

MSU MOLECULAR BIOSCIENCE BUILDING

BOZEMAN, MT



VICINITY MAP



PROJECT INFORMATION

PROJECT SITE:
960 TECHNOLOGY BOULEVARD
BOZEMAN, MT 59715

CODE INFORMATION:

APPLICABLE CODES: (STATE OF MONTANA)
-INTERNATIONAL BUILDING CODE, 2021 EDITION
-INTERNATIONAL EXISTING BUILDING CODE, 2021 EDITION
-UNIFORM PLUMBING CODE, 2021 EDITION
-INTERNATIONAL MECHANICAL CODE, 2021 EDITION
-INTERNATIONAL FUEL GAS CODE, 2021 EDITION
-NATIONAL ELECTRICAL CODE, 2020 EDITION
-INTERNATIONAL ENERGY CONSERVATION CODE, 2021 EDITION

ZONING: BP

FIRE SPRINKLERS: YES

BUILDING CONSTRUCTION TYPE: V-A
BUILDING OCCUPANCY TYPE: B - BUSINESS

ALLOWABLE BUILDING HEIGHT: 40'-0"
EXISTING BUILDING HEIGHT: 29'-6"
NEW OVERALL BUILDING HEIGHT: 38'-4"

PROJECT AREA: RE ROOF

LOWER	15,878 SF
UPPER	2,636 SF
TOTAL	18,514 SF

BUILDING AREA

MAIN FLOOR	18,000 SF
LEVEL 2	18,514 SF
LEVEL 3	1,738 SF
TOTAL BUILDING AREA:	38,253 SF

SHEET INDEX - TASK 1B

TASK 1 - BUILDING ENCLOSURE

GENERAL

G001	COVER SHEET
G111	ACCESSIBILITY DETAILS
G116	PARTITIONS & ASSEMBLIES / FINISH SCHEDULES

CIVIL

113	TOPOGRAPHICAL SURVEY 1 OF 3
213	TOPOGRAPHICAL SURVEY 2 OF 3
313	TOPOGRAPHICAL SURVEY 3 OF 3

ARCHITECTURAL

A030	AS-BUILTS - LIFE SAFETY PLANS
A050	ROOF / DEMO PLAN
A150	ROOF / REMODEL PLANS
A201	EXTERIOR ELEVATIONS - DEMO
A202	EXTERIOR ELEVATIONS - REMODEL
A203	EXTERIOR ELEVATIONS - REMODEL EXHIBIT
A521	DETAILS
A522	DETAILS
A525	ROOF DETAILS

MECHANICAL

M100 MECHANICAL ROOF LEGEND, NOTES, AND DETAILS
M101 REMODEL - MECHANICAL ROOF PLAN

ELECTRICAL

E10.0	ELECTRICAL COVER SHEET
E10.1	LEVEL 1 ELECTRICAL DEMOLITION PLAN
E10.3	ROOF ELECTRICAL DEMOLITION PLAN
E11.1	LEVEL 1 ELECTRICAL PLAN
E11.3	ROOF ELECTRICAL PLAN

PROJECT DIRECTORY

OWNER:
MONTANA STATE UNIVERSITY
PO BOX 172760
BOZEMAN, MT 59717
(406) 994-4547
CONTACT: DON BEEBE

ARCHITECT:
BECHTLE ARCHITECTS
4515 VALLEY COMMONS DRIVE #201
BOZEMAN, MT 59718
(406) 585-4161
CONTACT: NICK FULTON

CIVIL ENGINEER:
MERIDIAN LAND SURVEYING, INC.
4135 VALLEY COMMONS DRIVE, SUITE C
BOZEMAN, MT 59718
(406) 579-1748
CONTACT: MICHAEL S. LAPP

ELECTRICAL ENGINEER:
BLACKSHEEP ENGINEERING
602 W HEMLOCK ST
BOZEMAN, MT 59715
(406) 551-5669
CONTACT: ANDY MOORE

MECHANICAL ENGINEER:
SE ENGINEERS
PO BOX 4491
THREE FORKS, MT 59752
(406) 600-8796
CONTACT: BILL EDDEN

GENERAL PROJECT NOTES

1. AIA DOCUMENT A201, GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION APPLIES TO THIS PROJECT AND SHALL BE INCORPORATED IN THE SERVICES PROVIDED BY THE GENERAL CONTRACTOR.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND JOB SITE CONDITIONS BEFORE COMMENCING WORK AND SHALL REPORT ANY DISCREPANCIES TO THE ARCHITECT.
3. USE WRITTEN DIMENSIONS. DO NOT SCALE DRAWINGS. WHERE NO DIMENSION IS PROVIDED, CONSULT THE ARCHITECT FOR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.
4. THE DESIGN, ADEQUACY, AND SAFETY OF ERECTING BRACING/ SHORING/ TEMPORARY SUPPORTS/ ETC. ETC. IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND HAS NOT BEEN CONSIDERED BY AN ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE PRIOR TO THE COMPLETION OF WALLS, CEILING, AND FINISH MATERIALS.
5. GENERAL CONTRACTOR TO COORDINATE ARCHITECTURAL DRAWINGS WITH MECHANICAL, ELECTRICAL, AND PLUMBING.
6. ALL MATERIALS AND FINISHES ARE TO BE AS SPECIFIED, OR PRE-APPROVED EQUAL.
7. SUBSTITUTIONS SHALL BE BY APPROVAL PRIOR TO THE BID, OR INDICATED AS A LINE ITEM ON THE BID AS AN ALTERNATE TO THE BASE BID. SEE SPECIFICATIONS IF AND WHEN APPLICABLE.
8. CONTRACTOR IS TO USE WATER-RESISTANT GYPSUM WALL BOARD IN ALL WET SPACES (RESTROOMS, JANITORIAL AREAS, MECHANICAL/PLUMBING ROOMS, FOOD SERVICE ROOMS, ETC. ETC.)
9. CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS, SHOWING ANY CHANGES TO PLANS, ELEVATIONS, SYSTEMS, DIMENSIONS, ETC.

SCOPE OF TASK SERVICES

TASK 1A: BUILDING ENCLOSURE CONDITIONS ASSESSMENT
TASK 1B: BUILDING ENCLOSURE REPAIR/REPLACEMENT
TASK 2A: INTERIOR TENANT IMPROVEMENTS (TENANTS 154-162)
TASK 2B: INTERIOR TENANT IMPROVEMENTS (TENANTS 257)
TASK 3A: FIRE ALARM REPLACEMENT
TASK 3B: UT CONNECTION & UPGRADES
TASK 3C: MEP MODIFICATIONS

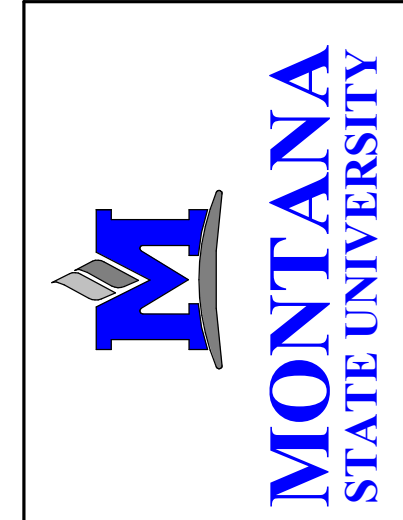
PROJECT SYMBOLS

	NORTH ARROW
	ROOM TAG
	WINDOW NUMBER
	DOOR NUMBER
	GRID HEAD
	PLAN NOTE
	SECTION HEAD
	WALL SECTION HEAD
	DETAIL CALLOUT
	SPOT ELEVATION

LIST OF ABBREVIATIONS

AP	ACCESS PANEL	BLDG	BUILDING	DS	DOWN SPOUT	FND	FOUNDATION	MATL	MATERIAL	PERP	PERPENDICULAR	SERV	SERVICE	VERT	VERTICAL
ACT	ACOUSTIC CEILING TILE	CAB	CABINET	D	DRYER	GLV	GALVANIZE	MAX	MAXIMUM	PL	PLATE	SHT	SHEET	VEST	VESTIBULE
ALT	ALTERNATE	CLG	CEILING	EA	EACH	GA	GAGE	MTL	METAL	PLMB	PLUMBING	SHTG	SHEATHING	VIF	VERIFY IN FIELD
AB	ANCHOR BOLT	CL	CENTER LINE	E	EAST	GL	GRADELINE	MIN	MINIMUM	PT	POINT	SIM	SIMILAR	WTP	WATERPROOFING
ANG	ANGLE	CC	CENTER TO CENTER	ELEC	ELECTRIC	GWB	GYPSUM WALL BOARD	MISC	MISCELLANEOUS	LB	POUND	S	SOUTH	WP	WEATHERPROOF
APPD	APPROVED	CER	CERAMIC	EL	ELEVATION	HWDD	HARDWOOD	MOD	MODULAR	PSI	POUNDS PER SQUARE INCH	SPEC	SPECIFICATION	WH	WHEELHOPE
APPR	APPROXIMATE	CIR	CIRCLE	EQ	EQUAL	HT	HEIGHT	MECH	MECHANICAL	PREFAB	PREFABRICATED	SQ	SQUARE	WT	WEIGHT
ARCH	ARCHITECTURAL	CLR	CLEAR	EQUIP	EQUIPMENT	HOR	HORIZONTAL	NOM	NOMINAL	QTY	QUANTITY	STD	STANDARD	W	WEST
ASPH	ASPHALT	COL	COLUMN	EXIST	EXISTING	HB	HOSE BIB	N	NORTH	R	RADIUS	STL	STEEL	W	WIDTH
@	AT	CONC	CONCRETE	EXT	EXTERIOR	IN	INCH	NTS	NOT TO SCALE	REF	REFRIGERATOR	STG	STORAGE	WOW	WINDOW
AVE	AVERAGE	CMU	CONCRETE MASONRY UNIT	FEET	FEET	INSUL	INSULATION	NO	NUMBER	REG	REGISTER	STRUC	STRUCTURAL	WG	WIRE GLASS
BM	BEAM	CONST	CONSTRUCTION	FIN	FINISH	INT	INTERIOR	OC	ON CENTER	REIN	REINFORCE	SYS	SYSTEM	WO	WITH OUT
BRG	BEARING	CONT	CONTINUE	FF	FINISHED FLOOR	JT	JOINT	OPND	OPENING	REQD	REQUIRED	THRU	THROUGH	WO	WOOD
BM	BENCH-MARK	CT	CERAMIC TILE	FE	FIRE EXTINGUISHER	JST	JOIST	OPP	OPPOSITE	REV	REVISION	T&G	TONGUE AND GROOVE	WM	WASHING MACHINE
BLKG	BLOCKING	DP	DAMP ROOFING	FX	FIXTURE	LAM	LAMINATE	OVHD	OVERHEAD	R	RISER	TR	TREAD		
BD	BOARD	DIA	DIAMETER	FL	FLOOR	LAV	LAVATORY	PTD	PAINTED	RFG	ROOFING	TYP	TYPICAL		
BS	BOTH SIDES	DM	DIMENSION	FD	FLOOR DRAIN	LG	LENGTH	PNL	PANEL	RM	ROOM	UNO	UNLESS NOTED OTHERWISE		
BOT	BOTTOM	DW	DISHWASHER	FT	FOOT	LT	LIGHT	PTN	PARTITION	SCHED	SCHEDULE	VIF	VERIFY IN FIELD		
BRK	BRICK	DN	DOWN	FTG	FOOTING	MFG	MANUFACTURING	PERM	PERMANENT	SECT	SECTION	VP	VENT PIPE		

100% CONSTRUCTION DOCUMENTS



MSU-CAMPUS PLANNING,
DESIGN, AND CONSTRUCTION

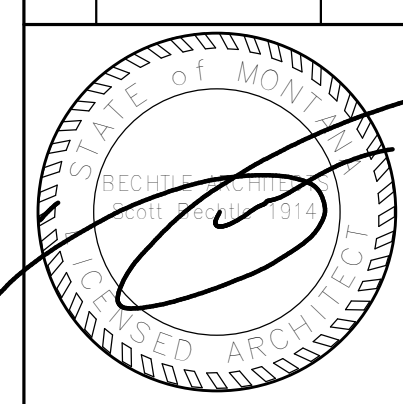
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MOLECULAR BIOSCIENCE
BUILDING

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DRAWN BY:	NB	
REVIEWED BY:	NF	
REV.	DESCRIPTION	DATE



PPA#22-0045
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BA# 2326

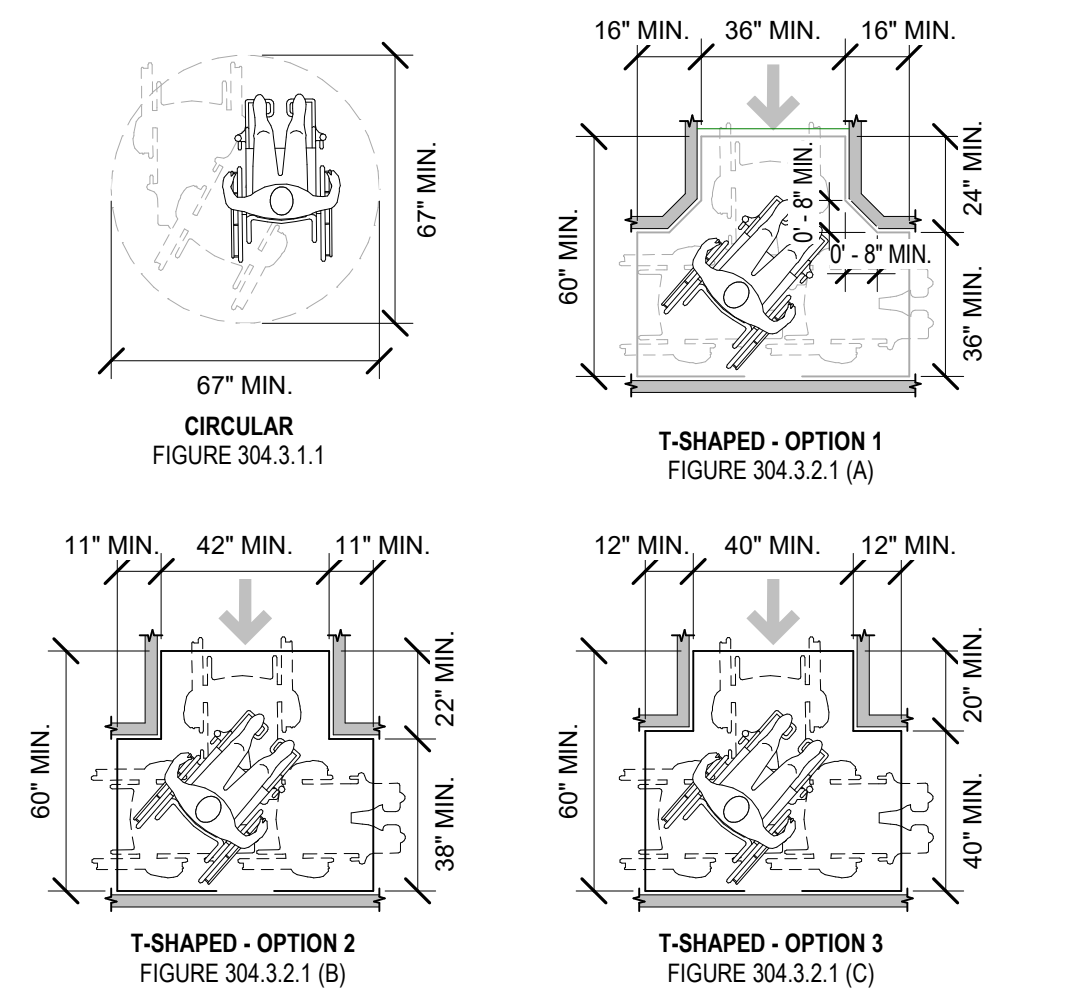
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COVER SHEET

G001

DATE
MAR 3, 2025

KEY PLAN

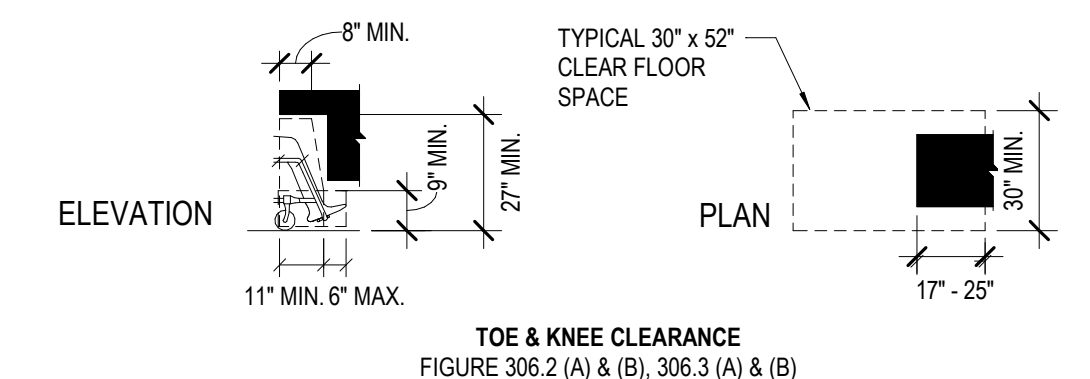
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NOTES:

1. THE FLOOR OR GROUND SURFACE WITHIN THE REQUIRED MANEUVERING CLEARANCES OR CLEAR FLOOR SPACE SHALL SLOPE NO MORE THAN 2%, AND CHANGES IN LEVEL WITHIN THIS AREA ARE NOT PERMITTED.
2. WHERE TURNING SPACE IS REQUIRED THE T-SHAPE SPACE MAY BE USED.

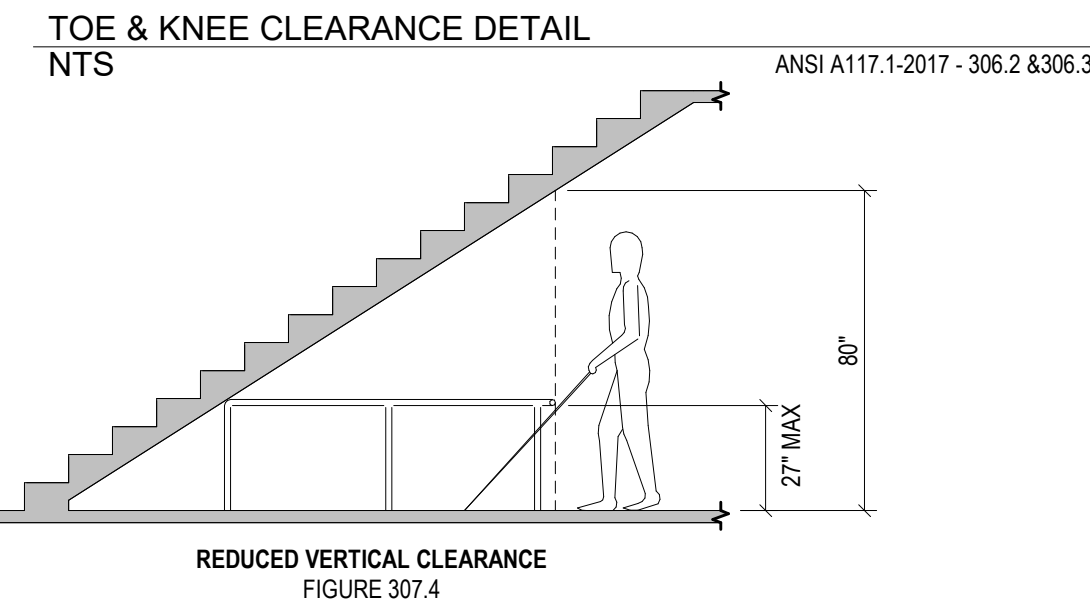
1 WHEELCHAIR TURNING IN NEW BUILDINGS
1/4" = 1'-0" ANSI A117.1-2017 - 304.3.1 & 304.3.2.1



TOE & KNEE CLEARANCE
FIGURE 305.2 (A) & (B), 305.3 (A) & (B)

NOTES:

1. SPACE UNDER AN ELEMENT BETWEEN THE FINISH FLOOR OR GROUND AND 9" ABOVE THE FINISH FLOOR OR GROUND SHALL BE CONSIDERED TOE CLEARANCE. SPACE UNDER AN ELEMENT BETWEEN 9" AND 27" ABOVE THE FINISH FLOOR SHALL BE CONSIDERED KNEE CLEARANCE.
2. TOE CLEARANCE SHALL EXTEND 25" MAXIMUM UNDER ELEMENT. KNEE CLEARANCE SHALL EXTEND 25" MAXIMUM UNDER ELEMENT AT 9" ABOVE THE FINISHED FLOOR.
3. WHERE TOE CLEARANCE IS REQUIRED AT AN ELEMENT AS PART OF THE CLEAR FLOOR SPACE, THE TOE CLEARANCE SHALL EXTEND 17" MINIMUM UNDER THE ELEMENT. WHERE KNEE CLEARANCE IS REQUIRED AT AN ELEMENT, AS PART OF THE CLEAR FLOOR SPACE, THE KNEE CLEARANCE SHALL BE 11" DEEP MINIMUM AT 9" ABOVE THE FLOOR OR GROUND. THE KNEE CLEARANCE SHALL ALSO HAVE A DEPTH OF AT LEAST 9" DEEP (MINIMUM), AT 27" ABOVE THE FINISH FLOOR OR GROUND (MEASURED FROM THE FRONT EDGE OF THE ELEMENT).
4. TOE CLEARANCE SHALL BE 30" WIDE MINIMUM.
5. BETWEEN 9" AND 27" ABOVE THE FINISH FLOOR OR GROUND, THE KNEE CLEARANCE SHALL BE PERMITTED TO REDUCE AT A RATE OF 1" IN DEPTH FOR EVERY 6" IN HEIGHT.



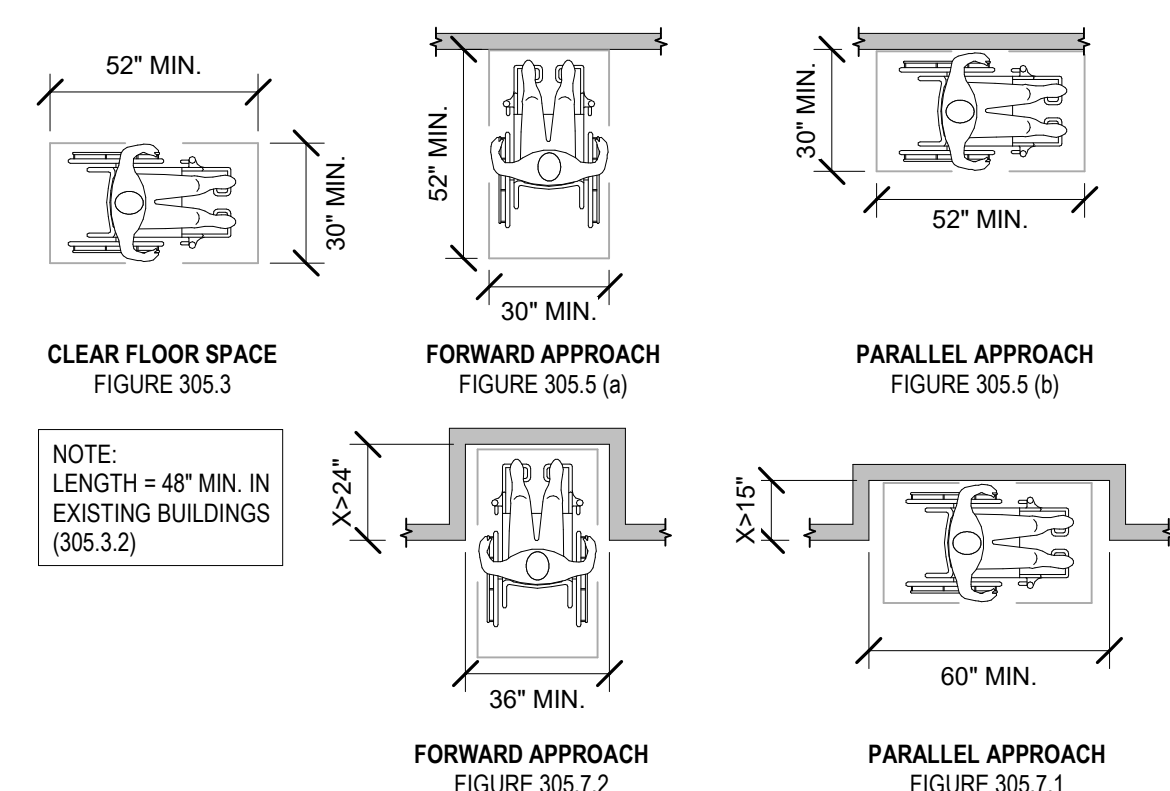
TOE & KNEE CLEARANCE DETAIL
NTS ANSI A117.1-2017 - 306.2 & 306.3

REDUCED VERTICAL CLEARANCE
FIGURE 307.4

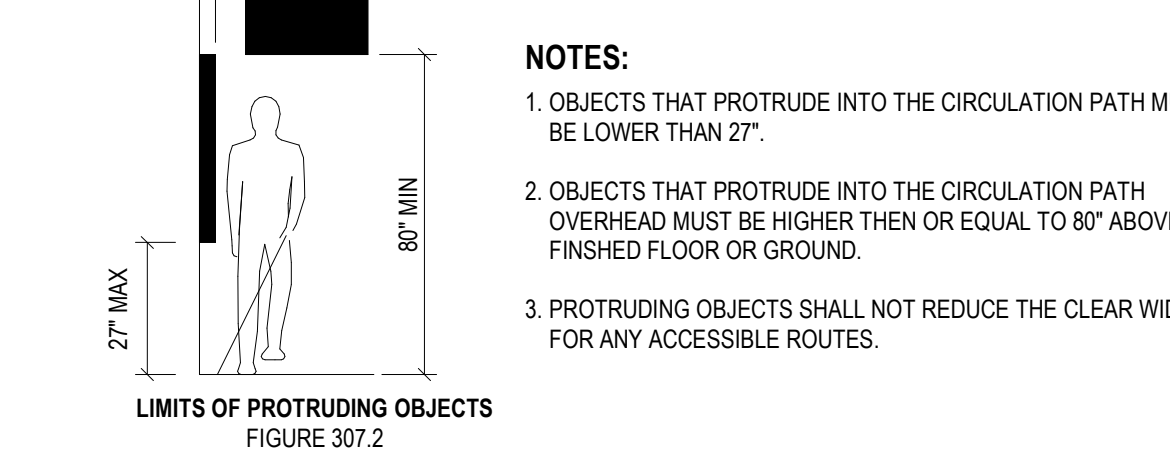
NOTES:

1. VERTICAL CLEARANCE SHALL BE 80" MINIMUM. GUARDRAILS OR OTHER BARRIERS SHALL BE PROVIDED WHERE THE VERTICAL CLEARANCE IS LESS THAN 80" HIGH.
2. THE LEADING EDGE OF GUARDRAILS OR BARRIERS SHALL BE 27" MAXIMUM ABOVE THE FINISHED FLOOR.
3. WHERE RAILINGS ARE USED AS A BARRIER, IT IS RECOMMENDED TO PROVIDE AT LEAST ONE DETECTABLE RAIL BELOW, AT A MAXIMUM OF 27" AFF. HOWEVER IT IS PREFERRED TO HAVE 2 RAILINGS: ONE AT A LOW HEIGHT (AT 6" AFF) WITH AN ADDITIONAL RAIL AT A HIGHER HEIGHT (AT 34" AFF).

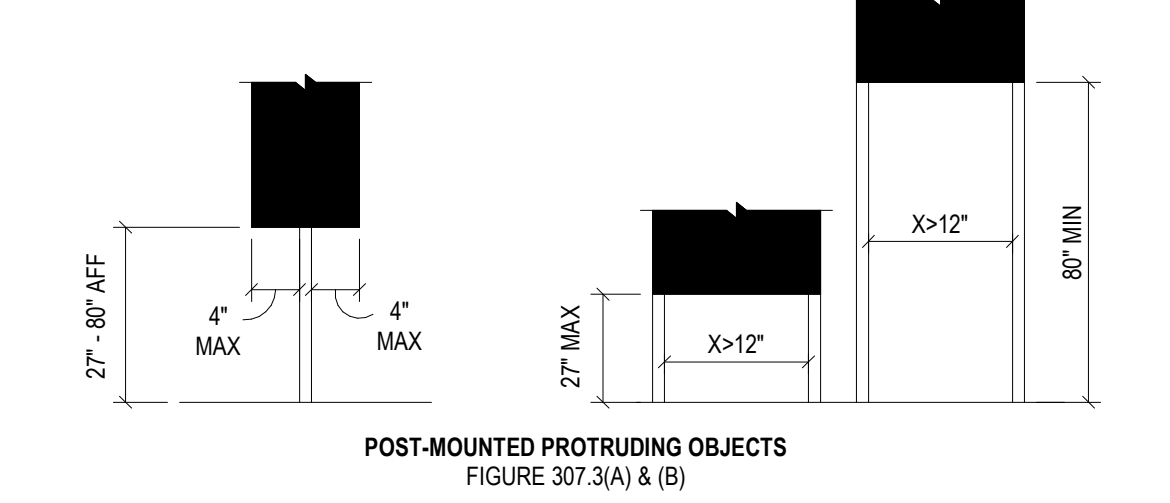
VERTICAL CLEARANCE DETAIL
NTS ANSI A117.1-2017 - 307.4



2 MINIMUM CLEAR FLOOR SPACE FOR WHEELCHAIRS IN NEW BUILDINGS
1/4" = 1'-0" ANSI A117.1-2017 - 305.3, 305.5, & 305.7



LIMITS OF PROTRUDING OBJECTS
FIGURE 307.2



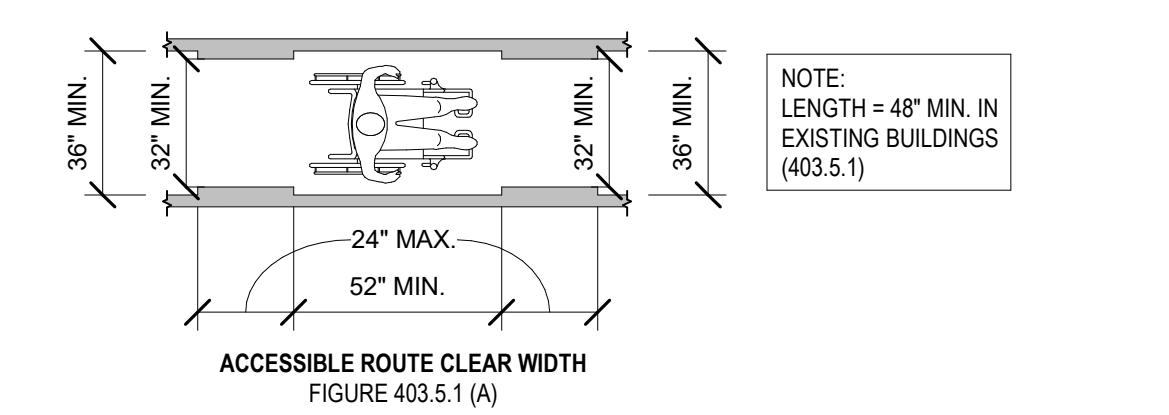
PROTRUDING OBJECTS DETAIL
NTS ANSI A117.1-2017 - 307.2

POST-MOUNTED PROTRUDING OBJECTS
FIGURE 307.3(A) & (B)

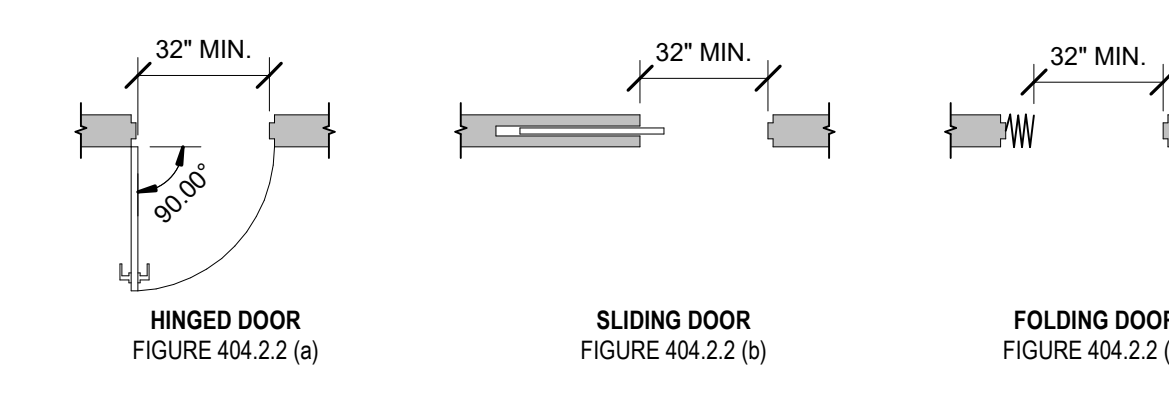
NOTES:

1. WHEN BOTTOM OF POST MOUNTED OBJECTS ARE LOCATED BETWEEN 27" AND 80" ABOVE THE FLOOR OR GROUND, IT MAY PROTRUDE A MAXIMUM OF 4" INTO THE CIRCULATION PATH.
2. WHERE AN OBJECT IS MOUNTED BETWEEN TWO POSTS AND THE CLEAR DISTANCE BETWEEN POSTS IS GREATER THAN 12", THE LOWEST EDGE OF THE SIGN OR OBSTRUCTION SHALL BE AT A 27" MAXIMUM HEIGHT FROM FINISHED FLOOR OR GROUND.
3. WHEN AN OBJECT IS OVERHEAD, THE LOWEST EDGE MUST BE AT LEAST 80" MINIMUM ABOVE THE FLOOR OR GROUND (AS SEEN IN 'B').

