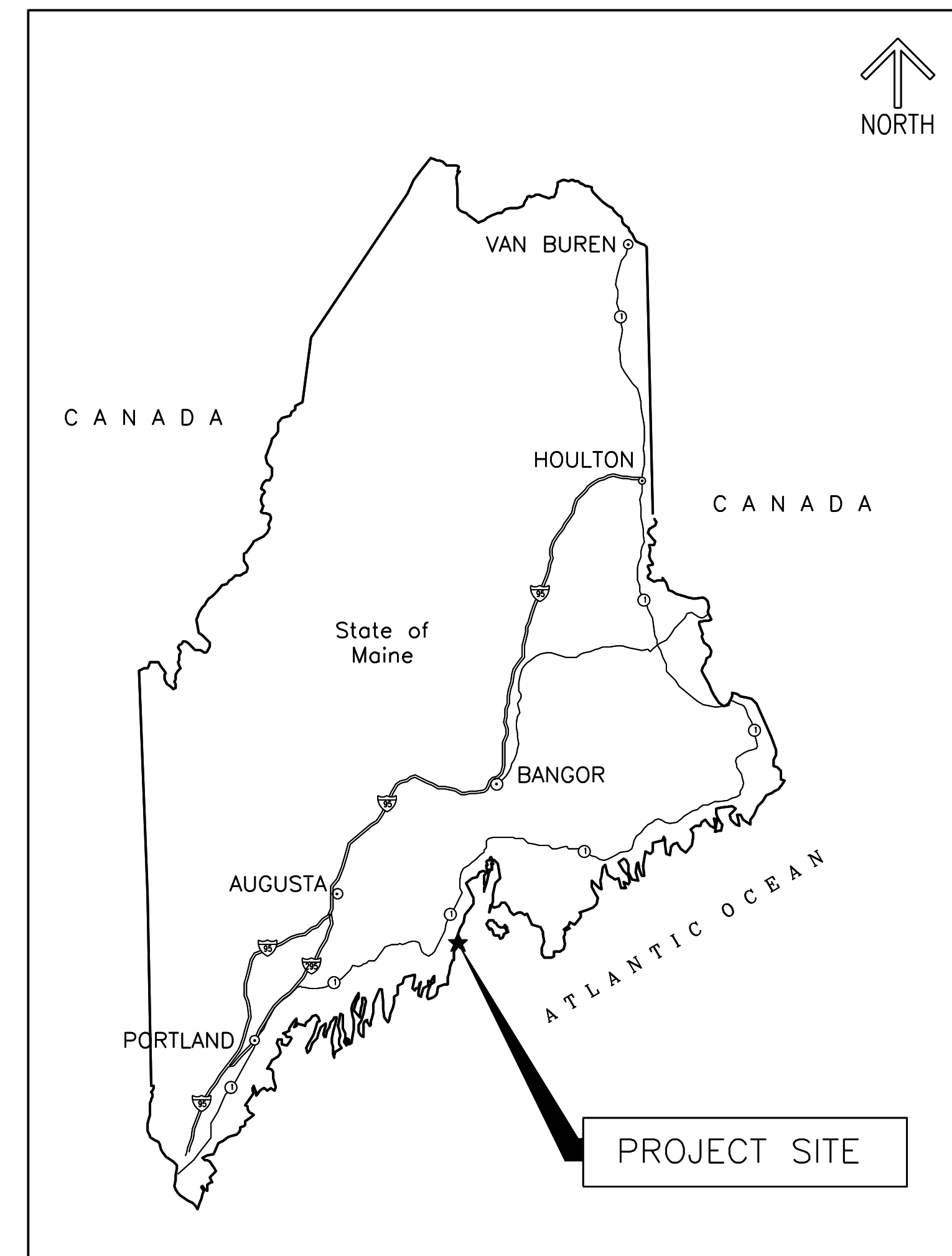


BUREAU OF GENERAL SERVICES

MARINE PATROL HEATING UPGRADES ISSUED FOR BID



VICINITY MAP
N.T.S.

LIST OF DRAWINGS		
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ALTERNATE BID ITEM:

DESCRIPTION OF CHANGE TO USE OIL FURNACE SYSTEM INCLUSIVE OF THE FOLLOWING SCOPE CHANGES:

THIS ALTERNATE INCLUDES REPLACEMENT OF THE EXISTING OIL FIRED FURNACES WITH EQUIVALENT CAPACITY OIL FIRED FURNACES. THE NEW OIL FIRED FURNACES MUST BE INSTALLED ON THE EXISTING PLATFORM. THE OIL SYSTEM INCLUDING PUMPS AND CONTROLS MUST REMAIN IN PLACE AND PIPING EXTENDED TO CONNECT TO NEW FURNACES. THE EXISTING PLATFORM MUST BE MODIFIED AS DESCRIBED TO MEET CURRENT CODES AND STANDARDS. NO NEW MECHANICAL EQUIPMENT WILL BE INSTALLED ON THE ROOF AS PART OF THIS ALTERNATE.

ARCHITECTURAL

1. ELIMINATE INSULATED ROOF CURBS FOR ROOFTOP UNITS.
2. REDUCE THE NUMBER OF ROOFTOP PENETRATIONS TO (2) 12" FLUE PENETRATIONS.
3. ELIMINATE EXTERIOR ROOFTOP ACCESS LADDER.

STRUCTURAL

1. ELIMINATE SUSPENDED PLATFORM DEMOLITION SCOPE SHOWN IN KEYNOTE 1 ON SD-101.
2. REDUCE ROOF OPENING DEMO SHOWN IN KEYNOTE 2 ON SD-101 TO (2) 12" DIAMETER OPENINGS FOR FLUES. COORDINATE LOCATIONS WITH MECHANICAL DRAWINGS.
3. ELIMINATE CURB SUPPORT FRAMING SHOWN ON S-101.
4. LOCATE SUSPENDED PLATFORM ATTACHMENT POINT LOCATIONS ON EACH JOIST AND SUPPLY DETAILED DIMENSIONS TO EOR FOR REVIEW.
5. DETERMINE PLATFORM MEMBER DIMENSIONS AND SPACING (INCLUDING SUSPENDED RODS, STEEL MEMBERS, GRATING, AND TIEBACKS) AND SUPPLY TO EOR FOR REVIEW.
6. PROVIDE OSHA COMPLIANT GUARDRAIL WITH LOCKING SWING GATE ON ACCESS SIDE OF EXISTING SUSPENDED MECHANICAL PLATFORM ON THREE SIDES.
7. PROVIDE PERMANENT LADDER TO ACCESS EXISTING SUSPENDED PLATFORM VIA SWING GATE.
8. PROVIDE JOIST REINFORCEMENT AT SUSPENDED PLATFORM ATTACHMENT POINTS PER DETAIL 4/S101.

MECHANICAL

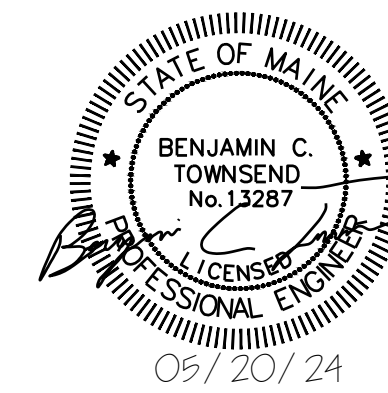
1. ELIMINATE "REMOVE ASSOCIATED FUEL OIL PIPING BACK TO SOURCE AT FIRST FLOOR." FROM KEYED NOTE 1 ON MD-102.
2. ELIMINATE KEYED NOTE 2. THE REMAINING FURNACE FLUES MUST BE REMOVED IN THEIR ENTIRETY AND THE ROOF OPENINGS MUST BE COVERED AND PROTECTED DURING DEMOLITION.
3. ELIMINATE KEYED NOTE 5. DAY TANK AND FUEL OIL PIPING MUST BE EXISTING TO REMAIN.
4. ELIMINATE RTU-1 AND RTU-2 ASSOCIATED DUCTWORK ON M-102.
5. ELIMINATE KEYED NOTE 3.
6. PROVIDE ADAMS MANUFACTURING COMPANY ASO1000 HORIZONTAL OIL FURNACE ON EXISTING SUSPENDED PLATFORM.
7. PROVIDE 42"x42" PLENUM, CONNECT TO EXISTING DUCTWORK AND NEW OIL FURNACES.
8. PROVIDE (2) 12" FLUES FROM OIL FIRED FURNACE THROUGH ROOF PENETRATIONS.
9. ELIMINATE RTU-1 AND RTU-2 ON M-103. ELIMINATE KEYED NOTES 1 AND 2.

ELECTRICAL

1. ELIMINATE DEMOLITION KEYED NOTE 2 ON ED-101. OIL LIFT PUMP TO REMAIN IN PLACE.
2. ELIMINATE DEMOLITION KEYED NOTE 3 ON ED-101. OIL TANK LEAK DETECTION SYSTEM TO REMAIN IN PLACE.
3. ELIMINATE ELECTRICAL DEMOLITION SCOPE ON ED-102. PLATFORM TO REMAIN IN PLACE.
4. ELIMINATE KEYED NOTE 3 ON E-102. PLATFORM TO REMAIN IN PLACE.
5. ELIMINATE NEW ELECTRICAL SERVICE SCOPE.
6. PROVIDE THE FOLLOWING FOR THE NEW FURNACE:

- A NEW CIRCUIT BREAKER TO PANEL B. SIZE BREAKER PER MANUFACTURER AND NEC REQUIREMENTS. SEE ELECTRICAL SHEET E-601 FOR PANEL B INFORMATION.
- A NEW DISCONNECT SWITCH, SIZED PER MANUFACTURER AND NEC REQUIREMENTS.
- PROVIDE NEW CONDUIT AND WIRE PER NEC STANDARDS.

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				MARINE RESOURCES DEPARTMENT 15 VIENO'S RUN, ROCKLAND, MAINE			
				MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES			
				COVER SHEET			
0	ISSUED FOR BID	CAW	MAC	05/20/24			
REV	DESCRIPTION	DWN	APP	DATE			
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					DATE: 05/01/2024	SHEET 1 OF 23	
					DES BY: CAW		
					DWN BY: CAW		
					CKD BY: MAC		

GENERAL NOTES

- 1. STRUCTURAL DRAWINGS MUST BE USED IN CONJUNCTION WITH MECHANICAL, AND ELECTRICAL SPECIFICATIONS. CONSULT THESE DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS, CHASES, INSERTS, REGLETS, SLEEVES, DEPRESSIONS, AND OTHER DETAILS NOT SHOWN ON STRUCTURAL DRAWINGS.
2. DIMENSIONS AND CONDITIONS MUST BE VERIFIED IN THE FIELD. ANY DISCREPANCIES MUST BE BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER FOR RESOLUTION BEFORE PROCEEDING WITH THE AFFECTED PART OF THE WORK
3. THE STRUCTURE IS DESIGNED TO BE SELF SUPPORTING AND STABLE ONLY AFTER THE STRUCTURAL WORK CONTAINED IN THE DRAWINGS IS COMPLETED. DETERMINE ERECTION PROCEDURES AND SEQUENCE TO ENSURE 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 MUST REMAIN THE PROPERTY OF THE CONTRACTOR AFTER COMPLETION OF THE PROJECT.
4. SECTIONS AND DETAILS SHOWN ON ANY STRUCTURAL DRAWINGS ARE CONSIDERED TYPICAL FOR SIMILAR CONDITIONS.
5. SUBMIT COMPLETE SHOP DRAWINGS FOR THE WORK, INCLUDING DESCRIPTION OF SHORING, AND CONSTRUCTION METHODS AND SEQUENCING WHERE APPLICABLE. NO PERFORMANCE OF THE WORK MUST COMMENCE WITHOUT REVIEW AND APPROVAL OF THE SHOP DRAWINGS BY THE ENGINEER. INDICATE ON THE SHOP DRAWINGS WHICH PORTIONS OF THE WORK ARE TO BE PERFORMED OFF SITE AND WHICH PORTIONS WILL BE PERFORMED AT THE SITE.
6. APPLICABLE FEDERAL, STATE, AND MUNICIPAL REGULATIONS MUST BE FOLLOWED, INCLUDING THOSE GOVERNING THE APPLICABLE ACTIVITIES ISSUED BY FEDERAL DEPARTMENT OF LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION.

DESIGN LOADING

REFERENCED STANDARDS:

IBC 2015

- 1. DEAD LOADS
3" INSULROCK DECKING 9 PSF
ROOFING 6 PSF
TOTAL 15 PSF
2. ROOF LIVE LOAD 20 PSF
3. SNOW LOADS
3.1 GROUND SNOW LOAD, Pg: 50 PSF
3.2 IMPORTANCE FACTOR, Is: 1.0
3.3 EXPOSURE FACTOR, Ce: 0.8
3.4 THERMAL FACTOR, Ct: 1.0
3.5 FLAT ROOF SNOW LOAD, Pf: 28 PSF + DRIFTING SNOW
4. WIND LOADS
4.1. RISK CATEGORY: II
4.2. BASIC WIND SPEED (ULTIMATE), V: 117 MPH
4.3. NOMINAL WIND SPEED: 91 MPH
4.4. EXPOSURE CATEGORY D
4.5. INTERNAL PRESSURE COEFFICIENT: ±0.18
4.6. COMPONENTS AND CLADDING
4.6.1. COMPONENTS AND CLADDING SURFACES PRESSURES ARE BASED ON AN EFFECTIVE WIND AREA OF 10 SQUARE FEET AND ARE ULTIMATE LEVEL LOADS. MEMBERS MAY BE DESIGNED FOR ACTUAL WIND AREA OF THE MEMBERS PER ASCE 7. SEE ZONE KEY PLAN FOR EXTENTS.
4.6.2. ROOF PRESSURES
ROOF ZONE 1 +16 PSF/-38.3 PSF
ROOF ZONE 2 +16 PSF/-64.3 PSF
ROOF ZONE 3 +16 PSF/-96.8 PSF
4.6.3. WALL PRESSURE (C&C)
WALL ZONE 4 +35.1 PSF/-38.0 PSF
WALL ZONE 5 +35.1 PSF/-46.8 PSF
4.6.5. "o" DIMENSION 6.1 FEET
5. SEISMIC LOADS
5.1. RISK CATEGORY II
5.2. IMPORTANCE FACTOR: 1.0
5.3. SITE CLASS: D (ASSUMED)
5.4. SPECTRAL RESPONSE ACCELERATION PARAMETERS:
5.4.1. SHORT PERIOD, Ss: 0.182g
5.4.2. 1-SECOND, S1: 0.069g
5.4.3. SHORT PERIOD DESIGN, Sds: 0.194g
5.4.4. 1-SECOND DESIGN, Sd1: 0.111g
5.4.5. LONG PERIOD TRANSITION PERIOD, TL: 6 SECONDS
5.6. SEISMIC DESIGN CATEGORY: B
5.7. SEISMIC FORCE RESISTING SYSTEMS(S) ORDINARY PLAIN MASONRY SHEAR WALLS
5.8. RESPONSE MODIFICATION FACTOR(S) (R) 1.5
5.9. SEISMIC RESPONSE COEFFICIENT(S) (Cs) 1.29
6. THE STRUCTURE HAS BEEN DESIGNED FOR DEAD, LIVE AND LATERAL LOADS INDICATED ABOVE. ANY INCREASE OF LOADS DUE TO CHANGE IN USAGE OR CONSTRUCTION MATERIALS. MUST HAVE THE WRITTEN APPROVAL OF THE ENGINEER. THE CONTRACTOR IS CAUTIONED AS TO NOT STORE ANY CONSTRUCTION MATERIALS OR UNDERTAKE ANY CONSTRUCTION OPERATIONS WHICH WILL EXCEED THE DESIGN LIVE LOAD CAPACITIES NOTED.
7. WEIGHT OF EQUIPMENT SHOWN ON THE STRUCTURAL DRAWINGS HAS BEEN CONSIDERED IN THE FRAMING DESIGN. ANY ADDITIONAL EQUIPMENT NOT SHOWN ON THE STRUCTURAL DRAWINGS AND EXCEEDING 300 POUNDS MUST BE BROUGHT TO THE ENGINEER'S ATTENTION FOR APPROVAL PRIOR TO INSTALLATION. COORDINATE WORK WITH THE MEP DRAWINGS.

STRUCTURAL STEEL NOTES:

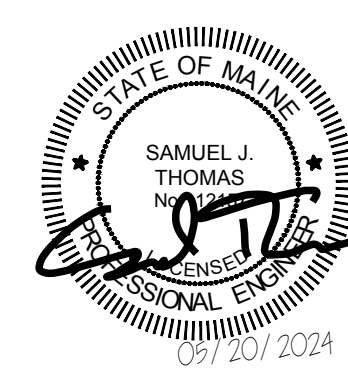
- 1. DESIGN STANDARDS
a. "STEEL CONSTRUCTION MANUAL", FIFTEENTH EDITION, AISC (INCLUDING "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", AISC 360, "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS", RCSC, "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES", AISC.)
b. "DETAILING FOR STEEL CONSTRUCTION", AISC.
c. "STRUCTURAL WELDING CODE - STEEL", AWS D1.1.
2. MATERIALS
a. ANGLES ASTM A36, Fy = 36 KSI
b. PLATES ASTM A572, GRADE 50, Fy = 50 KSI
c. STRUCTURAL TUBING (HSS) ASTM A500, GRADE C, Fy = 50 KSI
d. STEEL PIPE ASTM A53, GRADE B, Fy = 35 KSI
e. HIGH STRENGTH BOLTS ASTM A325-N (UNLESS NOTED ON DRAWINGS)
f. WASHERS AND NUTS ASTM F436 AND ASTM A563
g. ANCHOR RODS ASTM F1554, GRADE 36 (UNLESS NOTED ON DRAWINGS)
h. THREADED RODS ASTM A36
i. WELDING ELECTRODES AWS A5.1 OR A5.5, E70XX
j. ADHESIVE ANCHORS HILTI HIT-HY270 ADHESIVE SYSTEM OR APPROVED EQUAL - SUBMIT ICC-ES REPORT(S) FOR ANY PROPOSED EQUAL.
3. GENERAL
a. MUST DESIGN AND INSTALL NECESSARY TEMPORARY SUPPORTS, GUYING AND OTHER BRACING TO PROVIDE LATERAL STABILITY OF THE STRUCTURE UNTIL PERMANENT STRUCTURAL ELEMENTS, INCLUDING SHEAR WALLS AND BRACING ARE ATTACHED AND CAPABLE OF SUPPORTING LOADS. THE CONTRACTOR IS RESPONSIBLE FOR ERECTION PROCEDURES.
b. SHOP AND FIELD CONNECTIONS MUST BE MADE WITH HIGH STRENGTH BOLTS OR WELDS. HIGH STRENGTH BOLTS AND NUTS MUST BE CLEARLY MARKED AS REQUIRED BY AISC SPECIFICATIONS. CONNECTIONS MADE WITH UNMARKED BOLTS AND NUTS WILL BE REJECTED.
c. STEEL MUST BE CLEANED (SSPC-SP3 FOR INTERIOR EXPOSURE AND SSPC-SP6 FOR EXTERIOR EXPOSURE) AND PAINTED WITH AN APPROVED CORROSION RESISTANT PRIMER. MASK OUT AREAS TO BE FIELD WELDED, AREAS AROUND BOLT HOLES AT SLIP CRITICAL CONNECTIONS. TOUCH-UP FIELD WELDS AND ABRADED AREAS WITH SHOP PRIMER. PRIMER MUST BE COMPATIBLE WITH FINAL FINISHES.
d. STRUCTURAL STEEL THAT IS LOCATED IN EXTERIOR UNHEATED SPACES, INCLUDING STEEL DIRECTLY EXPOSED TO WEATHER, MUST BE POWER TOOL CLEANED AND PAINTED WITH THREE COATS OF OIL BASE PAINT IN ACCORDANCE WITH SSPC-PS 1.09.
e. NOTIFY THE STRUCTURAL ENGINEER OF ANY FABRICATION OR ERECTION ERRORS OR DEVIATIONS AND RECEIVE WRITTEN APPROVAL BEFORE ANY FIELD CORRECTIONS ARE MADE.
f. GAS CUTTING TORCHES MUST NOT BE USED TO CORRECT FABRICATION ERRORS WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER.
g. NO OPENINGS IN BEAMS ARE PERMITTED WITHOUT THE WRITTEN PERMISSION OF THE ENGINEER.
h. WELDING ELECTRODES, WELDING PROCESS, MINIMUM PREHEAT AND INTERPASS TEMPERATURES MUST BE IN ACCORDANCE WITH THE AISC AND AWS SPECIFICATIONS. ANY STRUCTURAL STEEL DAMAGED IN WELDING IS TO BE REPLACED OR ACCEPTABLY REINFORCED AS ACCEPTABLE TO THE STRUCTURAL ENGINEER.
i. WELDERS MUST HAVE CURRENT EVIDENCE OF PASSING THE APPROPRIATE AWS QUALIFICATION TESTS. THE ENGINEER MAY REQUEST SUCH EVIDENCE AT ANY TIME DURING THE PROJECT.
j. UNLESS OTHERWISE NOTED, A325 BOLTS MUST BE TIGHTENED TO THE "SNUG TIGHT" CONDITION DEFINED AS THE TIGHTNESS ATTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF A WORKER USING AN ORDINARY SPUD WRENCH. THE SNUG TIGHT CONDITION MUST ENSURE THAT ALL PLIES OF THE CONNECTED MATERIAL HAVE BEEN BROUGHT INTO SNUG CONTACT. PROVIDE WASHERS IN ACCORDANCE WITH SECTION 6 OF THE RCSC SPECIFICATION.
k. PROVIDE FRAMING FOR ROOFTOP EQUIPMENT CURBS AND OPENINGS IN ACCORDANCE WITH TYPICAL DETAILS AND MANUFACTURER'S REQUIREMENTS.
l SPLICING STRUCTURAL MEMBERS WHERE NOT DETAILED ON THE DRAWINGS IS PROHIBITED WITHOUT PRIOR APPROVAL OF THE STRUCTURAL ENGINEER.

STRUCTURAL STEEL NOTES CONT'D:

- 4. INSPECTION AND TESTING
a. THE OWNER WILL ENGAGE A TESTING AND INSPECTION AGENCY TO PROVIDE SERVICES AS INDICATED BELOW AND SUBMIT REPORTS TO CONTRACTING OFFICER.
b. STRUCTURAL STEEL:
1). VISUALLY INSPECT FILLET WELDS, BOLTED CONNECTIONS AND SHEAR STUDS.
2). THE AGENCY MUST MONITOR THE INSTALLATION OF BOLTS REQUIRING PRE-TENSIONING FOR CONFORMANCE WITH SPECIFIC PRE-CALIBRATED TIGHTENING PROCEDURES.
3). EACH FULL PENETRATION BUTT OR GROOVE WELD AND 50% OF PARTIAL PENETRATION WELDS MUST BE TESTED BY THE ULTRASONIC METHOD.
4). 10% OF FIELD FILLET WELDS IN PRIMARY CONNECTIONS AND MULTI-PASS WELDS MUST BE TESTED BY THE MAGNETIC PARTICLE METHOD.
5). TEST ANY WELD WHICH VISUAL EXAMINATION INDICATES AN UNUSUAL CONDITION AND/OR POOR QUALITY.
6). WELDING INSPECTION AND TESTING PROCEDURES MUST BE IN ACCORDANCE WITH THE AWS CODE.

ABBREVIATIONS

Table with 4 columns: Abbreviation, Full Name, Abbreviation, Full Name. Includes terms like ACCEL., AFF, APPROX., ARCH, BLDG., BOT., BOTT., B.O., etc.



47A York St
Portland, ME
04101
207.553.7753

Revision table with columns: REV, DESCRIPTION, MTG, HAS, DWN, APP, DATE. Includes entry: 0 ISSUED FOR BID, 05/20/24.

MARINE RESOURCES DEPARTMENT
15 VIBEN'S RUN, ROCKLAND, MAINE
MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES
STRUCTURAL GENERAL NOTES
PROJECT NO. 163.016.001
DRAWING NO. S-001
2 OF 23

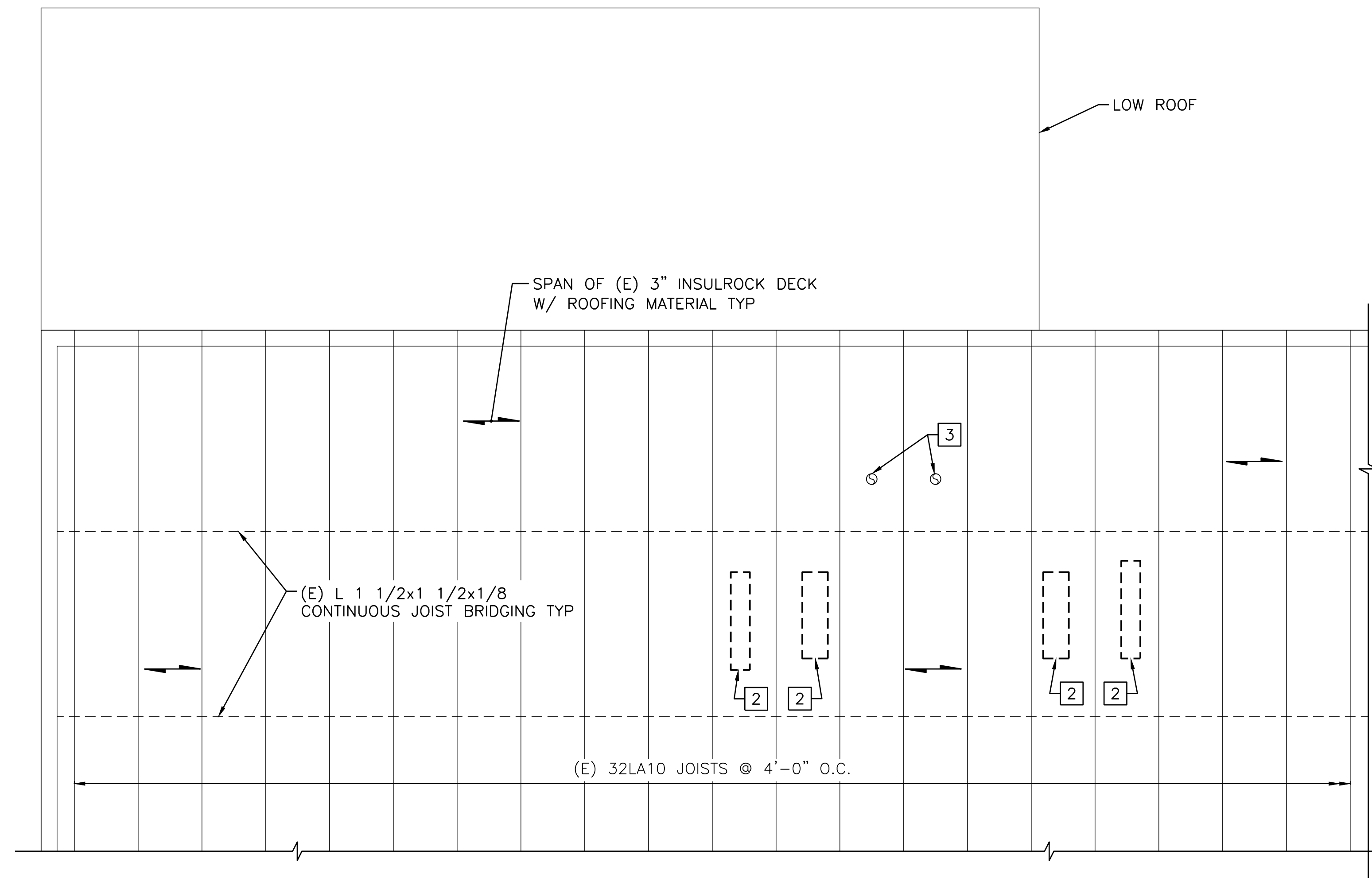
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NOTES:

1. REFER TO S-001 FOR STRUCTURAL NOTES.
2. COORDINATE WORK WITH MECHANICAL AND ELECTRICAL DRAWINGS.

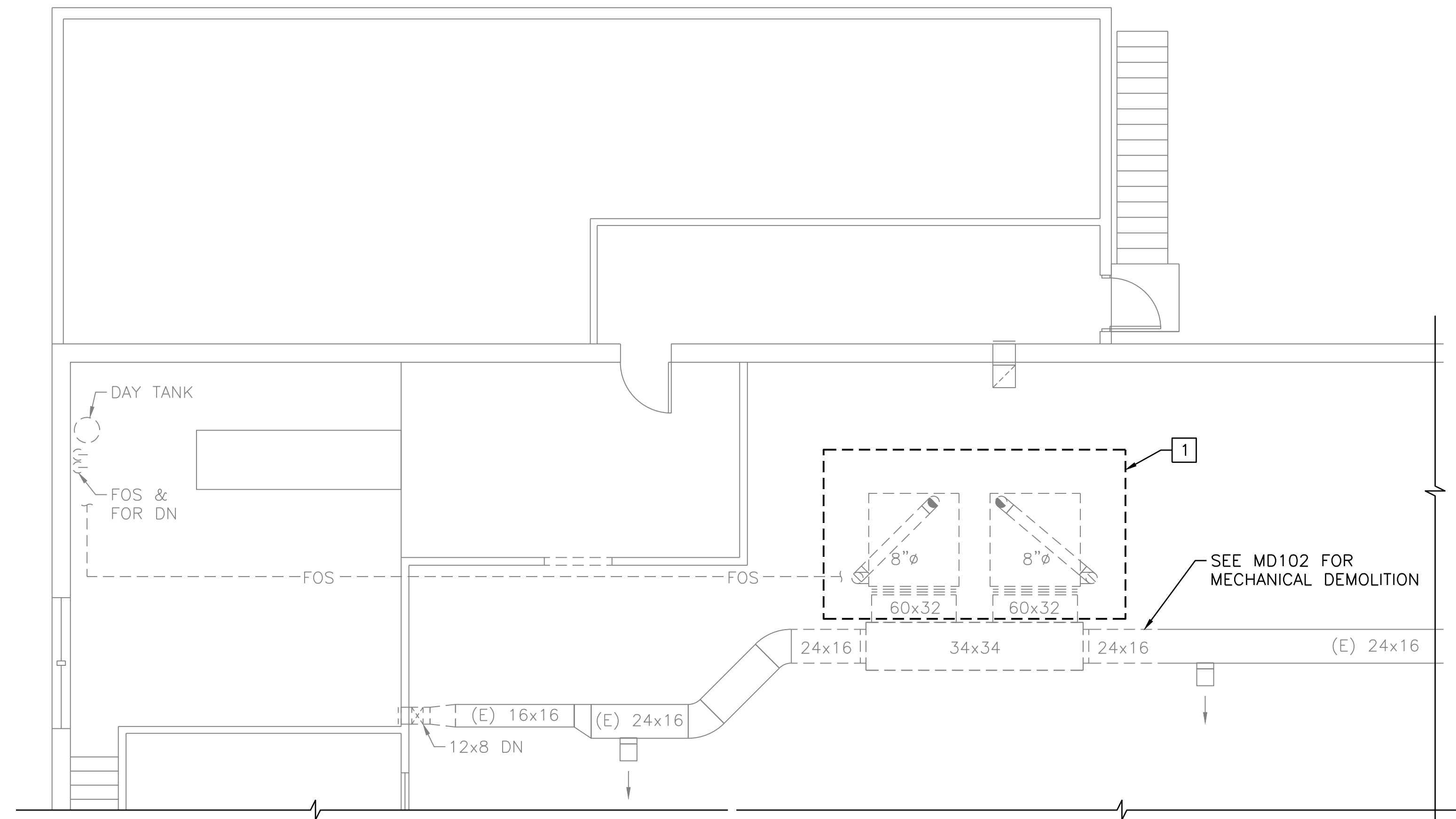
DEMOLITION KEYED NOTES:

- 1 REMOVE EXISTING SUSPENDED PLATFORM AND ATTACHMENTS FROM EXISTING ROOF STRUCTURE. COORDINATE WITH MECHANICAL DEMOLITION.
- 2 SAW CUT EXISTING ROOF DECK FOR PROPOSED ROOF EQUIPMENT. COORDINATE WITH S-101 AND MECHANICAL DRAWINGS.
- 3 EXISTING 8"Ø DUCTS THROUGH ROOF - ABANDON, CUT AND CAP AS CLOSE TO TOP OF ROOF DECK AS POSSIBLE. WATERPROOF SEAL AS REQ'D.



