

C:\Projects\2021\MSU\Sub North Roof Replacement\03 Design - Drawings - Specs\3 - Revs\2021\03\15\01 MSU Sub North Roof Replacement_Coveral_03.rvt 3/23/2023 4:06:17 PM

MONTANA STATE UNIVERSITY SUB NORTH ROOFS REPLACEMENT PPA # 21-0087

REVISIONS		
NUM.	DESCRIPTION	DATE

751 W GRANT ST. BOZEMAN, MT 59715



CWG Architecture + Interiors

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Helena, Montana

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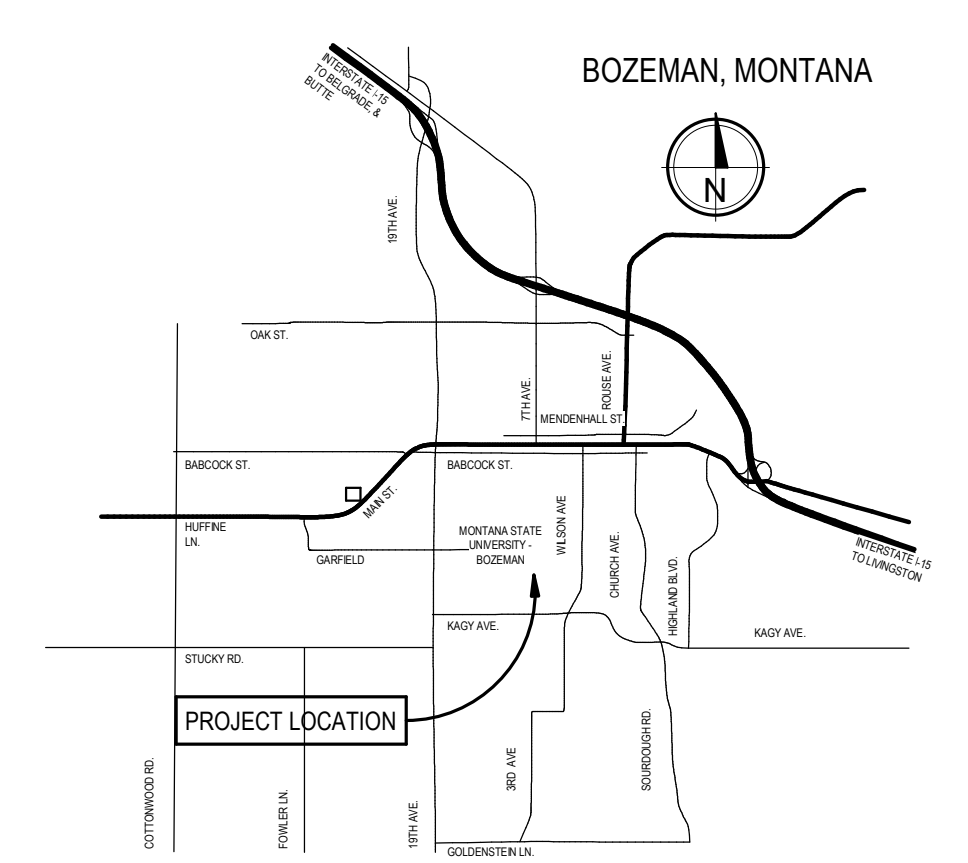
- STRUCTURAL** STAHLY ENGINEERING & ASSOCIATES, INC
851 BRIDGER DRIVE, SUITE 1, BOZEMAN, MT 59715 TEL 406-522-8594
- MECHANICAL** CONSULTING DESIGN SOLUTIONS, INC
MANHATTAN, MT TEL 406-282-7082 FAX 406-282-7087
- ELECTRICAL** CONSULTING DESIGN SOLUTIONS, INC
MANHATTAN, MT TEL 406-282-7082 FAX 406-282-7087



GENERAL NOTES

- THIS IS A TYPE II-B, FULLY SPRINKLED BUILDING. THIS BUILDING CONTAINS THE FOLLOWING OCCUPANCIES: A-1, A-2, A-3, B, F-1, M, S-2. GENERALLY, ROOF B, K, H COVERS AN A-2 OCCUPANCY; ROOF F & G COVERS A GROUP B OCCUPANCY.
- DO NOT SCALE DRAWINGS. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, SIZES, QUANTITIES, & LOCATION BEFORE BEGINNING WORK.
- VERIFY LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. ANY UTILITIES LOCATED ARE SHOWN APPROXIMATE AND SHOULD NOT BE USED TO DETERMINE THEIR LOCATION ON THE GROUND, AND DOES NOT RELIEVE ANY PERSON OR COMPANY OF THEIR RESPONSIBILITY TO CONTACT ALL UTILITY COMPANIES PRIOR TO ANY EXCAVATION BY CALLING UTILITIES UNDERGROUND LOCATION CENTER AT 1-800-424-5555.
- THERE ARE NO KNOWN HAZARDOUS MATERIALS STORED ON THE PREMISES AS DEFINED BY 2012 IBC.
- PROJECT SHALL COMPLY WITH THE 2021 IBC, 2021 IMC, 2021 IECC, 2021 NEC, 2021 IFC, 2021 UPC, IECC C402.2.1 ZONE 0B, ROOF ASSEMBLY - THE MINIMUM R-VALUE SHALL BE R3001.
- WALL AND CEILING MATERIALS SHALL NOT EXCEED THE FLAME SPREAD CLASSIFICATION IBC 803.13.
- ELECTRONIC BIM DRAWING FILES MAY BE AVAILABLE FROM THE ARCHITECT, STRUCTURAL, MECHANICAL AND ELECTRICAL ENGINEERS. DRAWINGS WILL BE STRIPPED OF ALL DATA EXCEPT FOR BASIC PLAN OR SECTION INFORMATION. A WAIVER WILL NEED TO BE SIGNED AND RECEIVED PRIOR TO RELEASE OF DRAWING FILES.
- IT IS ABSOLUTELY NECESSARY THAT ALL TRADES COORDINATE WITH EACH OTHER AND VERIFY THAT THERE ARE NO CONFLICTS IN LOCATIONS OF DUCTS, CONDUITS, SPRINKLER HEADS, DIFFUSERS, ELECTRICAL BOXES, EQUIPMENT AND OTHER ITEMS THROUGHOUT THIS PROJECT BEFORE FINAL PLACEMENT OF MATERIALS.
- REFER TO STRUCTURAL DRAWING AND SPECIFICATIONS FOR SPECIAL INSPECTION INFORMATION. THERE ARE NO SPECIAL INSPECTIONS FOR THE MSU-SUB NORTH ROOF PROJECT.
- FIRE RETARDANT PLYWOOD - FR TREATED WOOD COMPLYING WITH IBC 2303.2 MUST BE LABELED, ASTM E84 OR UL 723 WITH FLAME SPREAD OF 25 OR LESS AND UTILIZE ADJUSTMENT FACTORS IN ASTM D5516.

VICINITY MAP



BOZEMAN VICINITY MAP
SCALE: 1" = 20'-0"

SUBMITTAL DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE, WHO SHALL REVIEW THEM AND FORWARD THEM TO THE BUILDING OFFICIAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND THAT THEY HAVE BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE BUILDING DESIGN. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

ARCHITECTURAL ABBREVIATIONS

±	PLUS OR MINUS	GA	GALVEZ
°	DEGREE	GALV.	GALVANIZED
∅	DIAMETER	GL	GLU-LAM
⊕	CENTER LINE	GYP. BD.	GYPSPUM BOARD
ACT.	ACOUSTICAL TILE	H.M.	HOLLOW METAL
ADJ.	ADJUSTABLE	HORIZ.	HORIZONTAL
A.F.F.	ABOVE FINISH FLOOR	INSUL.	INSULATION
ALT.	ALTERNATE	I & W.	ICE AND WATER SHIELD
ALUM.	ALUMINUM	MAX.	MAXIMUM
BD.	BOARD	MDF.	MEDIUM DENSITY FIBER BD.
B.O.	BOTTOM OF	MECH.	MECHANICAL
BOTT.	BOTTOM	MFR.	MANUFACTURER
BRG.	BEARING	MIN.	MINIMUM
BS.	BACKSPASH	MISC.	MISCELLANEOUS
C.J.	CONTROL JOINT	M.O.	MASONRY OPENING
CLG.	CEILING	MTL.	METAL
CLR.	CLEAR	N.I.C.	NOT IN CONTRACT
CMU	CONCRETE MASONRY UNIT	N.T.S.	NOT TO SCALE
C.O.	CLEAN OUT	O.C.	ON CENTER
COL.	COLUMN	O.C.E.W.	ON CENTER EACH WAY
CONC.	CONCRETE	O.S.B.	ORIENTED STRAND BOARD
CONT.	CONTINUOUS	PLWD.	PLYWOOD
CPT.	CARPET	PREFIN.	PREFINISHED
C.T.	CERAMIC TILE	P.T.	PRESSURE TREATED
DBL.	DOUBLE	R.D.	ROOF DRAIN
D.F.	DRINKING FOUNTAIN	REINF.	REINFORCE (ED) (ING)
DIA.	DIAMETER	REQD.	REQUIRED
DIM.	DIMENSION	R.O.	ROUGH OPENING
D.S.	DOWNSPOUT	SCHD.	SCHEDULE
(D)	EXISTING	SIM.	SIMILAR
ELEC.	ELECTRICAL	SPEC.	SPECIFICATION
EQ.	EQUAL	STL.	STEEL
EQUIP.	EQUIPMENT	STRUCT.	STRUCTURAL
EXP.	EXPANSION	SUSP.	SUSPENDED
EXT.	EXTERIOR	S.V.	SHEET VINYL
EW.	EACH WAY	T.O.	TOP OF
FACT.	FACTORY	T.S.	TUBE STEEL
FD.	FLOOR DRAIN	TYP.	TYPICAL
FDC.	FIRE DEPARTMENT CONNECTION	V.C.T.	VINYL COMPOSITION TILE
FE.	FIRE EXTINGUISHER	VERT.	VERTICAL
FEC.	FIRE EXTINGUISHER CAB	W.	WITH
FN.	FINISH	WD.	WOOD
FLR.	FLOOR	WDW.	WINDOW
FNDTN.	FOUNDATION		
FRP.	FIBER REINFORCED PLASTIC		
F.S.	FLOOR SINK		
FTG.	FOOTING		

PATTERNS & SYMBOLS

HATCH PATTERNS

CONCRETE	RIGID INSULATION BOARD
SPRAY-FOAM INSULATION	PLYWOOD
EARTH	STONE - CUT
GRAVEL	2X WOOD OR METAL STUD FRAMED WALL
GYPSPUM BOARD	BATT INSULATION
BLOWN-IN INSULATION	

SYMBOLS

TRUE NORTH PROJECT NORTH

DRAWING NUMBER SHEET ON WHICH DRAWING APPEARS

DETAIL WALL SECTION BUILDING SECTION

DRAWING NUMBER DRAWING NAME

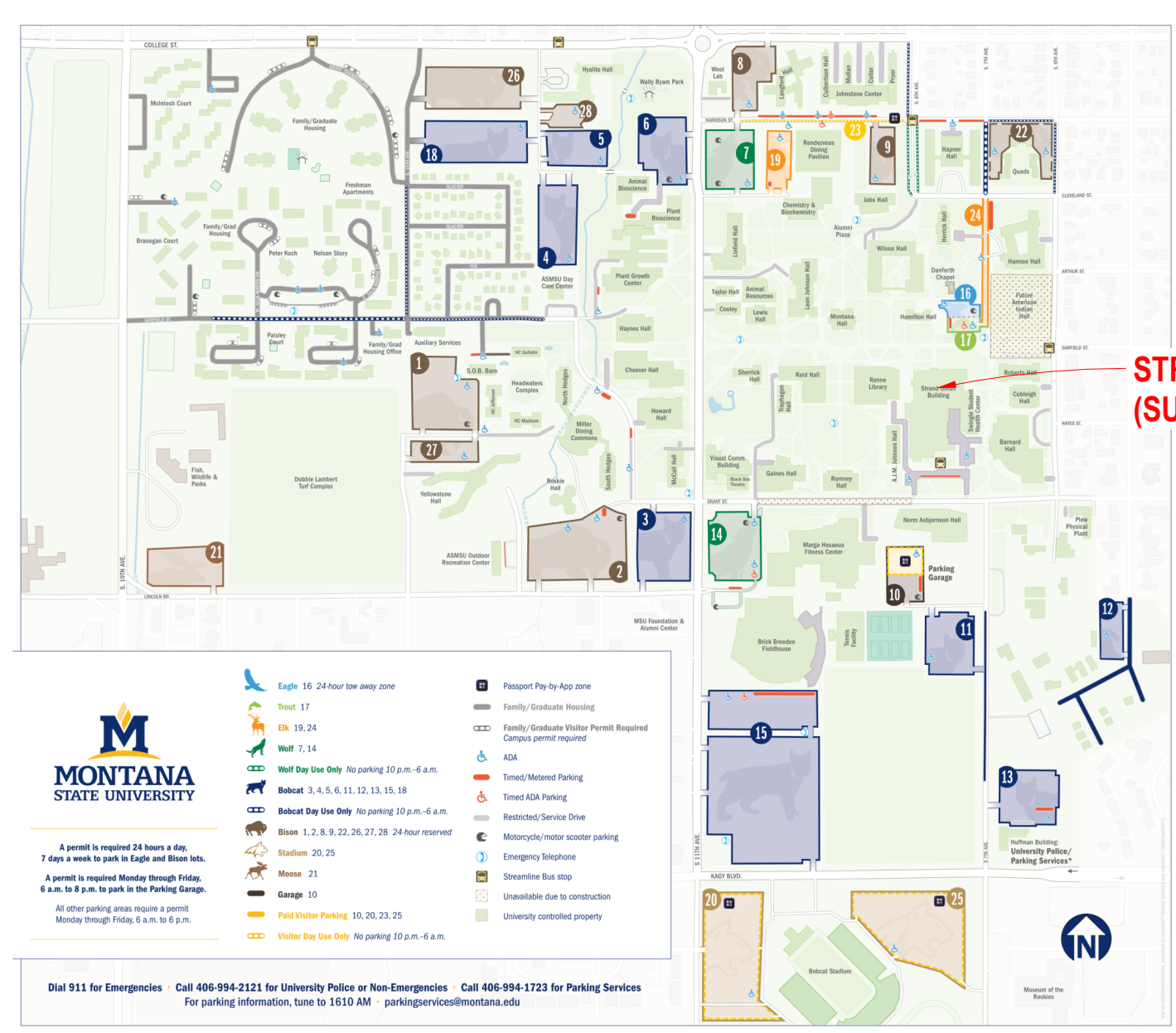
FLOOR PLAN
1/4" = 1' - 0"

DRAWING NUMBER SHEET ON WHICH DRAWING APPEARS

INTERIOR ELEVATION EXTERIOR ELEVATION

SHEET LIST

- #### SHEET INDEX
- G0.0 COVER SHEET
 - A3.1 ROOF PLAN
 - A3.2 ROOF PLAN DEMO - ROOF B, K
 - A3.3 ROOF PLAN NEW- ROOF B, K
 - A3.4 ROOF PLAN DEMO & NEW - ROOF H
 - A3.5 ROOF PLANS DEMO & NEW - F, F-1, G, (ALTERNATE #1)
 - A4.1 BUILDING ELEVATIONS
 - A6.1 WALL SECTIONS
 - A6.2 WALL SECTIONS
 - A9.1 ROOF DETAILS
 - A9.2 DETAILS
 - MD1.1 DEMO ROOF ZONE B & K PLAN - MECHANICAL
 - MD1.2 DEMO ROOF ZONE F, G, & H PLAN - MECHANICAL
 - M1.1 ROOF ZONE B & K PLAN - MECHANICAL
 - M1.2 DEMO ROOF ZONE F, G, & H PLAN - MECHANICAL
 - M2.1 MECHANICAL LEGEND, DETAILS, AND SCHEDULES
 - E1.1 ROOF ZONE B & K PLAN - POWER
 - E1.2 ROOF ZONE F, G, & H PLAN - POWER
 - E1.3 FIRST FLOOR PLAN POWER
 - E1.4 SECOND FLOOR PLAN - POWER
 - E1.5 THIRD FLOOR PLAN - POWER
 - E2.1 ELECTRICAL ONE LINE & DETAILS



Strand Union Administration
Montana State University
SUB 223
PO Box 174140
Bozeman, MT 59717-4140
Physical Location: 751 Grant St

CAMPUS MAP

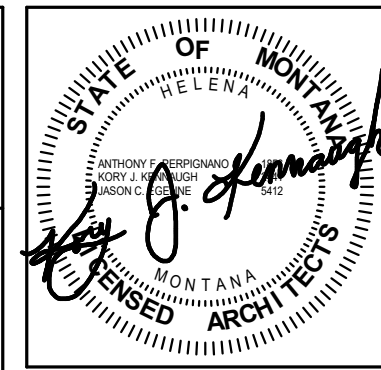
CITY PERMIT STAMP

23-158-01
COVER SHEET
DATE 03 23 2023
G0.0

MONTANA STATE UNIVERSITY
751 W GRANT ST. BOZEMAN, MT 59715
SUB NORTH ROOFS REPLACEMENT PPA # 21-0087

COORDINATION NOTE
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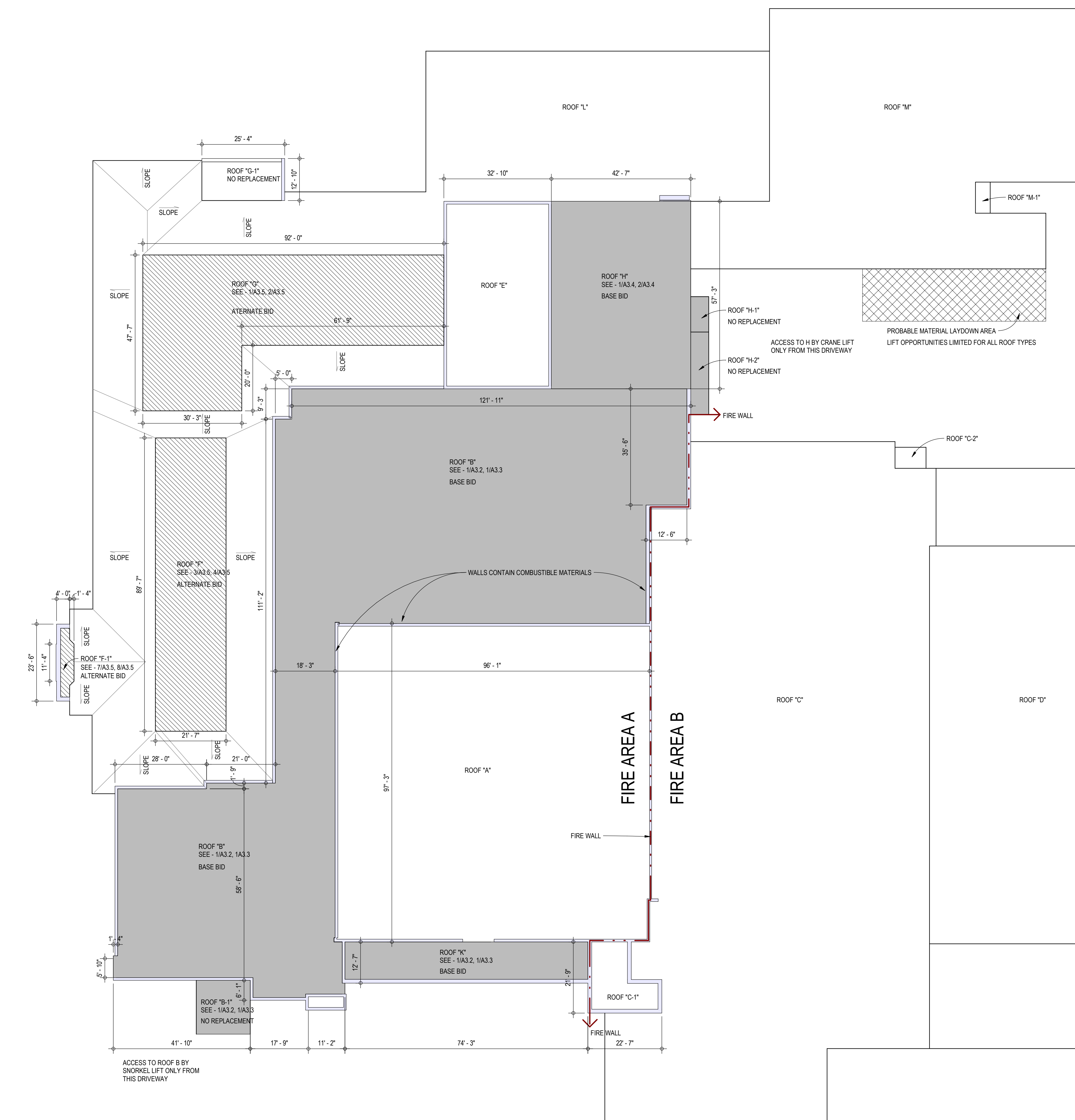
COGNIZANT NOTE:
 THE CONTRACTOR SHALL BE COGNIZANT THAT THIS IS A REMODEL PROJECT AND AS SUCH, CERTAIN ITEMS CANNOT BE FULLY ILLUSTRATED NOR EXPLAINED WITHOUT FIELD OBSERVATION. THEREFORE BEFORE SUBMITTING A PROPOSAL, THE CONTRACTOR SHALL VISIT AND EXAMINE THE PROJECT IN EVERY DETAIL AS PERTAINS TO THIS PROJECT AND MAKE ALLOWANCES IN THEIR PROPOSAL FOR ALL CONDITIONS THAT WILL AFFECT THE WORK INDICATED IN THE PROJECT MANUAL AND CONTRACT DOCUMENTS.



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 SUB NORTH ROOFS REPLACEMENT PPA # 21-0087
 751 W GRANT ST. BOZEMAN, MT 59715
ROOF PLAN



2 AERIAL PHOTO OF SITE
 SCALE: 1/8" = 1'-0"

ROOF SCHEDULE	
Mark	Area
ROOF B	13468 SF
ROOF F	1934 SF
ROOF F-1	75 SF
ROOF G	3143 SF
ROOF H	2326 SF
ROOF K	848 SF

ROOF PLAN LEGEND	
	ROOF(S) NOT INCLUDED IN ROOF REPLACEMENT
	ROOF(S) INCLUDED IN BASE BID
	ROOF(S) INCLUDED AS AN ALTERNATE BID ITEM

1 OVERALL ROOF PLAN FIRE AREA A & B
 SCALE: 1/16" = 1'-0"

23-158-01
 DRAWN BY CWG
 APPROVED CWG
 DATE 03 23 2023

A3.1

EXISTING ROOF & ROOF REPLACEMENT ASSEMBLIES

- ROOF B - EST INSTALL 1991**
EXISTING ROOF ASSEMBLY
 (E) WOOD DECK - EXISTING - PARTIAL SLOPE TO DECK - VERIFY
 (E) SADDLES & CRICKETS - PERLITE TAPERED ROOF INSULATION
 (E) R20 TAPERED POLYISOCYANURATE INSULATION W/ CRICKET - MECHANICAL ATTACHMENT
 - TO REMAIN WITH EXCEPTIONS SEE PLAN
 (E) (D)45 MIL HYPALON - DEMO FROM ROOF SURFACE
- ROOF K - EST INSTALL 1991**
EXISTING ROOF ASSEMBLY
 (E) DECK - VERIFY
 (E) VERIFY INSULATION - DEMO
 (E) MODIFIED BITUMEN (BUR) DEMO

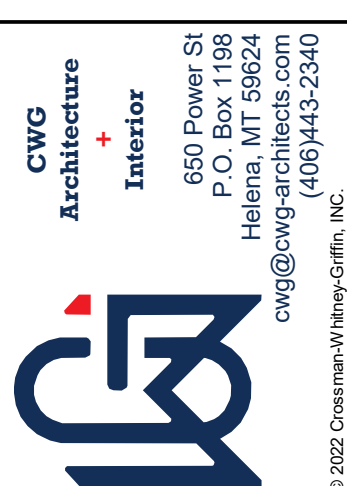
- GENERAL ROOF NOTES:**
 1. TOP OF ROOF ELEVATIONS NOTED ARE ESTIMATES ONLY AND DO NOT INCLUDE TAPERS. USE FOR REFERENCE ONLY.
 2. IN DEMO OF ROOF MEMBRANES, ASSURE ALL EXISTING ROOFING OR INSULATION FASTENERS ARE AT OR BELOW THE SURFACE OF THE EXISTING MATERIALS TO BE LEFT IN PLACE. REMOVE AND REPLACE, OR REFASTEN TO DECK SURFACE.
 3. PROVIDE WALKING PADS AT ALL MECHANICAL EQUIPMENT. OPENINGS BETWEEN MECHANICAL AND STRUCTURAL.

COORDINATION NOTE

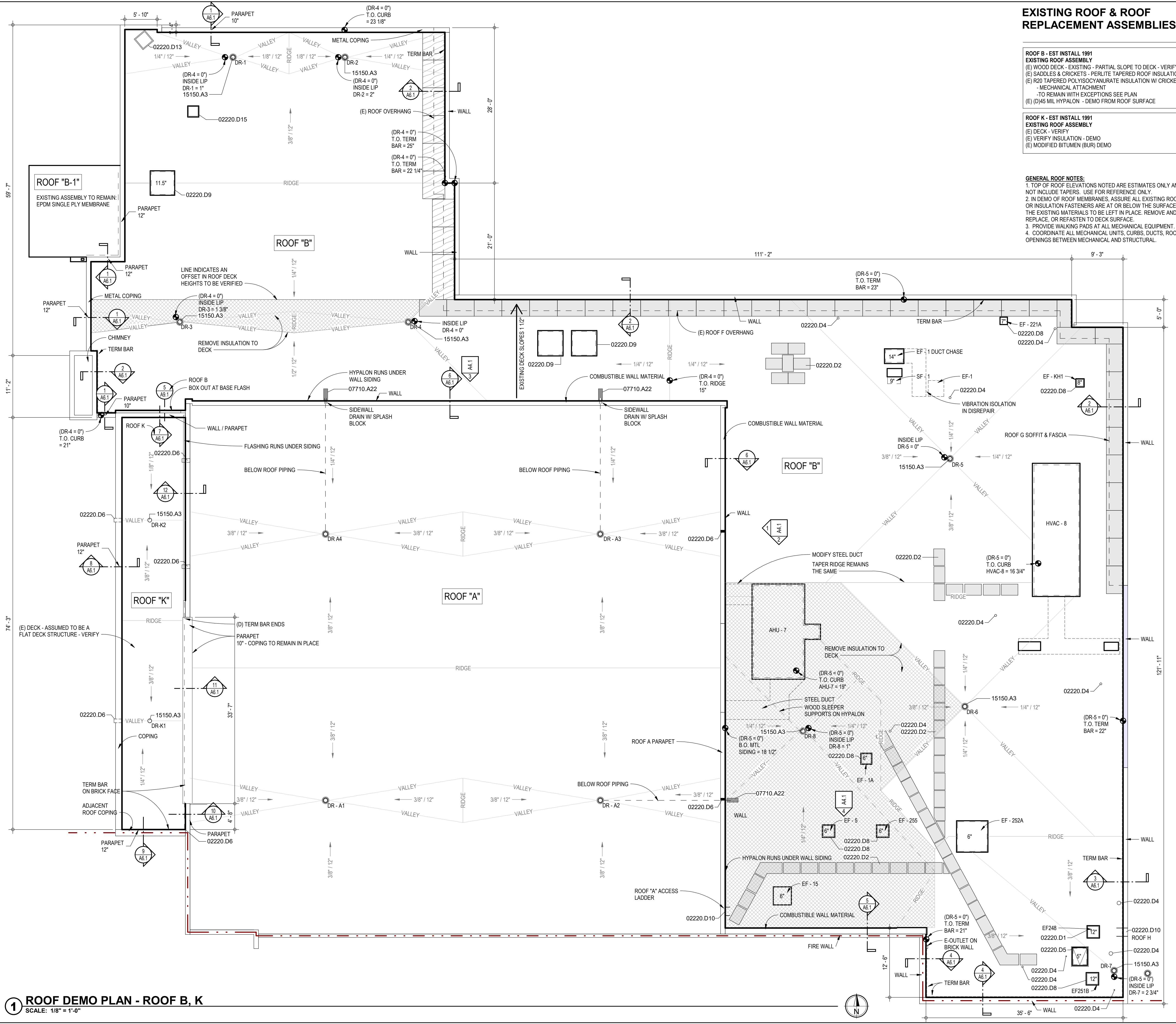
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#	DATE



KEYNOTE LEGEND EXISTING B, B-1, K

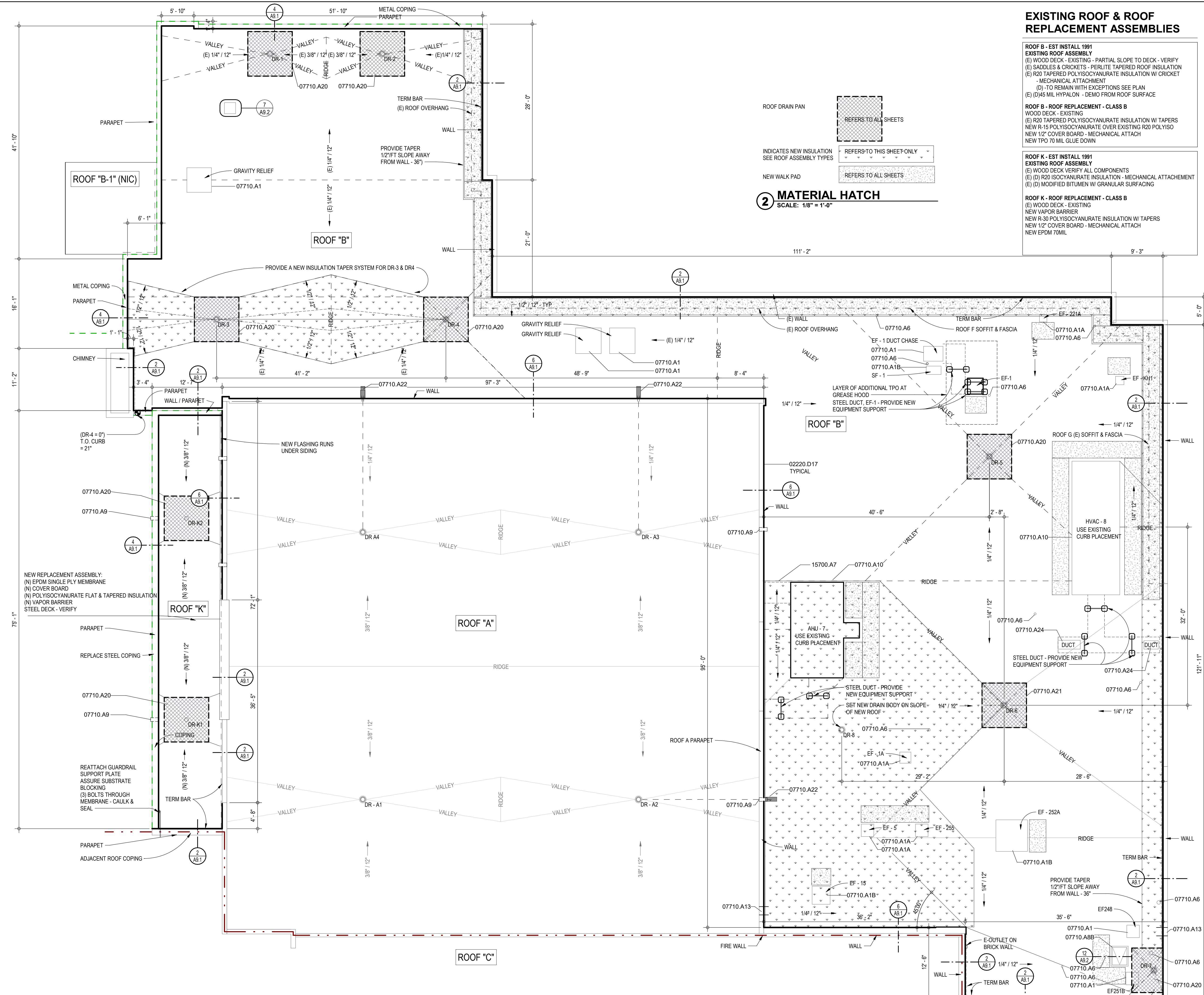
Key Value	Keynote Text
02220.D1	MECHANICAL EQUIPMENT - LIFT UNIT, SEE MEP FOR CURB DISPOSITION, AND WRAP MEMBRANE AT TOP OF CURB. SET THE UNIT FLANGE BACK OVER THE CURB.
02220.D2	EXISTING WALKOFF PAD - DEMO.
02220.D2.1	EXISTING 12"x12"x2" CONCRETE PATIO BLOCK PAD - REMOVE, PALLETIZE AND RETAIN FOR MSU.
02220.D4	EXISTING PIPE PENETRATION VTR OR CONDUIT - EXISTING FLASHING TO BE REPLACED.
02220.D5	EXISTING ROOF HATCH - SEE ROOF PLAN FOR DISPOSITION.
02220.D6	EXISTING OVERFLOW SCUPPER - SEE ROOF PLAN FOR DISPOSITION.
02220.D8	EXISTING HOT STACK - SEE ROOF PLAN FOR DISPOSITION.
02220.D9	EXISTING INTAKE GRAVITY VENT - SEE ROOF PLAN FOR DISPOSITION.
02220.D10	EXISTING ROOF LADDER TO REMAIN IN PLACE - DOES NOT INTERSECT W/ ROOF MEMBRANE.
02220.D13	EXISTING ANTENNA MOUNT - SEE ROOF PLAN FOR DISPOSITION.
02220.D15	EXISTING CAPPED CURB & OPENING - REMOVE TO DECK - FILL DECK OPENING.
02220.D16	EXISTING MECHANICAL INTAKE - UNIT IS ABANDONED - REMOVE TO DECK - FILL DECK OPENING.
02220.D17	EXISTING WALL MAY NEED REPAIR INCLUDING REPLACEMENT SHEATHING, WATER RESISTANT BARRIER AND STUD WORK. EVIDENCE OF WRB IS NOT PRESENT. NEEDED REPAIR / REPLACEMENT OF BUILDING ELEMENTS SHALL BE REPORTED TO THE CONTRACTING OFFICER AS THEY ARE REVEALED.
07710.A1	EXISTING MECHANICAL EQUIPMENT AND CURB: LIFT UNIT AND WRAP MEMBRANE AT TOP OF CURB. SET THE UNIT FLANGE BACK OVER THE CURB. SEE ALSO A1A AND A1B.
07710.A1A	EXISTING MECHANICAL EQUIPMENT: ALTER CURB WITH EXTENSION. SEE CURB DETAIL A - LIFT UNIT AND WRAP MEMBRANE AT TOP OF CURB. SET THE UNIT FLANGE BACK OVER THE CURB.
07710.A1B	EXISTING MECHANICAL EQUIPMENT: REPLACE CURB. SEE CURB DETAIL B - LIFT UNIT AND WRAP MEMBRANE AT TOP OF CURB. SET THE UNIT FLANGE BACK OVER THE CURB.
07710.A3	EXISTING ANTENNA - REINSTALL WITH NEW WIEGHTED MOUNTING PAD.
07710.A4	ADD WALKOFF PADS.
07710.A5	PFM COPINGS / FASCIA - INSTALL WITH DETAIL AS INDICATED.
07710.A6	EXISTING PIPE PENETRATION VTR OR CONDUIT - EXTEND PIPE WHERE REQUIRED, PROVIDE NEW FLASHING.
07710.A8A	EXISTING ROOF HATCH - LIFT UNIT AND WRAP MEMBRANE INSIDE THE CURB AND SET THE UNIT FLANGE BACK OVER THE CURB.
07710.A8B	REPLACE ROOF HATCH - SEE DETAIL.
07710.A9	EXISTING OVERFLOW SCUPPER - SHALL BE RAISED/LOWERED WITH FLOW LINES 2" ABOVE ADJACENT DRAINS. ALTER SHEET METAL FLASHINGS.
07710.A10	EXISTING FIXED HVAC UNIT. REMOVE BASE FLASHING, DISCARD. REBUILD FLASHING AS SHOWN IN DETAIL HVAC-8, AHU-7 ON SHEET A9.1.
07710.A13	EXISTING LADDER WELDED AND BOLTED TO STRUCTURE - REMAIN AS IS.
07710.A15	EXISTING HOT STACK - PROVIDE NEW FLASHING.
07710.A20	DRAIN PAN - TIE TO ROOF & TAPER INSULATION SYSTEM.
07710.A21	EXISTING DOOR - REMOVE THRESHOLD, FLASH OVER ROUGH OPENING, REINSTALL THRESHOLD.
07710.A22	EXISTING SPLASH PAD - REINSTALL.
07710.A23	ADD MECHANICAL EQUIPMENT CRICKET.
07710.A24	REBUILD DUCT PENETRATION. REMOVE EXISTING PERIMETER TERM BAR. INSTALL NEW TPO MEMBRANE OVER EXISTING HYPALON ON VERTICAL SURFACE OF DUCT CURB. INSTALL NEW TERM BAR AND CAULKING.
07710.A25	EXISTING MASONRY CHIMNEY - LEAVE INTACT. REMOVE AND REINSTALL EXISTING PERIMETER FLASHING.
15150.A3	REPLACE EXISTING ROOF DRAIN. DRAIN FLANGE CONNECTION SHALL BE APPROX 2.6" BELOW SURFACE AND SHALL COORDINATE WITH SUMP INSTALLATION. SEE DRAIN DETAIL.
15700.A7	DUCTWORK TO BE REMOVED AND RECONFIGURED TO LIFT OFF OF MEMBRANE SURFACE.

1 ROOF DEMO PLAN - ROOF B, K
 SCALE: 1/8" = 1'-0"

MONTANA STATE UNIVERSITY
SUB NORTH ROOFS REPLACEMENT PPA # 21-0087
 751 W GRANT ST. BOZEMAN, MT 59715
ROOF PLAN DEMO - ROOF B, K

23-158-01
 DRAWN BY AT
 APPROVED CWG
 DATE 03 23 2023

A3.2

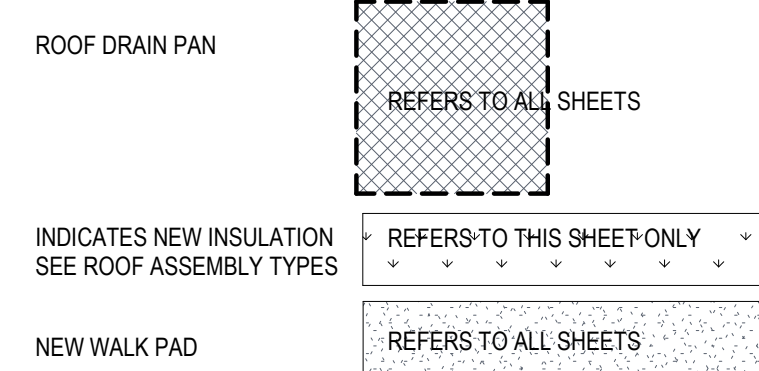


1 NEW ROOF PLAN - ROOFS "B", "B-1", "K"
SCALE: 1/8" = 1'-0"

EXISTING ROOF & ROOF REPLACEMENT ASSEMBLIES

- ROOF B - EST INSTALL 1991 EXISTING ROOF ASSEMBLY**
 (E) WOOD DECK - EXISTING - PARTIAL SLOPE TO DECK - VERIFY
 (E) SADDLES & CRICKETS - PERLITE TAPERED ROOF INSULATION
 (E) R20 TAPERED POLYISOCYANURATE INSULATION W/ CRICKET - MECHANICAL ATTACHMENT
 (D) TO REMAIN WITH EXCEPTIONS SEE PLAN
 (E) (D)45 MIL HYPALON - DEMO FROM ROOF SURFACE
- ROOF B - ROOF REPLACEMENT - CLASS B**
 (E) WOOD DECK - EXISTING
 (E) R20 TAPERED POLYISOCYANURATE INSULATION W/ TAPERS
 NEW R-15 POLYISOCYANURATE OVER EXISTING R20 POLYISO
 NEW 1/2" COVER BOARD - MECHANICAL ATTACH
 NEW TPO 70 MIL GLUE DOWN
- ROOF K - EST INSTALL 1991 EXISTING ROOF ASSEMBLY**
 (E) WOOD DECK - EXISTING
 (E) (D) R20 ISOCYANURATE INSULATION - MECHANICAL ATTACHMENT
 (E) (D) MODIFIED BITUMEN W/ GRANULAR SURFACING
- ROOF K - ROOF REPLACEMENT - CLASS B**
 (E) WOOD DECK - EXISTING
 NEW VAPOR BARRIER
 NEW R-30 POLYISOCYANURATE INSULATION W/ TAPERS
 NEW 1/2" COVER BOARD - MECHANICAL ATTACH
 NEW EPDM 70MIL

2 MATERIAL HATCH
SCALE: 1/8" = 1'-0"



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- IN DEMO OF ROOF MEMBRANES, ASSURE ALL EXISTING ROOFING OR INSULATION FASTENERS ARE AT OR BELOW THE SURFACE OF THE EXISTING MATERIALS TO BE LEFT IN PLACE. REMOVE AND REPLACE, OR REFASTEN TO DECK SURFACE.
- PROVIDE WALKING PADS AT ALL MECHANICAL EQUIPMENT.
- COORDINATE ALL MECHANICAL UNITS, CURBS, DUCTS, ROOF OPENINGS BETWEEN MECHANICAL AND STRUCTURAL.

KEYNOTE LEGEND NEW B, B-1, K

Key Value	Keynote Text
02220.D1	MECHANICAL EQUIPMENT - LIFT UNIT, SEE MEP FOR CURB DISPOSITION, AND WRAP MEMBRANE AT TOP OF CURB, SET THE UNIT FLANGE BACK OVER THE CURB.
02220.D2	EXISTING WALKOFF PAD - DEMO.
02220.D2.1	EXISTING 12"X12" CONCRETE PATIO BLOCK PAD - REMOVE, PALLETIZE AND RETAIN FOR MSJ.
02220.D4	EXISTING PIPE PENETRATION VTR OR CONDUIT - EXISTING FLASHING TO BE REPLACED.
02220.D5	EXISTING ROOF HATCH - SEE ROOF PLAN FOR DISPOSITION.
02220.D6	EXISTING OVERFLOW SCUPPER - SEE ROOF PLAN FOR DISPOSITION.
02220.D8	EXISTING HOT STACK - SEE ROOF PLAN FOR DISPOSITION.
02220.D9	EXISTING INTAKE GRAVITY VENT - SEE ROOF PLAN FOR DISPOSITION.
02220.D10	EXISTING ROOF LADDER TO REMAIN IN PLACE - DOES NOT INTERSECT W/ ROOF MEMBRANE.
02220.D13	EXISTING ANTENNA MOUNT - SEE ROOF PLAN FOR DISPOSITION.
02220.D15	EXISTING GAPPED CURB & OPENING - REMOVE TO DECK - FILL DECK OPENING.
02220.D16	EXISTING MECHANICAL INTAKE - UNIT IS ABANDONED - REMOVE TO DECK - FILL DECK OPENING.
02220.D17	EXISTING WALL MAY NEED REPAIR INCLUDING REPLACEMENT SHEATHING, WATER RESISTANT BARRIER AND STUD WORK. EVIDENCE OF WRB IS NOT PRESENT. NEEDED REPAIR / REPLACEMENT OF BUILDING ELEMENTS SHALL BE REPORTED TO THE CONTRACTING OFFICER AS THEY ARE REVEALED.
07710.A1	EXISTING MECHANICAL EQUIPMENT AND CURB: LIFT UNIT AND WRAP MEMBRANE AT TOP OF CURB, SET THE UNIT FLANGE BACK OVER THE CURB. SEE ALSO A1A AND A1B
07710.A1A	EXISTING MECHANICAL EQUIPMENT: ALTER CURB WITH EXTENSION. SEE CURB DETAIL A - LIFT UNIT AND WRAP MEMBRANE AT TOP OF CURB, SET THE UNIT FLANGE BACK OVER THE CURB.
07710.A1B	EXISTING MECHANICAL EQUIPMENT: REPLACE CURB. SEE CURB DETAIL B - LIFT UNIT AND WRAP MEMBRANE AT TOP OF CURB, SET THE UNIT FLANGE BACK OVER THE CURB.
07710.A3	EXISTING ANTENNA - REINSTALL WITH NEW WIEGHTED MOUNTING PAD.
07710.A4	ADD WALKOFF PAD(S).
07710.A5	PFM COPING / FASCIA - INSTALL WITH DETAIL, AS INDICATED.
07710.A6	EXISTING PIPE PENETRATION VTR OR CONDUIT - EXTEND PIPE WHERE REQUIRED; PROVIDE NEW FLASHING.
07710.A8A	EXISTING ROOF HATCH - LIFT UNIT AND WRAP MEMBRANE INSIDE THE CURB AND SET THE UNIT FLANGE BACK OVER THE CURB.
07710.A8B	REPLACE ROOF HATCH - SEE DETAIL.
07710.A9	EXISTING OVERFLOW SCUPPER - SHALL BE RAISED/LOWERED WITH FLOW LINES 2" ABOVE ADJACENT DRAINS. ALTER SHEET METAL FLASHINGS.
07710.A10	EXISTING FIXED HVAC UNIT. REMOVE BASE FLASHING. DISCARD, REBUILD FLASHING AS SHOWN IN DETAIL HVAC-8, AHU-7 ON SHEET A9.1.
07710.A13	EXISTING LADDER WELDED AND BOLTED TO STRUCTURE - REMAIN AS IS
07710.A15	EXISTING HOT STACK - PROVIDE NEW FLASHING
07710.A20	DRAIN PAN - TIE TO ROOF & TAPER INSULATION SYSTEM.
07710.A21	EXISTING DOOR - REMOVE THRESHOLD, FLASH OVER ROUGH OPENING, REINSTALL THRESHOLD.
07710.A22	EXISTING SPLASH PAD - REINSTALL
07710.A23	ADD MECHANICAL EQUIPMENT CRICKET
07710.A24	REBUILD DUCT PENETRATION. REMOVE EXISTING PERIMETER TERM BAR. INSTALL NEW TPO MEMBRANE OVER EXISTING HYPALON ON VERTICAL SURFACE OF DUCT CURB. INSTALL NEW TERM BAR AND CAULKING
07710.A25	EXISTING MASONRY CHIMNEY - LEAVE INTACT. REMOVE AND REINSTALL EXISTING PERIMETER FLASHING.
15150.A3	REPLACE EXISTING ROOF DRAIN. DRAIN FLANGE CONNECTION SHALL BE APPROX 2" BELOW SURFACE AND SHALL COORDINATE WITH SUMP INSTALLATION. SEE DRAIN DETAIL.
15700.A7	DUCTWORK TO BE REMOVED AND RECONFIGURED TO LIFT OFF OF MEMBRANE SURFACE.