POST MOUNTED PROTRUDING OBJECT DETAIL
NTS ANSI A117.1-2017 - 307.3



3 ACCESSIBLE ROUTE CLEAR WIDTH
1/4" = 1'-0" ANSI A117.1-2017 - 403.5.1

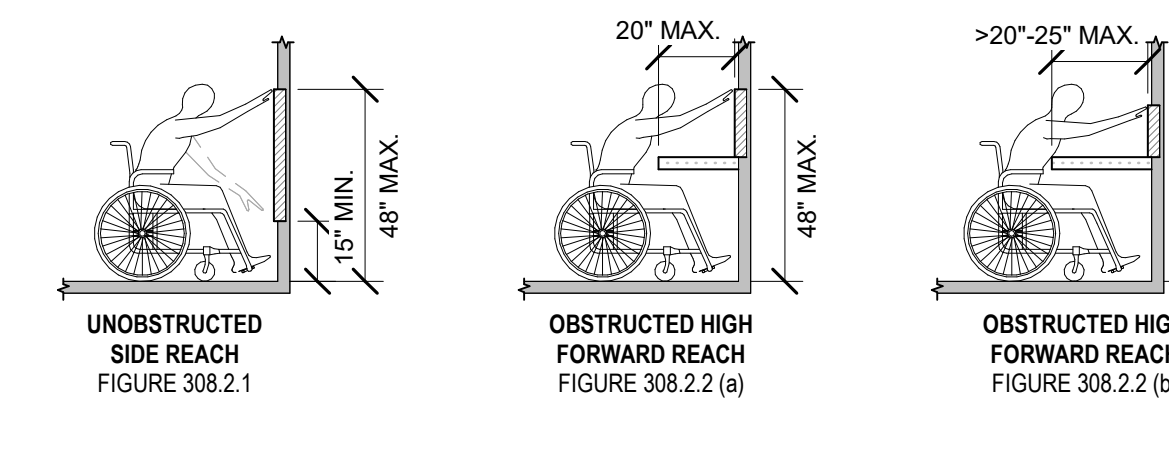


NOTES:

1. OPENINGS MORE THAN 24" DEEP SHALL PROVIDE A CLEAR OPENING OF 36" MINIMUM.
2. THERE SHALL BE NO PROJECTIONS INTO THE REQUIRED CLEAR OPENING WIDTH LOWER THAN 34" ABOVE THE FINISHED FLOOR OR GROUND.
3. PROJECTIONS INTO A CLEAR OPENING, WITH WIDTHS BETWEEN 34" AND 80" ABOVE FINISHED FLOOR OR GROUND SHALL NOT EXCEED 4"

DOORWAYS WITHOUT DOORS
FIGURE 404.2.2 (d)

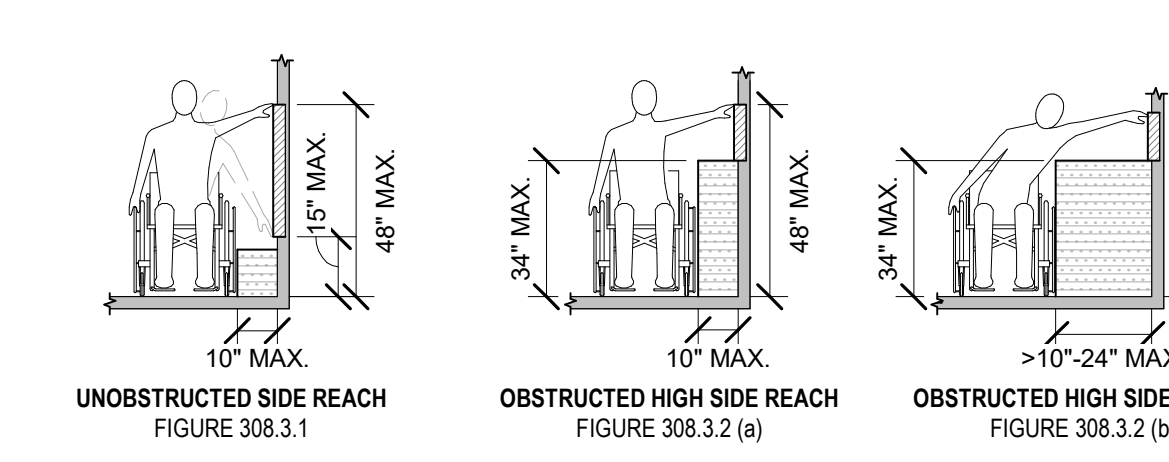
6 CLEAR DOORWAY WIDTH & DEPTH
1/4" = 1'-0" ANSI A117.1-2017 - 404.2.2



NOTES:

1. WHERE A FORWARD REACH IS UNOBSTRUCTED, THE TALLER, FORWARD REACH SHALL BE 48" MAXIMUM AND THE LOWER, FORWARD REACH SHALL BE 15" MINIMUM ABOVE THE FINISHED FLOOR OR GROUND.
2. WHERE THE HIGH FORWARD REACH IS OVER AN OBSTRUCTION, THE CLEAR FLOOR SPACE SHALL EXTEND BENEATH THE ELEMENT FOR A DISTANCE NOT LESS THAN THE REQUIRED REACH DEPTH OVER THE OBSTRUCTION. THE FORWARD REACH SHALL BE 48" MAXIMUM WHERE THE REACH DEPTH HAS A 20" MAX.
3. WHEN THE REACH DEPTH EXCEEDS 20" THE HIGH FORWARD REACH SHALL BE PLACED AT A 44" MAXIMUM AFF AND THE DEPTH HAS A 25" MAXIMUM DIMENSION.

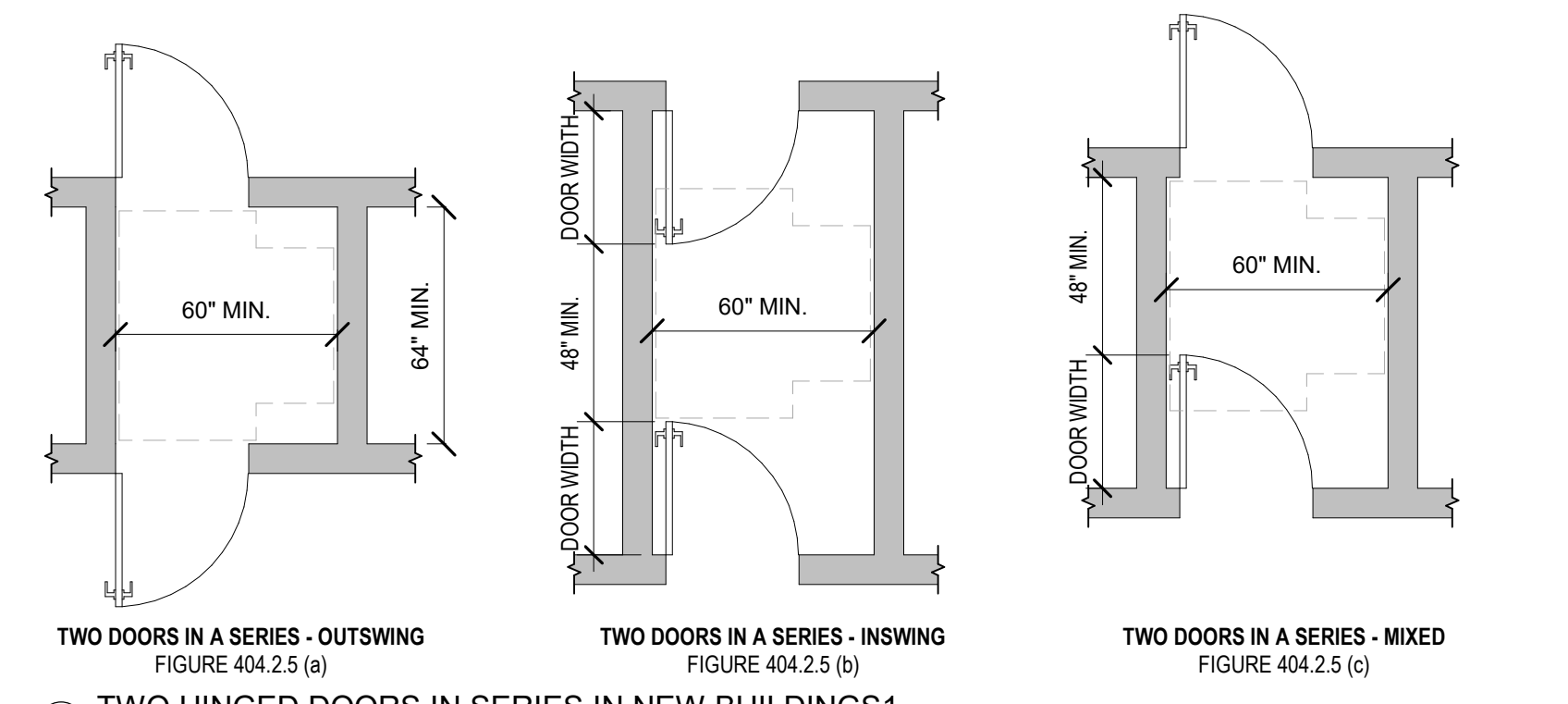
9 FORWARD REACH
1/4" = 1'-0" ANSI A117.1-2017 - 308.2



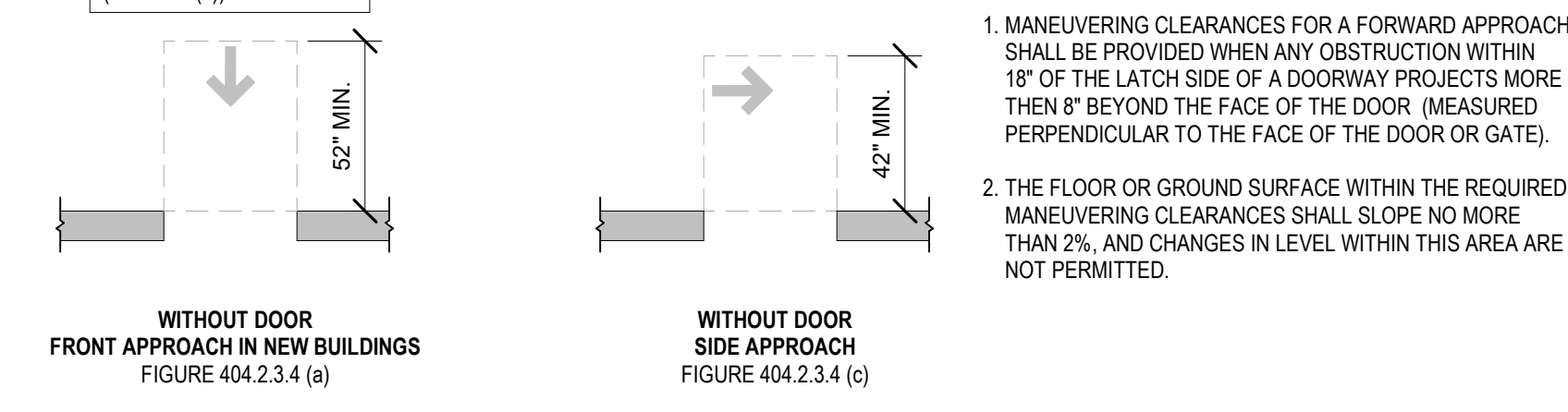
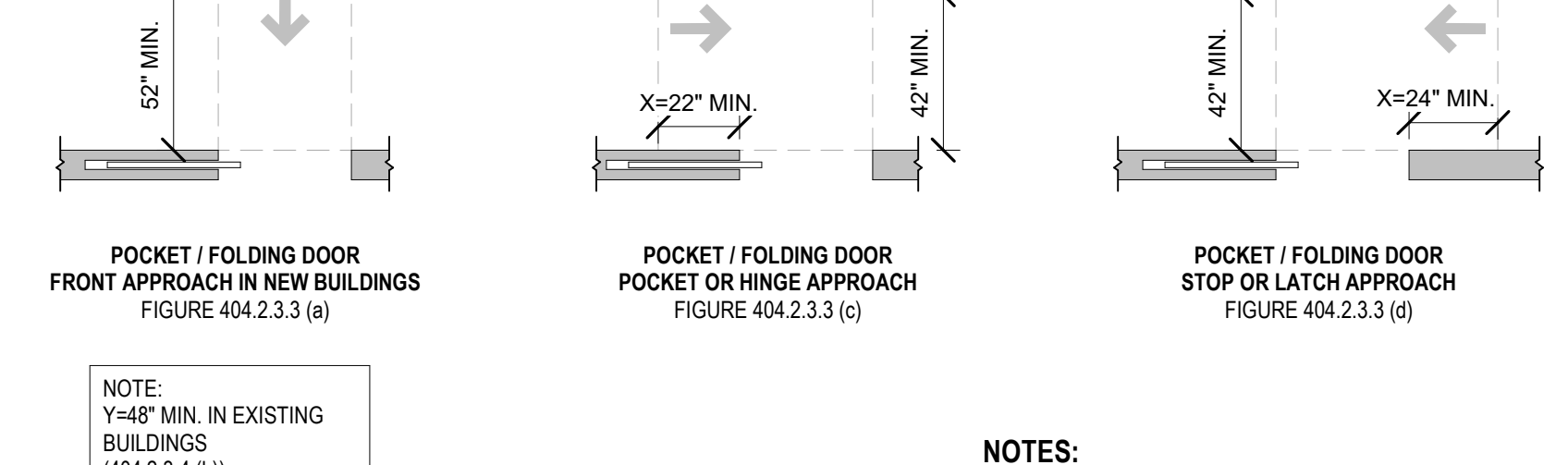
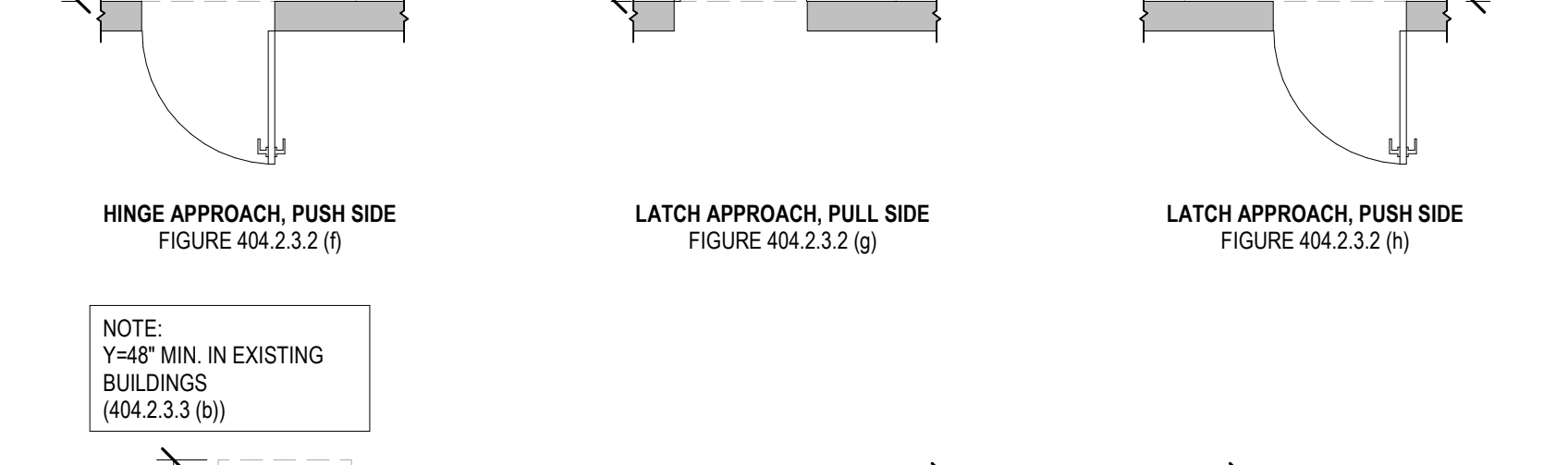
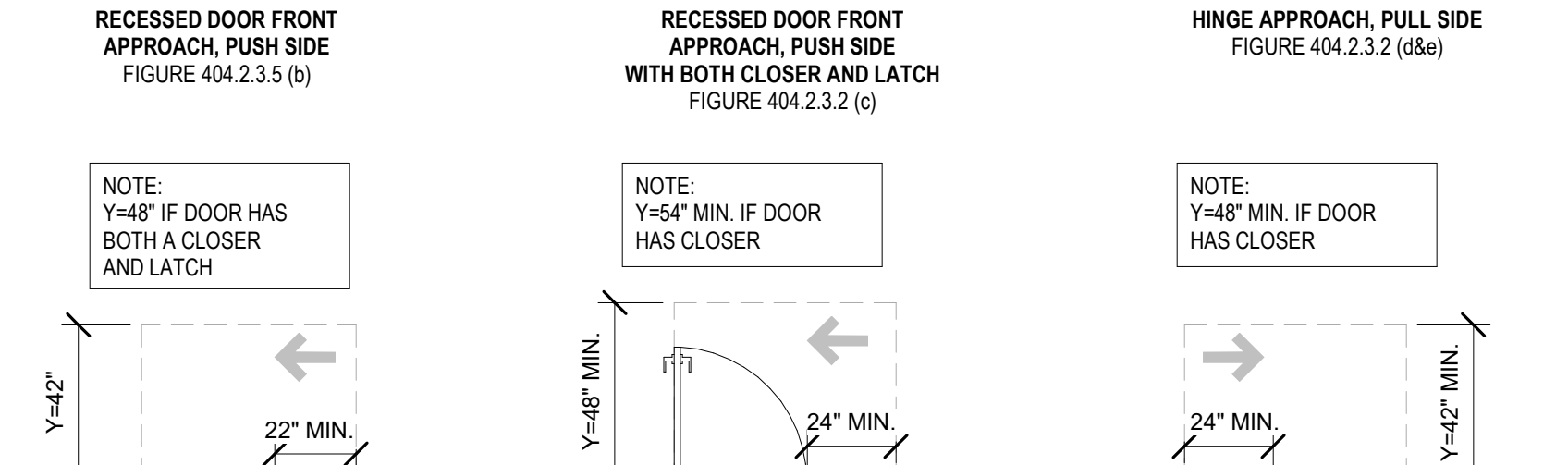
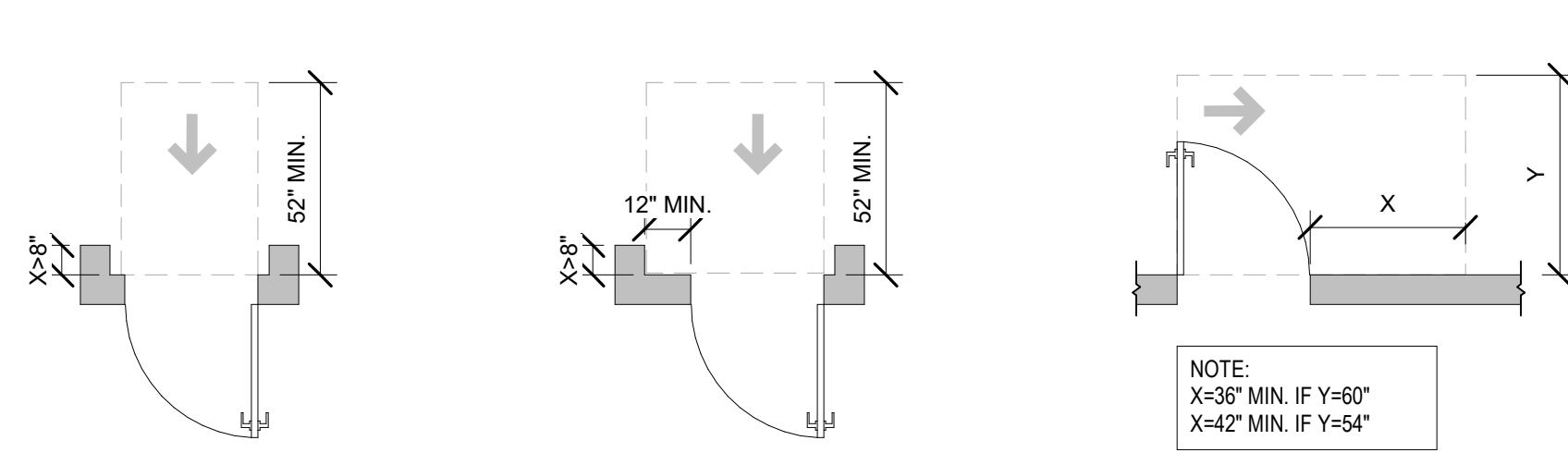
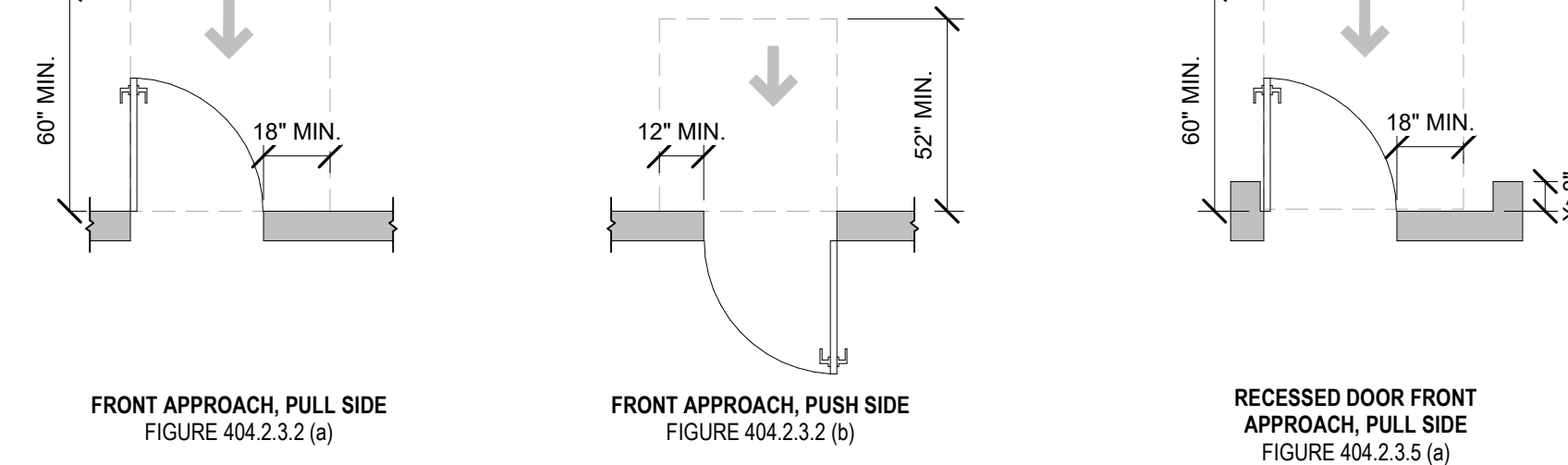
NOTES:

1. WHERE A CLEAR FLOOR OR GROUND SPACE ALLOWS A PARALLEL APPROACH TO AN ELEMENT AND THE SIDE REACH IS UNOBSTRUCTED, THE HIGH-SIDE REACH SHALL BE AT A 48" MAXIMUM HEIGHT AND THE LOW SIDE REACH SHALL BE AT A 15" MINIMUM HEIGHT ABOVE THE FINISHED FLOOR OR GROUND.
2. WHERE A CLEAR FLOOR OR GROUND SPACE ALLOWS A PARALLEL APPROACH TO AN ELEMENT AND THE HIGH SIDE REACH IS OVER AN OBSTRUCTION, THE HEIGHT OF THE OBSTRUCTION SHALL HAVE A 34" MAXIMUM, AND THE DEPTH OF THE OBSTRUCTION SHALL BE NO LONGER THAN THE 24" MAXIMUM.
3. THE HIGH SIDE REACH SHALL HAVE A 48" MAXIMUM HEIGHT WITH A REACH WIDTH OF 10" MAXIMUM, WHERE THE REACH EXCEEDS 10" THE HIGH SIDE REACH SHALL BE 46" MAXIMUM FOR A REACH DEPTH OF 24" MAXIMUM.

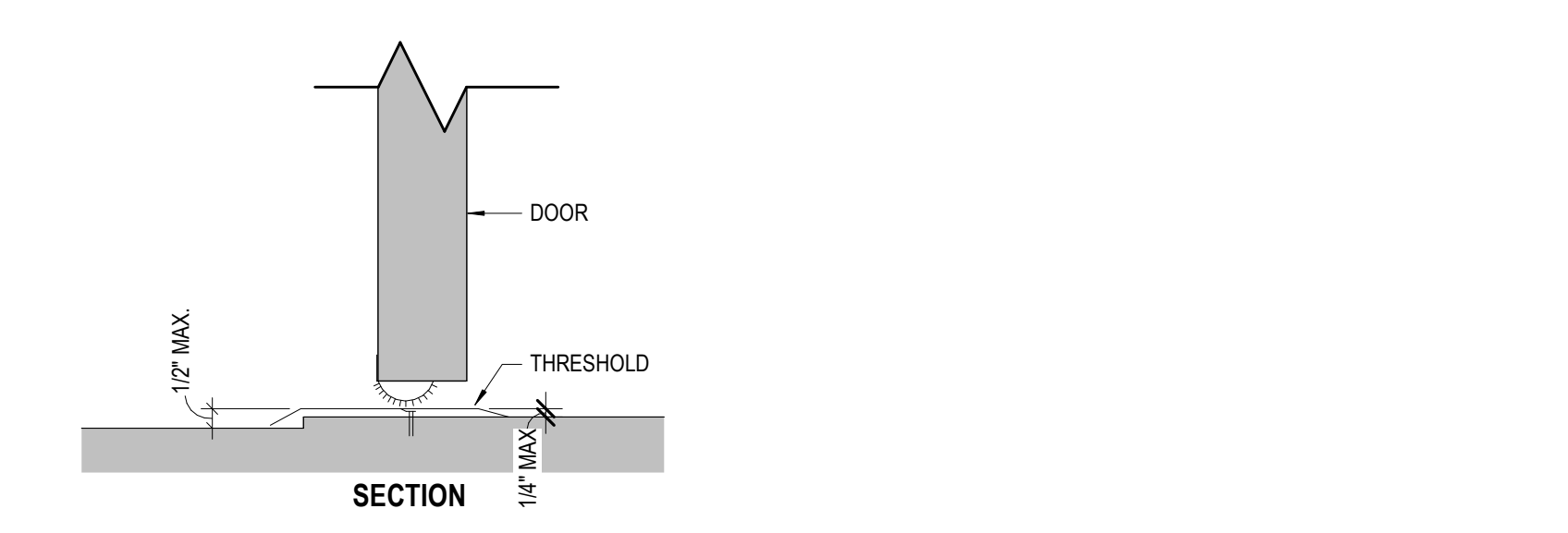
11 SIDE REACH
1/4" = 1'-0" ANSI A117.1-2017 - 308.3



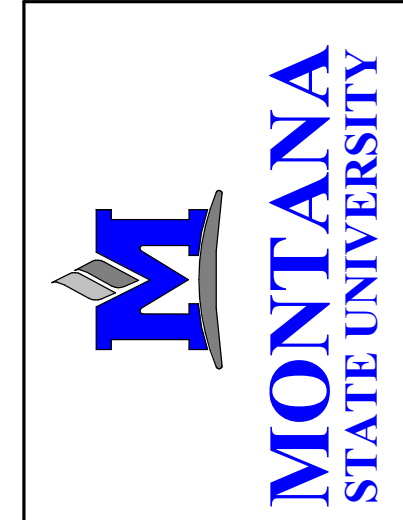
4 TWO HINGED DOORS IN SERIES IN NEW BUILDINGS
1/4" = 1'-0" ANSI A117.1-2017 - 404.2.5



12 MANEUVERING CLEARANCES AT DOORS
1/4" = 1'-0" ANSI A117.1-2017 - 404.2.3



ACCESSIBLE DOOR THRESHOLD
NTS ANSI A117.1-2017 - 404.2.4



MSU-CAMPUS PLANNING,
DESIGN, AND CONSTRUCTION

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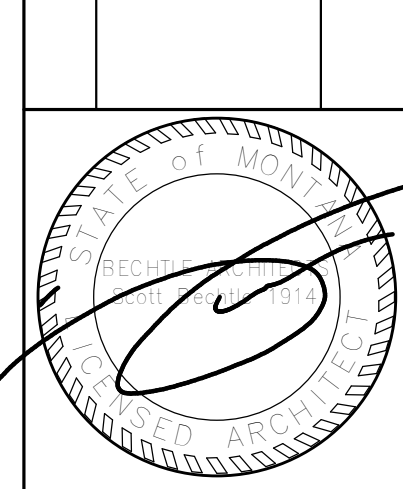
100% CONSTRUCTION DOCUMENTS