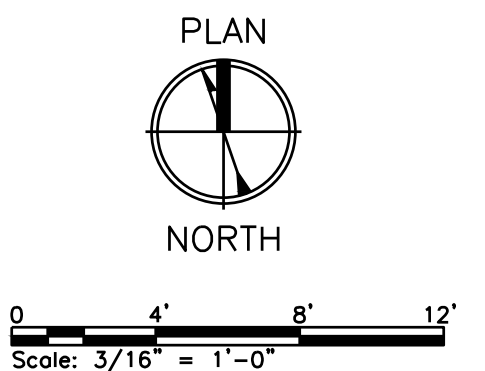
ROOF DEMOLITION PART PLAN

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

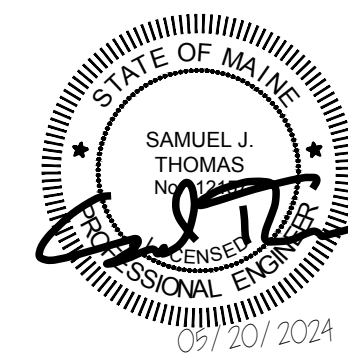


SECOND FLOOR DEMOLITION PART PLAN

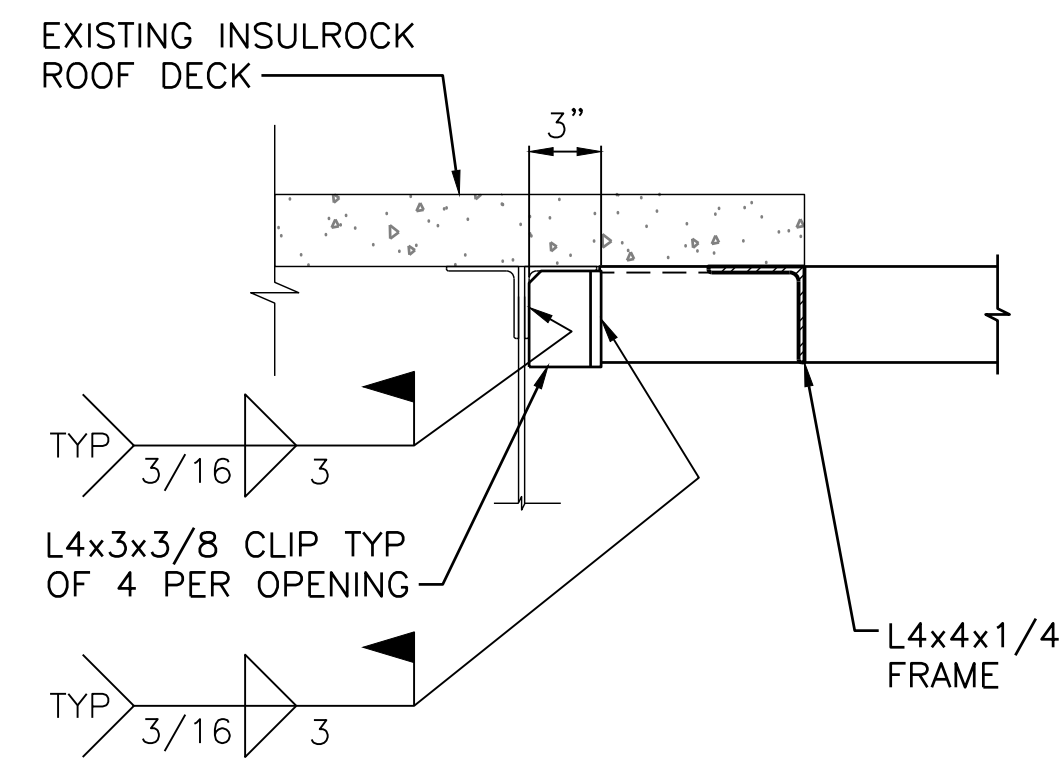
SCALE: 3/16" = 1'-0"



				MARINE RESOURCES DEPARTMENT 15 VIENO'S RUN, ROCKLAND, MAINE			
				MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES			
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REV	DESCRIPTION	DWN	APP	DATE	PROJECT NO. 163.016.001 DRAWING NO. SD101		
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				DWN BY:	TJG		CKD BY: SJT
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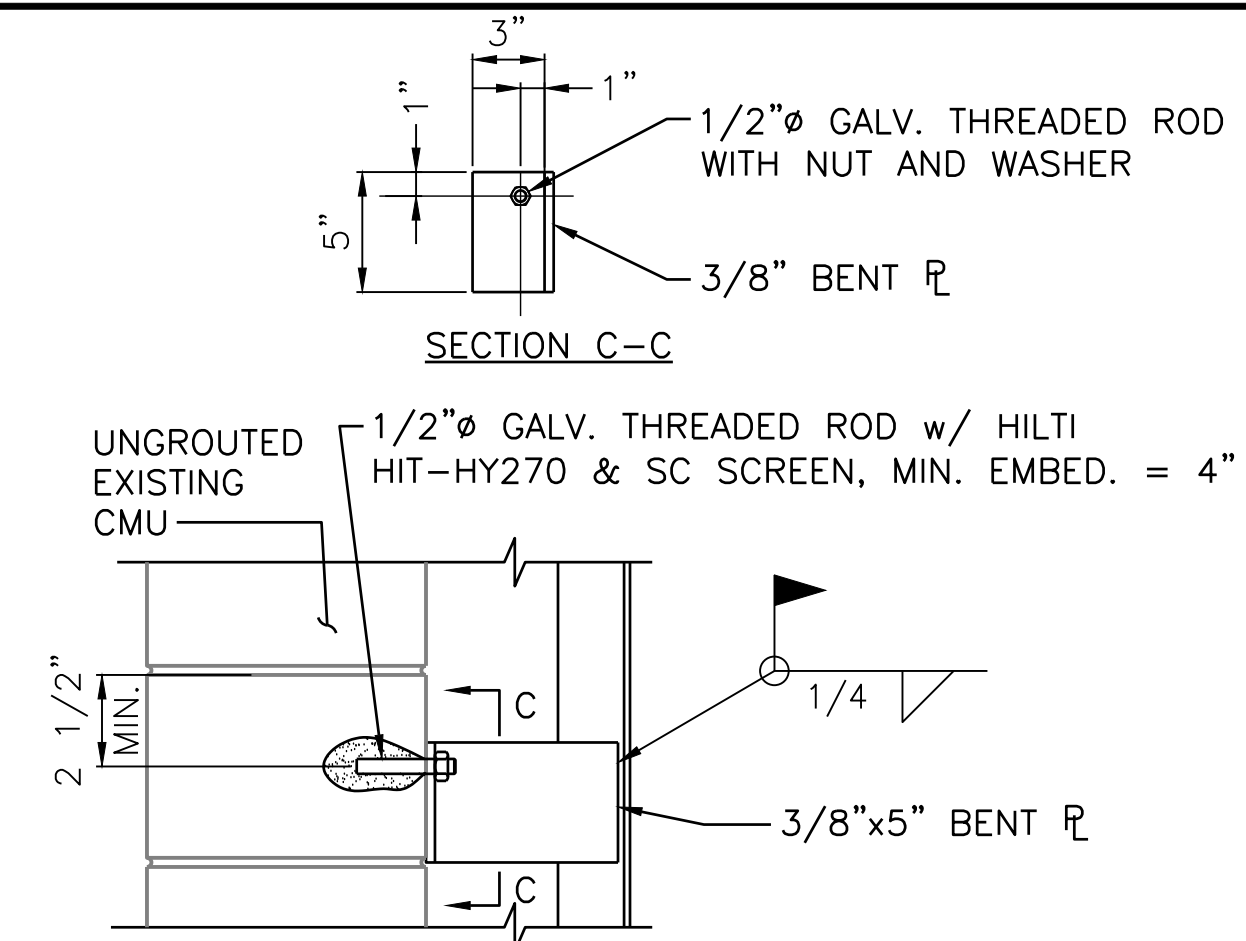


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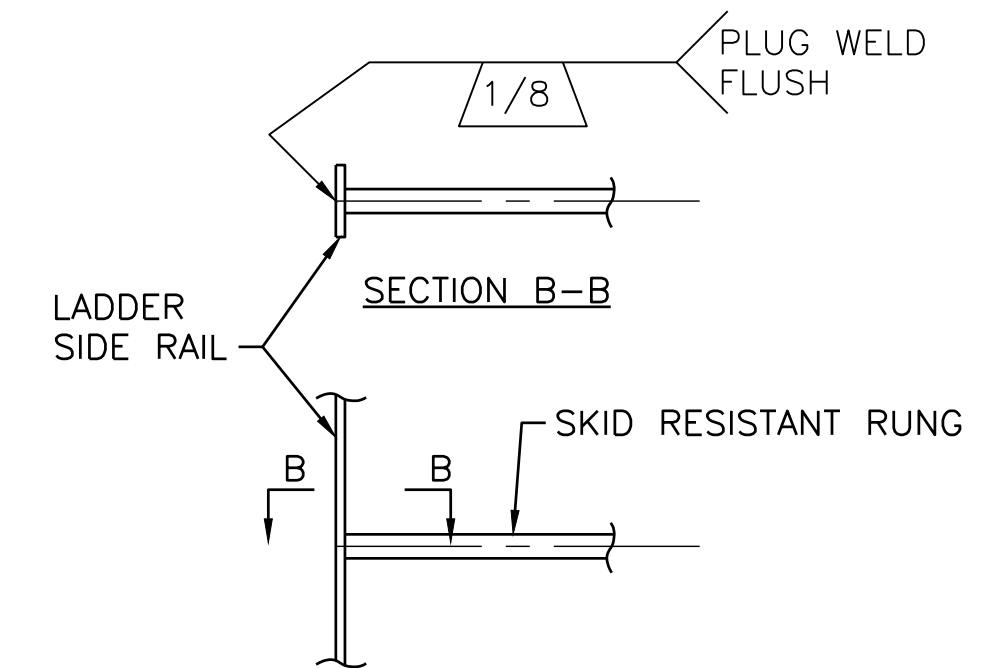
ROOF PENETRATION SUPPORT CLIP DETAIL

6 S-101 SCALE: 1-1/2" = 1'-0" S-101

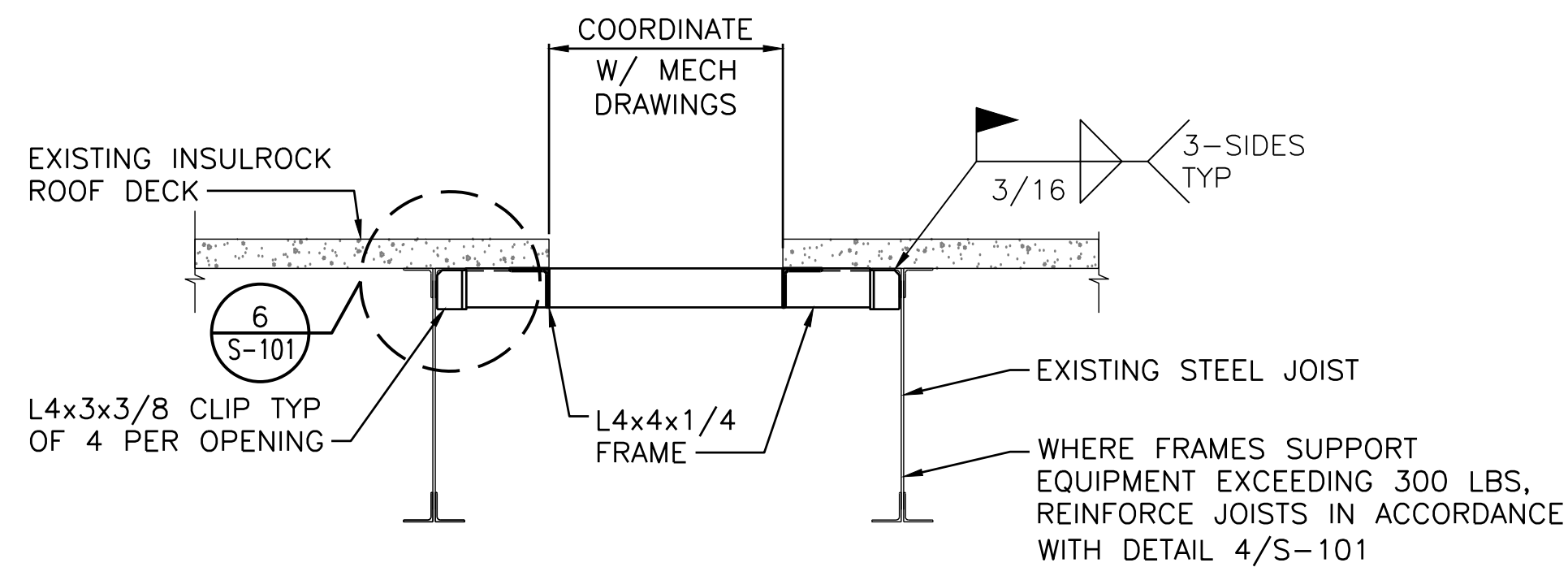


NOTE:
1. LADDER COMPONENTS INCLUDING CONNECTIONS TO BE GALVANIZED.
2. FIELD WELDS MUST BE COLD GALVANIZED IN ACCORDANCE WITH ASTM A780.

2 LADDER DETAIL S-101 SCALE: 1-1/2" = 1'-0" S-101

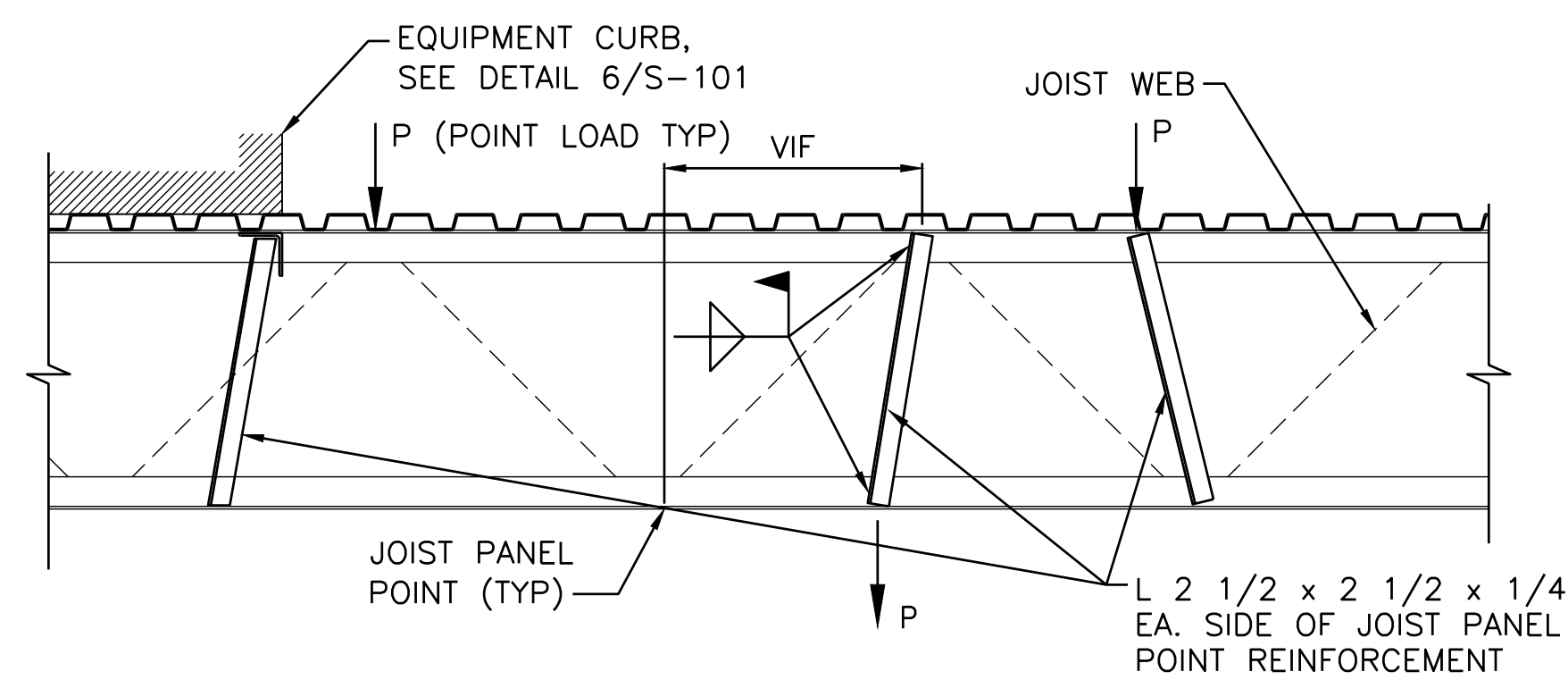


3 LADDER DETAIL S-101 SCALE: 1-1/2" = 1'-0" S-101



NOTES:
1. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR EXACT NUMBER, SIZE AND LOCATION. PROVIDE FRAMES FOR OPENINGS GREATER THAN 10" DIAMETER.

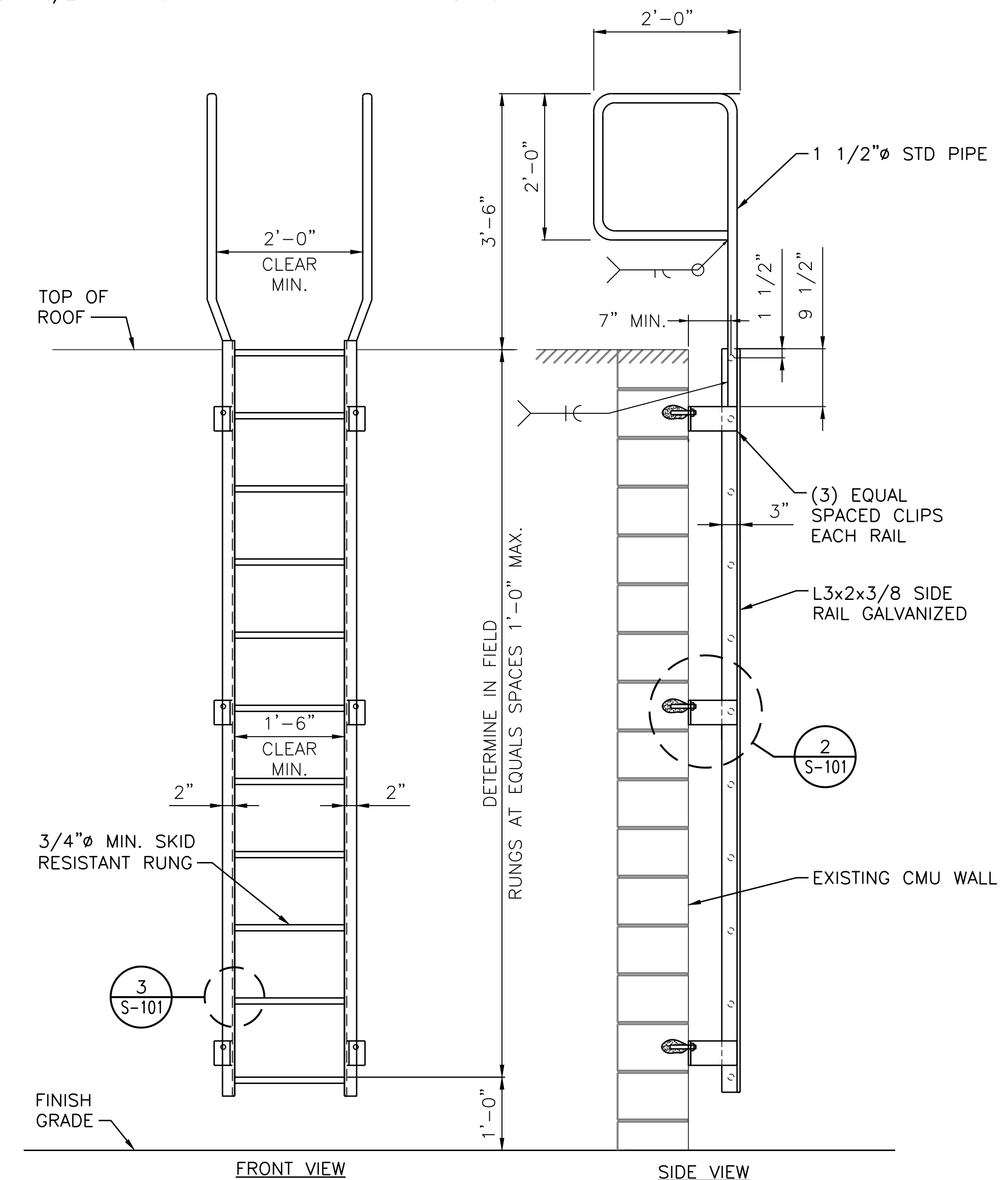
5 NEW PENETRATION THRU EXISTING ROOF DETAIL S-101 SCALE: 3/4" = 1'-0" S-101



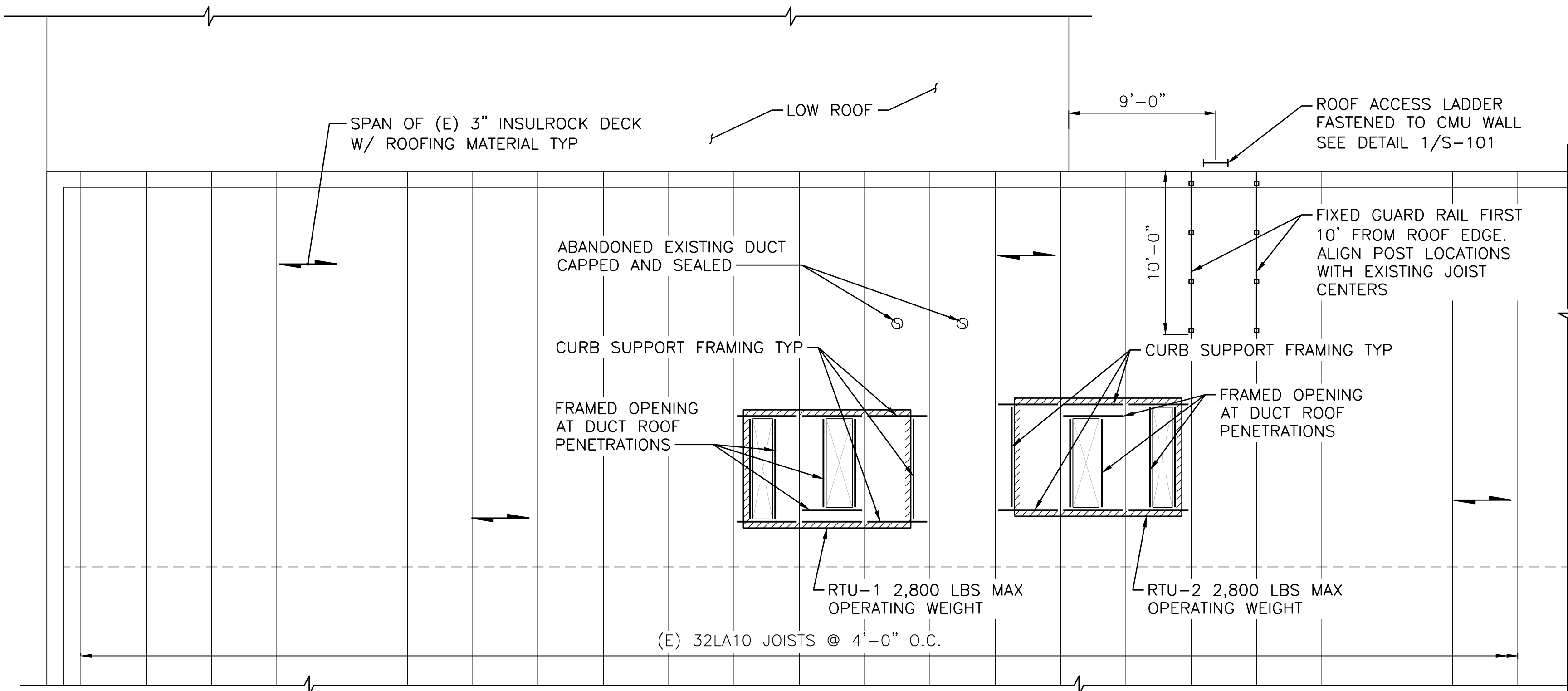
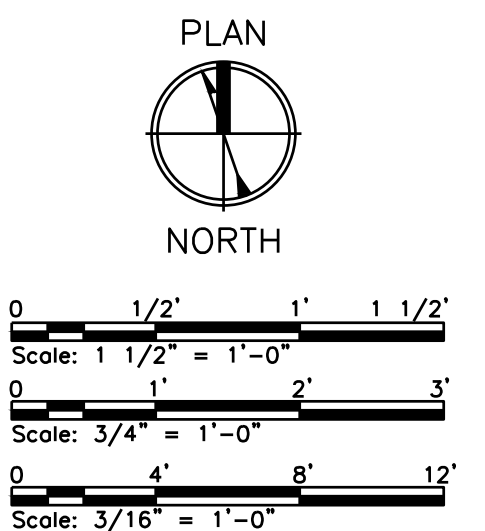
NOTE:
POINT LOADS ON JOISTS MUST BE AT PANEL POINTS, OR JOISTS MUST HAVE WEB REINF AS SHOWN FOR POINT LOADS BETWEEN PANEL POINTS

TYP. JOIST REINF. WHEN LOADS NOT APPLIED TO PANEL POINT

4 S-101 SCALE: 3/4" = 1'-0" S-101



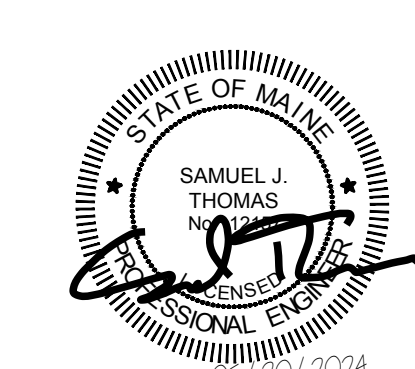
1 ROOF ACCESS LADDER DETAILS S-101 SCALE: 3/4" = 1'-0" S-101



ROOF FRAMING PART PLAN SCALE: 3/16" = 1'-0"



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DES BY: HAS
DWN BY: TJG
CKD BY: SJT

MARINE RESOURCES DEPARTMENT 15 VIENO'S RUN, ROCKLAND, MAINE	
MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES	
STRUCTURAL PLAN AND DETAILS	
PROJECT NO. 163.016.001	DRAWING NO. S-101
SHEET 4 OF 23	