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REVISIONS

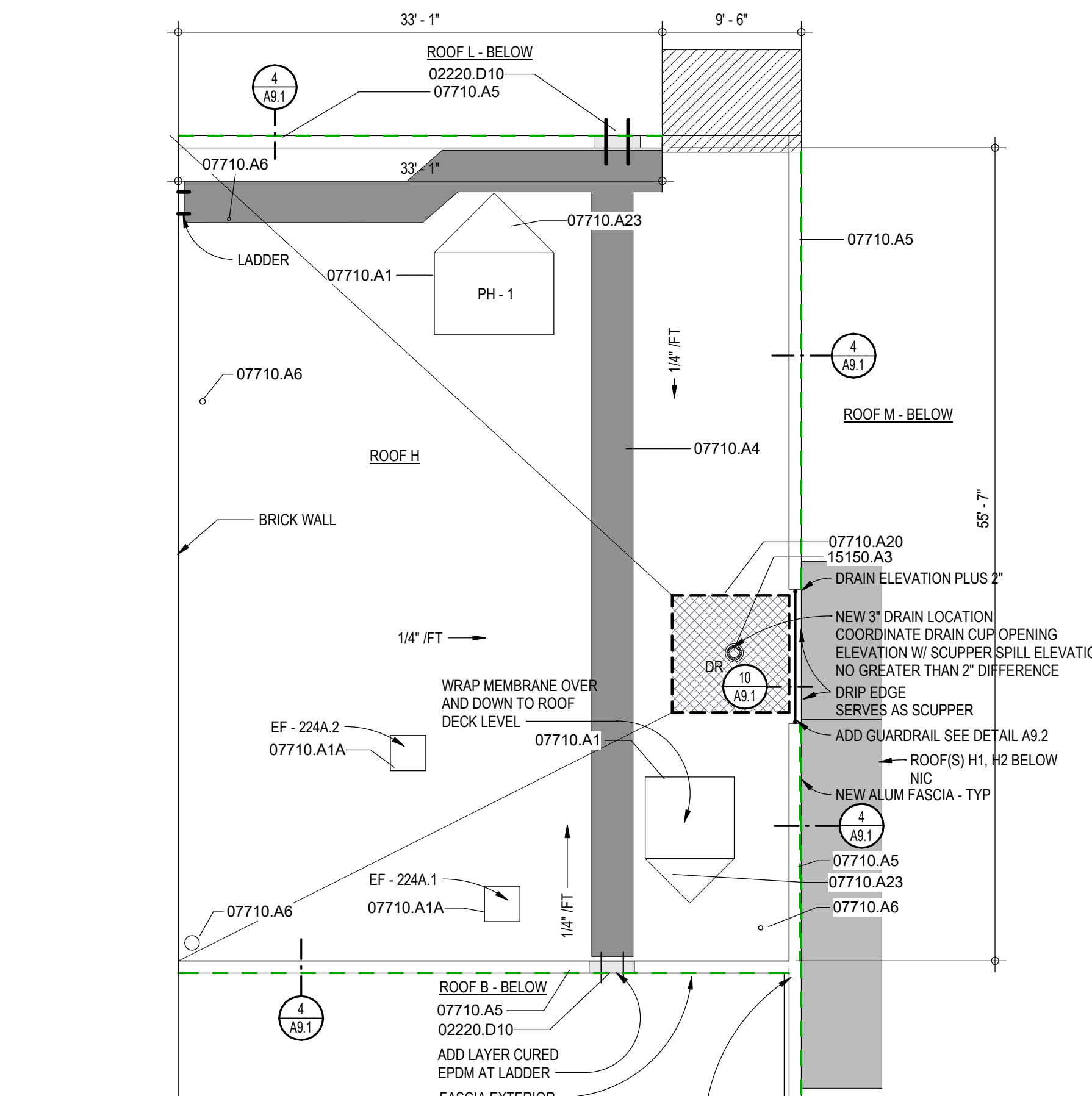
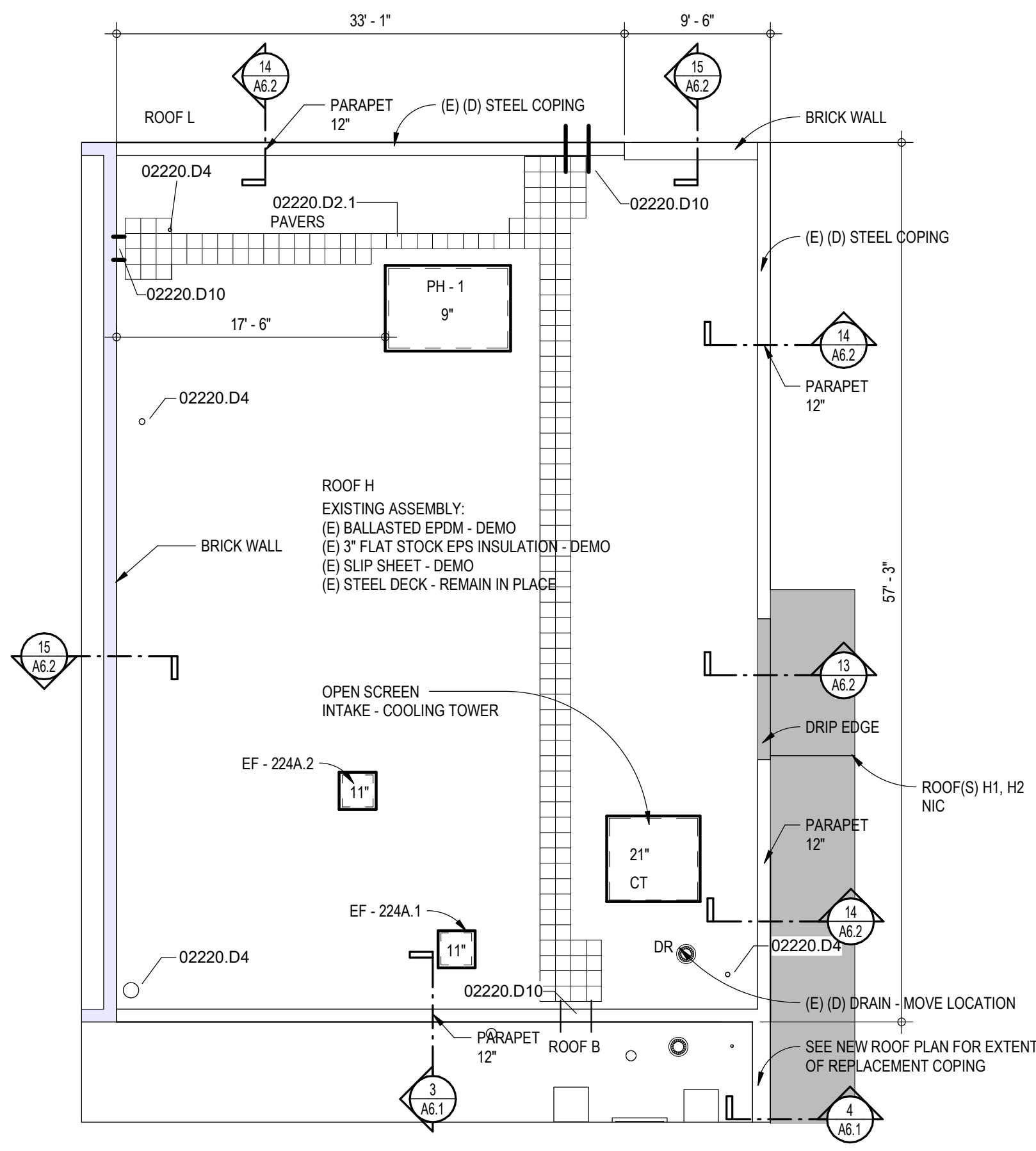
#	DATE

MONTANA STATE UNIVERSITY
SUB NORTH ROOFS REPLACEMENT PPA # 21-0087
 751 W GRANT ST. BOZEMAN, MT 59715
ROOF PLAN NEW-ROOF B, K

23-158-01
 DRAWN BY AT
 APPROVED CWG
 DATE 03 23 2023

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KEYNOTE LEGEND H	
Key Value	Keynote Text
02220.D1	MECHANICAL EQUIPMENT - LIFT UNIT, SEE MEP FOR CURB DISPOSITION, AND WRAP MEMBRANE AT TOP OF CURB, SET THE UNIT FLANGE BACK OVER THE CURB.
02220.D2	EXISTING WALKOFF PAD - DEMO.
02220.D2.1	EXISTING 12"x12"x2" CONCRETE PATIO BLOCK PAD - REMOVE, PALLETIZE AND RETAIN FOR MSU.
02220.D4	EXISTING PIPE PENETRATION VTR OR CONDUIT - EXISTING FLASHING TO BE REPLACED.
02220.D5	EXISTING ROOF HATCH - SEE ROOF PLAN FOR DISPOSITION.
02220.D6	EXISTING OVERFLOW SCUPPER - SEE ROOF PLAN FOR DISPOSITION.
02220.D8	EXISTING HOT STACK - SEE ROOF PLAN FOR DISPOSITION.
02220.D9	EXISTING INTAKE GRAVITY VENT - SEE ROOF PLAN FOR DISPOSITION.
02220.D10	EXISTING ROOF LADDER TO REMAIN IN PLACE - DOES NOT INTERSECT W/ ROOF MEMBRANE.
02220.D13	EXISTING ANTENNA MOUNT - SEE ROOF PLAN FOR DISPOSITION.
02220.D15	EXISTING CAPPED CURB & OPENING - REMOVE TO DECK - FILL DECK OPENING.
02220.D16	EXISTING MECHANICAL INTAKE - UNIT IS ABANDONED - REMOVE TO DECK - FILL DECK OPENING.
02220.D17	EXISTING WALL MAY NEED REPAIR INCLUDING REPLACEMENT SHEATHING, WATER RESISTANT BARRIER AND STUD WORK. EVIDENCE OF WRB IS NOT PRESENT. NEEDED REPAIR / REPLACEMENT OF BUILDING ELEMENTS SHALL BE REPORTED TO THE CONTRACTING OFFICER AS THEY ARE REVEALED.
07710.A1	EXISTING MECHANICAL EQUIPMENT AND CURB: LIFT UNIT AND WRAP MEMBRANE AT TOP OF CURB, SET THE UNIT FLANGE BACK OVER THE CURB. SEE ALSO A1A AND A1B
07710.A1A	EXISTING MECHANICAL EQUIPMENT: ALTER CURB WITH EXTENSION. SEE CURB DETAIL A - LIFT UNIT AND WRAP MEMBRANE AT TOP OF CURB, SET THE UNIT FLANGE BACK OVER THE CURB.
07710.A1B	EXISTING MECHANICAL EQUIPMENT: REPLACE CURB. SEE CURB DETAIL B - LIFT UNIT AND WRAP MEMBRANE AT TOP OF CURB, SET THE UNIT FLANGE BACK OVER THE CURB.
07710.A3	EXISTING ANTENNA - REINSTALL WITH NEW WIEGHTED MOUNTING PAD.
07710.A4	ADD WALKOFF PAD(S).
07710.A5	PFM COPING / FASCIA - INSTALL WITH DETAIL AS INDICATED.
07710.A6	EXISTING PIPE PENETRATION VTR OR CONDUIT - EXTEND PIPE WHERE REQUIRED; PROVIDE NEW FLASHING.
07710.A8A	EXISTING ROOF HATCH - LIFT UNIT AND WRAP MEMBRANE INSIDE THE CURB AND SET THE UNIT FLANGE BACK OVER THE CURB.
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15150.A3	REPLACE EXISTING ROOF DRAIN. DRAIN FLANGE CONNECTION SHALL BE APPROX 2.6" BELOW SURFACE AND SHALL COORDINATE WITH SUMP INSTALLATION. SEE DRAIN DETAIL.
15700.A7	DUCTWORK TO BE REMOVED AND RECONFIGURED TO LIFT OFF OF MEMBRANE SURFACE.

COORDINATION NOTE

IT IS ABSOLUTELY NECESSARY THAT ALL TRADES COORDINATE WITH EACH OTHER AND VERIFY THAT THERE ARE NO CONFLICTS IN LOCATION OF DUCTS, CONDUITS, SPRINKLER HEADS, DIFFUSERS, ELECTRICAL BOXES, EQUIPMENT, AND OTHER ITEMS THROUGHOUT THIS PROJECT BEFORE FINAL PLACEMENT OF MATERIALS.

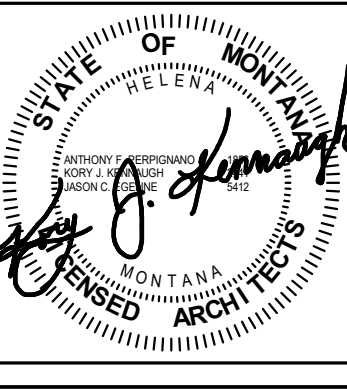
COGNIZANT NOTE:

THE CONTRACTOR SHALL BE COGNIZANT THAT THIS IS A REMODEL PROJECT AND AS SUCH, CERTAIN ITEMS CANNOT BE FULLY ILLUSTRATED NOR EXPLAINED WITHOUT FIELD OBSERVATION. THEREFORE BEFORE SUBMITTING A PROPOSAL, THE CONTRACTOR SHALL VISIT AND EXAMINE THE PROJECT IN EVERY DETAIL AS PERTAINS TO THIS PROJECT AND MAKE ALLOWANCES IN THEIR PROPOSAL FOR ALL CONDITIONS THAT WILL AFFECT THE WORK INDICATED IN THE PROJECT MANUAL AND CONTRACT DOCUMENTS.

EXISTING ROOF & ROOF REPLACEMENT ASSEMBLIES

- ROOF H - EST INSTALL EXISTING ROOF ASSEMBLY**
 (E) WOOD DECK - EXISTING - NO SLOPE TO DECK
 (E) 1/2" GYPSUM BOARD OR SLIP SHEET? - VERIFY & REMOVE
 (E) (D) POLYISO TAPERED INSULATION W/ CRICKET- MECHANICAL ATTACH
 (E) (D) 40 MIL EPDM - DEMO FROM ROOF SURFACE
- ROOF H - ROOF REPLACEMENT - CLASS B**
 (E) WOOD DECK - EXISTING
 NEW VAPOR BARRIER
 NEW TAPERED INSULATION W/ CRICKET
 NEW 1/2" COVER BOARD - MECHANICAL ATTACH
 NEW (EPDM) 70MIL

- GENERAL ROOF NOTES:**
1. TOP OF ROOF ELEVATIONS NOTED ARE ESTIMATES ONLY AND DO NOT INCLUDE TAPERS. USE FOR REFERENCE ONLY.
 2. IN DEMO OF ROOF MEMBRANES, ASSURE ALL EXISTING ROOFING OR INSULATION FASTENERS ARE AT OR BELOW THE SURFACE OF THE EXISTING MATERIALS TO BE LEFT IN PLACE. REMOVE AND REPLACE, OR REFASTEN TO DECK SURFACE.
 3. PROVIDE WALKING PADS AT ALL MECHANICAL EQUIPMENT.
 4. COORDINATE ALL MECHANICAL UNITS, CURBS, DUCTS, ROOF OPENINGS BETWEEN MECHANICAL AND STRUCTURAL.



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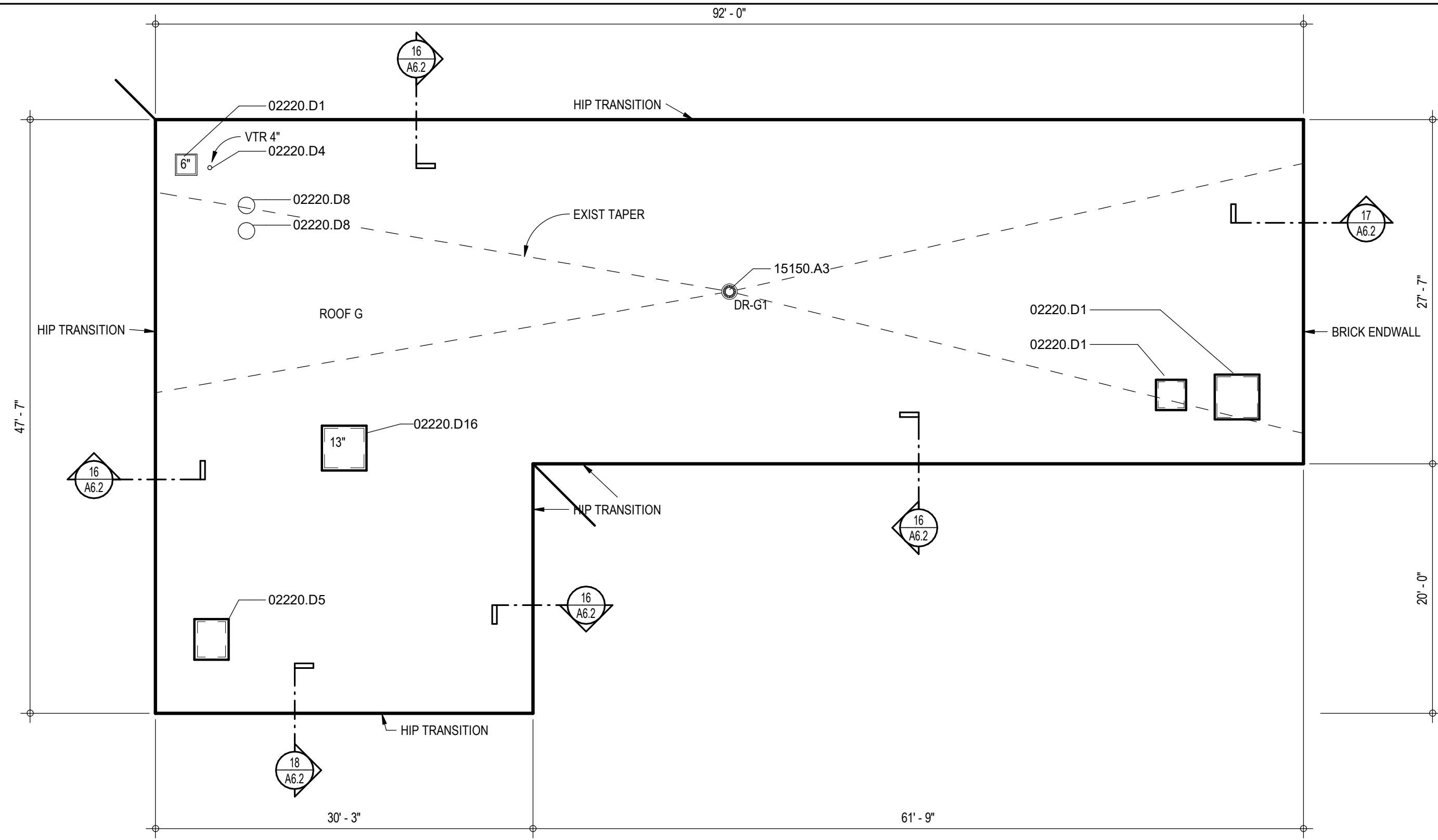
REVISIONS

#	DATE

MONTANA STATE UNIVERSITY
SUB NORTH ROOFS REPLACEMENT PPA # 21-0087
 751 W GRANT ST. BOZEMAN, MT 59715
ROOF PLAN DEMO & NEW - ROOF H

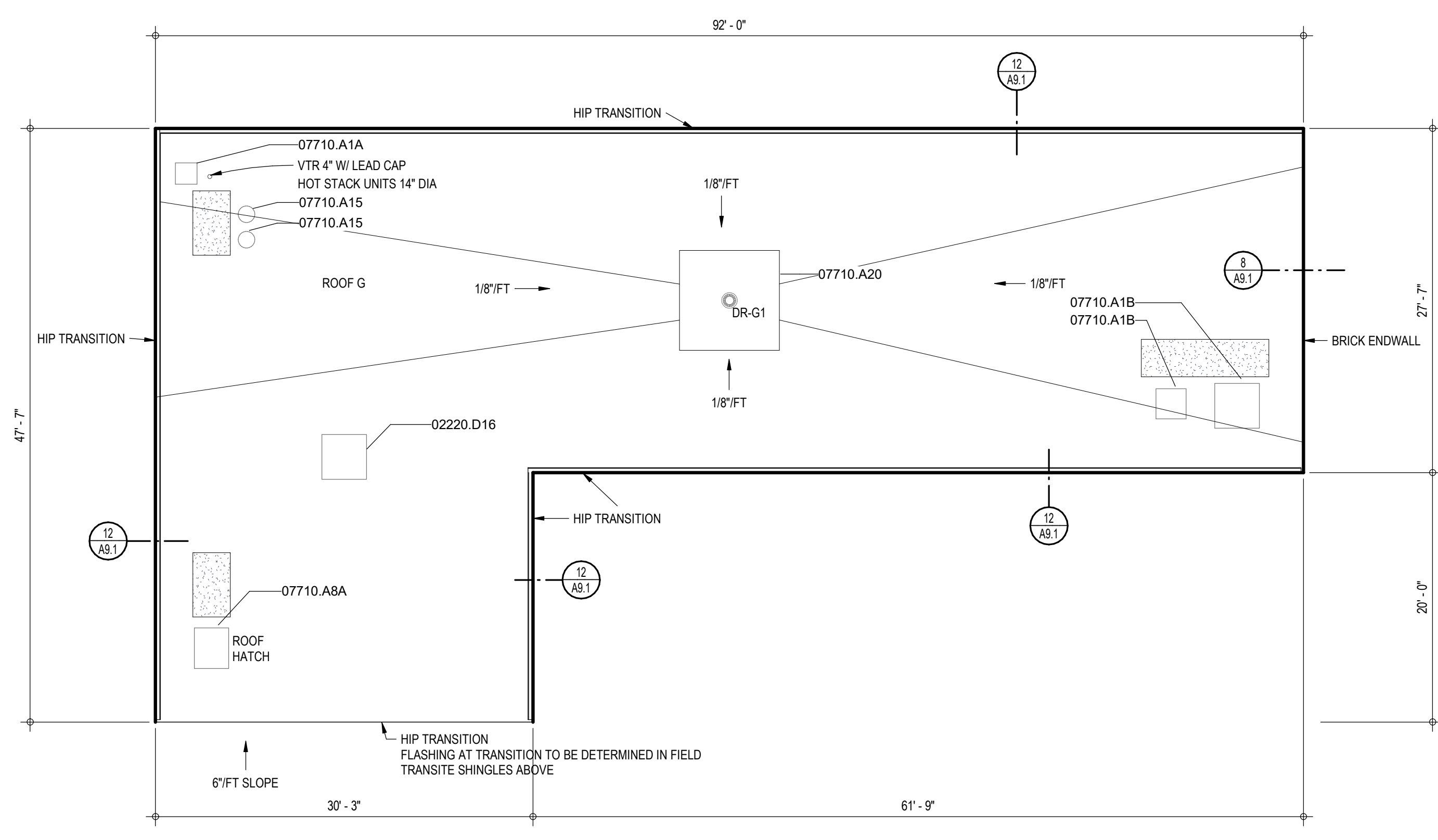
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 DATE 03 23 2023

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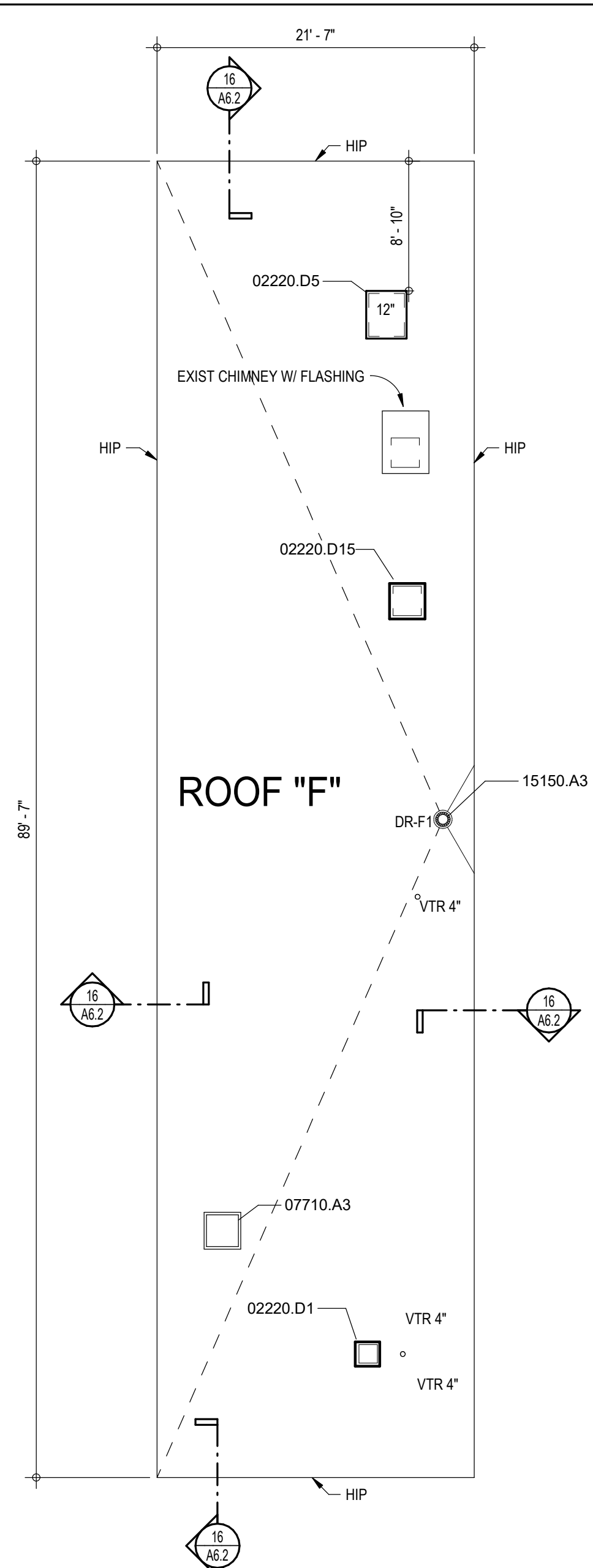
ALTERNATE #1

1 ROOF DEMO PLAN - ROOF "G"
SCALE: 1/8" = 1'-0"



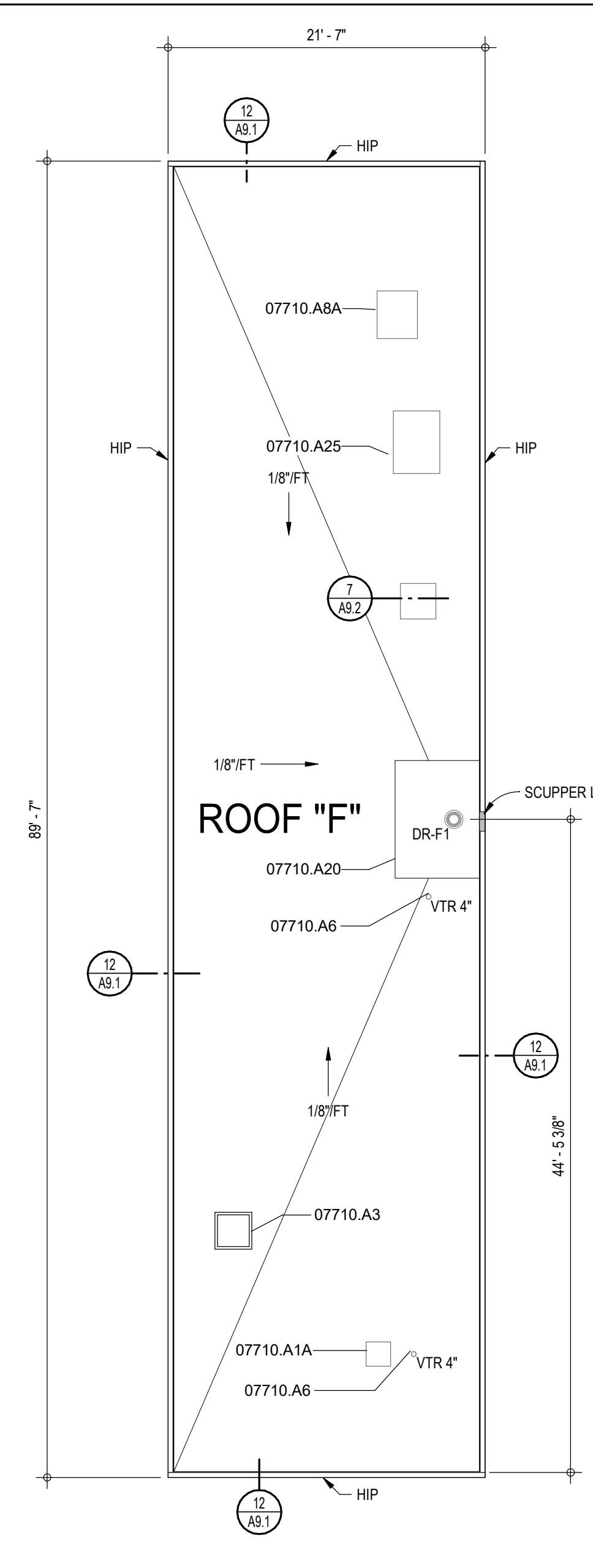
ALTERNATE #1

2 ROOF REPLACEMENT PLAN - ROOF "G"
SCALE: 1/8" = 1'-0"



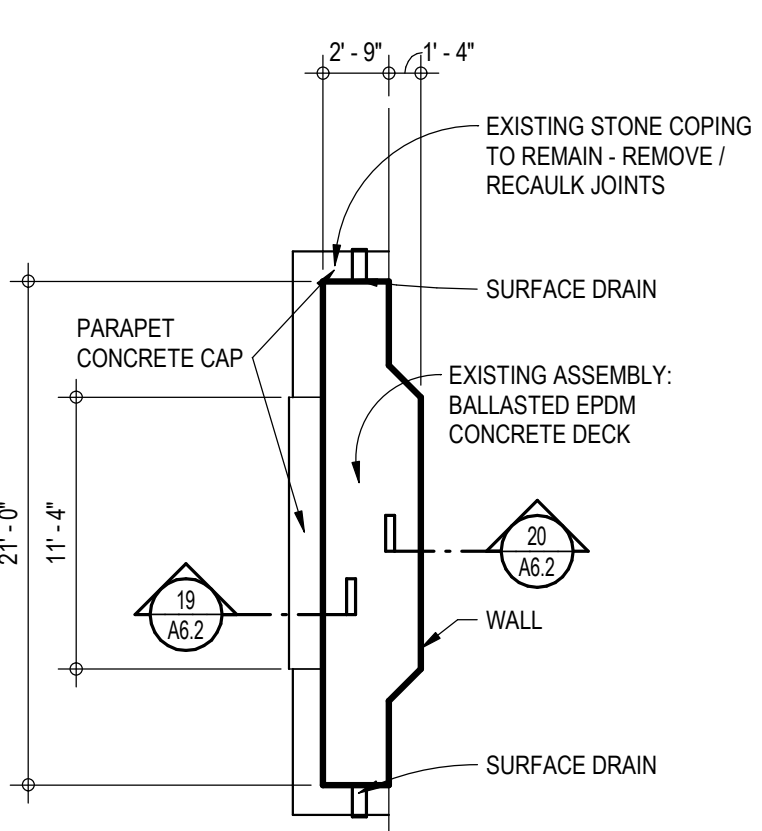
ALTERNATE #1

3 ROOF DEMO PLAN - ROOF "F"
SCALE: 1/8" = 1'-0"



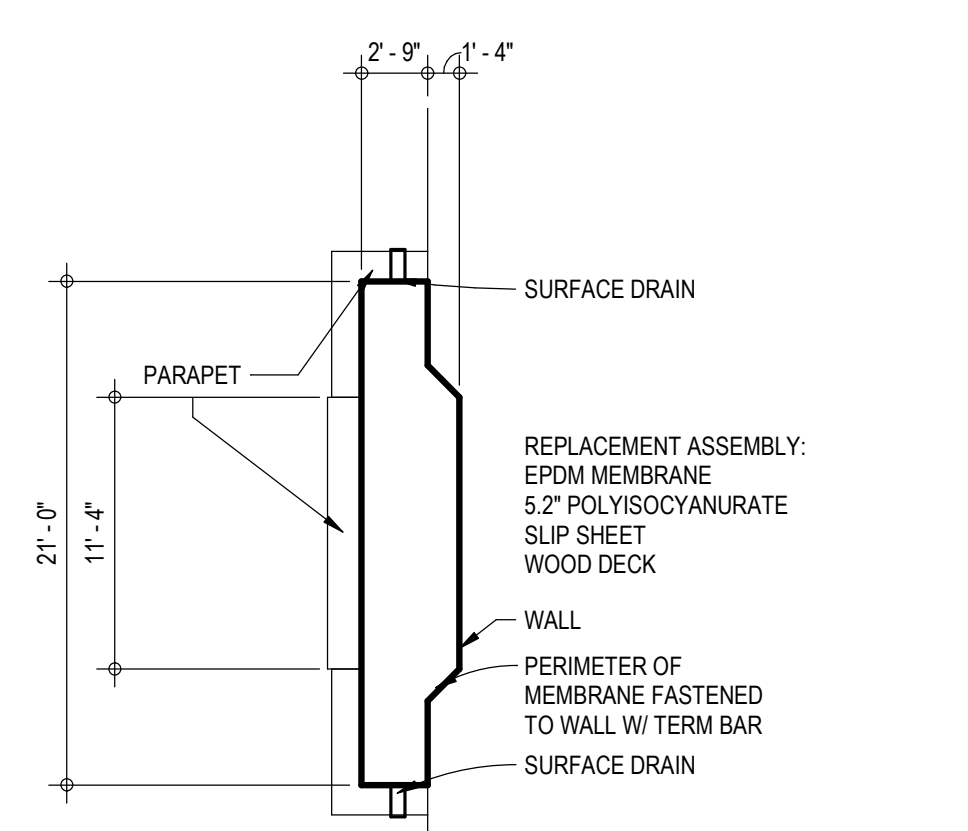
ALTERNATE #1

4 ROOF REPLACEMENT PLAN - ROOF "F"
SCALE: 1/8" = 1'-0"



ALTERNATE #1

7 ROOF DEMO PLAN - ROOF "F-1"
SCALE: 1/8" = 1'-0"



ALTERNATE #1

8 ROOF REPLACEMENT PLAN - ROOF "F-1"
SCALE: 1/8" = 1'-0"

COORDINATION NOTE
IT IS ABSOLUTELY NECESSARY THAT ALL TRADES COORDINATE WITH EACH OTHER AND VERIFY THAT THERE ARE NO CONFLICTS IN LOCATION OF DUCTS, CONDUITS, SPRINKLER HEADS, DIFFUSERS, ELECTRICAL BOXES, EQUIPMENT, AND OTHER ITEMS THROUGHOUT THIS PROJECT BEFORE FINAL PLACEMENT OF MATERIALS.

COGNIZANT NOTE:
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EXISTING ROOF & ROOF REPLACEMENT ASSEMBLIES

ROOF F - EST INSTALL 1991 EXISTING ROOF ASSEMBLY
(E) WOOD DECK - EXISTING - NO SLOPE TO DECK
(E) 1/2" GYPSUM BOARD OR SLIP SHEET VERIFY
(E) R-20 TAPERED POLYISO INSULATION W/ CRICKET, MECHANICAL ATTACH
(E) (D) MODIFIED BITUMEN W/ GRANULE SURFACE

ROOF F - ROOF REPLACEMENT - CLASS B
WOOD DECK - EXISTING
OVER R-20 (E) POLYISO TAPERED INSULATION W/ CRICKET
NEW 2.6" R-15 POLYISO INSULATION
NEW 1/2" COVER BOARD - MECHANICAL ATTACH
NEW 70 MIL EPDM MEMBRANE ADHESIVE

ROOF F-1 VESTIBULE EXISTING ROOF(S) ASSEMBLY - VERIFY
(E) WOOD DECK
(E) COLD TAR PITCH
(E) 3/4" PERLITE BOARD
(E) R-20 POLYISO INSULATION
(E) (D) 45 MIL HYPALON

ROOF F-1 REPLACEMENT
WOOD DECK
(E) COLD TAR PITCH
(E) 3/4" PERLITE BOARD
(E) R-20 POLYISO INSULATION
NEW 2.6" R-15 POLYISO INSULATION
NEW 1/2" COVER BOARD - MECHANICAL ATTACHED
NEW 70 MIL EPDM MEMBRANE - ADHESIVE

ROOF G EXISTING EXISTING ROOF(S) ASSEMBLY
(E) WOOD DECK
(E) COLD TAR PITCH
(E) 3/4" PERLITE BOARD
(E) R-20 POLYISO INSULATION W/ TAPER
(E) (D) MODIFIED BITUMEN W/ GRANULE SURFACE

ROOF G REPLACEMENT - CLASS B
(E) WOOD DECK
(E) R-20 POLYISO TAPERED INSULATION W/ CRICKET
NEW 2.6" POLYISOCYANURATE BOARD INSULATION
NEW 1/2" COVER BOARD
NEW 70 MIL EPDM MEMBRANE ADHESIVE

GENERAL ROOF NOTES:
1. TOP OF ROOF ELEVATIONS NOTED ARE ESTIMATES ONLY AND DO NOT INCLUDE TAPERS. USE FOR REFERENCE ONLY.
2. IN DEMO OF ROOF MEMBRANES, ASSURE ALL EXISTING ROOFING OR INSULATION FASTENERS ARE AT OR BELOW THE SURFACE OF THE EXISTING MATERIALS TO BE LEFT IN PLACE - REMOVE AND REPLACE, OR REFASTEN TO DECK SURFACE.
3. PROVIDE WALKING PADS AT ALL MECHANICAL EQUIPMENT.
4. COORDINATE ALL MECHANICAL UNITS, CURBS, DUCTS, ROOF OPENINGS BETWEEN MECHANICAL AND STRUCTURAL.