MOLECULAR BIOSCIENCE BUILDING

BECHTLE ARCHITECTS

4515 Valley Commons Drive #201
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406.595.4161 ph 406.595.6919 fax

DRAWN BY:	NF
REVIEWED BY:	NF
REV.	DESCRIPTION DATE

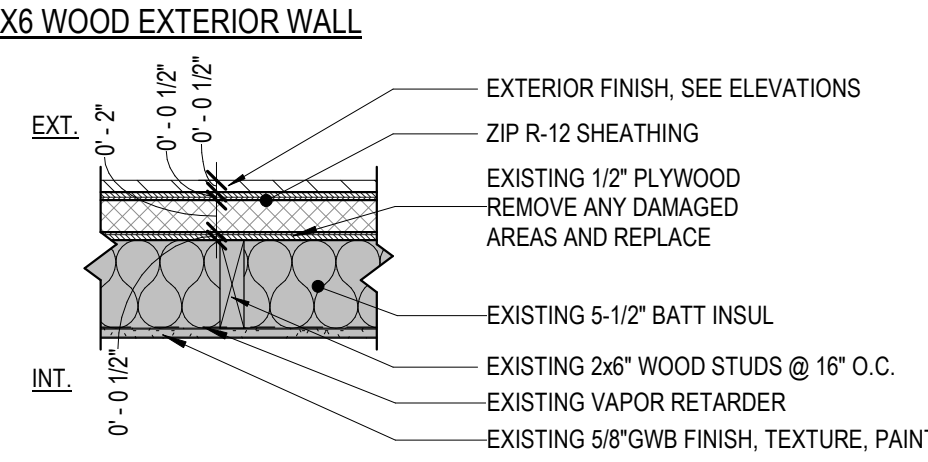
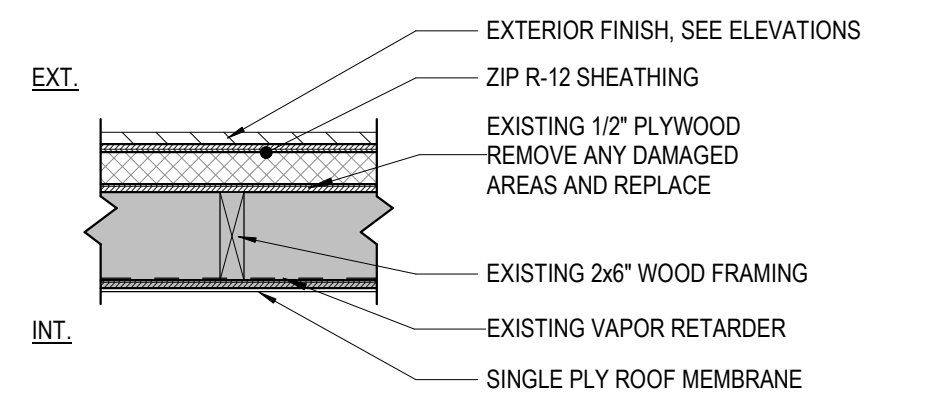
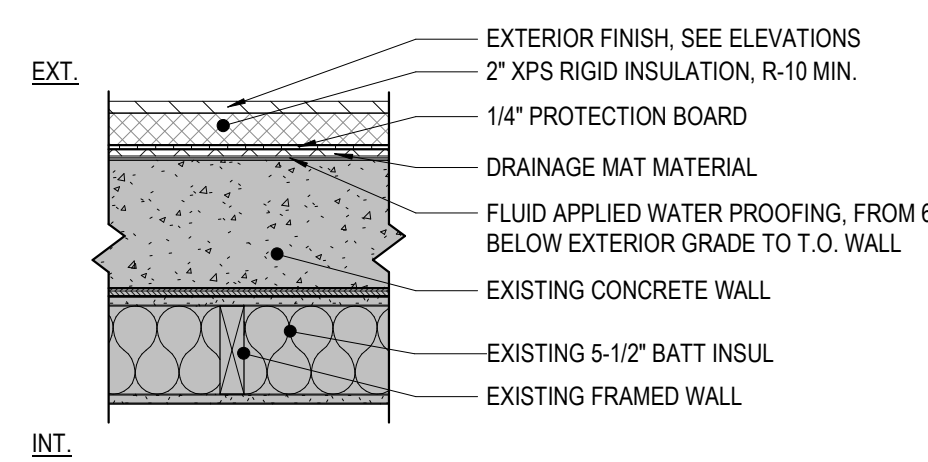


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ACCESSIBILITY
DETAILS

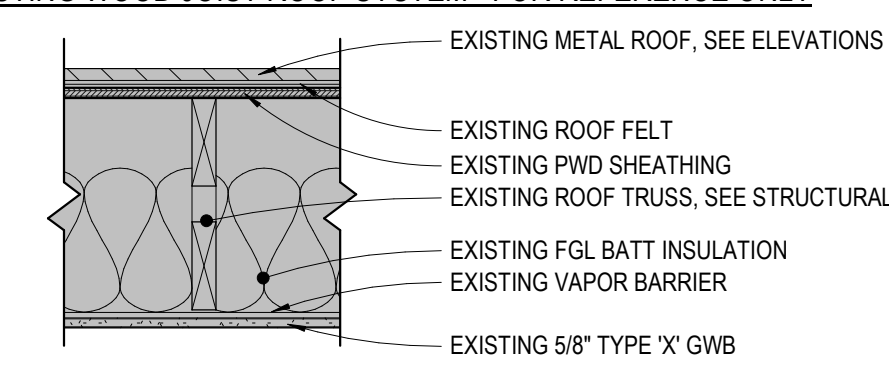
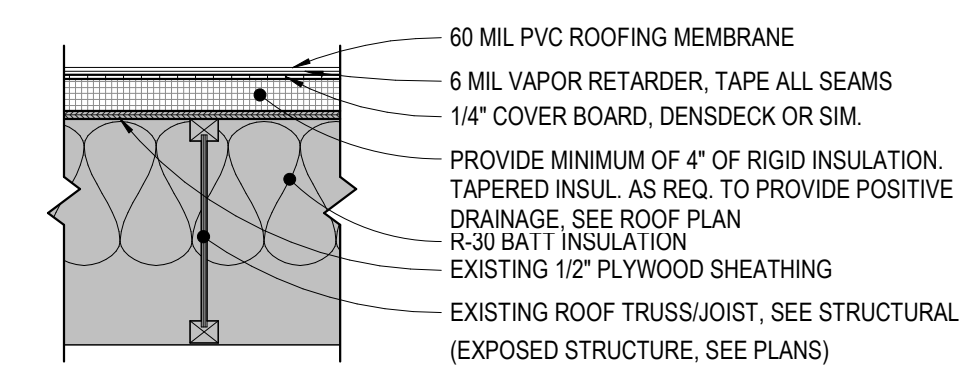
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DATE
MAR 3, 2025

EXTERIOR WALL TYPE SCHEDULE

CONSTRUCTION ASSEMBLY DETAIL	TYPE	SUBSTITUTIONS/ ADDITIONS/ OMISSIONS	NOTES
2X6 WOOD EXTERIOR WALL  <p>EXTERIOR FINISH, SEE ELEVATIONS ZIP R-12 SHEATHING EXISTING 1/2" PLYWOOD REMOVE ANY DAMAGED AREAS AND REPLACE EXISTING 5-1/2" BATT INSUL EXISTING 2x6" WOOD STUDS @ 16" O.C. EXISTING VAPOR RETARDER EXISTING 5/8" GWB FINISH, TEXTURE, PAINT</p>	W1	• NONE	1. SEE EXTERIOR ELEVATIONS FOR LOCATIONS
2X6 WOOD PARAPET WALL  <p>EXTERIOR FINISH, SEE ELEVATIONS ZIP R-12 SHEATHING EXISTING 1/2" PLYWOOD REMOVE ANY DAMAGED AREAS AND REPLACE EXISTING 2x6" WOOD FRAMING EXISTING VAPOR RETARDER SINGLE PLY ROOF MEMBRANE</p>	W2	• NONE	1. REPLACE SINGLE PLY ROOF MEMBRANE PER ROOF PLAN DRAWINGS.
CONCRETE FOUNDATION / PERIMETER WALL  <p>EXTERIOR FINISH, SEE ELEVATIONS 2" XPS RIGID INSULATION, R-10 MIN. 1/4" PROTECTION BOARD DRAINAGE MAT MATERIAL FLUID APPLIED WATER PROOFING, FROM 6" BELOW EXTERIOR GRADE TO T.O. WALL EXISTING CONCRETE WALL EXISTING 5-1/2" BATT INSUL EXISTING FRAMED WALL</p>	W3	• NONE	

ROOF TYPE SCHEDULE

CONSTRUCTION ASSEMBLY DETAIL	TYPE
EXISTING WOOD JOIST ROOF SYSTEM - FOR REFERENCE ONLY  <p>EXISTING METAL ROOF, SEE ELEVATIONS EXISTING ROOF FELT EXISTING PWD SHEATHING EXISTING ROOF TRUSSES, SEE STRUCTURAL EXISTING FGL BATT INSULATION EXISTING VAPOR BARRIER EXISTING 5/8" TYPE 'X' GWB</p>	R1
TYPICAL MEMBRANE ROOF SYSTEM  <p>60 MIL PVC ROOFING MEMBRANE 6 MIL VAPOR RETARDER, TAPE ALL SEAMS 1/4" COVER BOARD, DENSIBECK OR SIM PROVIDE MINIMUM OF 4" OF RIGID INSULATION, TAPERED INSUL AS REQ. TO PROVIDE POSITIVE DRAINAGE, SEE ROOF PLAN R-30 BATT INSULATION EXISTING 1/2" PLYWOOD SHEATHING EXISTING ROOF TRUSS/JOIST, SEE STRUCTURAL (EXPOSED STRUCTURE, SEE PLANS)</p>	R2

EXTERIOR MATERIAL SCHEDULE

SYMBOL	MATERIAL	MANUFACTURER	TYPE, COLOR	COMMENTS
EF-1	EFIS			EXISTING TO DEMO
EF-2	BUILT UP ROOF COPING, EFIS			EXISTING TO DEMO
MWP-2	STANDING SEAM METAL CLADDING	GREAT NORTHERN METALS CO	VERTICAL, 24 G, 7.2 BOX RIB, COLOR: GUN METAL	NEW
MWP-3	FLAT METAL WALL PANEL	METAL SALES	22 G, FL40-FLAT MTL PANEL W/ CONCEALED FASTENER, COLOR: METALLIC SILVER	NEW
MWP-4	FLAT METAL WALL PANEL	METAL SALES	22 G, FL40-FLAT MTL PANEL W/ CONCEALED FASTENER, COLOR: MATTE BLACK	NEW
MWP-5	CORRUGATED METAL CLADDING	GREAT NORTHERN METALS	VERTICAL, 24 G, 7/8" CORRUGATED MTL PANEL W/ EXPOSED FASTENER, FINISH: VINTAGE	NEW
RM-3	MECHANICALLY SEALED STANDING SEAM METAL ROOFING, 16" PAN WIDTH			EXISTING TO REMAIN

100% CONSTRUCTION DOCUMENTS



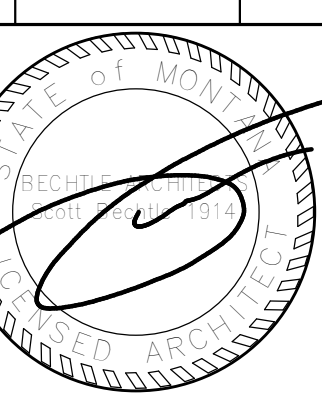
MSU-CAMPUS PLANNING,
DESIGN, AND CONSTRUCTION
MONTANA STATE UNIVERSITY
BOZEMAN, MONTANA
PHONE: 406.994.5413
FAX: 406.994.5665

**MOLECULAR BIOSCIENCE
BUILDING**

**BECHTLE
ARCHITECTS**
4515 Valley Commons Drive #201
Bozeman, MT 59718
406.585.4161 ph 406.585.6919 fax

DRAWN BY: **NB**
REVIEWED BY: **NF**

REV.	DESCRIPTION	DATE



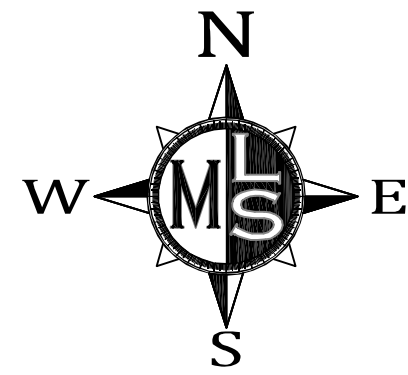
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A/E#00-00-00

BA# 2326

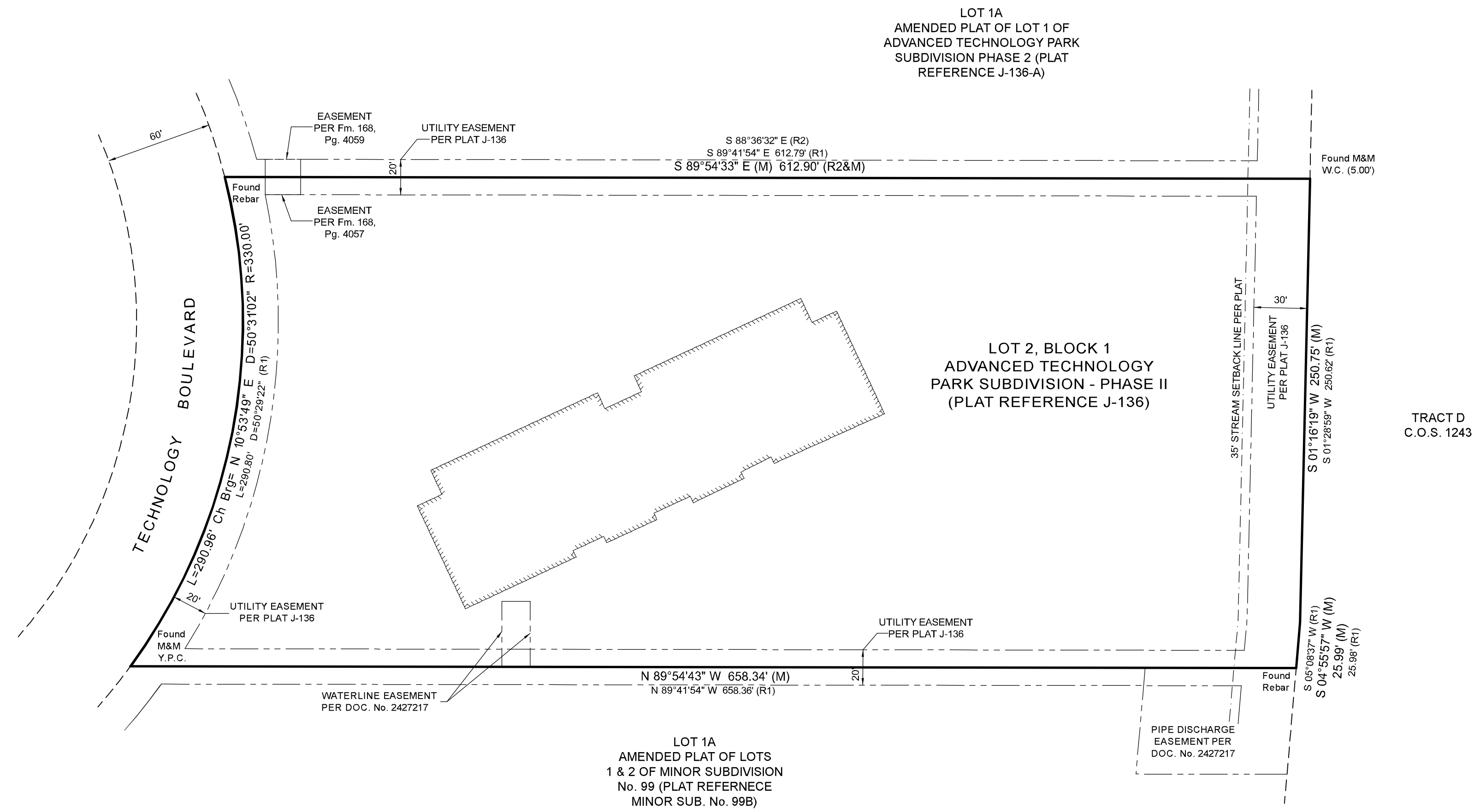
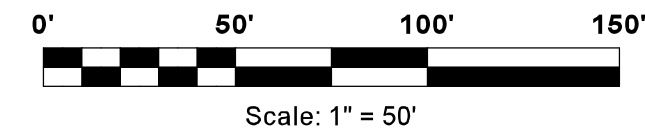
SHEET TITLE
PARTITIONS &
ASSEMBLIES /
FINISH
SCHEDULES

G116

DATE
MAR 3, 2025



Basis of Bearings:
 Bobcat Coordinate System, NAD83(2011) per the "Rocky Mountain Tribal Coordinate Reference System" Handbook and User Guide, Published September 30th, 2014 and subsequent revisions, established by observations with survey-grade GNSS receivers.



LEGEND OF LINETYPES, SYMBOLS & ABBREVIATIONS

---	Adjoining Property Boundary	I	Water Valve
- - - - -	Easement, as Described	⚡	Fire Hydrant
---	Exterior Property Boundary	⚡	Building Fire Service Connection
--- GAS --- GAS --- GAS --- GAS ---	Underground Gas Line	⊙	Curb Stop
--- TEL --- TEL --- TEL --- TEL ---	Underground Phone Line	⊙	Well
--- FIB --- FIB --- FIB --- FIB ---	Underground Fiber Optic Line	♿	Handicapped Parking
--- P --- P --- P --- P ---	Underground Power Line	✉	Mailbox
--- S --- S --- S --- S ---	Sanitary Sewer Main	A	Arc Length
--- SS --- SS --- SS --- SS ---	Sanitary Sewer Service	A.C.	Aluminum Cap
--- W --- W --- W --- W ---	Water Main	Bk.	Book
--- WS --- WS --- WS --- WS ---	Water Service	CH. BRG.	Chord Bearing
---	Edge of Water	C.O.S.	Certificate of Survey
=====	Concrete Curb	D	Delta Angle
-----	Edge of Building, as described	Fm.	Film
=====	Paint Stripe	No.	Number
○	Set Monument	M	Measured Dimension
●	Found Monument, as Described	Pg.	Page
⊙	Gas Meter	R1	Record Dimension per Plat J-136
⊞	Phone Pedestal	R2	Record Dimension per Plat J-136-A
⊙	Phone Drop	W.C.	Witness Corner
⊙	Phone Vault	Y.P.C.	Yellow Plastic Cap
⊞	Electrical Transformer		
⊞	Light Pole		
⊙	Electrical Service Meter		
⊙	Power Drop		
⊙	Sanitary Sewer Manhole		
⊙	Sanitary Sewer Cleanout		
---	Storm Water Flow Direction		
			Concrete Surface
			Asphalt
			Building

Notes:

- Subject Property: Lot 2, Block 1, Advanced Technology Park Subdivision - Phase II (Plat reference J-136), located in the NE1/4 of Section 14, Township 2 South, Range 5 East, P.M.M., City of Bozeman, Gallatin County, Montana.
- Date(s) of Fieldwork: September, 2023
- Linear Units for Survey: International Feet
- Visible and underground utilities marked in response to a one call locate ticket are shown on this map along with some utility features that have been mapped using City of Bozeman AS-built plans available through the City of Bozeman.
- Some symbols and features have been mapped at an exaggerated scale for the sake of clarity.

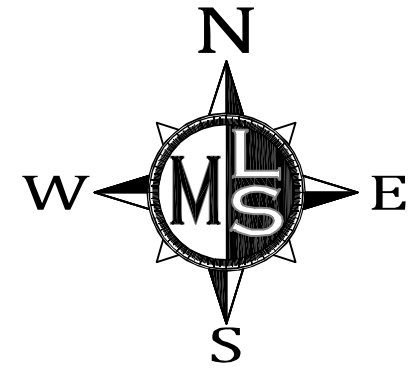
PROJECT SURVEYOR: MSL
 DRAWN BY: MSL
 REVIEWED BY: MSL
 PROJECT NO. MT-020-051-14-593-01-23

SHEET 1 of 3
 DATE: 10/11/23

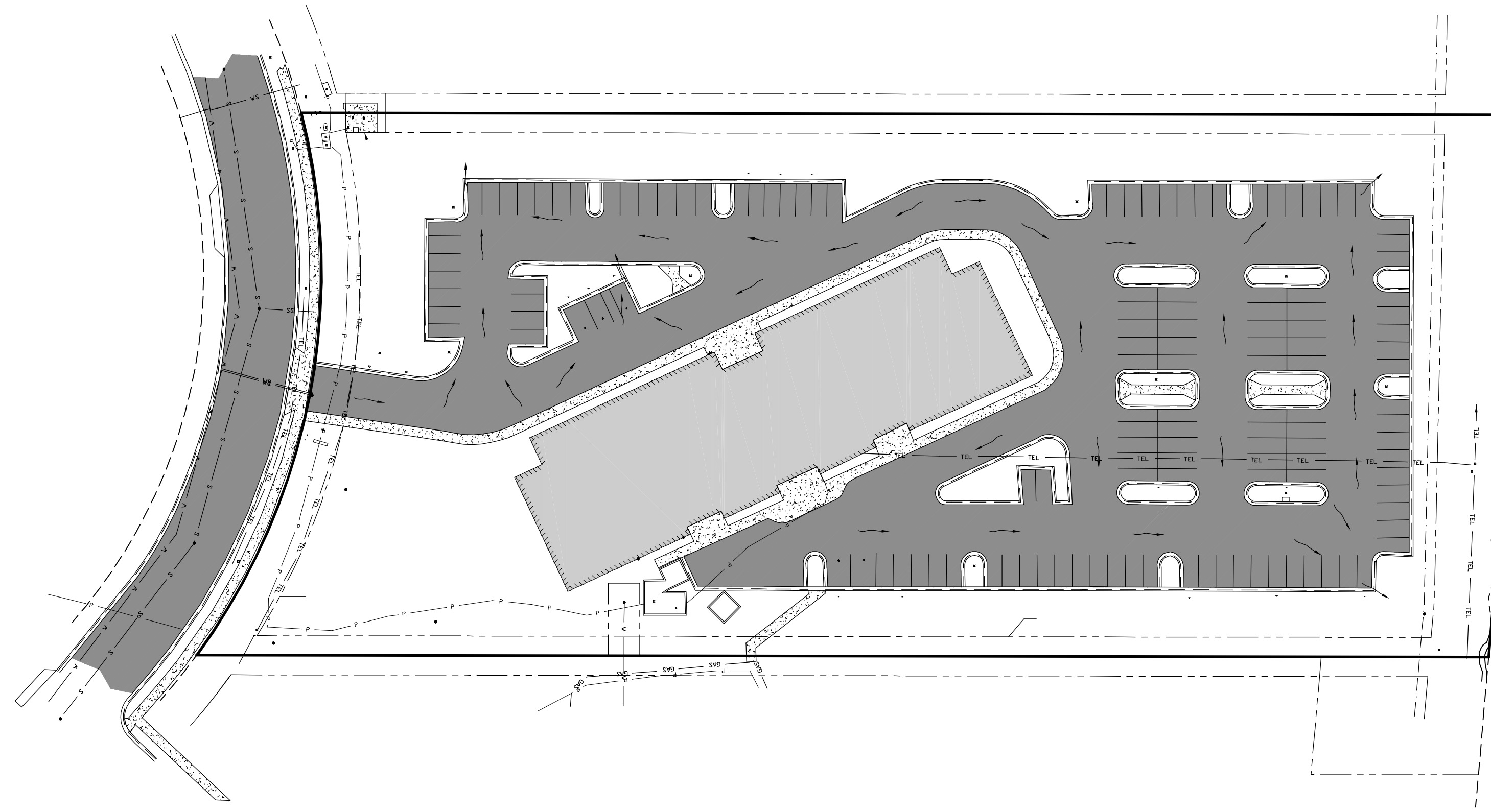
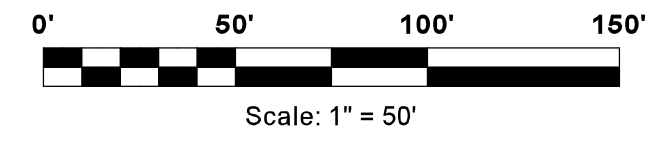
MS

MERIDIAN LAND SURVEYING, INC.
 4135 Valley Commons Dr., Suite C, Bozeman, MT 59718
 Phone (406) 624-6665
 e-mail: office@bozemansurveyor.com

TOPOGRAPHICAL SURVEY
 Lot 2, Block 1, Advanced Technology Park Subdivision - Phase II (Plat reference J-136), located in the NE1/4 of Section 14, Township 2 South, Range 5 East, P.M.M., City of Bozeman, Gallatin County, Montana

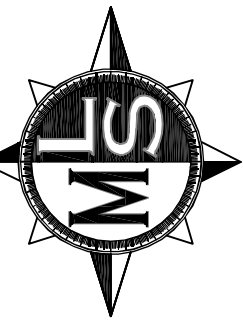


Basis of Bearings:
 Bobcat Coordinate System, NAD83(2011) per the "Rocky Mountain Tribal Coordinate Reference System" Handbook and User Guide, Published September 30th, 2014 and subsequent revisions, established by observations with survey-grade GNSS receivers.



LEGEND OF LINETYPES, SYMBOLS & ABBREVIATIONS

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--- TEL --- TEL --- TEL --- TEL ---	Underground Phone Line	⊙	Well
--- FIB --- FIB --- FIB --- FIB ---	Underground Fiber Optic Line	♿	Handicapped Parking
--- P --- P --- P --- P ---	Underground Power Line	☐	Mailbox
--- S --- S --- S --- S ---	Sanitary Sewer Main	A	Arc Length
--- SS --- SS --- SS --- SS ---	Sanitary Sewer Service	A.C.	Aluminum Cap
--- W --- W --- W --- W ---	Water Main	Bk.	Book
--- WS --- WS --- WS --- WS ---	Water Service	CH. BRG.	Chord Bearing
---	Edge of Water	C.O.S.	Certificate of Survey
=====	Concrete Curb	D	Delta Angle
-----	Edge of Building, as described	Fm.	Film
=====	Paint Stripe	No.	Number
○	Set Monument	M	Measured Dimension
●	Found Monument, as Described	Pg.	Page
⊙	Gas Meter	R1	Record Dimension per Plat J-136
☐	Phone Pedestal	R2	Record Dimension per Plat J-136-A
⊙	Phone Drop	W.C.	Witness Corner
⊙	Phone Vault	Y.P.C.	Yellow Plastic Cap
☐	Electrical Transformer		
⊗	Light Pole	▨	Concrete Surface
⊙	Electrical Service Meter	▩	Asphalt
⊙	Power Drop	▩	Building
⊙	Sanitary Sewer Manhole		
⊙	Sanitary Sewer Cleanout		
---	Storm Water Flow Direction		

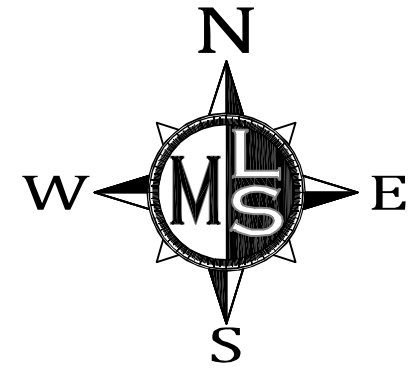


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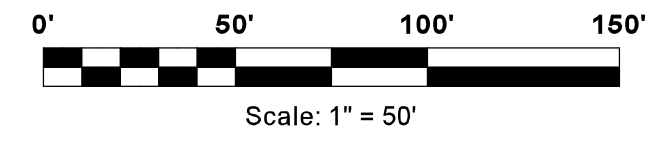
TOPOGRAPHICAL SURVEY
 Lot 2, Block 1, Advanced Technology Park Subdivision - Phase II (Plat reference J-136), located in the NE1/4 of Section 14, Township 2 South, Range 5 East, P.M.M., City of Bozeman, Gallatin County, Montana

PROJECT SURVEYOR: MSL
 DRAWN BY: MSL
 REVIEWED BY: MSL
 PROJECT NO. MT-020-051-14-593.01-23
 SHEET 2 of 3
 DATE: 10/11/23

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Basis of Bearings:
 Bobcat Coordinate System, NAD83(2011) per the "Rocky Mountain Tribal Coordinate Reference System" Handbook and User Guide, Published September 30th, 2014 and subsequent revisions, established by observations with survey-grade GNSS receivers.



LEGEND OF LINETYPES, SYMBOLS & ABBREVIATIONS

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---	Edge of Water	C.O.S.	Certificate of Survey
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=====	Paint Stripe	No.	Number
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⊠	Electrical Transformer		
⊠	Light Pole	▨	Concrete Surface
⊙	Electrical Service Meter	▨	Asphalt
⊙	Power Drop	▨	Building
⊙	Sanitary Sewer Manhole		
⊙	Sanitary Sewer Cleanout		
→	Storm Water Flow Direction		



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 SHEET 3 of 3
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Z:\Projects\593 - Bechtler Architects\593-01 - Block 1 - Lot 2 - Plat J-136 Drawings\593-01 - BASE.dwg

DEMOLITION LEGEND

	(E) WALL/ITEM TO BE DEMOLISHED
	(E) WALL/ITEM TO REMAIN
	NOT IN SCOPE OF WORK - EXISTING TO REMAIN

ROOF PLAN GENERAL NOTES

A	INSTALL HIGH TEMP. ICE & WATER SHIELD AT ALL AREAS W/ METAL ROOFING. PROVIDE BUILDING PAPER SLIP SHEET BETWEEN METAL & HIGH TEMPERATURE ICE & WATER SHIELD. WRAP ICE & WATER UP ADJACENT RISING WALLS BEHIND AIR INFILTRATION RETARDER MIN. 3" OR AS ALLOWED.
B	CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS SHOWING ANY CHANGES TO PLANS AND DIMENSIONING.
C	PAINT ALL PLUMBING VENTS AND RADON PIPE TO MATCH EXTERIOR TRIM COLOR ABOVE ROOF.
D	REFER TO SHEET G116 FOR ROOF CONSTRUCTION ASSEMBLIES.
E	SEE MECHANICAL, ELECTRICAL, AND PLUMBING SHEETS FOR DEMO NOTES.

ROOFING MATERIALS

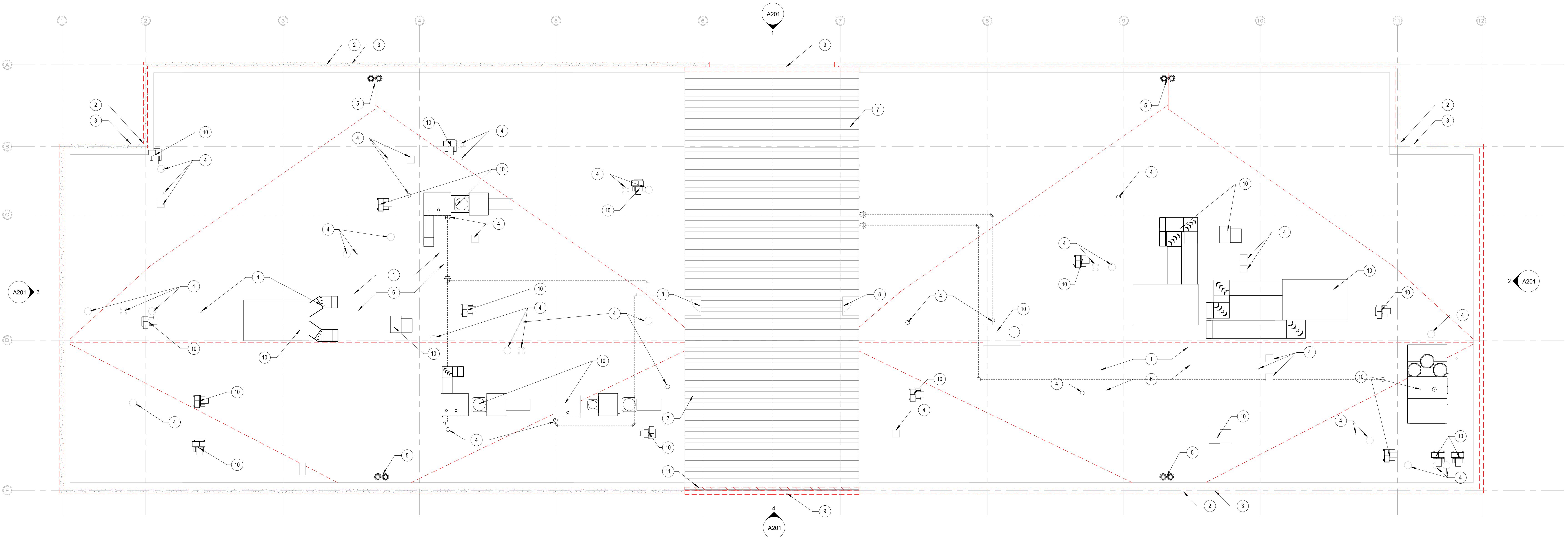
	ROOF TYPE 1 - EXISTING METAL ROOF
	ROOF TYPE 2 - MEMBRANE

AREA MEASURED IN SQUARE FEET

LOWER:	15,878 SF
UPPER:	2,636 SF
TOTAL:	18,514 SF

DEMO ROOF PLAN KEYED NOTES

NOTE NUMBER	NOTE DESCRIPTION
1	REMOVE & DISPOSE OF ALL EXISTING ROOF MEMBRANE, WALK-WAY PADS, & ROOF FLASHING DOWN TO EXISTING ROOF INSULATION IN PREPARATION FOR NEW ROOF SYSTEM. REMOVE ALL WET & SATURATED MATERIAL. ALL EXISTING ROOF MATERIAL MUST BE REMOVED AND A CLEAN SURFACE FREE OF FOREIGN MATERIAL SHALL BE PROVIDED PRIOR TO INSTALLATION OF THE NEW ROOF SYSTEM.
2	REMOVE & DISPOSE OF ALL EXISTING PARAPET WALL ROOF MEMBRANE IN PREPARATION FOR NEW ROOF SYSTEM. REMOVE ALL WET & SATURATED MATERIAL. ALL EXISTING ROOF MATERIAL MUST BE REMOVED AND A CLEAN SURFACE FREE OF FOREIGN MATERIAL SHALL BE PROVIDED PRIOR TO INSTALLATION OF THE NEW ROOF SYSTEM.
3	PARAPET WALL CAP. REMOVE & PREP FOR REPLACEMENT.
4	PIPE PENETRATION & ROOF PROTRUSION. FLASHING TO BE REMOVED AND PREP FOR NEW BOOT FLASHING AND ROOFING SYSTEM.
5	ROOF DRAIN & OVERFLOW. REMOVE BASKETS AND FLANGES. PREP FOR NEW BASKETS AND FLANGES. REMOVE ALL WET & SATURATED MATERIAL.
6	DEMO AND REPLACE ALL DAMAGED RIGID INSULATION.
7	EXISTING MET. ROOF TO REMAIN.
8	EXISTING ACCESS DOOR TO REMAIN.
9	DEMO FASCIA IN PREPARATION FOR NEW EXTERIOR FORM AND FINISH MATERIAL.
10	ROOF-TOP CONDENSER UNIT. REMOVE AND PREP CURB TO BE REFLASHED. PREP FOR EXTRA LAYER OF ADHERED MEMBRANE UNDER SUPPORTS. SEE MECH AND ELEC DRAWINGS.
11	DEMOLISH METAL ROOF TO ALLOW FOR NEW PARAPET WALL.