ABBREVIATIONS

ACCU	AIR COOLED CONDENSING UNIT
AFF	ABOVE FINISHED FLOOR
APPROX	APPROXIMATE, APPROXIMATELY
BHP	BRAKE HORSEPOWER
BS	BRANCH SELECTOR
BTUH	BRITISH THERMAL UNITS PER HOUR
CFM	CUBIC FEET PER MINUTE
CMU	CONCRETE MASONRY UNIT
COND	CONDENSATE
CP	CONDENSATE PUMP
Db	DECIBELS
DB	DRY BULB
DEG.	DEGREES
DIA, Ø	DIAMETER
DN	DOWN
DX	DIRECT EXPANSION
E	EXISTING
EA	EXHAUST AIR
(E)	EXISTING TO REMAIN
EAT	ENTERING AIR TEMPERATURE
EB	ELECTRIC BASEBOARD
ECM	ELECTRONICALLY COMMUTATED MOTOR
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EH	ELECTRIC HEATER
EPDM	ETHYLENE PROPYLENE DIENE TERPOLYMER
EQUIP	EQUIPMENT
ERV	ENERGY RECOVERY VENTILATOR
ESP	EXTERNAL STATIC PRESSURE
F	FAN, FAHRENHEIT
FC	FLEXIBLE CONNECTOR
FLA	FULL LOAD AMPS
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FT	FOOT
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GPM	GALLONS PER MINUTE
GWB	GYPSUM WALL BOARD
H	HEIGHT
HP	HEAT PUMP, HORSEPOWER
HSPF	HEATING SEASONAL PERFORMANCE FACTOR
HZ	HERTZ
IEER	INTEGRATED ENERGY EFFICIENCY RATIO
IN	INCHES
KW	KILOWATT
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LB	POUND
LBS	POUNDS
MAX	MAXIMUM
MBH	1000 BTUH
MCA	MINIMUM CIRCUIT AMPACITY
MD	MOTORIZED DAMPER
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MIN	MINIMUM
MOPD	MAXIMUM OVERCURRENT PROTECTIVE DEVICE
NC	NOISE CRITERIA
NEC	NATIONAL ELECTRICAL CODE
NTS	NOT TO SCALE
OA	OUTDOOR AIR
OBD	OPPOSED BLADE DAMPER
O.C.	ON CENTER
P	PUMP
PH	PHASE
PSIG	POUNDS PER SQUARE INCH GAUGE
PVC	POLYVINYL CHLORIDE
R	RADIUS
RA	RETURN AIR
REQ'D	REQUIRED
RG	REFRIGERANT GAS
RL	REFRIGERANT LIQUID
RPM	REVOLUTIONS PER MINUTE
RTU	ROOF-TOP UNIT
S	SUPPLY
SA	SUPPLY AIR
SQ	SQUARE
SP	STATIC PRESSURE
SS	STAINLESS STEEL
T	TEMPERATURE SENSOR, THERMOSTAT
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UL	UNDERWRITERS LABORATORIES
V	VOLT
VFD	VARIABLE FREQUENCY DRIVE
W	WATT, WIDTH
W/	WITH
WB	WET BULB
WH	WALL HOOD

DUCTWORK SYMBOLS

	RETURN/EXHAUST DUCT UP
	RETURN/EXHAUST DUCT DOWN
	SUPPLY DUCT UP
	SUPPLY DUCT DOWN
	RISE(R) OR DROP(D)
	RADIUS ELBOW
	SQUARE ELBOW W/ TURNING VANES
	OFFSET
	DUCT TRANSITION FROM RECTANGULAR TO ROUND
	BULLHEAD TEE
	SPLIT TAKE-OFF W/ BRANCH DAMPERS SUPPLY
	TAKE-OFF
	EXHAUST/RETURN
	CEILING SUPPLY DIFFUSER W/ DIRECTION SHOWN BY ARROWS
	BULLHEAD SPLIT
	CEILING DIFFUSER OR GRILLE W/ FLEXIBLE DUCT
	FLEXIBLE DUCT

MECHANICAL SYMBOLS

	SYMBOL PER ABBREVIATION LIST EQUIPMENT SEQUENCE NUMBER
	DIFFUSER, REGISTER OR GRILLE SEQUENCE NUMBER CFM
	CONNECT TO EXISTING
	DIRECTION OF AIR FLOW (OUT)
	DIRECTION OF AIR FLOW (IN)
	THERMOSTAT

PIPING SYMBOLS

	PIPE TEE FROM TOP
	PIPE TEE FROM BOTTOM
	PIPE RISE
	PIPE DROP
	PUMP

MECHANICAL LINE TYPE LEGEND

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

APPLICABLE CODES AND STANDARDS

- INTERNATIONAL MECHANICAL CODE (2015)
- INTERNATIONAL ENERGY CONSERVATION CODE (2015)
- ASHRAE 62.1 - 2016
- ASHRAE 90.1 - 2016
- SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE (2020)

GENERAL NOTES

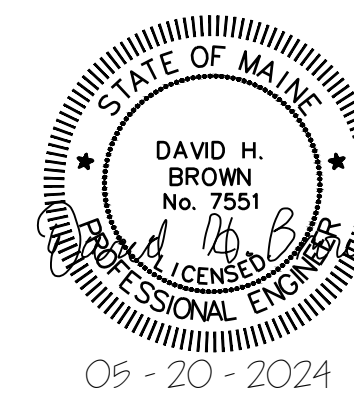
- GENERAL NOTES, SYMBOLS LIST AND DETAILS ARE APPLICABLE TO DRAWINGS MARKED M-# AND MD-#.
- DRAWINGS ARE DIAGRAMMATIC; DETERMINE LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD.
- COORDINATE WORK WITH THE OTHER TRADES INVOLVED. PROVIDE OFFSETS IN PIPING AND DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS AT NO ADDITIONAL COST TO THE OWNER.
- INSTALL THERMOSTATS AND OTHER OCCUPANT CONTROLS WITH TOPS OF OPERABLE ELEMENTS 48 INCHES AFF FOR ADA ACCESSIBILITY.
- VERIFY EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE DIMENSIONS BEFORE FABRICATION.
- PROVIDE ACCESS PANELS, WHERE REQUIRED, TO SERVICE VOLUME DAMPERS, VALVES AND CONCEALED MECHANICAL EQUIPMENT.
- INSTALL EQUIPMENT, PIPING, AND DUCTWORK AS REQUIRED TO MINIMIZE VIBRATION AND TO FACILITATE EQUIPMENT ACCESS AS REQUIRED BY EQUIPMENT MANUFACTURER.
- CONTROL WIRE AND CONDUIT MUST COMPLY WITH NEC AND DIVISION 26 SPECIFICATIONS.
- DUCT SIZES INDICATED ARE INTERNAL CLEAR AIR FLOW DIMENSIONS.
- DIFFUSER SIZES SHOWN ARE NECK SIZES; REGISTER AND GRILLE SIZES ARE NOMINAL.
- PROVIDE FLEXIBLE DUCT CONNECTIONS ON DUCTS CONNECTING TO FANS AND AIR HANDLING UNITS. WHERE GROUNDING IS REQUIRED ACROSS FLEXIBLE CONNECTIONS, PROVIDE FLEXIBLE COPPER GROUNDING STRAPS.
- PERFORM TESTS BEFORE INSULATING PIPING AND DUCTWORK.
- PROVIDE CLAMPS, OFFSETS, EXPANSION JOINTS, ANCHORS AND GUIDES AS NECESSARY TO PREVENT STRESS ON PIPING.
- PITCH CONDENSATE PIPING 1/8" PER FOOT IN DIRECTION OF FLOW.
- WEATHER AND AIR SEAL PENETRATIONS, TRANSITIONS BETWEEN MATERIALS, AND FASTENERS TO PROVIDE FOR AN AIRTIGHT ENVELOPE.
- FLOOR, WALL AND CEILING PENETRATIONS FOR NEW WORK MUST BE SEALED TO VERTICAL AND HORIZONTAL ASSEMBLIES.

DEFINITIONS

THE FOLLOWING APPLY TO MECHANICAL DRAWINGS AND DIVISION 23 SPECIFICATIONS.

- "FURNISH": SUPPLY AND DELIVER TO PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS.
- "INSTALL": OPERATIONS AT PROJECT SITE INCLUDING UNLOADING, TEMPORARILY STORING, UNPACKING, ASSEMBLING, ERECTING, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS.
- "PROVIDE": FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.
- "SHALL": INDICATES A MANDATORY REQUIREMENT.

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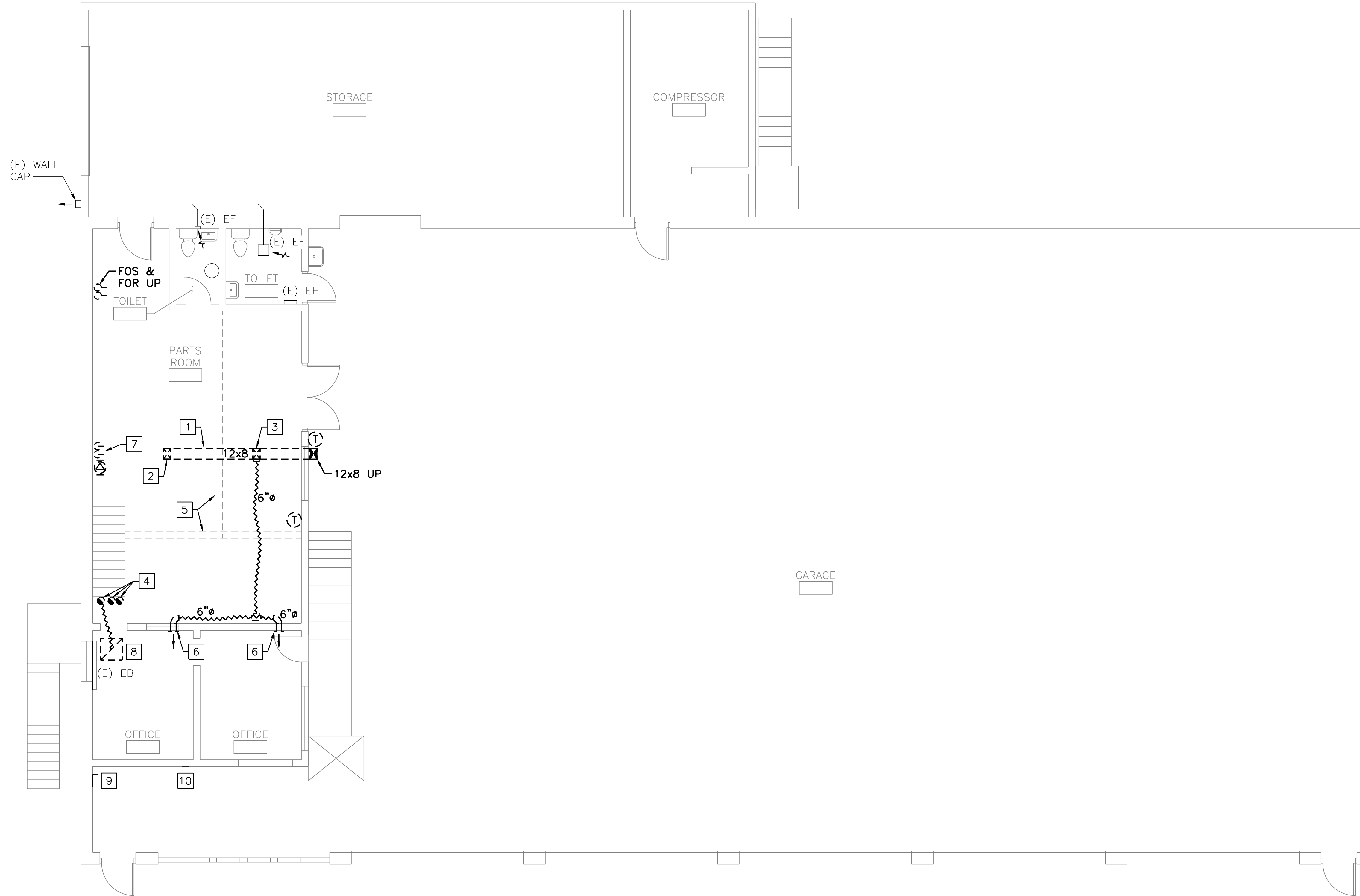
COIBY COMPANY LLC
engineering & design

47A York St
Portland, ME
04101
207.553.7753

MARINE RESOURCES DEPARTMENT 15 VIENO'S RUN, ROCKLAND, MAINE				
MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES				
MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES				
0	ISSUED FOR BID	RML	MAC	05/20/24
REV	DESCRIPTION	DWN	APP	DATE
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		DATE: 05/01/2024	163.016.001	M-001
		DES BY: NHB	SHEET	
		DWN BY: RML	5 OF 23	
		CKD BY: DHB		

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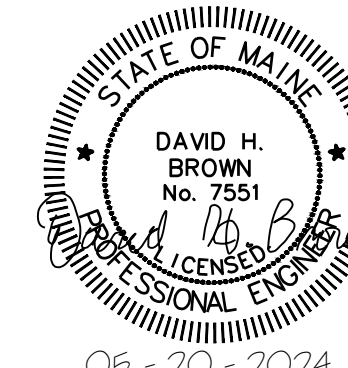
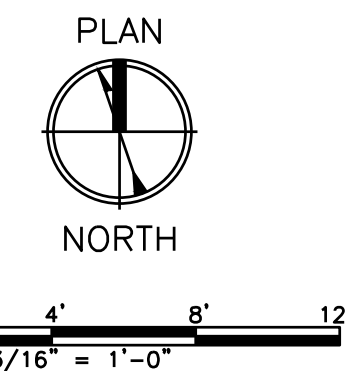
NOTES:

1. SEE M-001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. WHERE PATCHING IS NECESSARY, PATCH TO MATCH ADJACENT EXISTING SURFACES TO THE SATISFACTION OF THE OWNER'S CONTRACTING OFFICER.
3. THE OWNER WILL, UNDER A SEPARATE CONTRACT, PERFORM CLOSURE AND CLEANUP OF THE UNDERGROUND FUEL STORAGE TANK AND ITS CONTENTS, AND OF RELATED PIPING AND EQUIPMENT AS NECESSARY, IN ACCORDANCE WITH CHAPTER 11 - REGULATIONS FOR CLOSURE OF UNDERGROUND OIL STORAGE FACILITIES, OF THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION CHAPTER 691 RULE FOR UNDERGROUND OIL STORAGE FACILITIES.

DEMOLITION KEYED NOTES:

- 1 REMOVE 12x8 DUCT ABOVE GWB CEILING.
- 2 REMOVE 12x6 SUPPLY GRILLE.
- 3 REMOVE DUCT TAKEOFF AND ASSOCIATED FLEX DUCT.
- 4 REMOVE ABANDONED 8"Ø OPEN-ENDED DUCT RISERS.
- 5 EXISTING STRUCTURAL BEAM EXPOSED BELOW CEILING.
- 6 REMOVE 12x6 WALL GRILLE AND ASSOCIATED DUCTWORK BACK TO DUCT MAIN.
- 7 REMOVE INDOOR FUEL OIL SYSTEM. CAP UNDERFLOOR FOS AND FOR AT 6 INCHES AFF.
- 8 REMOVE GRILLE.
- 9 EXISTING LEAK DETECTION PANEL SERVING FIBERGLASS UNDERGROUND OIL TANK TO REMAIN.
- 10 EXISTING 4-CHANNEL DIESEL FUEL TRANSFER PUMP CONTROLLER TO REMAIN.

FIRST FLOOR DEMOLITION PLAN
SCALE: 3/16" = 1'-0"



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MARINE RESOURCES DEPARTMENT 15 VIENO'S RUN, ROCKLAND, MAINE	
MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES	
FIRST FLOOR MECHANICAL DEMOLITION PLAN	
PROJECT NO. 163.016.001	DRAWING NO. MD101
SHEET 6 OF 23	

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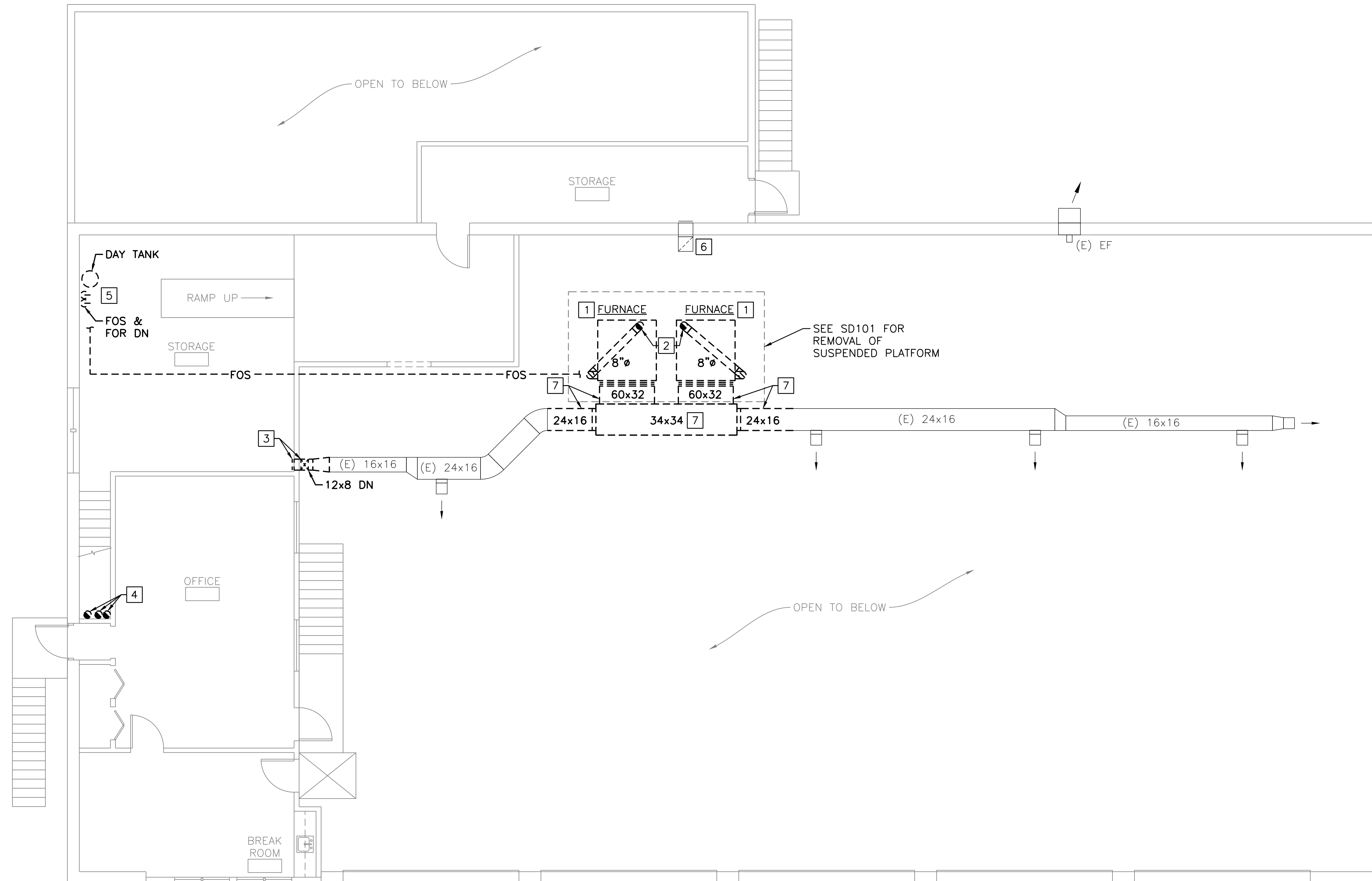
05 - 20 - 2024

NOTES:

- SEE M-001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- WHERE PATCHING IS NECESSARY, PATCH TO MATCH ADJACENT EXISTING SURFACES TO THE SATISFACTION OF THE OWNER'S CONTRACTING OFFICER.

DEMOLITION KEYED NOTES:


- REMOVE OIL FIRED FURNACE, ASSOCIATED OIL BURNER AND ACCESSORIES MOUNTED ON SUSPENDED PLATFORM APPROXIMATELY 12 FEET AFF. REMOVE ASSOCIATED FUEL OIL PIPING BACK TO SOURCE AT FIRST FLOOR.
- REMOVE 8"Ø FURNACE FLUE UP. TERMINATE REMOVALS BELOW UNDERSIDE OF ROOF AND CAP AS CLOSE TO UNDERSIDE OF ROOF AS POSSIBLE.
- REMOVE 12x6 DUCT DN, INCLUDING TAKE-OFF IN VERTICAL AND DUCT THRU WALL TO SECOND FLOOR STORAGE ROOM. REMOVE ASSOCIATED 12x6 WALL GRILLE IN SECOND FLOOR STORAGE ROOM.
- REMOVE ABANDONED 8"Ø DUCTS UP AND DOWN. TERMINATE REMOVALS AT HEIGHT OF CEILING, AND CAP.
- REMOVE DAY TANK, FUEL OIL PIPING DOWN, AND FUEL OIL PIPING TO FURNACES.
- EXISTING TRANSFER DUCT.
- REMOVE DUCT AND ASSOCIATED HANGING RODS AND SUPPORTS.

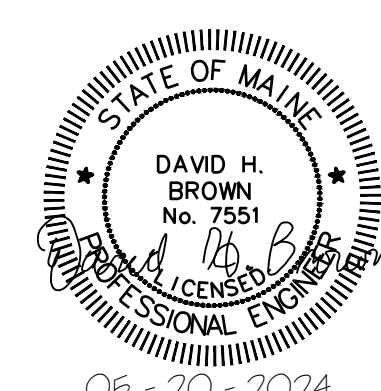


SECOND FLOOR DEMOLITION PLAN
SCALE: 3/16" = 1'-0"



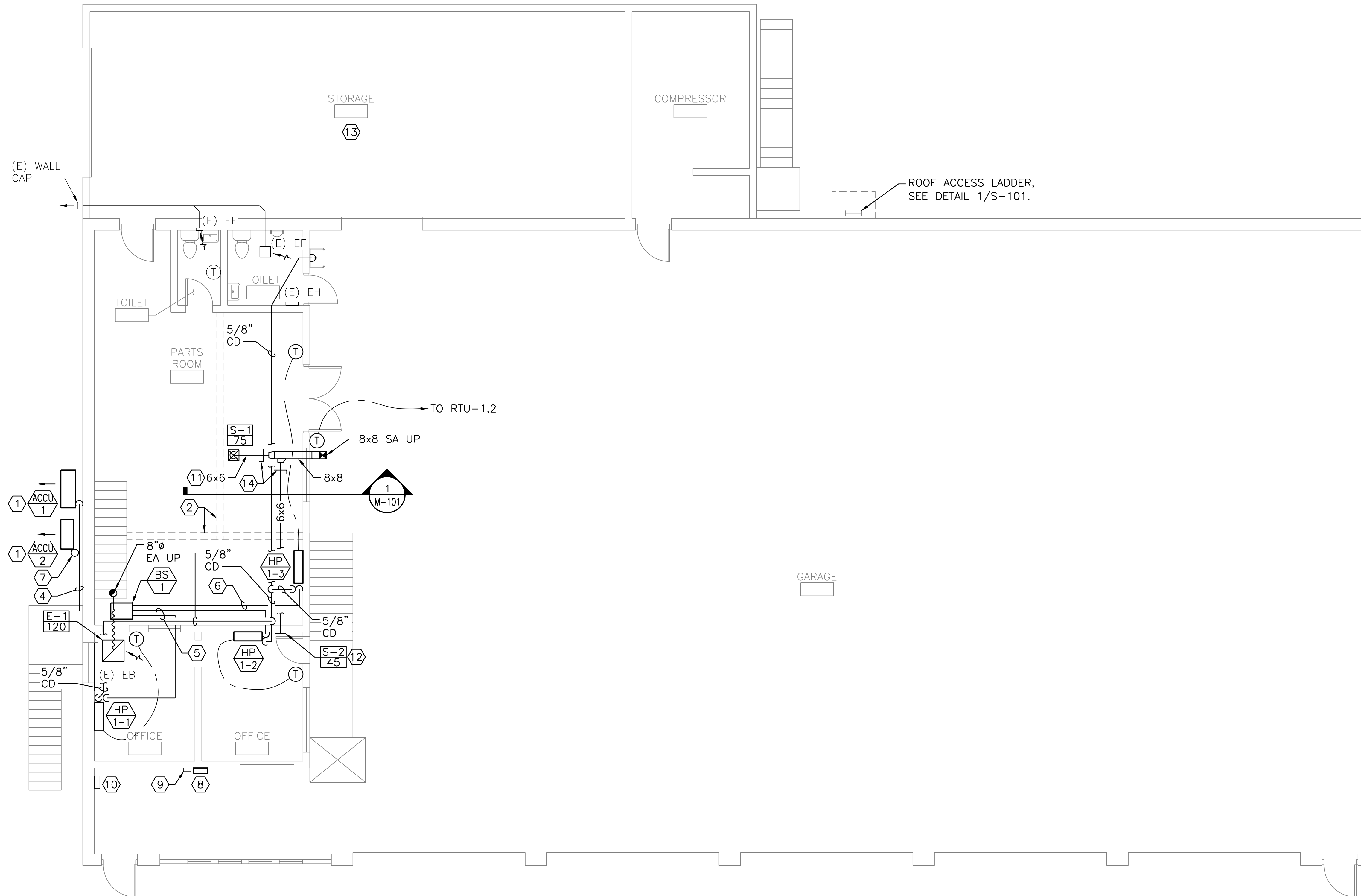
Scale: 3/16" = 1'-0"

 47A York St Portland, ME 04101 207.553.7753		MARINE RESOURCES DEPARTMENT		15 VIENO'S RUN, ROCKLAND, MAINE	
		MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES			
0 ISSUED FOR BID		RML	MAC	05/20/24	
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		DATE:	05/01/2024		163.016.001
		DES BY:	NHB		SHEET
		DWN BY:	RML		7 OF 23
		CKD BY:	DHB		MD102



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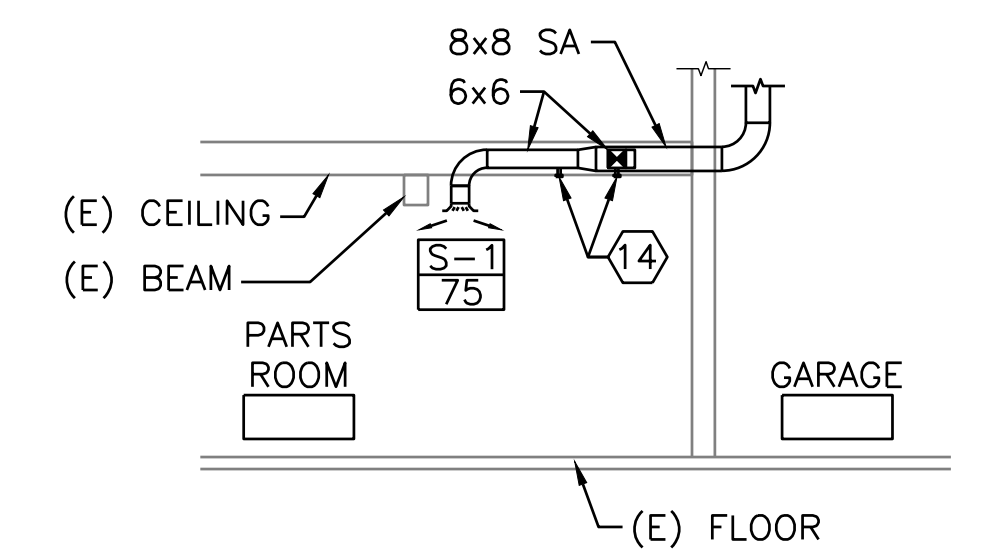
FIRST FLOOR PLAN
SCALE: 3/16" = 1'-0"

NOTES:

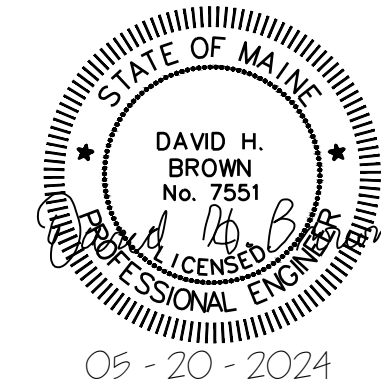
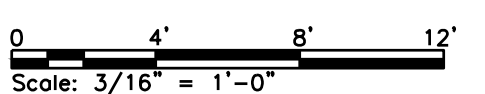
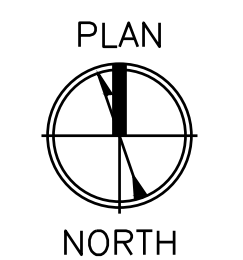
- SEE M-001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- REFRIGERATION PIPING LINE SETS MUST BE FIELD-INSULATED WITH ELASTOMERIC FOAM INSULATION AT THICKNESS AS SPECIFIED. PRE-INSULATED LINE SETS ARE NOT ALLOWED.

KEYED NOTES:

- MOUNT ON WALL BRACKETS AT APPROXIMATELY 4 FEET ABOVE GRADE. SEE DETAIL ON M-501.
- EXISTING STRUCTURAL BEAM EXPOSED BELOW CEILING.
- DUCT OFFSET BELOW BEAM.
- 5/8" RG, 3/8" RL LINE SET.
- 3/8" RG, 1/4" RL LINE SET.
- 1/2" RG, 1/4" RL LINE SET.
- 5/8" RG, 1/4" RL LINE SET UP.
- RTU CONTROL PANEL. MOUNT ON WALL ABOVE EXISTING DIESEL FUEL TRANSFER PUMP CONTROLLER. SHOWN OFFSET FOR CLARITY.
- EXISTING 4-CHANNEL DIESEL FUEL TRANSFER PUMP CONTROLLER TO REMAIN.
- EXISTING OIL TANK LEAK DETECTION PANEL.
- REUSE EXISTING WALL AND CEILING PENETRATIONS FOR NEW DUCT INSTALLATION.
- INSTALL NEW SIDEWALL GRILLE IN EXISTING CMU PENETRATION.
- NOT IN CONTRACT, UNOCCUPIED SPACE.
- PROVIDE YOUNG REGULATOR BOWDEN CABLE OPERATOR REMOTE BALANCING DAMPER WHERE CEILING IS INACCESSIBLE.