KEYNOTE LEGEND F, F-1, G, G-1

Key Value	Keynote Text
02220.D1	MECHANICAL EQUIPMENT - LIFT UNIT, SEE MEP FOR CURB DISPOSITION, AND WRAP MEMBRANE AT TOP OF CURB, SET THE UNIT FLANGE BACK OVER THE CURB.
02220.D2	EXISTING WALKOFF PAD - DEMO.
02220.D2.1	EXISTING 12"X12"X2" CONCRETE PATIO BLOCK PAD - REMOVE, PALLETIZE AND RETAIN FOR MSU.
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02220.D5	EXISTING ROOF HATCH - SEE ROOF PLAN FOR DISPOSITION.
02220.D6	EXISTING OVERFLOW SCUPPER - SEE ROOF PLAN FOR DISPOSITION.
02220.D8	EXISTING HOT STACK - SEE ROOF PLAN FOR DISPOSITION.
02220.D9	EXISTING INTAKE GRAVITY VENT - SEE ROOF PLAN FOR DISPOSITION.
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07710.A1A	EXISTING MECHANICAL EQUIPMENT - ALTER CURB WITH EXTENSION. SEE CURB DETAIL A - LIFT UNIT AND WRAP MEMBRANE AT TOP OF CURB, SET THE UNIT FLANGE BACK OVER THE CURB.
07710.A1B	EXISTING MECHANICAL EQUIPMENT. REPLACE CURB. SEE CURB DETAIL B - LIFT UNIT AND WRAP MEMBRANE AT TOP OF CURB, SET THE UNIT FLANGE BACK OVER THE CURB.
07710.A3	EXISTING ANTENNA - REINSTALL WITH NEW WHEIGHED MOUNTING PAD.
07710.A4	ADD WALKOFF PADS.
07710.A5	PPF COPING FASCIA - INSTALL WITH DETAIL AS INDICATED.
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REVISIONS

#	DATE

MONTANA STATE UNIVERSITY
SUB NORTH ROOFS REPLACEMENT PPA # 21-0087
751 W GRANT ST. BOZEMAN, MT 59715
ROOF PLANS DEMO & NEW - F, F-1, G, (ALTERNATE #1)

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DATE 03 23 2023

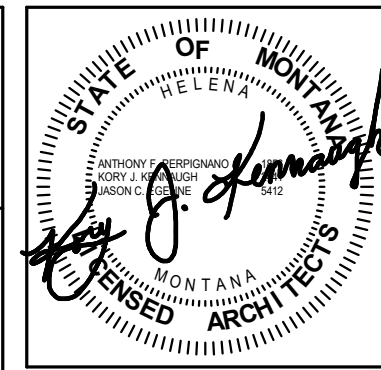
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COORDINATION NOTE

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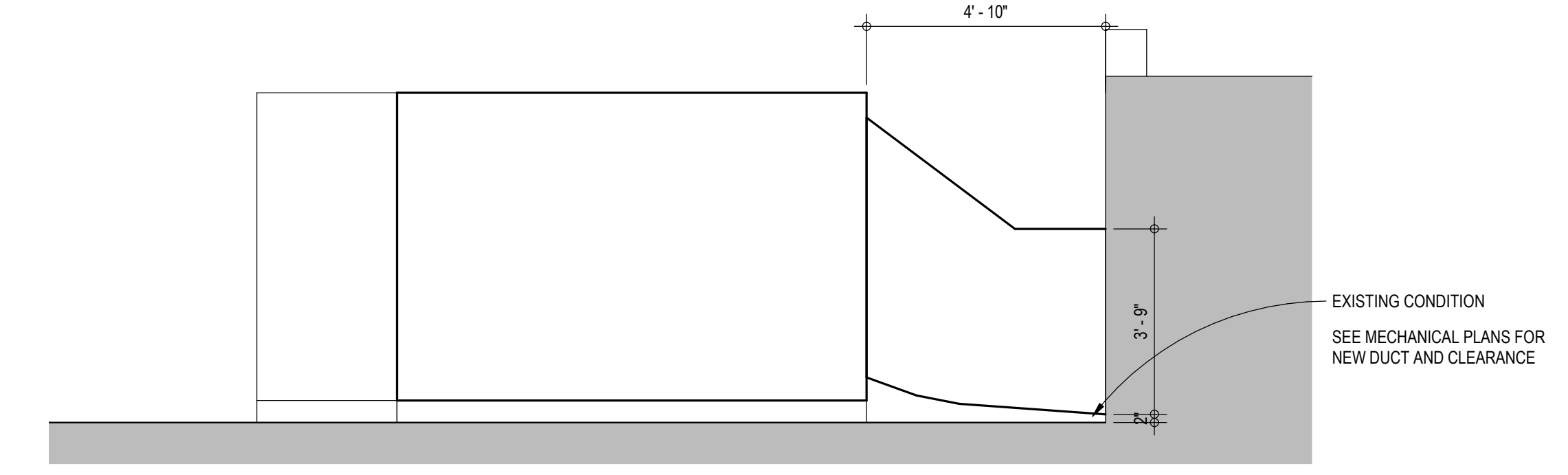
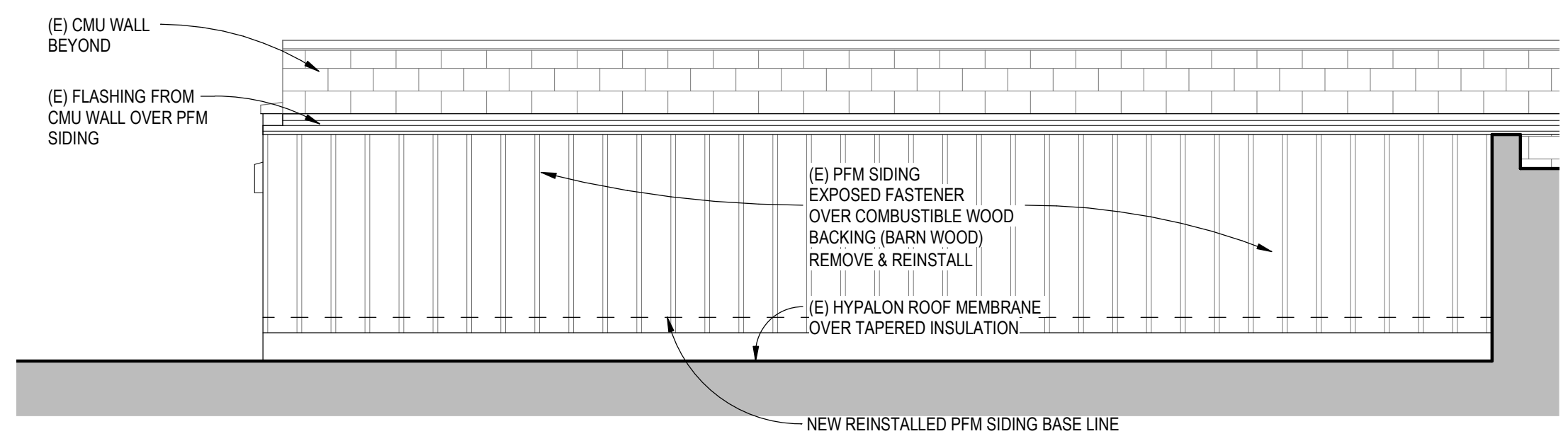
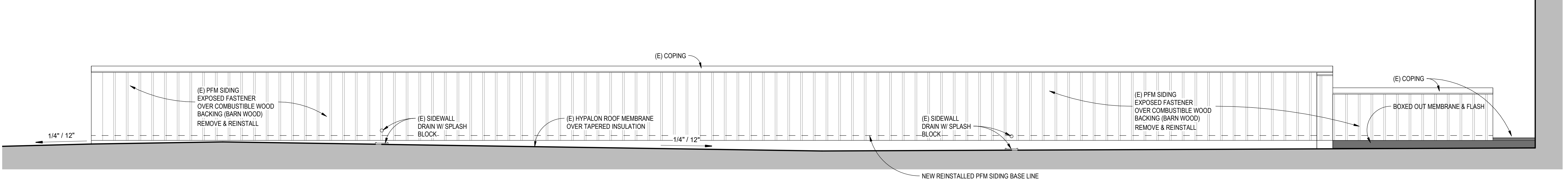
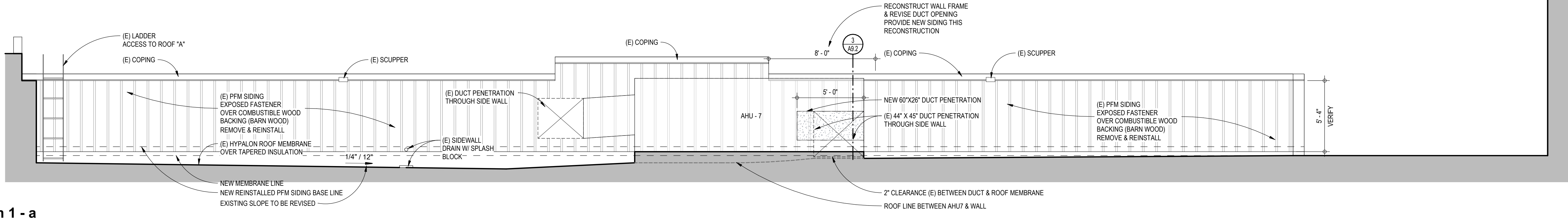
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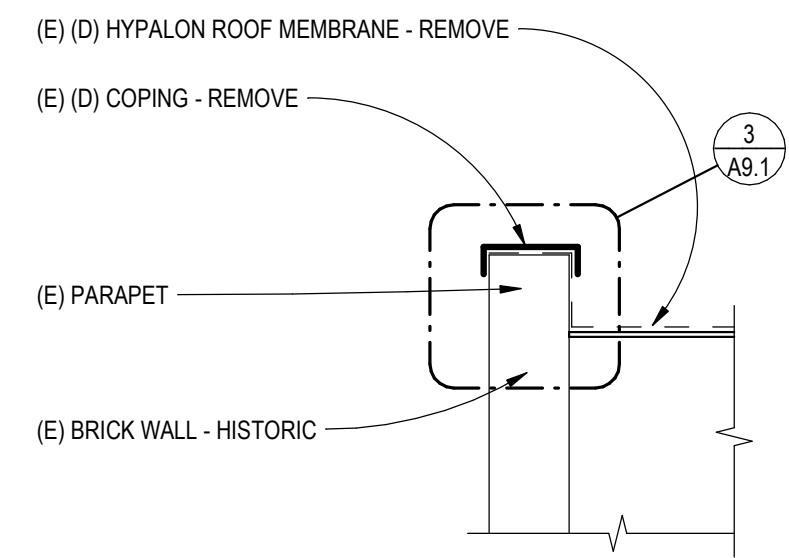
MONTANA STATE UNIVERSITY
SUB NORTH ROOFS REPLACEMENT PPA # 21-0087
 751 W GRANT ST. BOZEMAN, MT 59715
BUILDING ELEVATIONS

23-158-01
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 APPROVED CWG
 DATE 03 23 2023

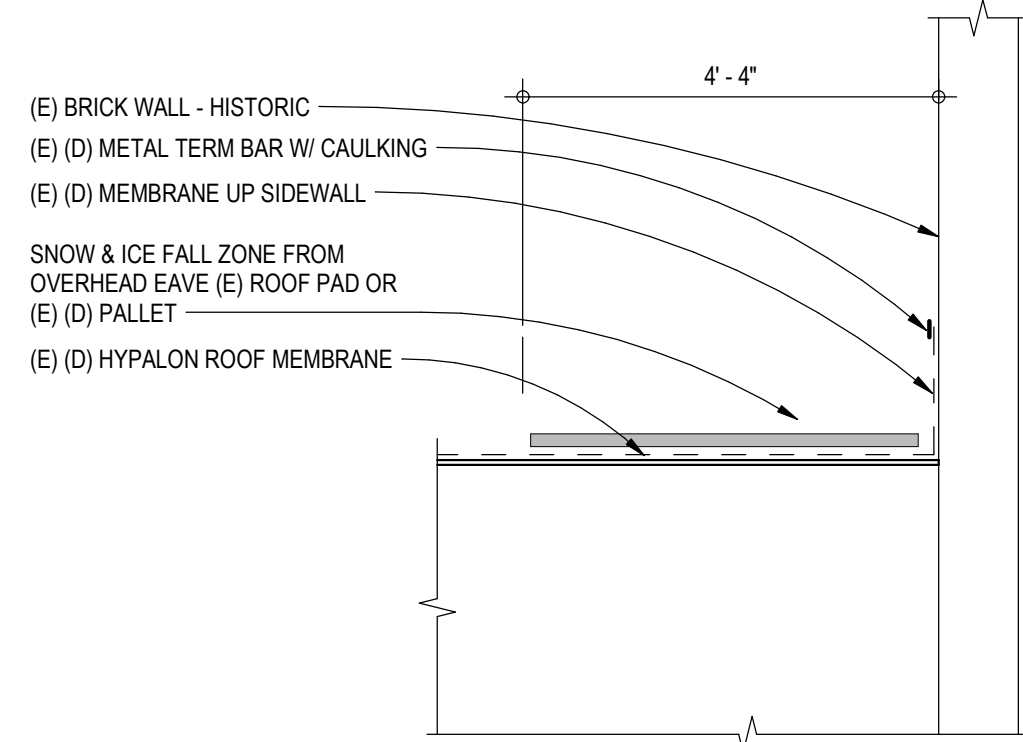
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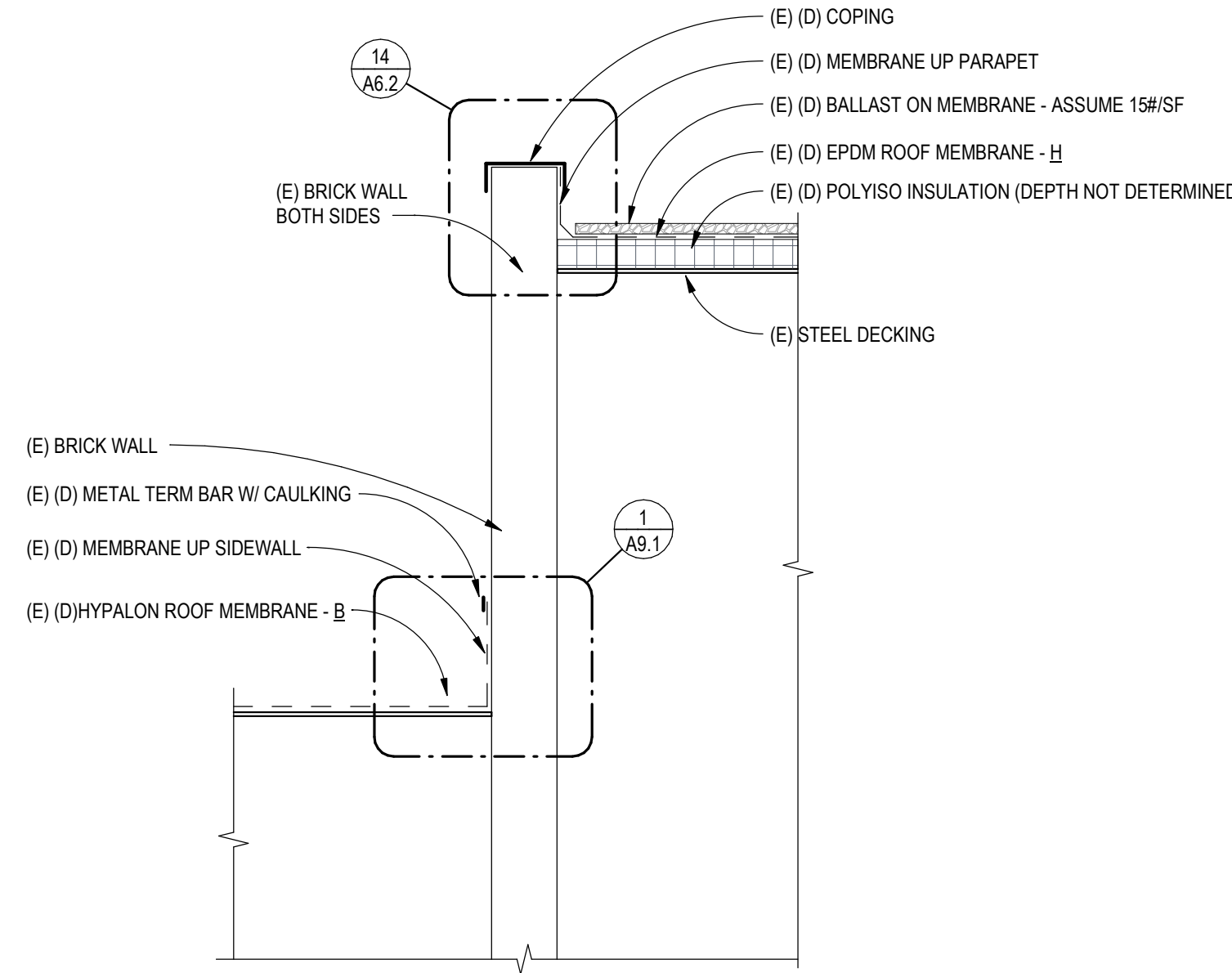
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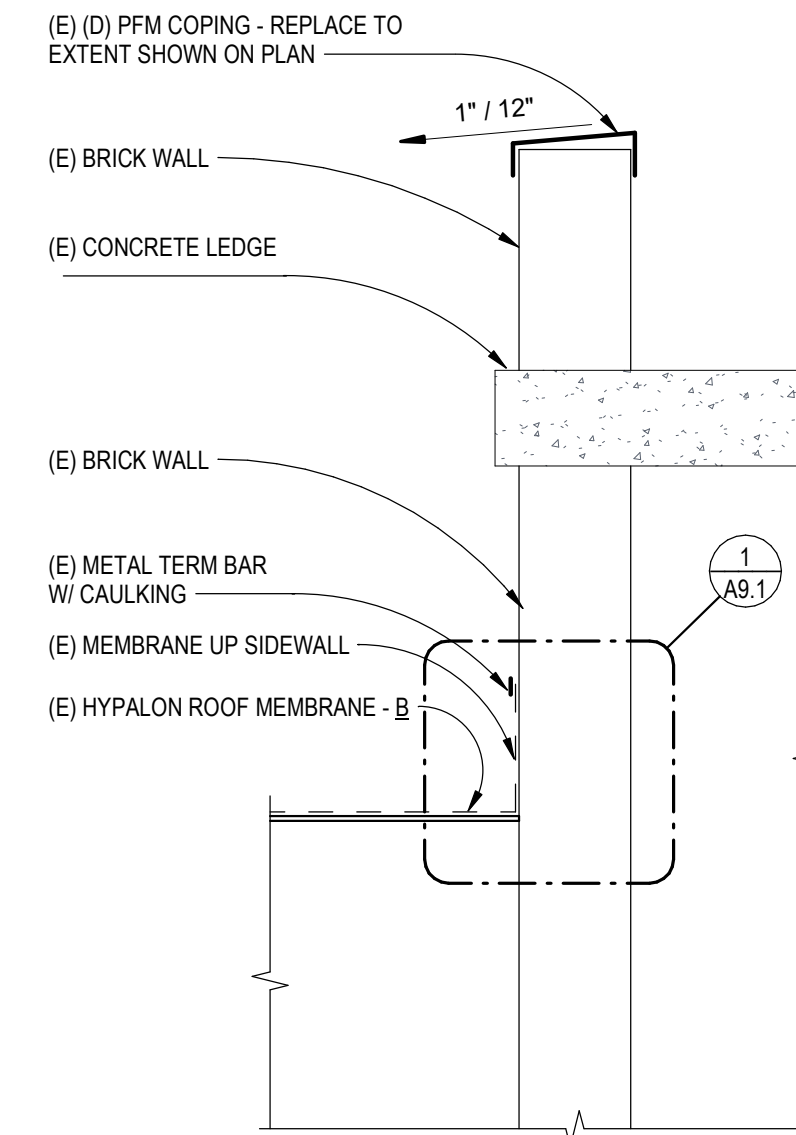
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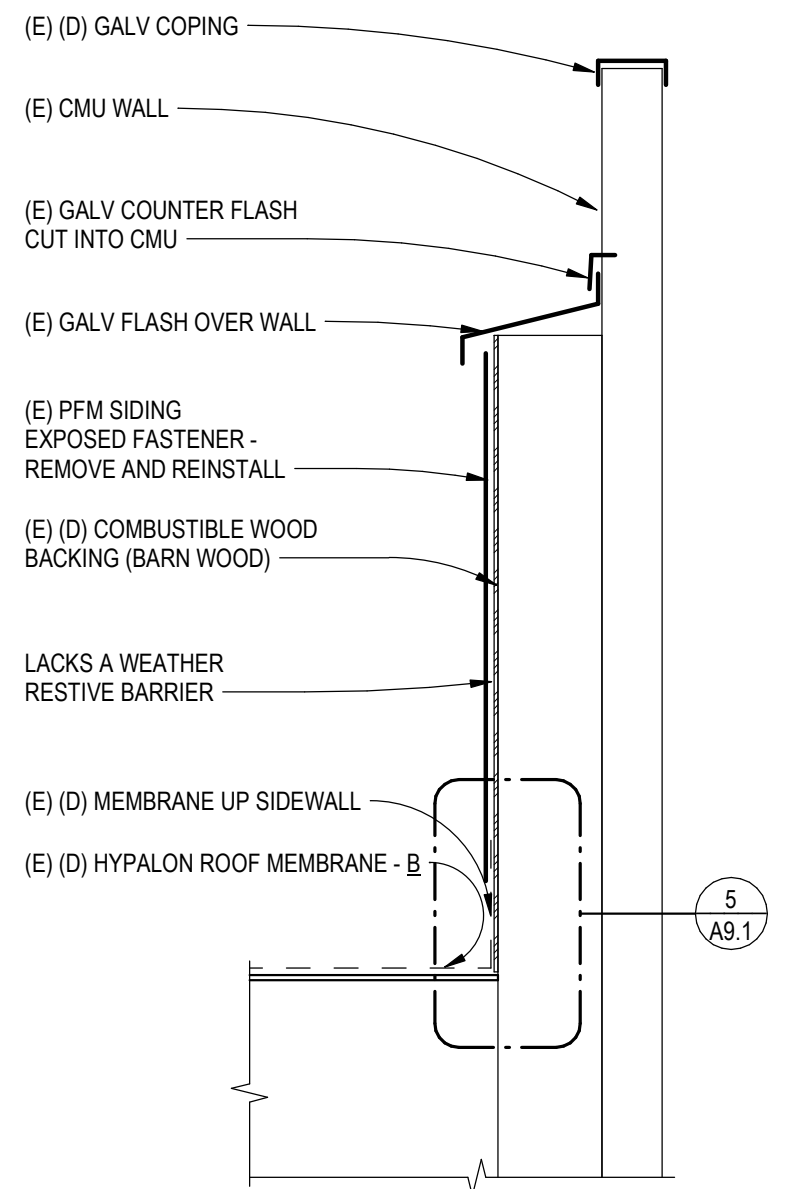
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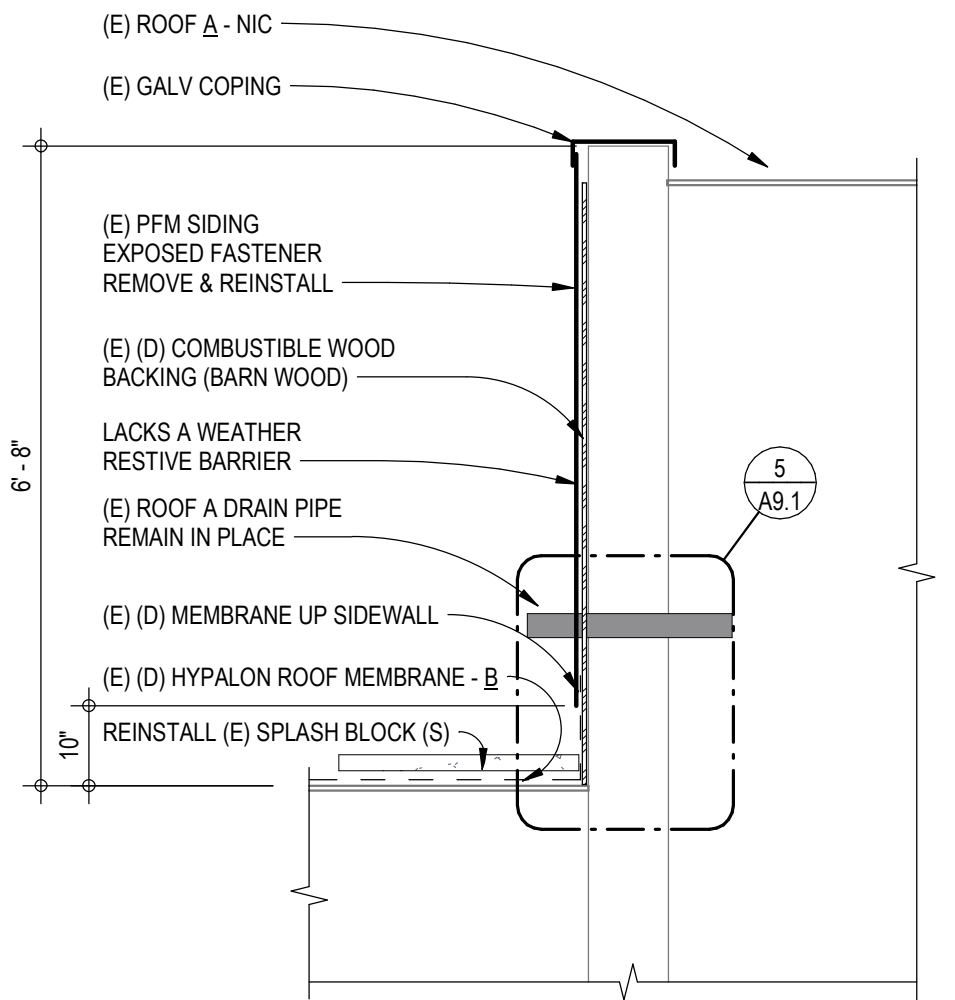
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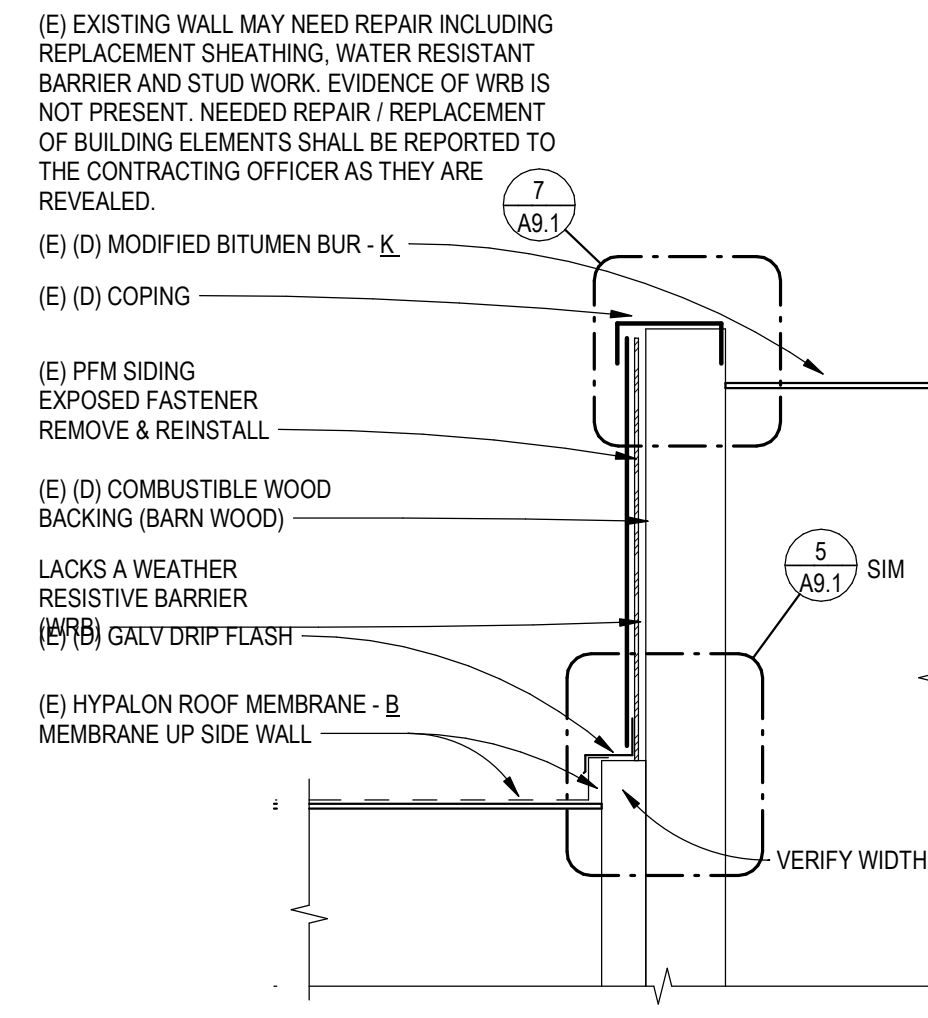
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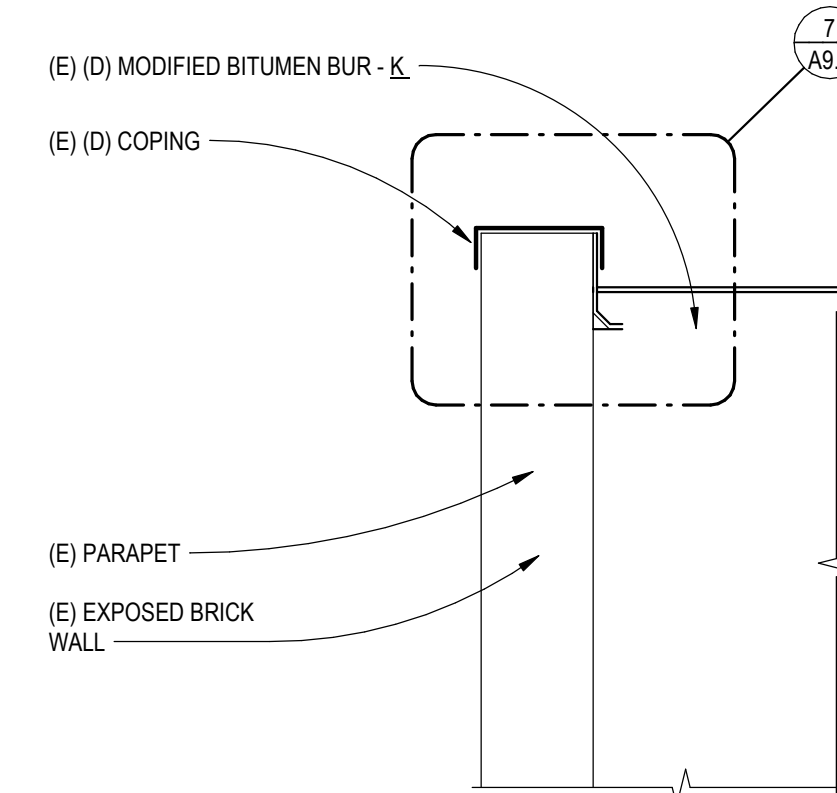
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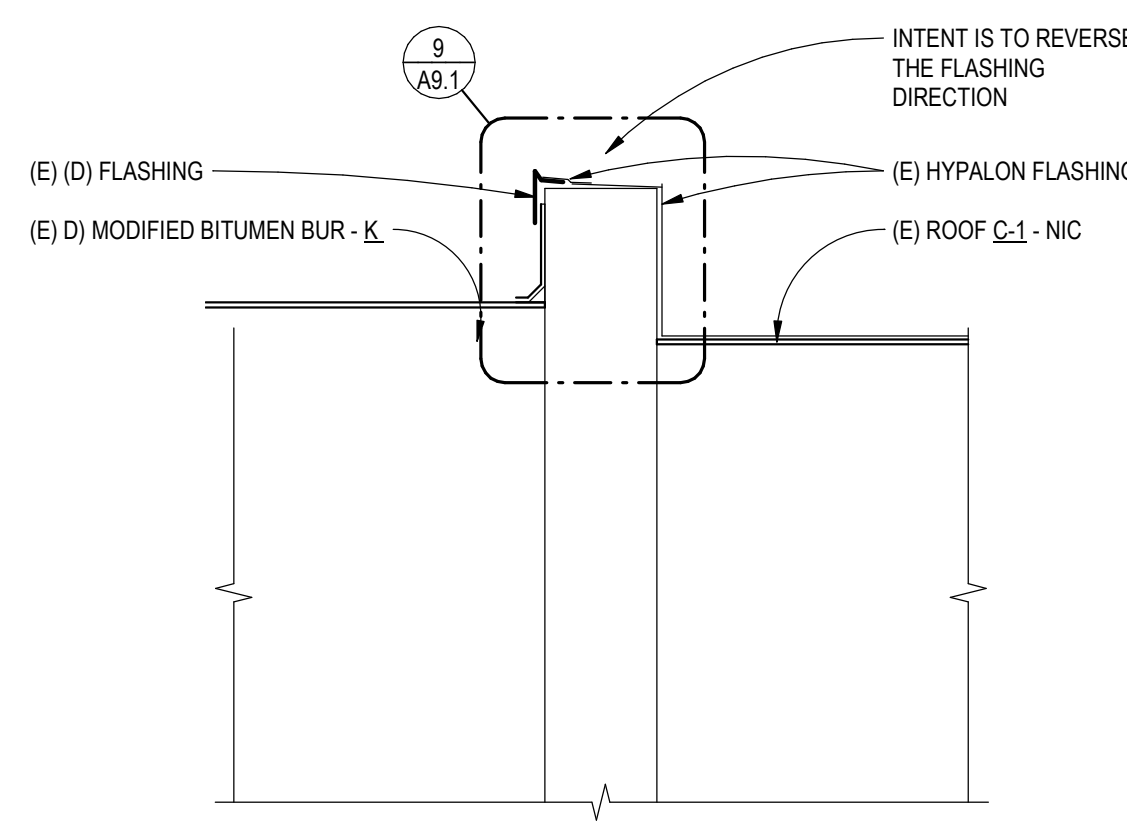
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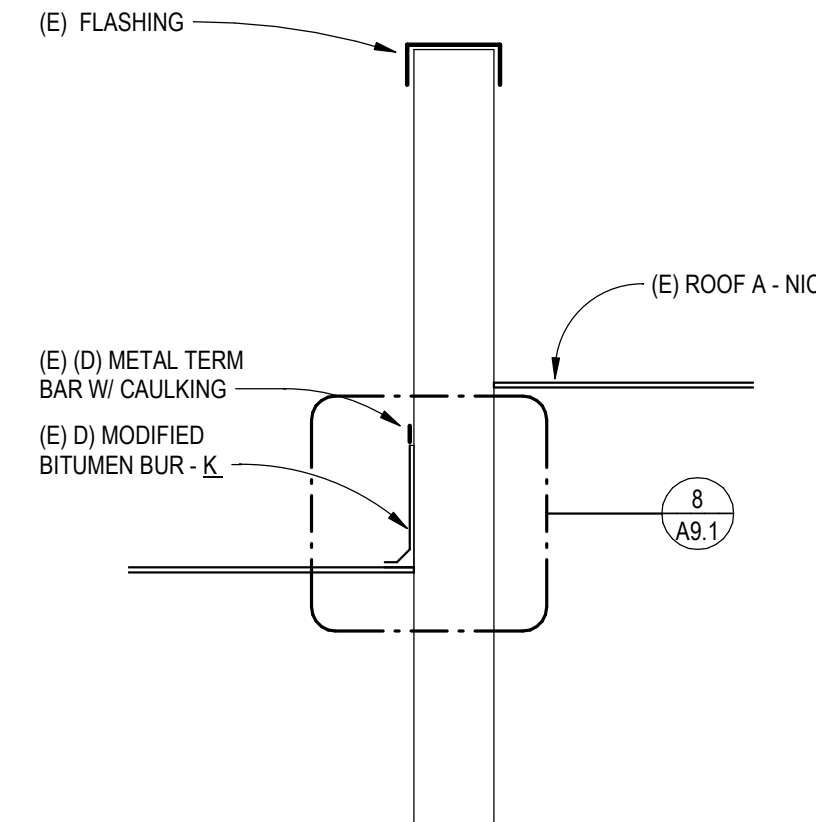
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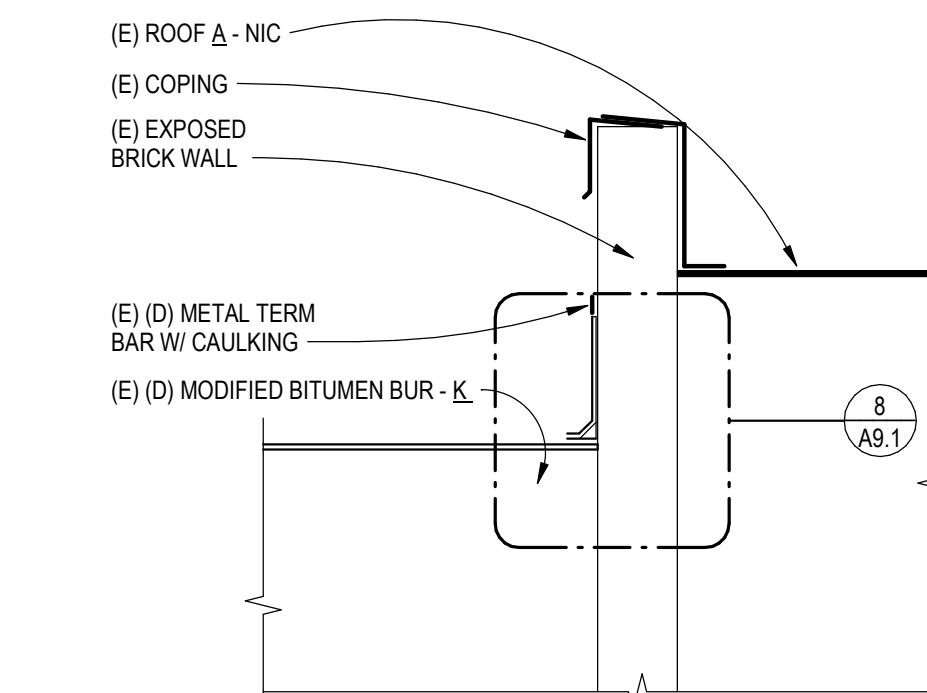
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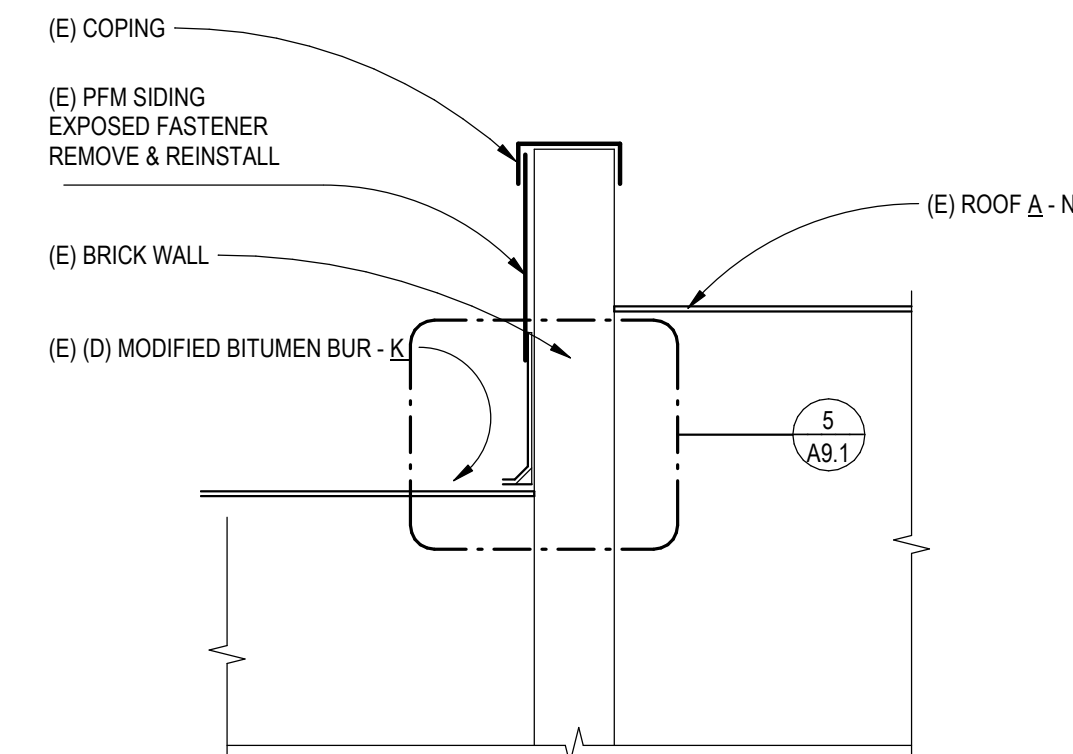
9 Section 9
SCALE: 1/2" = 1'-0"



10 Section 10
SCALE: 1/2" = 1'-0"



11 Section 11
SCALE: 1/2" = 1'-0"



12 Section 12
SCALE: 1/2" = 1'-0"

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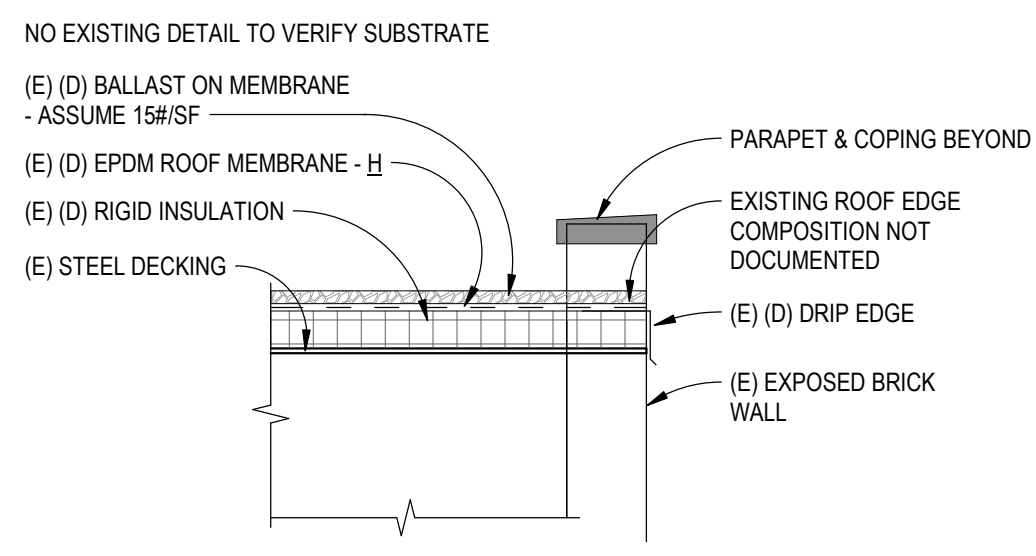
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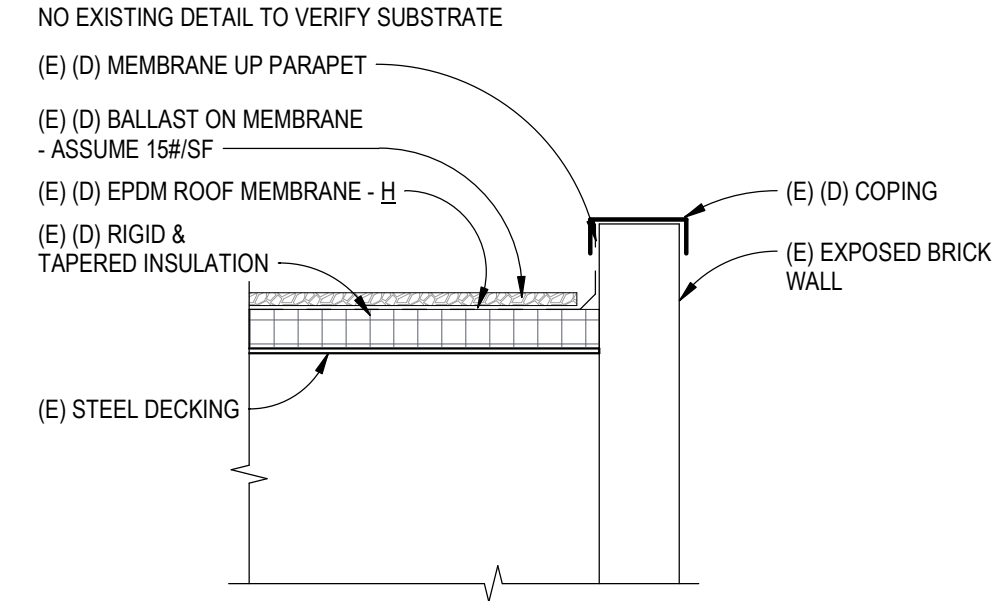
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751 W GRANT ST. BOZEMAN, MT 59715
WALL SECTIONS