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

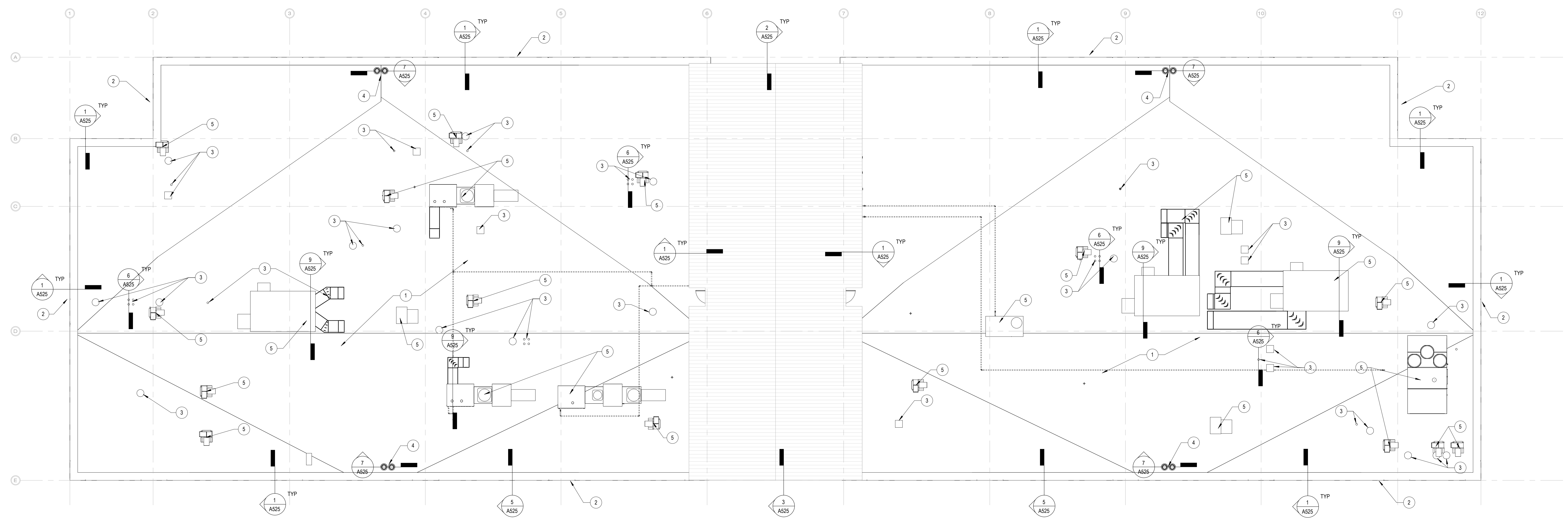
100% CONSTRUCTION DOCUMENTS

ROOF PLAN GENERAL NOTES	
A	INSTALL HIGH TEMP. ICE & WATER SHIELD AT ALL AREAS W/ METAL ROOFING. PROVIDE BUILDING PAPER SLIP SHEET BETWEEN METAL & HIGH TEMPERATURE ICE & WATER SHIELD. WRAP ICE & WATER UP ADJACENT RISING WALLS BEHIND AIR INFILTRATION RETARDER MIN. 3" OR AS ALLOWED.
B	CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS SHOWING ANY CHANGES TO PLANS AND DIMENSIONING.
C	PAINT ALL PLUMBING VENTS AND RADON PIPE TO MATCH EXTERIOR TRIM COLOR ABOVE ROOF.
D	REFER TO SHEET G116 FOR ROOF CONSTRUCTION ASSEMBLIES.
E	SEE MECHANICAL, ELECTRICAL, AND PLUMBING SHEETS FOR DEMO NOTES.

ROOFING MATERIALS	
	ROOF TYPE 1 - EXISTING METAL ROOF
	ROOF TYPE 2 - MEMBRANE

AREA MEASURED IN SQUARE FEET	
LOWER:	15,878 SF
UPPER:	2,636 SF
TOTAL:	18,514 SF

REMODEL ROOF PLAN KEYED NOTES	
NOTE NUMBER	NOTE DESCRIPTION
1	PATCH DAMAGED RIGID INSULATION. INSTALL NEW ROOF SYSTEM. EXISTING DRAINAGE SLOPE TO REMAIN.
2	PARAPET WALL CAP. INSTALL NEW THROUGHOUT.
3	PIPE PENETRATION. INSTALL NEW BOOT FLASHING. ROOF PROTRUSION. PREP FOR NEW ROOFING SYSTEM. SEE #A522.
4	INSTALL NEW BASKETS AND FLANGES.
5	ROOF-TOP UNIT. REFLASH CURB. ADD 18" MIN CURB. CONDENSER UNIT. ADD EXTRA LAYER OF LOOSE LAY MEMBRANE UNDER SUPPORTS. SEE #A522.

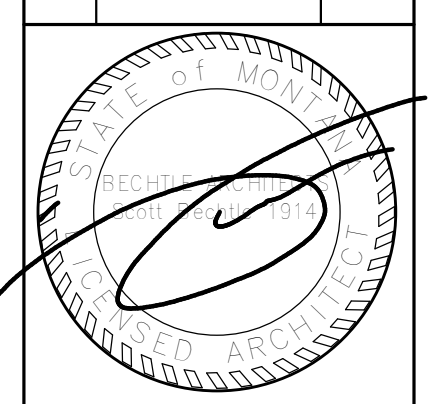


1 REMODEL - ROOF PLAN
SCALE: 1/8" = 1'-0"

MOLECULAR BIOSCIENCE BUILDING

BECHTLE ARCHITECTS
4515 Valley Commons Drive #201
Bozeman, MT 59718
406.585.4161 ph 406.585.6919 fax

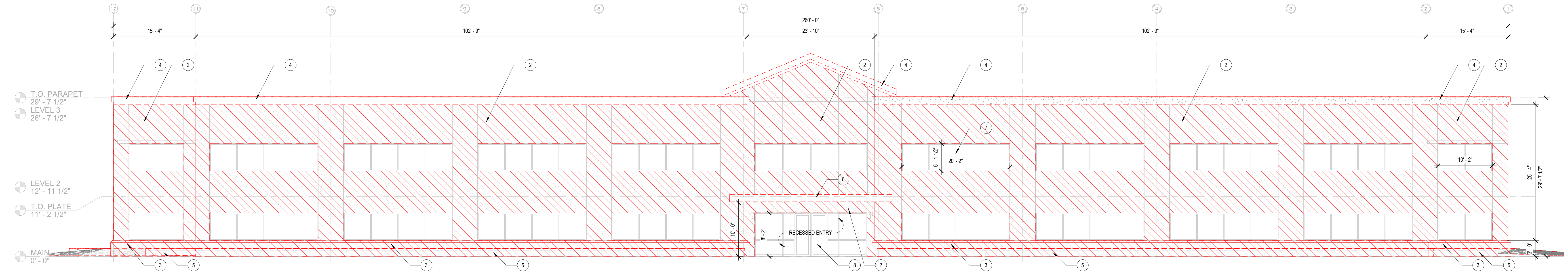
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REVIEWED BY:	NF	
REV.	DESCRIPTION	DATE



PPA#22-0045
A/E#00-00-00
BA# 2326
SHEET TITLE
EXTERIOR ELEVATIONS - DEMO

A201
DATE
MAR 3, 2025

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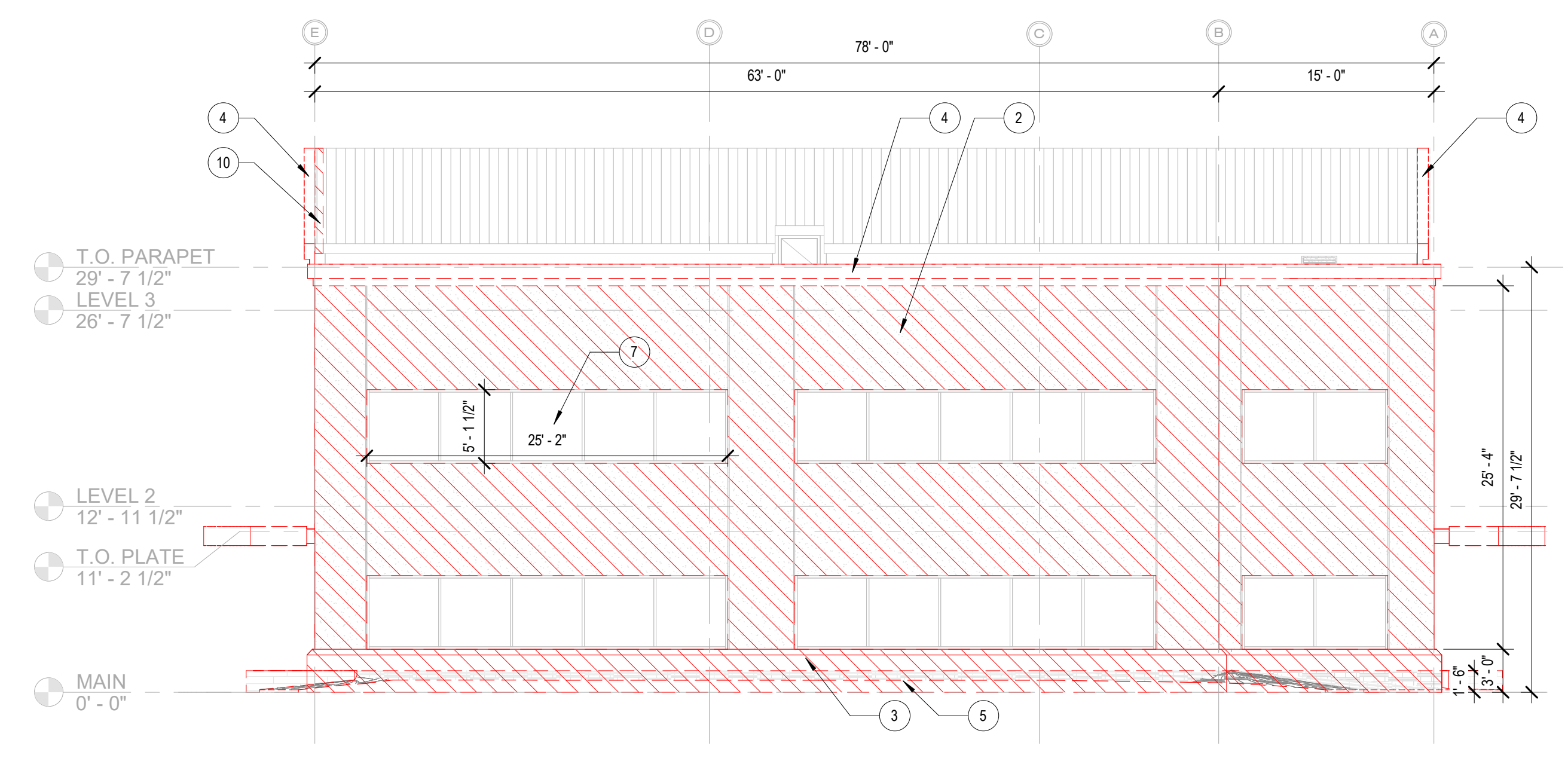
1 DEMO - NORTH ELEVATION
SCALE: 1/8" = 1'-0"

MATERIALS LEGEND

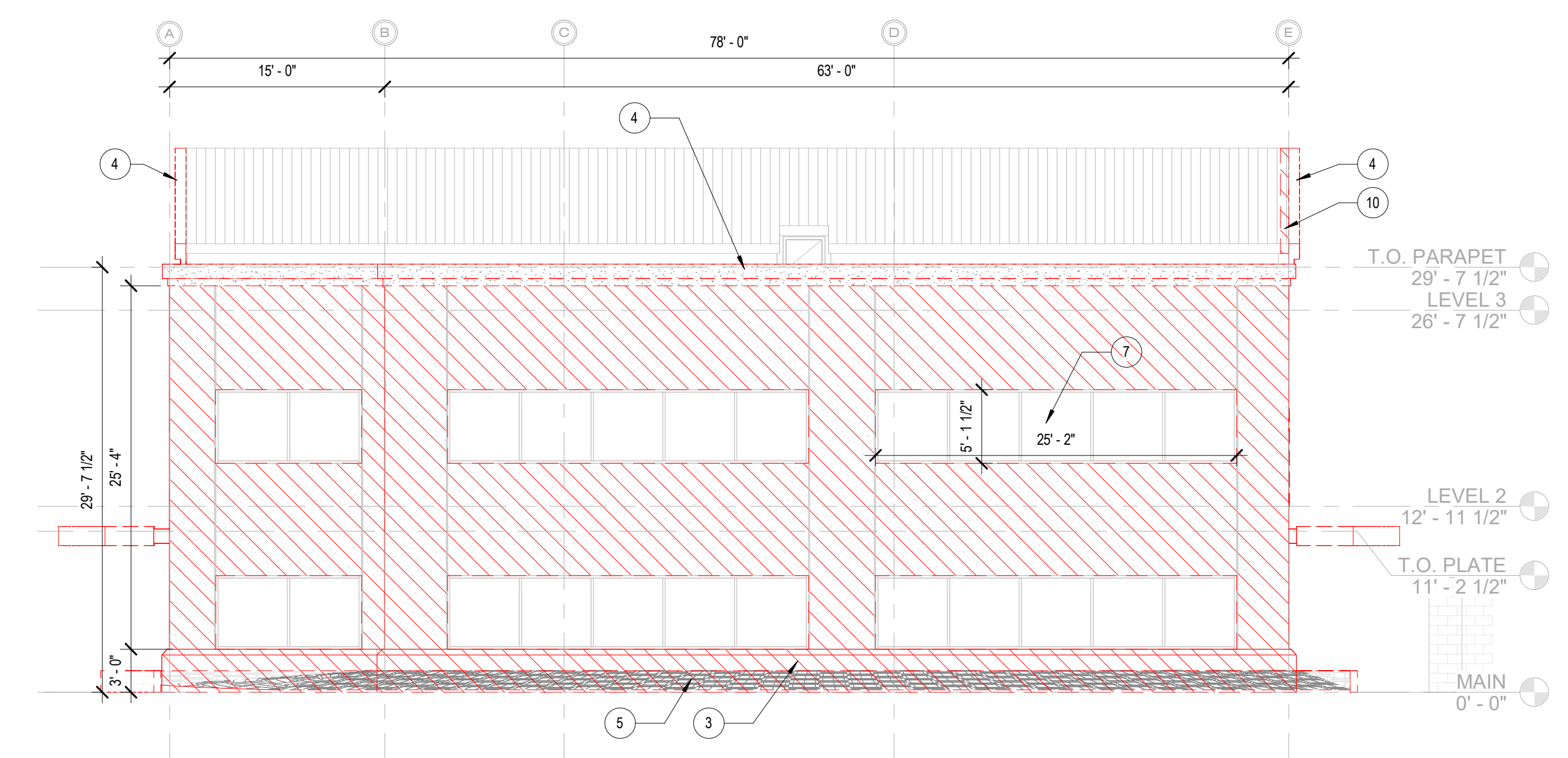
- RM-1 STANDING SEAM ROOFING MTL
- EF-1 EFIS
- CCS-1 CAST IN PLACE CONCRETE
- WD-8 STACKED 6X6 WD PLANTER BOX

DEMO ELEVATION KEYED NOTES

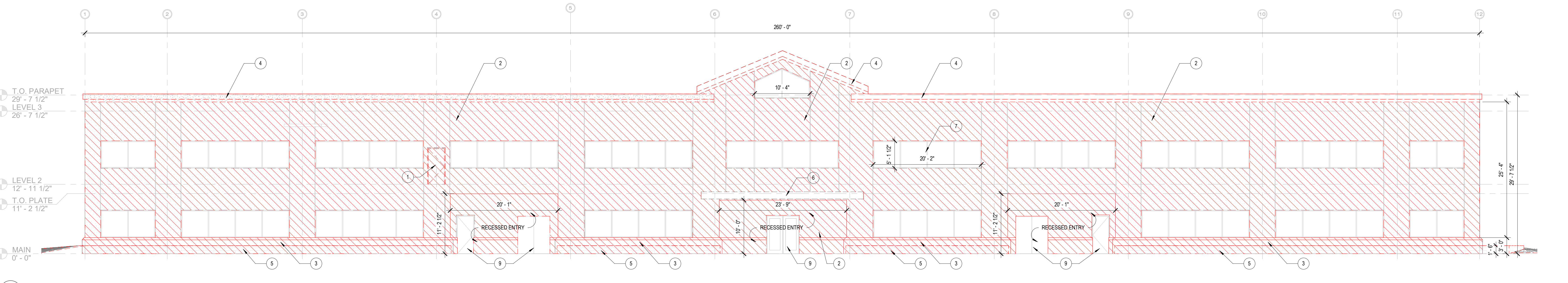
NOTE NUMBER	NOTE DESCRIPTION
1	EXISTING DOOR TO BE REMOVED
2	DEMO ALL EFFS FINISH TO EXTERIOR SHEATHING.
3	DEMO ALL EFFS FINISH TO EXPOSE CONCRETE.
4	DEMO BUILT UP FASCIA AND PARAPET WALL CAP. REMOVE & PREP FOR REPLACEMENT
5	DEMO PLANTER RETAINING WALL, SOIL, AND VEGETATION
6	DEMO STEEL CANOPY FRAME
7	(E) WINDOWS TO REMAIN
8	(E) STOREFRONT TO REMAIN
9	(E) DOOR TO REMAIN
10	DEMOLISH METAL ROOF TO ALLOW FOR NEW PARAPET WALL



2 DEMO - EAST ELEVATION
SCALE: 1/8" = 1'-0"



3 DEMO - WEST ELEVATION
SCALE: 1/8" = 1'-0"



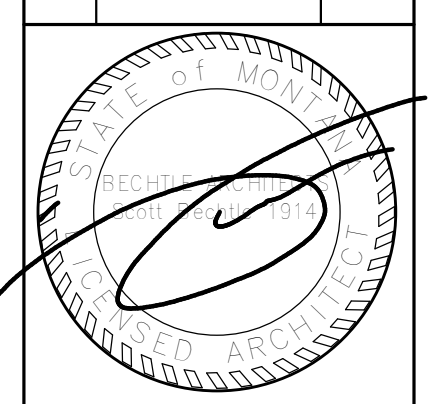
4 DEMO - SOUTH ELEVATION
SCALE: 1/8" = 1'-0"

MOLECULAR BIOSCIENCE BUILDING

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4515 Valley Commons Drive #201
Bozeman, MT 59718
406.585.4161 ph 406.585.6919 fax

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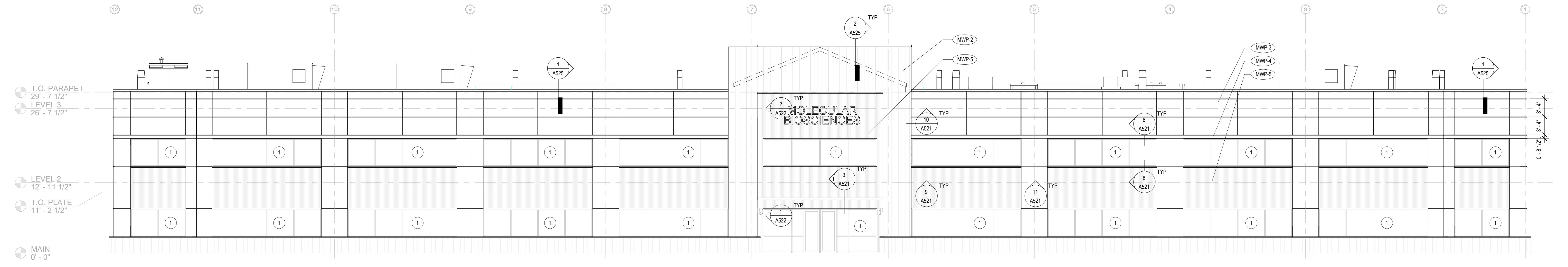
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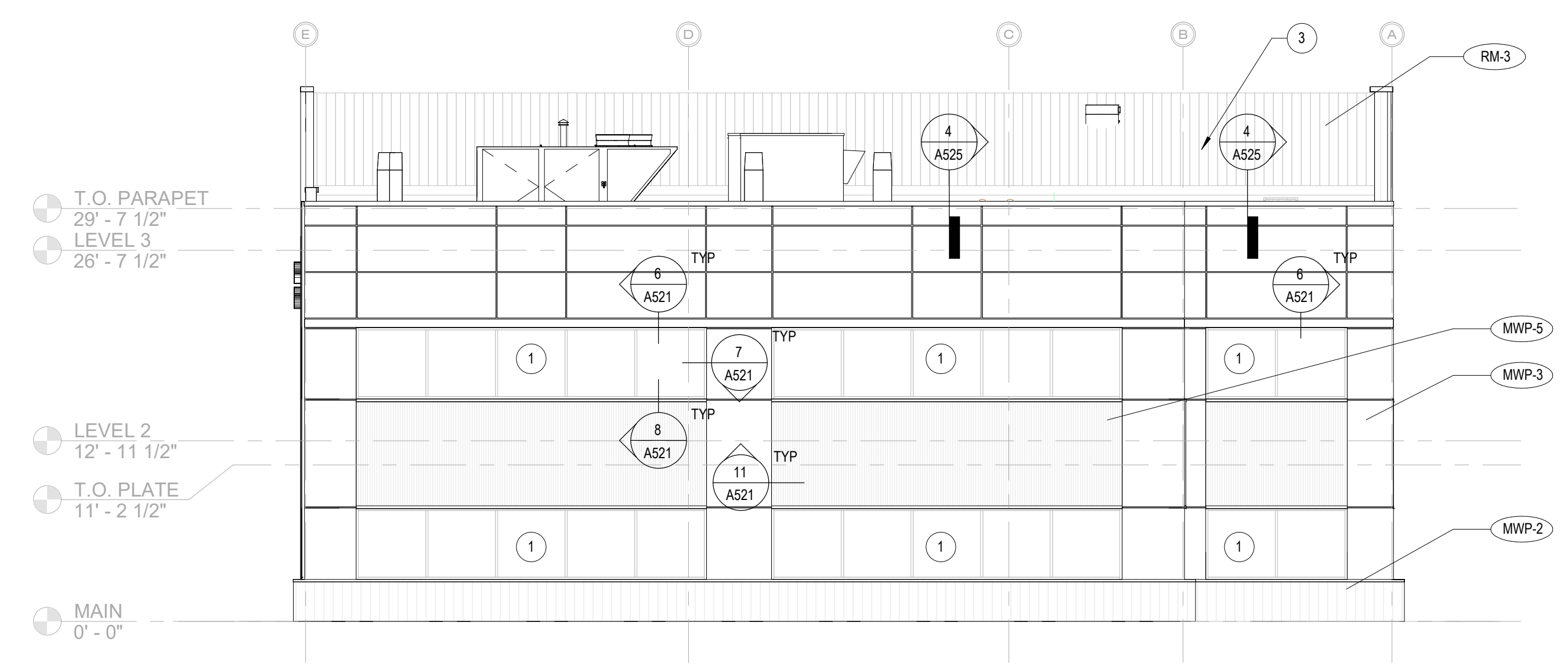
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A/E#00-00-00
BA# 2326
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EXTERIOR ELEVATIONS - REMODEL

A202
DATE
MAR 3, 2025

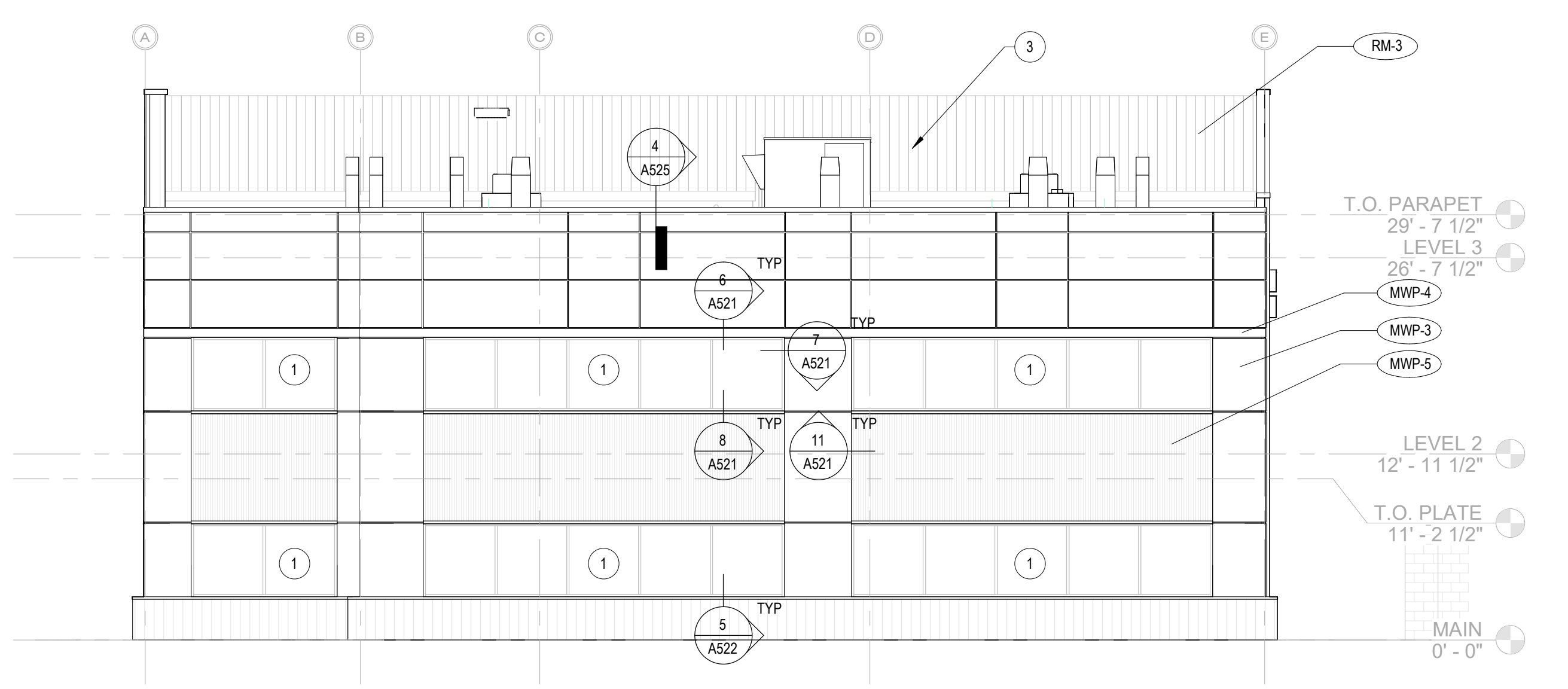
100% CONSTRUCTION DOCUMENTS



1 REMODEL - NORTH ELEVATION
SCALE: 1/8" = 1'-0"



2 REMODEL - EAST ELEVATION
SCALE: 1/8" = 1'-0"



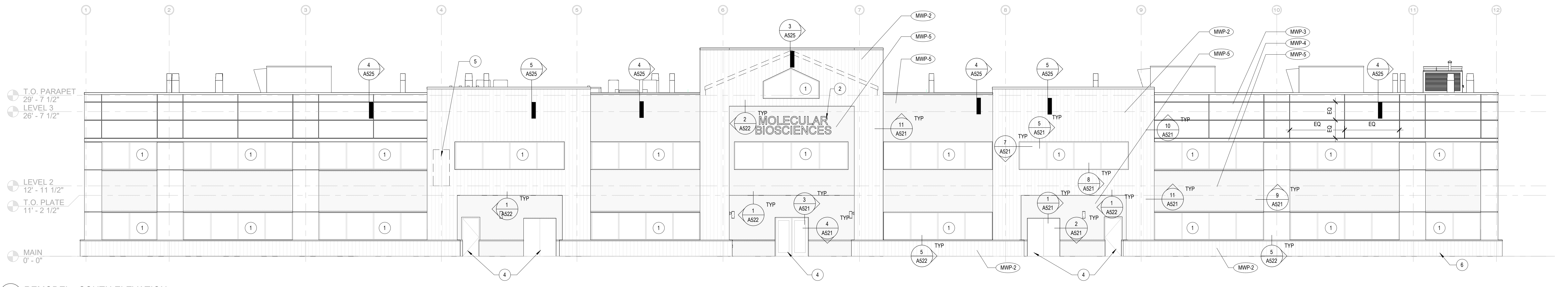
3 REMODEL - WEST ELEVATION
SCALE: 1/8" = 1'-0"

REMODEL MATERIALS LEGEND

- RM-3 STANDING SEAM ROOFING MTL
- MWP-2 STANDING SEAM METAL WALL CLADDING 7.2 BOX PANEL
-

REMODEL ELEVATIONS KEYED NOTES

NOTE NUMBER	NOTE DESCRIPTION
1	EXISTING STOREFRONT/WINDOWS TO REMAIN
2	SIGN PER OWNER
3	EXISTING ROOF TO REMAIN
4	EXISTING DOOR TO REMAIN
5	PATCH SHEATHING, INSULATION, AND INTERIOR FINISH AT EXISTING DOOR
6	PROVIDE CONCRETE WATERPROOFING