DIFFUSER BELOW BEAM SECTION
SCALE: 3/16" = 1'-0"



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REV	DESCRIPTION	DWN	APP	DATE	MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES	
SIZE: ANSI D DATE: 05/01/2024 DES BY: NHB DWN BY: RML CKD BY: DHB					PROJECT NO. 163.016.001	DRAWING NO. M-101
					SHEET 8 OF 23	

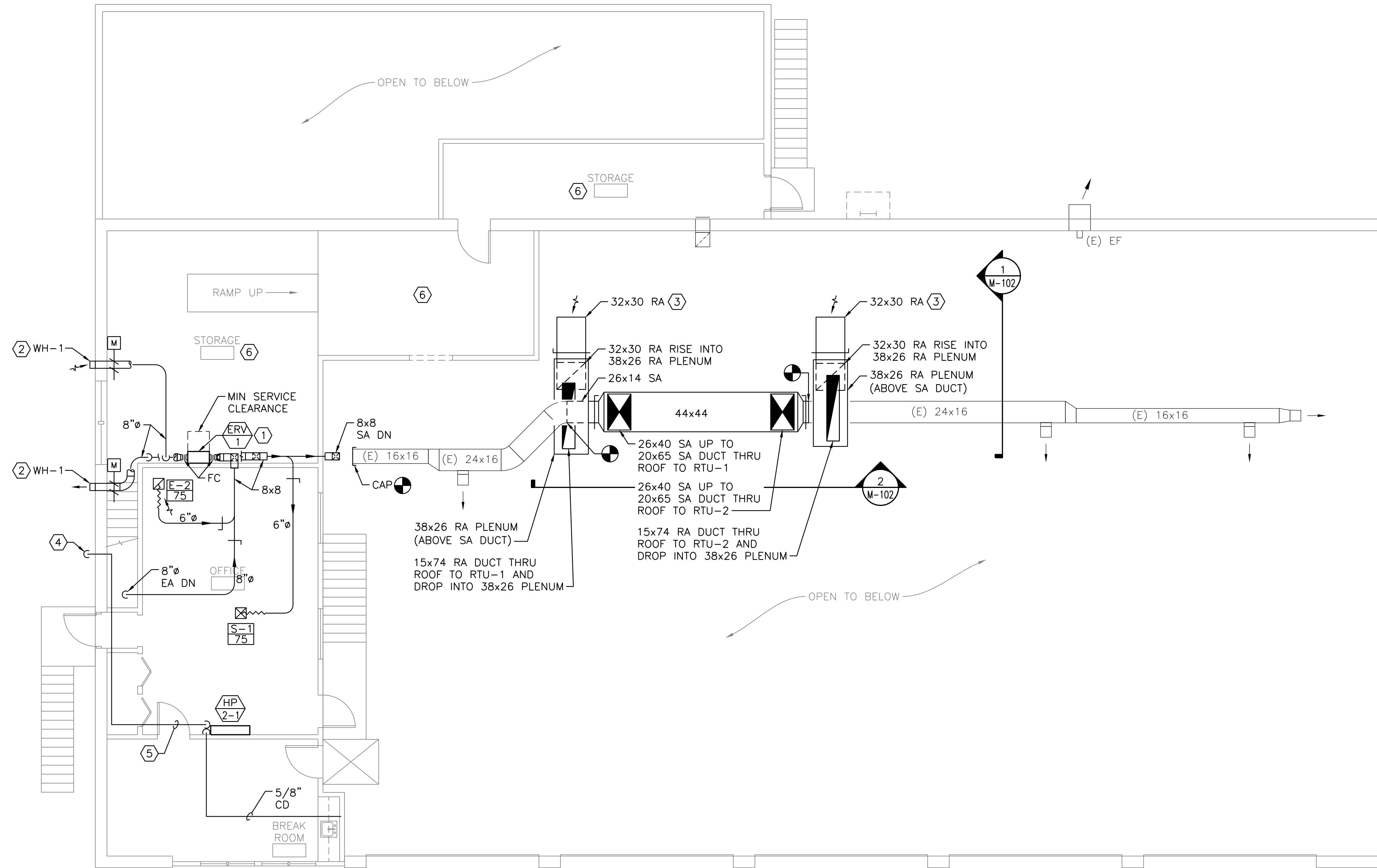
05 - 20 - 2024

NOTES:

- SEE M-001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- REFRIGERATION PIPING LINE SETS MUST BE FIELD-INSULATED WITH ELASTOMERIC FOAM INSULATION AT THICKNESS AS SPECIFIED. PRE-INSULATED LINE SETS ARE NOT ALLOWED.

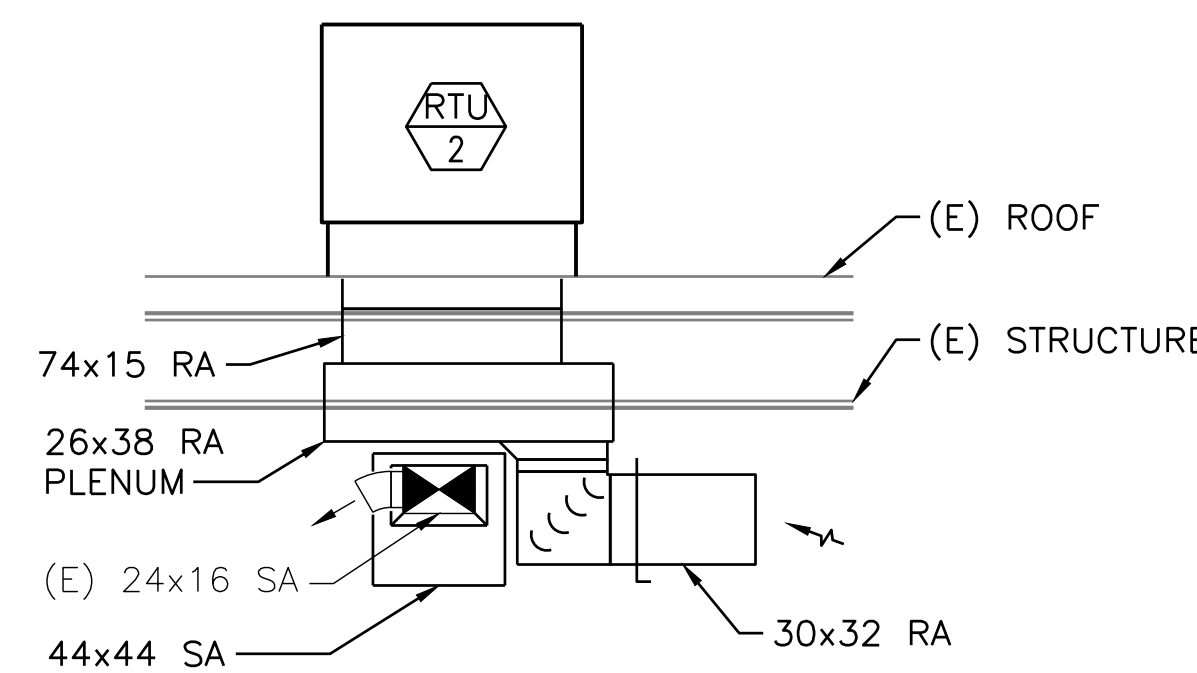
KEYED NOTES:

- ERV-1 MOUNTED HIGH ON WALL.
- 8" GALVANIZED HOODED WALL VENT.
- OPEN ENDED RA DUCT. COVER OPEN END WITH WIRE MESH SCREEN IN REMOVABLE FLANGED FRAME.
- 5/8" RG, 1/4" RL LINE SET DN.
- 5/8" RG, 1/4" RL LINE SET.
- NOT IN CONTRACT, UNOCCUPIED SPACE.

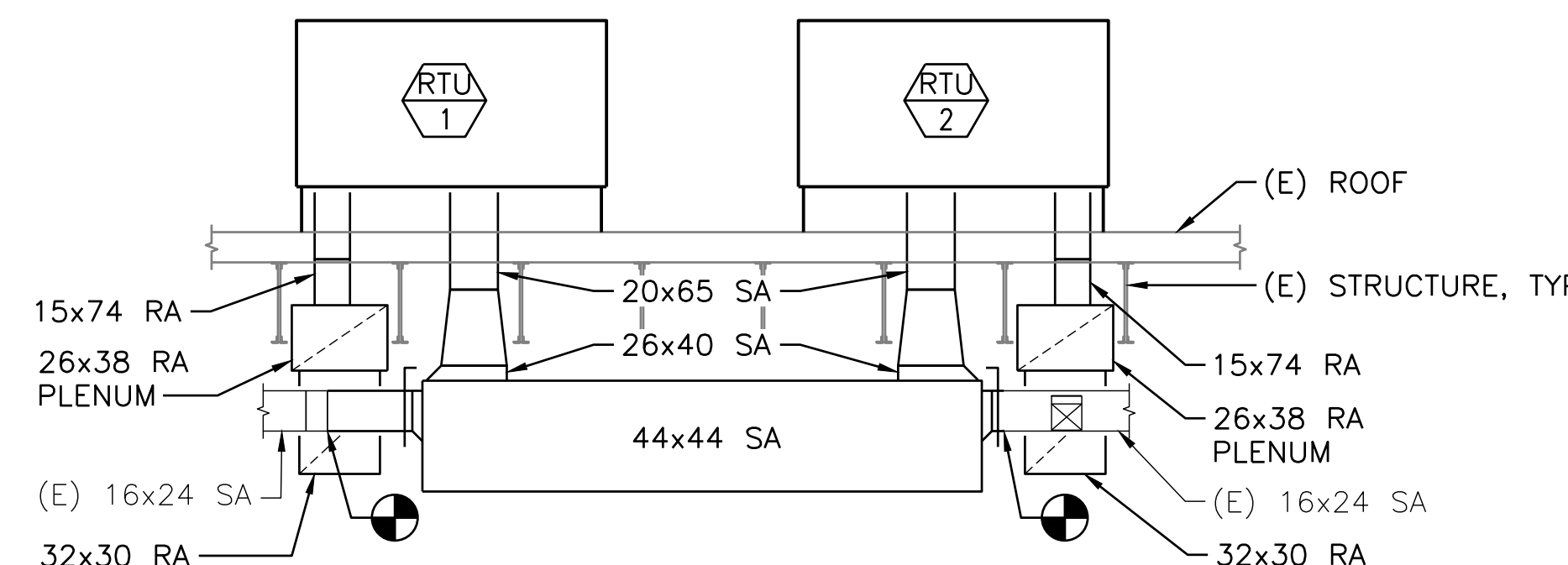


SECOND FLOOR PLAN

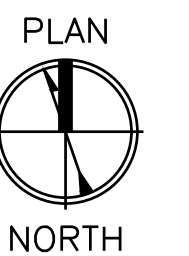
SCALE: 3/16" = 1'-0"



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

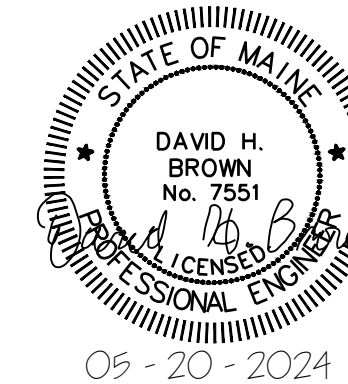


2 DUCT SECTION
SCALE: 3/16" = 1'-0"



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

				MARINE RESOURCES DEPARTMENT 15 VIENO'S RUN, ROCKLAND, MAINE			
				MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES			
SECOND FLOOR MECHANICAL PLAN				PROJECT NO. 163.016.001			
0 ISSUED FOR BID REV DESCRIPTION RML MAC 05/20/24 DWN APP DATE				SHEET 9 OF 23			
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47A York St Portland, ME 04101 207.553.7753				SIZE: ANSI D DATE: 05/01/2024 DES BY: NHB DWN BY: RML CKD BY: DHB			



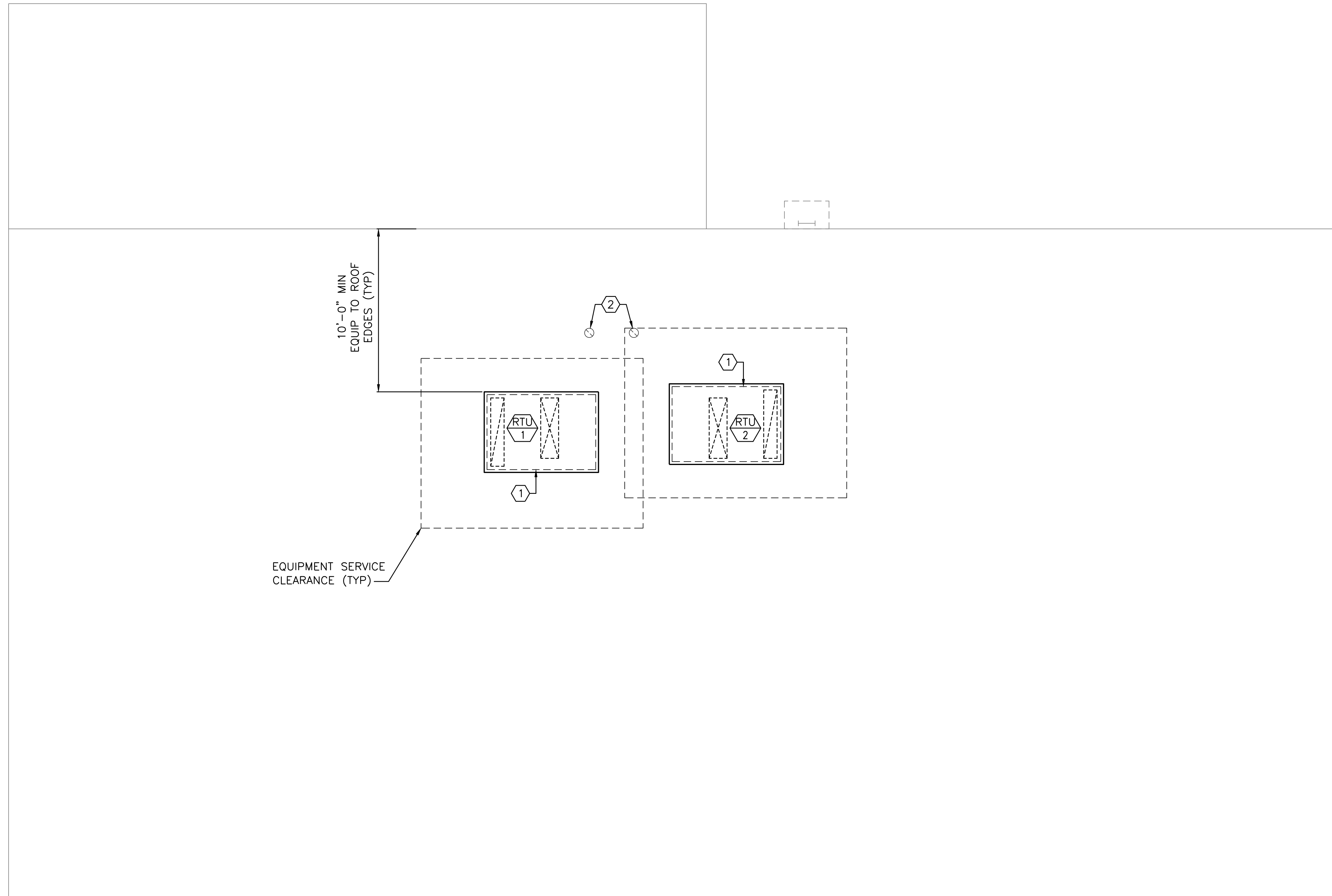
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NOTES:

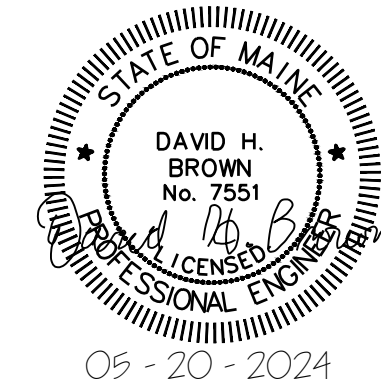
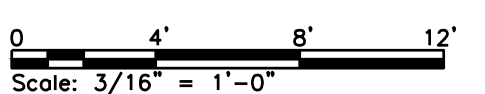
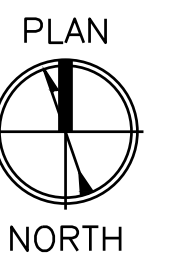
1. SEE M-001 FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. WORK MUST NOT VOID WARRANTIES THAT MAY BE ON THE EXISTING ROOF.

KEYED NOTES:

- ① PROVIDE ROOFTOP UNIT INSULATED CURB AND FLASHING PER ROOFTOP UNIT AND CURB MANUFACTURER'S INSTRUCTIONS. ENSURE WEATHER TIGHTNESS TO EXISTING BUILT UP ASPHALTIC ROOF SYSTEM FOR WHOLE BUILDING ENVELOPE WEATHER TIGHTNESS. COORDINATE WITH STRUCTURAL DESIGN FOR CURB AND ROOFTOP SUPPORT FRAMING.
- ② EXISTING 8" DUCTS THROUGH ROOF CUT AND CAPPED.



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

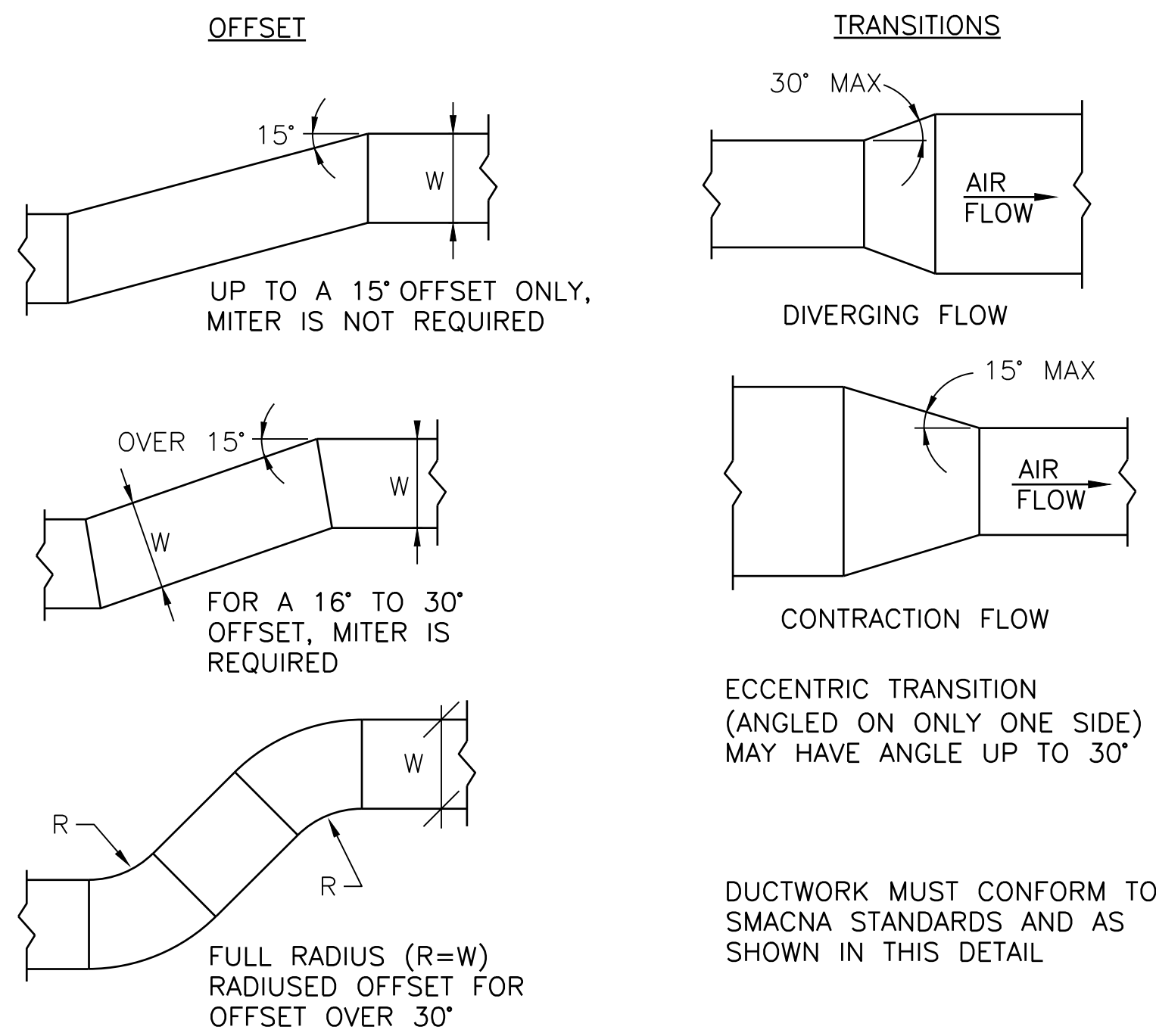


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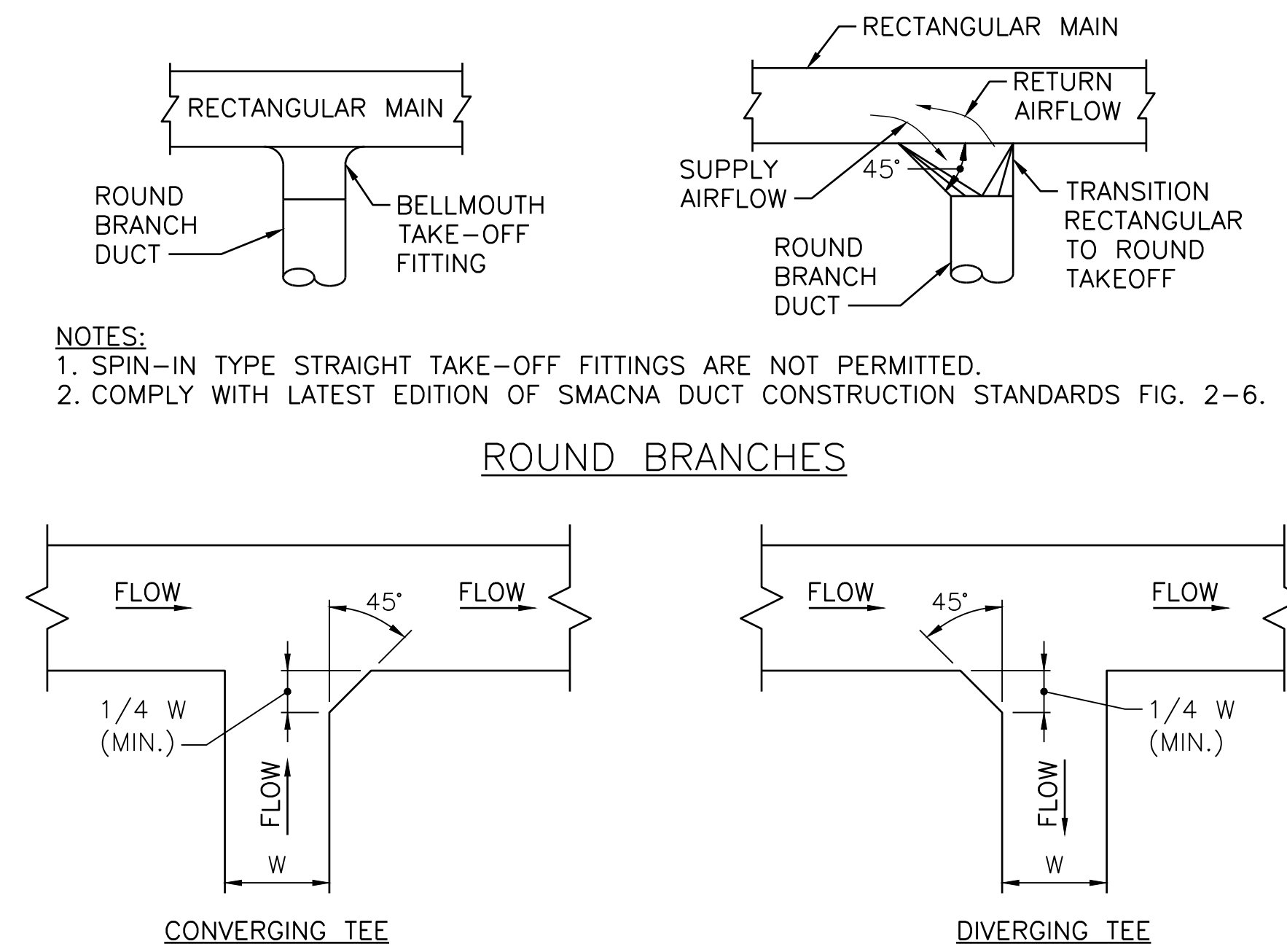
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MARINE RESOURCES DEPARTMENT 15 VIENO'S RUN, ROCKLAND, MAINE	
MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES	
ROOF MECHANICAL PLAN	
SIZE: ANSI D	PROJECT NO. 163.016.001
DATE: 05/01/2024	DRAWING NO. M-103
DES BY: NHB	SHEET 10 OF 23
DWN BY: RML	
CKD BY: DHB	

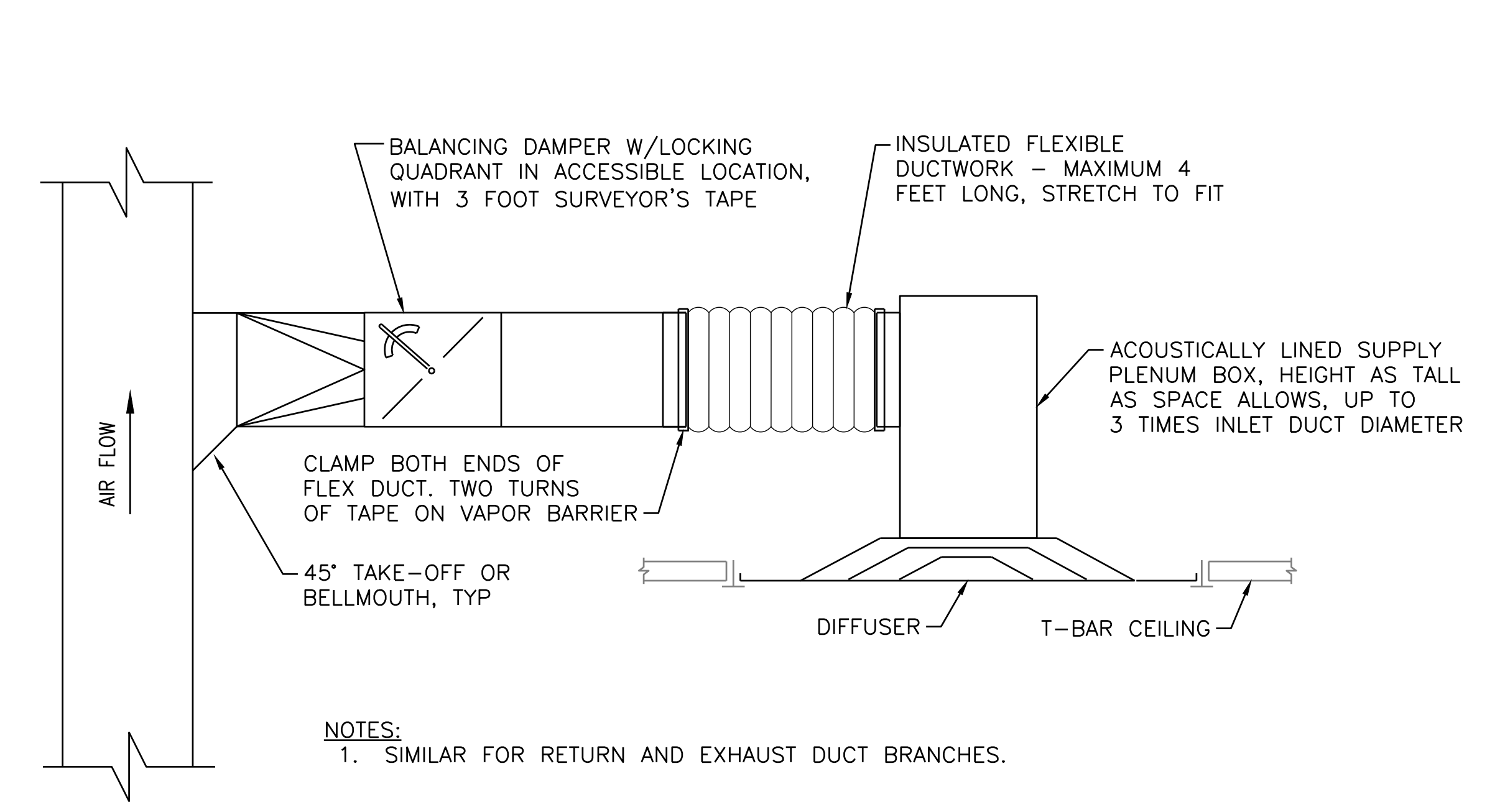
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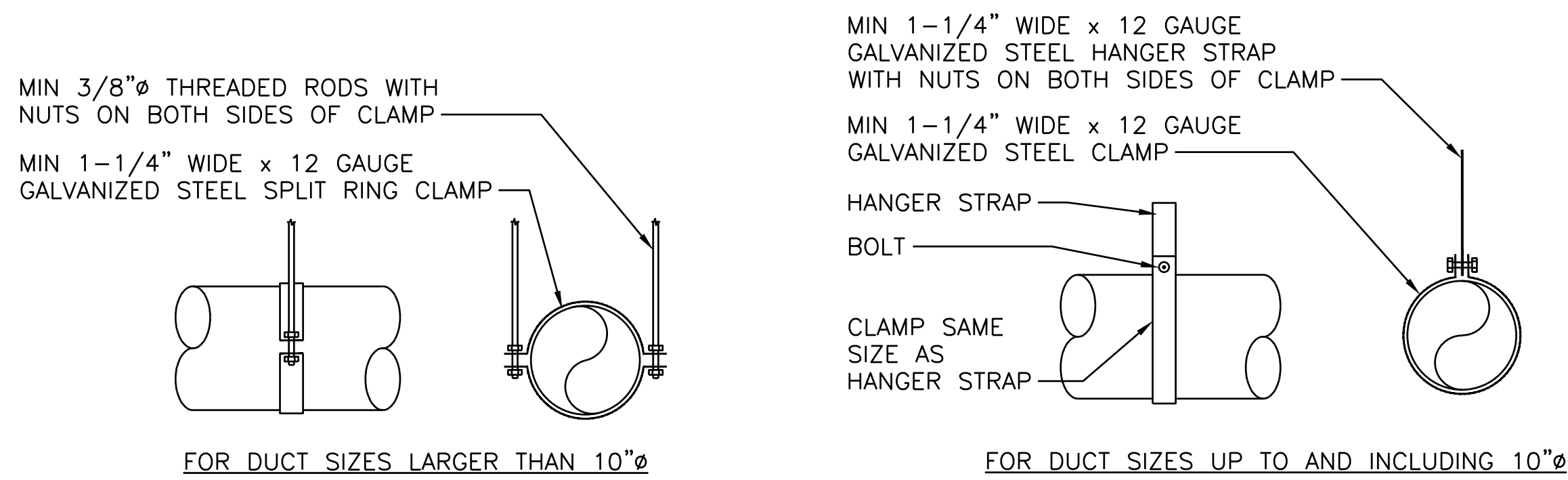
DUCTWORK TRANSITIONS DETAIL
SCALE: NTS