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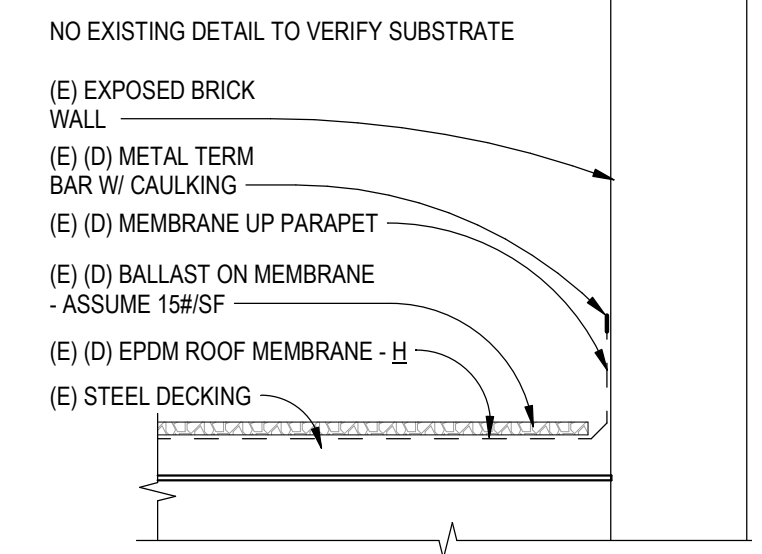
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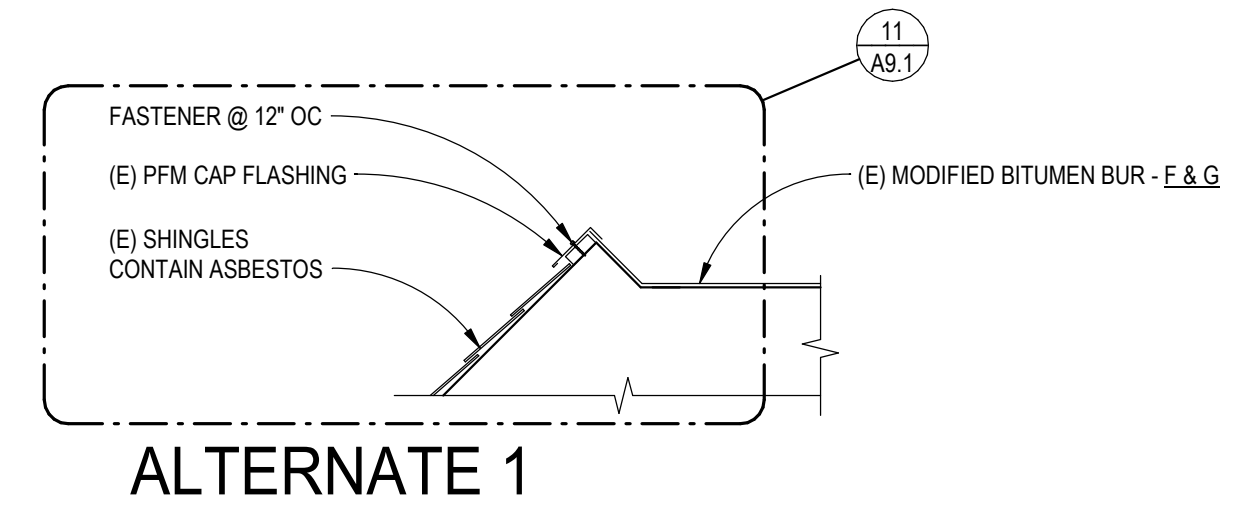
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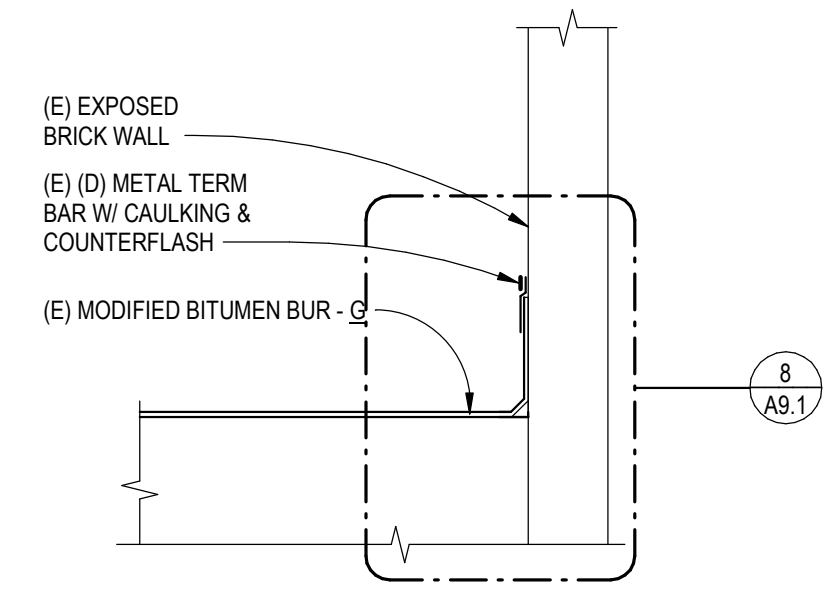
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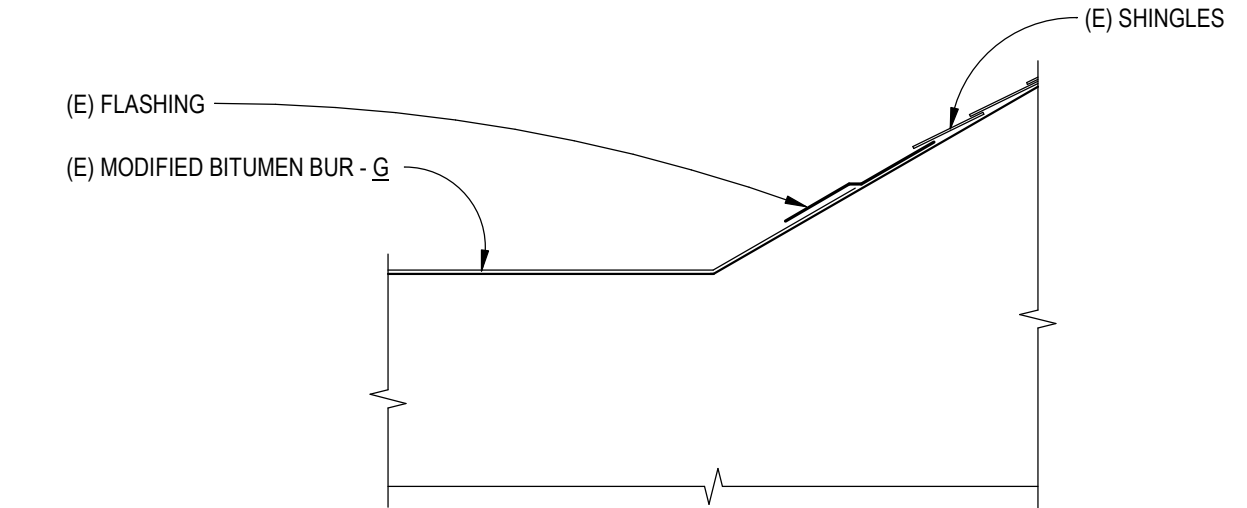
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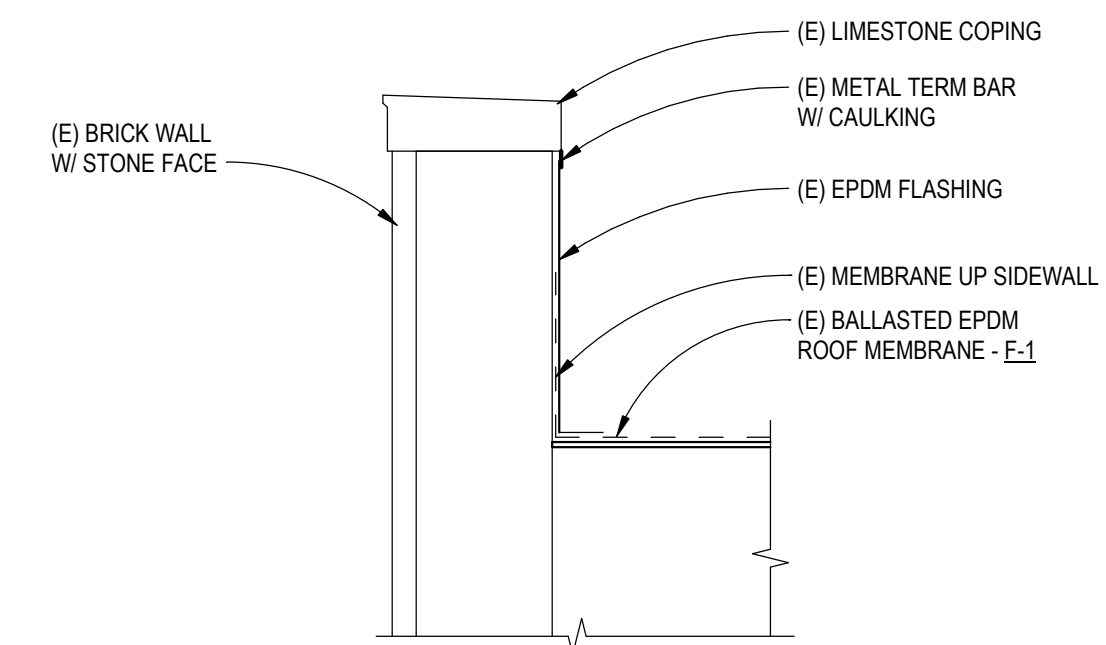
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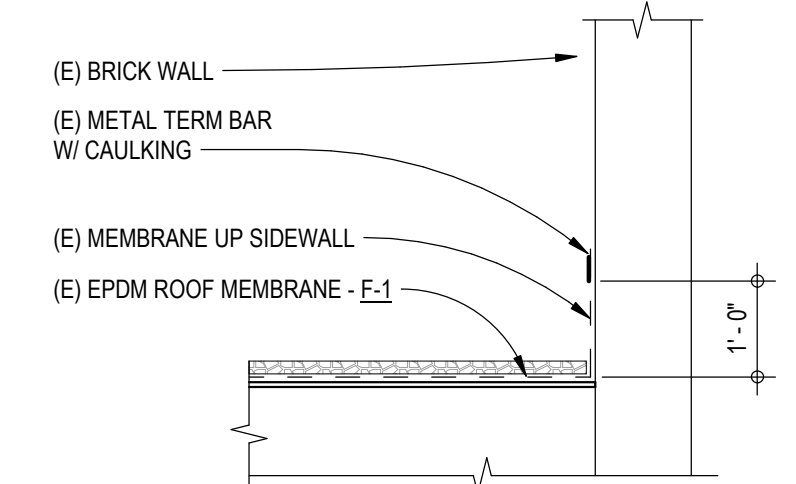
17 Section 17
SCALE: 1/2" = 1'-0"



18 Section 18
SCALE: 1/2" = 1'-0"



19 Section 19
SCALE: 1/2" = 1'-0"



20 Section 20
SCALE: 1/2" = 1'-0"

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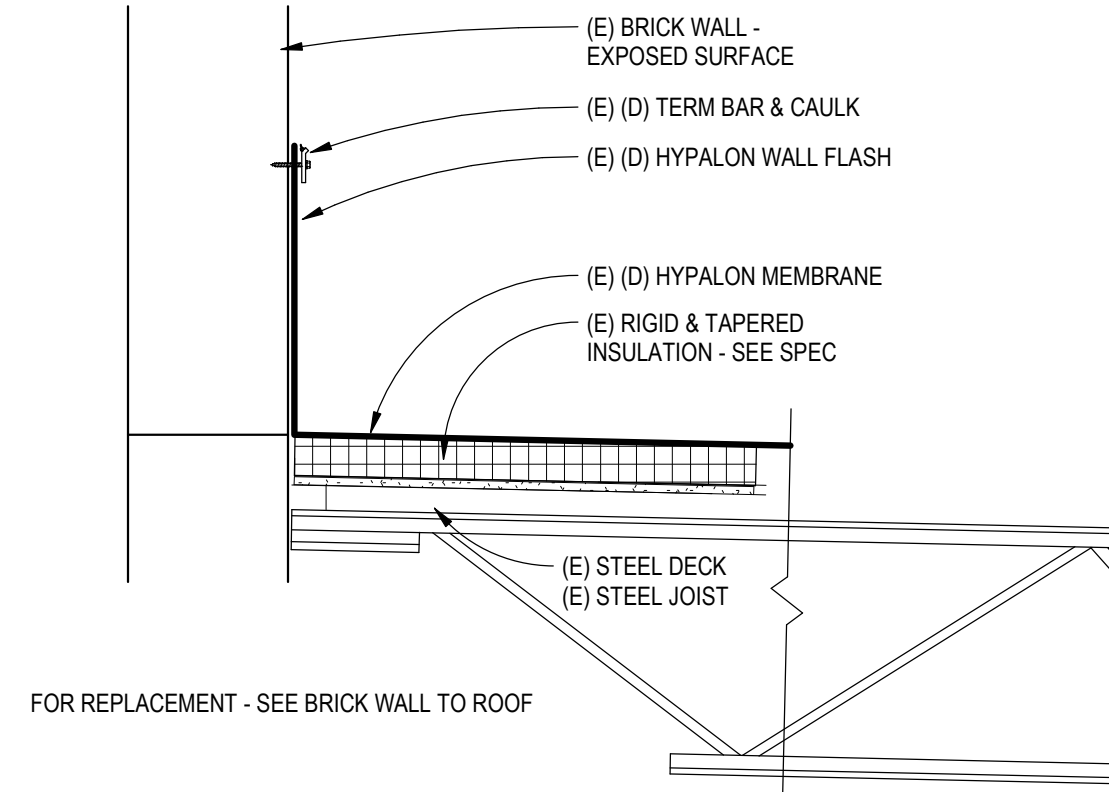
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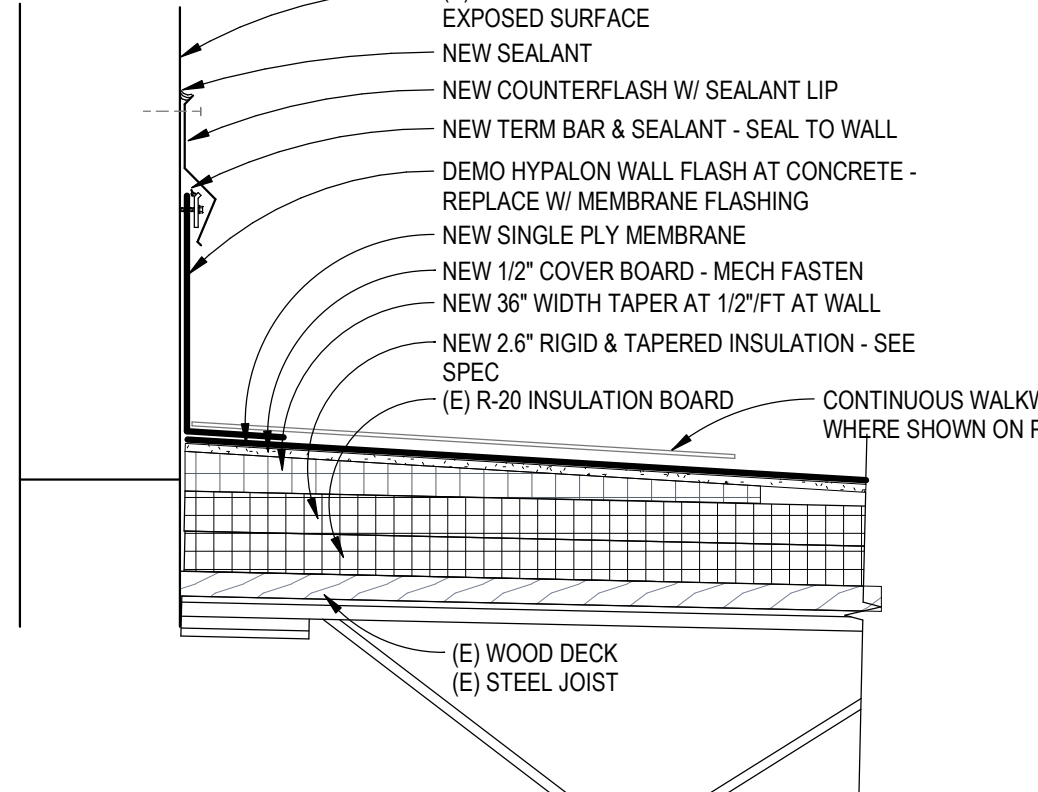
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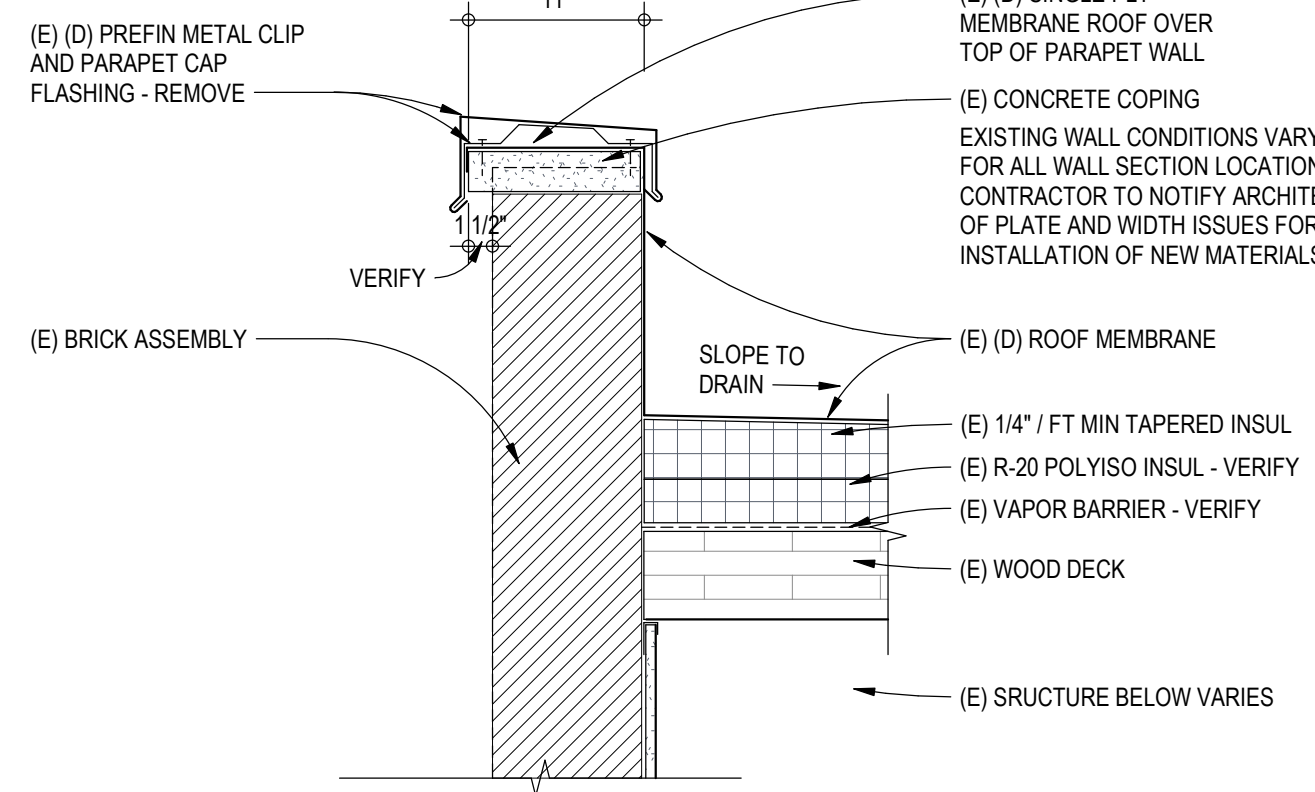


EXISTING CONDITION

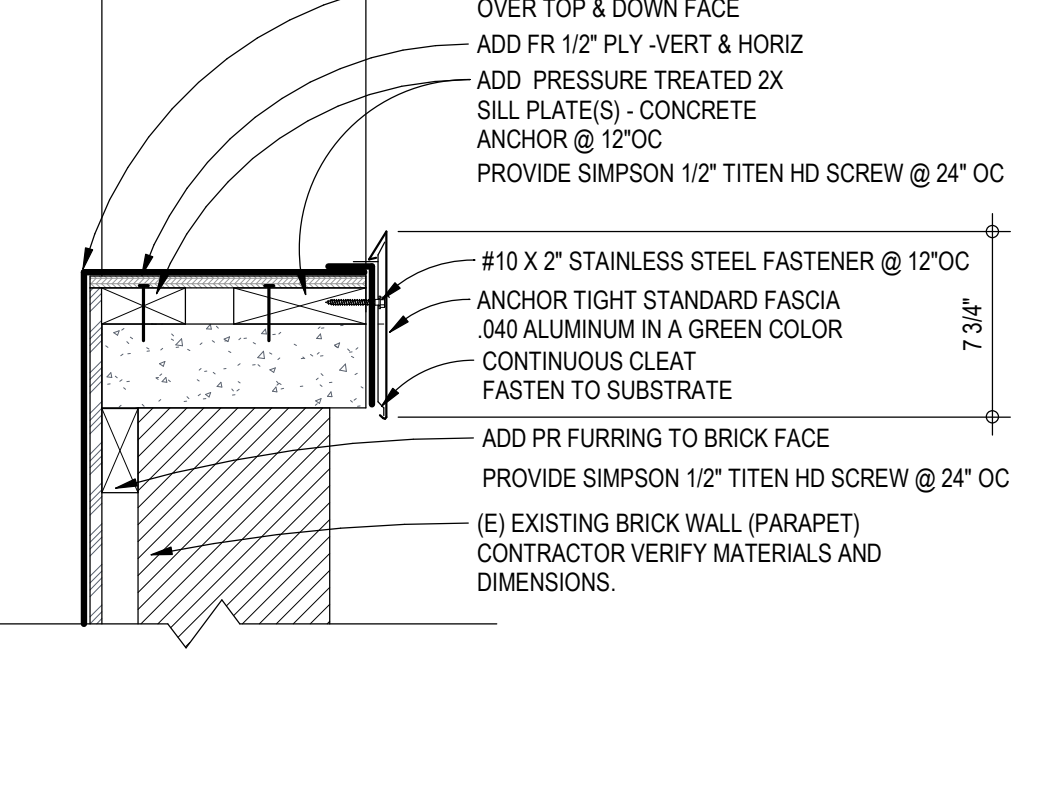
1 BRICK (E) WALL TO ROOF
SCALE: 1" = 1'-0"



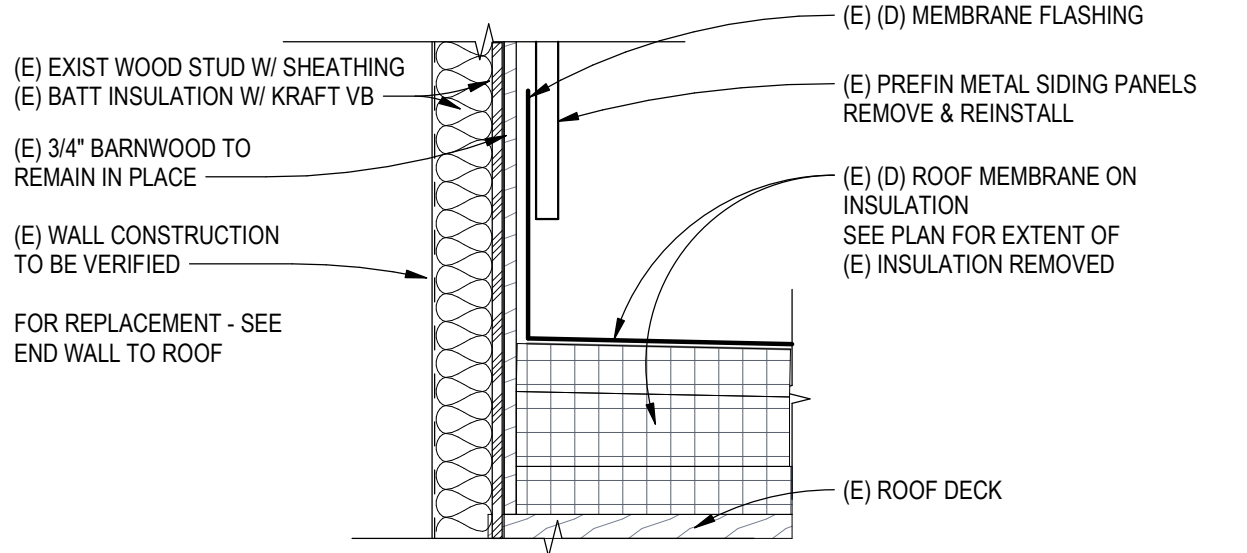
2 (N) BRICK WALL TO ROOF - B, K
SCALE: 1" = 1'-0"



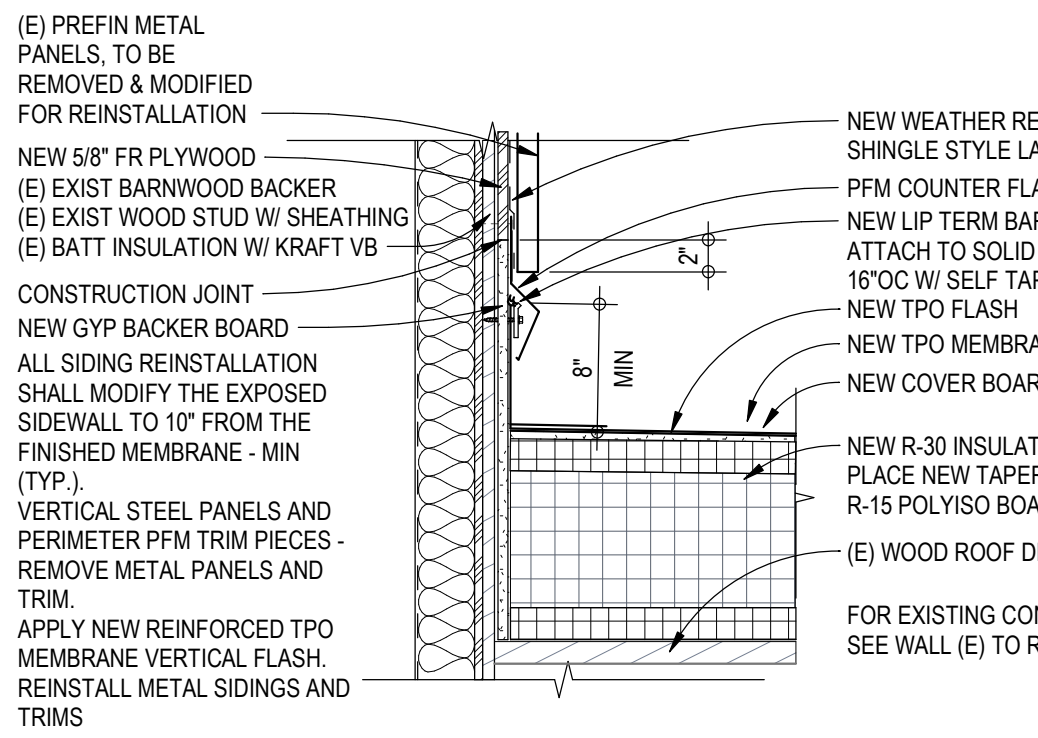
3 EXISTING PARAPET - B, H
SCALE: 1" = 1'-0"



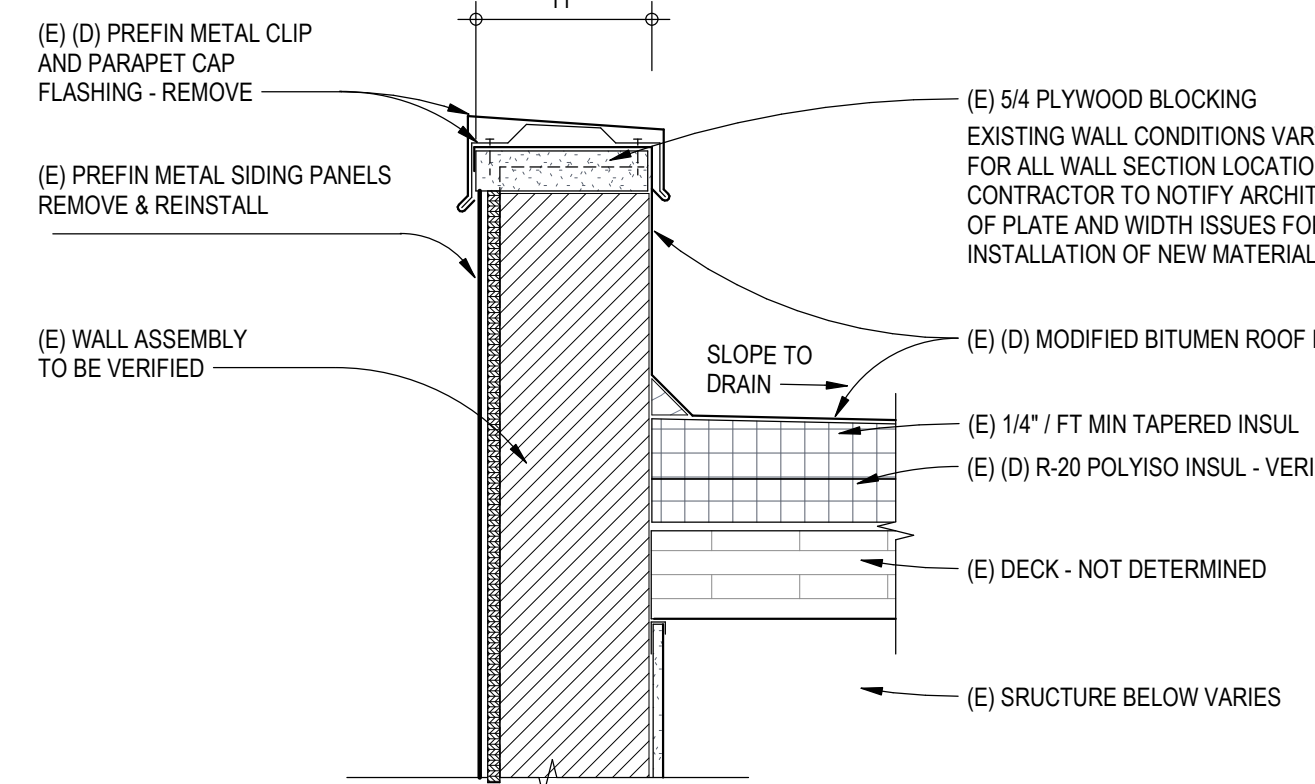
4 (N) FASCIA O/ BRICK WALL - B, H
SCALE: 1 1/2" = 1'-0"



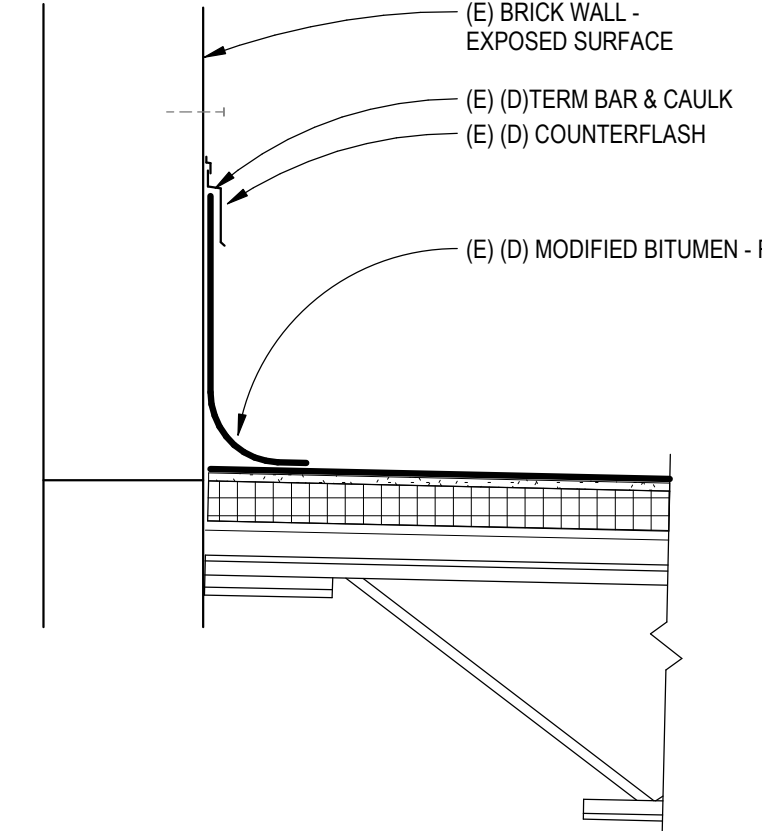
5 END WALL (E) TO ROOF
SCALE: 1" = 1'-0"



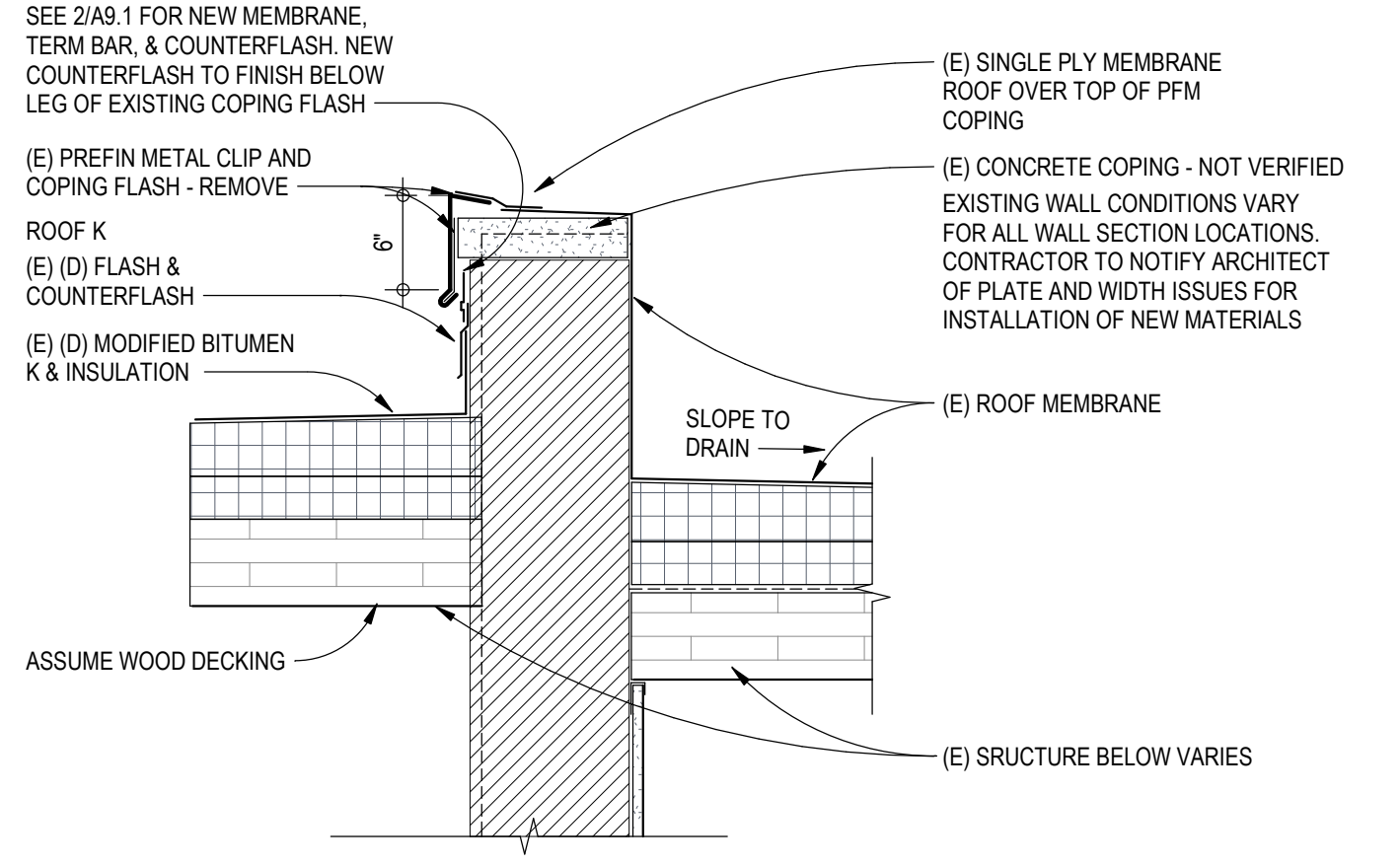
6 (N) END WALL TO ROOF - B
SCALE: 1" = 1'-0"



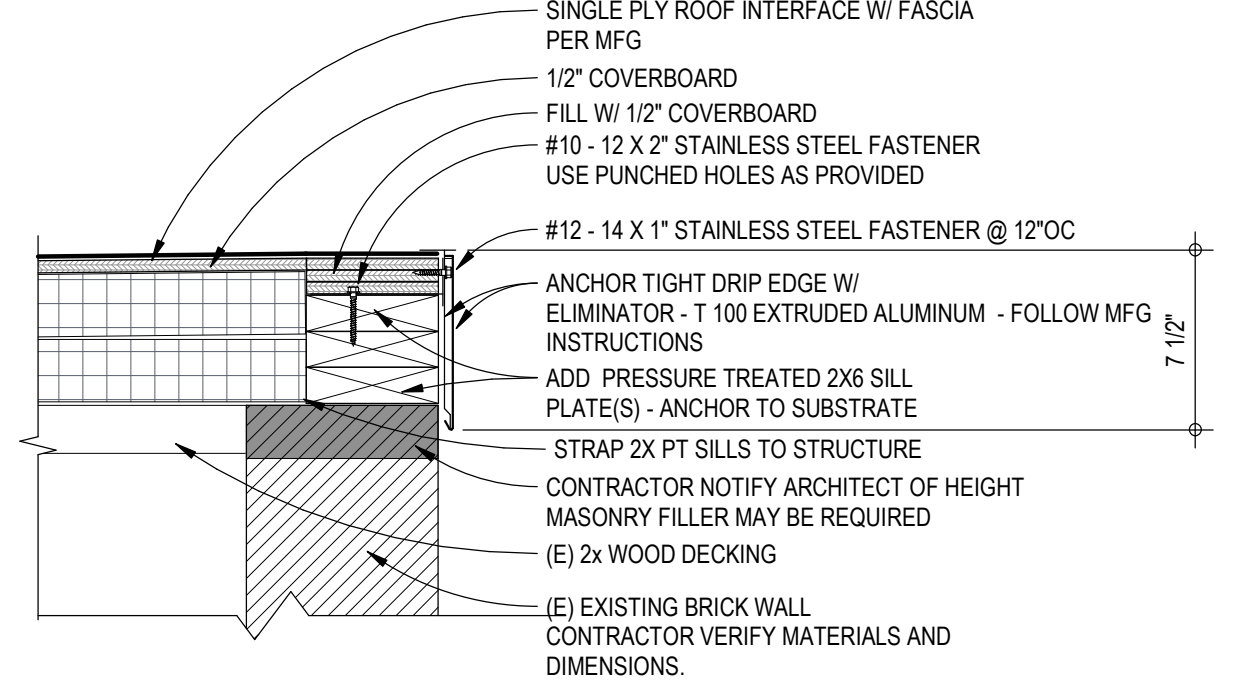
7 (E) PARAPET K NORTH
SCALE: 1" = 1'-0"



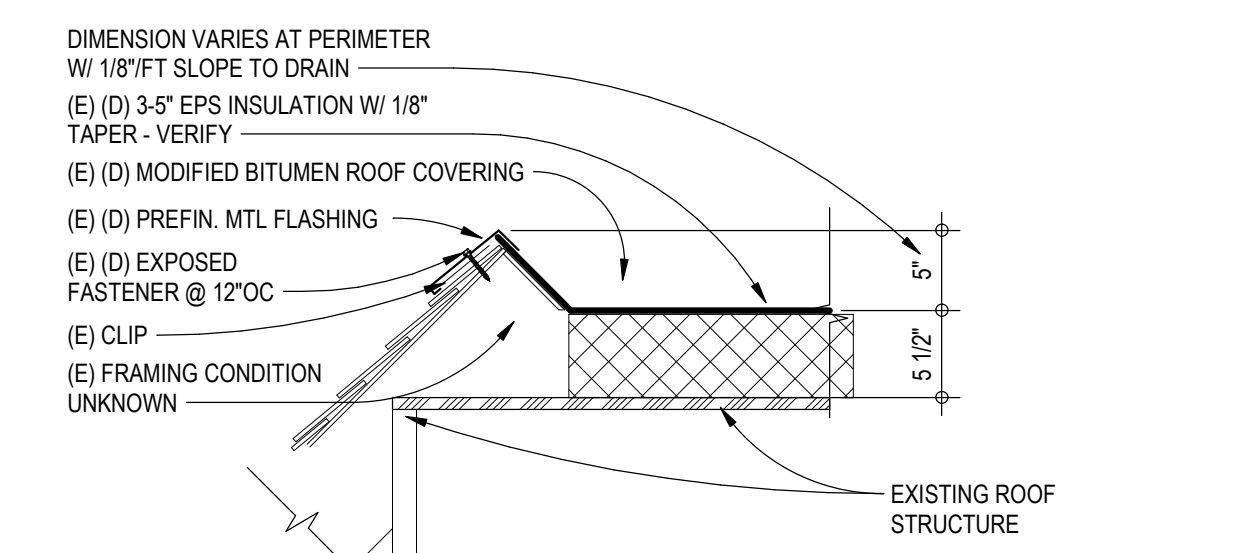
8 (E) BRICK WALL TO ROOF K, G
SCALE: 1" = 1'-0"



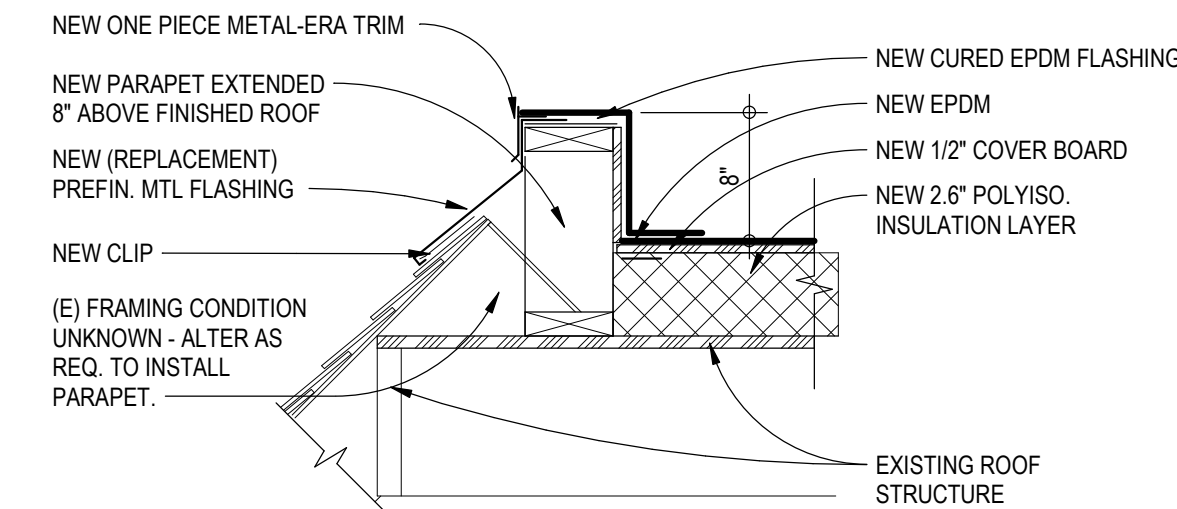
9 (E) PARAPET K SOUTH
SCALE: 1" = 1'-0"



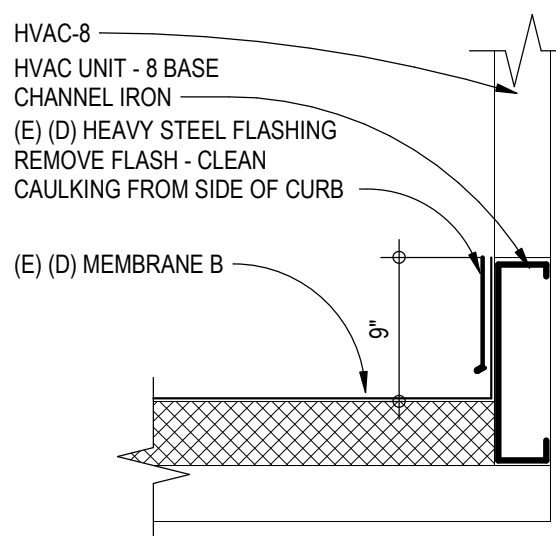
10 (N) DRIP EDGE CONVERSION O/ BRICK WALL - H
SCALE: 1 1/2" = 1'-0"



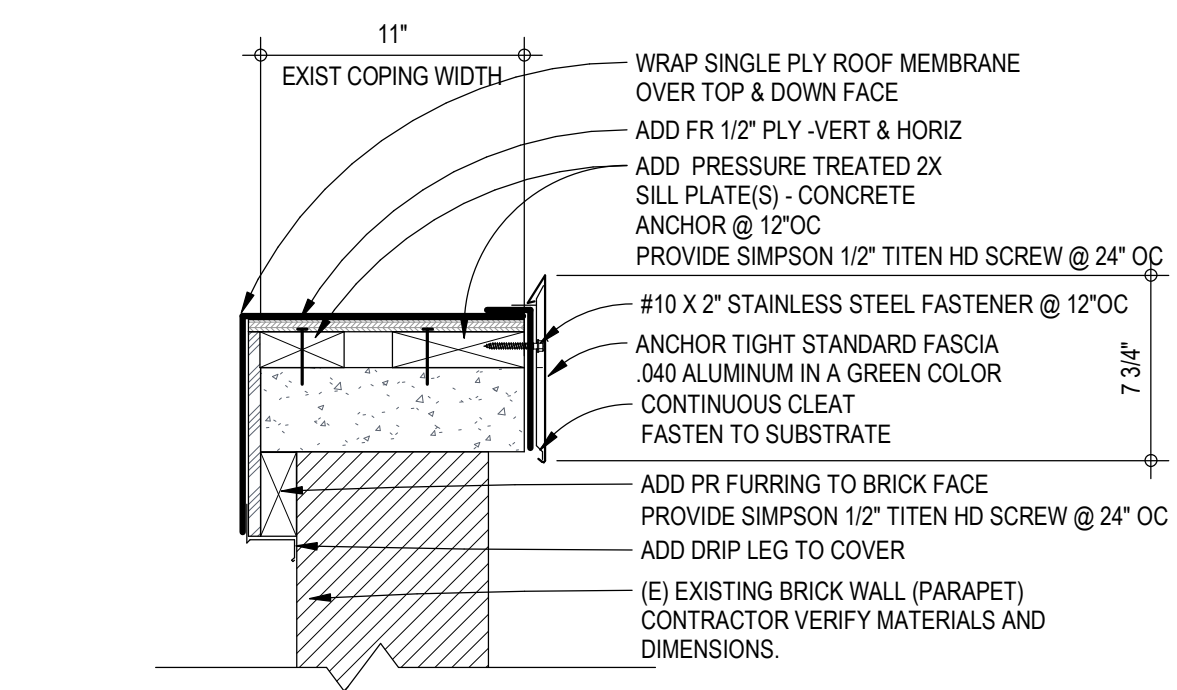
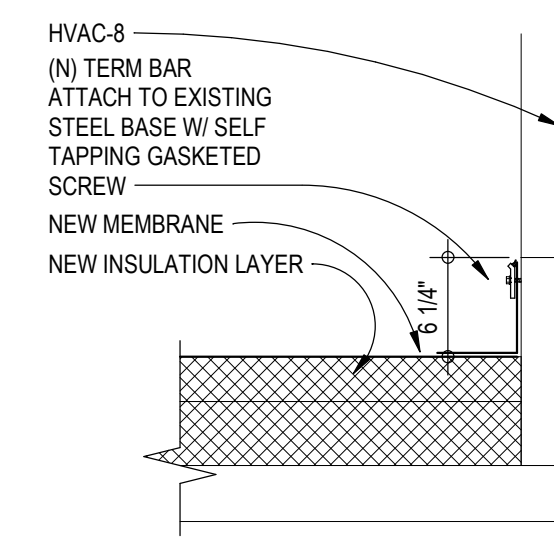
11 (E) HIP FLASHING DETAIL
SCALE: 1" = 1'-0"



12 (N) HIP FLASHING DETAIL REPLACEMENT
SCALE: 1" = 1'-0"



13 HVAC - 8, AHU-7
SCALE: 1" = 1'-0"
USE EXISTING CURB PLACEMENT: AHU-7 & HVAC-8



14 (N) FASCIA O/ BRICK WALL - H EXTENDED COPING
SCALE: 1 1/2" = 1'-0"