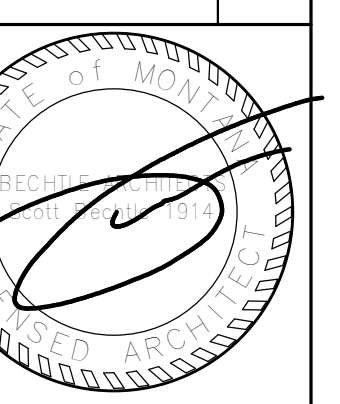


4 REMODEL - SOUTH ELEVATION
SCALE: 1/8" = 1'-0"

100% CONSTRUCTION DOCUMENTS

**MOLECULAR BIOSCIENCE
BUILDING**

DRAWN BY:	NB	
REVIEWED BY:	NF	
REV.	DESCRIPTION	DATE



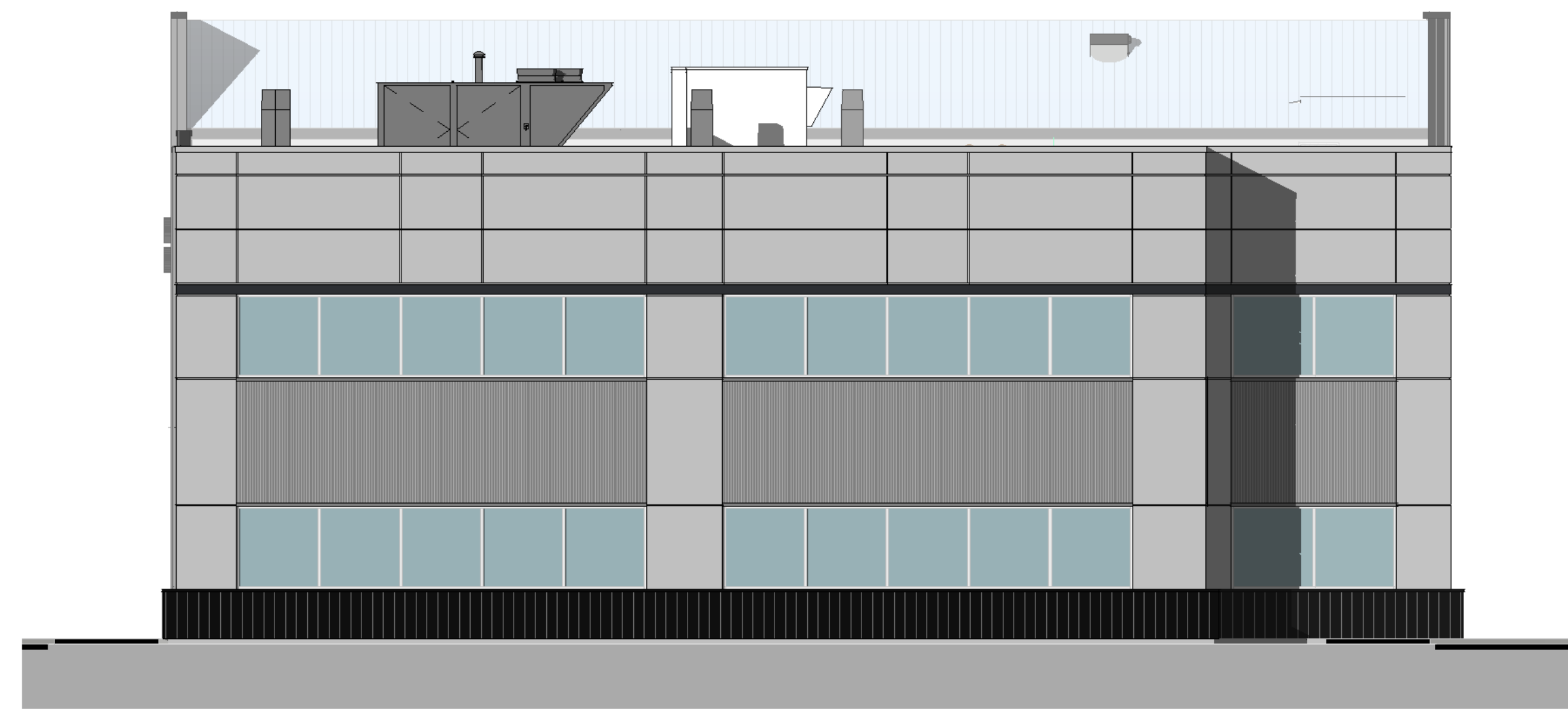
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A/E#00-00-00
BA# 2326
SHEET TITLE
EXTERIOR
ELEVATIONS -
REMODEL
EXHIBIT

A203

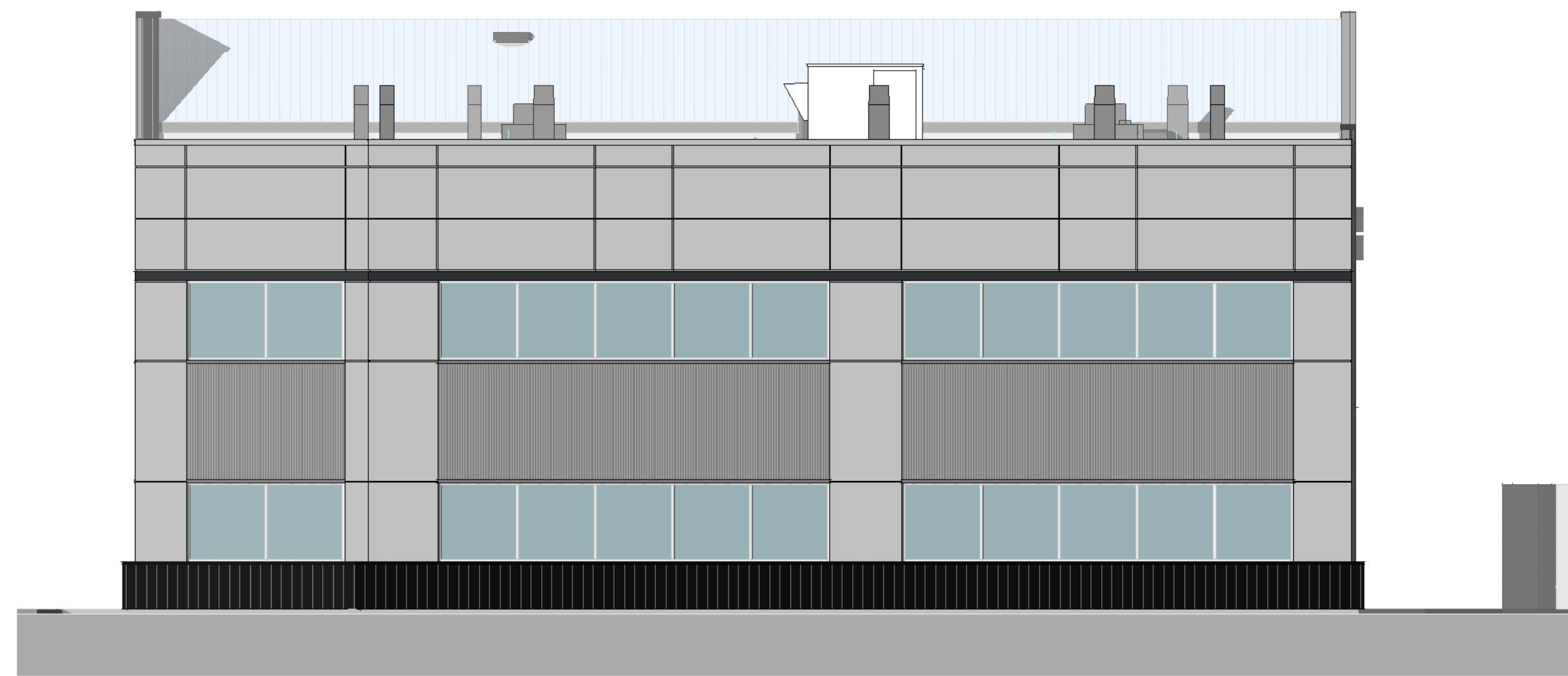
DATE
MAR 3, 2025



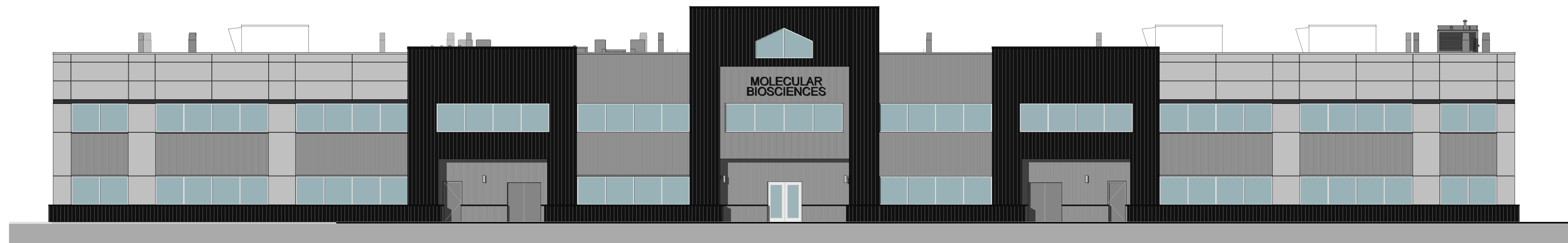
1 NORTH - REMODEL COLOR ELEVATION
SCALE: 1/8" = 1'-0"



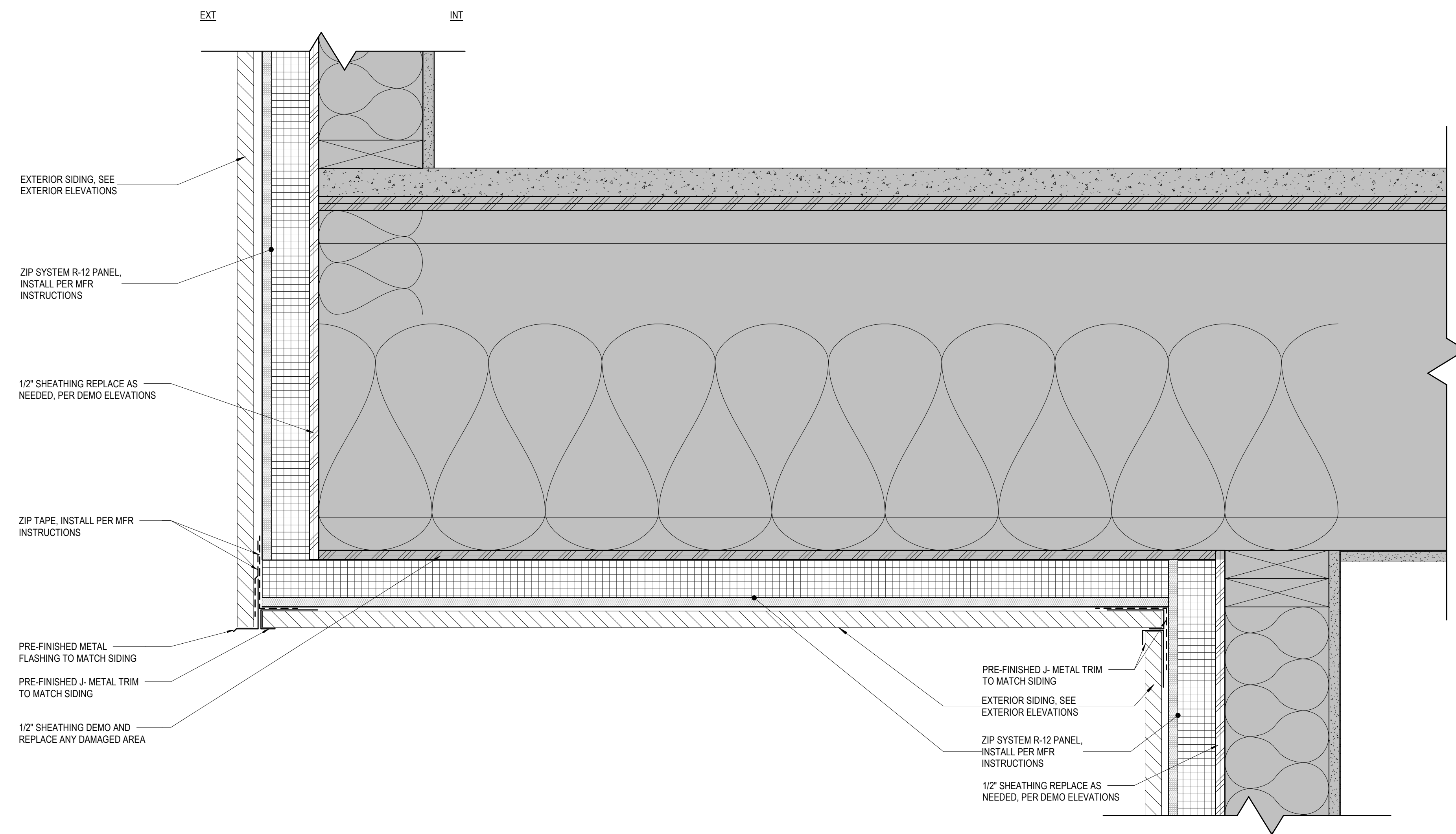
2 EAST - REMODEL COLOR ELEVATION
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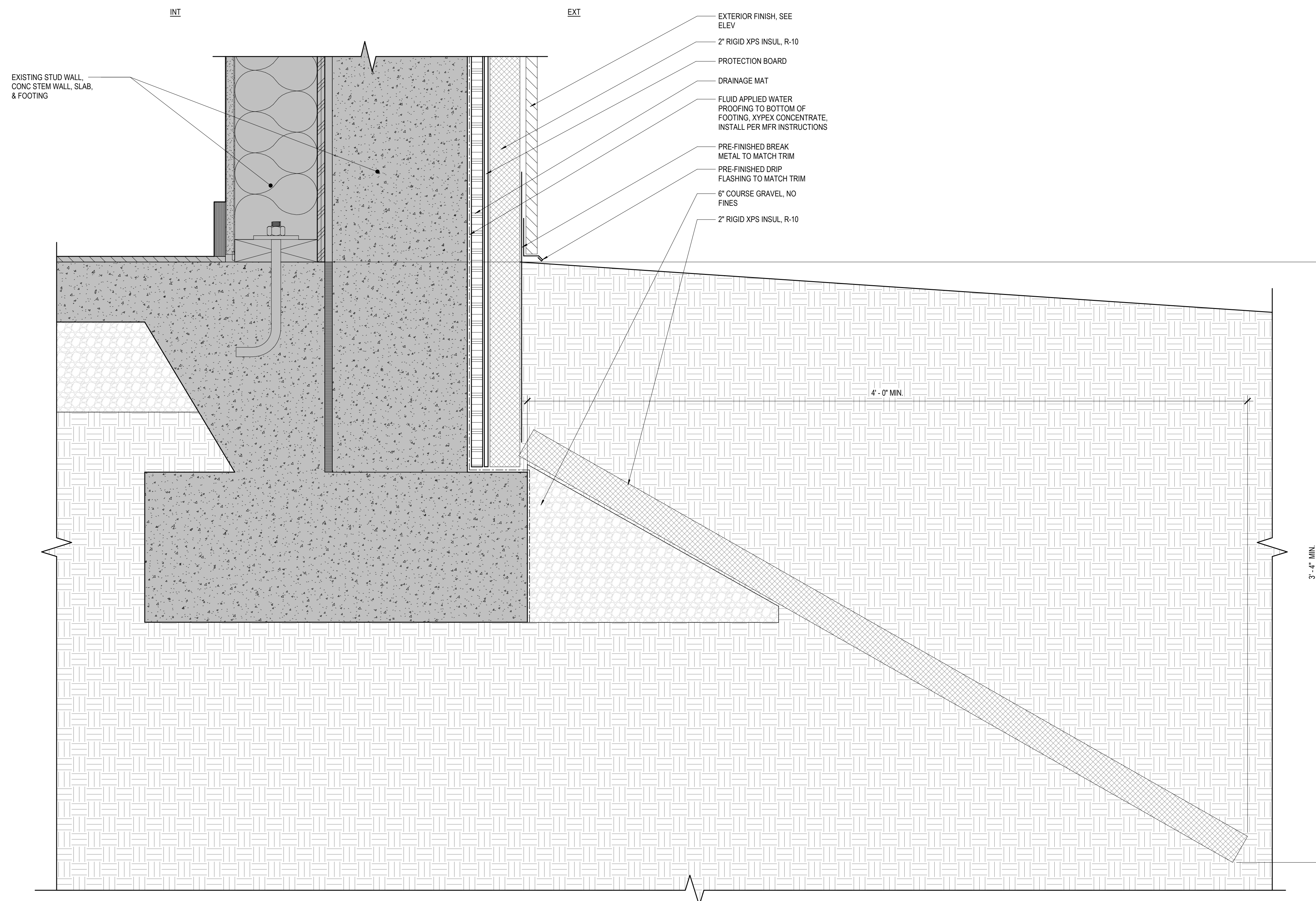
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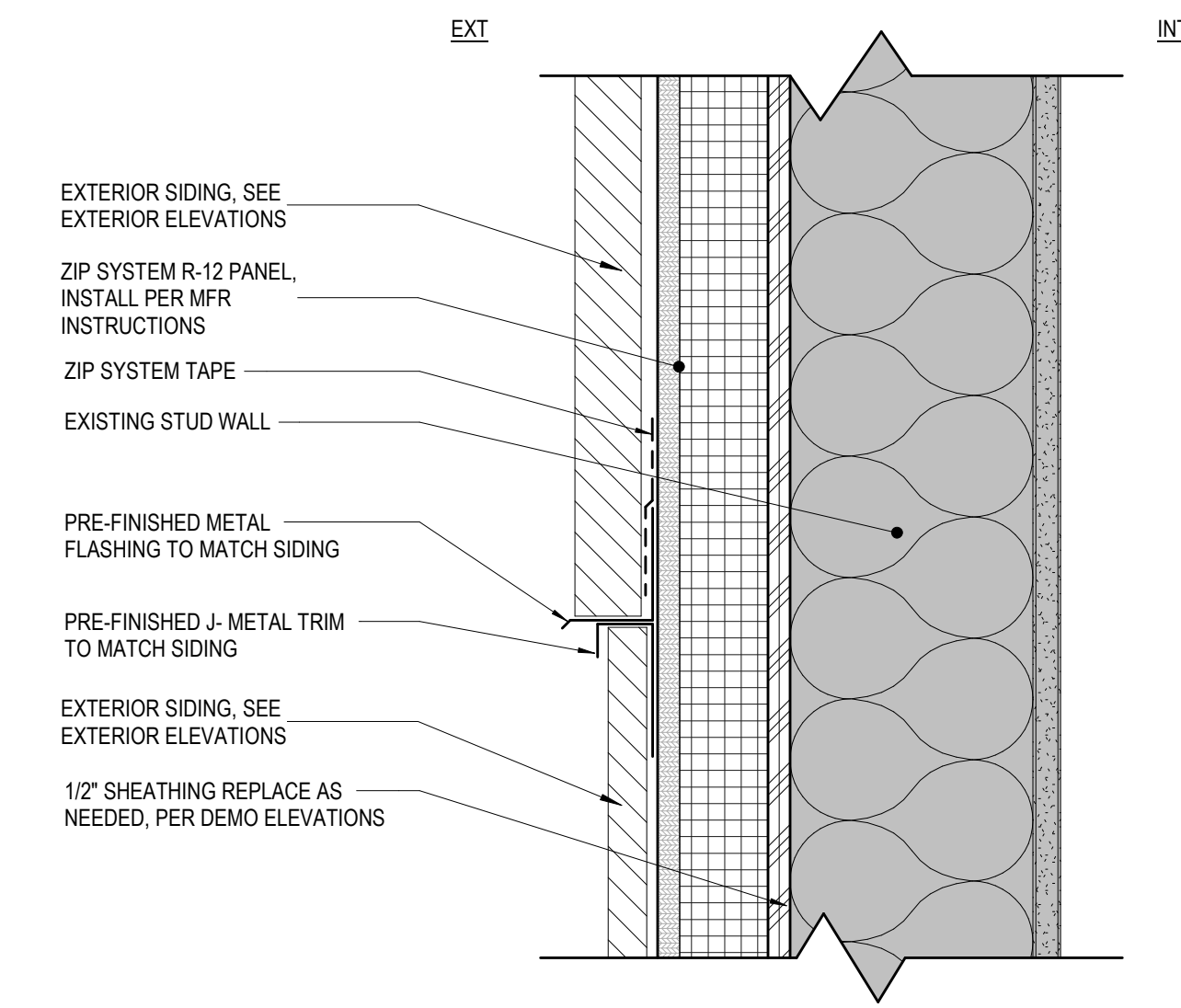
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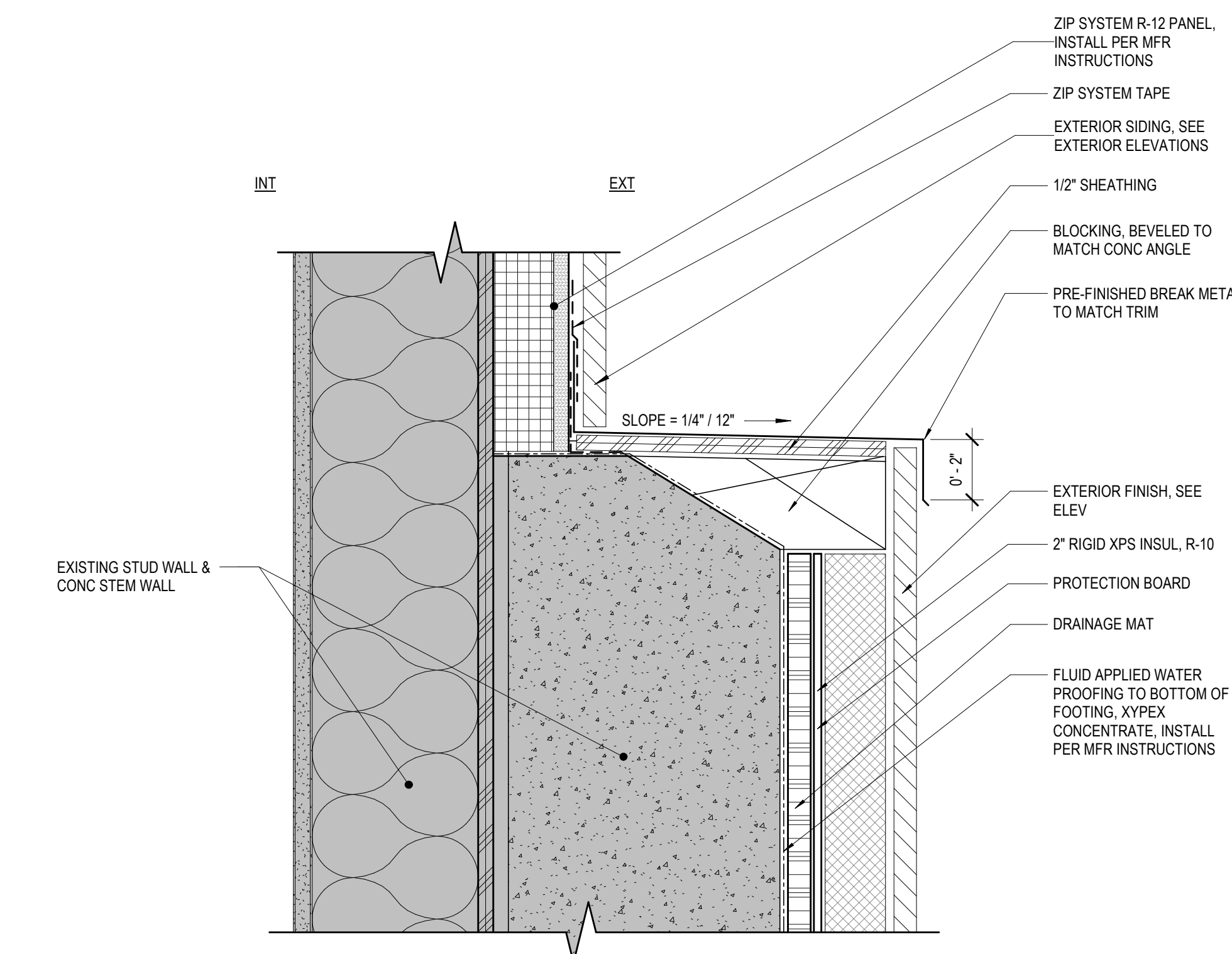
1 SOFFIT
SCALE: 3" = 1'-0"



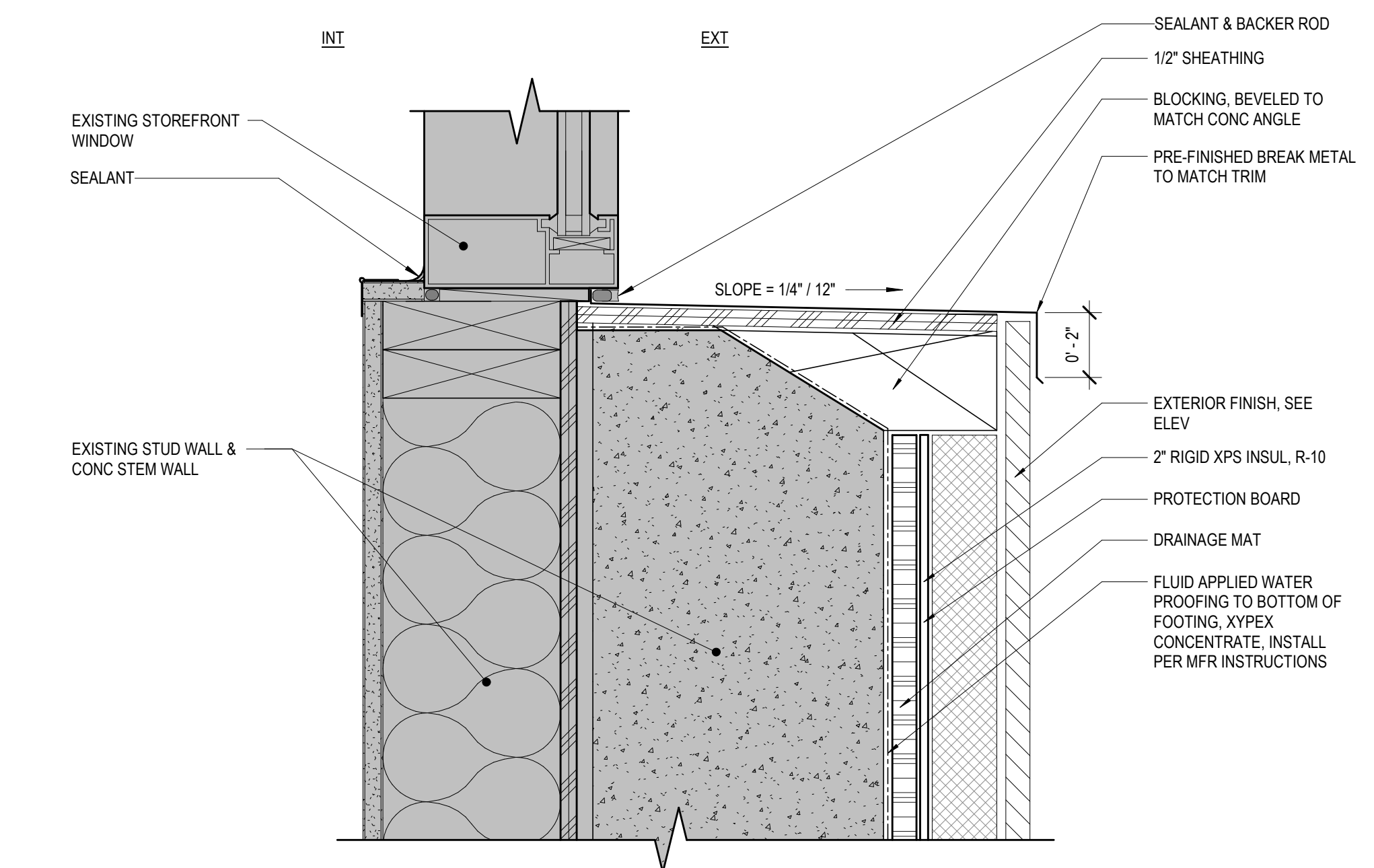
3 FOUNDATION STEM WALL @ EXTERIOR SIDING
SCALE: 3" = 1'-0"



2 SIDING VERTICAL TRANSITION
SCALE: 3" = 1'-0"



4 CONC. STEM WALL STEP
SCALE: 3" = 1'-0"



5 STOREFRONT SILL @ CONC STEM WALL
SCALE: 3" = 1'-0"

SHADING LEGEND

EXISTING

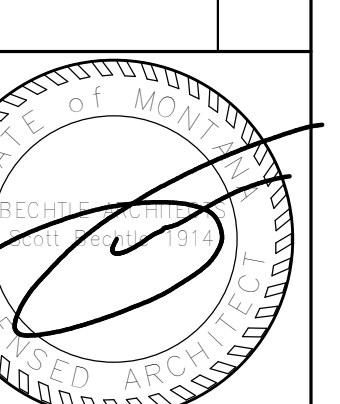


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**MOLECULAR BIOSCIENCE
BUILDING**

**BECHTLE
ARCHITECTS**
4515 Valley Commons Drive #201
Bozeman, MT 59718
406.585.4161 ph 406.585.6919 fax

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REVIEWED BY:	NF	
REV.	DESCRIPTION	DATE

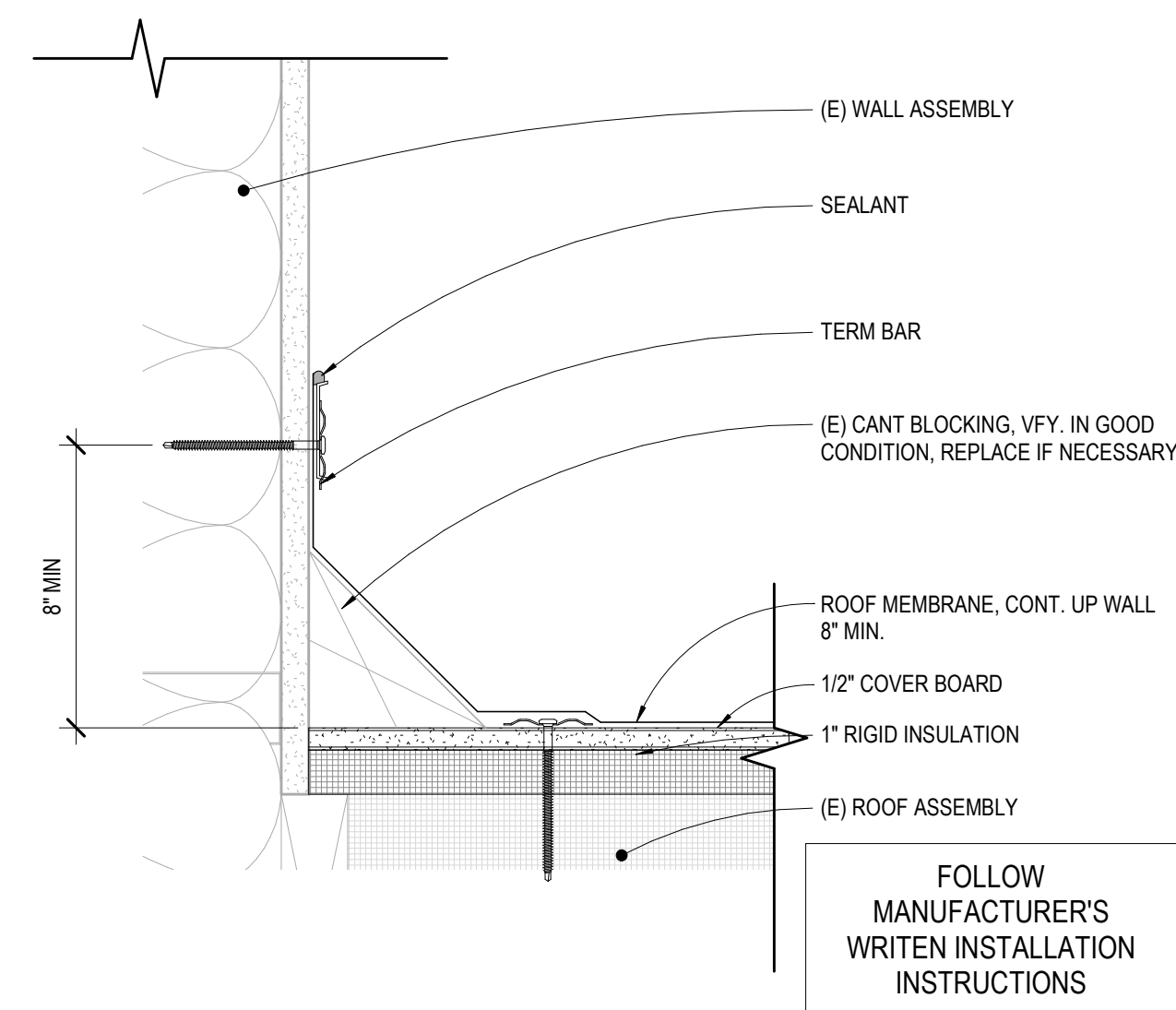


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A/E#00-00-00
BA# 2326
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DETAILS