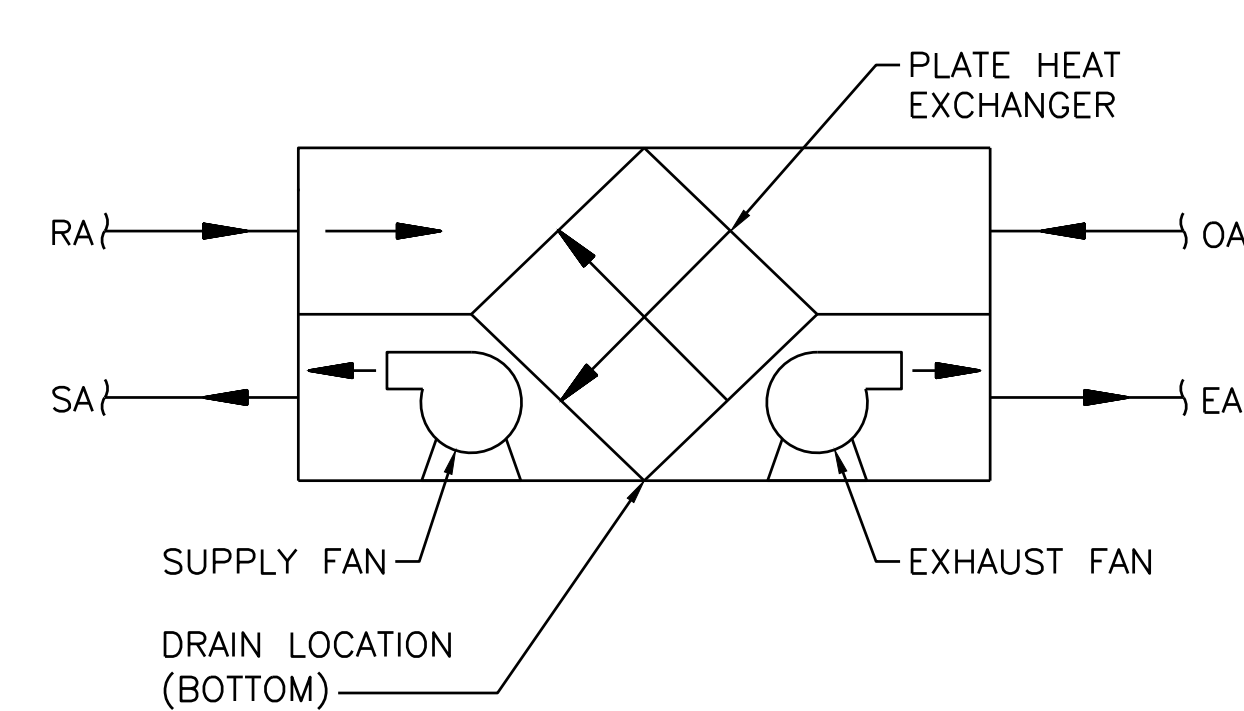
DUCT TEES TO RECTANGULAR MAINS
SCALE: NTS



AIR INLET & OUTLET DUCT CONNECTIONS - FLEXIBLE DETAIL
SCALE: NTS

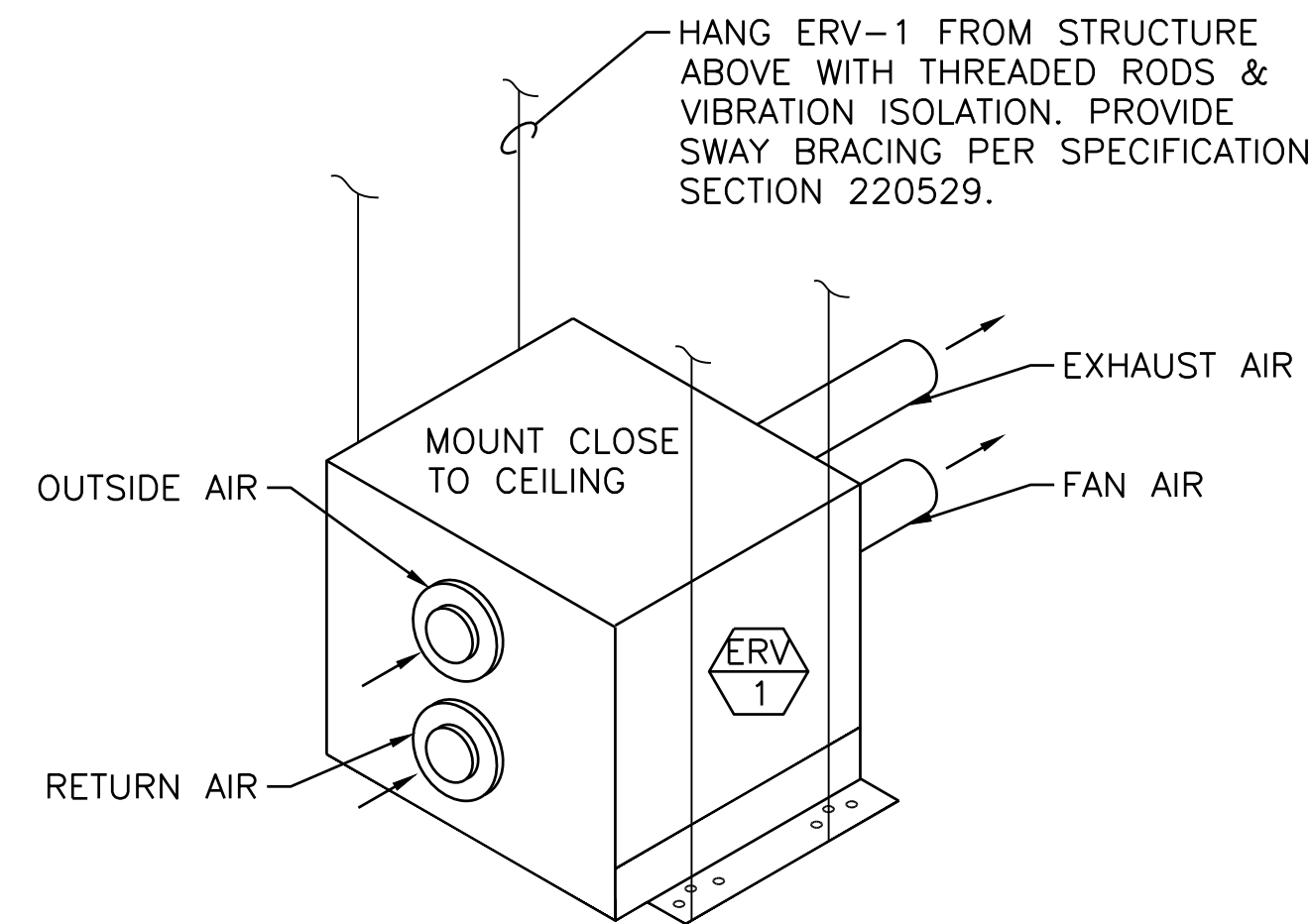


ROUND DUCT HANGER DETAIL
SCALE: NTS

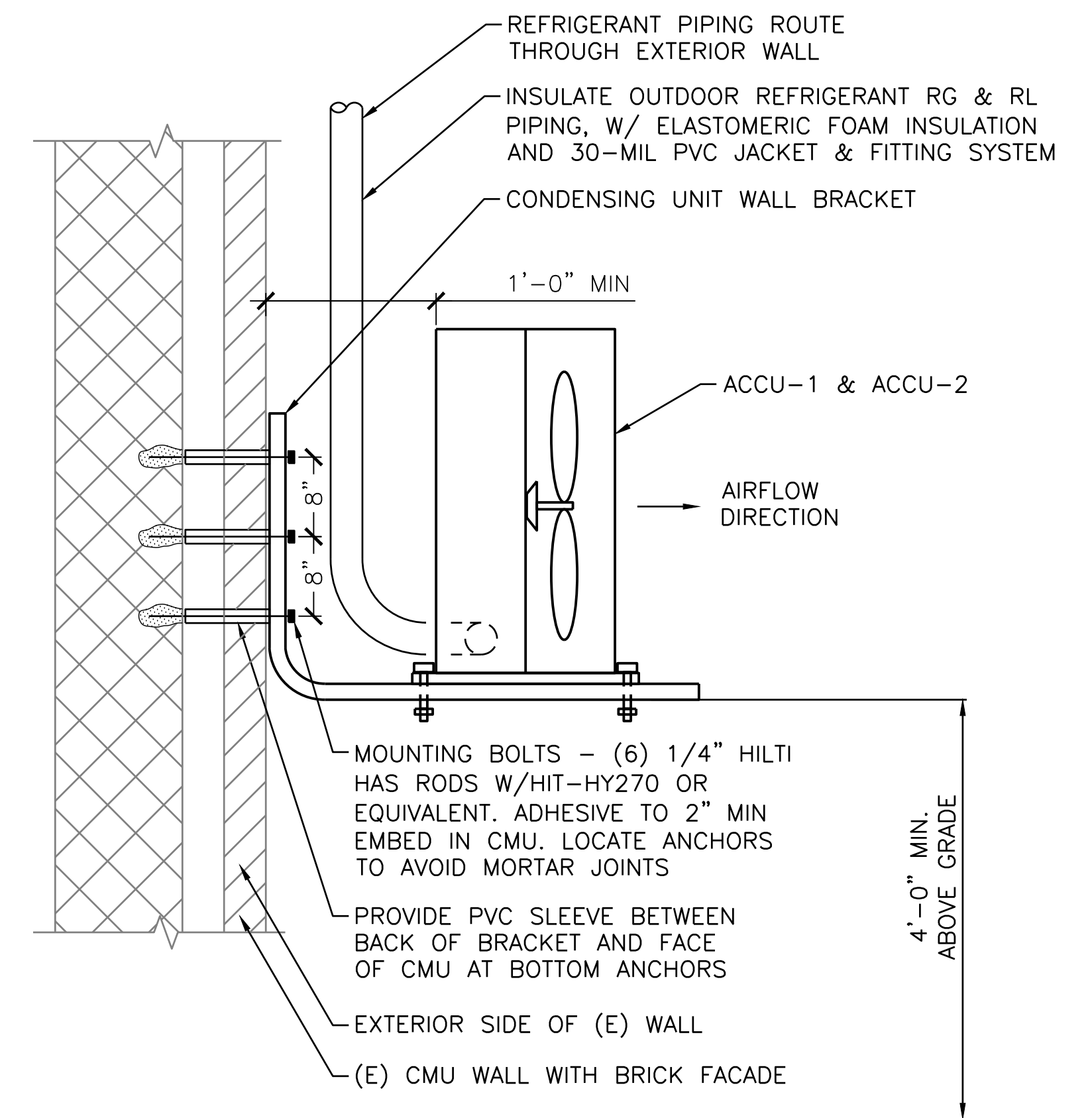


NOTES:
1. ERV SHALL HAVE MOTORIZED LOW-LEAKAGE DAMPERS ON OA AND EA AIR STREAMS.

ERV DETAIL
SCALE: NTS

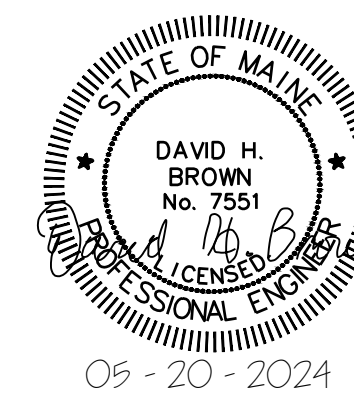


ERV-1 SUPPORT DETAIL
SCALE: NTS



CONDENSING UNIT SUPPORT DETAIL
SCALE: NTS

				MARINE RESOURCES DEPARTMENT			
				15 VIENO'S RUN, ROCKLAND, MAINE			
				MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES			
				DETAILS			
0	ISSUED FOR BID	RML	MAC	05/20/24			
REV	DESCRIPTION	DWN	APP	DATE			
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				DATE: 05/01/2024	163.016.001	M-501	
				DES BY: NHB	SHEET		
				DWN BY: RML	11 OF 23		
				CKD BY: DHB			

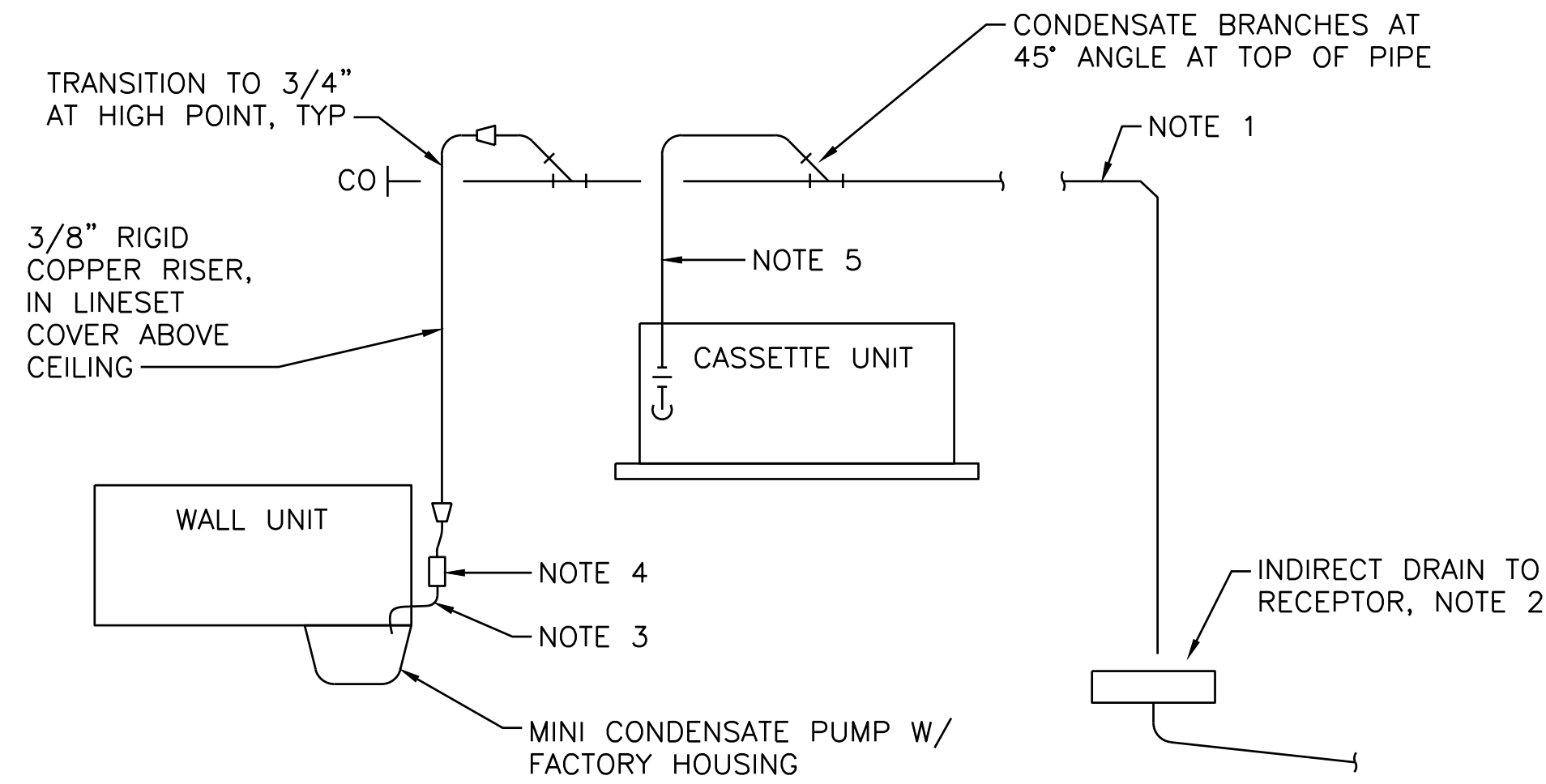


05-20-2024

FLEXIBLE DISCHARGE TUBING FOR MINI COND PUMPS:
 TYP. CLEAR OR SEMI-CLEAR PVC, 1/4" ID, MIN 0.062" WALL THICKNESS, 80A DUROMETER HARDNESS, 25 PSIG MIN WORKING PRESSURE AT 72°F, WORKING TEMPERATURE RANGE INCLUDING -10 TO 150°F, 1" MAX RATED BEND RADIUS WITHOUT KINKING. PROVIDE BARBED FITTINGS AND HOSE CLAMPS AS RECOMMENDED BY PUMP MANUFACTURER. SUPPORT TUBING AT 12 INCHES ON CENTER.

NOTES:

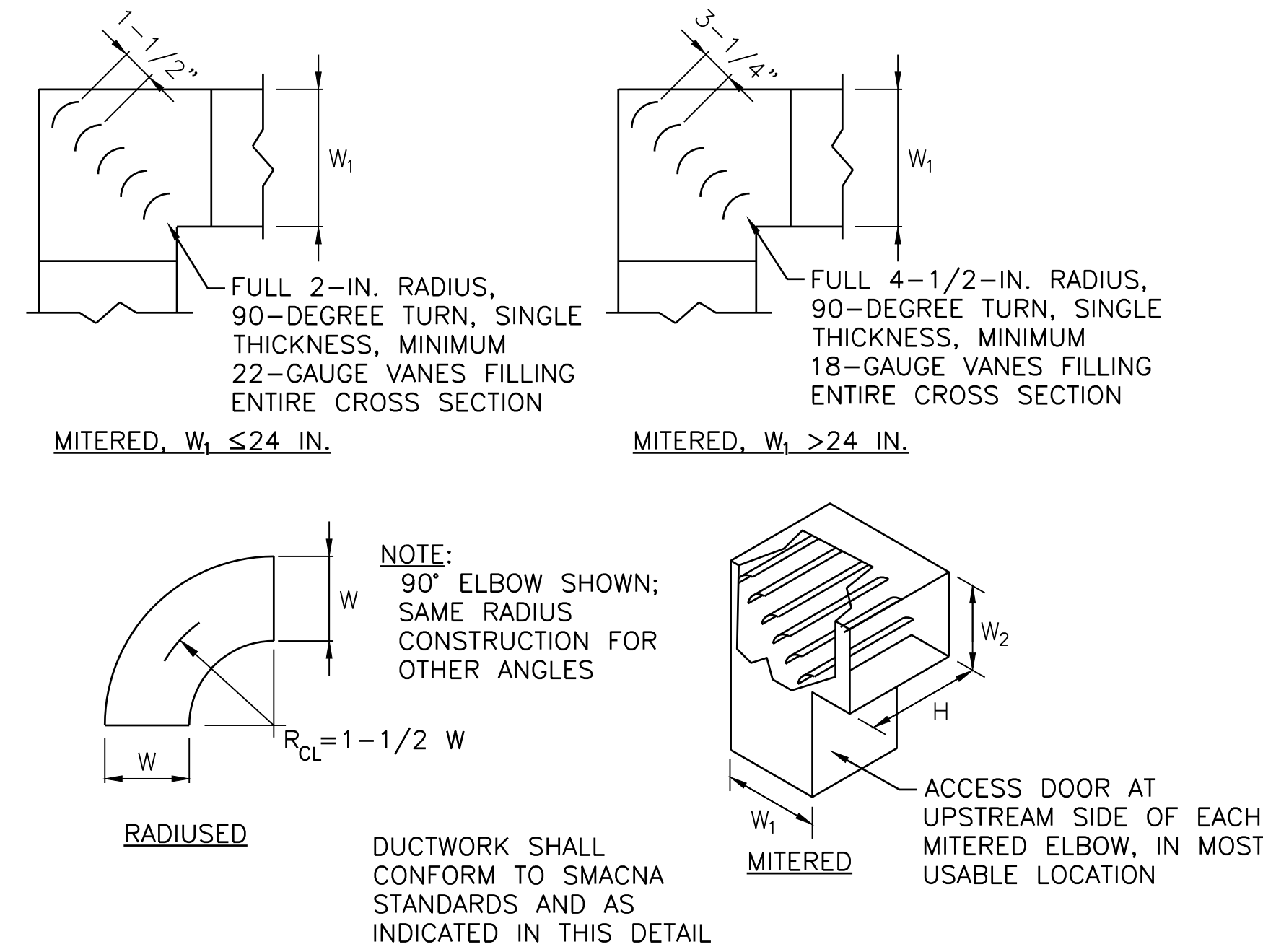
1. COPPER TYPE L, M, OR DWV PIPING, SLOPE 1/8" PER FOOT, 1-1/4" UNLESS OTHERWISE INDICATED.
2. DRAIN PIPE TO RECEPTORS WITH AIR BREAK OR AIR GAP AS REQUIRED BY CODE. CUT END AT 30 TO 45 DEGREES TO REDUCE SPLASHING.
3. FLEXIBLE TUBING, 24" MAX LENGTH, SEE NOTE THIS DETAIL.
4. ANTI-SIPHON DEVICE FURNISHED WITH PUMP.
5. 1-1/4" COPPER RISER.



TYPICAL VRF CONDENSATE DETAIL

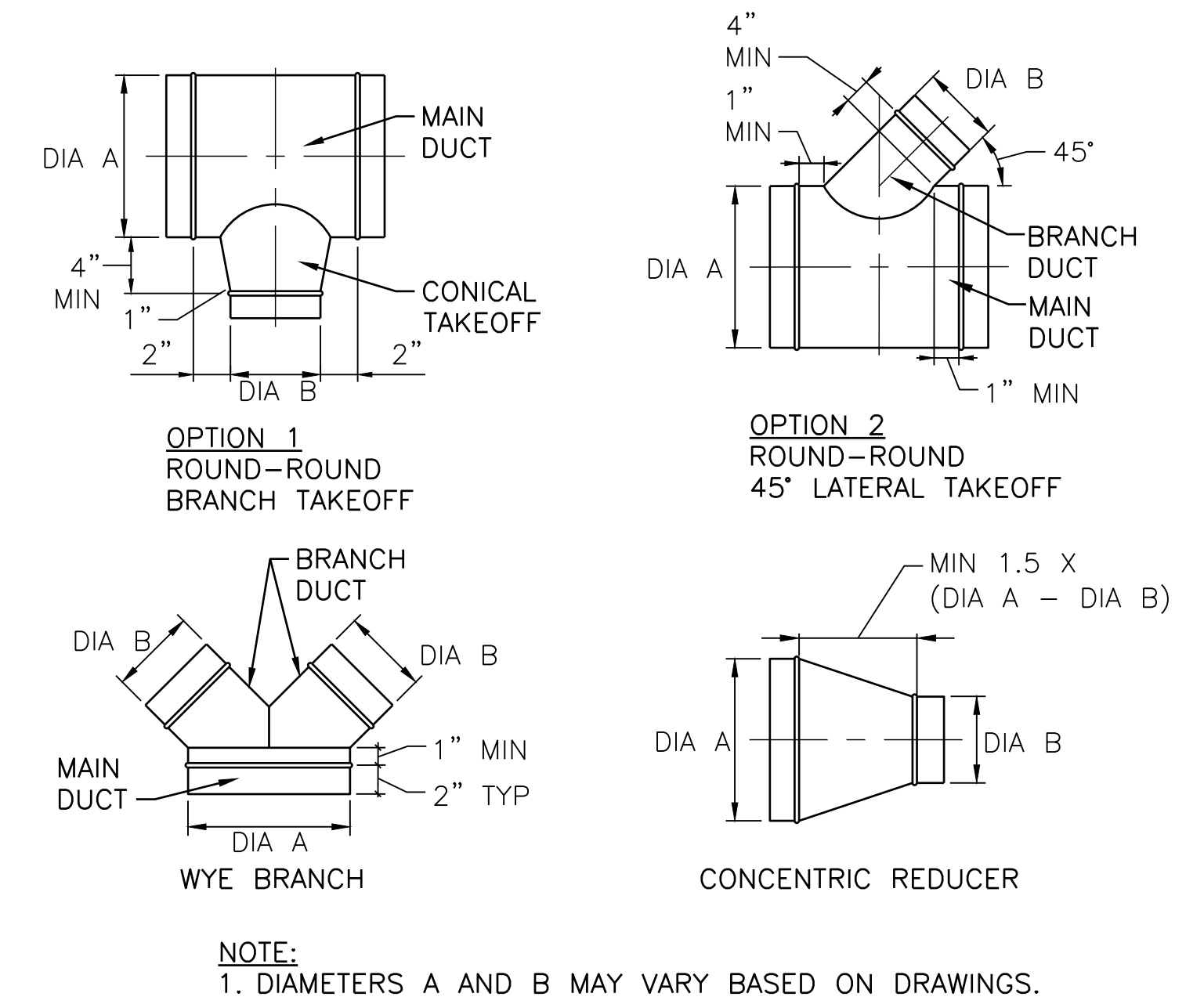
SCALE: NTS

USE MITERED ONLY WHERE SPACE IS TOO TIGHT FOR RADIUS. HALF-RADIUS (R_{cl} = 1W) ELBOWS ARE AN ACCEPTABLE ALTERNATIVE TO MITERED ELBOWS. ADJUSTABLE "STOVEPIPE" TYPE ELBOWS ARE NOT ALLOWED UNLESS OTHERWISE INDICATED.