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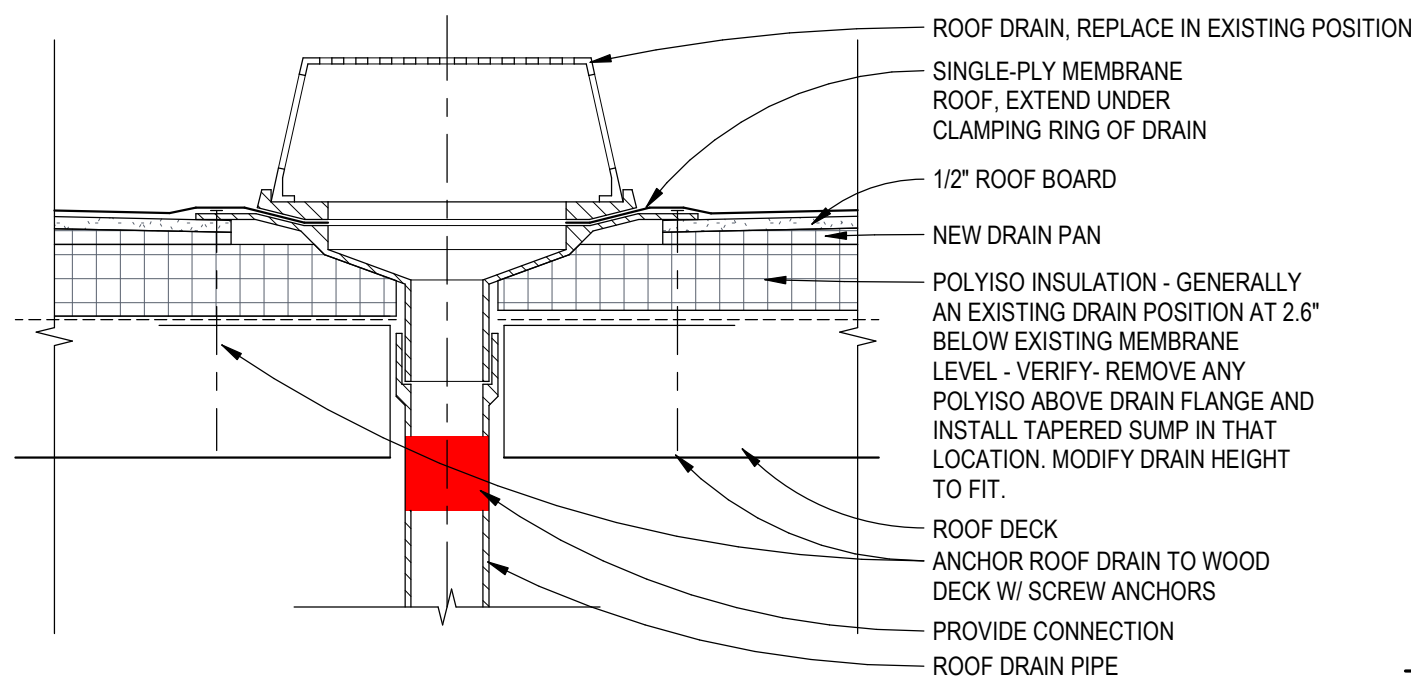
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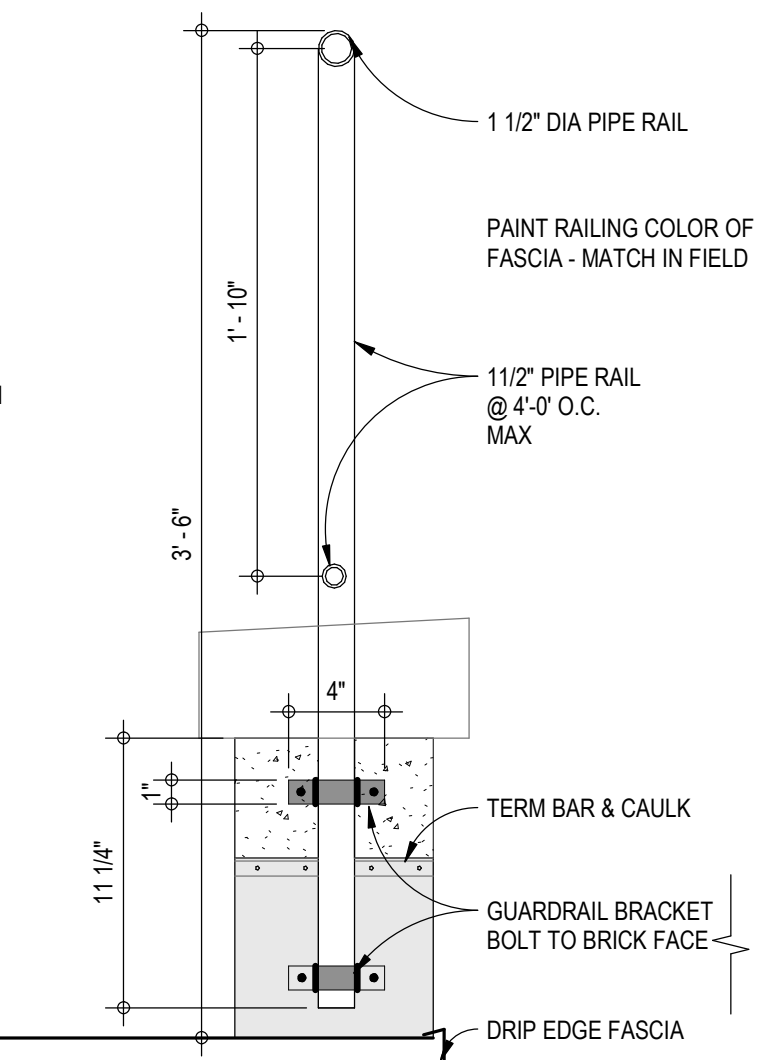
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751 W GRANT ST. BOZEMAN, MT 59715
ROOF DETAILS

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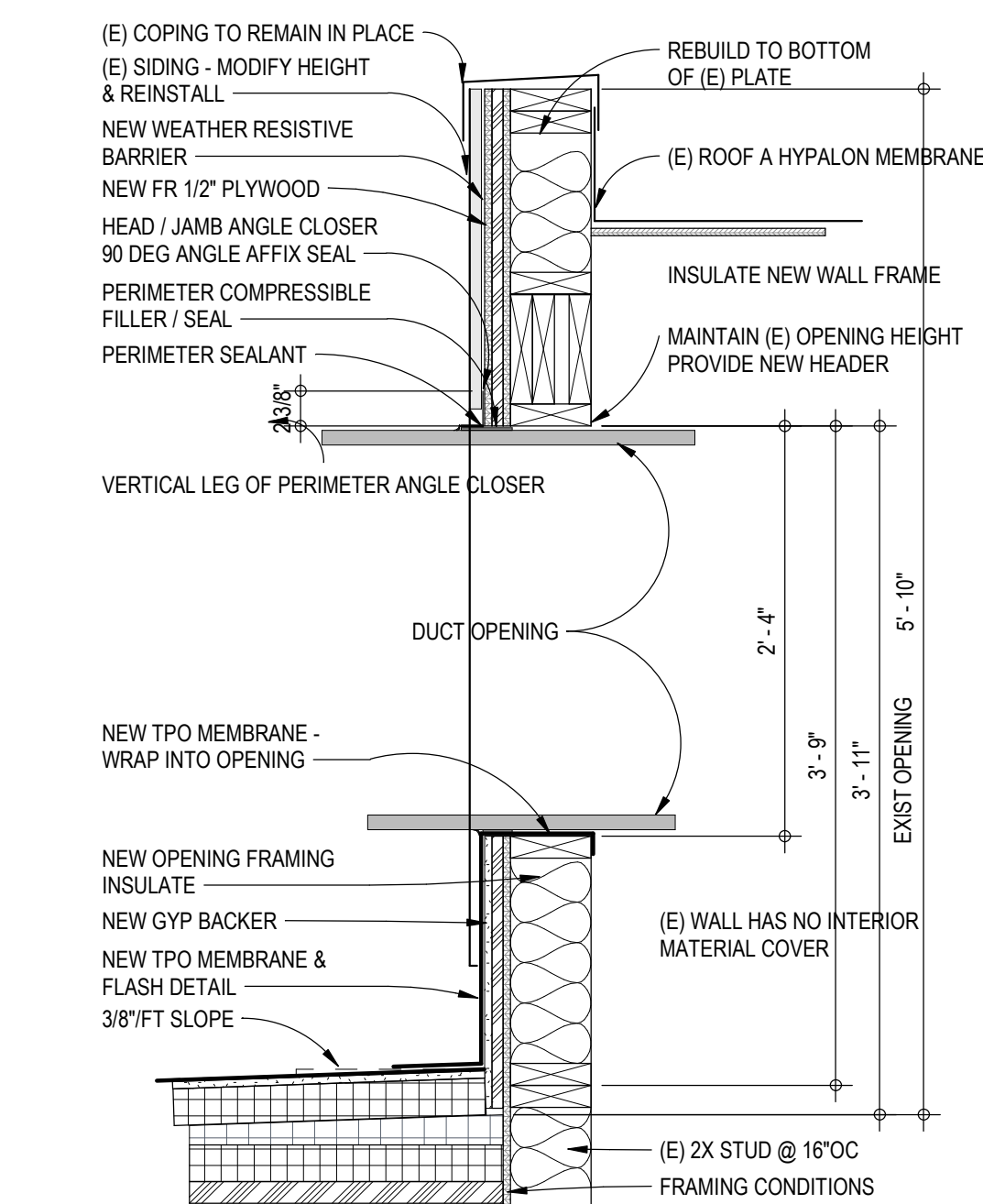
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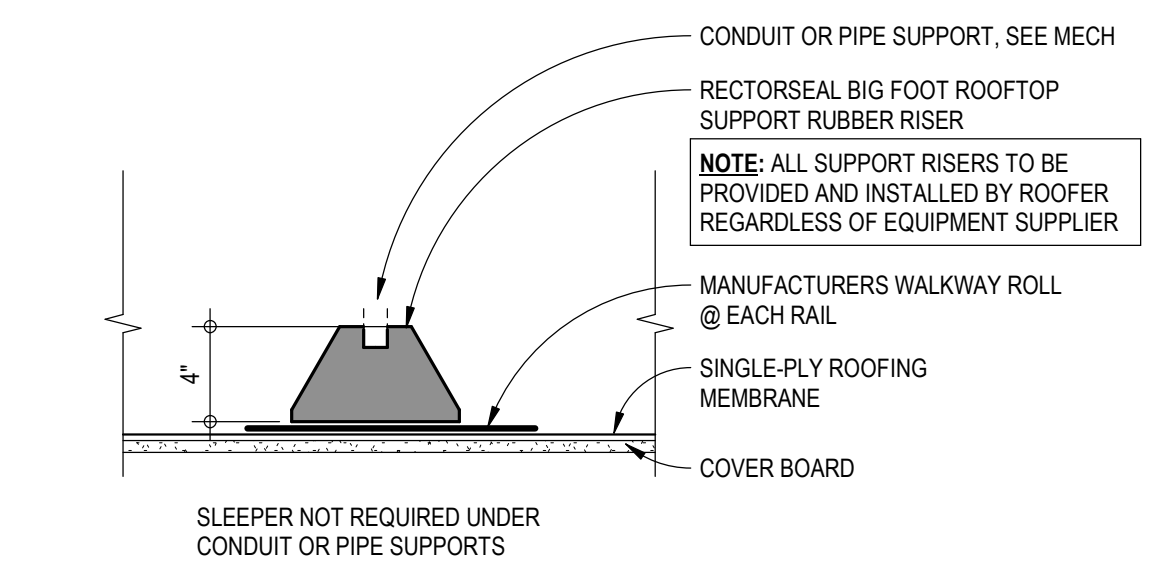
1 ROOF DRAIN - REROOF
SCALE: 1 1/2" = 1'-0"



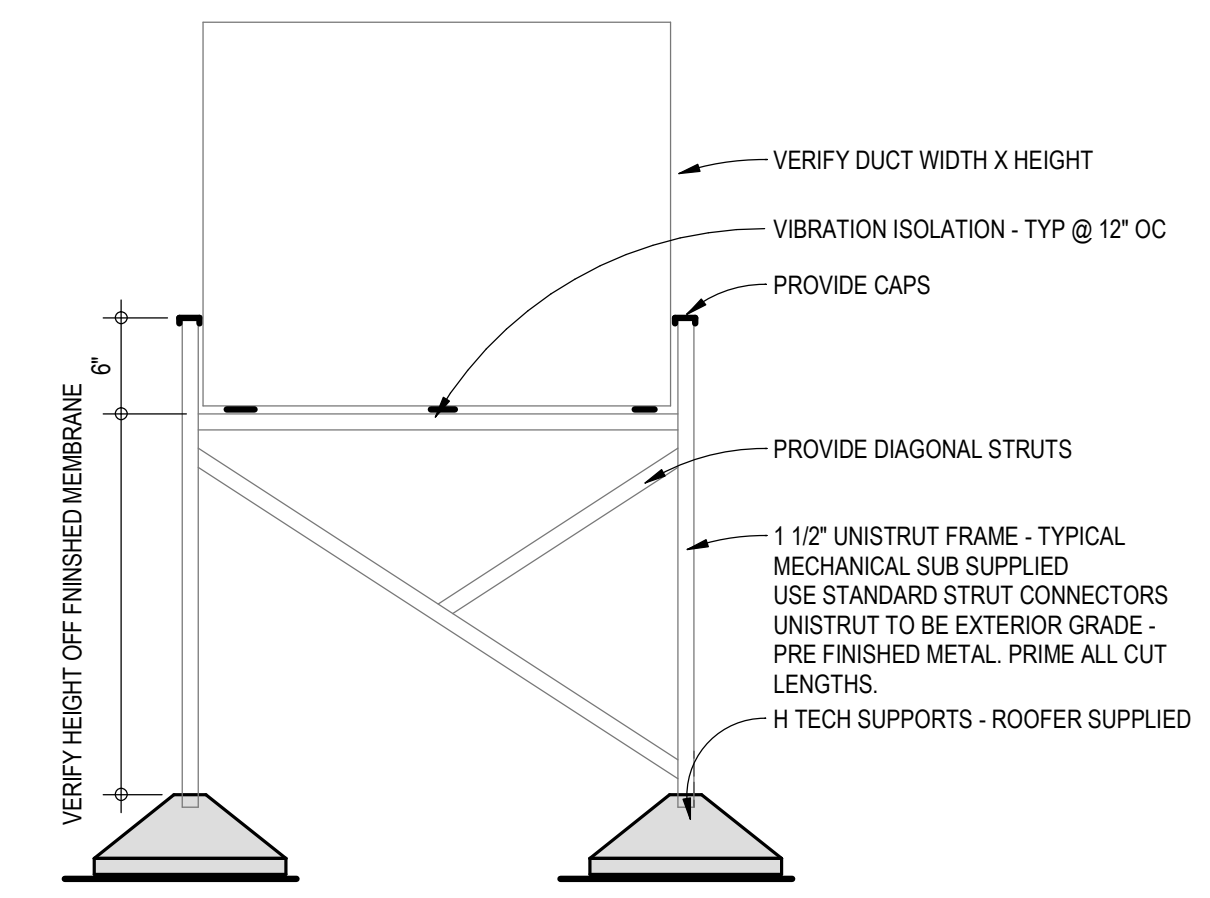
2 SIDEWALK RAIL
SCALE: 1 1/2" = 1'-0"



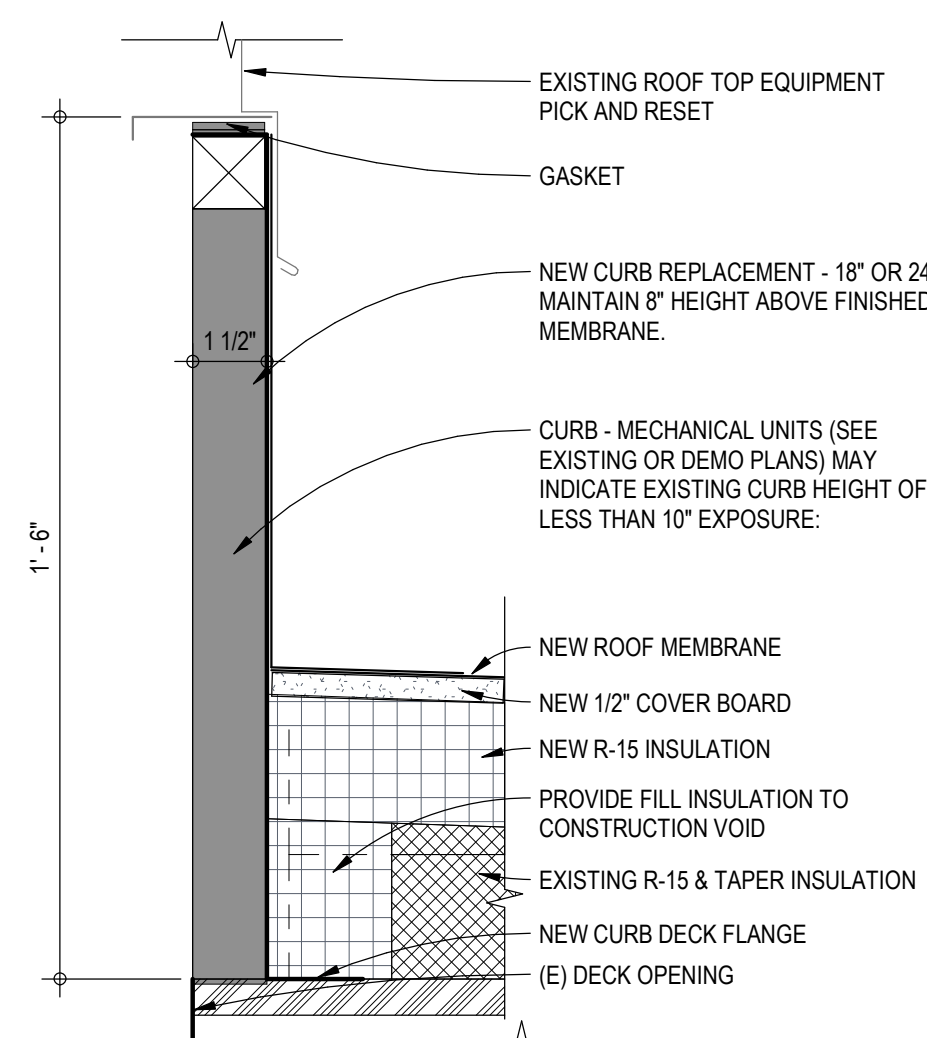
3 DUCT OPENING REVISION
SCALE: 1" = 1'-0"



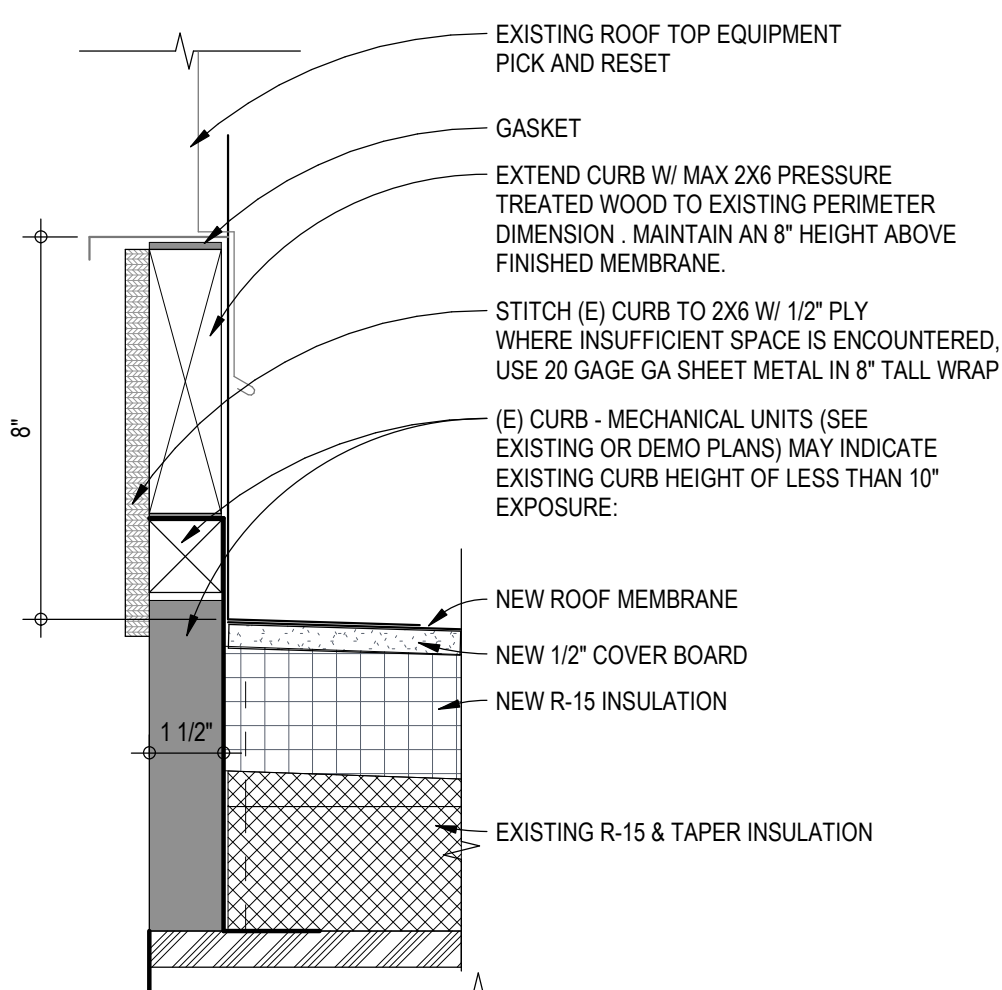
4 PIPE OR CONDUIT SUPPORT
SCALE: 1 1/2" = 1'-0"



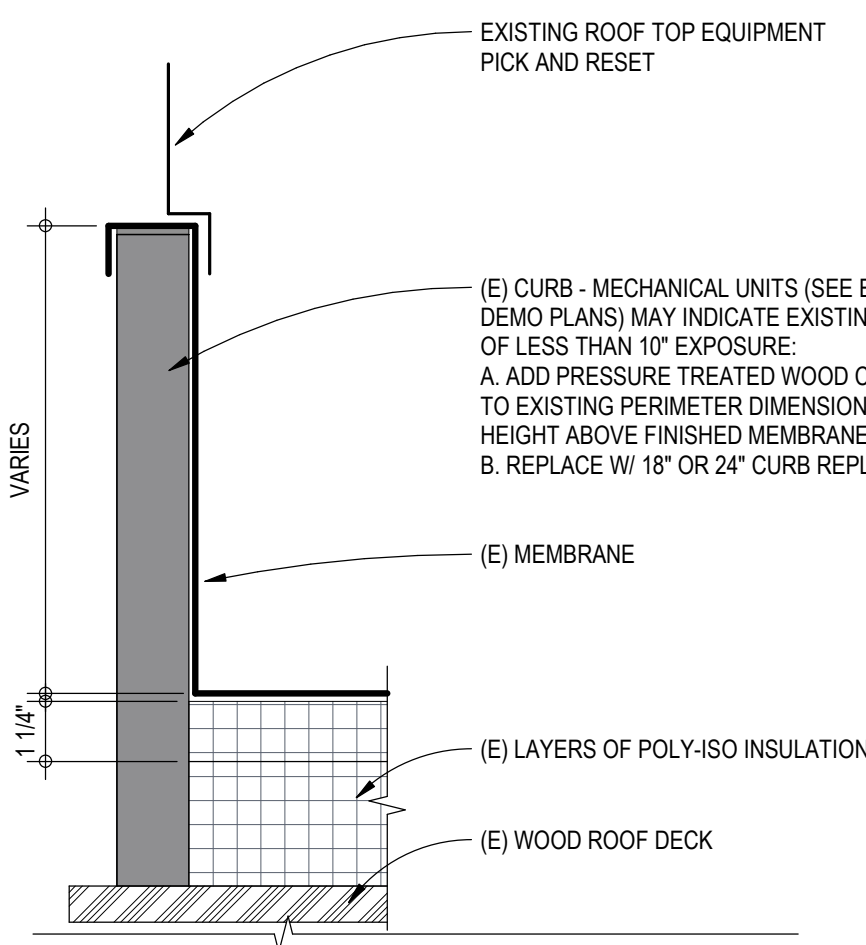
6 EQUIPMENT SUPPORT
SCALE: 1 1/2" = 1'-0"



CURB B

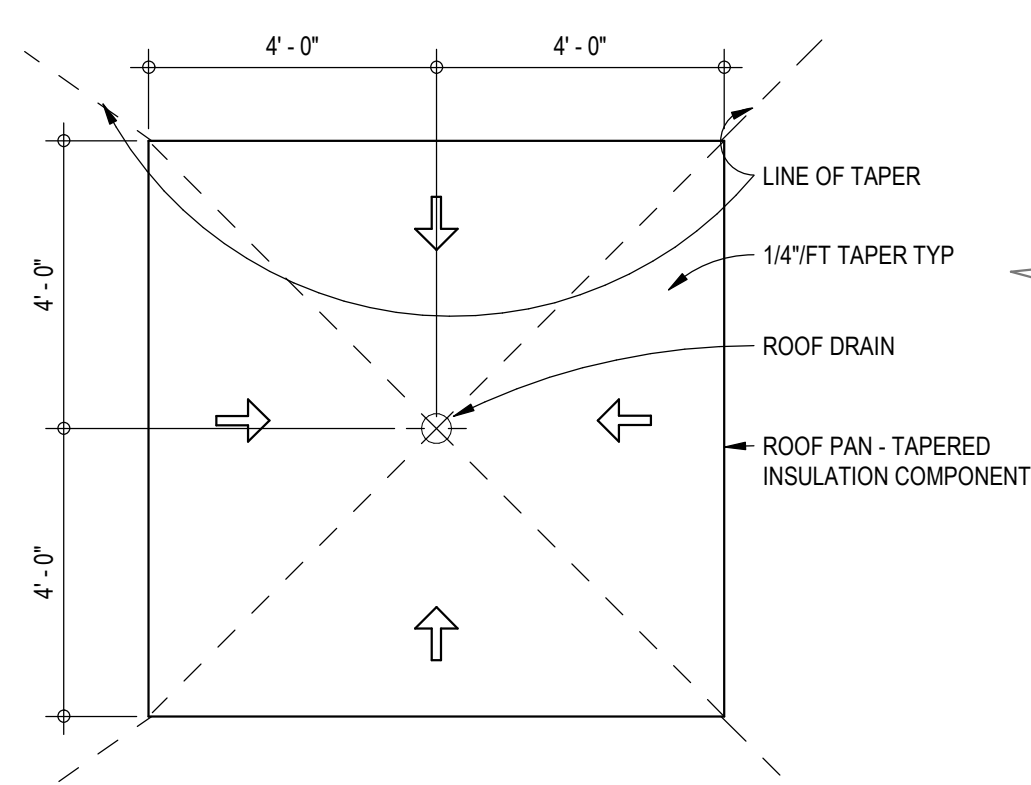


CURB A

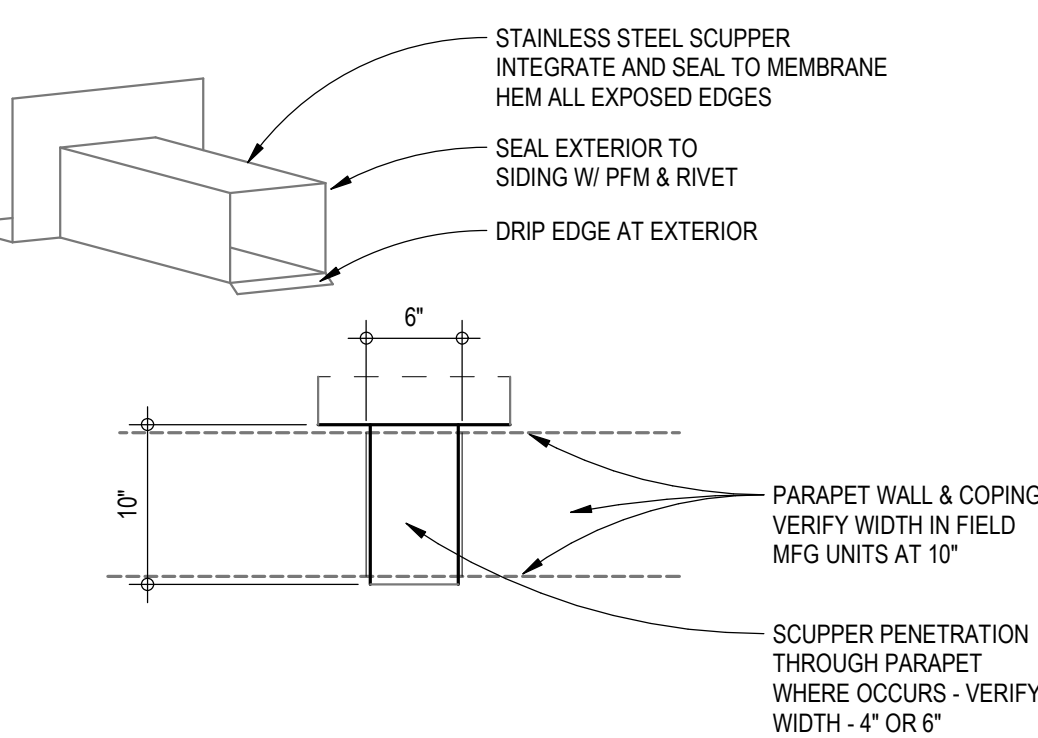


(E) CURB

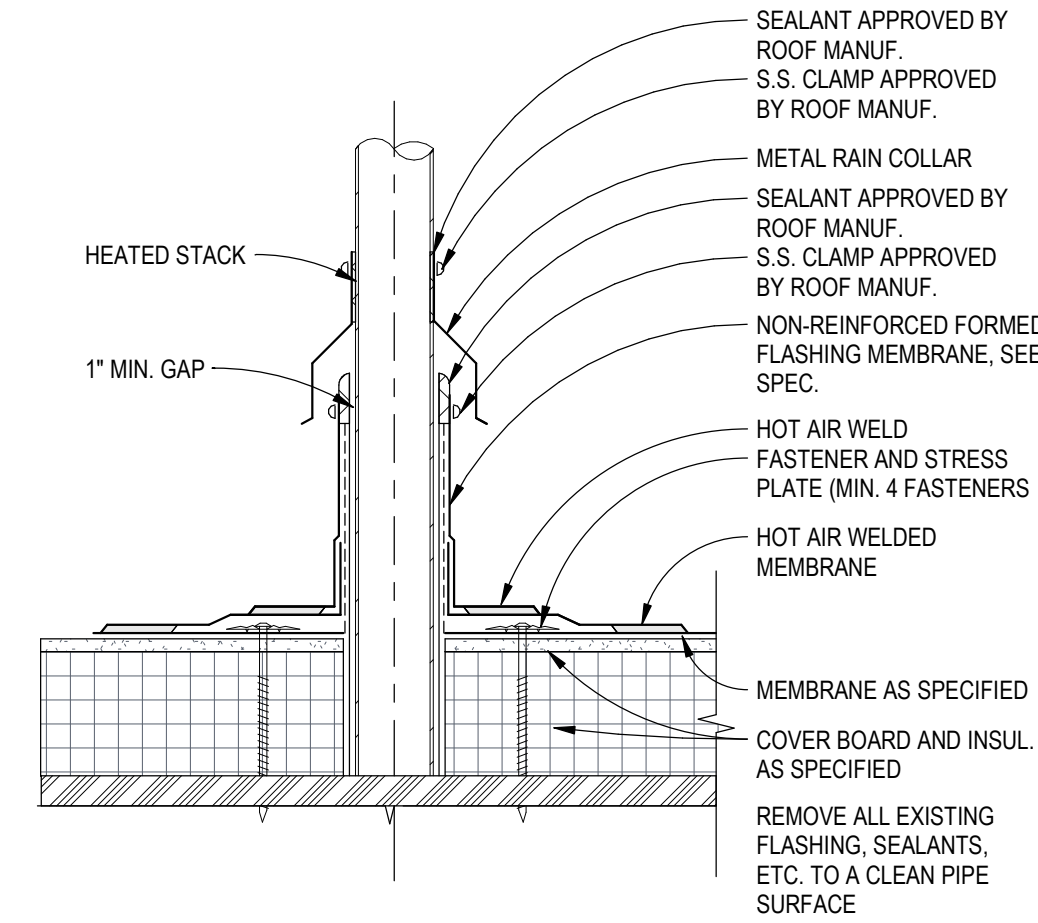
5 HVAC CURB EXTENSION
SCALE: 3" = 1'-0"



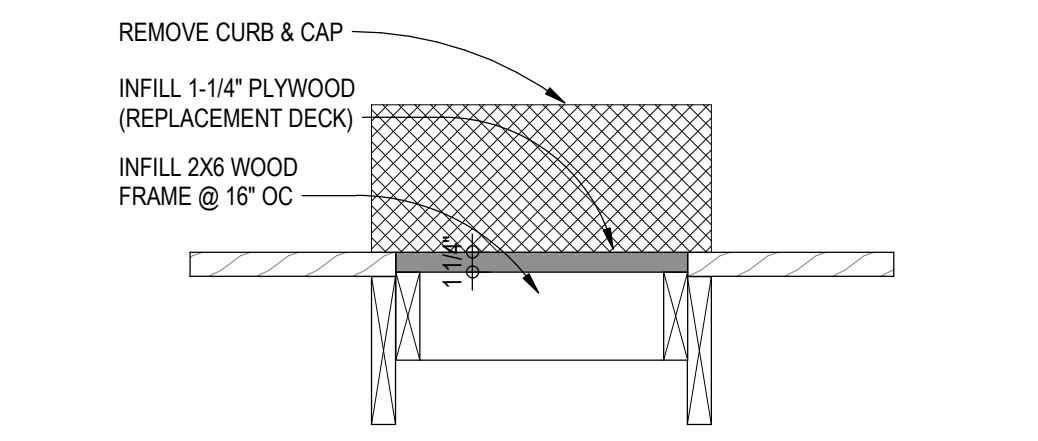
8 DRAIN PAN
SCALE: 3/8" = 1'-0"



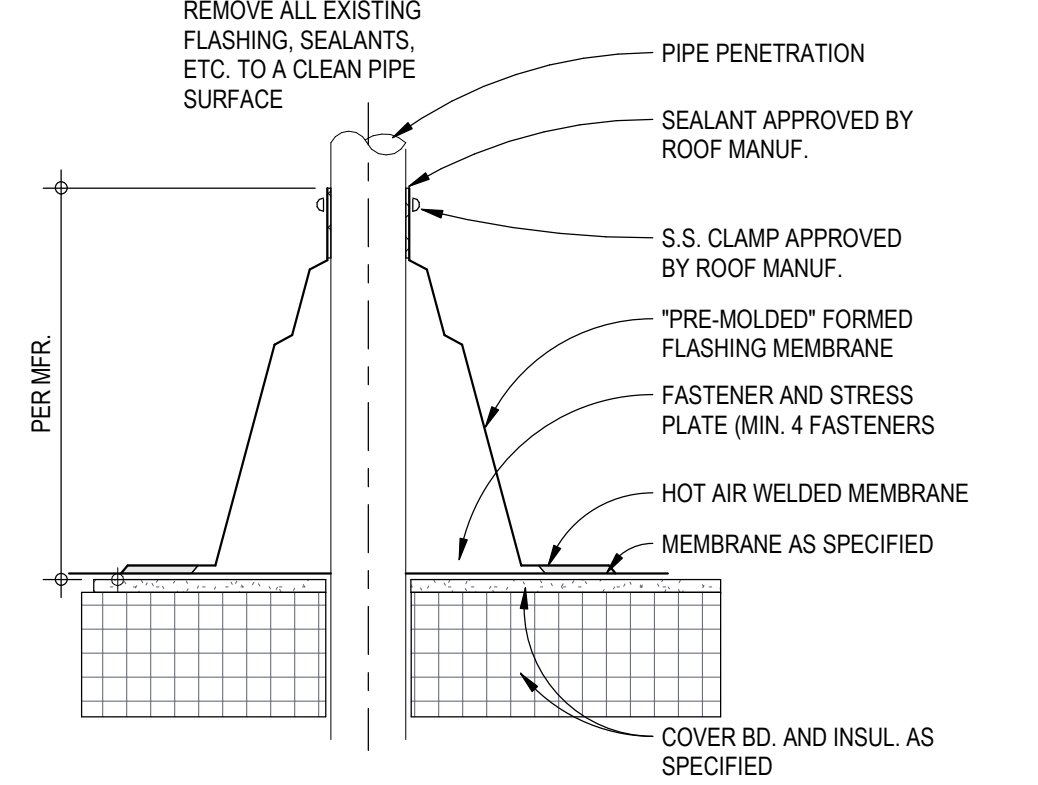
9 SCUPPER
SCALE: 1" = 1'-0"



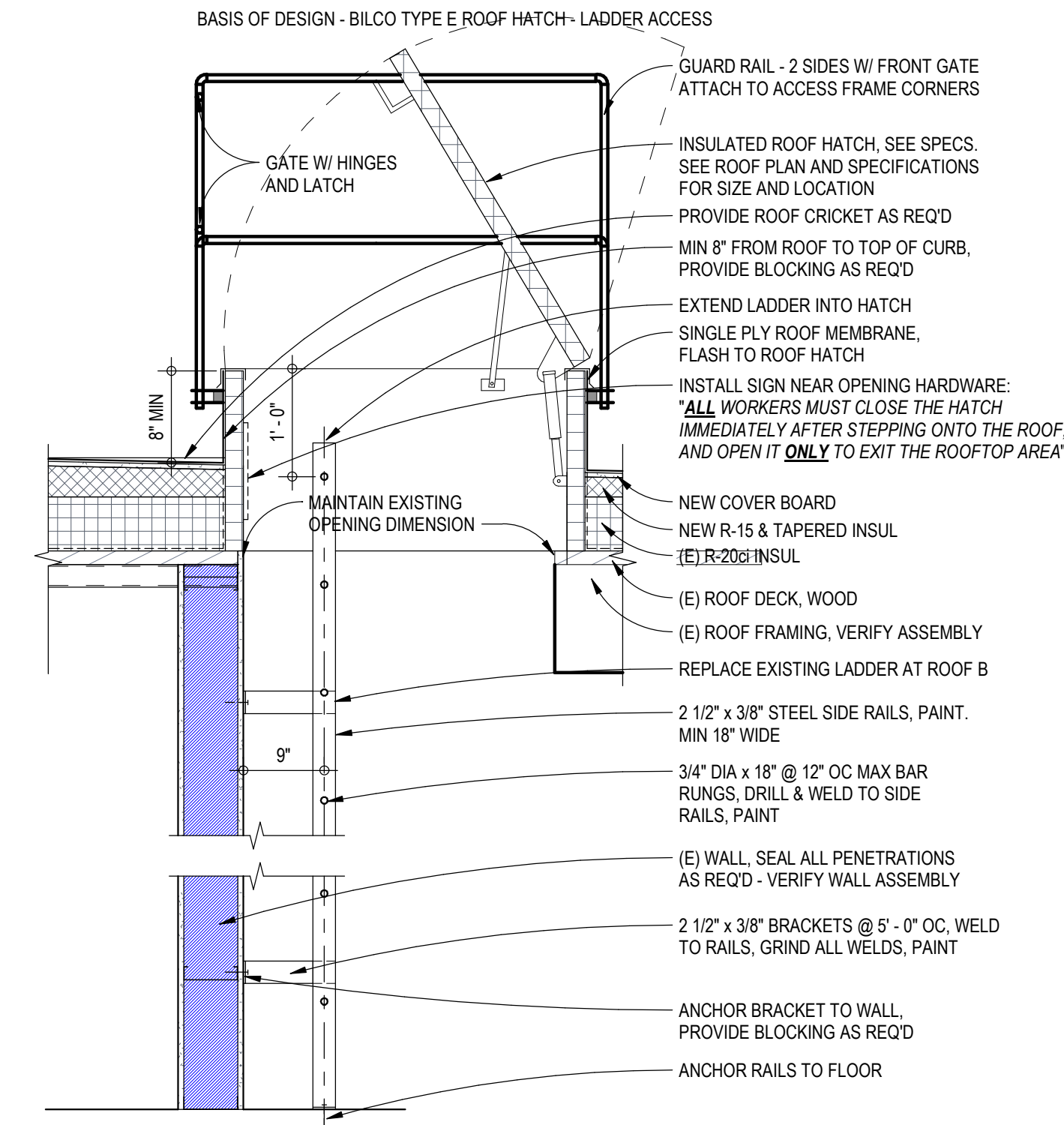
10 HOT STACK
SCALE: 3" = 1'-0"



7 ABANDON OPENINGS - WOOD DECK
SCALE: 1" = 1'-0"



11 ROOF VENT
SCALE: 3" = 1'-0"



12 ROOF HATCH
SCALE: 3/4" = 1'-0"

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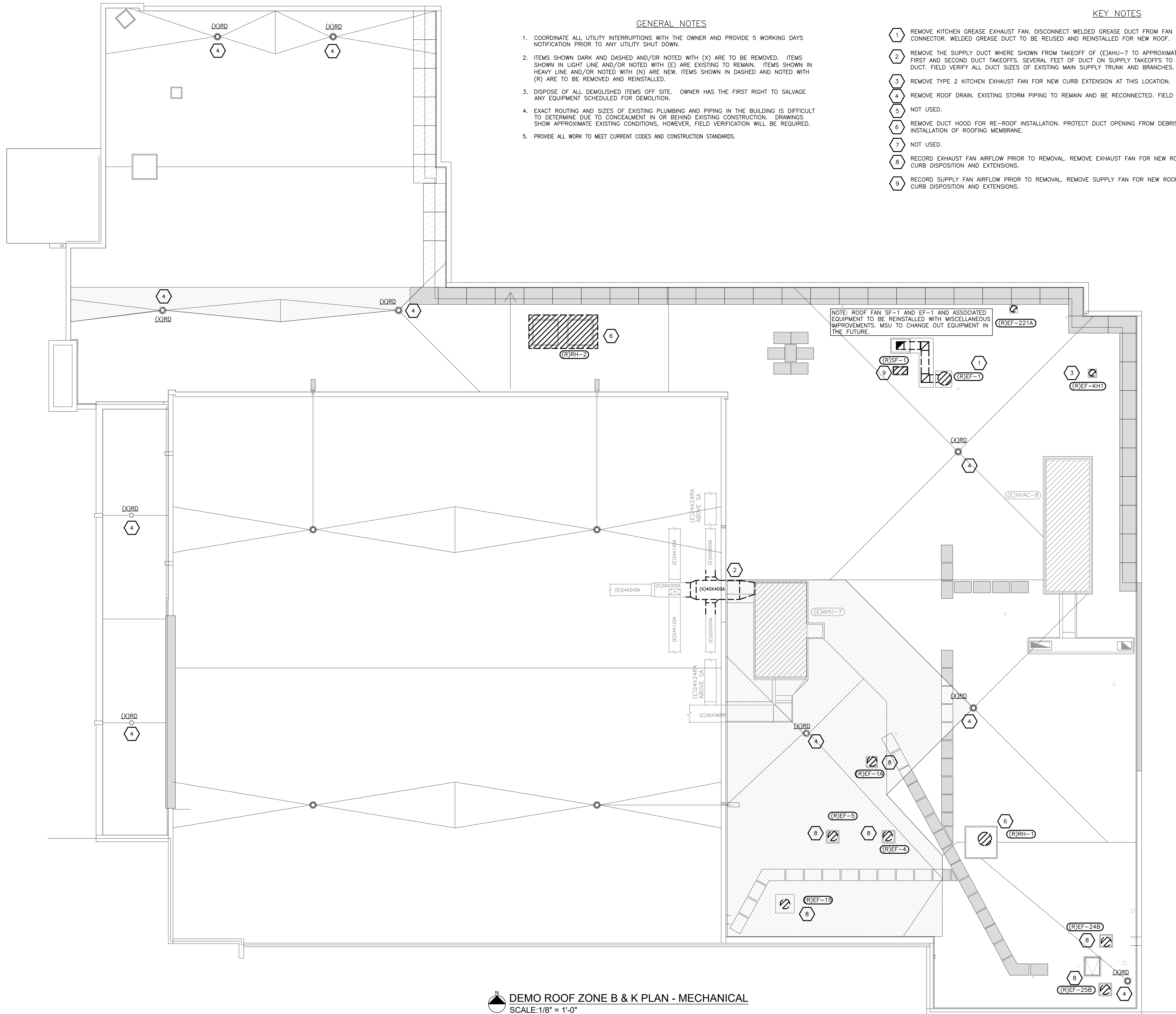
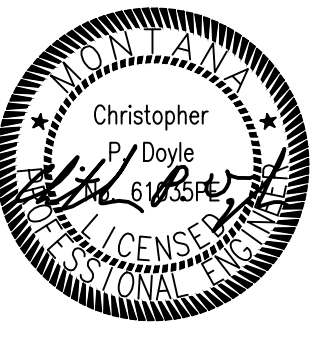
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GENERAL NOTES

1. COORDINATE ALL UTILITY INTERRUPTIONS WITH THE OWNER AND PROVIDE 5 WORKING DAYS NOTIFICATION PRIOR TO ANY UTILITY SHUT DOWN.
2. ITEMS SHOWN DARK AND DASHED AND/OR NOTED WITH (X) ARE TO BE REMOVED. ITEMS SHOWN IN LIGHT LINE AND/OR NOTED WITH (E) ARE EXISTING TO REMAIN. ITEMS SHOWN IN HEAVY LINE AND/OR NOTED WITH (N) ARE NEW. ITEMS SHOWN IN DASHED AND NOTED WITH (R) ARE TO BE REMOVED AND REINSTALLED.
3. DISPOSE OF ALL DEMOLISHED ITEMS OFF SITE. OWNER HAS THE FIRST RIGHT TO SALVAGE ANY EQUIPMENT SCHEDULED FOR DEMOLITION.
4. EXACT ROUTING AND SIZES OF EXISTING PLUMBING AND PIPING IN THE BUILDING IS DIFFICULT TO DETERMINE DUE TO CONCEALMENT IN OR BEHIND EXISTING CONSTRUCTION. DRAWINGS SHOW APPROXIMATE EXISTING CONDITIONS, HOWEVER, FIELD VERIFICATION WILL BE REQUIRED.
5. PROVIDE ALL WORK TO MEET CURRENT CODES AND CONSTRUCTION STANDARDS.

