



Greenville County Schools ARMSTRONG ELEMENTARY SCHOOL ROOF RECOVER PROJECT

PROJECT ADDRESS
8601 White Horse Road
Greenville, SC 29617

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ENGINEER STATE LICENSE SEAL



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 8601 White Horse Road
 Greenville, SC 29617

ISSUE DATE:
March 17, 2023

ISSUE FOR:
BID DOCUMENTS
NOT FOR CONSTRUCTION

ADDENDUM:
No. DATE DESCRIPTION:

CLIENT

GREENVILLE COUNTY SCHOOLS
2 Space Drive
Taylors, NC 29687

ENGINEERING CONSULTANT

TERRACON CONSULTANTS, INC.
2701 Westport Road

PROJECT CONTACT:

Thomas W. Lambdin, EI
Field Engineer/Facilities
e: thomas.lambdin@terracon.com
p: 704.594.8924

PROJECT TEAM:

DESIGNED BY:
TWL
DRAWN BY:
IMM
APR REVIEWER:
BME

TERRACON'S PROJECT NUMBER:

FH216232

SHEET TITLE:

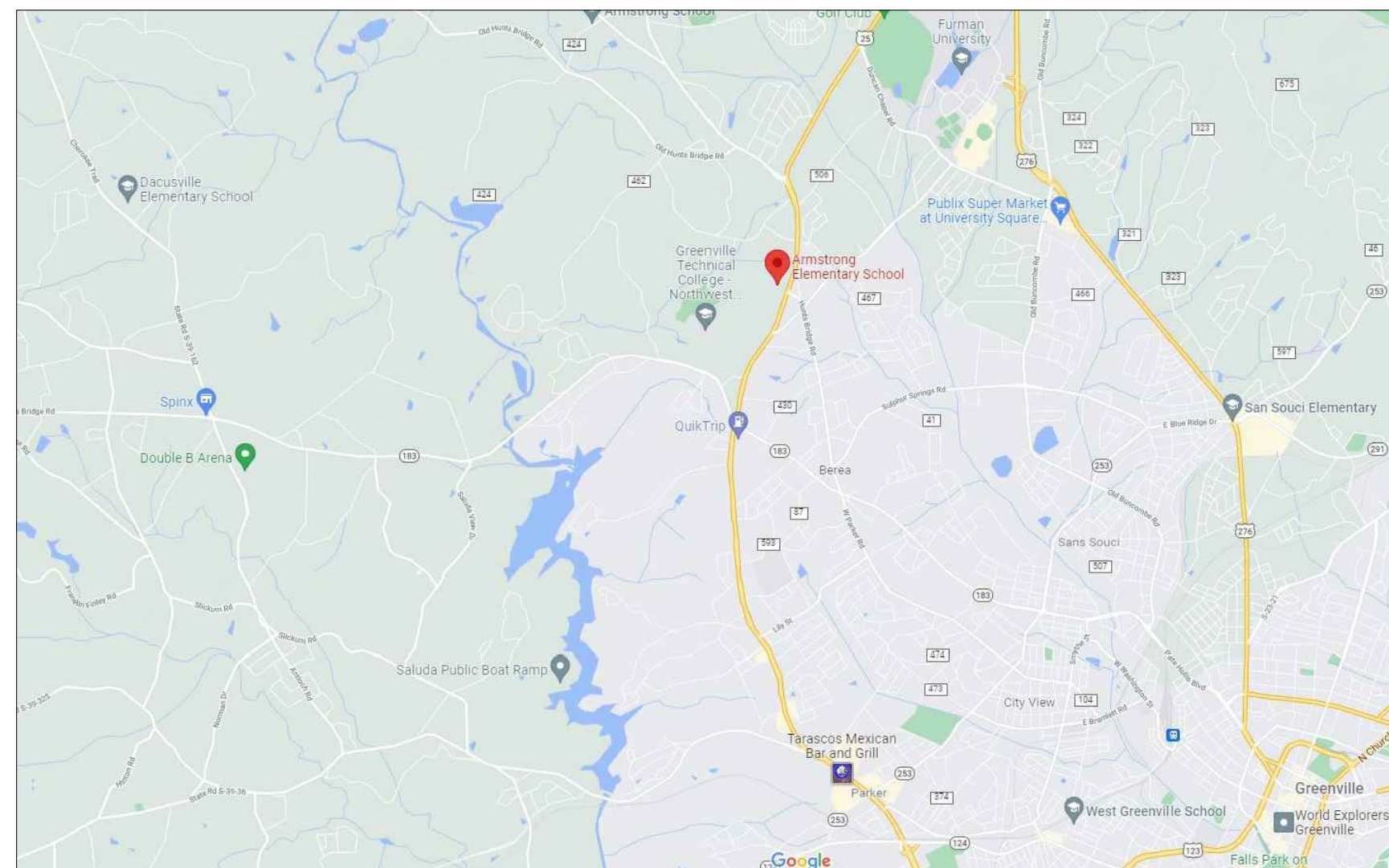
COVER SHEET

SHEET NUMBER:

G-101



Project Location



VICINITY MAP



LOCATION MAP

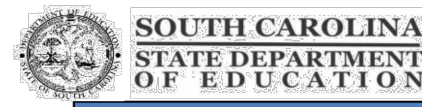
Abbreviations

- MAX. MAXIMUM
- MIN. MINIMUM
- N.I.C. NOT IN CONTRACT
- O.C. ON CENTER
- TYP. TYPICAL
- SIM. SIMILAR

Details / Elevations / Sections Identifier

- ELEVATION/DETAIL/SECTION LABEL
- SHEET SHOWN ON
- SHADING IDENTIFIES EXISTING CONDITIONS AND NOT IN SCOPE OF WORK

SOUTH CAROLINA OSF FORM F3



Form F3 – Re-Roofing Analysis

Date: 06.27.2022

SUBMITTAL: Schematic Design Development Construction Document

SC CODE EDITION: 2018 ICC CODE EDITION: 2018 ICC A117.1 EDITION: N/A OSF GUIDE EDITION: 2018
OTHER CODES/STANDARDS & EDITIONS: ASCE 7-16

PROJECT DESCRIPTION: [Brief Scope of Work & Include project delivery method (i.e. CMR, etc.)]