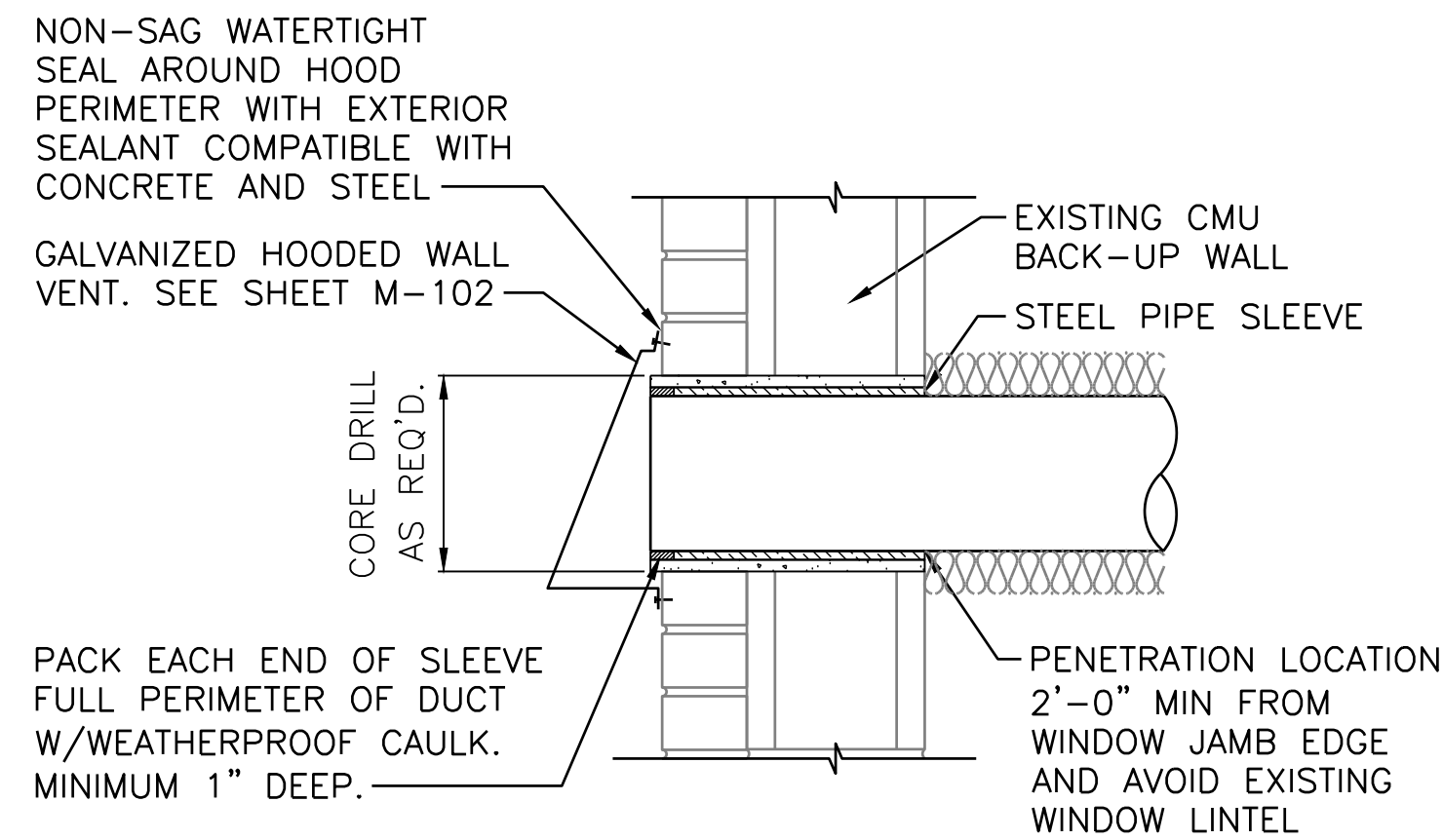
DUCT ELBOWS DETAIL

SCALE: NTS



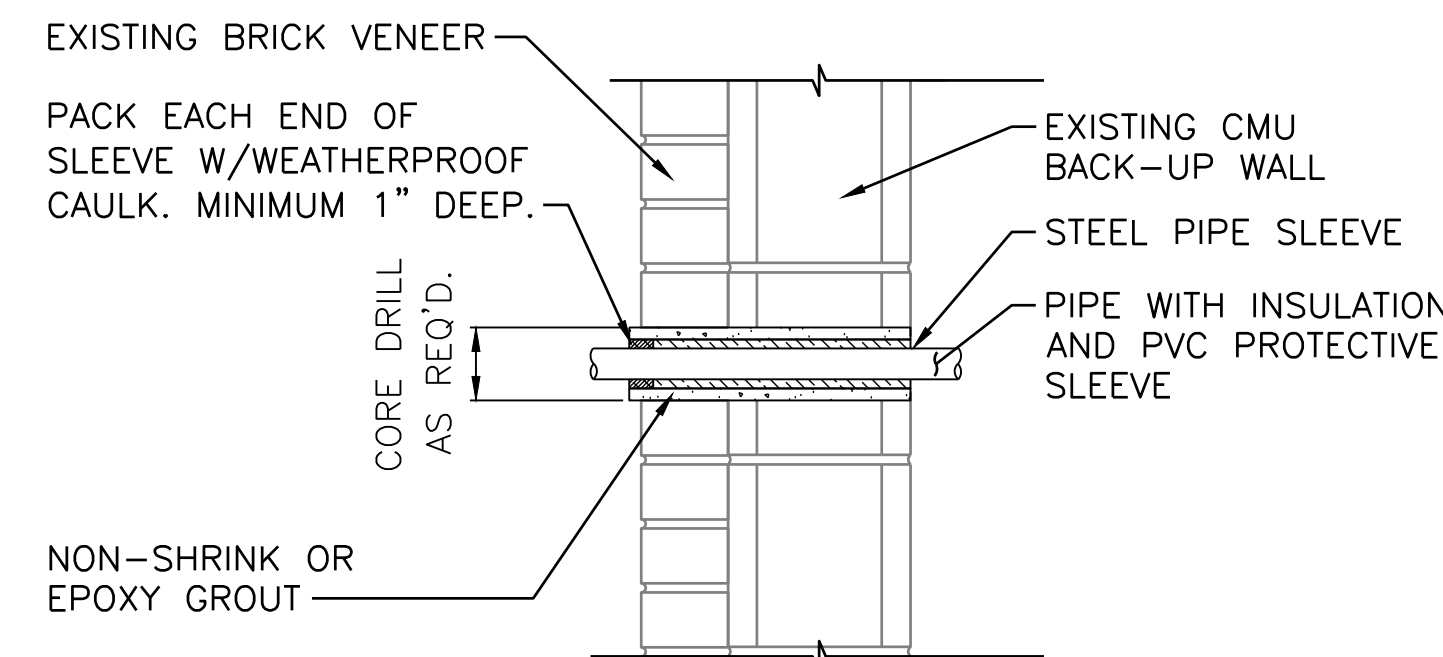
TYPICAL ROUND DUCT FITTINGS DETAIL

SCALE: NTS



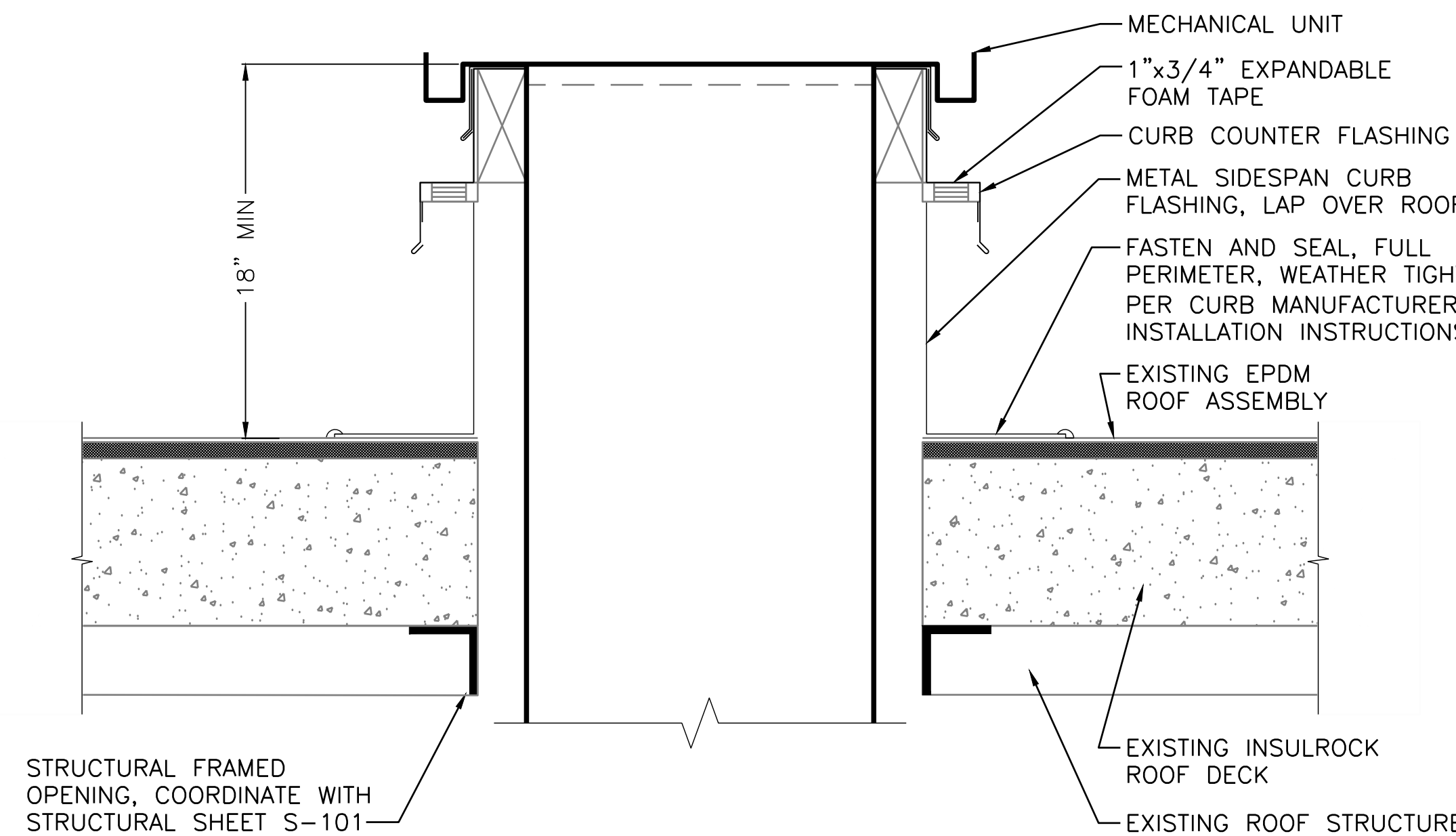
DUCT PENETRATION AT EXTERIOR MASONRY WALL DETAIL

SCALE: NTS



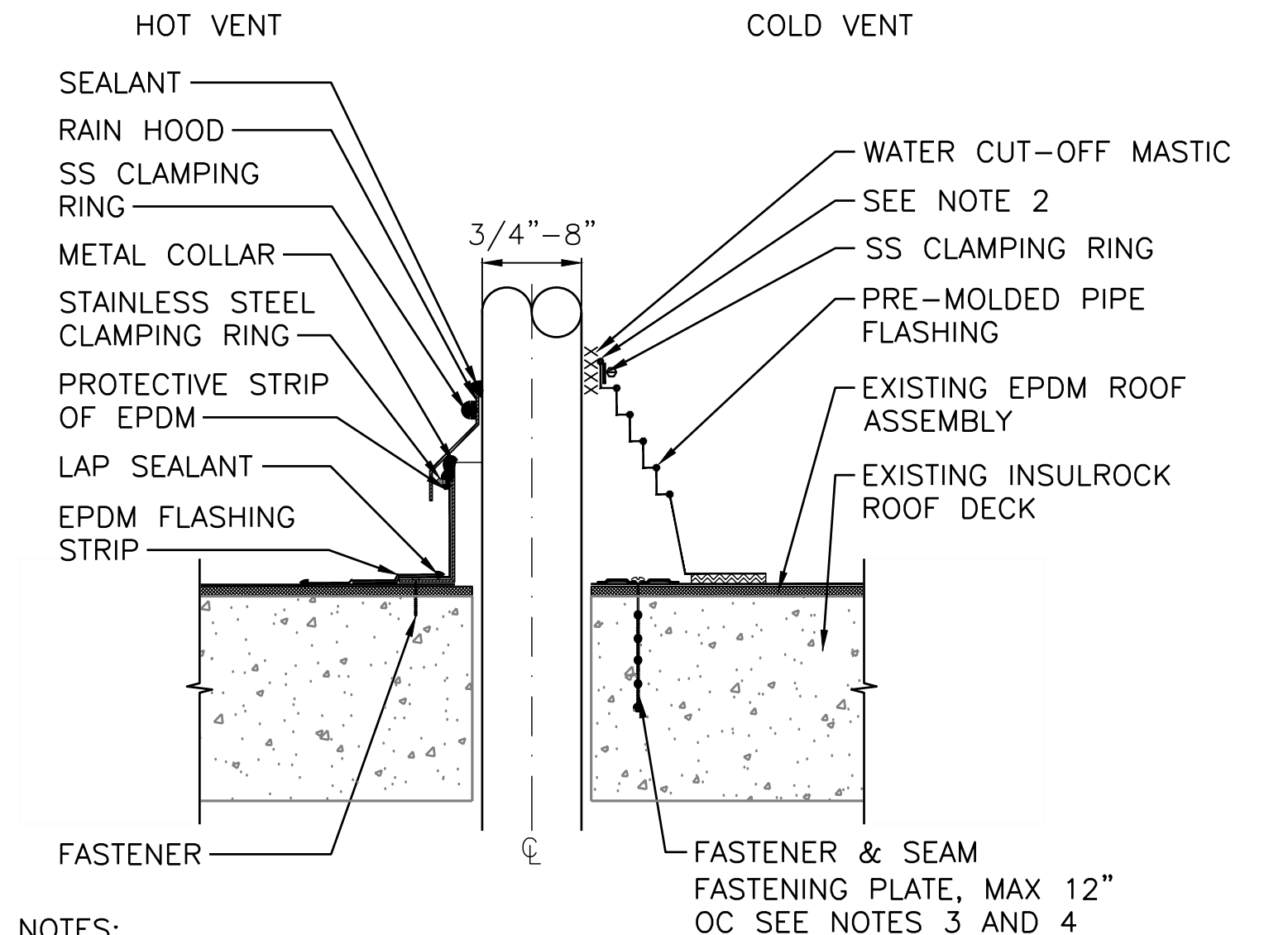
PIPE PENETRATION AT EXTERIOR MASONRY WALL DETAIL

SCALE: NTS



TYPICAL ROOF CURB DETAIL

SCALE: NTS



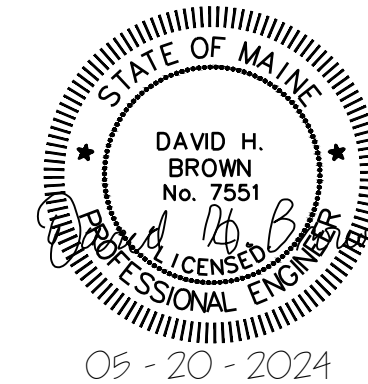
NOTES:

1. REMOVE EXISTING FLASHING MATERIAL BEFORE INSTALLING PRE-MOLDED PIPE FLASHING.
2. PIPE SEAL MUST HAVE INTACT RIB AT TOP EDGE, REGARDLESS OF PIPE DIAMETER.
3. INSTALL A MINIMUM OF 4 FASTENERS AND PLATES AROUND THE PIPE, EQUALLY SPACED. IF FASTENERS AND PLATES CANNOT BE INSTALLED AS SHOWN, THEY MAY ALSO BE POSITIONED OUTSIDE THE PIPE MAXIMUM 12" O.C. AND FLASHED WITH REINFORCED MEMBRANE/CUT-EDGE SEALANT.
4. FASTENERS AND PLATES ARE NOT REQUIRED ON ADHERED SYSTEMS UNLESS PIPE DIAMETER EXCEEDS 18".

TYPICAL ROOF PENETRATION DETAIL

SCALE: NTS

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REV	DESCRIPTION	DWN	APP	DATE
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MARINE RESOURCES DEPARTMENT 15 VIENO'S RUN, ROCKLAND, MAINE	
MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES	
DETAILS	
PROJECT NO. 163.016.001	DRAWING NO. M-502
SHEET 12 OF 23	

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 DATE: 05/01/2024
 DES BY: NHB
 DWN BY: RML
 CKD BY: DHB

05 - 20 - 2024

PACKAGED ROOFTOP HVAC UNIT SCHEDULE

TAG	SERVES	NOMINAL COOLING SIZE (TONS)	SUPPLY AIRFLOW (CFM)	MIN. OUTSIDE AIRFLOW (CFM)	SUPPLY FAN			COOLING (DX)						HEATING			72 KW ELECTRIC REHEAT			UNIT ELECTRICAL			SIZE (IN)			MAX TOTAL WEIGHT (LB)	MANUFACTURER	MODEL	NOTES	
					ESP (IN. WG)	SPEED (RPM)	MOTOR (HP)	TOTAL (MBH)	SENSIBLE (MBH)	EAT DB/WB (DEG F)	LAT DB/WB (DEG F)	EER	IEER	REFRIGERANT	CAPACITY (MBH)	EAT (DEG F)	LAT (DEG F)	CAPACITY (MBH)	EAT (DEG F)	LAT (DEG F)	VOLTAGE (V/PH/HZ)	MCA (AMPS)	MOPD (AMPS)	BASE L	BASE W					H
RTU-1	GARAGE	20	9,000	1,000	1.25	1519	2.9	250	203	80/67	60.8/58.8	11.2	17.2	410A	96.2	60	71.5	245.9	60	85	460/3/60	140	150	123	87	66	3,000	TRANE	PRECEDENT WHJ240A4SOR	1-12
RTU-2	GARAGE	20	9,000	1,000	1.25	1519	2.9	250	203	80/67	60.8/58.8	11.2	17.2	410A	96.2	60	71.5	245.9	60	85	460/3/60	140	150	123	87	66	3,000	TRANE	PRECEDENT WHJ240A4SOR	1-12

NOTES:
 1. ASSEMBLY INCLUDING 100% ECONOMIZER MIXING SECTION WITH LOW-LEAK OPPOSED-BLADE DAMPERS, DX COOLING COIL, HEAT PUMP HEATING COIL W/ ELECTRIC BACKUP, SUPPLY FAN, AND CONDENSING SECTION. RETURN-AIR AND SUPPLY-AIR CONNECTIONS ON BOTTOM.
 2. DOUBLE WALL G60 GALVANIZED STEEL CONSTRUCTION WITH 1/8 INCH FOIL FACED CLOSED CELL INSULATION AND PAINTED OUTER FINISH.
 3. STAINLESS STEEL SLOPED DRAIN PAN AT COOLING COIL, WITH EXTERNAL PIPE CONNECTION.
 4. FAN: DIRECT DRIVE VFD, TWO 23-INCH DIAMETER.
 5. DIRECT DRIVE HERMETIC SCROLL COMPRESSORS WITH RESILIENT EXTERNAL ISOLATION AND REFRIGERANT SERVICE VALVES.
 6. FILTERS: 2-INCH MERV 13 FILTERS. SUPPLY FAN RATED WITH CLEAN FILTER PRESSURE DROP.
 7. ASHRAE 90.1-2016 COMPLIANT. EER AND IEER RATED AT AHRI 360 STANDARD CONDITIONS. COOLING RATED AT 95 DEG. F AMBIENT. LOW AMBIENT COOLING CONTROL DOWN TO 0 DEG. F.
 8. SUPPLY AND RETURN FAN ESPs ARE NET EXTERNAL TO THE UNIT, RATED WITH GROSS FAN ESP MINUS INTERNAL ACCESSORY PRESSURE DROPS. SUPPLY FAN TOTAL STATIC PRESSURE 5.42 IN. WG.
 9. FIELD-POWERED GFCI SERVICE RECEPTACLE. DISCONNECT SWITCH. PHASE FAILURE CONTROL.
 10. SOUND POWER BY OCTAVE BAND SOUND POWER (Db): DISCHARGE 87, 95, 81, 76, 71, 67, 67, 65. RETURN 81, 85, 75, 69, 64, 61, 62, 61.
 11. WARRANTY: AT LEAST 5 YEARS ON COMPRESSORS, AND 1 YEAR ON OTHER PARTS.
 12. MANUFACTURER SUPPLIED 18 INCH FULL PERIMETER KNOCKDOWN ROOF CURB. FASTEN HVAC UNIT TO CURB WITH LARGEST-POSSIBLE HEX-HEAD FASTENER AT EACH FACTORY BOLT HOLE.

DUCTLESS MINI-SPLIT HEAT PUMP SCHEDULE

TAG (INDOOR)	TAG (OUTDOOR)	SERVES	NOMINAL TONS (OUTDOOR)	INDOOR AIRFLOW COOLING (CFM)	INDOOR UNIT TYPE	COOLING			HEATING		FIELD PIPE SIZES (IN)			UNIT ELECTRICAL			DIMENSIONS (L x W x H) (IN)		WEIGHT (LB)		MANUFACTURER	INDOOR MODEL	OUTDOOR MODEL	NOTES
						TOTAL (MBH)	SENSIBLE (MBH)	SEER (BTUH/W)	TOTAL (MBH)	HSPF (BTUH/W)	GAS	LIQUID	COND	VOLTAGE (V/PH/HZ)	MCA (AMP)	MOPD (AMP)	INDOOR	OUTDOOR	INDOOR	OUTDOOR				
HP-1-1	ACCU-1	OFFICE	0.5	390	WALL MOUNT	6	6	23.0	3.5	10.5	3/8	1/4	3/4	208/1/60	1.0	30	32 x 9 x 12	41 x 13 x 52	23	271	DAIKIN	MSZ-GS06NA-U1	MXZ-SM36NAM2-U1	1-7
HP-1-2	ACCU-1	OFFICE	0.5	390	WALL MOUNT	6	6	23.0	3.5	-	3/8	1/4	3/4	-	-	-	32 x 9 x 12	-	23	-	DAIKIN	MSZ-GS06NA-U1	-	1-7
HP-1-3	ACCU-1	PARTS ROOM	1.5	629	WALL MOUNT	18	16	23.0	10.6	-	1/2	1/4	3/4	-	-	-	37 x 10 x 12	-	28	-	DAIKIN	MSZ-GS18NA-U1	-	1-7
HP-2-1	ACCU-2	OFFICE	2	701	WALL MOUNT	25	18	12.6	11.6	9.0	5/8	1/4	3/4	208/1/60	-	20	44 x 10 x 13	33 x 13 x 35	37	120	DAIKIN	MSZ-GS24NA-U1	MUZ-GS24NAHZ-U1	1-7

NOTES:
 1. RATED CONDITION TEMPERATURES (DEG. F): COOLING INDOOR 80 DB/67 WB, OUTDOOR 95 DB/75 WB. HEATING INDOOR 70 DB/60 WB, OUTDOOR 5 DB/5 WB.
 2. OPERATING OUTDOOR TEMPERATURE RANGES (DEG. F): COOLING RANGE - PROVIDE WIND BAFFLES FOR -4 TO +115 F. HEATING RANGE +5 TO +65 F.
 3. REFRIGERANT R-410A. INVERTER VARIABLE-SPEED COMPRESSOR. MULTI-SPEED SUPPLY FAN MOTOR (HIGH SPEED CFM INDICATED).
 4. POWER SUPPLY TO OUTDOOR UNIT. PROVIDE INTERCONNECTING POWER & CONTROL CONDUIT TO INDOOR UNIT.
 5. HARD-WIRED WALL-MOUNT CONTROLLER. MOUNT ON RECESSED WALL BOX.
 6. PROVIDE FIELD-INSULATED REFRIGERANT AND CONDENSATE DRAIN LINES IN SIZES SCHEDULED AND AS INDICATED ON PLAN DRAWINGS. PROVIDE EACH WALL MOUNTED INDOOR UNIT WITH CD-1.
 7. PROVIDE WITH MANUFACTURER WALL BRACKET MOUNT QSWBSS.

INDOOR ENERGY RECOVERY VENTILATOR SCHEDULE

TAG	LOCATION	SERVES	SYSTEM	AIRFLOW (CFM)	ESP (IN. WC)	WINTER				SUMMER				MOTORS (2)			UNIT ELECTRICAL			DIMENSIONS L x W x H (IN)	WEIGHT (LB)	MANUFACTURER	MODEL	NOTES			
						EAT (DEG F)		LAT (DEG F)		EAT (DEG F)		LAT (DEG F)		MERV	THICKNESS (IN)	SIZE (HP)	POWER (BHP)	POWER (WATTS)	VOLTAGE V/PH/HZ						FLA (AMP)	MCA (AMP)	MOPD (AMP)
						DB	WB	DB	WB	DB	WB	DB	WB														
ERV-1	STORAGE	OFFICES AND PARTS STORAGE	SUPPLY	195	0.70	-2	-4	53.1	40.5	81.6	68.7	76.6	65.4	13	1	1/9	-	77	120/1/60	-	15.0	15	18 x 24 x 24	52	RENEWAIRE	EV PREMIUM L	1,2,3
			EXHAUST	195	0.70	70	51.5	-	-	75.0	62.5	-	-	13	1	1/9	-	77	120/1/60								

NOTES:
 1. ELECTRONICALLY COMMUTATED (EC) MOTORS WHERE NOTED, WITH SC-ECM REMOTE POTENTIOMETER SPEED CONTROL FOR EACH MOTOR.
 2. FUSED DISCONNECT SWITCH. FILTER ALARM SWITCHES FOR SUPPLY AND EXHAUST.
 3. PROVIDE INTERCONNECTING POWER AND CONTROL WIRING FOR ACCESSORIES.
 4. PROVIDE WITH TWO FAB-G HOODS FOR OUTDOOR AIR INTAKE AND EXHAUST THROUGH EXTERIOR WALL.

BRANCH SELECTOR BOX SCHEDULE

TAG	SERVES	LOCATION	UNIT TYPE	NUMBER OF BRANCHES	CONNECTABLE INDOOR UNITS	UNIT ELECTRICAL		APPROXIMATE DIMENSIONS (W x D x H) (IN)	MANUFACTURER	MODEL	NOTES
						VOLTAGE (V/PH/HZ)	MCA (AMP)				
BS-1	LEVEL 1 SPLIT SYSTEM	OFFICE	MULTI-PORT BRANCH SELECTOR BOX	3	3	208/1/60	0.1	18 x 11 x 7	DAIKIN	PAC-MKA32BC	1

NOTES:
 1. LOCATE BOX WHERE VALVE AND FLUID NOISES WILL NOT BE OBJECTIONABLE.

CONDENSATE PUMP SCHEDULE

UNIT NO	FLOW (GPH)	MAX DISCHARGE HEAD (FT WG)	SOUND AT 3 FT (dB(A))	OUTLET (IN)	ELECTRICAL VOLTAGE (V/PH/HZ)	PUMP DIMENSIONS LxWxH (IN)	MANUFACTURER	MODEL	NOTES
CP-1	3.2	33	25	0.25	208/1/60	7x4.5x2	ASPEN	MINI WHITE	1

NOTES:
 1. SUBSTITUTE PUMPS MAY DIFFER IN DESIGN AS SPECIFIED.

DIFFUSER/GRILLE/REGISTER SCHEDULE

TAG	TYPE	NOMINAL DUCT NECK SIZE (IN)	FACE SIZE (IN)	INSTALLATION STYLE	RATED PATTERN	CFM RANGE	THROW (FT)	SP (IN. WG)	MAX SOUND (NC)	MANUFACTURER	MODEL	NOTES
S-1	LOUVER FACE DIFFUSER	6"	12x12	T-GRID	4-WAY	0-125	7-16	0.08	20	PRICE	SCD	1,2,3,4
S-2	SIDEWALL GRILLE	6"	12x12	SIDEWALL	45 DEG	0-100	5-7-10	0.02	20	PRICE	510	1,2,3,4
E-1	LOUVERED GRILLE	8"	24x24	T-GRID	-	0-200	-	0.01	20	PRICE	PDDR	1,2,3,5
E-2	LOUVERED GRILLE	8"	12x12	T-GRID	-	0-200	-	0.01	20	PRICE	PDDR	1,2,3,5

NOTES:
 1. CONSTRUCTION: STEEL SCHEDULED, MAY BE ALUMINUM AT CONTRACTOR'S OPTION. FACTORY FINISH: WHITE PAINT.
 2. OBD NOT REQUIRED UNLESS NOTED OTHERWISE ON FLOOR PLANS - GENERALLY FURNISHED IN DUCT.
 3. AIRFLOW SCHEDULED IS FOR PERFORMANCE RATINGS, ACTUAL CFM IS INDICATED ON PLANS.
 4. THROW BASED ON 150-50 FPM TERMINAL VELOCITY. SET PATTERNS AS INDICATED, AND LOCK IN PLACE WHERE POSSIBLE.
 5. MOUNT WITH BLADES ORIENTED FOR LEAST VISIBILITY INTO DUCTWORK.

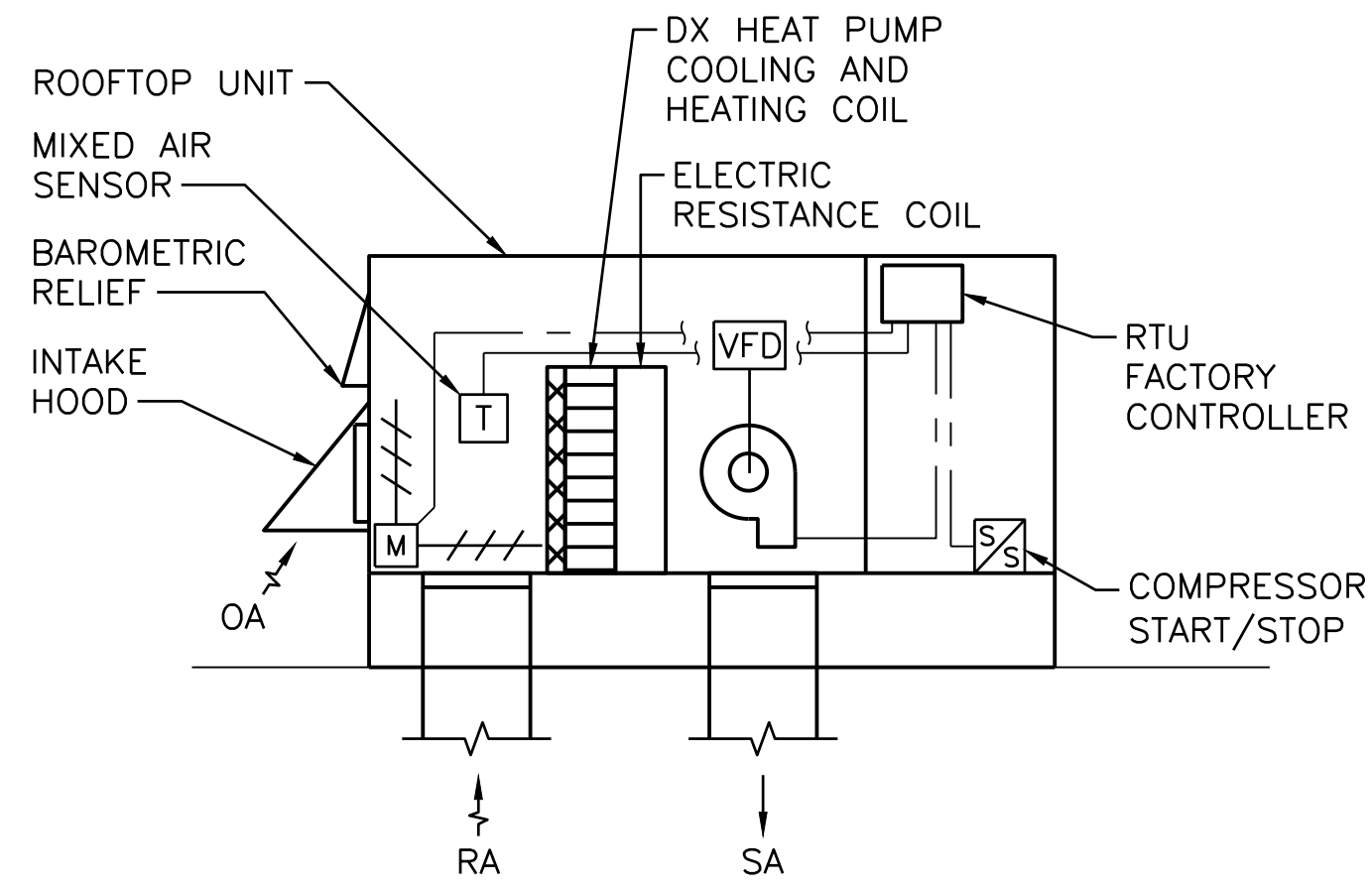


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				MARINE RESOURCES DEPARTMENT 15 VIENO'S RUN, ROCKLAND, MAINE			
0 ISSUED FOR BID				RML MAC 05/20/24		SCHEDULES	
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				M-601			

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RTU SEQUENCE OF OPERATIONS

THE ROOFTOP UNIT (RTU) WILL OPERATE ON FACTORY FURNISHED CONTROLS.