KEY NOTES

- 1 REMOVE KITCHEN GREASE EXHAUST FAN. DISCONNECT WELDED GREASE DUCT FROM FAN AND DISPOSE OF DAMAGED FLEX DUCT CONNECTOR. WELDED GREASE DUCT TO BE REUSED AND REINSTALLED FOR NEW ROOF.
- 2 REMOVE THE SUPPLY DUCT WHERE SHOWN FROM TAKEOFF OF (E)AHU-7 TO APPROXIMATELY 8 FEET INTO THE BUILDING JUST PAST FIRST AND SECOND DUCT TAKEOFFS. SEVERAL FEET OF DUCT ON SUPPLY TAKEOFFS TO BE REMOVED FOR NEW FLATTENED SUPPLY DUCT. FIELD VERIFY ALL DUCT SIZES OF EXISTING MAIN SUPPLY TRUNK AND BRANCHES.
- 3 REMOVE TYPE 2 KITCHEN EXHAUST FAN FOR NEW CURB EXTENSION AT THIS LOCATION.
- 4 REMOVE ROOF DRAIN. EXISTING STORM PIPING TO REMAIN AND BE RECONNECTED. FIELD VERIFY EXACT SIZES OF DRAIN PIPES.
- 5 NOT USED.
- 6 REMOVE DUCT HOOD FOR RE-ROOF INSTALLATION. PROTECT DUCT OPENING FROM DEBRIS AND WEATHER DURING CONSTRUCTION AND INSTALLATION OF ROOFING MEMBRANE.
- 7 NOT USED.
- 8 RECORD EXHAUST FAN AIRFLOW PRIOR TO REMOVAL. REMOVE EXHAUST FAN FOR NEW ROOF MEMBRANE. SEE ARCHITECTURAL PLANS FOR CURB DISPOSITION AND EXTENSIONS.
- 9 RECORD SUPPLY FAN AIRFLOW PRIOR TO REMOVAL. REMOVE SUPPLY FAN FOR NEW ROOF MEMBRANE. SEE ARCHITECTURAL PLANS FOR CURB DISPOSITION AND EXTENSIONS.

NOTE: ROOF FAN SF-1 AND EF-1 AND ASSOCIATED EQUIPMENT TO BE REINSTALLED WITH MISCELLANEOUS IMPROVEMENTS. MSU TO CHANGE OUT EQUIPMENT IN THE FUTURE.

DEMO ROOF ZONE B & K PLAN - MECHANICAL
SCALE: 1/8" = 1'-0"

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DEMO ROOF ZONE B & K PLAN -MECHANICAL
 PERMIT SET

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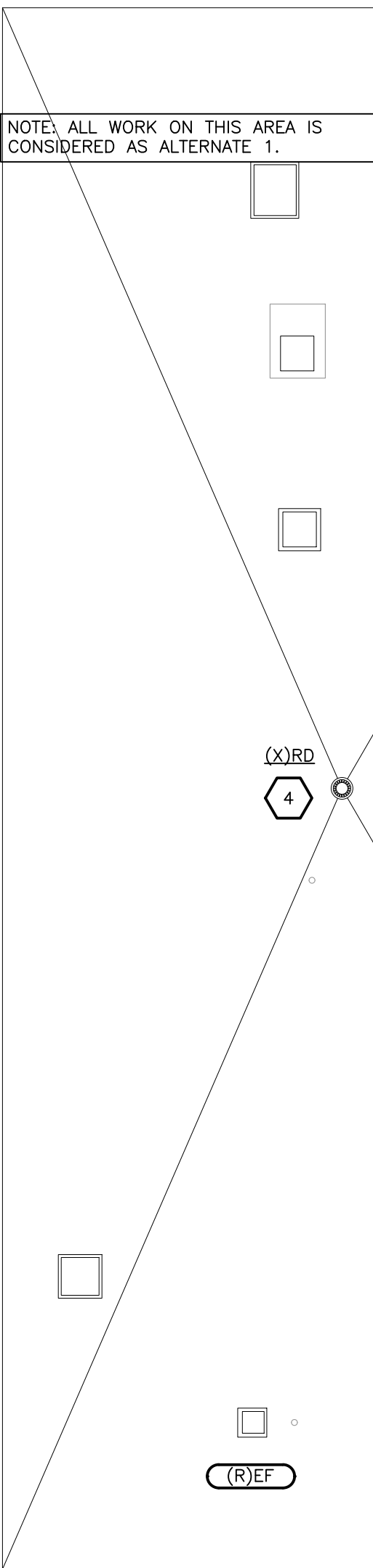
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GENERAL NOTES

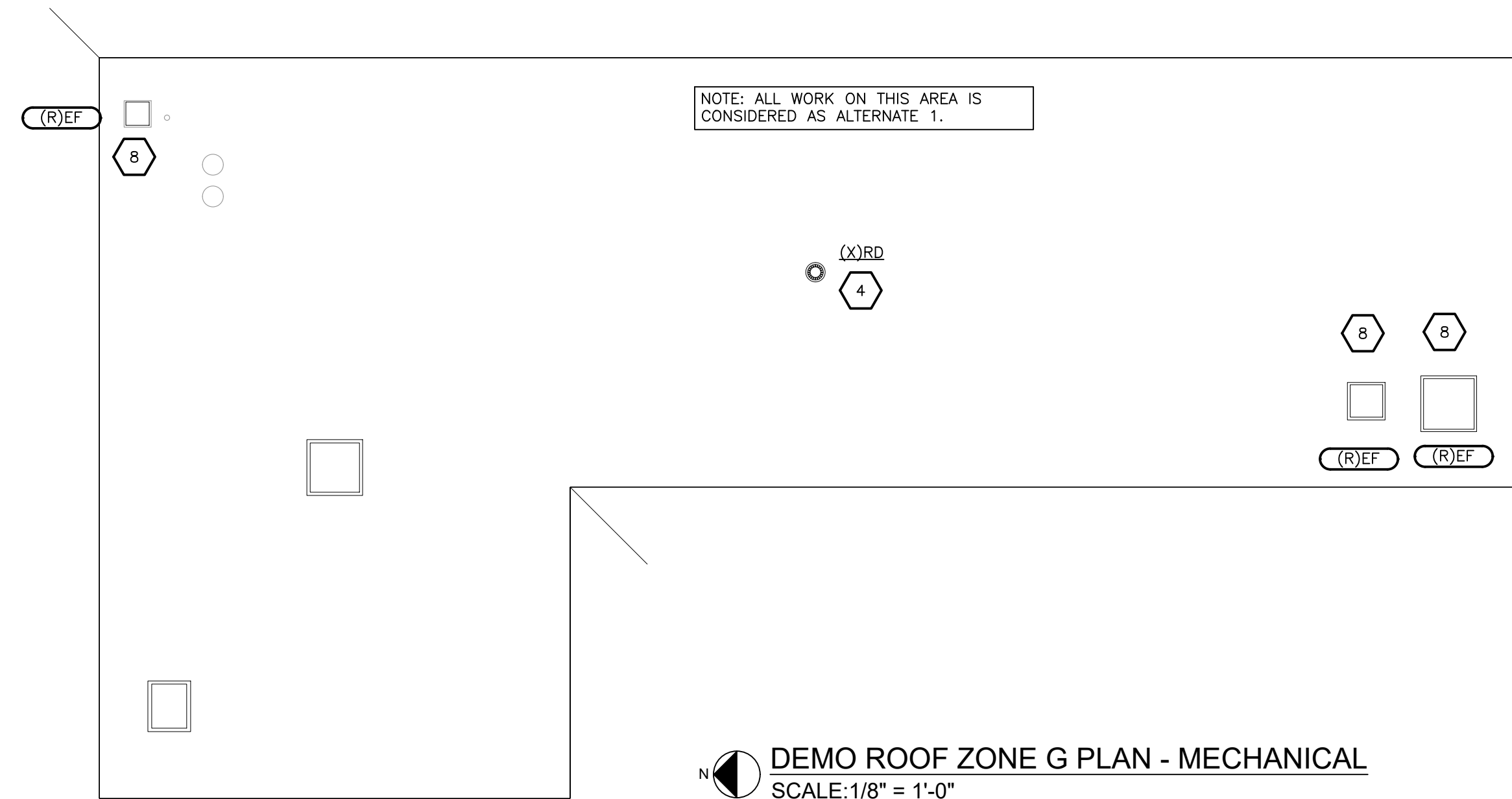
- COORDINATE ALL UTILITY INTERRUPTIONS WITH THE OWNER AND PROVIDE 5 WORKING DAYS NOTIFICATION PRIOR TO ANY UTILITY SHUT DOWN.
- ITEMS SHOWN DARK AND DASHED AND/OR NOTED WITH (X) ARE TO BE REMOVED. ITEMS SHOWN IN LIGHT LINE AND/OR NOTED WITH (E) ARE EXISTING TO REMAIN. ITEMS SHOWN IN HEAVY LINE AND/OR NOTED WITH (N) ARE NEW. ITEMS SHOWN IN DASHED AND NOTED WITH (R) ARE TO BE REMOVED AND REINSTALLED.
- DISPOSE OF ALL DEMOLISHED ITEMS OFF SITE. OWNER HAS THE FIRST RIGHT TO SALVAGE ANY EQUIPMENT SCHEDULED FOR DEMOLITION.
- EXACT ROUTING AND SIZES OF EXISTING PLUMBING AND PIPING IN THE BUILDING IS DIFFICULT TO DETERMINE DUE TO CONCEALMENT IN OR BEHIND EXISTING CONSTRUCTION. DRAWINGS SHOW APPROXIMATE EXISTING CONDITIONS, HOWEVER, FIELD VERIFICATION WILL BE REQUIRED.
- PROVIDE ALL WORK TO MEET CURRENT CODES AND CONSTRUCTION STANDARDS.
- PROVIDE ALTERNATE 1 BID FOR ALL WORK ASSOCIATED WITH ROOF F AND G.

KEY NOTES

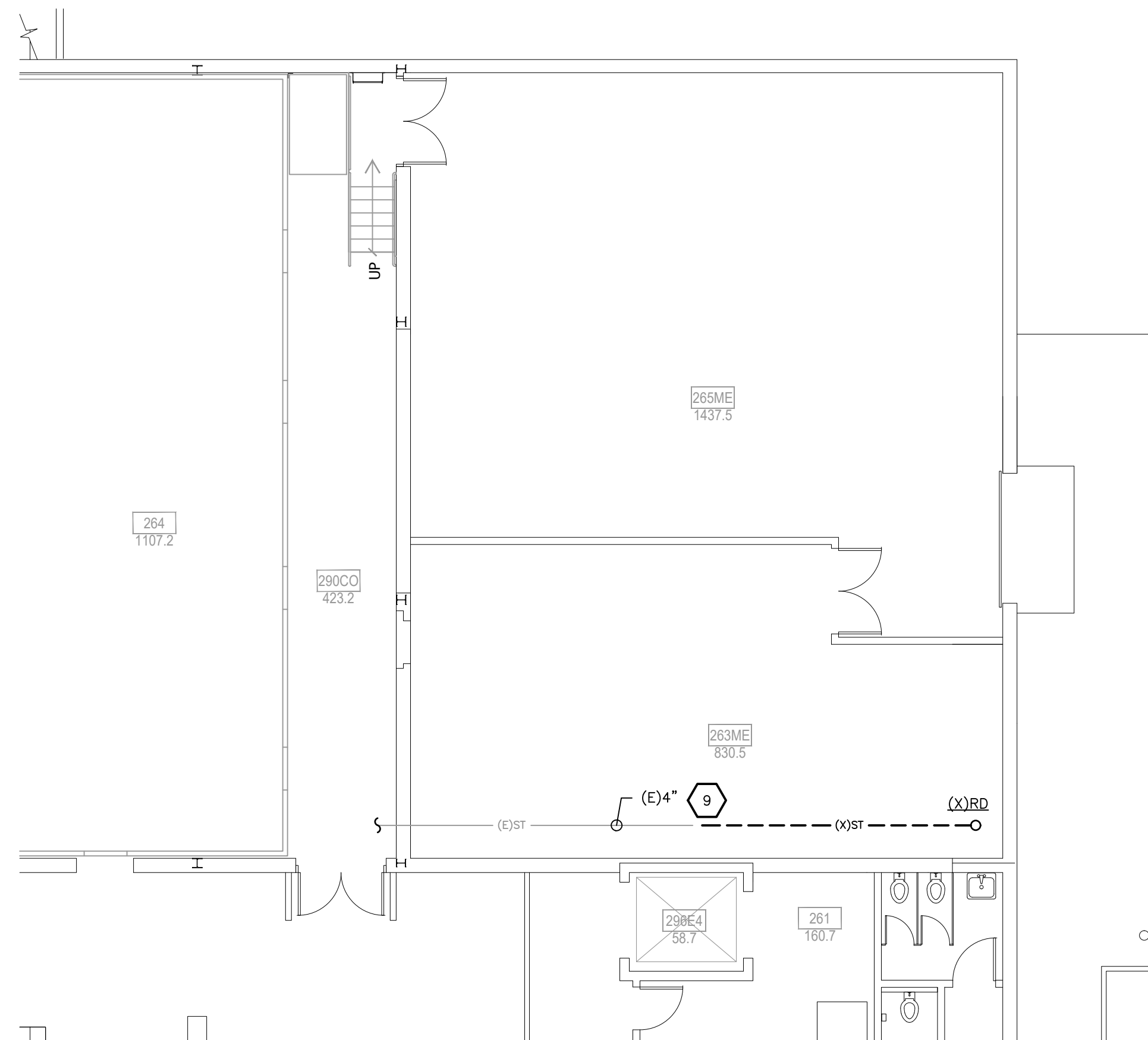
- REMOVE KITCHEN GREASE EXHAUST FAN AND SURFACE MOUNTED TREATED WOOD. DISCONNECT WELDED GREASE DUCT FROM FAN AND DISPOSE OF DAMAGED FLEX DUCT CONNECTOR.
- REMOVE THE SUPPLY DUCT WHERE SHOWN FROM TAKEOFF OF (E)AHU-7 TO APPROXIMATELY 8 FEET INTO THE BUILDING JUST PAST FIRST AND SECOND DUCT TAKEOFFS. SEVERAL FEET OF DUCT ON SUPPLY TAKEOFFS TO BE REMOVED FOR NEW FLATTENED SUPPLY DUCT. FIELD VERIFY ALL DUCT SIZES OF EXISTING MAIN SUPPLY TRUNK AND BRANCHES.
- REMOVE TYPE 2 KITCHEN EXHAUST FAN FOR NEW CURB EXTENSION AT THIS LOCATION.
- REMOVE ROOF DRAIN. EXISTING STORM PIPING TO REMAIN AND BE RECONNECTED. FIELD VERIFY EXACT SIZES OF DRAIN PIPES.
- NOT USED.
- REMOVE DUCT HOOD FOR RE-ROOF INSTALLATION. PROTECT DUCT OPENING FROM DEBRIS AND WEATHER DURING CONSTRUCTION AND INSTALLATION OF ROOFING MEMBRANE.
- DUCT OPENING SERVES A COOLING TOWER AND ROOF HOOD IS NOT REQUIRED FOR EXISTING CONDITIONS. REMOVE BIRD SCREEN FOR NEW WATERPROOFING AND CURB WORK.
- RECORD EXHAUST FAN AIRFLOW PRIOR TO REMOVAL. REMOVE EXHAUST FAN FOR NEW ROOF MEMBRANE.
- REMOVE STORM DRAIN PIPING BACK SEVERAL FEET FOR NEW DRAIN PIPE CONNECTION. FIELD VERIFY SIMPLEST PIPING ROUTING.



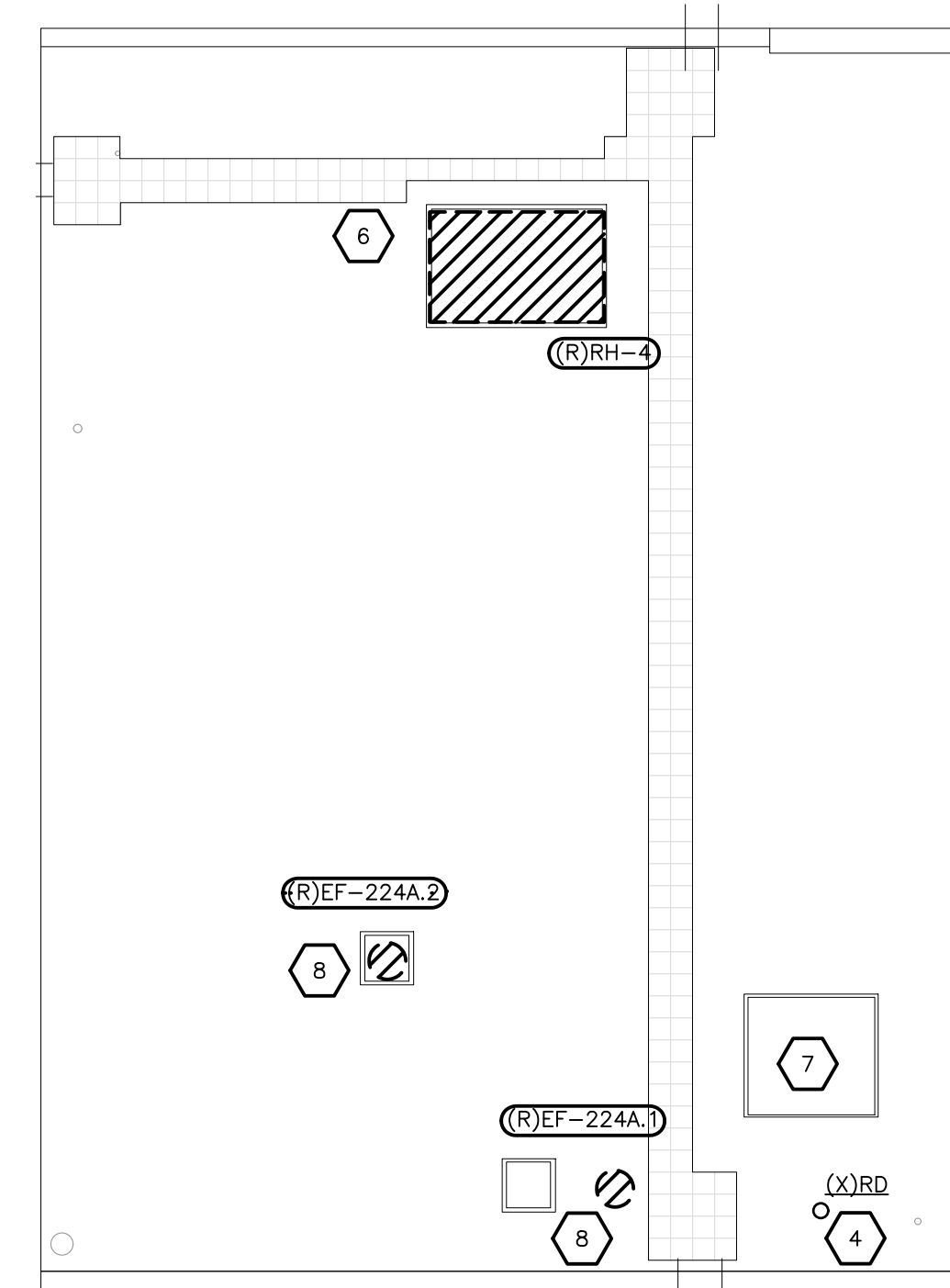
DEMO ROOF ZONE F PLAN - MECHANICAL
SCALE: 1/8" = 1'-0"



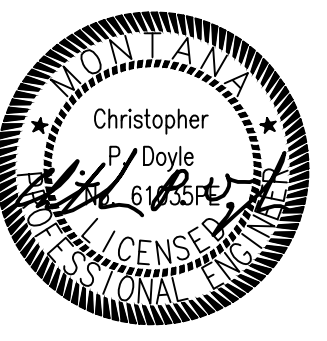
DEMO ROOF ZONE G PLAN - MECHANICAL
SCALE: 1/8" = 1'-0"



DEMO 2ND LEVEL ZONE H PLAN - MECHANICAL
SCALE: 1/8" = 1'-0"



DEMO ROOF ZONE H PLAN - MECHANICAL
SCALE: 1/8" = 1'-0"

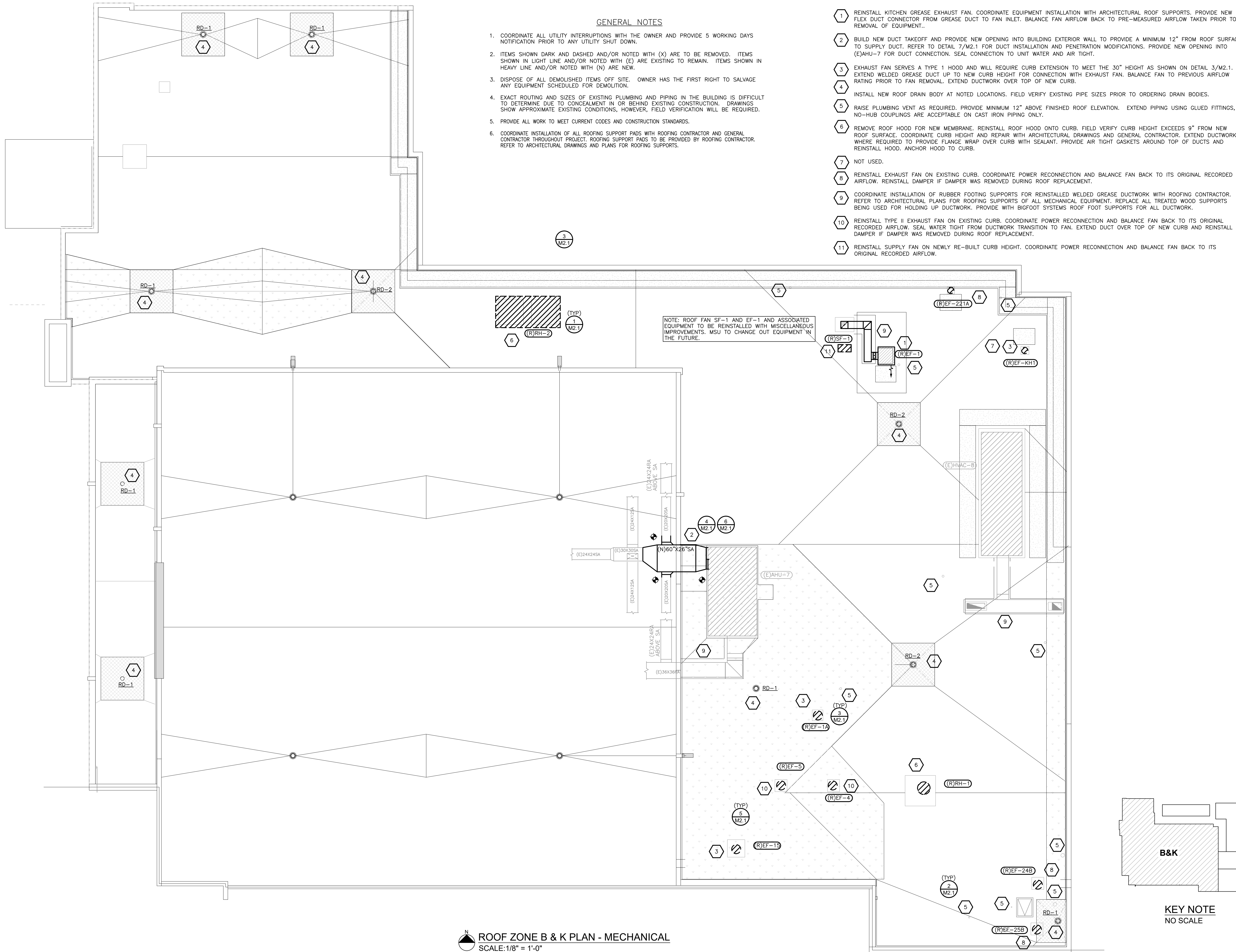


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MONTANA STATE UNIVERSITY
SUB NORTH ROOFS REPLACEMENT PPA #21-0087
751 W GRANT ST. BOZEMAN, MT 59715
DEMO ROOF ZONE F, G, & H PLAN - MECHANICAL
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23-158-01
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DATE 03 23 2023

MD1.2



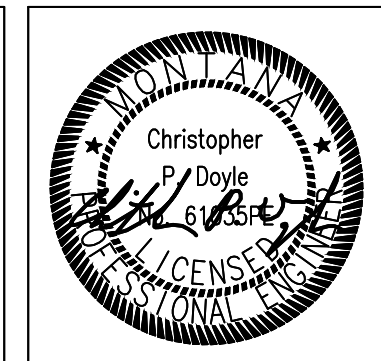
GENERAL NOTES

1. COORDINATE ALL UTILITY INTERRUPTIONS WITH THE OWNER AND PROVIDE 5 WORKING DAYS NOTIFICATION PRIOR TO ANY UTILITY SHUT DOWN.
2. ITEMS SHOWN DARK AND DASHED AND/OR NOTED WITH (X) ARE TO BE REMOVED. ITEMS SHOWN IN LIGHT LINE AND/OR NOTED WITH (E) ARE EXISTING TO REMAIN. ITEMS SHOWN IN HEAVY LINE AND/OR NOTED WITH (N) ARE NEW.
3. DISPOSE OF ALL DEMOLISHED ITEMS OFF SITE. OWNER HAS THE FIRST RIGHT TO SALVAGE ANY EQUIPMENT SCHEDULED FOR DEMOLITION.
4. EXACT ROUTING AND SIZES OF EXISTING PLUMBING AND PIPING IN THE BUILDING IS DIFFICULT TO DETERMINE DUE TO CONCEALMENT IN OR BEHIND EXISTING CONSTRUCTION. DRAWINGS SHOW APPROXIMATE EXISTING CONDITIONS, HOWEVER, FIELD VERIFICATION WILL BE REQUIRED.
5. PROVIDE ALL WORK TO MEET CURRENT CODES AND CONSTRUCTION STANDARDS.
6. COORDINATE INSTALLATION OF ALL ROOFING SUPPORT PADS WITH ROOFING CONTRACTOR AND GENERAL CONTRACTOR THROUGHOUT PROJECT. ROOFING SUPPORT PADS TO BE PROVIDED BY ROOFING CONTRACTOR. REFER TO ARCHITECTURAL DRAWINGS AND PLANS FOR ROOFING SUPPORTS.

KEY NOTES

- 1 REINSTALL KITCHEN GREASE EXHAUST FAN. COORDINATE EQUIPMENT INSTALLATION WITH ARCHITECTURAL ROOF SUPPORTS. PROVIDE NEW FLEX DUCT CONNECTOR FROM GREASE DUCT TO FAN INLET. BALANCE FAN AIRFLOW BACK TO PRE-MEASURED AIRFLOW TAKEN PRIOR TO REMOVAL OF EQUIPMENT..
- 2 BUILD NEW DUCT TAKEOFF AND PROVIDE NEW OPENING INTO BUILDING EXTERIOR WALL TO PROVIDE A MINIMUM 12" FROM ROOF SURFACE TO SUPPLY DUCT. REFER TO DETAIL 7/M2.1 FOR DUCT INSTALLATION AND PENETRATION MODIFICATIONS. PROVIDE NEW OPENING INTO (E)AHU-7 FOR DUCT CONNECTION. SEAL CONNECTION TO UNIT WATER AND AIR TIGHT.
- 3 EXHAUST FAN SERVES A TYPE 1 HOOD AND WILL REQUIRE CURB EXTENSION TO MEET THE 30" HEIGHT AS SHOWN ON DETAIL 3/M2.1. EXTEND WELDED GREASE DUCT UP TO NEW CURB HEIGHT FOR CONNECTION WITH EXHAUST FAN. BALANCE FAN TO PREVIOUS AIRFLOW RATING PRIOR TO FAN REMOVAL. EXTEND DUCTWORK OVER TOP OF NEW CURB.
- 4 INSTALL NEW ROOF DRAIN BODY AT NOTED LOCATIONS. FIELD VERIFY EXISTING PIPE SIZES PRIOR TO ORDERING DRAIN BODIES.
- 5 RAISE PLUMBING VENT AS REQUIRED. PROVIDE MINIMUM 12" ABOVE FINISHED ROOF ELEVATION. EXTEND PIPING USING GLUED FITTINGS, NO-HUB COUPLINGS ARE ACCEPTABLE ON CAST IRON PIPING ONLY.
- 6 REMOVE ROOF HOOD FOR NEW MEMBRANE. REINSTALL ROOF HOOD ONTO CURB. FIELD VERIFY CURB HEIGHT EXCEEDS 9" FROM NEW ROOF SURFACE. COORDINATE CURB HEIGHT AND REPAIR WITH ARCHITECTURAL DRAWINGS AND GENERAL CONTRACTOR. EXTEND DUCTWORK WHERE REQUIRED TO PROVIDE FLANGE WRAP OVER CURB WITH SEALANT. PROVIDE AIR TIGHT GASKETS AROUND TOP OF DUCTS AND REINSTALL HOOD. ANCHOR HOOD TO CURB.
- 7 NOT USED.
- 8 REINSTALL EXHAUST FAN ON EXISTING CURB. COORDINATE POWER RECONNECTION AND BALANCE FAN BACK TO ITS ORIGINAL RECORDED AIRFLOW. REINSTALL DAMPER IF DAMPER WAS REMOVED DURING ROOF REPLACEMENT.
- 9 COORDINATE INSTALLATION OF RUBBER FOOTING SUPPORTS FOR REINSTALLED WELDED GREASE DUCTWORK WITH ROOFING CONTRACTOR. REFER TO ARCHITECTURAL PLANS FOR ROOFING SUPPORTS OF ALL MECHANICAL EQUIPMENT. REPLACE ALL TREATED WOOD SUPPORTS BEING USED FOR HOLDING UP DUCTWORK. PROVIDE WITH BIGFOOT SYSTEMS ROOF FOOT SUPPORTS FOR ALL DUCTWORK.
- 10 REINSTALL TYPE II EXHAUST FAN ON EXISTING CURB. COORDINATE POWER RECONNECTION AND BALANCE FAN BACK TO ITS ORIGINAL RECORDED AIRFLOW. SEAL WATER TIGHT FROM DUCTWORK TRANSITION TO FAN. EXTEND DUCT OVER TOP OF NEW CURB AND REINSTALL DAMPER IF DAMPER WAS REMOVED DURING ROOF REPLACEMENT.
- 11 REINSTALL SUPPLY FAN ON NEWLY RE-BUILT CURB HEIGHT. COORDINATE POWER RECONNECTION AND BALANCE FAN BACK TO ITS ORIGINAL RECORDED AIRFLOW.

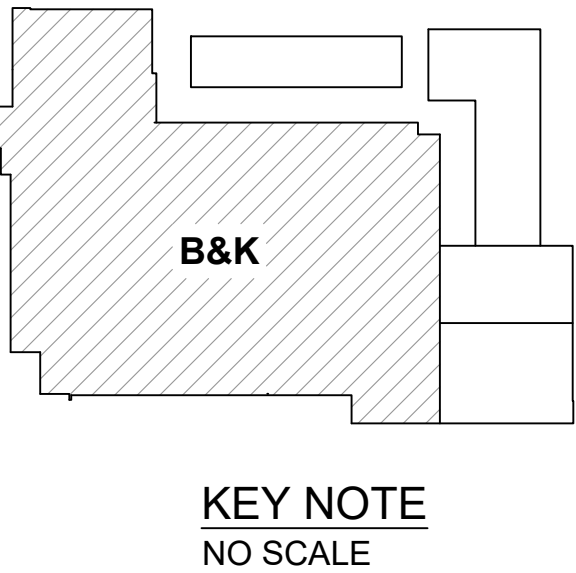
NOTE: ROOF FAN SF-1 AND EF-1 AND ASSOCIATED EQUIPMENT TO BE REINSTALLED WITH MISCELLANEOUS IMPROVEMENTS. MSU TO CHANGE OUT EQUIPMENT IN THE FUTURE.



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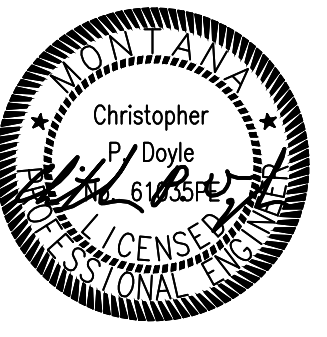
MONTANA STATE UNIVERSITY
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ROOF ZONE B & K PLAN -MECHANICAL
 PERMIT SET

ROOF ZONE B & K PLAN - MECHANICAL
 SCALE: 1/8" = 1'-0"



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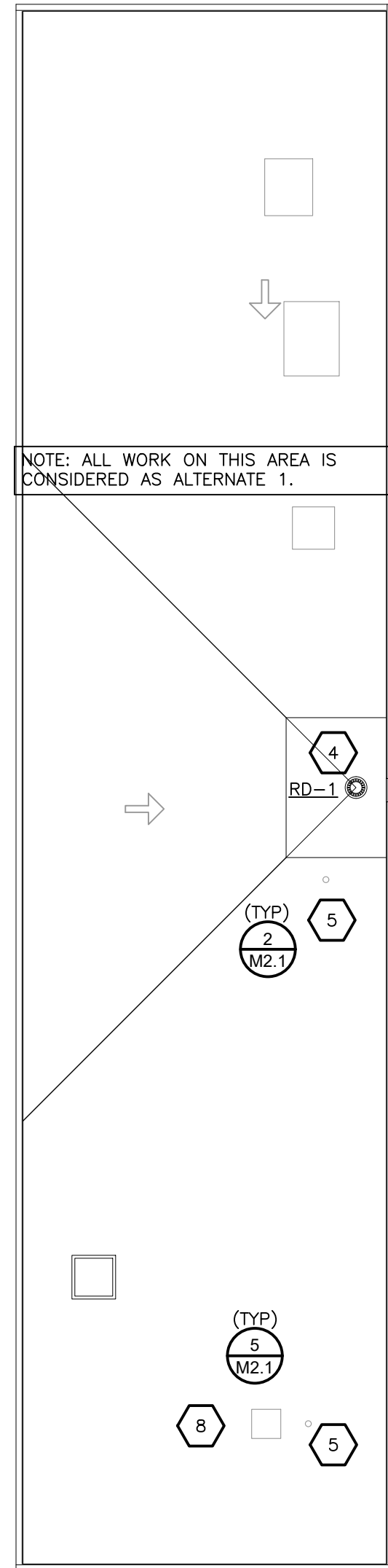


GENERAL NOTES

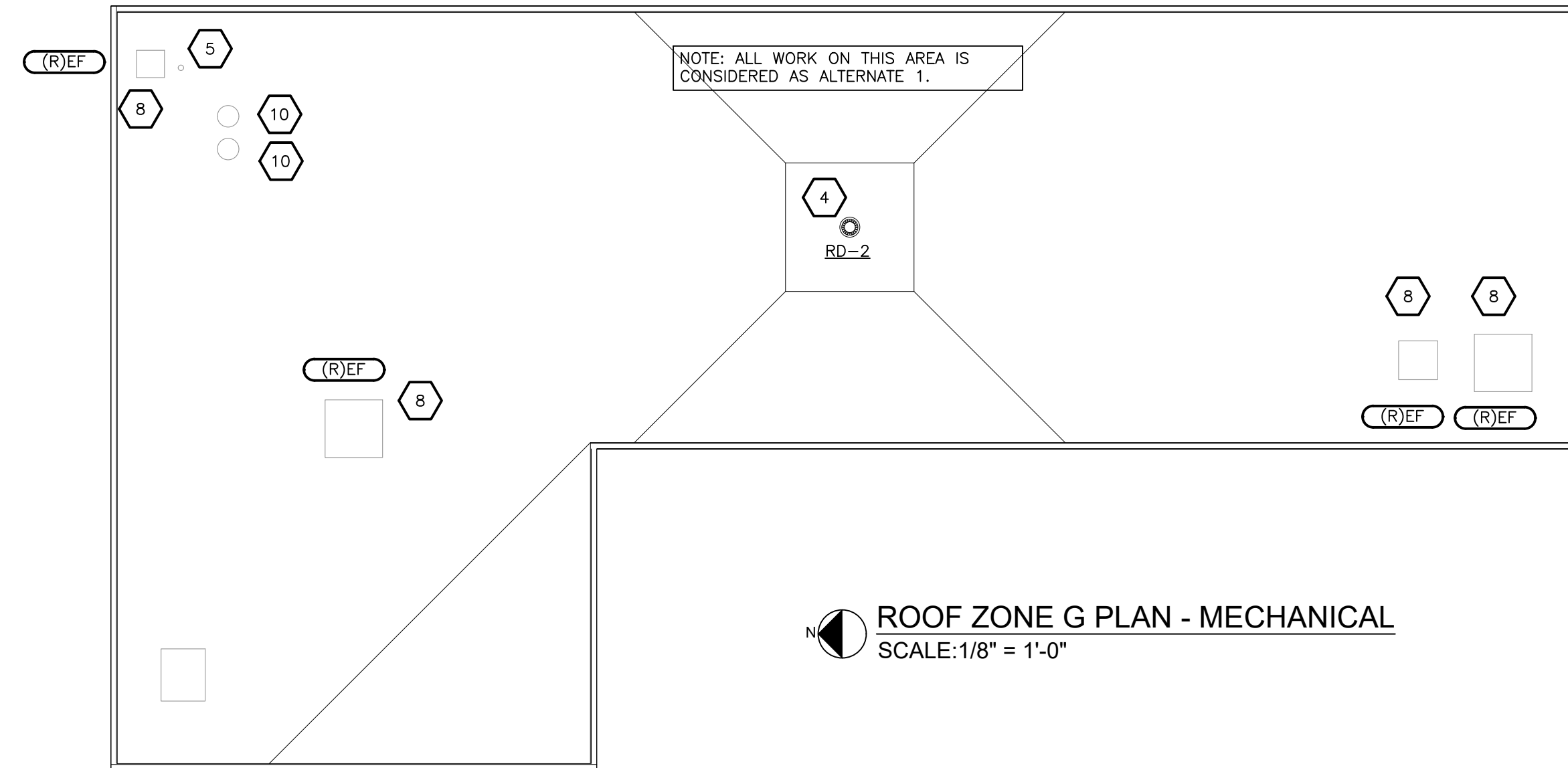
- COORDINATE ALL UTILITY INTERRUPTIONS WITH THE OWNER AND PROVIDE 5 WORKING DAYS NOTIFICATION PRIOR TO ANY UTILITY SHUT DOWN.
- ITEMS SHOWN DARK AND DASHED AND/OR NOTED WITH (X) ARE TO BE REMOVED. ITEMS SHOWN IN LIGHT LINE AND/OR NOTED WITH (E) ARE EXISTING TO REMAIN. ITEMS SHOWN IN HEAVY LINE AND/OR NOTED WITH (N) ARE NEW.
- DISPOSE OF ALL DEMOLISHED ITEMS OFF SITE. OWNER HAS THE FIRST RIGHT TO SALVAGE ANY EQUIPMENT SCHEDULED FOR DEMOLITION.
- EXACT ROUTING AND SIZES OF EXISTING PLUMBING AND PIPING IN THE BUILDING IS DIFFICULT TO DETERMINE DUE TO CONCEALMENT IN OR BEHIND EXISTING CONSTRUCTION. DRAWINGS SHOW APPROXIMATE EXISTING CONDITIONS, HOWEVER, FIELD VERIFICATION WILL BE REQUIRED.
- PROVIDE ALL WORK TO MEET CURRENT CODES AND CONSTRUCTION STANDARDS.
- COORDINATE INSTALLATION OF ALL ROOFING SUPPORT PADS WITH ROOFING CONTRACTOR AND GENERAL CONTRACTOR THROUGHOUT PROJECT. ROOFING SUPPORT PADS TO BE PROVIDED BY ROOFING CONTRACTOR. REFER TO ARCHITECTURAL DRAWINGS AND PLANS FOR ROOFING SUPPORTS.
- PROVIDE ALTERNATE 1 BID FOR ALL WORK ASSOCIATED WITH ROOF F AND G.

KEY NOTES

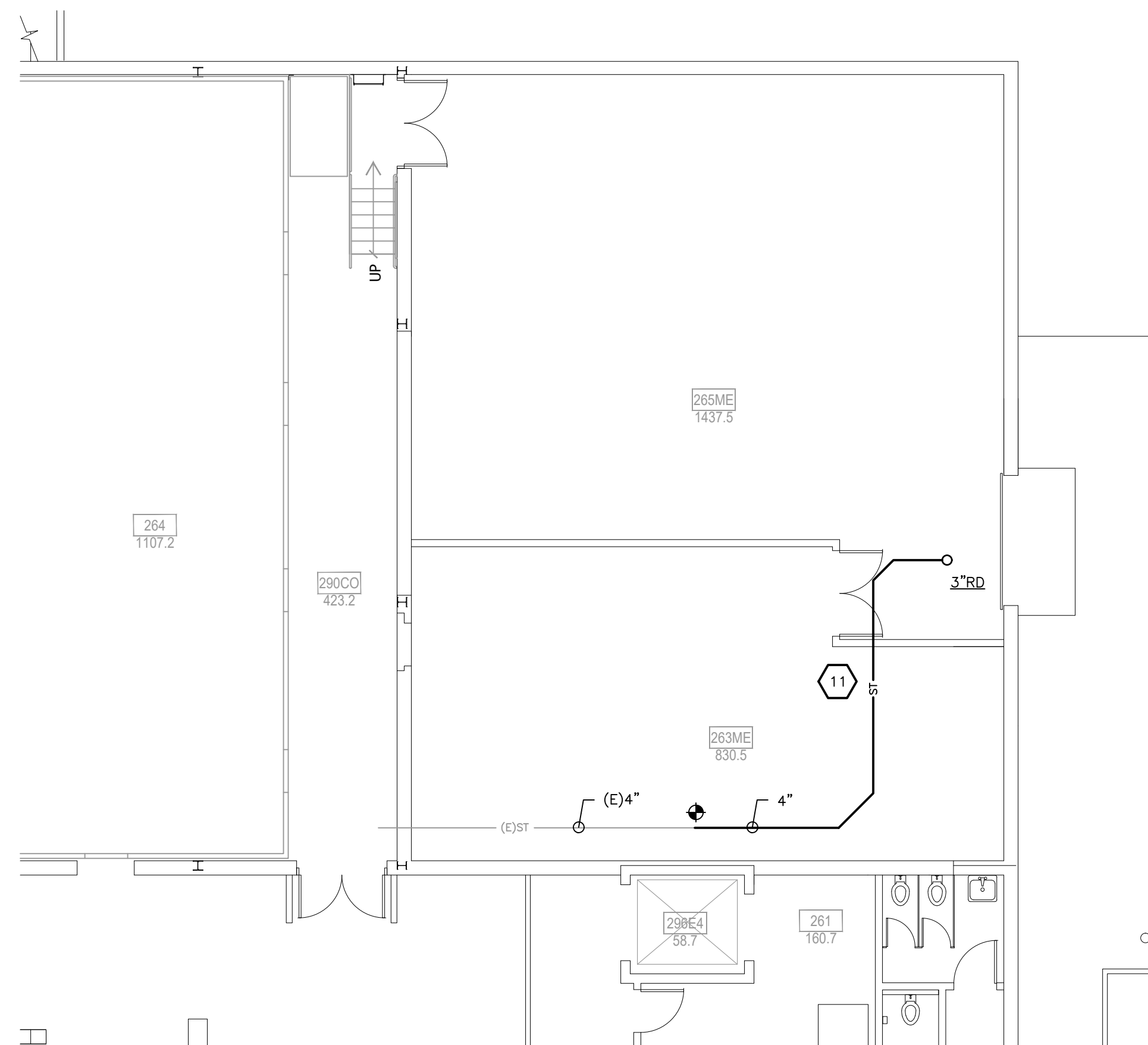
- REINSTALL KITCHEN GREASE EXHAUST FAN. COORDINATE EQUIPMENT INSTALLATION WITH ARCHITECTURAL ROOF SUPPORTS. PROVIDE NEW FLEX DUCT CONNECTOR FROM GREASE DUCT TO FAN INLET. BALANCE FAN AIRFLOW BACK TO MEASURED AIRFLOW PRIOR TO RE-INSTALLATION. MEASURE ALL AIRFLOW OF FANS PRIOR TO REMOVE AND RE-INSTALL.
- BUILD NEW DUCT TAKEOFF AND PROVIDE NEW OPENING INTO BUILDING EXTERIOR WALL TO PROVIDE A MINIMUM 12" FROM ROOF SURFACE TO SUPPLY DUCT. REFER TO DETAIL 7/M2.1 FOR DUCT INSTALLATION AND PENETRATION MODIFICATIONS.
- REMOVE AND RELOCATE EXISTING TYPE 2 KITCHEN EXHAUST FAN ONTO A NEW CURB. INSTALL NEW CURB FOR TOP OF FAN TO CLEAR 30" MINIMUM FROM ROOF MEMBRANE.
- INSTALL NEW ROOF DRAIN BODY AT NOTED LOCATIONS. FIELD VERIFY EXISTING PIPE SIZES PRIOR TO ORDERING DRAIN BODIES.
- RAISE PLUMBING VENT AS REQUIRED. PROVIDE MINIMUM 12" ABOVE FINISHED ROOF ELEVATION. EXTEND PIPING USING GLUED FITTINGS. NO-HUB COUPLINGS ARE ACCEPTABLE ON CAST IRON PIPING ONLY.
- REMOVE ROOF HOOD FOR NEW MEMBRANE. REINSTALL ROOF HOOD ONTO CURB. FIELD VERIFY CURB HEIGHT EXCEEDS 9" FROM NEW ROOF SURFACE. PROVIDE 2" THICK WOOD FRAMING ON CURB IF REQUIRED. PROVIDE AIR TIGHT GASKETS AROUND TOP OF DUCTS AND REINSTALL HOOD. ANCHOR HOOD TO CURB.
- REINSTALL BIRD SCREEN AFTER ROOF MEMBRANE INSTALLATION IS INSTALLED. COORDINATE INSTALLATION WITH ROOFING CONTRACTOR.
- REINSTALL EXHAUST FAN ON EXISTING CURB. COORDINATE POWER RECONNECTION AND BALANCE FAN BACK TO ITS MEASURED AIRFLOW PRIOR TO RE-INSTALLATION. MEASURE ALL AIRFLOW OF FANS PRIOR TO REMOVE AND RE-INSTALL.
- COORDINATE INSTALLATION OF RUBBER FOOTING SUPPORTS FOR DUCTWORK WITH ROOFING CONTRACTOR. REFER TO ARCHITECTURAL PLANS FOR ROOFING SUPPORTS OF ALL MECHANICAL EQUIPMENT. REPLACE ALL TREATED WOOD SUPPORTS BEING USED FOR HOLDING UP DUCTWORK. PROVIDE WITH BIGFOOT SYSTEMS ROOF FOOT SUPPORTS FOR ALL DUCTWORK.
- EXTEND EXHAUST DUCT TERMINATIONS FOR INCREASED ROOF INSULATION. PROVIDE WATERPROOF SEAL WITH NEW ROOF MEMBRANE ON DUCT EXTENSION. PROVIDE 12" MINIMUM FROM NEW ROOFING SURFACE TO DUCT OPENING. EXTEND DUCT OVER TOP OF NEW CURB AND REINSTALL DAMPER IF DAMPER WAS REMOVED DURING ROOF REPLACEMENT. BALANCE FAN TO PREVIOUS AIRFLOW. MEASURE ALL AIRFLOW OF FANS PRIOR TO REMOVE AND RE-INSTALL.
- ROUTE NEW CAST IRON 3" STORM LEADER THRU WALL AND CONNECT TO EXISTING STORM LEADER WITH NO HUB CONNECTION.