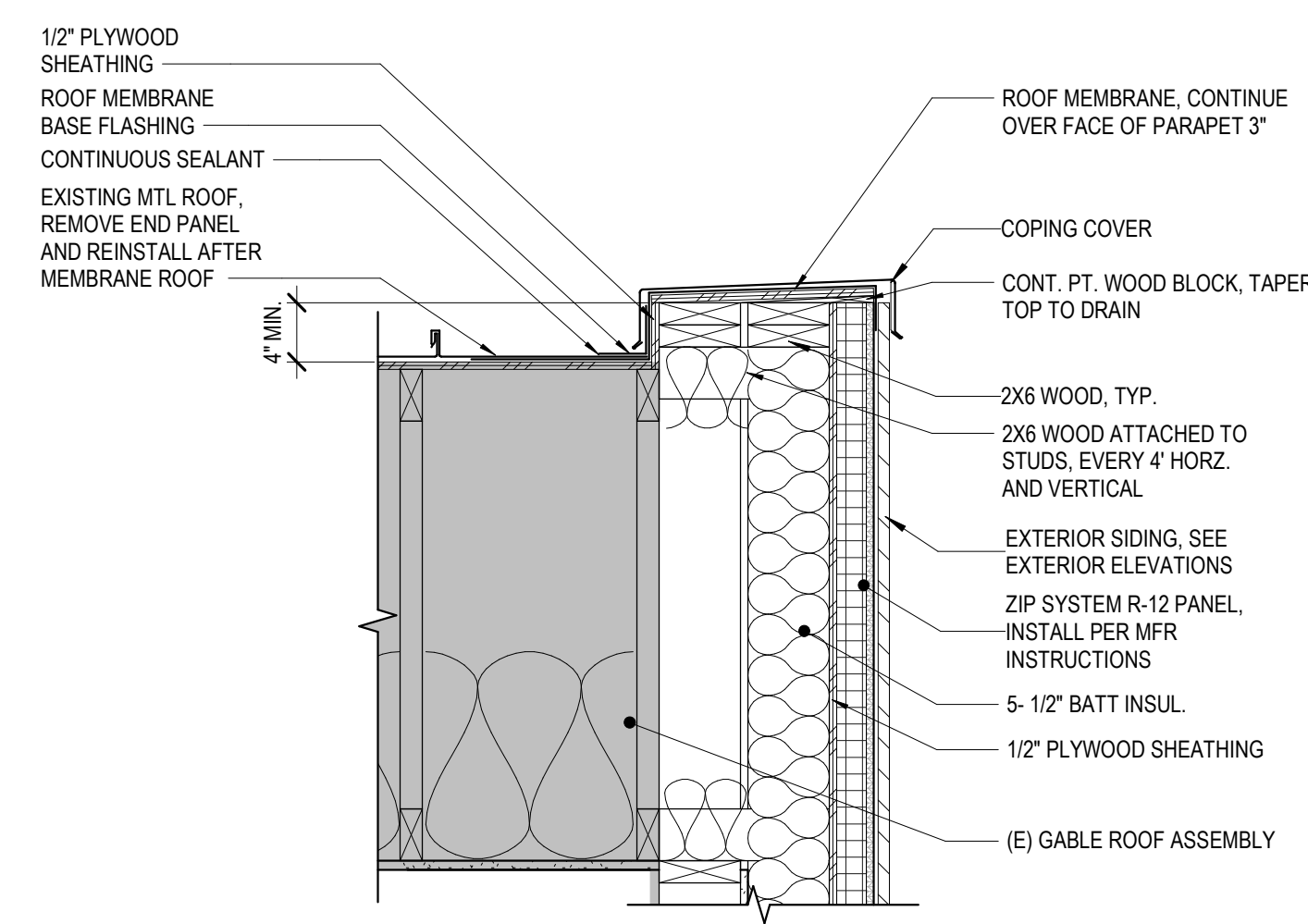
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DATE
MAR 3, 2025

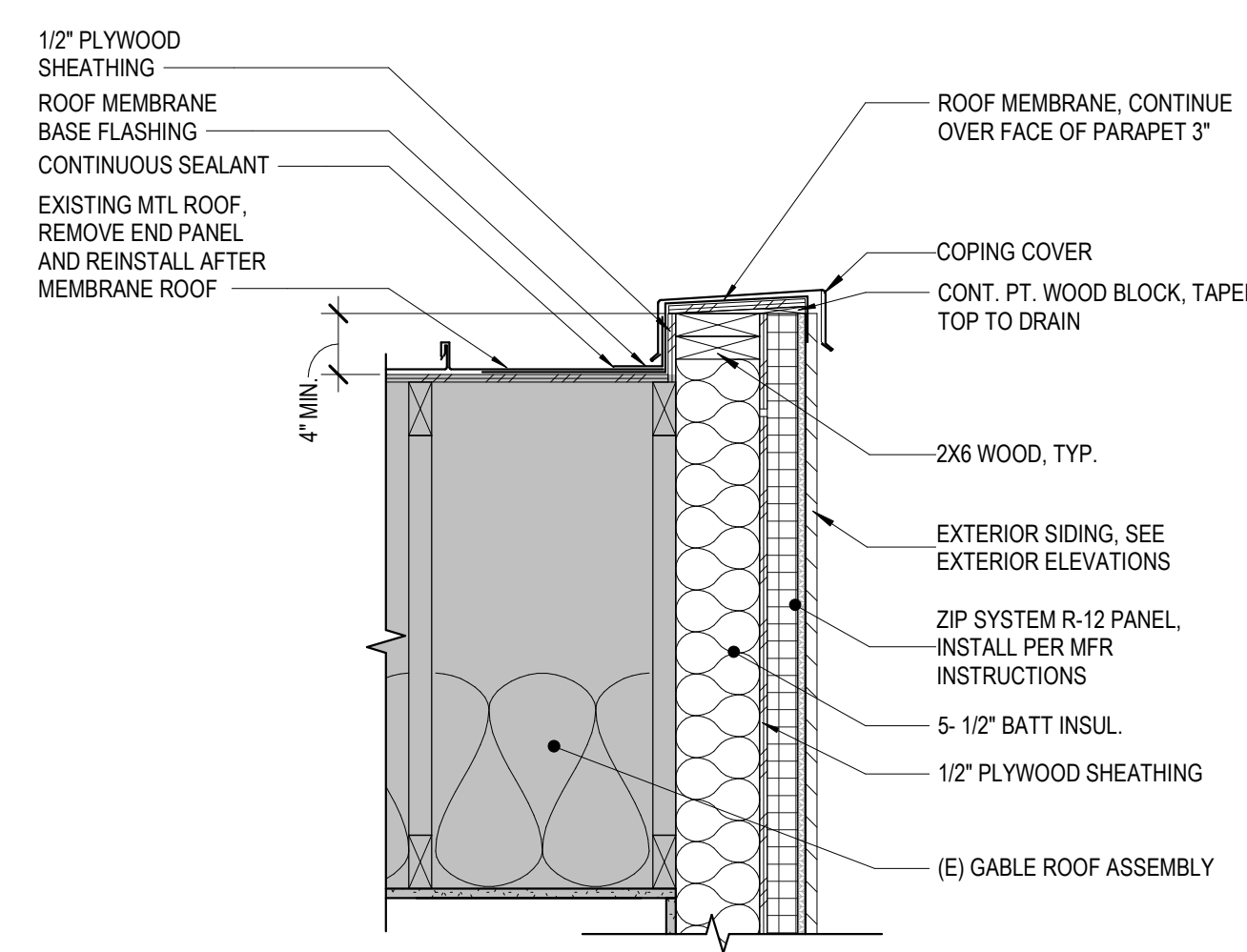
100% CONSTRUCTION DOCUMENTS



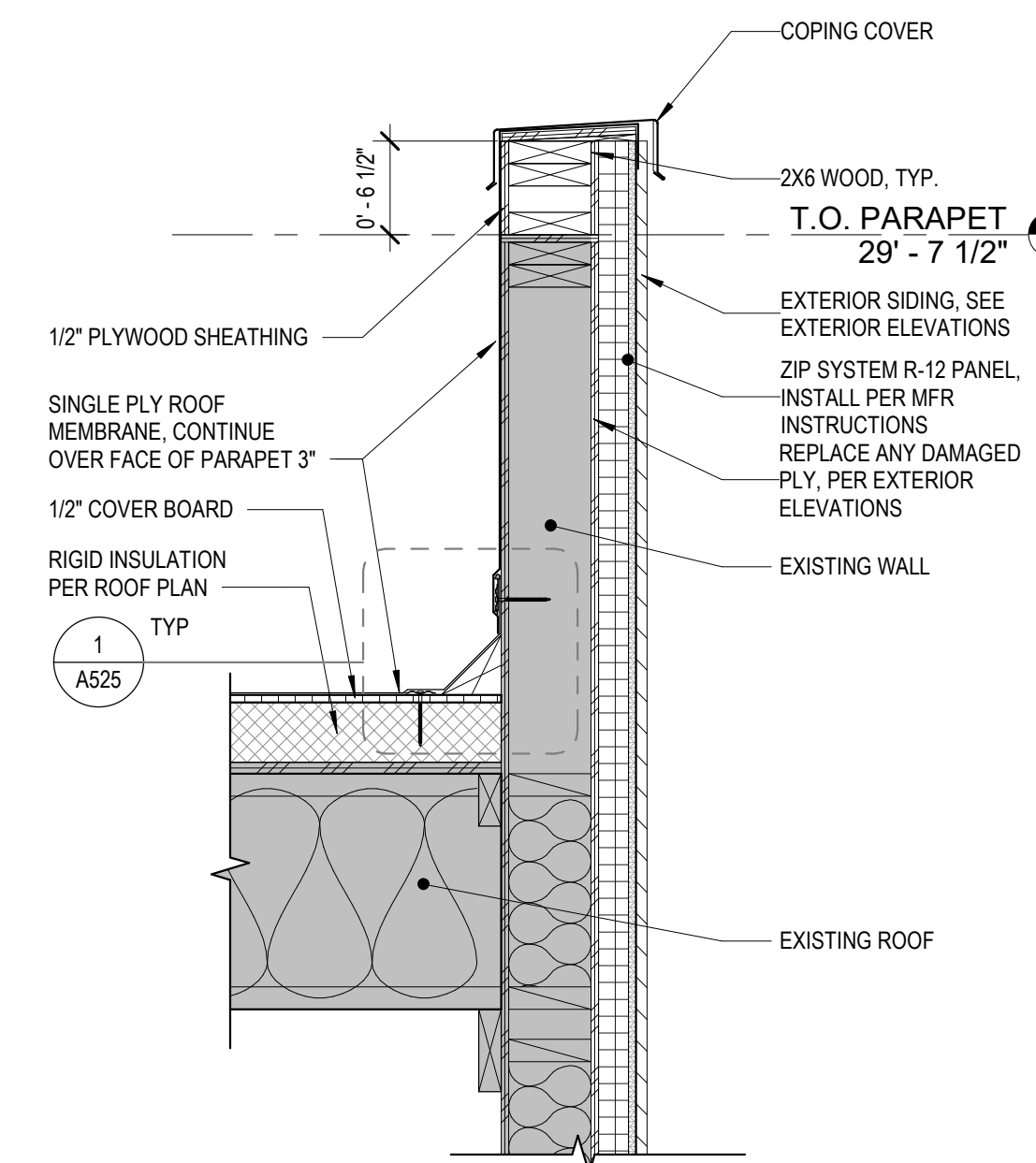
1 ROOF HEAD WALL - TYPICAL
SCALE: 3" = 1'-0"



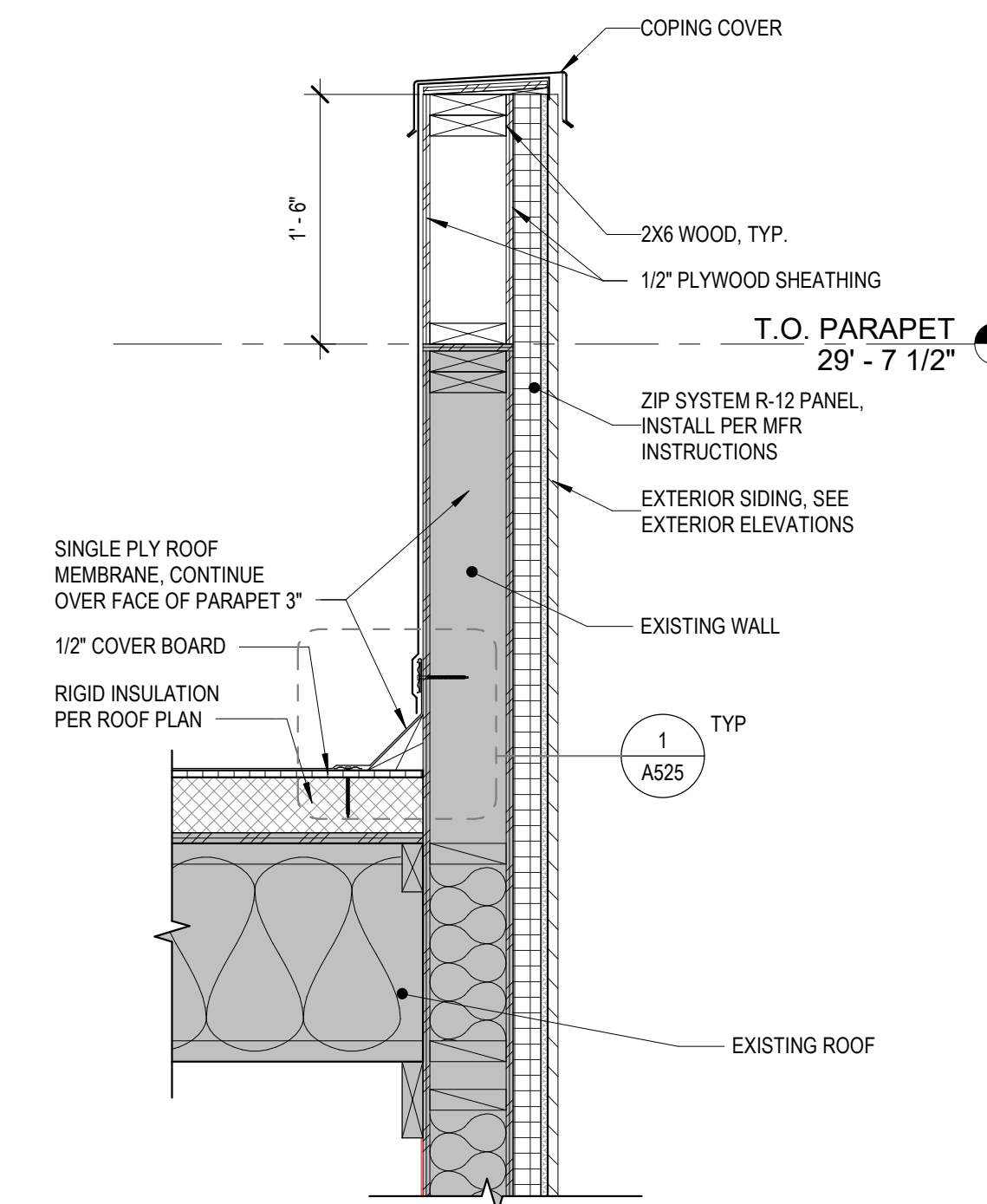
2 GABLE ROOF TO PARAPET WIDE GAP DETAIL
SCALE: 1" = 1'-0"



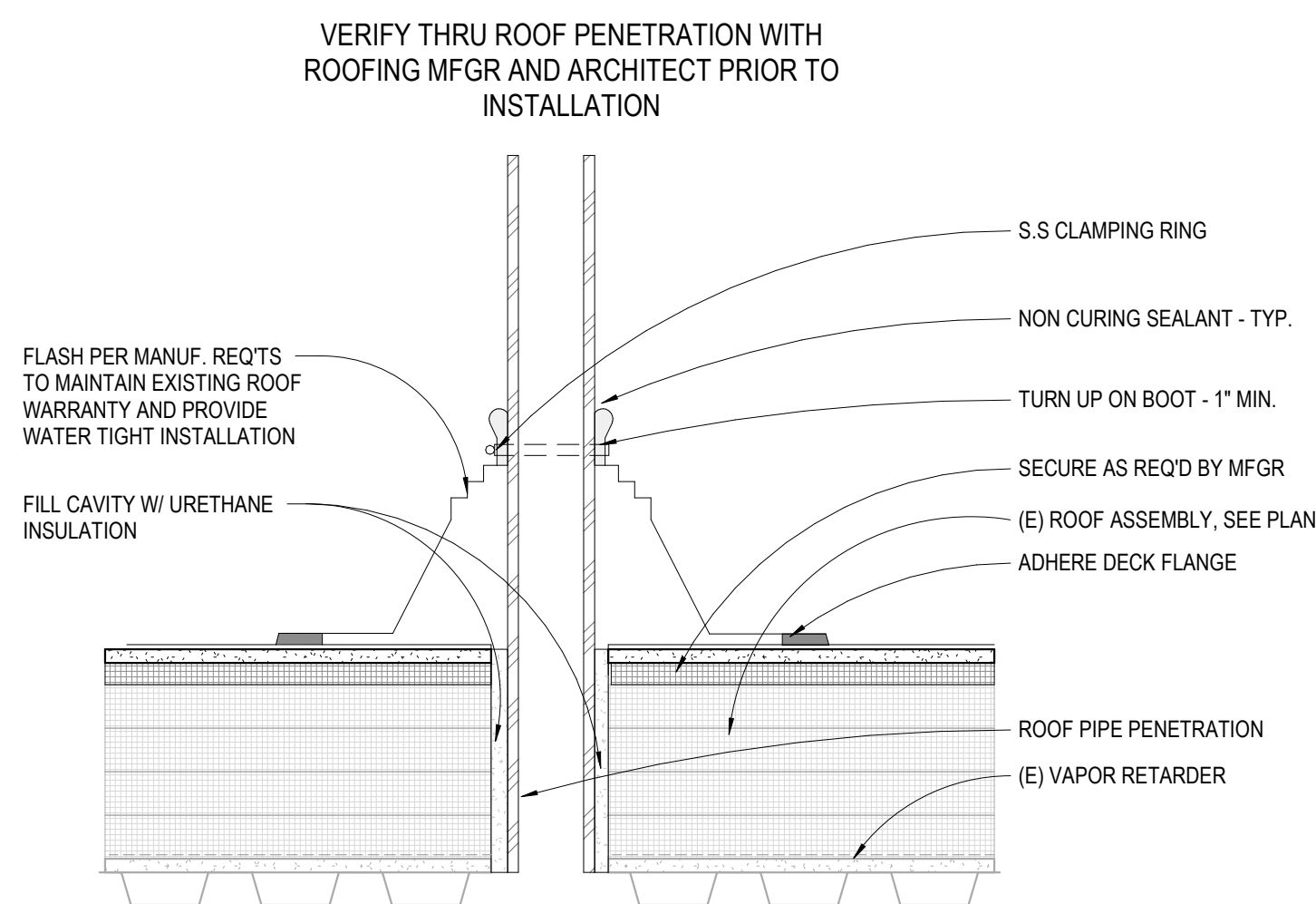
3 GABLE ROOF TO PARAPET DETAIL
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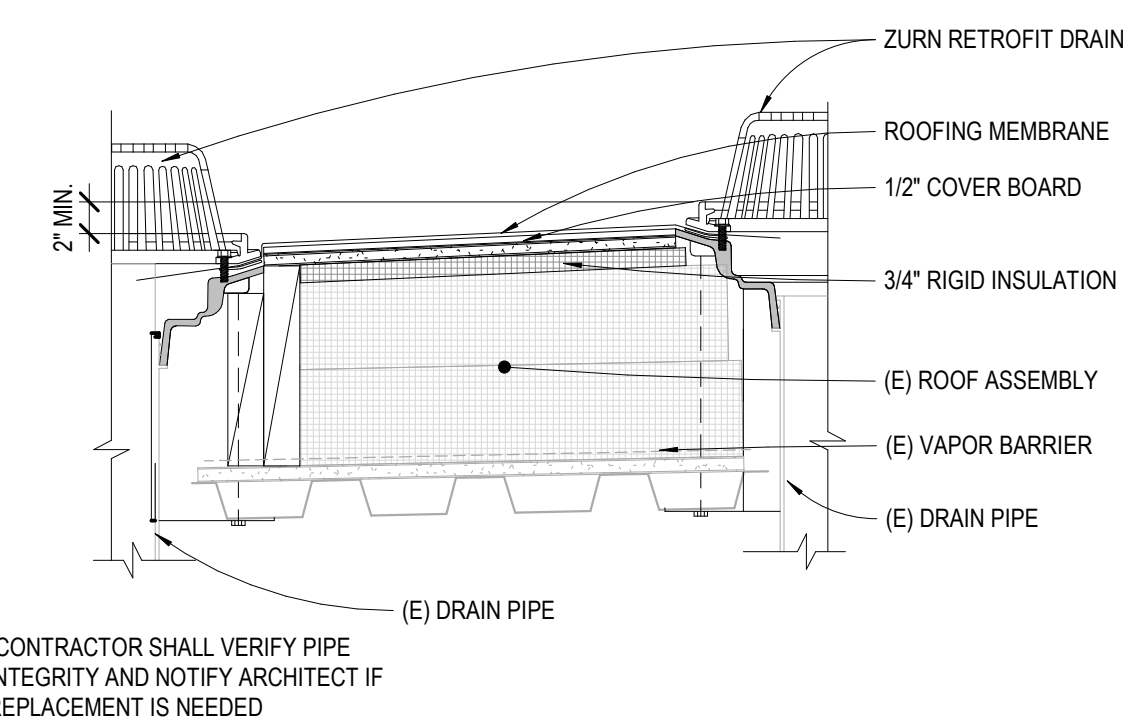
4 PARAPET DETAIL
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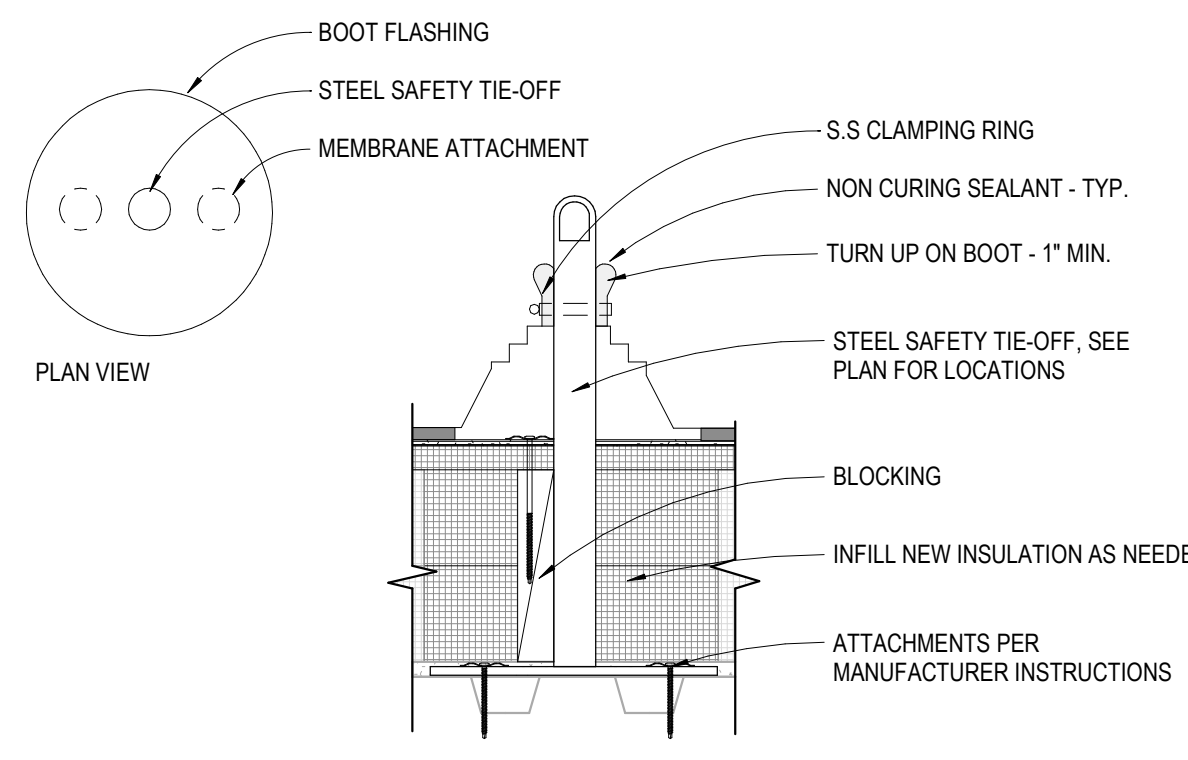
5 HIGH PARAPET DETAIL
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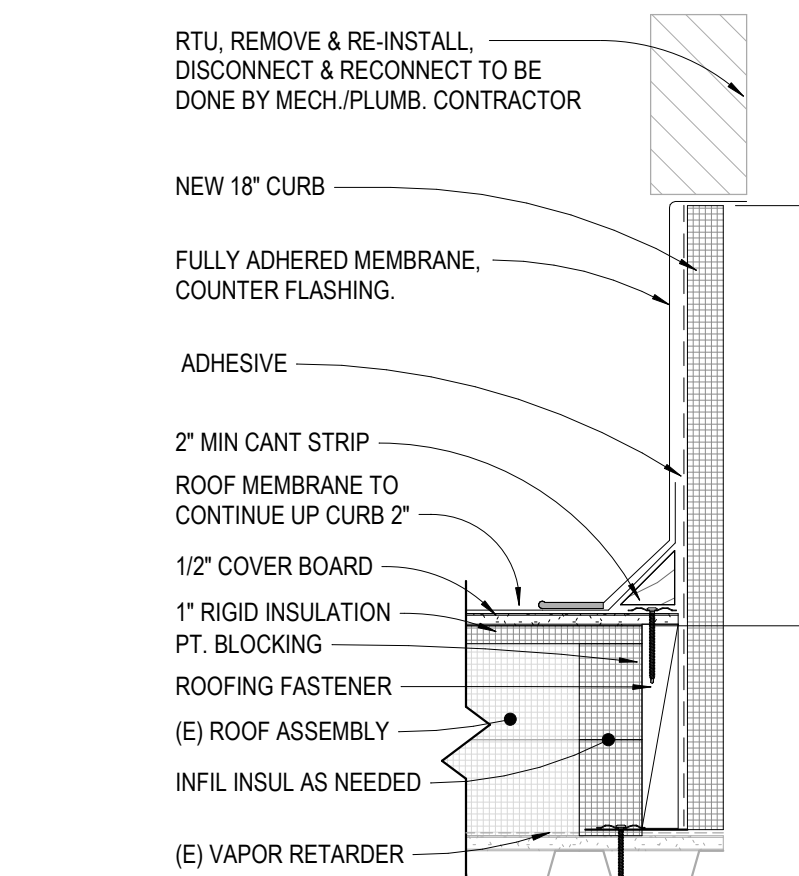
6 ROOF PENETRATION DETAIL
SCALE: 1 1/2" = 1'-0"



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

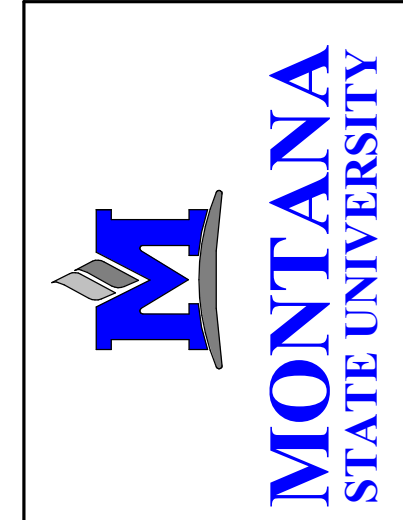


8 ROOF TIE-OFF DETAIL
SCALE: 1 1/2" = 1'-0"



9 ROOF CURB DETAIL
SCALE: 1 1/2" = 1'-0"

100% CONSTRUCTION DOCUMENTS

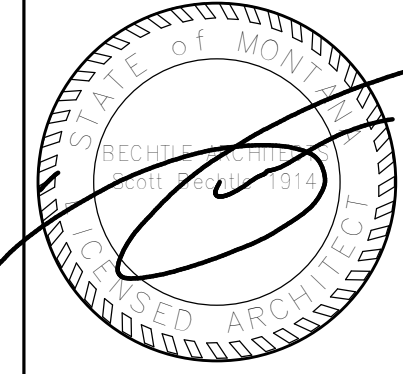


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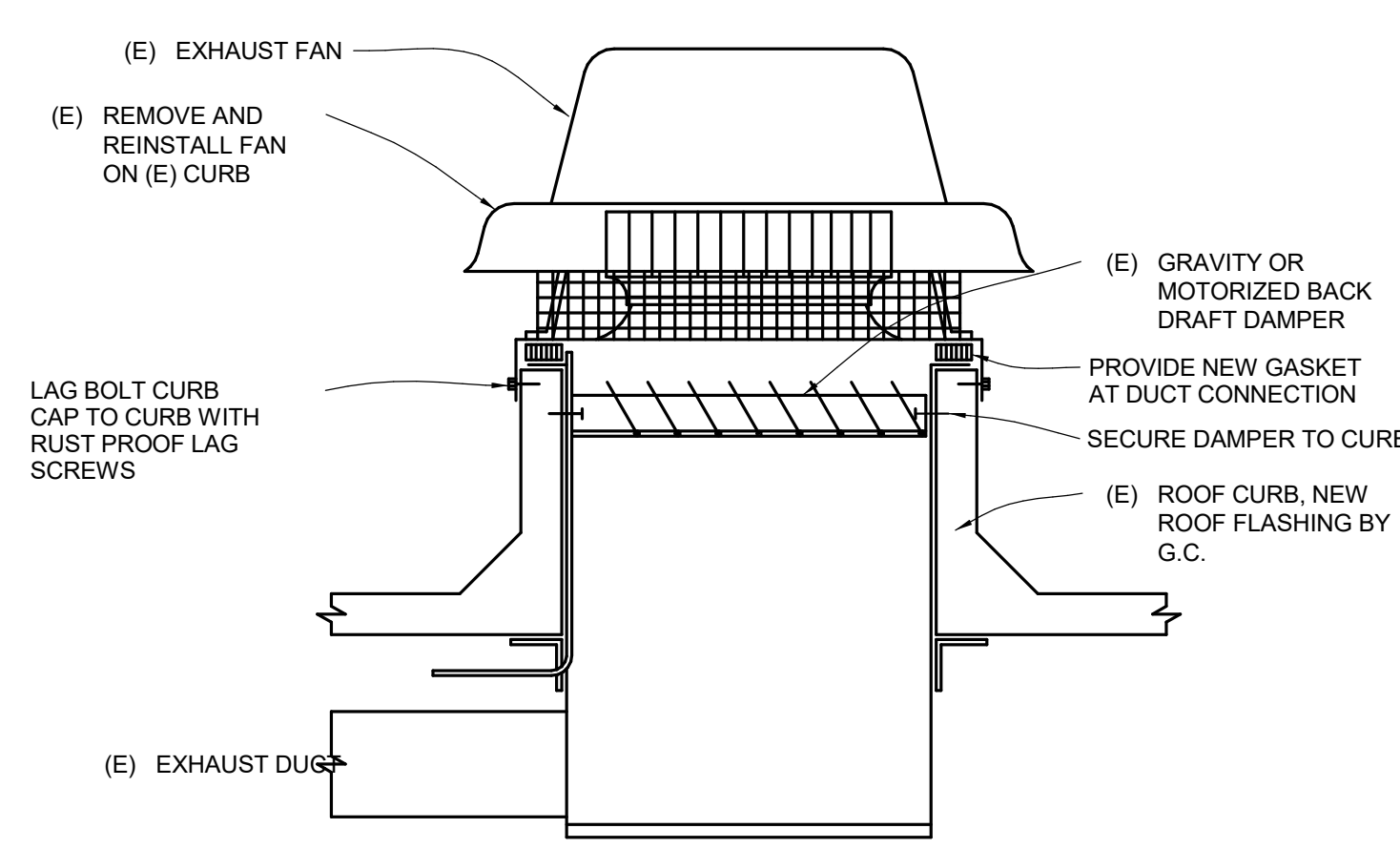
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REVIEWED BY:	NF	
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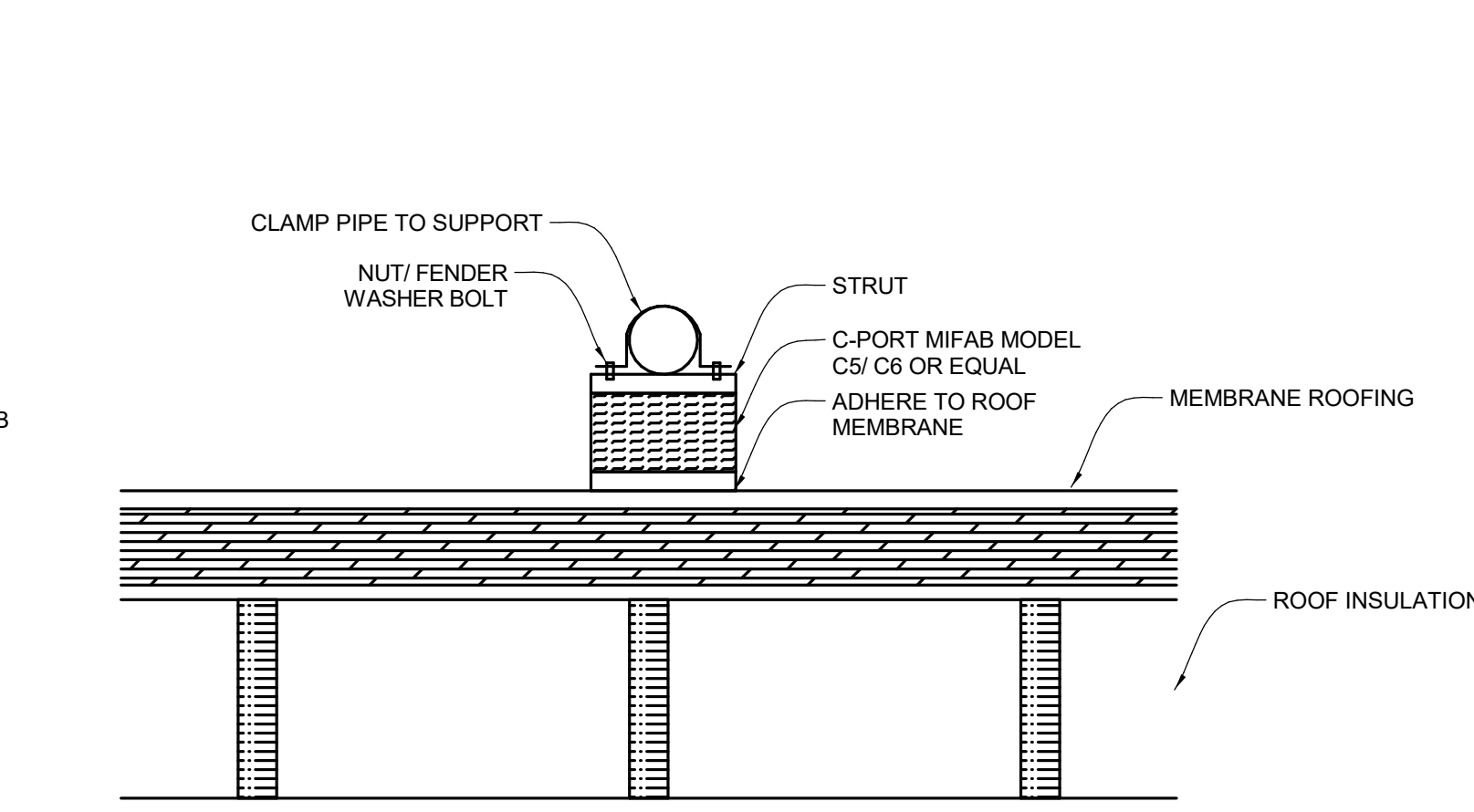