UNOCCUPIED MODE:

RTU WILL BE DE-ENERGIZED. ON A CALL FOR HEATING, UNIT SHALL CYCLE TO MAINTAIN NIGHT SETBACK TEMPERATURE, 60 DEG F (ADJ.).

OCCUPIED MODE:

RTU FAN SHALL START AUTOMATICALLY AND RUN CONTINUOUSLY UNTIL SPACE TEMPERATURE SETPOINT IS SATISFIED.

HEAT PUMP SEQUENCE OF OPERATIONS

WALL MOUNTED CONTROLLER CONTROLS ROOM TEMPERATURE SET POINTS, AND PROVIDES OCCUPIED /UNOCCUPIED SCHEDULING.

OCCUPIED MODE:

HEAT PUMP WILL MAINTAIN A CONSTANT SETPOINT OF 75°F (ADJUSTABLE) IN COOLING MODE.
HEAT PUMP WILL MAINTAIN A CONSTANT SETPOINT OF 68°F (ADJUSTABLE) IN HEATING MODE.

THE OUTDOOR UNIT CYCLES AS REQUIRED TO SATISFY DEMANDS FOR HEATING AND COOLING.

THE MULTI-UNIT SYSTEM'S BRANCH BOX SELECTS HEATING OR COOLING MODE BASED ON ROOM DEMANDS, USING THE MANUFACTURER'S STANDARD SELECTION METHOD.

UNOCCUPIED MODE:

HEAT PUMP WILL MAINTAIN A CONSTANT SETPOINT OF 60°F (ADJUSTABLE).

ERV SEQUENCE OF OPERATIONS

OCCUPIED MODE:

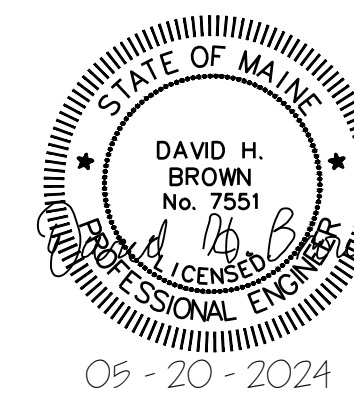
ERV-1 SHALL ENERGIZE AND RUN AT THE OPERATING CFM. DAMPERS AT LOUVERS L-1 AND L-2 SHALL OPEN.

UNOCCUPIED MODE:

ERV-1 SHALL REMAIN OFF AND DAMPERS AT LOUVERS L-1 AND L-2 SHALL REMAIN FULLY CLOSED.

TYPICAL ROOFTOP UNIT CONTROL DIAGRAM

SCALE: NTS



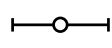
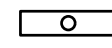
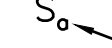
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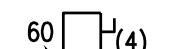







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DATE:	05/01/2024
DES BY:	NHB
DWN BY:	RML
CKD BY:	DHB

MARINE RESOURCES DEPARTMENT 15 VIENO'S RUN, ROCKLAND, MAINE	
MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES	
CONTROL DIAGRAMS	
PROJECT NO. 163.016.001	DRAWING NO. M-701
SHEET 14 OF 23	




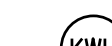
LIGHTING:

-  STRIP LIGHT FIXTURE
-  1x4 LIGHT FIXTURE
-  SINGLE POLE TOGGLE SWITCH
INDICATES CONTROLLED FIXTURE


POWER:

-  NON-FUSED SAFETY SWITCH
NEMA ENCLOSURE (NEMA 1 UNLESS OTHERWISE NOTED)
AMPERE RATING
-  FUSED SAFETY SWITCH, TOP NUMBER INDICATES SWITCH
AMPERE RATING, LOWER NUMBER INDICATES FUSE
RATING
NEMA ENCLOSURE (NEMA 1 UNLESS OTHERWISE NOTED)
-  JUNCTION BOX
-  PANELBOARD, NORMAL POWER
-  SINGLE RECEPTACLE, 5-20R
-  DUPLEX RECEPTACLE, NEMA 5-20R
-  MANUAL MOTOR STARTER, TOGGLE OPERATED,
SINGLE PHASE. 1,2 OR 3 POLE AS REQUIRED
OVERLOAD PROTECTION
-  GFCI DUPLEX RECEPTACLE, NEMA 5-20R
WEATHER PROOF

ONE-LINE DIAGRAM:

-  UTILITY GRID
-  POWER TRANSFORMER
CONNECTION (WYE/DELTA)
-  CURRENT TRANSFORMER
RATIO
NUMBER REQUIRED
-  UTILITY METER

EQUIPMENT TAGS:

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

LINE TYPES:

- EXISTING
- NEW
- DEMOLITION

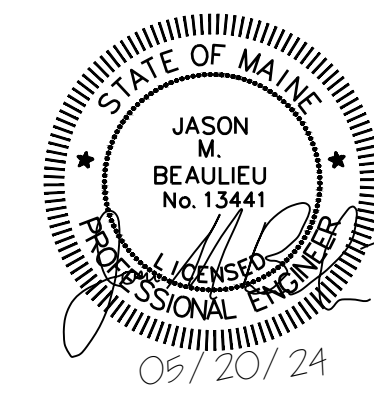
ABBREVIATIONS:

- AC ALTERNATING CURRENT
- AMP AMPERE
- AFF ABOVE FINISHED FLOOR
- AFG ABOVE FINISHED GRADE
- AHJ AUTHORITY HAVING JURISDICTION
- AIC AMPERE INTERRUPTING CAPACITY
- AWG AMERICAN WIRE GAUGE
- BLDG BUILDING
- C CONDUIT
- CB CIRCUIT BREAKER
- CLG CEILING
- CPT CONTROL POWER TRANSFORMER
- CT CURRENT TRANSFORMER
- CU COPPER
- DB DIRECT BURIED
- DC DIRECT CURRENT
- DISC DISCONNECT
- DN DOWN
- E EXISTING
- EC ELECTRICAL CONTRACTOR
- EMT ELECTRICAL METALLIC TUBING
- EWH ELECTRIC WATER HEATER
- EQP EQUIPMENT
- FBO FURNISHED BY OTHERS
- FLR FLOOR
- FWE FURNISHED WITH EQUIPMENT
- FU FUSE
- GFCI GROUND FAULT CIRCUIT INTERRUPTER
- GND GROUND
- HP HORSEPOWER
- HTR HEATER
- IG ISOLATED GROUND
- IMC INTERMEDIATE METAL CONDUIT
- K KILO
- KCMIL THOUSAND CIRCULAR MILS
- KV KILOVOLT
- KVA KILOVOLT-AMPERE
- KVAR KILOVOLT-AMPERE REACTIVE
- KW KILOWATT
- KWH KILOWATT-HOUR
- LA LIGHTNING ARRESTER
- LTG LIGHTING
- MC METAL CLAD
- MCB MAIN CIRCUIT BREAKER
- MFR MANUFACTURER
- MI MINERAL INSULATED
- MLO MAIN LUG ONLY
- MTD MOUNTED
- NC NORMALLY CLOSED
- NEC NATIONAL ELECTRICAL CODE
- NEG NEGATIVE
- NEUT NEUTRAL
- NIC NOT IN CONTRACT
- NO NORMALLY OPEN
- NTS NOT TO SCALE
- P POLE
- PF POWER FACTOR
- PH PHASE
- PVC POLYVINYL CHLORIDE
- RGS RIGID GALVANIZED STEEL CONDUIT
- RECEPT RECEPTACLE
- RM ROOM
- RSC RIGID STEEL CONDUIT
- SN SOLID NEUTRAL
- SPDT SINGLE POLE DOUBLE THROW
- TYP TYPICAL
- V VOLT
- VA VOLT-AMPERE
- VAR VOLT-AMPERE REACTIVE
- WM WATT METER
- WP WEATHER PROOF
- XFMR TRANSFORMER

GENERAL NOTES:

1. GENERAL NOTES, SYMBOL LISTS AND DETAILS ARE TO BE CONSIDERED AS APPLICABLE TO 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. DRAWINGS ARE SCHEMATIC AND DIAGRAMMATIC. USE JUDGMENT AND CARE TO INSTALL ELECTRICAL WORK TO FUNCTION PROPERLY AND FIT WITHIN BUILDING CONSTRUCTION AND FINISHES. PROVIDE ELECTRICAL CONDUCTORS, CONDUIT, COMPONENTS, NOT SHOWN OR SPECIFIED, WHICH ARE REQUIRED FOR ANY DEVICE OR SYSTEM TO PRODUCE A COMPLETE AND OPERATIVE SYSTEM.
3. PERFORM WORK IN ACCORDANCE WITH NFPA-70, NATIONAL ELECTRICAL CODE (NEC) 2020.
4. VERIFY THAT FIELD MEASUREMENTS, SURFACES, SUBSTRATES AND CONDITIONS ARE AS REQUIRED, AND READY TO RECEIVE WORK. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED. BY BEGINNING WORK, CONTRACTOR ACCEPTS CONDITIONS AND ASSUMES RESPONSIBILITY FOR CORRECTING UNSUITABLE CONDITIONS ENCOUNTERED AT NO ADDITIONAL COST.
5. PANEL SCHEDULE INFORMATION FOR EXISTING PANELS IS BASED ON AVAILABLE INFORMATION DURING DESIGN. VERIFY THAT PANEL SCHEDULES ARE ACCURATE AND NOTIFY CONTRACTING OFFICER OF ANY DISCREPANCY PRIOR TO COMMENCING WORK.
6. REMOVE ELECTRICAL EQUIPMENT WHERE INDICATED. REMOVE CONDUIT, CIRCUIT CONDUCTORS, SWITCHES, LIGHTING FIXTURES AND MISCELLANEOUS APPLIANCES BACK TO ENERGIZING SOURCE OR JUNCTION BOX WHERE MULTIPLE EQUIPMENT IS POWERED.
7. CONDUCTOR MATERIAL, INCLUDING WIRING, PANELBOARD BUSES, TRANSFORMER WINDINGS, AND GROUNDING MUST BE COPPER. ALUMINUM CONDUCTORS ARE NOT ALLOWED.
8. UNLESS OTHERWISE NOTED, FOR 20A-1P BRANCH CIRCUIT WIRING USE 2#12 AWG CONDUCTORS AND #12 GND. HOME RUNS FED FROM 20A-1P CIRCUITS IN EXCESS OF 100 FEET USE #10 AWG.
9. PROVIDE COMMERCIAL SPECIFICATION GRADE 277/120 VOLT LIGHTING TOGGLE SWITCHES, SIDE WIRED AND WITH GROUNDING SCREW. LEVITON, PASS AND SEYMOUR, OR APPROVED EQUAL. COORDINATE COLOR WITH OWNER.
10. PROVIDE COMMERCIAL SPECIFICATION GRADE CONVENIENCE RECEPTACLES, GROUNDING TYPE NEMA 5-20R, SIDE WIRED. LEVITON, PASS AND SEYMOUR, OR APPROVED EQUAL.
11. PROVIDE GALVANIZED STEEL WALL PLATES FOR MECHANICAL SPACES WIRING DEVICES, NYLON SMOOTH WALL PLATES FOR FINISHED PARTITIONED SPACES WIRING DEVICES, AND THERMOPLASTIC WALL PLATES FOR EXTERIOR WIRING DEVICES.
12. UNLESS OTHERWISE NOTED, PROVIDE TYPE EMT CONDUIT FOR INTERIOR RACEWAY, TYPE RGS CONDUIT FOR EXTERIOR RACEWAY, LIQUID TIGHT FLEXIBLE METAL CONDUIT FOR FINAL CONNECTIONS TO MOTORS, AND FLEXIBLE METAL CONDUIT FOR CONNECTIONS TO LIGHT FIXTURES (MAXIMUM 6FT LENGTH).
13. PROVIDE EQUIPMENT DISCONNECTS AND MANUAL MOTOR STARTERS UNLESS NOTED AS FURNISHED WITH EQUIPMENT (FWE). INCLUDE FUSES RATED FOR PROTECTION OF LOAD SUPPLIED. MOUNT DISCONNECTS AND MOTOR STARTERS IN AN ACCESSIBLE LOCATION WITHIN SIGHT OF THE LOAD SERVED. DISCONNECTS AND MOTOR STARTERS MUST BE LOCKABLE IN THE OPEN POSITION.
14. UNLESS OTHERWISE NOTED MOUNT CONVENIENCE RECEPTACLES 18" AFF, LAVATORY GFCI RECEPTACLES 48" AFF, RECEPTACLES AT COUNTERS 6" ABOVE BACKSPASH, LIGHTING TOGGLE SWITCHES 48" AFF, AND TEL/DATA SYSTEM OUTLETS 18" AFF. MEASUREMENTS ARE MADE TO TOP OF DEVICE.
15. SEAL PENETRATIONS THROUGH FLOORS, RATED WALLS AND PARTITIONS WITH UL APPROVED FIRE SEALANT MATERIAL TO MAINTAIN THE RATING OF SEPARATION.
16. EQUIPMENT CONNECTIONS ARE SHOWN FOR BASIS-OF-DESIGN PRODUCTS. COORDINATE EQUIPMENT CONNECTIONS - INCLUDING DISCONNECTING MEANS, OVERCURRENT PROTECTION, AND WIRE SIZING - WITH SELECTED MANUFACTURER'S RECOMMENDED INSTRUCTIONS.
17. COORDINATE FINAL DEVICE LOCATIONS IN PARTITIONED SPACES WITH OWNER'S PROPOSED FURNITURE LAYOUT.
18. PROVIDE 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, ACCESS POINTS, AND OTHER INSTALLATIONS.
19. MANUFACTURERS NAMES AND MODEL NUMBERS ARE USED THROUGHOUT THE PROJECT 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 NOTES AND IS NOT INTENDED TO LIMIT THE CONTRACTOR TO ONE MANUFACTURER.
20. SUPPLY DISTRIBUTION EQUIPMENT FROM THE SAME MANUFACTURER. APPROVED MANUFACTURERS INCLUDE SQUARE D, EATON/CUTLER-HAMMER, SIEMENS, OR APPROVED EQUAL.
21. PERFORM COMMUNICATIONS WORK IN ACCORDANCE WITH APPLICABLE TELECOMMUNICATIONS INDUSTRY ASSOCIATION AND ELECTRONICS INDUSTRIES ALLIANCE (TIA/EIA) STANDARDS. FOLLOW SELECTED MANUFACTURERS' RECOMMENDED INSTALLATION AND CONNECTION PROCEDURES. COORDINATE TELEPHONE AND DATA INSTALLATIONS WITH OWNER'S REPRESENTATIVE.
22. INSTALL AND TEST TELECOMMUNICATIONS CABLING ACCORDING TO TIA/EIA STANDARDS. PROVIDE TYPE CATEGORY 6 CABLES.
23. UNLESS OTHERWISE NOTED WIRING MUST BE AS FOLLOWS:
A. LOW VOLTAGE INTERIOR DISTRIBUTION AND BRANCH WIRING MUST BE 600V, COPPER WITH THHN/THWN INSULATION
B. LOW VOLTAGE EXTERIOR DISTRIBUTION AND BRANCH WIRING MUST BE 600V, COPPER WITH XHHW INSULATION.
24. EQUIPMENT ENCLOSURES, SWITCHES, RECEPTACLES, AND DEVICES MUST BE LABELED WITH THE SOURCE CIRCUIT AND EQUIPMENT CONTROLLED WHERE APPLICABLE. PANELBOARDS AND SWITCHBOARDS MUST HAVE APPROPRIATE ARC-FLASH LABELS INSTALLED IN ACCORDANCE WITH NFPA 70E REQUIREMENTS.
25. CONNECT EXIT SIGNS AND EMERGENCY LIGHTS TO THE UNSWITCHED LEG OF THE LIGHTING CIRCUIT IN THE ROOM THE DEVICE IS LOCATED.

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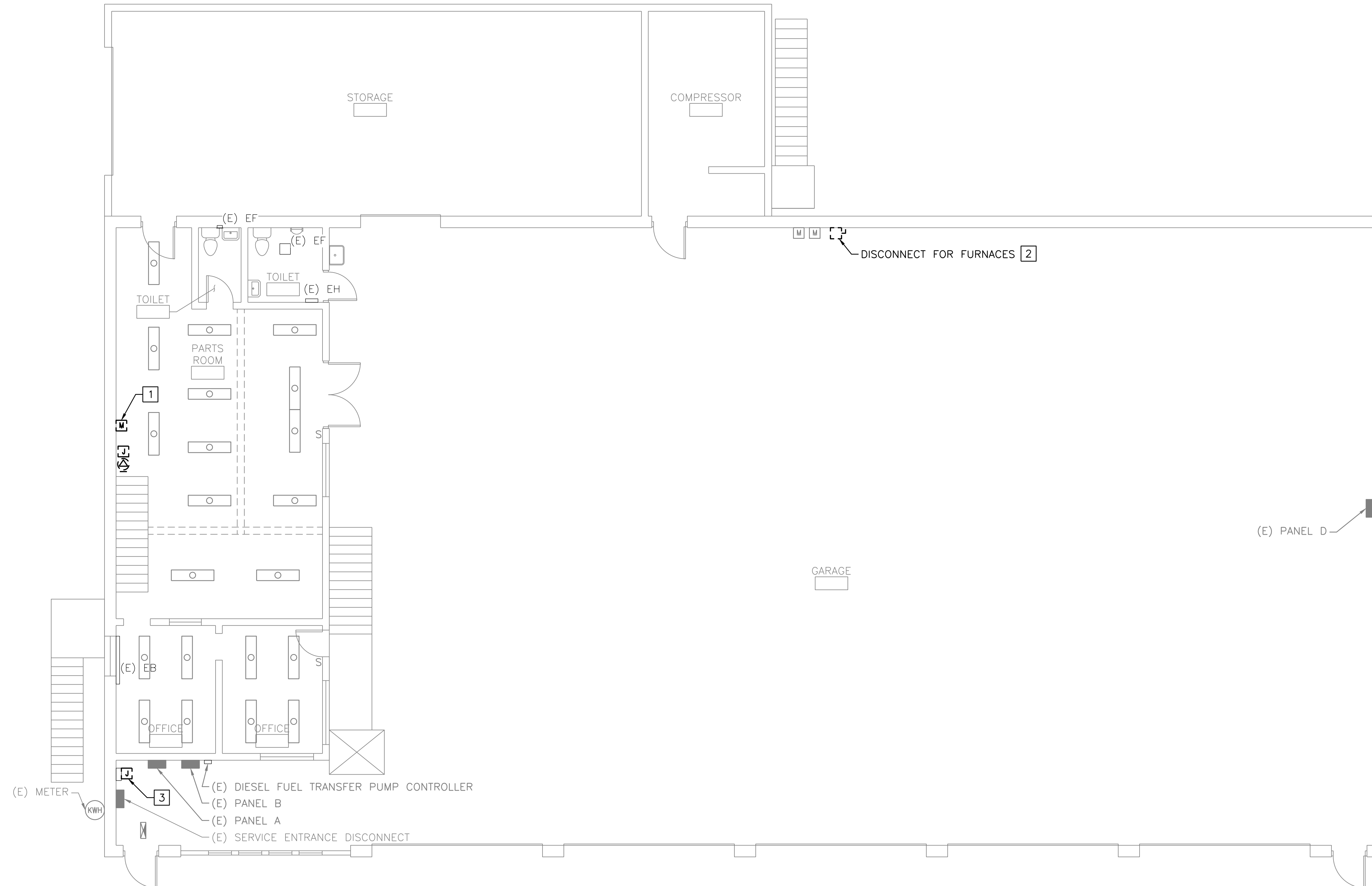
				MARINE RESOURCES DEPARTMENT 15 VIENO'S RUN, ROCKLAND, MAINE			
				MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES			
				ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES			
0	ISSUED FOR BID	CAW	MAC	05/20/24			
REV	DESCRIPTION	DWN	APP	DATE			
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				DATE: 05/01/2024	SHEET 15 OF 23		
				DES BY: PBB			
				DWN BY: CAW			
				CKD BY: BHG			

NOTES:

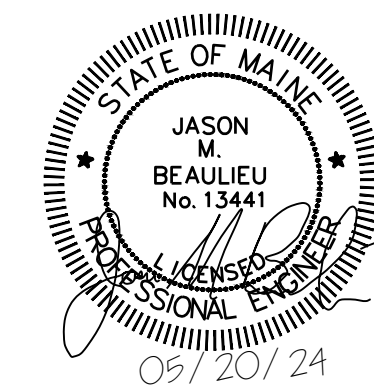
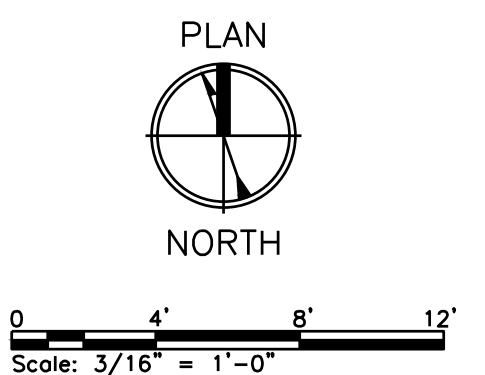
1. SEE E-001 FOR LEGEND ABBREVIATIONS AND GENERAL NOTES.

DEMOLITION KEYED NOTES:

- 1 DEMOLISH CONDUIT AND WIRE FOR OIL LIFT PUMP BACK TO SOURCE.
- 2 DEMOLISH DISCONNECT SWITCH AND ALL ASSOCIATED CONDUIT AND WIRE FROM SOURCE TO FURNACE.
- 3 EXISTING FIBERGLASS UNDERGROUND OIL TANK LEAK DETECTION PANEL. PANEL IS TO REMAIN UNTIL THE CLOSURE AND CLEANUP OF THE UNDERGROUND FUEL STORAGE TANK.



FIRST FLOOR ELECTRICAL DEMOLITION PLAN
SCALE: 3/16" = 1'-0"



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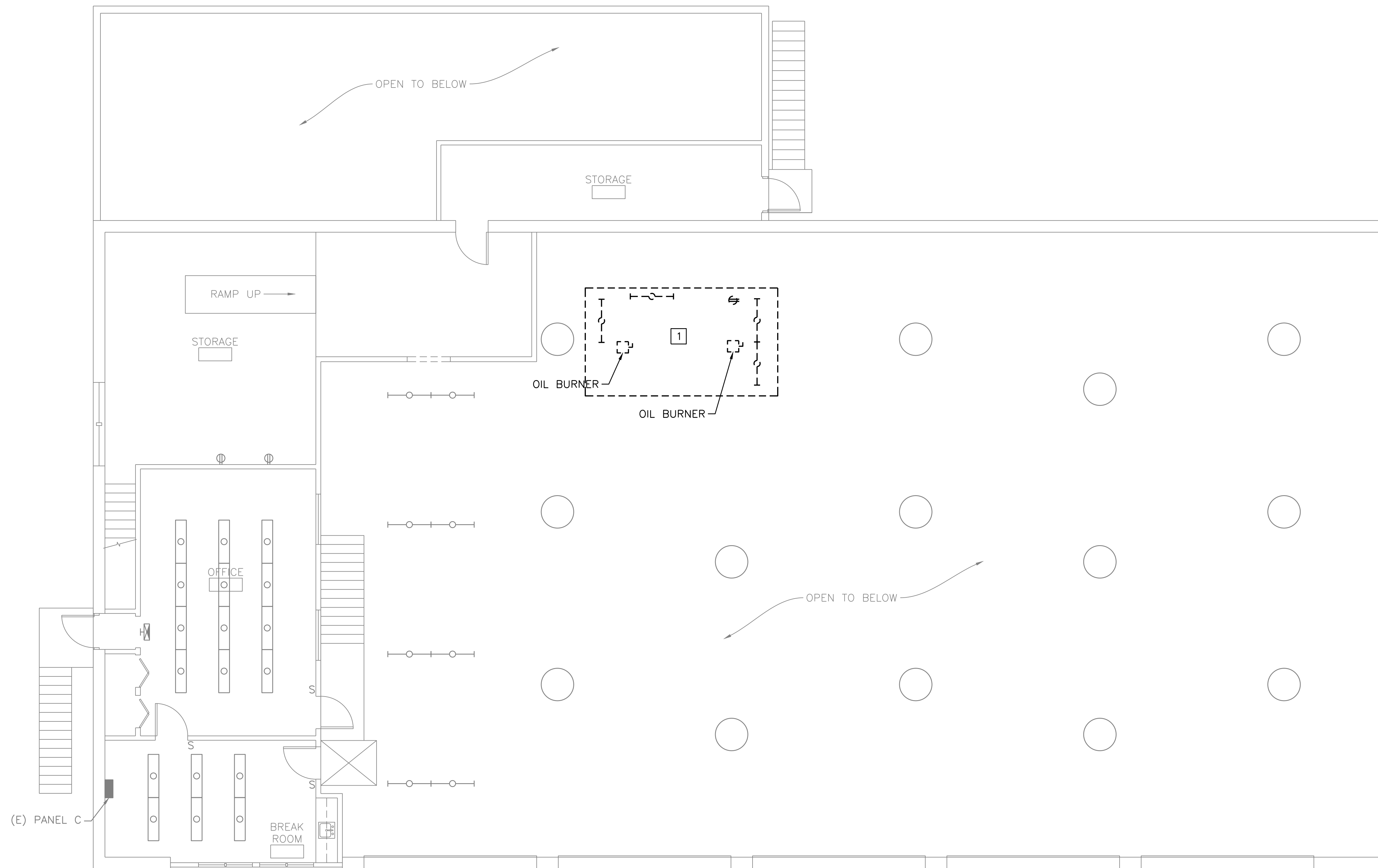
MARINE RESOURCES DEPARTMENT 15 VIENO'S RUN, ROCKLAND, MAINE	
MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES	
FIRST FLOOR ELECTRICAL DEMOLITION PLAN	
PROJECT NO. 163.016.001	DRAWING NO. ED101
SHEET 16 OF 23	

NOTES:

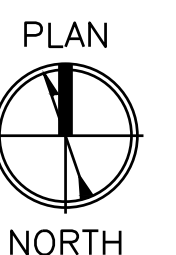
1. SEE E-001 FOR LEGEND ABBREVIATIONS AND GENERAL NOTES.

DEMOLITION KEYED NOTE:


- 1 LIGHT FIXTURES ARE MOUNTED TO THE UNDERSIDE OF THE PLATFORM.