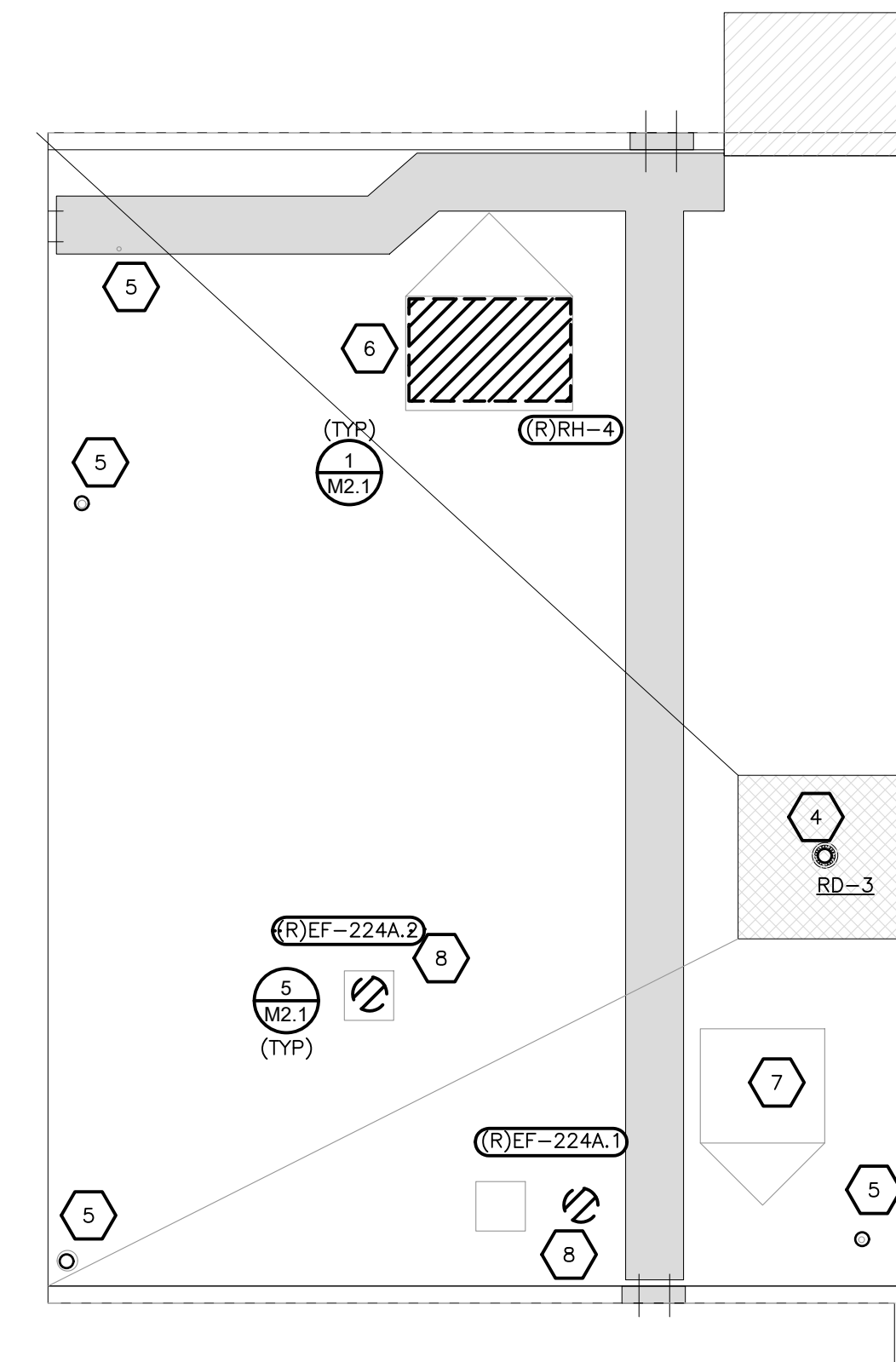
ROOF ZONE F PLAN - MECHANICAL
SCALE: 1/8" = 1'-0"



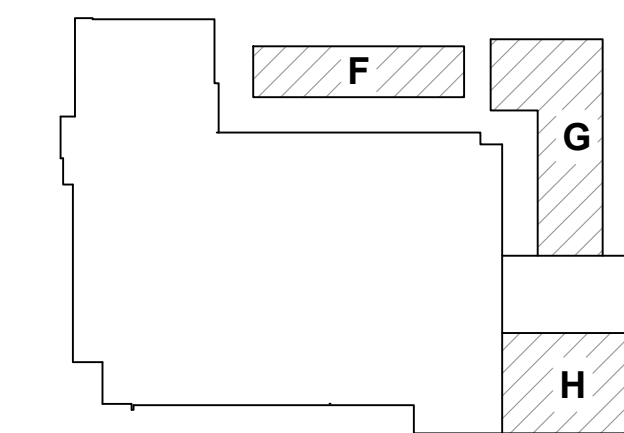
ROOF ZONE G PLAN - MECHANICAL
SCALE: 1/8" = 1'-0"



SECOND LEVEL ZONE H PLAN - MECHANICAL
SCALE: 1/8" = 1'-0"



ROOF ZONE H PLAN - MECHANICAL
SCALE: 1/8" = 1'-0"



KEY NOTE
NO SCALE

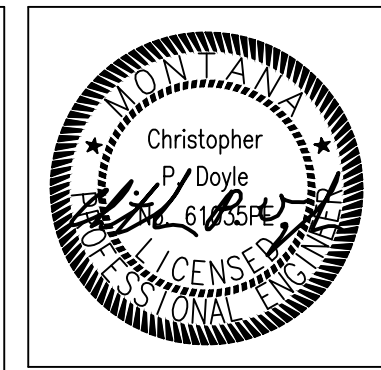
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 ROOF ZONE F, G, & H PLAN - MECHANICAL

23-158-01
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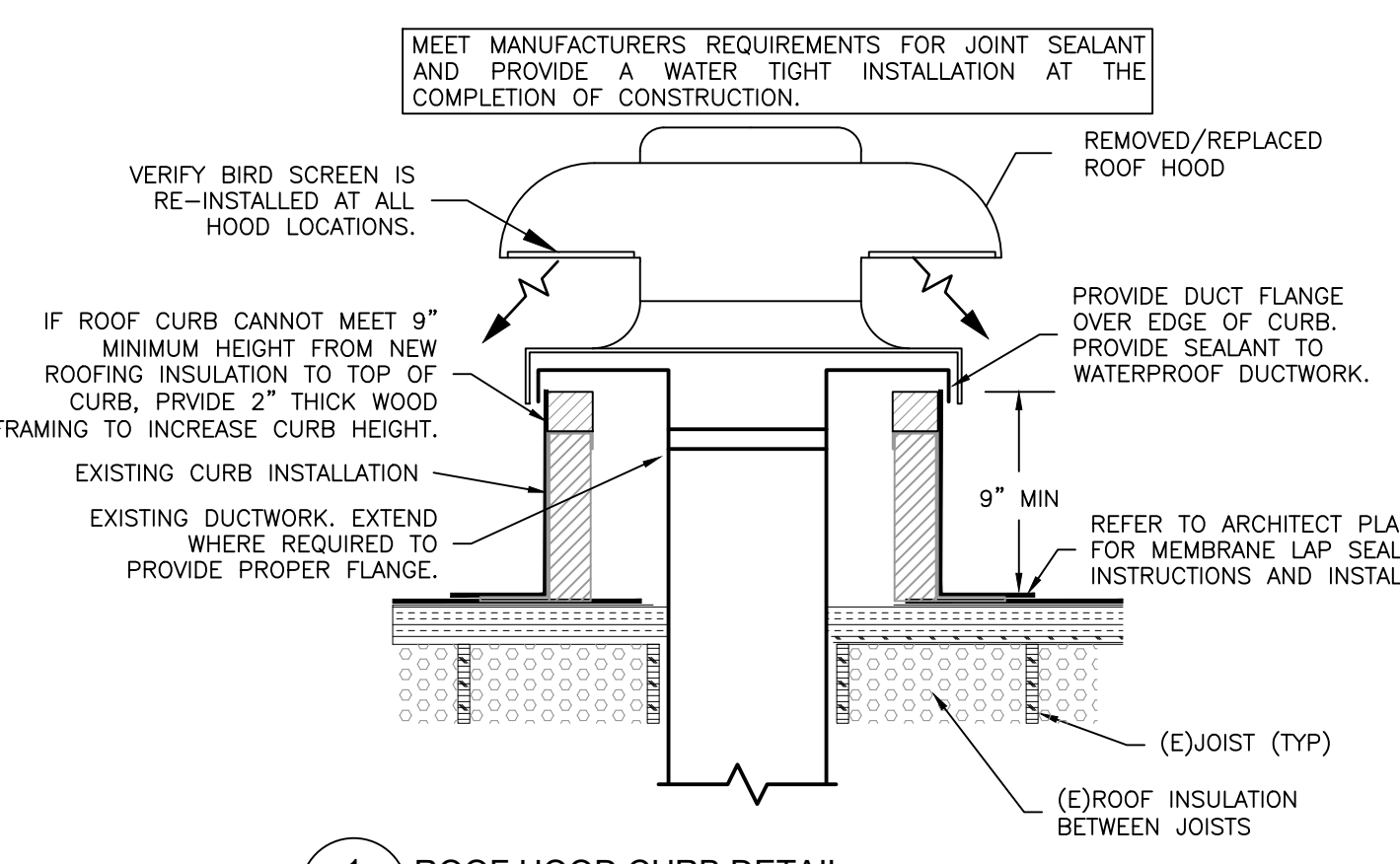


MECHANICAL LEGEND (NOT ALL SYMBOLS ARE USED ON THIS PROJECT)			
CW	DOMESTIC COLD WATER	GV	GATE VALVE
HW	DOMESTIC HOT WATER	BV	BALL VALVE
RHW	DOMESTIC HOT RECIRC	CV	CHECK VALVE
W	WATER SERVICE	DCV	DOUBLE CHECK VALVE
F	FIRE SERVICE	RPB	REDUCED PRESSURE BACKFLOW
G	NATURAL GAS (7" W.C.)	GV	GAS VALVE
MG	MEDIUM PRESSURE GAS (2 PSI)	PRV	PRESSURE REDUCING VALVE
SS	BELOW GRADE SANITARY SEWER	3WC	THREE-WAY CONTROL VALVE
SS	ABOVE GRADE SANITARY SEWER	2WC	TWO-WAY CONTROL VALVE
V	SANITARY VENT	ST	STRAINER
SS	BELOW GRADE STORM	BV	BALANCING VALVE
ST	ABOVE GRADE STORM	TR	TEMP/PRESSURE RELIEF VALVE
STO	STORM OVERFLOW	PG	PRESSURE GAUGE
CD	CONDENSATE DRAIN	TG	TEMPERATURE GAUGE
A M3.1	SECTION TAG DESIGNATION AND SHEET LOCATION	UP	PETE'S PLUG
M2.1	DETAIL TAG DESIGNATION AND SHEET LOCATION	UN	UNION
AHU2-1D	EQUIPMENT AND EQUIPMENT TAG	PA	PIPE ANCHOR
SG-1	DIFFUSER TAG AND OUTLET AIRFLOW (CFM)	PS	PIPE SLEEVE
200		EJ	EXPANSION JOINT
		PTD	PIPE TURN DOWN
		PR	PIPE RISE
		PBC	PIPE BOTTOM CONNECTION
		PTC	PIPE TOP CONNECTION
		PC	PIPE CONNECTION
		PEC	PIPE END CLEANOUT
		FD	FLOOR DRAIN
		RD	ROOF DRAIN
		WC-1	PLUMBING FIXTURE & LABEL
			POINT OF CONNECTION TO EXISTING PIPING. FIELD VERIFY EXACT SIZE AND LOCATION

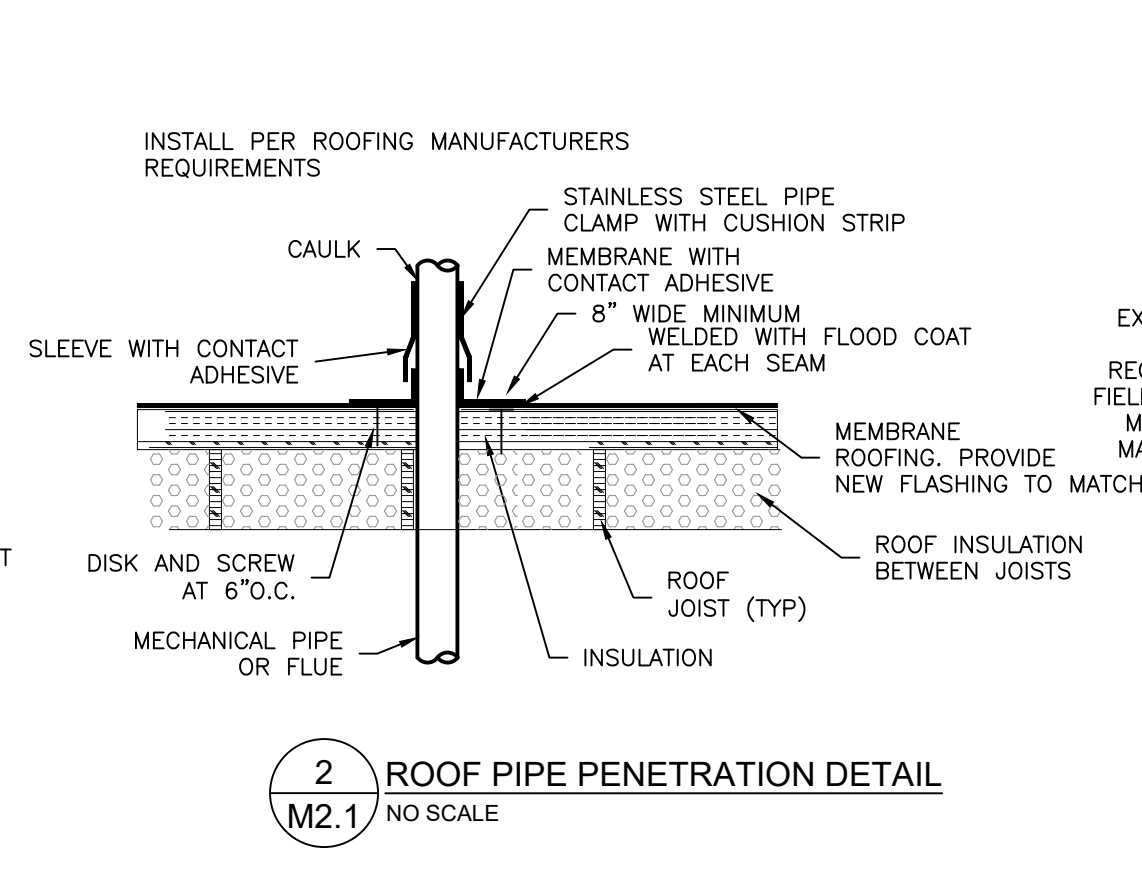
ABBREVIATIONS			
ADA	AMERICANS W/ DISABILITIES ACT COMPLIANT EQUIPMENT	(E)	EXISTING TO REMAIN
AD	ACCESS DOOR	EA	EXHAUST AIR
AFF	ABOVE FINISHED FLOOR	EG-##	EXHAUST GRILLE
AHU	AIR HANDLING UNIT	ELECT	ELECTRICAL
BDD	BACK DRAFT DAMPER	FCC	FLOOR CLEANOUT
BS/BSU	BRANCH SELECTOR UNIT	FC/FCU	FAN COIL UNIT
CA	COMBUSTION AIR	FD	FLOOR DRAIN
CO	CLEANOUT	FD	FIRE DAMPER
CONT	CONTINUATION	FD/SD	FIRE/SMOKE DAMPER
CW	DOMESTIC COLD WATER	FE	FIRE EXTINGUISHER
CWS	CHILLED WATER (GLYCOL SUPPLY)	FS	FLOOR SINK
	CHILLED WATER (GLYCOL RETURN)	HB	HOSE BIB
CWR	CHILLED WATER (GLYCOL RETURN)	HP/HPU	HEAT PUMP UNIT
DDC	DIRECT DIGITAL CONTROL	HW	DOMESTIC HOT WATER
DF	DRINKING FOUNTAIN	HWS	HEATING WATER (GLYCOL) SUPPLY
		HWR	HEATING WATER (GLYCOL) RETURN
		L-##	LOUVER
		LAV	LAVATORY
		MANUF	MANUFACTURER
		MBH	1000 BTU/HR
		MECH	MECHANICAL
		MS	MOP SINK
		(N)	NEW
		OA	OUTSIDE AIR
		OC	ON CENTER
		PRV	PRESS. REDUCING VALVE
		(R)	REMOVE AND RELOCATE
		RA	RETURN AIR
		RD	ROOF DRAIN
		RG-##	RETURN GRILLE
		SA	SUPPLY AIR
		SD	SMOKE DAMPER
		SD/SG	SUPPLY DIFFUSER/GRILLE
		SF	SUPPLY FAN
		SH	SHOWER
		SK	SINK
		SS	SANITARY SEWER
		ST	STORM SEWER
		TC	TEMPERATURE CONTROL
		TG	TRANSFER GRILLE
		TYP	TYPICAL
		UR	URINAL
		V	SANITARY VENT
		VTR	VENT THROUGH ROOF
		WC	WATER CLOSET
		WCO	WALL CLEANOUT
		(X)	EXISTING TO BE REMOVED

PLUMBING FIXTURE SCHEDULE												
TAG	FIXTURE	MANUF.	MODEL	ACCESSORIES	SUPPLIES	TRAP	ROUGH-IN HEIGHT	CONNECTIONS				REMARKS
								CW	HW	WASTE	VENT	
RD-1	ROOF DRAIN	ZURN	RD2150-SS3	ALUMINUM DOME STRAINER	-	NO TRAP	ROOF	-	-	3"	-	-
RD-2	ROOF DRAIN	ZURN	RD2150-SS4	ALUMINUM DOME STRAINER	-	NO TRAP	ROOF	-	-	4"	-	-
RD-3	ROOF DRAIN	ZURN	Z121	CAST IRON DOME, UNDER DECK CLAMP	-	NO TRAP	ROOF	-	-	3"	-	1

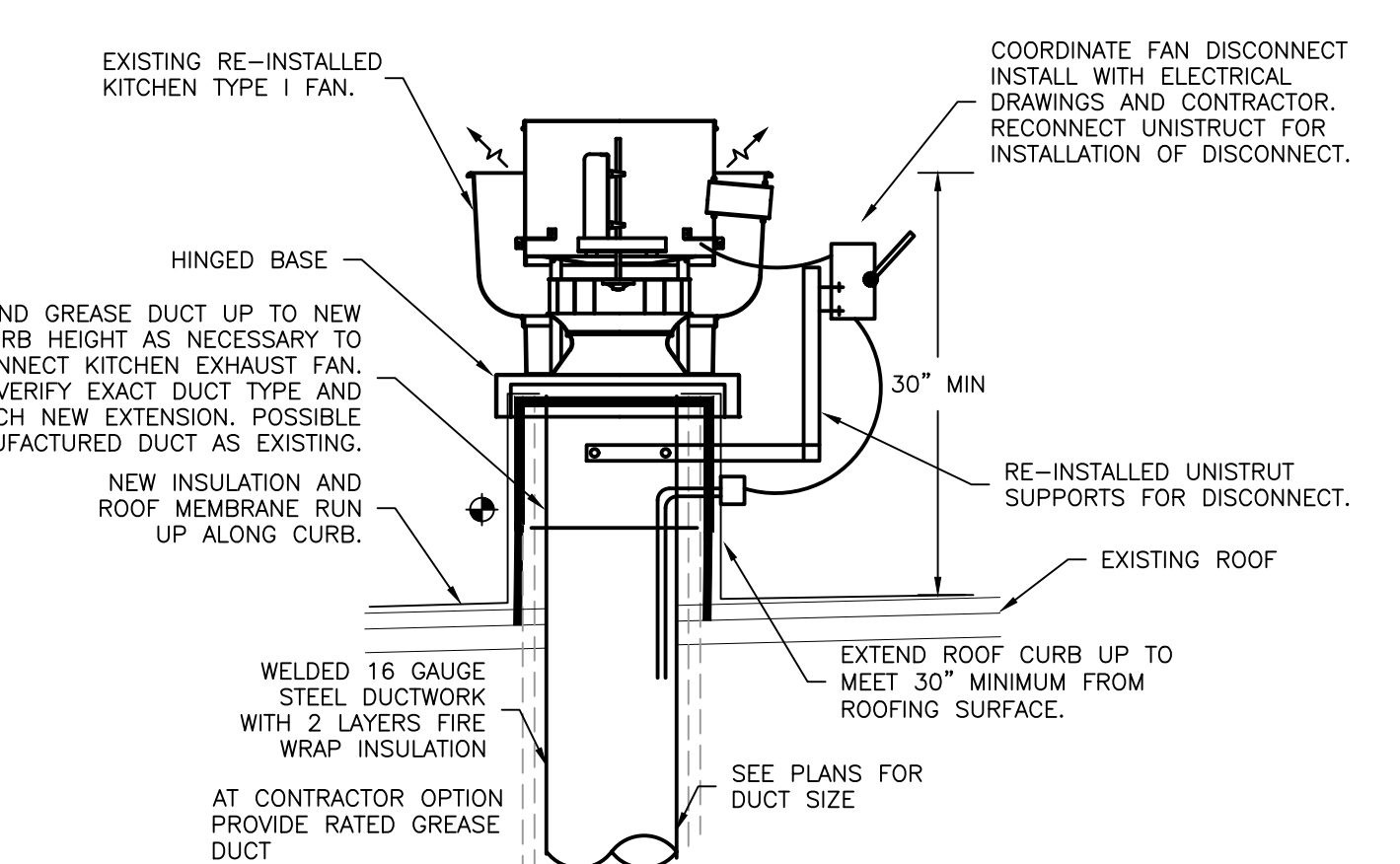
REMARKS:
1. VERIFY EXACT LOCATION OF DRAIN WITH THE ARCHITECT/GENERAL PRIOR TO INSTALLATION.



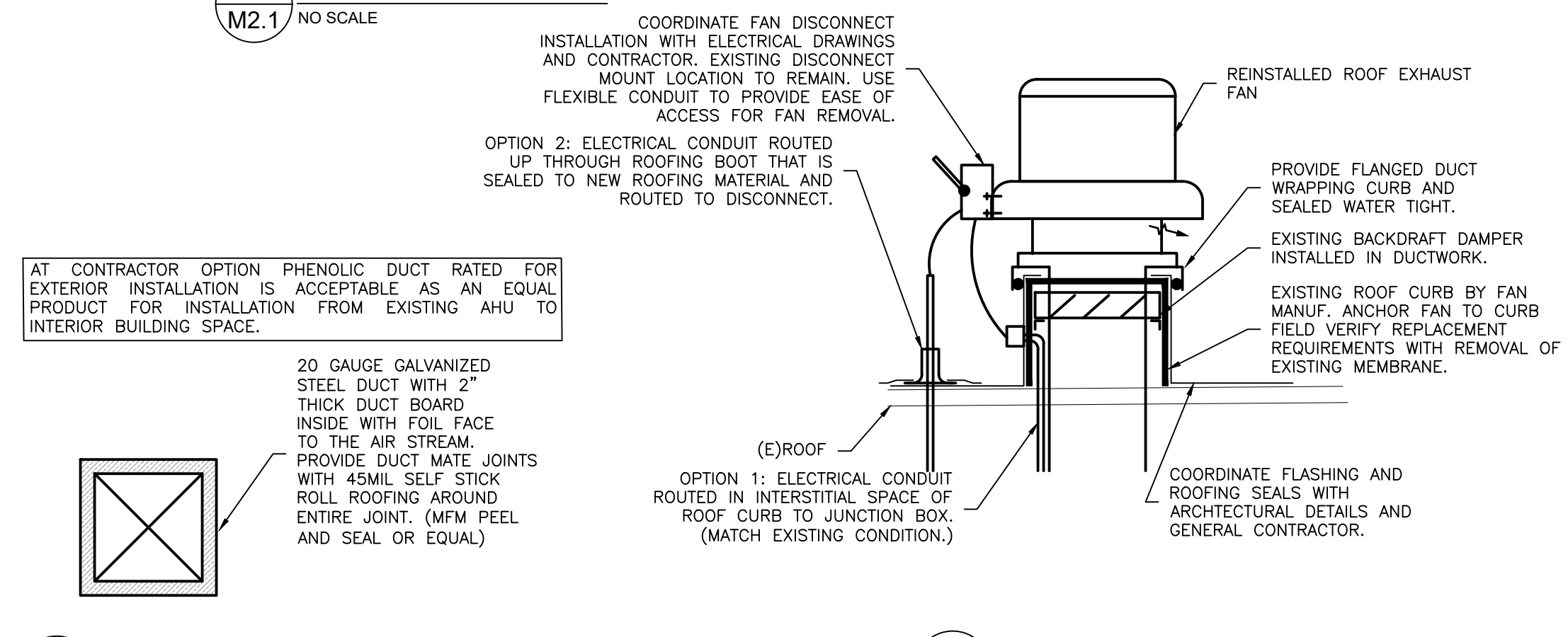
1 ROOF HOOD CURB DETAIL
M2.1 NO SCALE



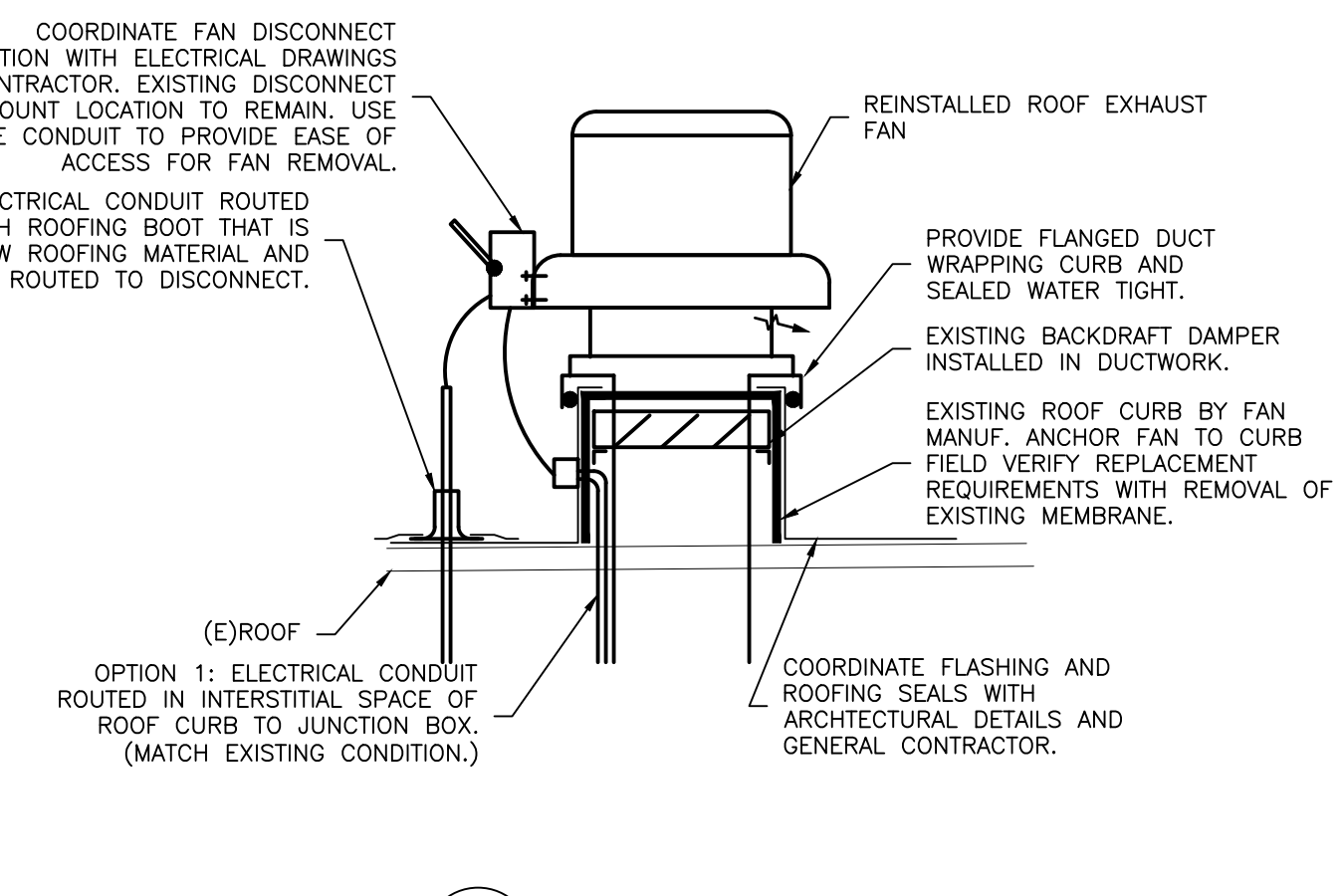
2 ROOF PIPE PENETRATION DETAIL
M2.1 NO SCALE



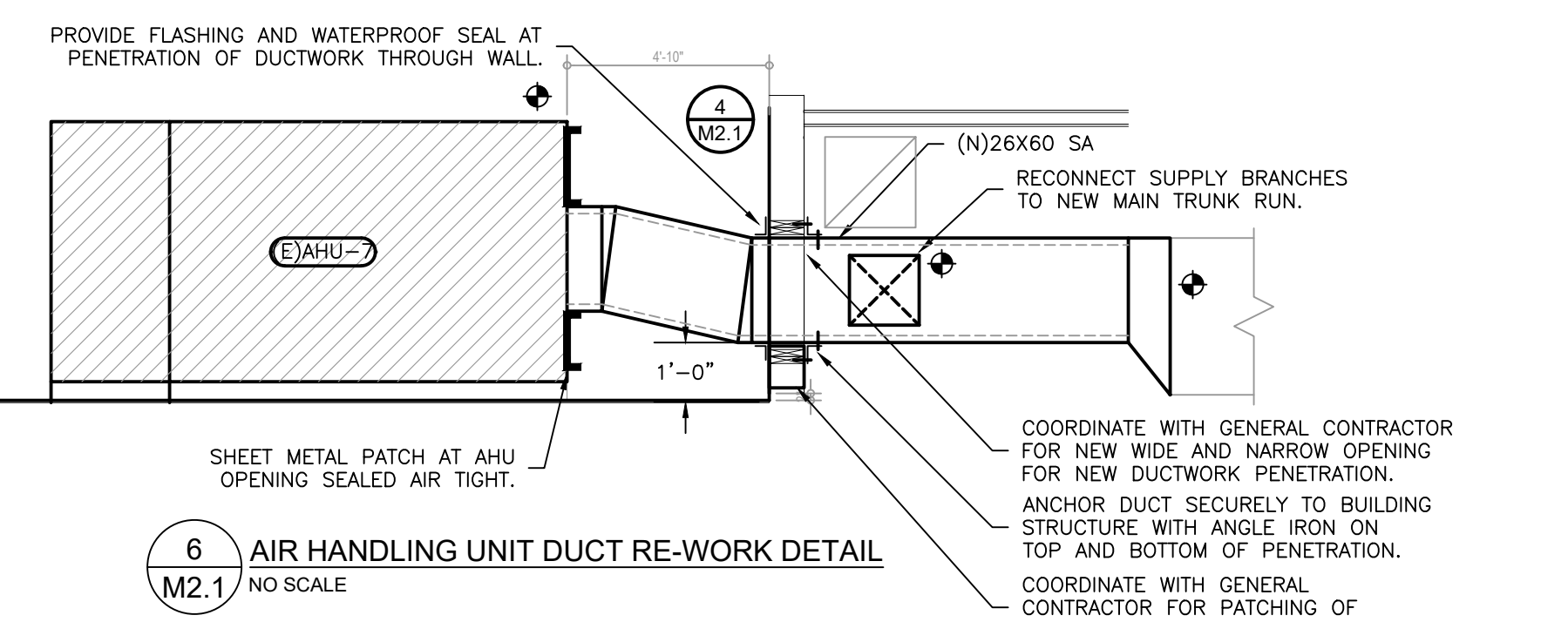
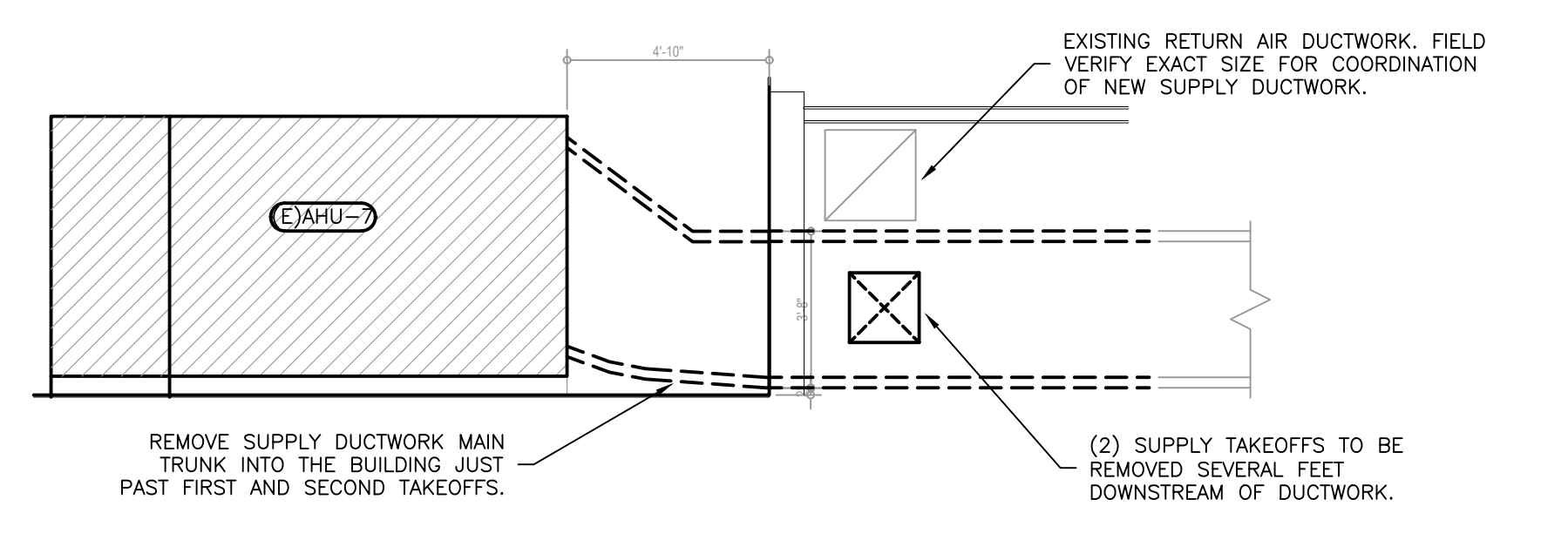
3 TYPE 1 GREASE EXHAUST FAN DETAIL
M2.1 NO SCALE



4 EXPOSED ROOF DUCT DETAIL
M2.1 NO SCALE



5 ROOF FAN DETAIL
M2.1 NO SCALE



6 AIR HANDLING UNIT DUCT RE-WORK DETAIL
M2.1 NO SCALE

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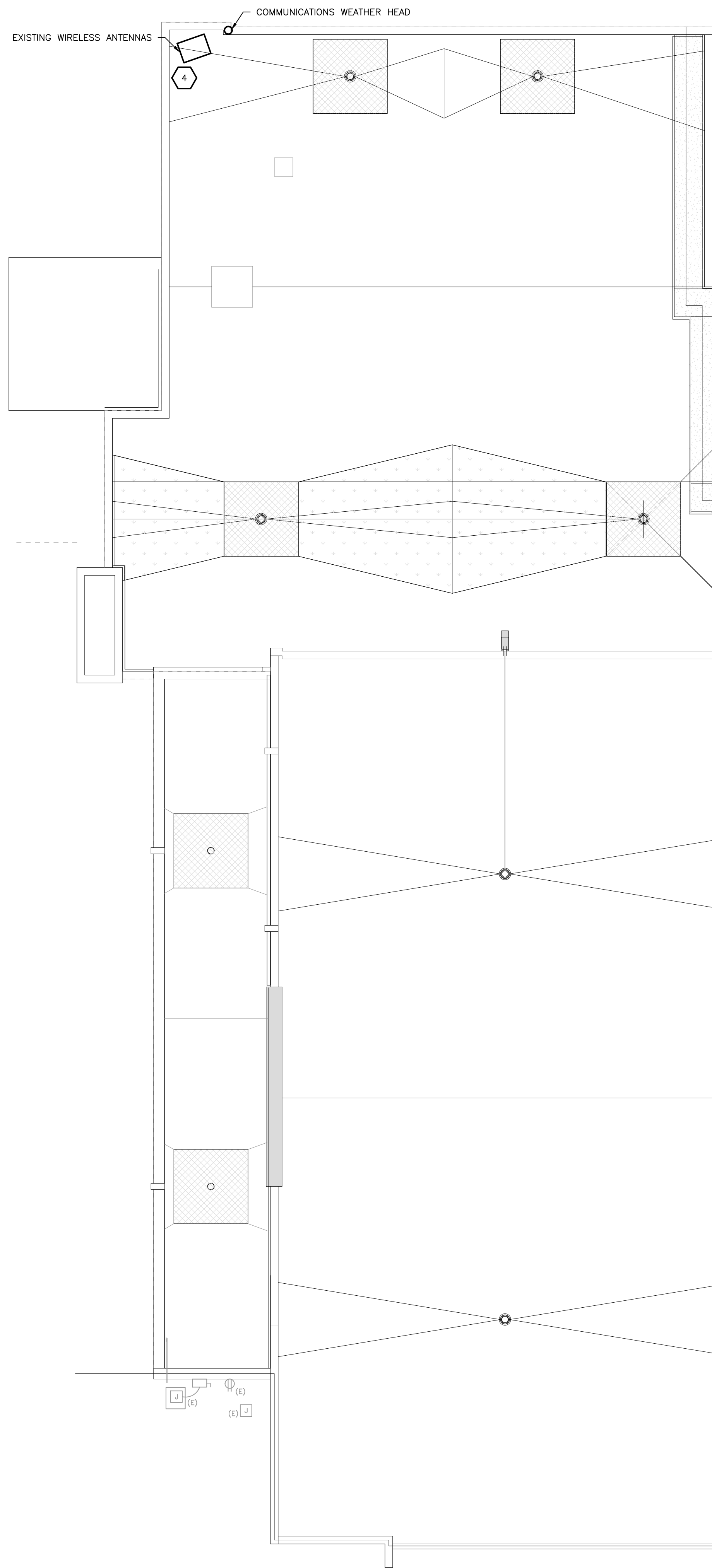
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MONTANA STATE UNIVERSITY
SUB NORTH ROOFS REPLACEMENT PPA #21-0087
751 W GRANT ST. BOZEMAN, MT 59715
MECHANICAL LEGEND, DETAILS, AND SCHEDULES

23-158-01
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APPROVED CPD
DATE 03/23/2023

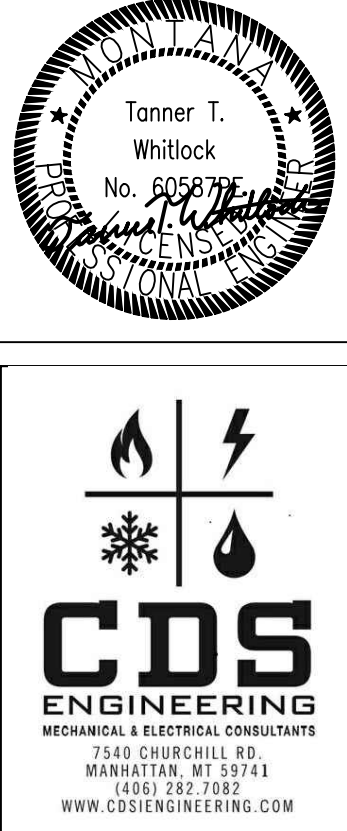
M2.1

MECHANICAL LEGEND, DETAILS, AND SCHEDULES
NO SCALE



- GENERAL NOTES**
1. RE-USE EXISTING CONDUCTORS AS APPLICABLE. CONTRACTOR IS REQUIRED TO MEGGER ALL CONDUCTORS PRIOR TO TURNING ANY EQUIPMENT BACK ON AFTER RE-CONFIGURING CONDUIT AND CONDUCTORS. REFER TO SPECIFICATIONS.
 2. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH NEC, STATE AND LOCAL BUILDING CODE.
 3. ANY WORK THAT REQUIRES POWER DISRUPTIONS SHALL BE SCHEDULED, MINIMUM OF 7 WORKING DAYS AHEAD OF TIME, AND APPROVED BY THE OWNER. ALL WORK SHALL BE PERFORMED WITH NO DISRUPTION OF THE OWNER'S BUSINESS.
 4. NEW CONDUCTORS SHALL BE COPPER AND A MINIMUM OF #12 GAUGE.
 5. EXISTING PANEL LOCATIONS ARE SHOWN FOR CONTRACTORS INFORMATION ONLY. THE ONLY WORK ANTICIPATED IS FOR THE SHUT-OFF OF EQUIPMENT AND REMOVAL OF CONDUCTORS FOR THE RECONFIGURATION OF CONDUIT AS REQUIRED TO RAISE EQUIPMENT. ALL CIRCUITS WILL REQUIRE IN FIELD CONFIRMATION FOR POWER SHUT OFF.
 6. ANY DEVICES OR EQUIPMENT WITHOUT A LABELED CIRCUIT WILL REQUIRE FIELD TRACING TO DE-ENERGIZE CIRCUIT.