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A/E#00-00-00
BA# 2326
SHEET TITLE
ROOF DETAILS

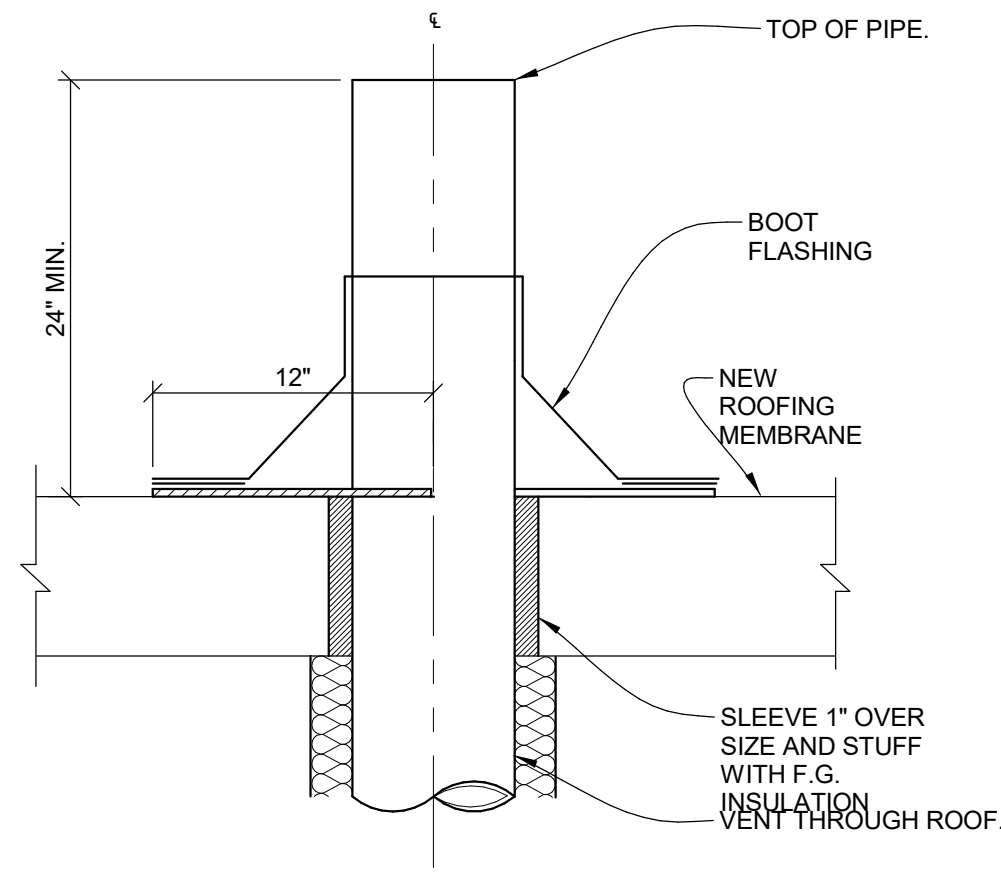
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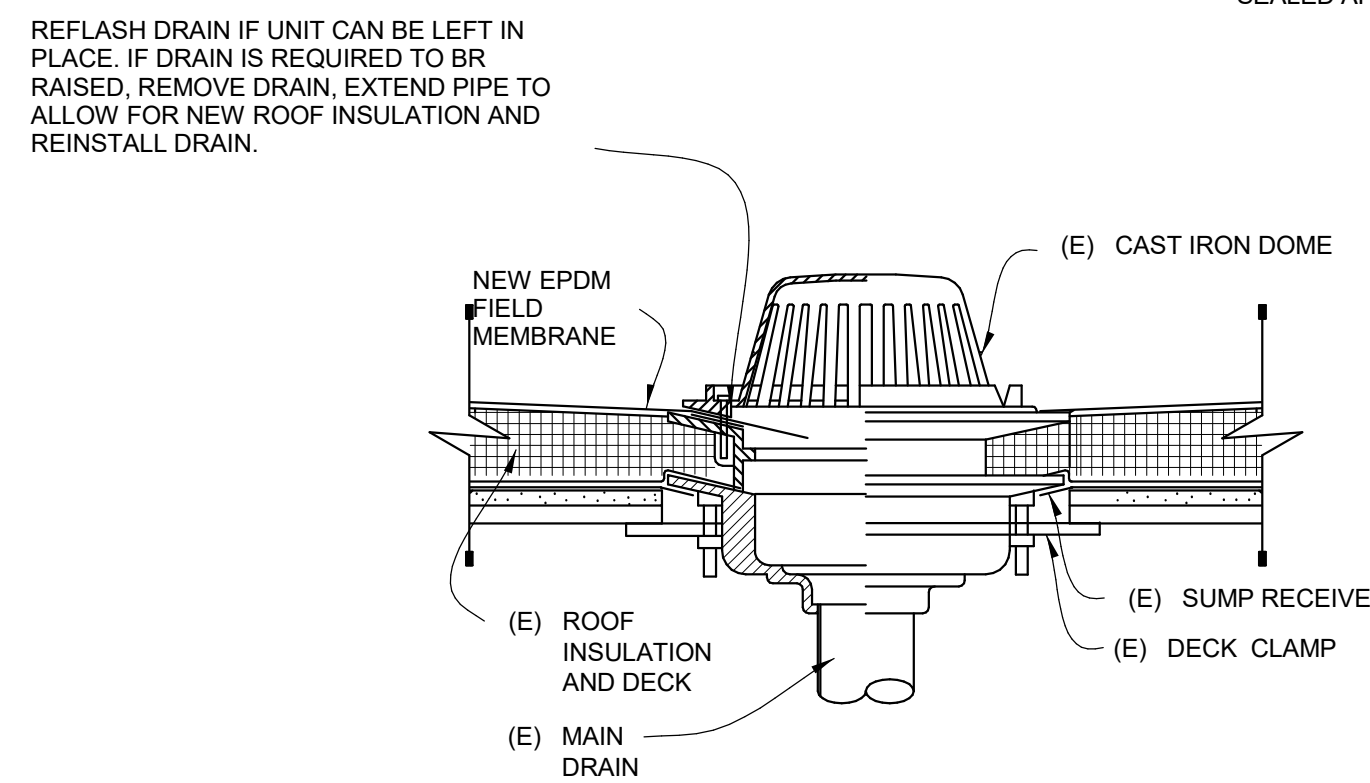
1 ROOF MOUNT EXHAUST FAN
M100
NOTE:
EXHAUST FAN TO BE SET LEVEL.



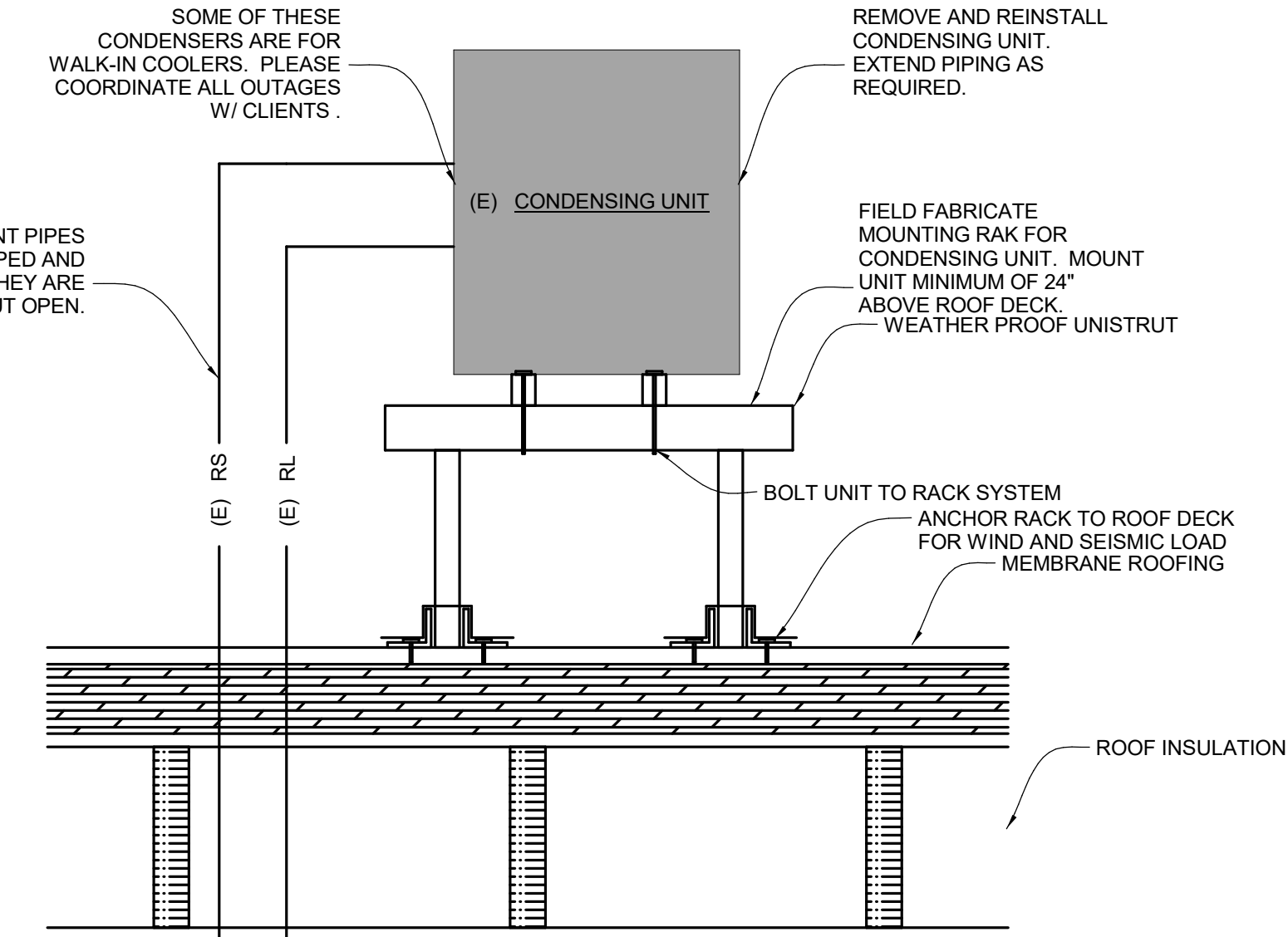
2 ROOF GAS/ REFRIGERANT PIPING SUPPORT DETAIL
M100
NOT TO SCALE



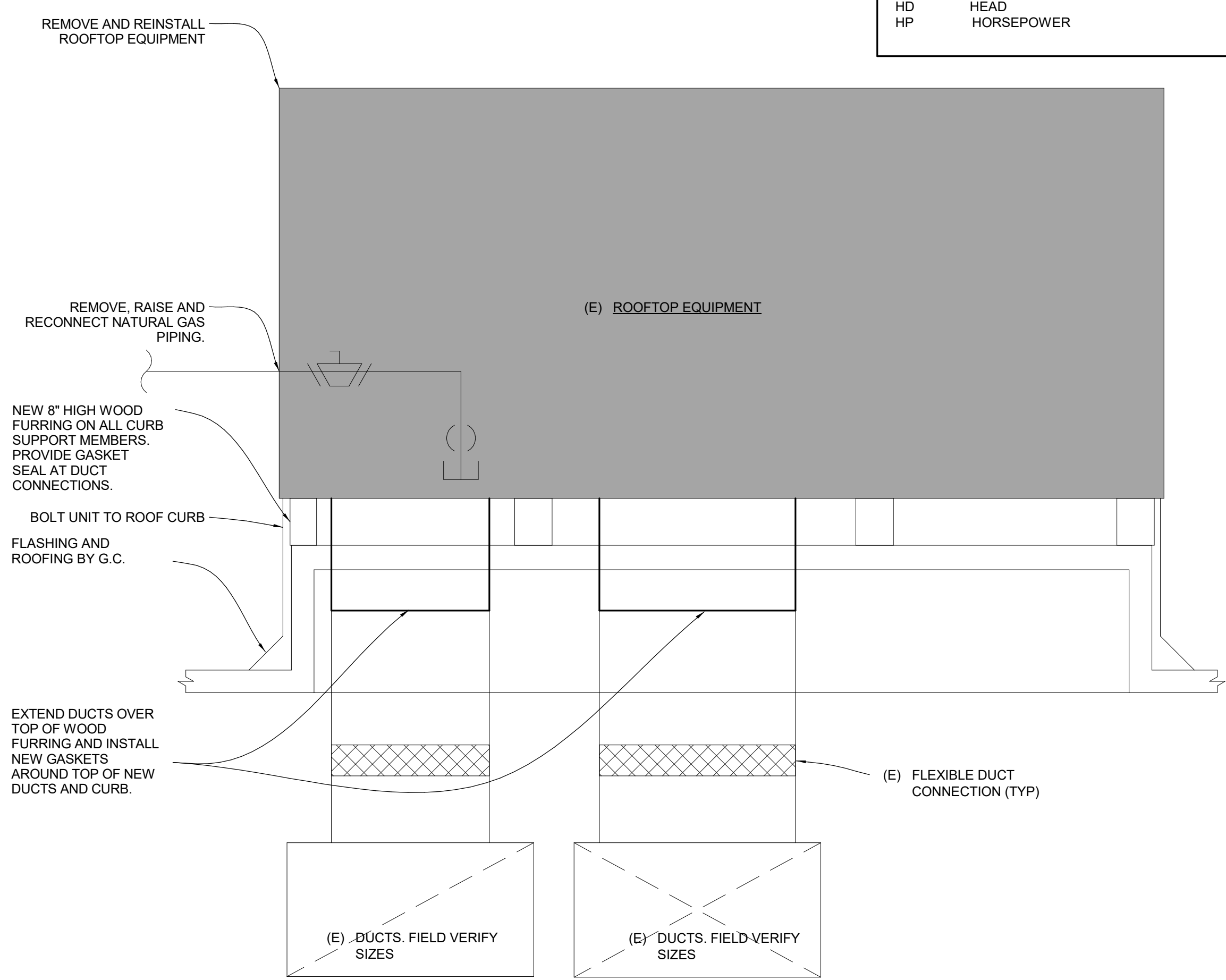
3 VENT THROUGH ROOF DETAIL
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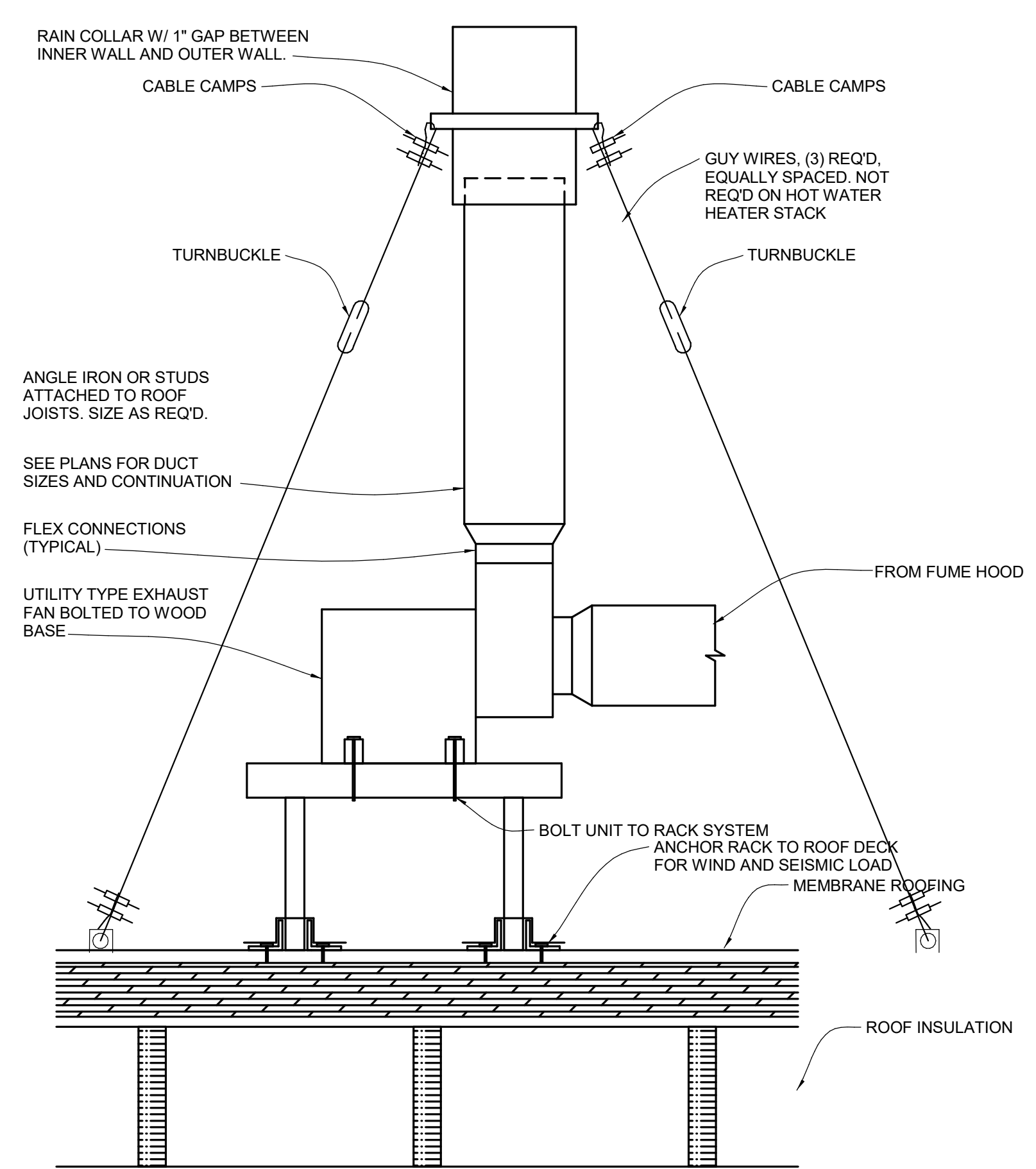
4 ROOF DRAIN DETAIL
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NOT TO SCALE



5 CONDENSING UNIT SUPPORT DETAIL
M100
NOT TO SCALE



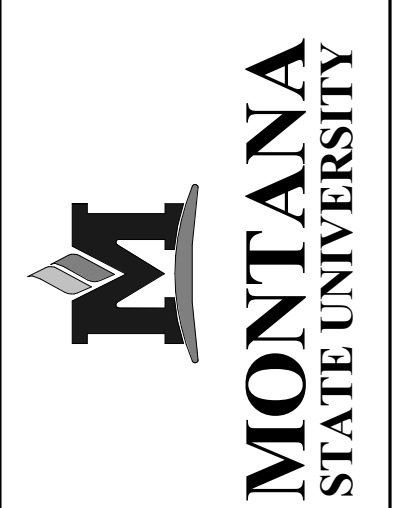
6 ROOFTOP EQUIPMENT DETAIL
M100
NOT TO SCALE



7 ROOF MOUNTED UTILITY SET EXHAUST FAN MOUNTING DETAIL
M100
NOT TO SCALE

HVAC ABBREVIATIONS		MECHANICAL LEGEND	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
AFF	ABOVE FINISHED FLOOR	⊙	ELECTRIC THERMOSTAT
ACFM	ACTUAL CFM	⊗	CO2 SENSOR
AHU	AIR HANDLING UNIT	— —	FLEX CONNECTOR
AMP	AMPERE (AMP AMPS)	— — —	TURNING VANE ELL
APD	AIR PRESSURE DROP	— — — —	45° LOW-LOSS TAKE-OFF FITTING W/ DAMPER & RIGID ROUND DUCT
APPROX	APPROXIMATE	— — — — —	90° TEE TAKE-OFF FITTING
BHP	BRAKE HORSEPOWER	— — — — — —	CONICAL 90° TEE TAKE-OFF FITTING
BTU	BRITISH THERMAL UNIT	— — — — — — —	45° TEE TAKE-OFF FITTING
MBH	BTU PER HOUR (THOUSAND)	— — — — — — — —	45°-90° TEE TAKE-OFF FITTING
CU FT	CUBIC FEET	— — — — — — — — —	S-1 (PLAN CODE) 8x8 (NECK SIZE) 200 (CFM)
CU IN	CUBIC INCH		
CFM	CUBIC FEET PER MINUTE		
SCFM	CFM, STANDARD CONDITIONS		
DB	DECIBEL		
DN	DOWN		
ID	DIAMETER, INSIDE		
OD	DIAMETER, OUTSIDE		
DBT	DRY-BULB TEMPERATURE		
(E)	EXISTING		
EAT	ENTERING AIR TEMPERATURE		
E.C.	ELECTRICAL CONTRACTOR		
EWT	ENTERING WATER TEMPERATURE		
F	FAHRENHEIT		
FA	FROM ABOVE		
FB	FROM BELOW		
FPM	FEET PER MINUTE		
FT	FOOT OR FEET		
HZ	HERTZ		
GAL	GALLONS		
G.C.	GENERAL CONTRACTOR		
GPM	GALLONS PER MINUTE		
HD	HEAD		
HP	HORSEPOWER		
KW	KILOWATT		
LAT	LEAVING AIR TEMPERATURE		
LWT	LEAVING WATER TEMPERATURE		
LF	LINEAR FEET		
MAX	MAXIMUM		
M.C.	MECHANICAL CONTRACTOR		
MIN	MINIMUM		
N/A	NOT APPLICABLE		
NTS	NOT TO SCALE		
NO	NUMBER		
OB	OPPOSED BLADE DAMPER		
OA	OUTSIDE AIR		
PH	PERCENT		
PH	PHASE(ELECTRICAL)		
PSI	POUNDS PER SQUARE INCH		
PSIA	PSI ABSOLUTE		
PSIG	PSI GAUGE		
RH	RELATIVE HUMIDITY		
RA	RETURN AIR		
RPM	REVOLUTIONS PER MINUTE		
SH	SENSIBLE HEAT		
SP	STATIC PRESSURE		
SA	SUPPLY AIR		
STD	STANDARD		
TEMP	TEMPERATURE		
TD	TEMPERATURE DIFFERENCE		
T STAT	THERMOSTAT		
TONS	TONS OF REFRIGERATION		
T.C.	TEMPERATURE CONTROL		
VELOCITY	VELOCITY		
V	VOLT		
V	VOLUME		
VFD	VARIABLE FREQUENCY DRIVE		
WPD	WATER PRESSURE DROP		
W	WITH		

- GENERAL MECHANICAL NOTES:
- FOR MECHANICAL SPECIFICATIONS, REFER TO PROJECT MANUAL.
 - CODES AND STANDARDS LISTED IN SPECIFICATIONS AND DRAWINGS ARE MINIMUM STANDARDS. WHERE REQUIREMENTS ON THE DRAWINGS OR SPECIFICATIONS EXCEED THE MINIMUM CODE REQUIREMENTS, THE DRAWINGS OR SPECIFICATIONS SHALL GOVERN.
 - THE POWER RATING OF MOTORS AND OTHER MECHANICAL EQUIPMENT AND THE ELECTRICAL CHARACTERISTICS OF ELECTRICAL SYSTEMS SERVING THEM HAVE BEEN ESTABLISHED AS MINIMUMS WHICH ALLOW THAT EQUIPMENT TO FUNCTION PROPERLY TO PRODUCE THE REQUIRED CAPACITIES. POWER RATINGS INCLUDE REASONABLE SAFETY FACTORS TO ACCOMMODATE COMMON DIFFERENCES BETWEEN DESIGN PARAMETERS AND FIELD CONSTRUCTION PRACTICES. EQUIPMENT WITH POWER RATINGS LESS THAN THOSE INDICATED ON THE DRAWINGS SHALL NOT BE PERMITTED.
 - REASONABLE EFFORTS HAVE BEEN MADE TO COORDINATE ELECTRICAL REQUIREMENTS OF MECHANICAL EQUIPMENT WITH THE ELECTRICAL SYSTEMS SERVING THAT EQUIPMENT. DIFFERENCES AMONG MANUFACTURERS OF MECHANICAL EQUIPMENT MAKE IT IMPOSSIBLE TO PRODUCE A SINGLE ELECTRICAL DESIGN WHICH WILL SATISFY THE VARYING ELECTRICAL REQUIREMENTS OF THE THOSE MANUFACTURERS. CONSEQUENTLY, THE CONTRACTOR SHALL COORDINATE THE ELECTRICAL REQUIREMENTS OF THE MECHANICAL EQUIPMENT ACTUALLY FURNISHED ON THIS PROJECT WITH THE EQUIPMENT ACTUALLY FURNISHED ON THIS PROJECT AND PROVIDE ELECTRICAL SYSTEMS REQUIRED BY THAT EQUIPMENT. THIS COORDINATION EFFORT SHALL BE COMPLETED PRIOR TO THE INSTALLATION OF EITHER THE MECHANICAL EQUIPMENT OR THE ELECTRICAL SYSTEMS SERVING THAT EQUIPMENT. ELECTRICAL SYSTEM REVISIONS REQUIRED TO COORDINATE WITH THE MECHANICAL EQUIPMENT ACTUALLY FURNISHED SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
 - DRAWINGS INDICATE GENERAL LOCATIONS OF FIXTURES, APPARATUS, EQUIPMENT, PIPING, AND DUCTWORK. CHANGES ON LOCATION SHALL BE MADE TO ACCOMMODATE EXISTING OR NEW BUILDING CONDITIONS AND COORDINATION WITH OTHER TRADES, INCLUDING HVAC, PLUMBING, ELECTRICAL, FIRE PROTECTION, STRUCTURAL, AND ARCHITECTURAL, SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER.
 - PROVIDE ACCESS TO EQUIPMENT AND PORTIONS OF BUILDING SYSTEMS REQUIRING SERVICE.
 - DO NOT INSTALL DUCTWORK, PIPING, OR EQUIPMENT IN ELECTRICAL ROOMS, ELEVATOR ROOMS, OR ELEVATOR SHAFTS, UNLESS EXPLICITLY INDICATED ON THE DRAWINGS. PIPING, DUCTWORK, AND EQUIPMENT (SWITCHGEAR, SWITCHBOARDS, PANELS, MOTOR CONTROL CENTERS, VARIABLE FREQUENCY DRIVES, TRANSFORMERS, OR STARTERS) SHALL NOT BE INSTALLED DIRECTLY ABOVE OR 42" IN FRONT OF ELECTRICAL EQUIPMENT FROM THE FLOOR TO THE STRUCTURE ABOVE.
 - UNLESS INDICATED OTHERWISE, EQUIPMENT AND MATERIALS SHALL BE NEW AND OF THE CUSTOMARY STANDARD AND QUALITY FURNISHED BY THE DESIGNATED MANUFACTURER FOR THAT CATALOG NUMBER.
 - AIR SYSTEMS SHALL OPERATE WITHOUT AERODYNAMIC NOISE GENERATED FROM FAULTY INSTALLATION OF DUCTWORK, DIFFUSERS, OR ANY PORTION OF THE AIR DISTRIBUTION SYSTEM.
 - SUPPORT PIPING INDEPENDENTLY OF EQUIPMENT. HANGER RODS SHALL BE SUSPENDED FROM THE STRUCTURE. DO NOT SUSPEND FROM OTHER PIPING, CONDUIT, EQUIPMENT, OR DUCTWORK.
 - ALL WORK REFERENCED UNDER DIVISION 23 SHALL BE DONE BY THE MECHANICAL CONTRACTOR.
 - UNAUTHORIZED CHANGES. IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OR ANYONE FOR WHOM THE CLIENT IS LEGALLY LIABLE MAKES OR PERMITS TO BE MADE ANY CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS OR OTHER DOCUMENTS PREPARED BY SE ENGINEERS WITHOUT OBTAINING SE ENGINEERS' PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FULL RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES. THEREFORE THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST SE ENGINEERS AND TO RELEASE SE ENGINEERS FROM ANY LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH CHANGES. IN ADDITION, THE CLIENT AGREES TO INDEMNIFY, DEFEND, AND HOLD HARMLESS SE ENGINEERS FROM ANY DAMAGES, LIABILITIES OR COSTS, INCLUDING REASONABLE ATTORNEYS' FEES AND COSTS OF DEFENSE, ARISING FROM SUCH CHANGES.