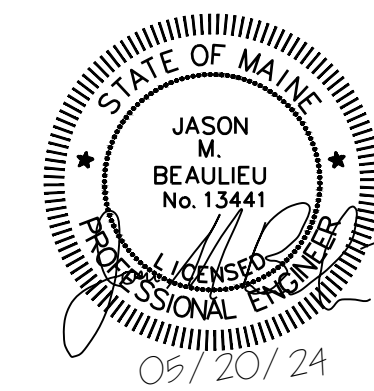


SECOND FLOOR ELECTRICAL DEMOLITION PLAN
SCALE: 3/16" = 1'-0"



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

		MARINE RESOURCES DEPARTMENT	
		15 VIENO'S RUN, ROCKLAND, MAINE	
		MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES	
		SECOND FLOOR ELECTRICAL DEMOLITION PLAN	
0	ISSUED FOR BID	CAW	MAC 05/20/24
REV	DESCRIPTION	DWN	APP DATE
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		DATE: 05/01/2024	DRAWING NO. ED102
		DES BY: PBB	SHEET 17 OF 23
		DWN BY: CAW	
		CKD BY: BHG	

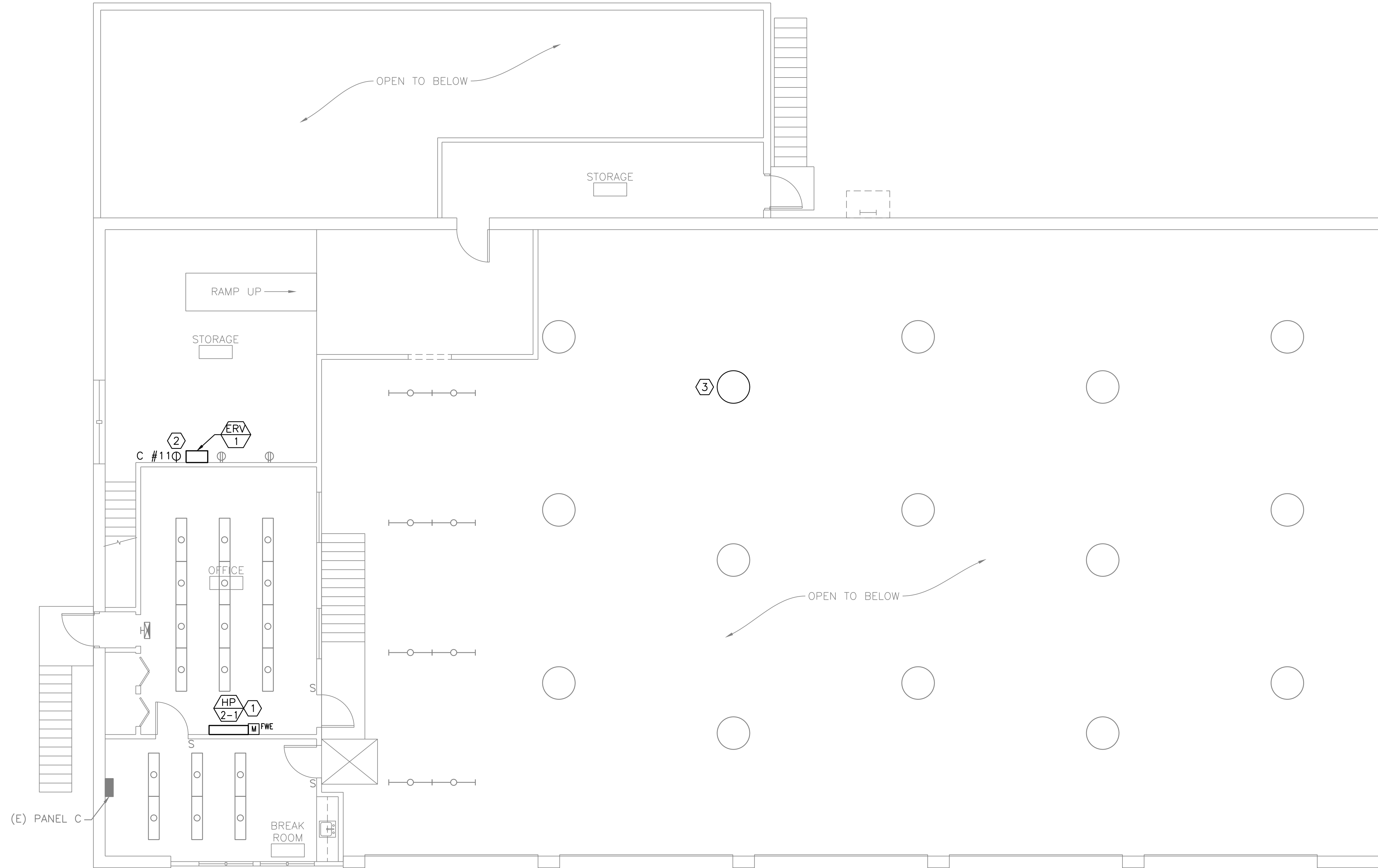


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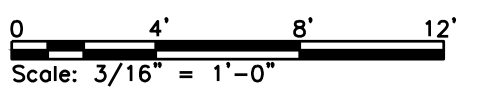
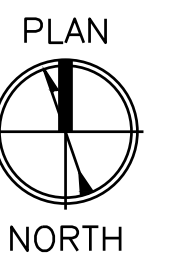
1. SEE E-001 FOR LEGEND ABBREVIATIONS AND GENERAL NOTES.

KEYED NOTES:

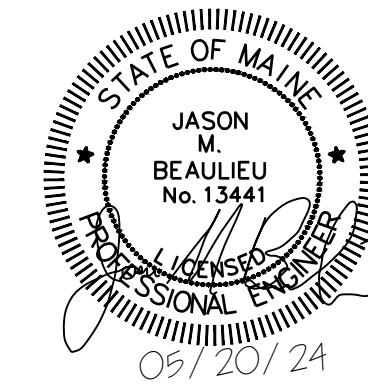
- ① INDOOR HEAT PUMP UNIT, HP-2-1 POWERED THROUGH OUTDOOR CONDENSING UNIT ACCU-2, SEE E-101 FOR LOCATION. PROVIDE CONDUIT AND WIRING FROM OUTDOOR UNIT PER MANUFACTURERS INSTALLATION INSTRUCTIONS.
- ② RECEPTACLE FOR MECHANICAL EQUIPMENT ERV-1, MOUNT AT SAME HEIGHT AS EQUIPMENT.
- ③ PROVIDE HIGH BAY ALUMINUM REFLECTOR WITH ACRYLIC LENS, SIMILAR TO LITHONIA LIGHTING TX A26, TO MATCH EXISTING HIGH BAY FIXTURES. PROVIDE WITH BUILT IN E30 BASE SOCKET CAPABLE OF HANDLING A 115W 240V LED LAMP. LAMP WILL BE PROVIDED BY OWNER. MOUNT FIXTURE AT THE SAME HEIGHT AS EXISTING HIGH BAY FIXTURES, CONNECT FIXTURE TO EXISTING LIGHTING CIRCUIT.



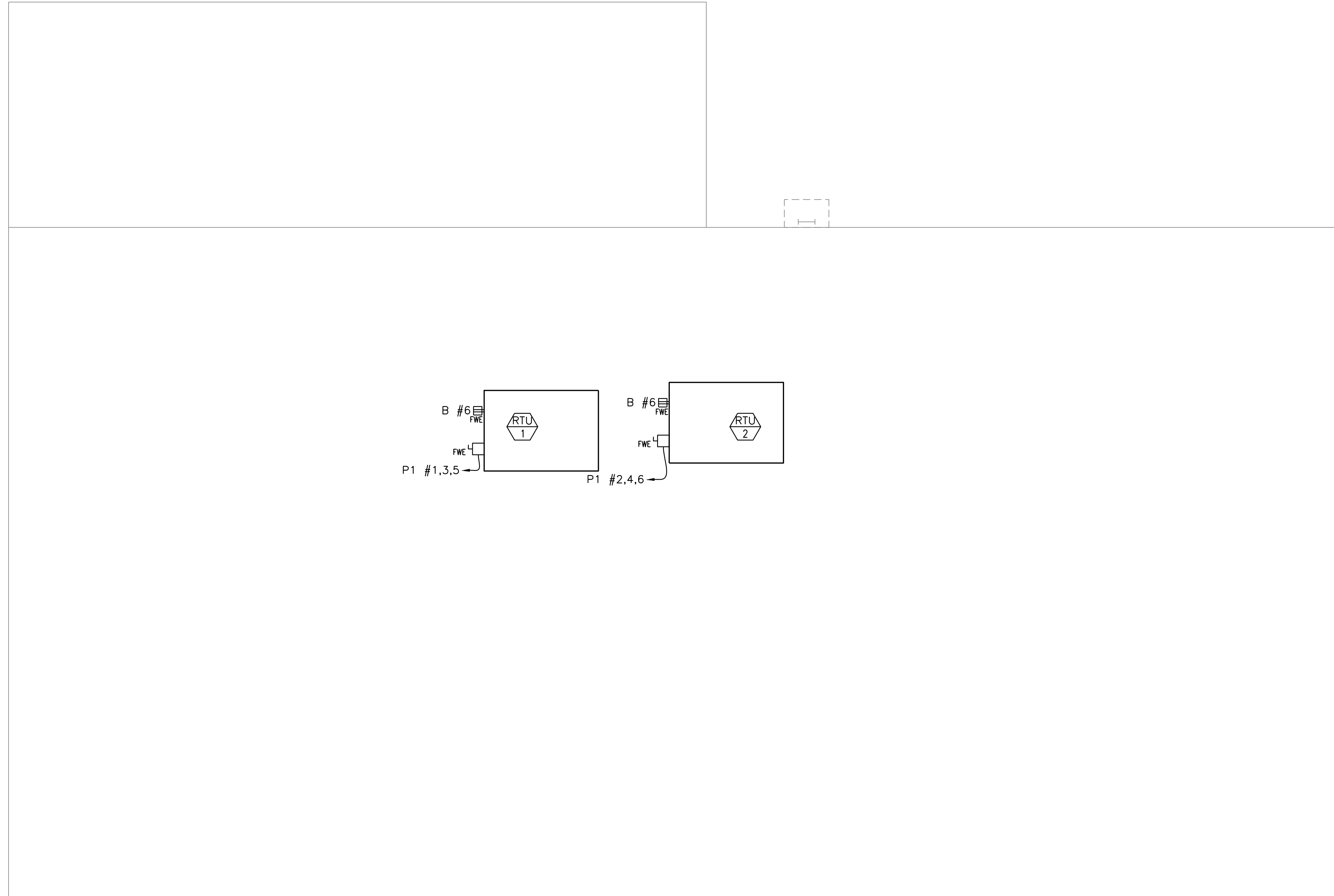
SECOND FLOOR ELECTRICAL PLAN
SCALE: 3/16" = 1'-0"



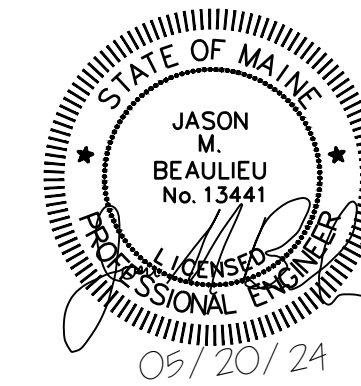
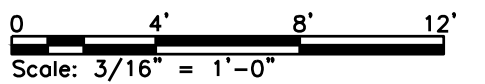
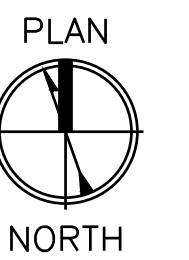
		MARINE RESOURCES DEPARTMENT 15 VIENO'S RUN, ROCKLAND, MAINE			
		MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES			
0 ISSUED FOR BID REV DESCRIPTION		CAW	MAC	05/20/24	SECOND FLOOR ELECTRICAL PLAN
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DES BY: PBB DWN BY: CAW CKD BY: BHG		SIZE:	DATE:	05/01/2024	SHEET 19 OF 23



- NOTES:
- SEE E-001 FOR LEGEND ABBREVIATIONS AND GENERAL NOTES.



ROOF ELECTRICAL PLAN
SCALE: 3/16" = 1'-0"



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MARINE RESOURCES DEPARTMENT 15 VIENO'S RUN, ROCKLAND, MAINE	
MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES	
ROOF ELECTRICAL PLAN	
PROJECT NO. 163.016.001	DRAWING NO. E-103
SHEET 20 OF 23	

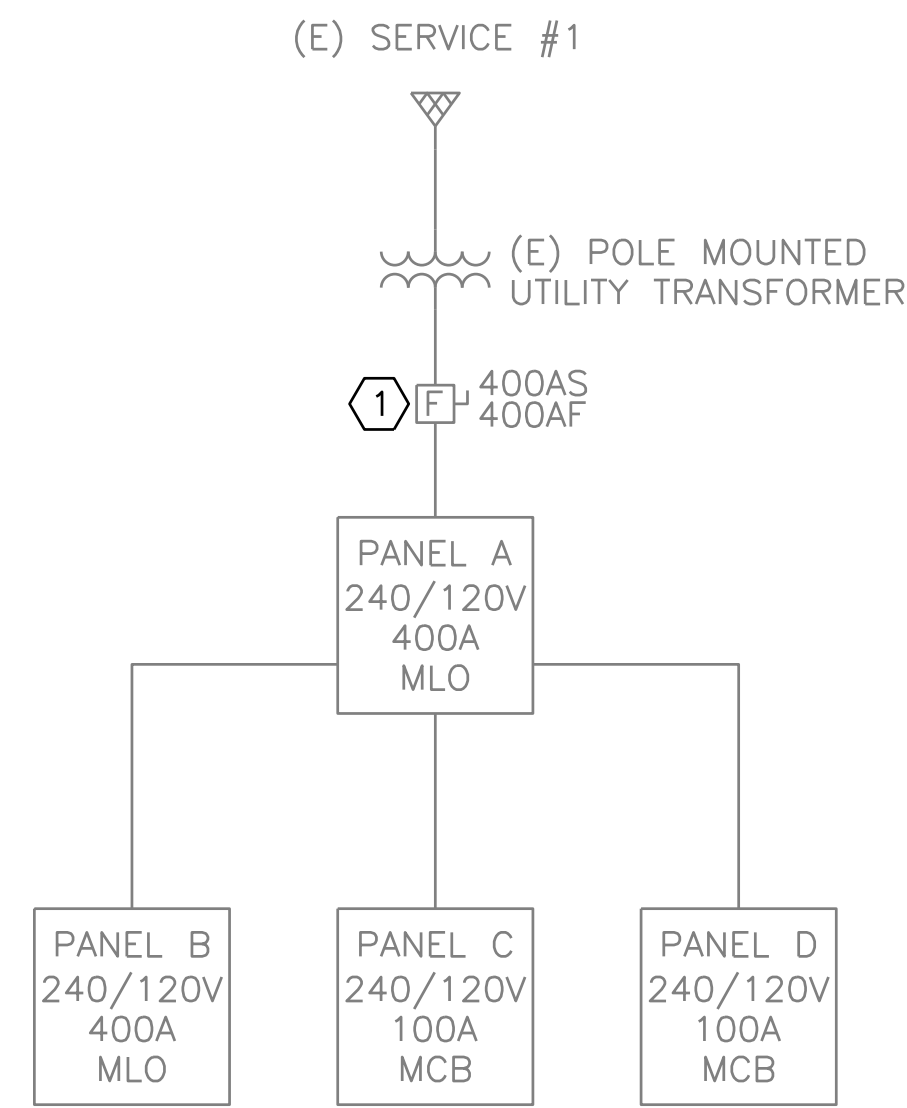
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DES BY: PBB
DWN BY: CAW
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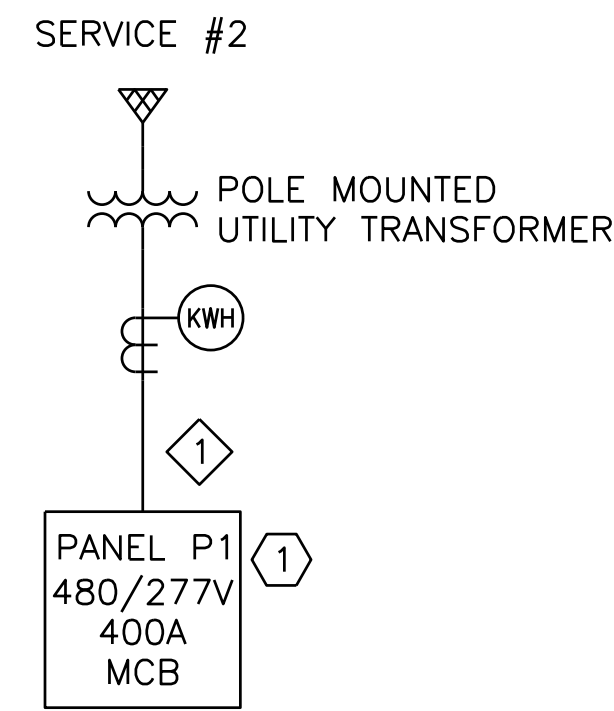
NOTE:
 1. SEE E-001 FOR LEGEND ABBREVIATIONS AND GENERAL NOTES.

KEYED NOTES:
 ① PROVIDE PERMANENT PLAQUE OR DIRECTORY AT SERVICE TO COMPLY WITH NEC 230.2.
 ② FIELD VERIFY EXISTING GROUNDING SYSTEM COMPLIES WITH NEC 250.50.

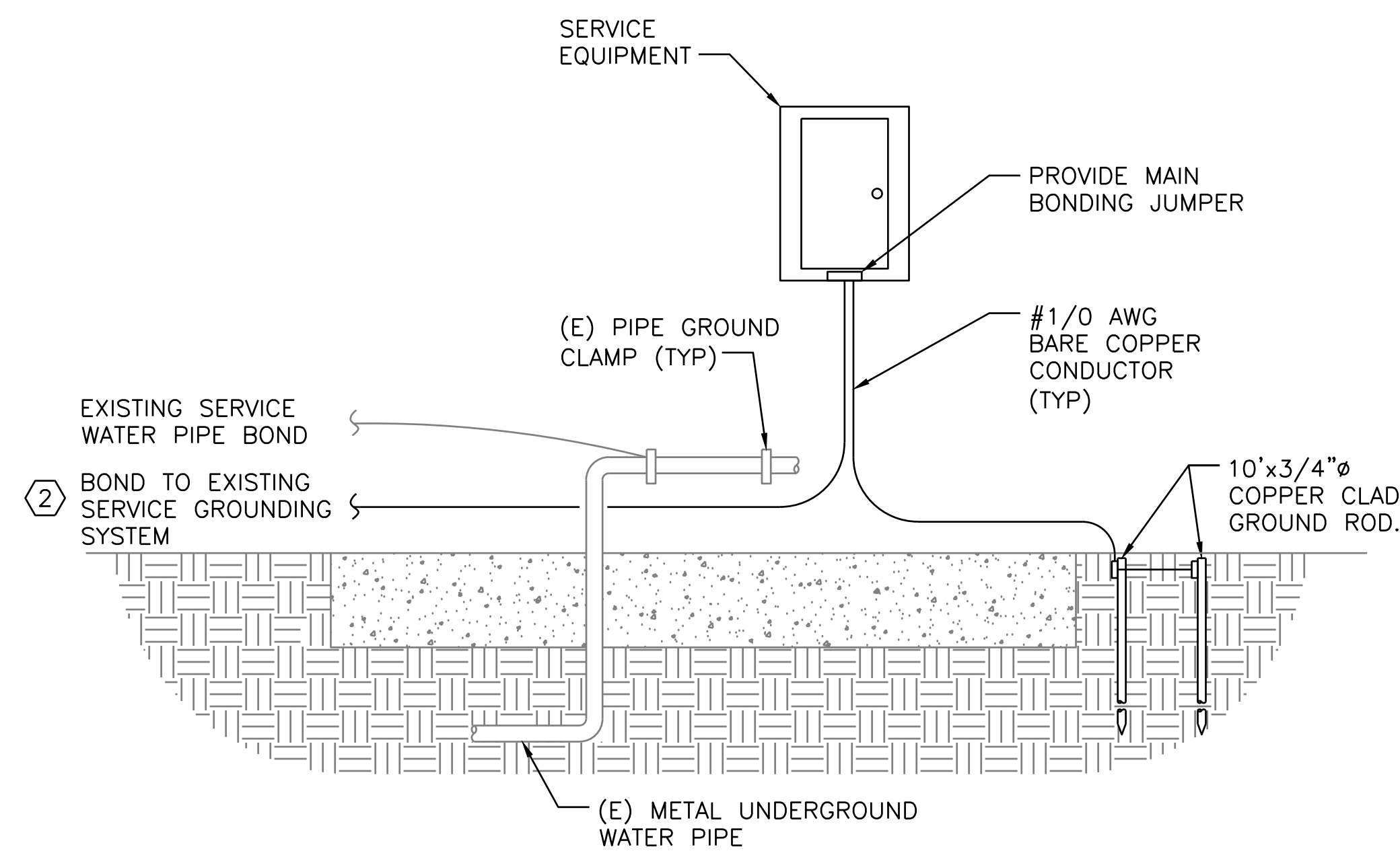
CABLE SCHEDULE:
 ⬡ 2 SETS OF [(4)#3/0 AWG, 1#4 GND, 2" C]



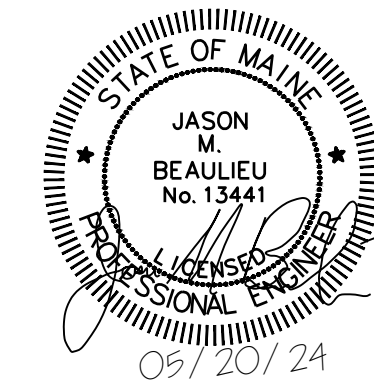
ONE LINE DIAGRAM - SERVICE #1



ONE LINE DIAGRAM - SERVICE #2



GROUNDING DETAIL
 SCALE: NTS



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				MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES			
				ONE LINE DIAGRAMS			
0	ISSUED FOR BID	CAW	MAC	05/20/24			
REV	DESCRIPTION	DWN	APP	DATE			
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				DATE: 05/01/2024	SHEET 21 OF 23		
				DES BY: PBB			
				DWN BY: CAW			
				CKD BY: BHG			

PANELBOARD NO:	PANEL P1	SC RATING:		400 AMP MAIN BREAKER
PANELBOARD TYPE:	DISTRIBUTION	MOUNTING:	SURFACE	400 AMP BUS (COPPER)
PANEL LOCATION:	GARAGE	VOLTAGE:	480Y/277V	
SUPPLIED FROM:	UTILITY XFMR - SERVICE 2			

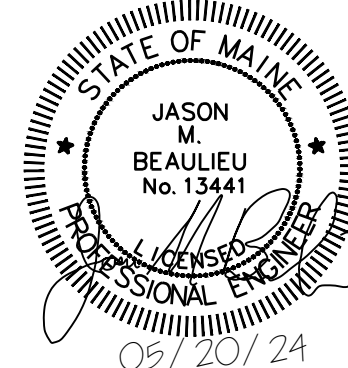
NOTE:
1. SEE E-001 FOR LEGEND ABBREVIATIONS AND GENERAL NOTES.

CKT NO.	TRIP AMPS	NO. POLES	WIRE SIZE	CONDUIT SIZE	LOAD SERVED	LOAD VA	φ	LOAD VA	LOAD SERVED	WIRE SIZE	CONDUIT SIZE	NO. POLES	TRIP AMPS	CKT NO.
1						31037	A	31037						2
3	150	3	(3) #1/0 AWG, (1) #6 GND	1-1/2"	RTU-1	31037	B	31037	RTU-2	(3) #1/0 AWG, (1) #6 GND		3	150	4
5						31037	C	31037						6
7					SPACE		A		SPACE					8
9					SPACE		B		SPACE					10
11					SPACE		C		SPACE					12
13					SPACE		A		SPACE					14
15					SPACE		B		SPACE					16
17					SPACE		C		SPACE					18
19					SPACE		A		SPACE					20
21					SPACE		B		SPACE					22
23					SPACE		C		SPACE					24
25					SPACE		A		SPACE					26
27					SPACE		B		SPACE					28
29					SPACE		C		SPACE					30
31					SPACE		A		SPACE					32
33					SPACE		B		SPACE					34
35					SPACE		C		SPACE					36
37					SPACE		A		SPACE					38
39					SPACE		B		SPACE					40
41					SPACE		C		SPACE					42

TOTAL PHASE A LOAD = 62.1 kVA
TOTAL PHASE B LOAD = 62.1 kVA
TOTAL PHASE C LOAD = 62.1 kVA
TOTAL CONNECTED LOAD = 186.2 kVA

NOTES:

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				MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES			
0 ISSUED FOR BID				CAW	MAC	05/20/24	
REV	DESCRIPTION			DWN	APP	DATE	
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				DATE:	05/01/2024		163.016.001
				DES BY:	PBB		SHEET
				DWN BY:	CAW		22 OF 23
				CKD BY:	JMB		E-601

PANELBOARD NO:		PANEL B		SC RATING:		10 KAIC				400 AMP MAIN LUGS	
PANELBOARD TYPE:		SQUARE D TYPE NQOD		MOUNTING:		SURFACE				400 AMP BUS (COPPER)	
PANEL LOCATION:		GARAGE		VOLTAGE:		240V/120V 1-PHASE 3-WIRE					
SUPPLIED FROM:		SUB FED FROM PANEL A									

CKT NO.	TRIP AMPS	NO. POLES	WIRE SIZE	CONDUIT SIZE	LOAD SERVED	LOAD VA	φ	LOAD VA	LOAD SERVED	WIRE SIZE	CONDUIT SIZE	NO. POLES	TRIP AMPS	CKT NO.
1	15	1			DIESEL PUMP		A		ISLAND LIGHT			1	15	2
3							B							4
5	20	1			EXISTING LOAD		A	360	RECEPTACLE – ROOF TOP UNITS *	(2) #12AWG, (1) #12 GND	3/4"	1	20	6
7	20	1			RECEPTACLE – GARAGE		B		RECEPTACLE – STOCK ROOM			1	20	8
9	20	1			RECEPTACLE – GARAGE		A		RECEPTACLE – STOCK ROOM COUNTER			1	20	10
11	20	1	(2) #12AWG, (1) #12 GND	3/4"	RECEPTACLE – EXTERIOR *	180	B		POLE LIGHTS & RECEPTACLE BUS			1	20	12
13	20	1			GARAGE LIGHTING AND EXHAUST FAN		A		LIGHTING – OFFICE			1	20	14
15	20	1			RECEPTACLE – GARAGE		B		SECURITY ALARM			1	20	16
17	20	1			RECEPTACLE & LIGHTING – STOCK ROOM		A		LIGHTING – STOCK ROOM OFFICE			1	20	18
19	20	1			RECEPTACLE – STOCK ROOM		B		SPARE			1	20	20
21	20	1			RECEPTACLE – STOCK ROOM OFFICE		A		FUEL TANK ALARM			1	20	22
23	30	1	(2) #10 AWG, (1) #10 GND	3/4"	ACCU-1	2784	B		ELEVATOR			1	20	24
25						2784	A		OMNTEC ALARM			1	20	26
27	20	1	(2) #12AWG, (1) #12 GND	3/4"	ACCU-2	1152	B	100	RTU CONTROL PANEL	(2) #12AWG, (1) #12 GND	3/4"	1	20	28
29						1152	A		SPACE					30
31	15	1	(2) #12AWG, (1) #12 GND	3/4"	BS-1	100	B		SPACE					32
33						100	A		SPACE					34
35					SPACE		B		SPACE					36
37					SPACE		A		SPACE					38
39					SPACE		B		SPACE					40
41					SPACE		A		SPACE					42

TOTAL PHASE A LOAD = 4.4 kVA
TOTAL PHASE B LOAD = 4.3 kVA
TOTAL CONNECTED LOAD = 8.7 kVA

NOTES: * USE EXISTING SPARE CIRCUIT BREAKER.

- NOTE:**
- SEE E-001 FOR LEGEND ABBREVIATIONS AND GENERAL NOTES.
 - HIGHLIGHTED CIRCUITS INDICATE EXISTING CIRCUITS WITH UNVERIFIED LOADS.
 - UNLESS OTHERWISE NOTED PANEL SCHEDULES INDICATE NEW CIRCUIT BREAKERS TO BE PROVIDED.
 - PANEL SCHEDULE INFORMATION FOR EXISTING PANELS IS BASED ON AVAILABLE INFORMATION DURING DESIGN. VERIFY THAT PANEL SCHEDULES ARE ACCURATE AND NOTIFY CONTRACTING OFFICE OF ANY DISCREPANCIES PRIOR TO COMMENCING WORK.
 - FIELD VERIFY PANELBOARD SHORT CIRCUIT CURRENT RATING OF PANELS.


PANELBOARD NO:		PANEL C		SC RATING:		22/10 KAIC				100 AMP MAIN BREAKER	
PANELBOARD TYPE:		SQUARE D TYPE QO LOAD CENTER		MOUNTING:		RECESSED				100 AMP BUS (COPPER)	
PANEL LOCATION:		BREAK ROOM		VOLTAGE:		240V/120V 1-PHASE 3-WIRE					
SUPPLIED FROM:		PANEL A									

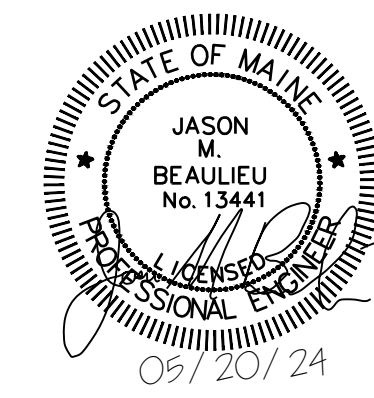
CKT NO.	TRIP AMPS	NO. POLES	WIRE SIZE	CONDUIT SIZE	LOAD SERVED	LOAD VA	φ	LOAD VA	LOAD SERVED	WIRE SIZE	CONDUIT SIZE	NO. POLES	TRIP AMPS	CKT NO.
1	20	1			LIGHTING – BREAK ROOM, HALL & EXTERIOR		A		LIGHTING – LARGE OFFICE			1	20	2
3	20	1			RECEPTACLE – BREAK ROOM & HALL		B		RECEPTACLE – SMALL OFFICE			1	20	4
5	20	1			RECEPTACLE – COUNTER		A		RECEPTACLE – LARGE OFFICE & STOCK ROOM			1	20	6
7	20	1			RECEPTACLE – COUNTER		B		WATER HEATER			1	20	8
9	20	1			RECEPTACLE – TELEPHONE EQUIPMENT		A							10
11	15	1	(2) #12AWG, (1) #12 GND	3/4"	ERV-1	700	B		HEAT PUMP/AC			1	70	12
13					SPACE		A		SPACE					14
15					SPACE		B		SPACE					16
17					SPACE		A		SPACE					18
19					SPACE		B		SPACE					20

TOTAL PHASE A LOAD = 0.0 kVA
TOTAL PHASE B LOAD = 0.7 kVA
TOTAL CONNECTED LOAD = 0.7 kVA

NOTES:

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 COIBY COMPANY LLC engineering & design		MARINE RESOURCES DEPARTMENT		
		15 VIENO'S RUN, ROCKLAND, MAINE		
		MARINE PATROL WATERCRAFT FACILITY HEATING UPGRADES		
		PANEL SCHEDULE - PANEL B & C		
0	ISSUED FOR BID	CAW	MAC	05/20/24
REV	DESCRIPTION	DWN	APP	DATE
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		DATE: 05/01/2024	163.016.001	E-602
		DES BY: DES	SHEET	
		DWN BY: DWN	23 OF 23	
		CKD BY: CKD		



47A York St
 Portland, ME
 04101
 207.553.7753