- CONSTRUCTION NOTES**
1. DISCONNECT EXISTING FLEXIBLE CONDUIT AND CONDUCTORS FROM THE AIR HANDLING UNIT AND ROOFTOP UNIT LOCATION(S). IF ADDITIONAL CIRCUIT LENGTH IS REQUIRED TO RE-FEED RAISED EQUIPMENT, PULL CONDUCTORS BACK TO ALLOW A JUNCTION BOX TO BE ADDED TO THE CONDUIT RUN NEAR THE EXISTING UNIT INSIDE THE BUILDING ENVELOPE. SPLICE CONDUCTORS INSIDE THE NEW JUNCTION BOX AND RECONNECT USING NEW FLEXIBLE CONDUIT. PROVIDE NEW FLEXIBLE CONDUIT FROM EXISTING JUNCTION BOX FOR RECONNECTION OF CIRCUIT EVEN IF CIRCUIT LENGTH IS NOT EXTENDED.
 2. DISCONNECT EXISTING CONDUIT AND CONDUCTORS FROM THE EXHAUST FAN. IF ADDITIONAL CIRCUIT LENGTH IS REQUIRED TO RE-FEED RAISED EQUIPMENT, PULL CONDUCTORS BACK TO ALLOW A JUNCTION BOX TO BE ADDED TO THE CONDUIT RUN NEAR THE EXISTING UNIT INSIDE THE BUILDING ENVELOPE. SPLICE CONDUCTORS INSIDE THE NEW JUNCTION BOX AND CONNECT TO EQUIPMENT USING NEW FLEXIBLE CONDUIT. PROVIDE NEW FLEXIBLE CONDUIT FROM JUNCTION BOX TO EQUIPMENT FOR RECONNECTION OF CIRCUIT EVEN IF CIRCUIT LENGTH IS NOT EXTENDED.
 3. DISCONNECT RECEPTACLE AS REQUIRED FOR REMOVAL OF AIR HANDLING UNIT. RECONNECT RECEPTACLE AFTER RE-ROOF. EXTEND CONDUIT IF NECESSARY.
 4. COORDINATE NETWORK DISCONNECT WITH MSU 2 WEEKS PRIOR TO ANY WORK. DISCONNECT ANTENNA COMMUNICATION CABLE AND COIL UP FOR RE-ROOF. RECONNECT AFTER ROOF WORK. DISCONNECT SUPPORT LEGS FROM MAST FOR ROOFING AND THEN RE-INSTALL SUPPORT LEGS AFTER ROOFING WORK. FOR RE-ROOF, RE-CONNECT AFTER WORK IS COMPLETE. REPLACE WOOD STAND AND MOUNT WITH ALUMINUM. COORDINATE STAND TYPE AND ANTENNA ORIENTATION WITH MSU.
 5. FASTEN EXISTING CABLING TO WALL 24" ABOVE ROOF DECK. PROVIDE SUPPORTS EVERY 5' OR AS REQUIRED. PROVIDE J-HOOKS WITH LOCKING LATCH LISTED FOR EXTERIOR USE. ANCHORS TO PENETRATE BRICK, NOT MORTAR JOINTS. SPOT SEAL ALL ANCHORS WITH SILICONE SEALANT. SNUG FASTENER 1/4"x1-1/4" HEX HEAD, DIAMOND TIP CONCRETE SCREWS, PRE DRILL WITH MASONRY BIT.



REVISIONS

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ROOF ZONE B & K PLAN - POWER
SCALE: 1/8" = 1'-0"

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751 W GRANT ST. BOZEMAN, MT 59715

ROOF ZONE B & K PLAN - POWER

23-158-01
DRAWN BY TTIHVD
APPROVED TTW
DATE 03 23 2023

E1.1

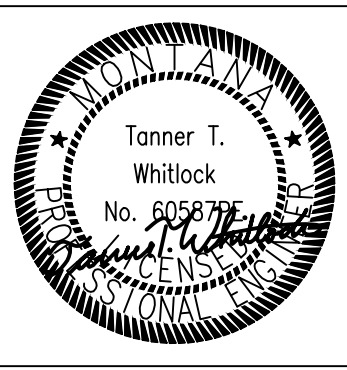
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GENERAL NOTES

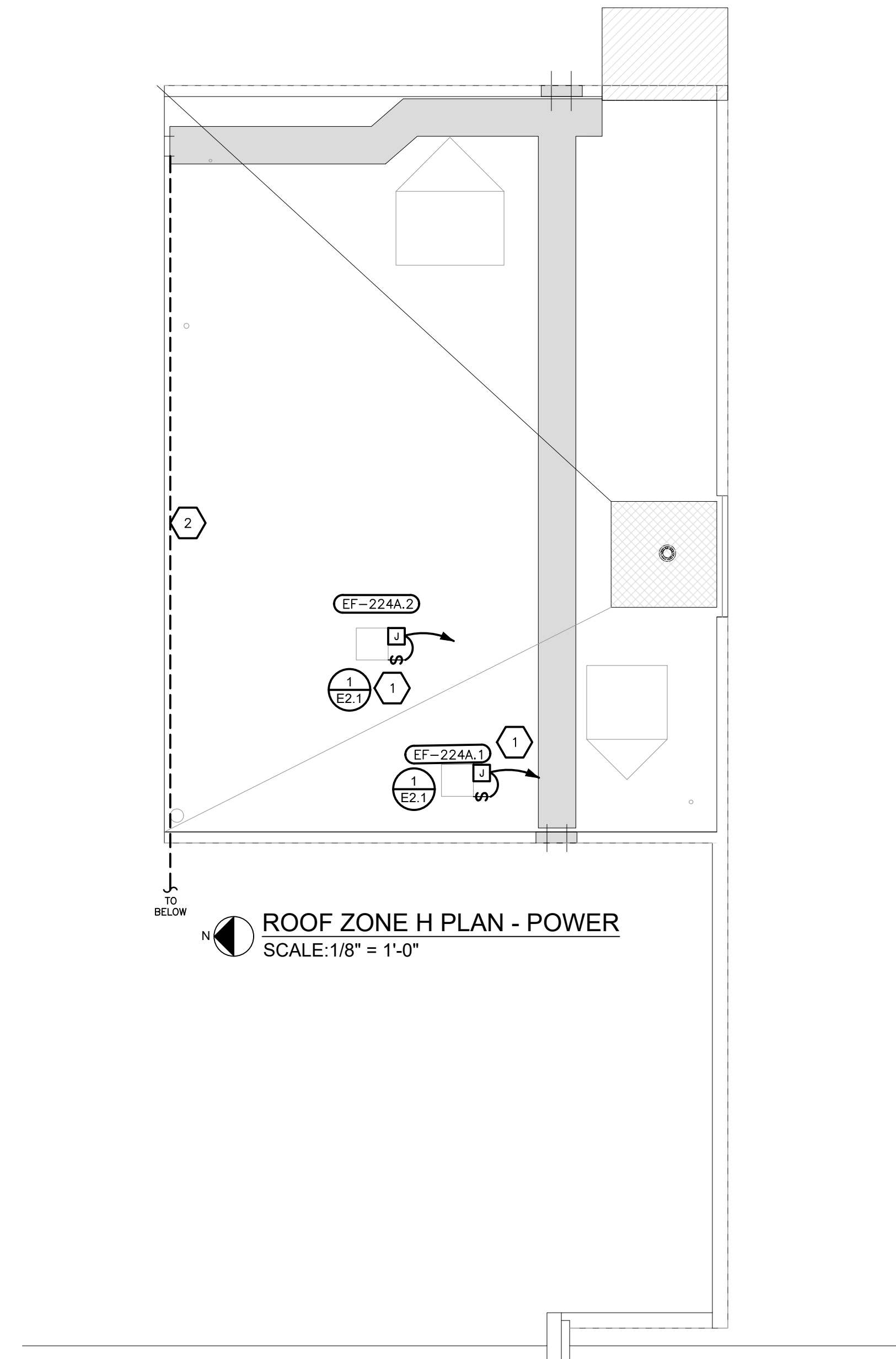
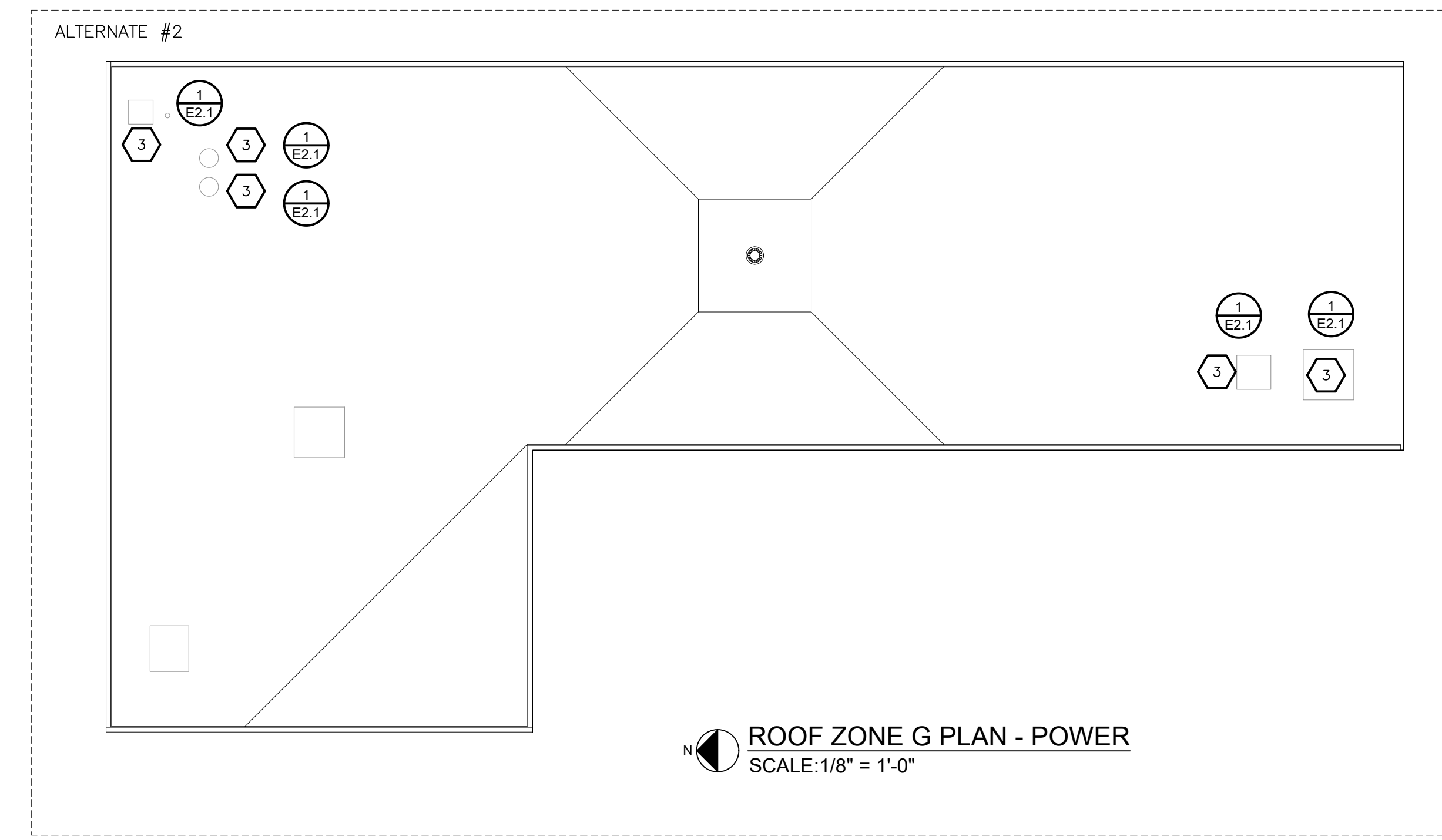
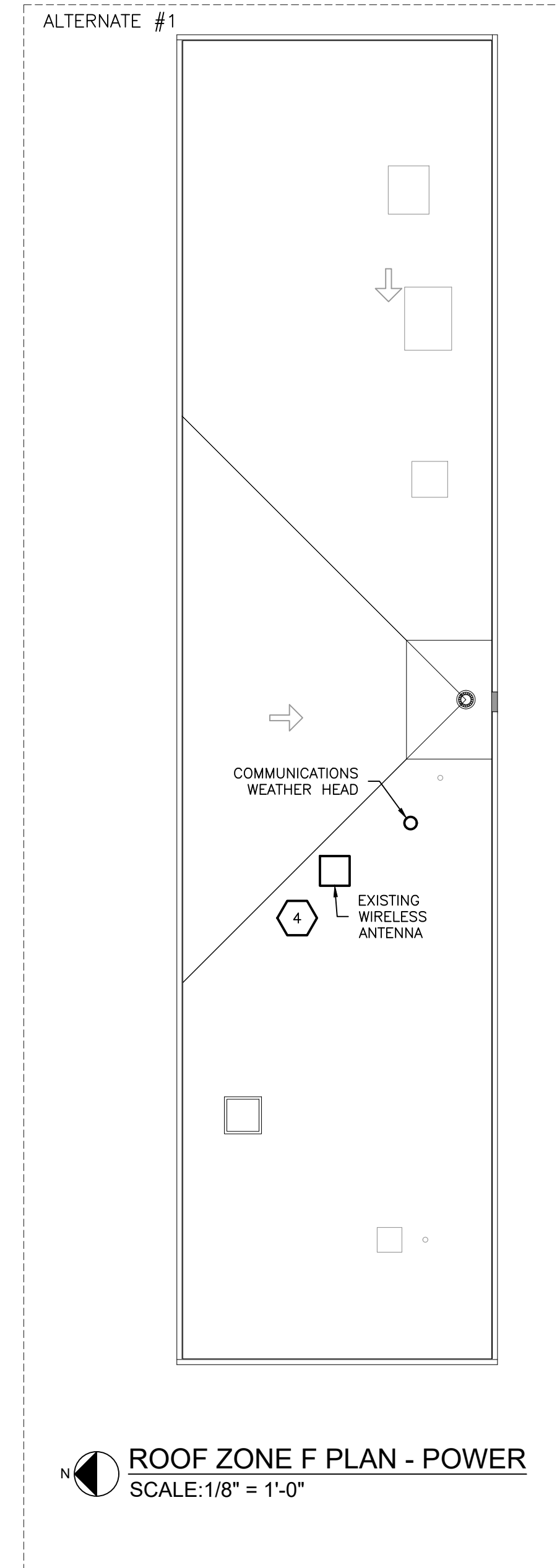
- RE-USE EXISTING CONDUCTORS AS APPLICABLE. CONTRACTOR IS REQUIRED TO MEGGER ALL CONDUCTORS PRIOR TO TURNING ANY EQUIPMENT BACK ON AFTER RE-CONFIGURING CONDUIT AND CONDUCTORS. REFER TO SPECIFICATIONS.
- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH NEC, STATE AND LOCAL BUILDING CODE.
- ANY WORK THAT REQUIRES POWER DISRUPTIONS SHALL BE SCHEDULED, MINIMUM OF 7 WORKING DAYS AHEAD OF TIME, AND APPROVED BY THE OWNER. ALL WORK SHALL BE PERFORMED WITH NO DISRUPTION OF THE OWNER'S BUSINESS.
- NEW CONDUCTORS SHALL BE COPPER AND A MINIMUM OF #12 GAUGE.
- EXISTING PANEL LOCATIONS ARE SHOWN FOR CONTRACTORS INFORMATION ONLY. THE ONLY WORK ANTICIPATED IS FOR THE SHUT-OFF OF EQUIPMENT AND REMOVAL OF CONDUCTORS FOR THE RECONFIGURATION OF CONDUIT AS REQUIRED TO RAISE EQUIPMENT. ALL CIRCUITS WILL REQUIRE IN FIELD CONFIRMATION FOR POWER SHUT OFF.
- ANY DEVICES OR EQUIPMENT WITHOUT A LABELED CIRCUIT WILL REQUIRE FIELD TRACING TO DE-ENERGIZE CIRCUIT.

CONSTRUCTION NOTES

- DISCONNECT EXISTING CONDUIT AND CONDUCTORS FROM THE EXHAUST FAN. IF ADDITIONAL CIRCUIT LENGTH IS REQUIRED TO RE-FEED RAISED EQUIPMENT, PULL CONDUCTORS BACK TO ALLOW A JUNCTION BOX TO BE ADDED TO THE CONDUIT RUN NEAR THE EXISTING UNIT INSIDE THE BUILDING ENVELOPE. SPLICE CONDUCTORS INSIDE THE NEW JUNCTION BOX AND CONNECT TO EQUIPMENT USING NEW FLEXIBLE CONDUIT. PROVIDE NEW FLEXIBLE CONDUIT FROM JUNCTION BOX TO EQUIPMENT FOR RECONNECTION OF CIRCUIT EVEN IF CIRCUIT LENGTH IS NOT EXTENDED.
- FASTEN EXISTING CABLING TO WALL 24" ABOVE ROOF DECK. PROVIDE SUPPORTS EVERY 5' OR AS REQUIRED. PROVIDE J-HOOKS WITH LOCKING LATCH LISTED FOR EXTERIOR USE. ANCHORS TO PENETRATE BRICK, NOT MORTAR JOINTS. SPOT SEAL ALL ANCHORS WITH SILICONE SEALANT. SNUG FASTENER 1/4"x1-1/4" HEX HEAD, DIAMOND TIP CONCRETE SCREWS, PRE DRILL WITH MASONRY BIT.
- EXHAUST FAN, NO EXISTING EXTERIOR ELECTRICAL CONNECTION ARE VISIBLE. ELECTRICAL CONTRACTOR SHALL REVIEW AND DISCONNECT ANY LINE VOLTAGE AS REQUIRED TO REMOVE FAN HOUSING FOR FAN ROOF. EXTEND CIRCUIT TO RE=FEED EXHAUST FAN IF NECESSARY.
- COORDINATE NETWORK DISCONNECT WITH MSU 2 WEEKS PRIOR TO ANY WORK. DISCONNECT ANTENNA COMMUNICATION CABLE AND COIL UP FOR RE=ROOF. RECONNECT AFTER ROOF WORK. DISCONNECT SUPPORT LEGS FROM MAST FOR ROOFING AND THEN RE=INSTALL SUPPORT LEGS AFTER ROOFING WORK. FOR RE=ROOF. RE=CONNECT AFTER WORK IS COMPLETE. REPLACE WOOD STAND AND MOUNT WITH ALUMINUM. COORDINATE STAND TYPE AND ANTENNA ORIENTATION WITH MSU.



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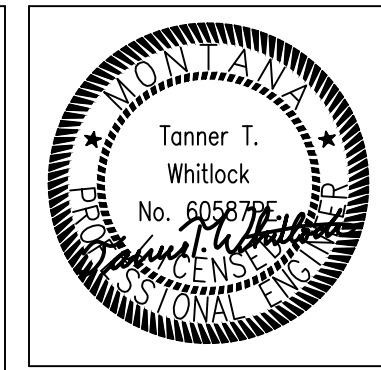
ROOF ZONE F, G, & H PLAN - POWER

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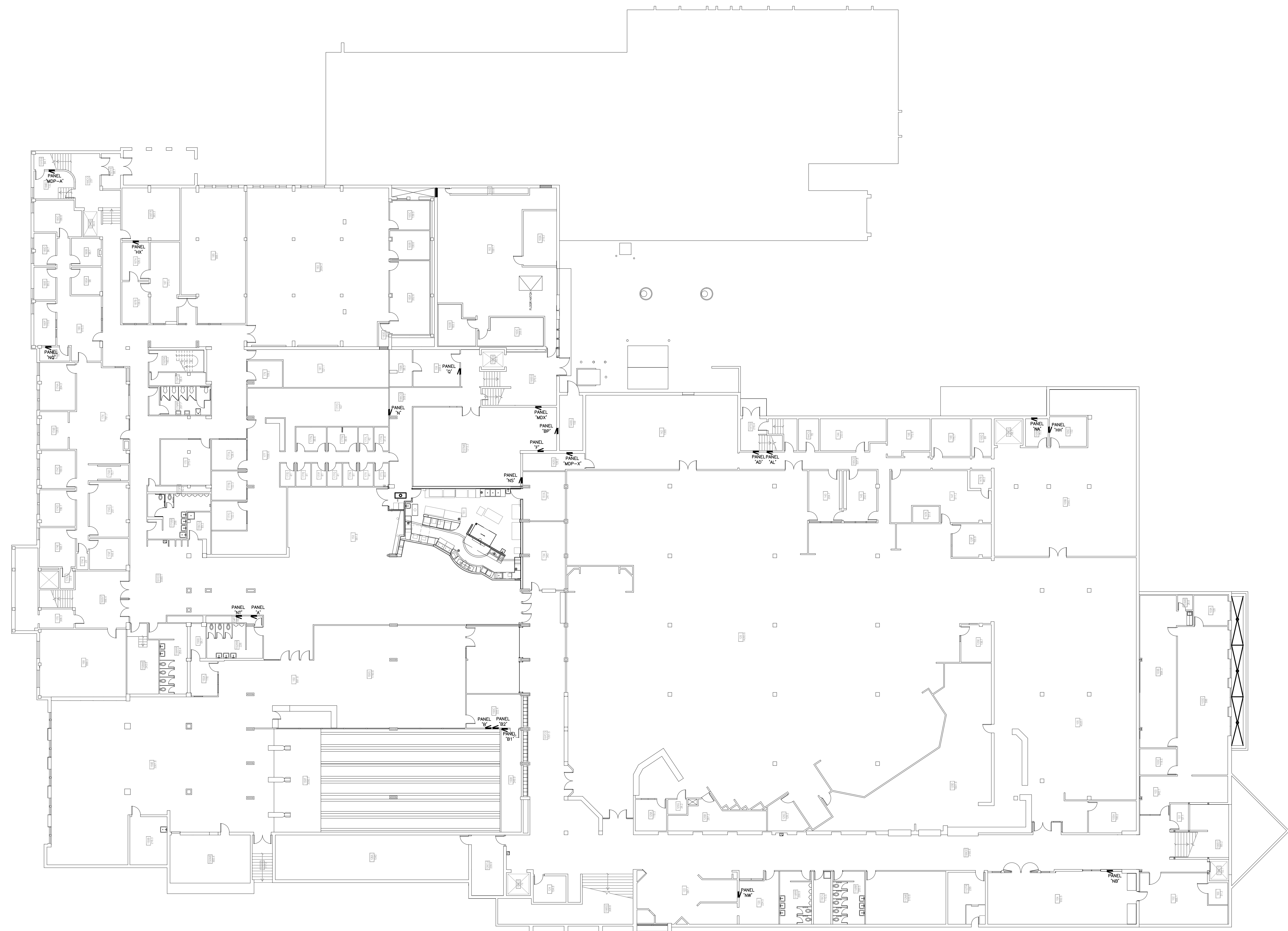
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E1.2

GENERAL NOTES
 1. NO ELECTRICAL WORK ON THESE FLOORS. PLANS SHOWN FOR PANEL LOCATION ONLY.



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1ST FLOOR PLAN - POWER
 SCALE: 1/16" = 1'-0"

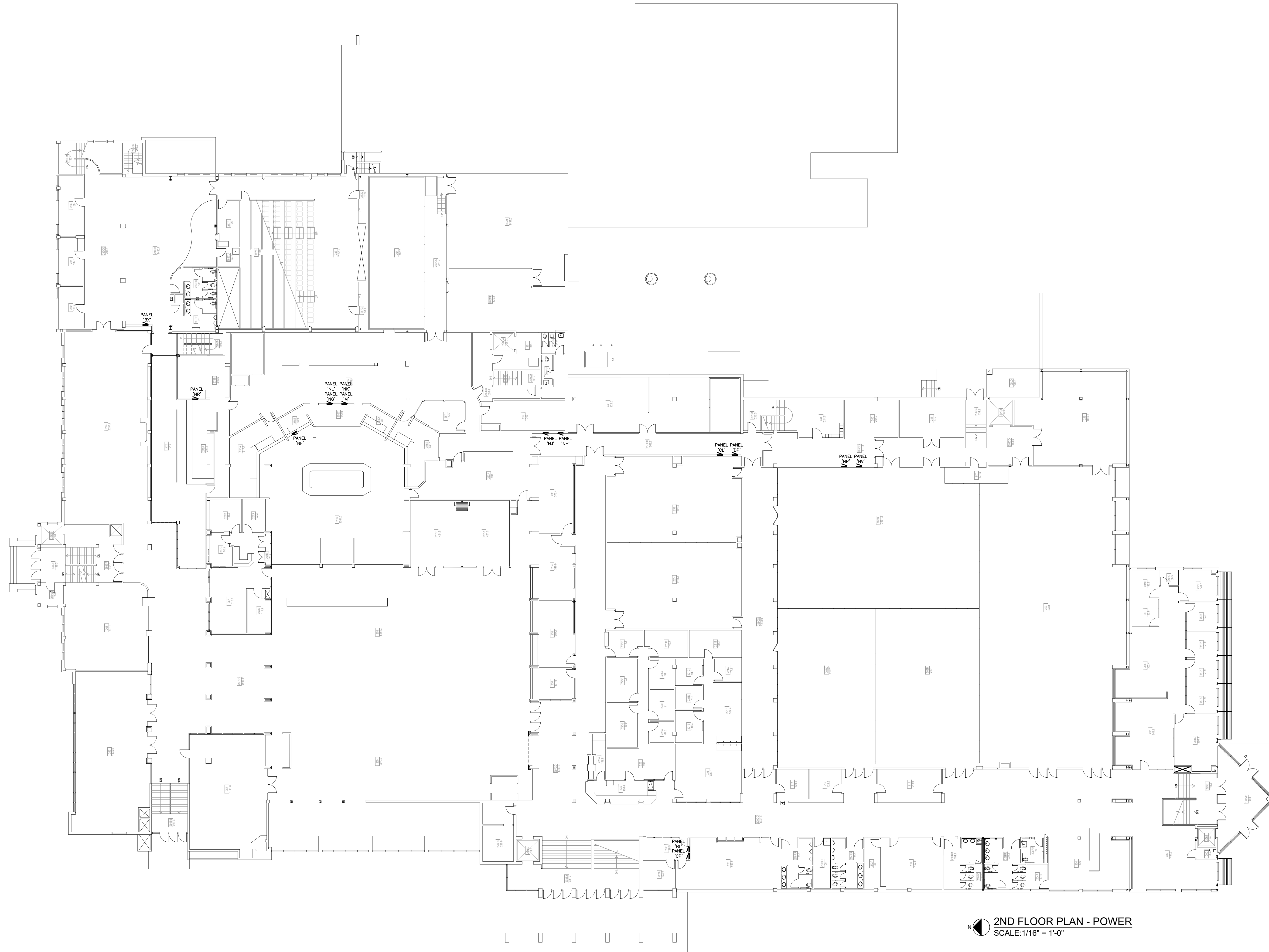
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 FIRST FLOOR PLAN - POWER

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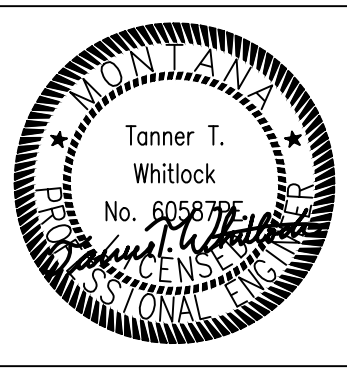
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E1.3

GENERAL NOTES
 1. NO ELECTRICAL WORK ON THESE FLOORS. PLANS SHOWN FOR PANEL LOCATION ONLY.



2ND FLOOR PLAN - POWER
 SCALE: 1/16" = 1'-0"



REVISIONS	
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 SECOND FLOOR PLAN - POWER
 PERMIT SET


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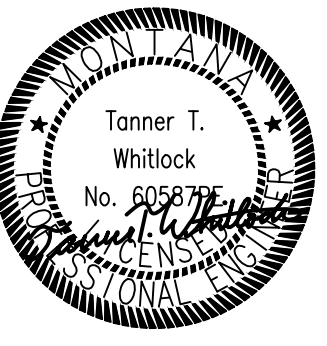
E1.4

GENERAL NOTES

1. NO ELECTRICAL WORK ON THESE FLOORS. PLANS SHOWN FOR PANEL LOCATION ONLY.




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

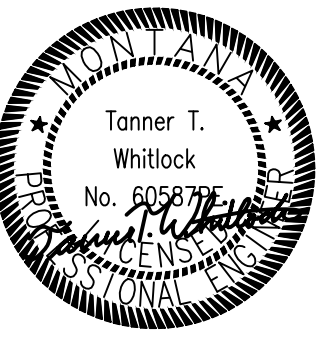


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 PERMIT SET
 THIRD FLOOR PLAN - POWER

23-158-01
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E1.5



REVISIONS	
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ELECTRICAL LEGEND (NOT ALL SYMBOLS ARE USED ON THIS PROJECT)

DUPLEX RECEPTACLE	JUNCTION BOX - MINIMUM OF 4" SQUARE ELECTRICAL BOX	BRANCH CIRCUIT CONCEALED IN WALL OR CEILING
POWER DIRECT CONNECTION	COMBINATION VOICE/DATA OUTLET - NUMBER INDICATES HOW MANY CATEGORY CABLES ARE TO BE TERMINATED AT THE OUTLET	HOME RUN TO PANEL. NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS.
POWER MOTOR CONNECTION	VOICE OUTLET - NUMBER INDICATES HOW MANY CATEGORY CABLES ARE TO BE TERMINATED AT THE OUTLET	
ELECTRICAL PANEL - 208Y/120V 3 PHASE 4 WIRE	CARD READER ROUGH-IN	

ABBREVIATIONS

AC ABOVE COUNTER	(E) EXISTING TO REMAIN	LTS LIGHTS	(R) REMOVE AND RELOCATE
ADA AMERICANS W/ DISABILITIES	EF EXHAUST FAN	MECH MECHANICAL	RCPT RECEPTACLE(S)
AD ACT COMPLIANT EQUIPMENT	ELECT ELECTRICAL	MC, M.C. MECHANICAL CONTRACTOR	SCH SCHEDULE
AFF ACCESS DOOR	EPO EMERGENCY POWER OFF	MDB MAIN DISTRIBUTION BOARD	SF SQUARE FOOT
AHU ABOVE FINISHED FLOOR	EWC ELECTRIC WATER COOLER	MDP MAIN DISTRIBUTION PANEL	TC TEMPERATURE CONTROLS CONTRACTOR
BKR, CB AIR HANDLING UNIT	FCD FLOOR CLEANOUT	MFR MANUFACTURER	TGB TELECOMMUNICATIONS GROUND BAR
CJNG CIRCUIT BREAKER	FCU FAN COIL UNIT	MLO MAIN LUGS ONLY	TIB TELECOMMUNICATIONS TERMINAL BOARD
CONT CEILING	FD FLOOR DRAIN	(N) NEW	TYP TYPICAL
DDC CONTINUATION	FD FIRE DAMPER	NEC NATIONAL ELECTRICAL CODE	UH UNIT HEATER
DDC DIRECT DIGITAL CONTROL	FD/SD FIRE/SMOKE DAMPER	NL NIGHT LIGHT	UNO UNLESS NOTED OTHERWISE
DF DRINKING FOUNTAIN	FE FIRE EXTINGUISHER	NO NUMBER	W WALL-MOUNTED DEVICE
DISC DISCONNECT SWITCH	FS FLOOR SINK	OD, O.D. OUTSIDE DIAMETER	WG WIRE GUARD
E.C., EC ELECTRICAL CONTRACTOR	GFCI, GFI GROUND FAULT CIRCUIT INTERRUPTER	PB PULL BOX	WP WEATHERPROOF-IN-USE
	GND GROUND	PMR PER MFR'S RECOMMENDATIONS	WR WEATHER-RESISTANT
	HO H.O. HIGH OUTPUT	POS POINT OF SALE (CASH REGISTER)	
	IG INSULATED GROUND		

MOUNTING HEIGHTS	
DESCRIPTION	HEIGHT
RECEPTACLES (WALL)	18" A.F.F. TO CENTER
RECEPTACLES (ABOVE COUNTER)	44" A.F.F. TO CENTER
RECEPTACLES (UNFINISHED AREA)	44" A.F.F. TO CENTER
SURFACE RACEWAY RECEPTACLE STRIPS	42" A.F.F. TO BOTTOM
LIGHT SWITCHES	44" A.F.F. TO CENTER
VOICE OUTLET (WALL)	54" A.F.F. TO CENTER
VOICE/DATA OUTLET	18" A.F.F. TO CENTER
CLOCK OUTLET	88" A.F.F. TO CENTER
EXIT SIGN	CENTER ON DOOR, 12" ABOVE DOOR
FIRE ALARM PULL STATION	44" A.F.F. TO CENTER
FIRE ALARM HORN/STROBE	80" A.F.F. TO BOTTOM OR 6" BELOW CEILING
CARD READERS	44" A.F.F. TO CARD SLOT
SECURITY SYSTEM CONTROLS	44" A.F.F. TO CENTER
THERMOSTATS/ HVAC CONTROLS	44" A.F.F. TO CENTER
ELECTRICAL PANELS	72" A.F.F. TO TOP
SAFETY SWITCHES/MOTOR STARTER/ VFD'S	72" A.F.F. TO TOP (EXCEPT TOP OF HANDLE SHALL NOT EXCEED 78" A.F.F.)
MOTOR CONTROL PUSHBUTTONS	60" A.F.F. TO CENTER

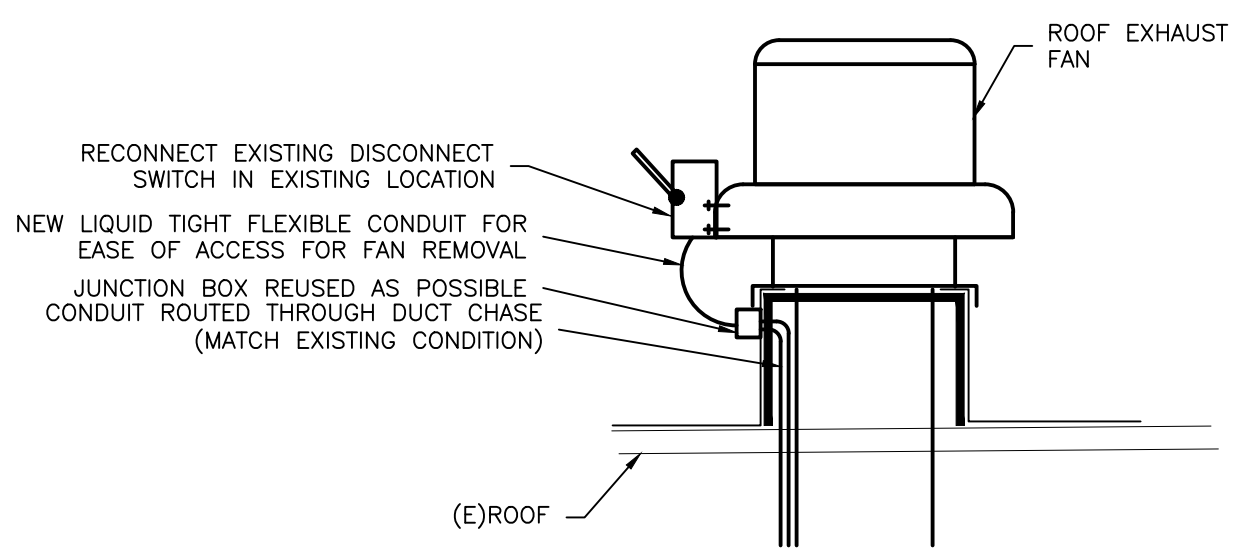
BRANCH CIRCUIT HOMERUN WIRE SIZES, AS SHOWN ON DRAWINGS OR PANEL SCHEDULES, ARE MINIMUM SIZES FOR CURRENT DRAW. CONTRACTOR SHALL INCREASE WIRE AND CONDUIT SIZES AS REQUIRED TO LIMIT BRANCH CIRCUIT VOLTAGE DROP TO 3%, BASED ON ACTUAL HOMERUN LENGTHS REQUIRED IN FIELD. BRANCH CIRCUIT VOLTAGE DROP CALCULATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THESE CRITERIA:

TYPE OF LOAD	LOAD CURRENT	DISTANCE
DUPLEX RECEPTACLE	16A	TO FARTHEST RECEPTACLE
OTHER RECEPTACLES	80% OF RATED CURRENT	TO FARTHEST RECEPTACLE
LIGHT FIXTURES	TOTAL VA OF ALL FIXTURES ON CKT	TO FIRST FIXTURE VIA SWITCH(ES) INCLUDING LENGTH OF TRAVELERS
MOTORS	125% OF NAMEPLATE FLA	TO MOTOR/EQUIPMENT
HEATERS		
MISCELLANEOUS	BASED ON TOTAL VA	TO DEVICE/EQUIPMENT

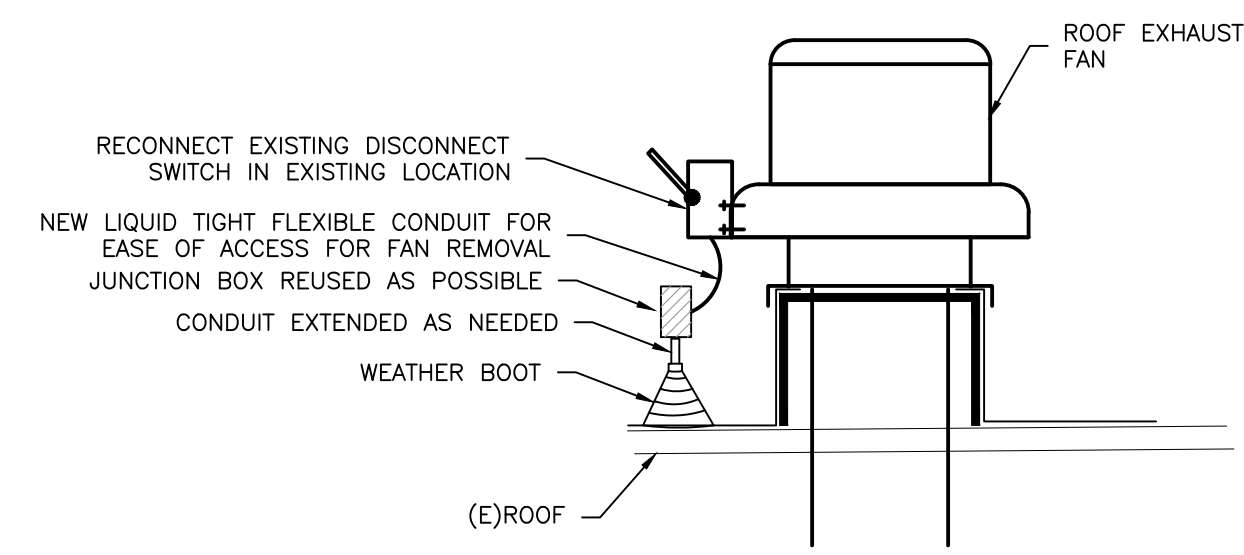
IN GENERAL, BASED ON COPPER WIRES, MINIMUM WIRE SIZES FOR 120V, 20A BRANCH CIRCUITS SHALL BE AS SHOWN IN TABLES BELOW:

20A RECEPT/ EQUIP BRANCH CIRCUITS	
LENGTH (FEET)	WIRE SIZE (AWG)
UP TO 60	#12
UP TO 95	#10
UP TO 150	#8
UP TO 240	#6

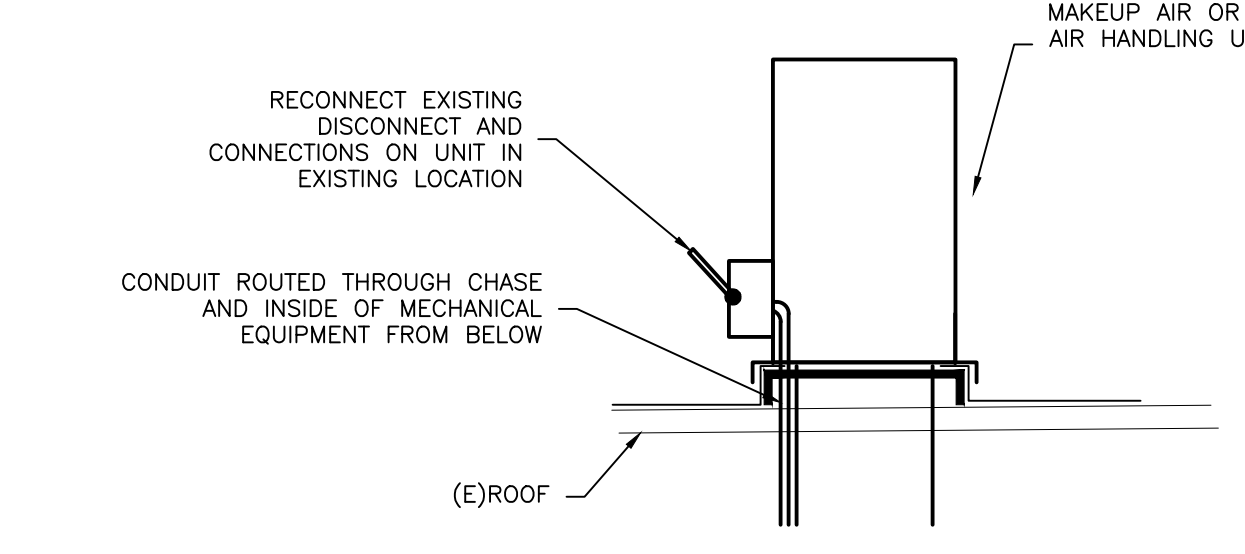
ALL DUPLEX AND GFI RECEPTACLES SHALL BE RATED FOR 20A.
MC CABLE MAY BE USED, BUT ONLY WHERE IT IS FISHED INSIDE EXISTING WALLS OR CEILINGS. UNDER NO CIRCUMSTANCES SHALL MC CABLE BE INSTALLED WHERE IT IS EXPOSED. WHEREVER MC CABLE IS INSTALLED, IT SHALL HAVE ONE SPARE CURRENT CARRYING CONDUCTOR FOR FUTURE USE.



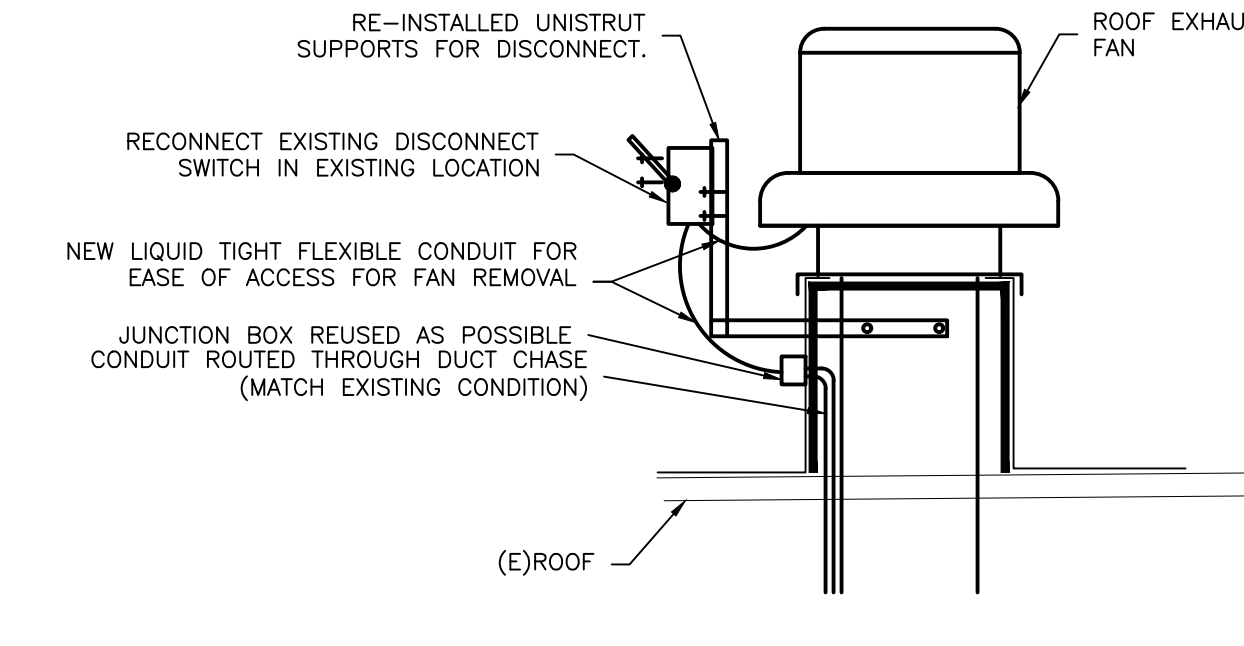
1 ROOF EXHAUST FAN ELECTRICAL DETAIL
E2.1 NO SCALE



2 ROOF EXHAUST FAN ELECTRICAL DETAIL #2
E2.1 NO SCALE



3 MAU / AIR HANDLING UNIT ELECTRICAL DETAIL
E2.1 NO SCALE



4 ROOF EXHAUST FAN ELECTRICAL DETAIL #3
E2.1 NO SCALE