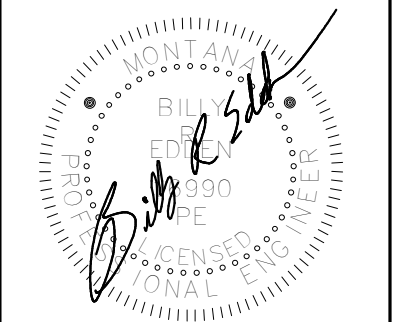
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MOLECULAR BIOSCIENCE
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DRAWN BY: Author
REVIEWED BY: Checker

REV.	DESCRIPTION	DATE

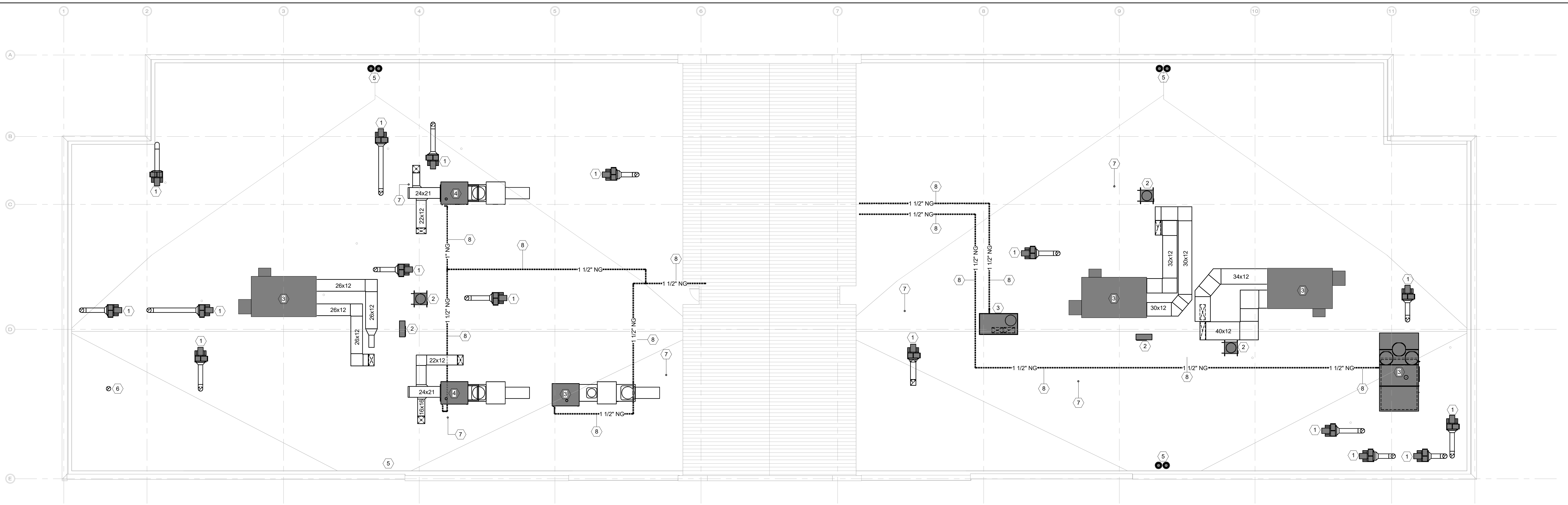


PPA#22-0045
A/E#00-00-00
BA# 2236

SHEET TITLE
MECHANICAL LEGEND, NOTES,
& SCHEDULES

SHEET
M100

DATE
NOV. 22, 2024



1 REMODEL - MECHANICAL ROOF PLAN
1/8" = 1'-0"

GENERAL NOTES

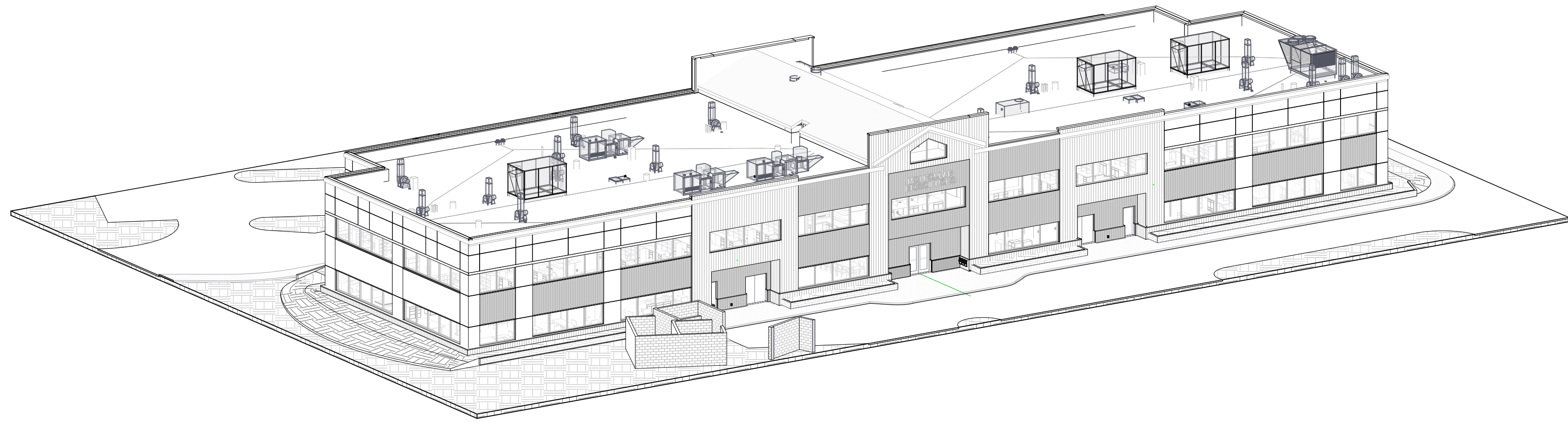
- A. COORDINATE ALL UTILITY INTERRUPTIONS W/ THE OWNER AND PROVIDE (5) WORKING DAYS NOTIFICATION PRIOR TO ANY UTILITY SHUT DOWN.
- B. ITEMS SHOWN DARK AND DASHED AND/ OR NOTED TO BE REMOVED. ITEMS SHOWN IN LIGHT LINE AND/ OR NOTED (E) ARE EXISTING TO REMAIN. ITEMS SHOWN IN HEAVY LINE AND/ OR NOTED W/ (N) ARE NEW.
- C. PROVIDE SEISMIC BRACING ON ALL PIPING, DUCTWORK, AND EQUIPMENT AS REQUIRED BY 2021 IBC.
- D. DISPOSE OF ALL DEMOLISHED ITEMS OFF SITE. OWNER HAS THE FIRST RIGHT SLAVE ANY EQUIPMENT SCHEDULED FOR DEMOLITION.
- E. EXACT ROUTING AND SIZES OF (E) PLUMBING AND PIPING IN THE BUILDING IS DIFFICULT TO DETERMINE DUE TO CONCEALMENT IN OR BEHIND (E) CONSTRUCTION. DRAWINGS SHOW APPROXIMATE (E) CONDITIONS, HOWEVER FIELD VERIFICATION WILL BE REQUIRED.
- F. PROVIDE ALL WORK TO MEET CURRENT CODES AND CONSTRUCTION STANDARDS.
- G. ALL MECHANICAL WORK SHALL BE COORDINATED W/ ARCHITECTURAL FIELD REP AND ROOFING MFR REQUIRES.

KEYNOTES

- 1 Remove (E) utility set exhaust fan, ductwork and stand. Reinstall exhaust fan, ductwork and stand after new roofing has been installed. Install duct/ roof penetration per roofing mfr's instructions. If exhaust stack height above finished roof elevation of 8'-0" can't be met, provide (N) exhaust stack and guy wires. See M100 for details.
- 2 Remove refrigerant and condensing unit. Disconnect refrigerant piping, cap pipes, and charge w/ nitrogen. Provide new 24" roof stand. Extend refrigerant pipes, anchor condensing unit to stand, and charge refrigerant piping system. Start up unit per mfr's instructions.
- 3 (E) rooftop unit is controlled by Core controls. Contact Core Controls at (406) 582-9428 to secure/ disconnect controls prior to start of work. Remove rooftop unit, disconnect ductwork, gas piping, and all associated equipment. Install new flashing and reinstall units after new roofing has been installed, contact Core Controls to reconnect controls as required.
- 4 (E) rooftop unit is controlled by Core controls. Contact Core Controls at (406) 582-9428 to secure/ disconnect controls prior to start of work. Remove rooftop unit, disconnect ductwork, gas piping, stand and all associated equipment. Reinstall unit and stand after new roofing has been installed, contact Core Controls to reconnect controls as required.
- 5 Remove roof drain/s. Extend 4" roof drain piping and reinstall after new roofing has been installed.
- 6 Remove flue. Reinstall flue after new roofing has been installed. If 24" flue height can't be met, raise flue/ cap. Match existing materials and utilize storm collar.
- 7 Raise plumbing vent as required. Provide minimum of 24" above finished roof.
- 8 Remove gas piping. Reinstall after new roofing has been installed. Provide new roof pipe supports. See M100 for detail.

100% CD

Project 3D View



Sheet Index & Revision Summary

Sheet #	Sheet Name	Rev.	Description	Date
E10.0	Electrical Cover Sheet			
E1.1	Level 1 Electrical Demolition Plan			
E1.3	Roof Electrical Demolition Plan			
E1.1	Level 1 Electrical Plan			
E1.3	Roof Electrical Plan			

General Notes

- All work shall be installed in accordance with the latest National Electrical Code (NEC) and all local codes having jurisdiction. General work practices for construction shall be in accordance with NECA I standard for good workmanship in electrical construction (ANSI).
- All materials provided by the contractor shall be new and free of defects, listed / labeled for the intended purpose by Underwriters (UL) or other organization that is acceptable to the A/E/C.
- Contractor is responsible for providing all equipment required to complete the project. Any bill of materials referenced in this plan set is for reference only to illustrate design intent.
- Upon the completion of the work, the entire electrical system shall be tested and shall be shown to be in proper working condition in accordance with the intent of the specifications and drawings. It shall be the responsibility of the contractor to have all systems ready for operation and inspection by A/E/C.
- Electrical contractor to verify actual installed equipment electrical name plate data before energizing the circuit. Confirm electrical design values and actual equipment being installed are in compliance with electrical code and manufacturer installation requirements.
- Conduit runs when shown are diagrammatic. Final location and routing shall be established by the contractor based on the installation conditions and shall be verified in the field. All conduit types and installation requirements shall be in accordance with the specifications. Where conductor and cable routing is not shown on the plans, contractor shall determine routing and lengths required.
- Provide conduit expansion fittings with bonding jumpers to allow for thermal expansion and contraction where necessary, per NEC 300(B).
- Provide supports for conductors in vertical conduits per NEC 300(B). Support conduit using steel pipe straps, by in adjustable hangers, clevis hangers, or split hangers. Hanger spacing shall be installed per NEC requirements for the type of conduit being installed.
- Provide pull or junction boxes where required to facilitate the installation of conductors. Bends in conduit between pull boxes shall not exceed a total of 360 degrees.
- Provide branch circuit wiring to all items requiring electrical connections. Where branch circuit wiring is not shown, connect ramps to circuits indicated. Unless indicated otherwise, all branch circuits shall be minimum #12 AWG.
- Provide independent support for disconnect switches, control stations, boxes, panels, etc. where no walls or other structural surface exists.
- Provide disconnect switches for HVAC equipment within eye sight of the equipment.
- Contractor shall provide signage to all electrical boxes, junction boxes, disconnects, conduit runs, subpanels, and main service equipment.
- Grounding system: Permanently and effectively ground all metallic conduit, supports, cabinets, panelboards, and system neutral conductors. Maintain continuity of equipment ground throughout the system. Ground clamps shall be approved type, specifically designed for grounding. Where grounding conductor is enclosed in conduit, ground clamp shall be of a type which grounds both conductor and conduit. All circuits in flexible metal or plastic conduit shall include a ground wire sized in accordance with NEC.
- Conductors: Copper with color coding, #10 AWG and smaller to be solid or stranded, #8 AWG and larger to be stranded. Minimum #12 AWG unless otherwise indicated. Aluminum conductors permitted for feeders 100A and larger. Conductors must be installed in accordance with NEC and cannot be supported from existing support wires. All power conductors in conduit shall be THWN-2, XHHN-2, RHW-2, PWWIRE, or XLPE.

Abbreviations

A, AMP	Ampere	LV	Low Voltage
AIC	Amps Interrupting Capacity	LVR	Low Voltage Relay
AC	Alternating Current	MCB	Main Circuit Breaker
AFCD	Arc-Fault Circuit Interrupter	MDP	Main Distribution Panel
AFF	Above Finished Floor	MFR	Manufacturer
AFG	Above Finished Grade	MIN	Minimum
ATS	Automatic Transfer Switch	MLO	Main Lug Only
AV	Audio-Visual	MSB	Main Switchboard
AWG	American Wire Gauge	MV	Medium Voltage
BAS	Building Automation System	N	Neutral
BTU	British Thermal Units	NJ	New
C, CDT	Conduit	NA, N/A	Not Applicable
CB	Circuit Breaker	NEMA	National Electrical Manufacturer Association
CKT	Circuit	N.C	Normally Closed
CL	Centerline	N.O.	Normally Open
CLC	Ceiling	NTS	Not to Scale
CO	Carbon Monoxide	OCPD	Overcurrent Protective Device
CD	Conduit Only	P	Pole
CT	Current Transformer	PB	Pullbox
CU	Copper	PH	Phase
DDC	Digital Data Control	PNL	Panelboard
DWG	Drawing	PSE	Power Over Ethernet
(E)	Existing	PWR	Power
E.C.	Electrical Contractor	RECPT	Receptacle
ELEC	Electric / Electrical	RS	Rigid Steel
EM	Emergency	SD	Smoke Detector
EMT	Electrical Metallic Tubing	SHT	Sheet
EQ	Equal	SOH	Standard Outlet Height
FA	Fire Alarm	SP	Spore
FACP	Fire Alarm Control Panel	SPEC	Specification
FBO	Furnished by Others	SPD	Surge Protective Device
FLA	Full Load Amperes	SS	Surge Suppression
FSD	Fire Smoke Damper	SW	Switch
G, GND	Ground	SWBD	Switchboard
G.C.	General Contractor	SWGR	Switchgear
GEN	Generator	TEMP	Temporary
GFCI	Ground-Fault Circuit Interrupter	TVSS	Transient Voltage Surge Suppressor
HP	Hot or Power	TYP	Typical
I, BEC	Installed by Electrical Contractor	UG	Underground
IG	Isolated Ground	UN	Unless Otherwise Noted
J, JB	Junction Box	UPS	Uninterruptible Power Supply
KV	Kilovolt	V	Voltage
KVA	Kilovolt Ampere	VA	Volt Amperes
KW	Kilowatt	W	Watt
KWH	Kilowatt Hour	WP	Weatherproof
LCP	Lighting Control Panel	XFRM	Transformer

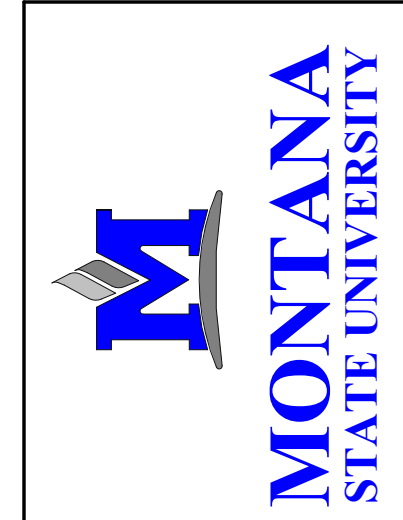
Symbol Legend

Symbols listed below are for reference and for the use in understanding the design intent. Not all symbols listed below are necessarily used elsewhere in the construction documents. Cabling information is reference only. All devices need to be assessed on an individual basis.

Electrical	Communications Audio Video

Security | Life Safety | Surveillance | Access

General Drawing Symbols



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Molecular Bioscience Building
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DRAWN BY: AC
REVIEWED BY: AM
REV. DESCRIPTION DATE

PPA#22-0045
A/E#00-00-00
BA# 2236
SHEET TITLE
Electrical Cover Sheet
SHEET
E10.0
DATE
11.22.2024

KEY PLAN

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General Sheet Notes

1. Installation of all work shall be in accordance with all local codes and ordinances and the edition of the National Electric Code NFPA 70 (NEC) in effect.
2. The electrical plans are diagrammatic only. Coordinate the electrical equipment location and installation with equipment being served.
3. Exact location of mechanical and plumbing equipment that require electrical connections are shown on the mechanical and plumbing drawings. Coordinate with mechanical and plumbing contractors.
4. All conductors shall be copper, unless otherwise noted. Minimum size shall be #12 AWG. Aluminum conductors are permitted above 100A.
5. Refer to the mechanical equipment connection schedule for disconnect requirements.
6. All smoke detectors to be listed and installed in accordance with the latest edition of NFPA 72. Smoke detectors to be wired together and receive primary power from the buildings wiring.
7. Refer to the architectural drawings for exact mounting height of receptacles.

Reference Keynotes

1. Remove GFCI receptacle to accommodate architectural demolition. Install new device in this location per E11.1.
2. Remove and reinstall equipment to accommodate new architectural finish.



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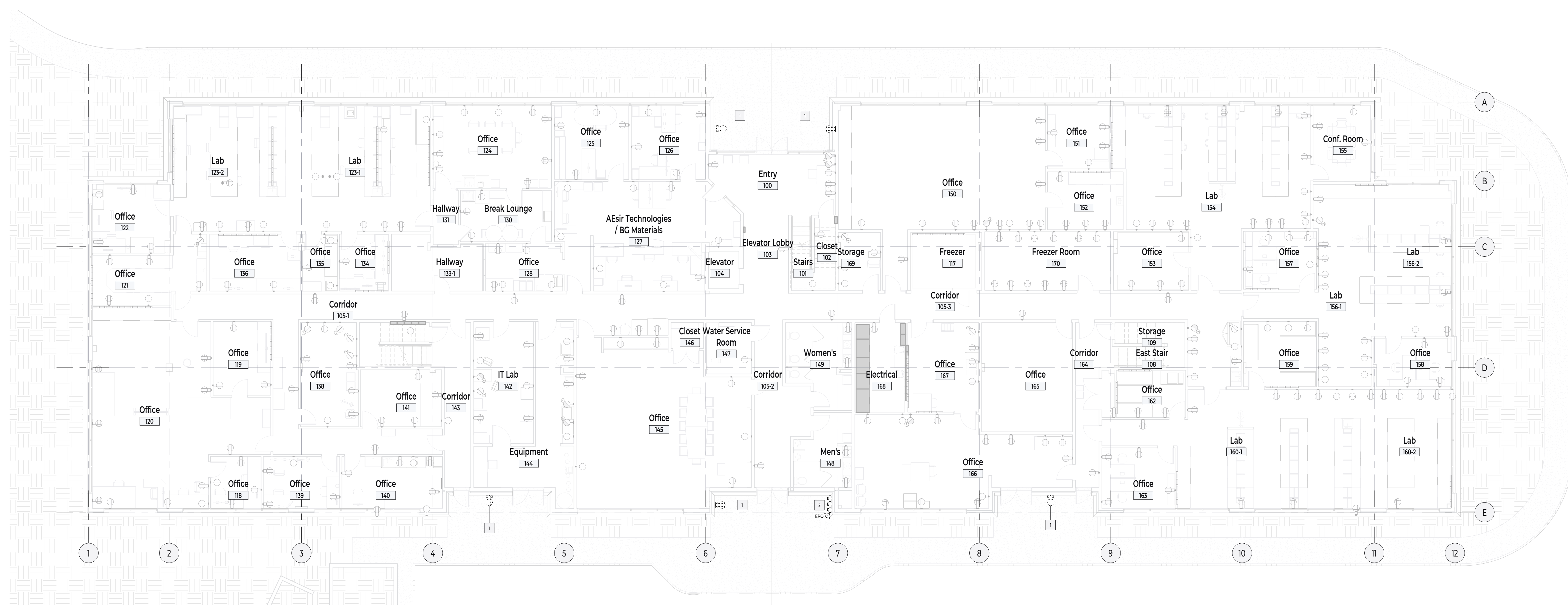
PPA#22-0045
A/E#00-00-00

BA# 2236

SHEET TITLE
Level 1 Electrical
Demolition Plan

SHEET
E1D.1

DATE
11.22.2024



1 Level 1 Electrical Demo Plan
E1D.1
1" = 10'-0"

KEY PLAN

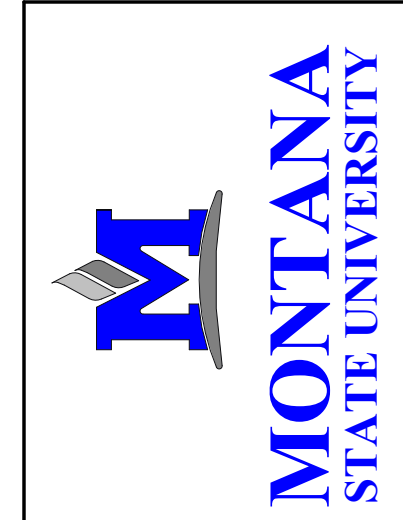
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5. Refer to the mechanical equipment connection schedule for disconnect requirements.
6. All smoke detectors to be listed and installed in accordance with the latest edition of NFPA 72. Smoke detectors to be wired together and receive primary power from the buildings wiring.
7. Refer to the architectural drawings for exact mounting height of receptacles.

Reference Keynotes

1. Disconnect existing mechanical equipment to accommodate roof removal. Protect existing conduits and boxes as required. Refer to mechanical drawings for additional information.



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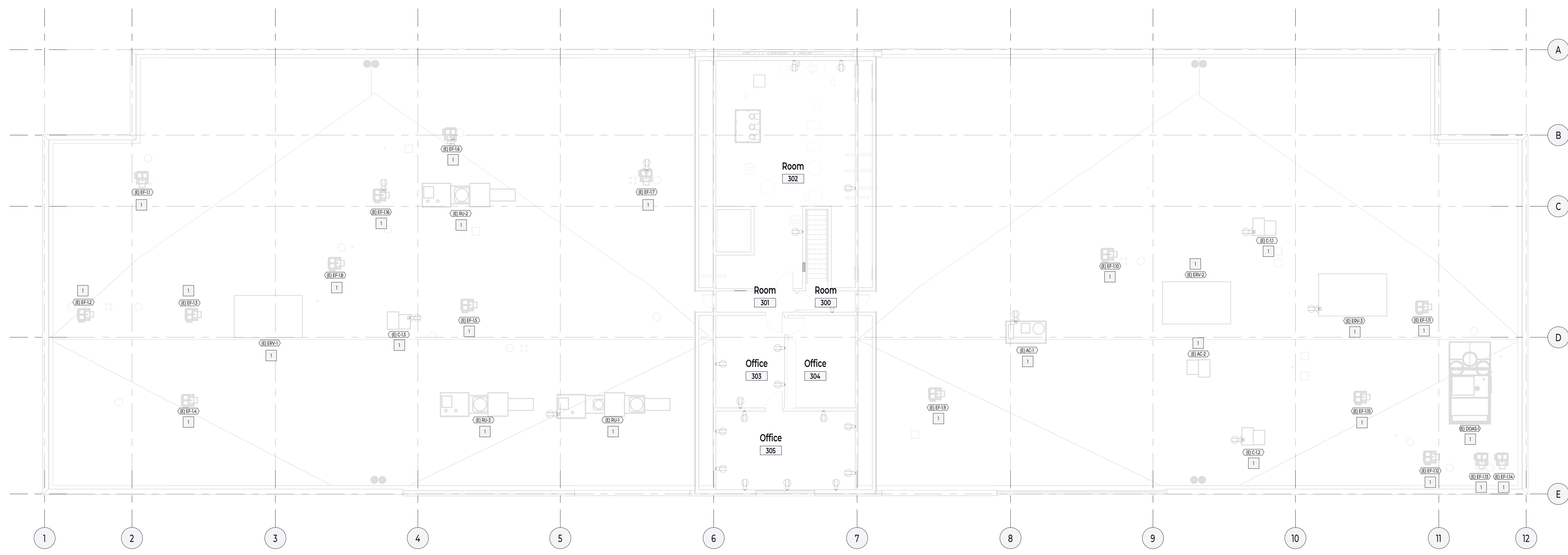
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BA# 2236

SHEET TITLE
Roof Electrical
Demolition Plan

SHEET
E1D.3

DATE
11.22.2024



1 Roof Electrical Demo Plan
E1D.3
1" = 10'-0"

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General Sheet Notes

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4. All conductors shall be copper, unless otherwise noted. Minimum size shall be #12 AWG. Aluminum conductors are permitted above 100A.
5. Refer to the mechanical equipment connection schedule for disconnect requirements.
6. All smoke detectors to be listed and installed in accordance with the latest edition of NFPA 72. Smoke detectors to be wired together and receive primary power from the buildings wiring.
7. Refer to the architectural drawings for exact mounting height of receptacles.

Reference Keynotes

1. New receptacle installed in existing location to accommodate new exterior architectural finish. Provide extension rings or extend raceway as required to accommodate new finish.
2. Reinstall equipment in existing location to accommodate new architectural finish. Provide extension rings or extend raceway as required to accommodate new finish.



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REV. DESCRIPTION DATE

REV.	DESCRIPTION	DATE

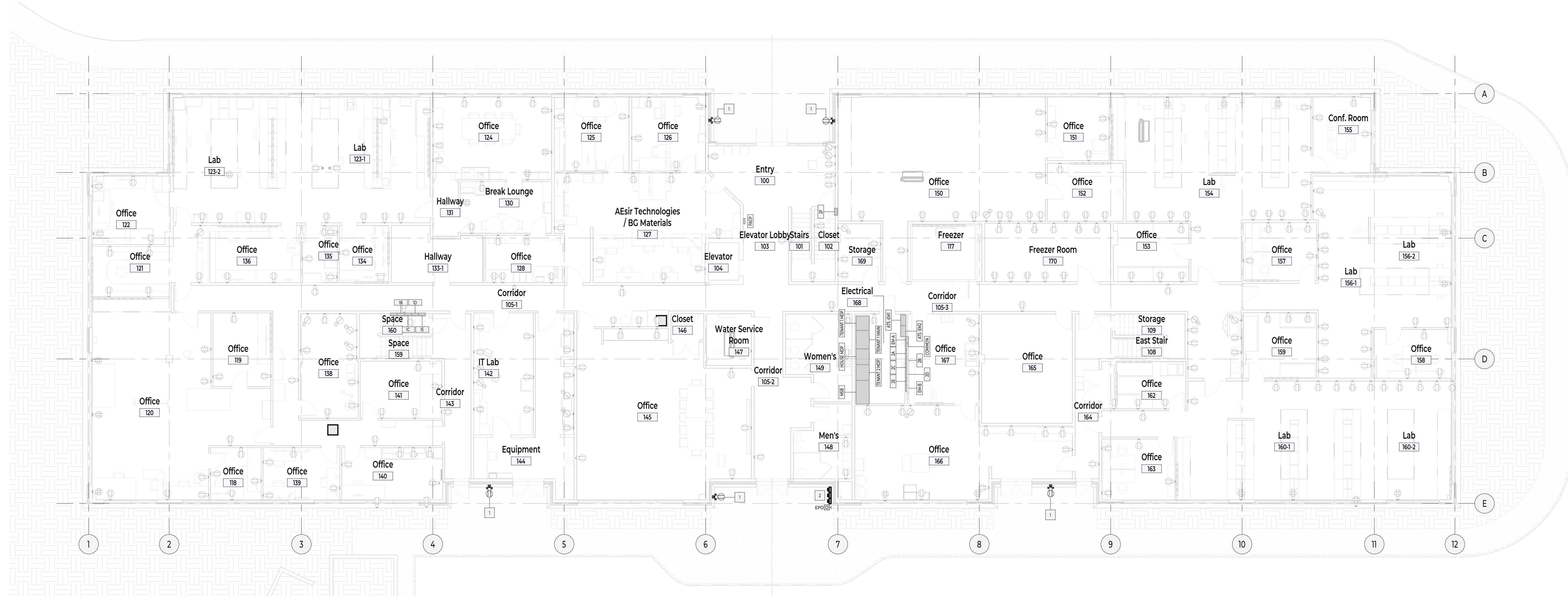
PPA#22-0045
A/E#00-00-00

BA# 2236

SHEET TITLE
Level 1 Electrical
Plan

SHEET
E11.1

DATE
11.22.2024



1 Level 1 Electrical Plan
E11.1
1" = 10'-0"

KEY PLAN

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4. All conductors shall be copper, unless otherwise noted. Minimum size shall be #12 AWG. Aluminum conductors are permitted above 100A.
5. Refer to the mechanical equipment connection schedule for disconnect requirements.
6. All smoke detectors to be listed and installed in accordance with the latest edition of NFPA 72. Smoke detectors to be wired together and receive primary power from the buildings wiring.
7. Refer to the architectural drawings for exact mounting height of receptacles.

Reference Keynotes

1. Reconnect existing mechanical equipment being reinstalled in this location. Extend existing conduit and wiring as required. Ensure disconnecting means is not damaged during disconnection and reinstallation.
2. EC to install new weatherproof receptacle in this location where existing conduit and junction box serving previously demolished receptacle remain.



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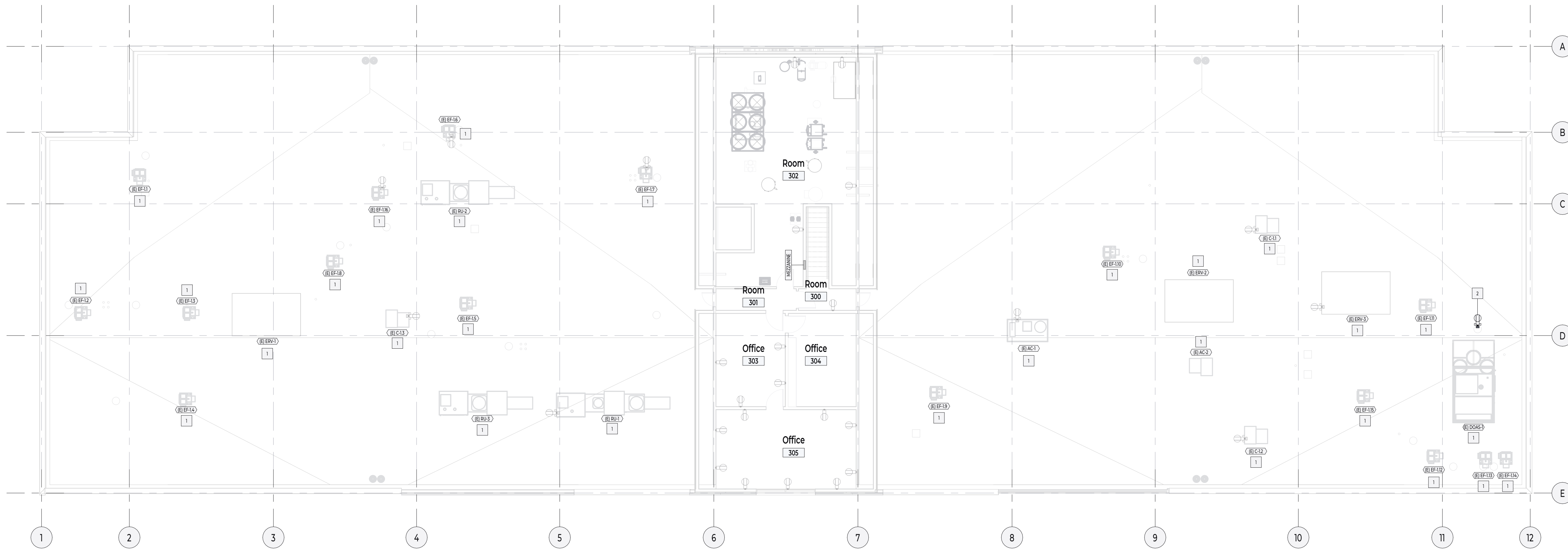
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BA# 2236

SHEET TITLE
Roof Electrical
Plan

SHEET
E11.3

DATE
11.22.2024



1 Roof Electrical Plan
E11.3
1" = 10'-0"

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