Project consists of a construction documents for a roof recover at Armstrong Elementary School. Documents delivered to client via e-mail.

BASIC RE-ROOFING CODE INFORMATION

DESIGNATED AREAS OF BUILDING	Building Code	Area 1	Area 2	Area 3	Area 4	Area 5
CONSTRUCTION CLASSIFICATION TYPE	Section 602	Type IIB	Construction type consistent throughout.			
Roof Construction including supporting beams & joist	Table 601	-	-	-	-	-
As Required, Hrs		0				
As Designed, Hrs		0				
Testing Agency & Design No. (UL, FM, etc.)		Recover				
Wall/Partition Key Code		N/A				

1 of 2

Version May 2021



Form F3 – Re-Roofing Analysis

STRUCTURAL DESIGN INFORMATION, BUILDING

WIND LOADS	Analysis Procedure (ASCE 7 or SCBC 1609.6)	ASCE 7										
	Basic design Wind Speed, MPH (3 sec gust IBC Fig 1609.3)	115 = V										
	Exposure Category	B										
	Wind Importance Factor (ASCE 7 Table 1.5-2)	1.0 = I _w										
	Internal Pressure Coefficient (ASCE 7)	+/-0.18 = GC _{pi}										
	External Pressure Coefficient (ASCE 7)	<table border="1"> <thead> <tr> <th>Zone</th> <th>GC_p</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>-3.2</td> </tr> <tr> <td>2</td> <td>-2.3</td> </tr> <tr> <td>1</td> <td>-1.7</td> </tr> <tr> <td>1'</td> <td>-0.9</td> </tr> </tbody> </table>	Zone	GC _p	3	-3.2	2	-2.3	1	-1.7	1'	-0.9
Zone	GC _p											
3	-3.2											
2	-2.3											
1	-1.7											
1'	-0.9											

CONSTRUCTION DOCUMENTS

- I. Signed, sealed and dated drawings
- II. Fully coordinated within and with the Project Manual.

PROJECT MANUAL

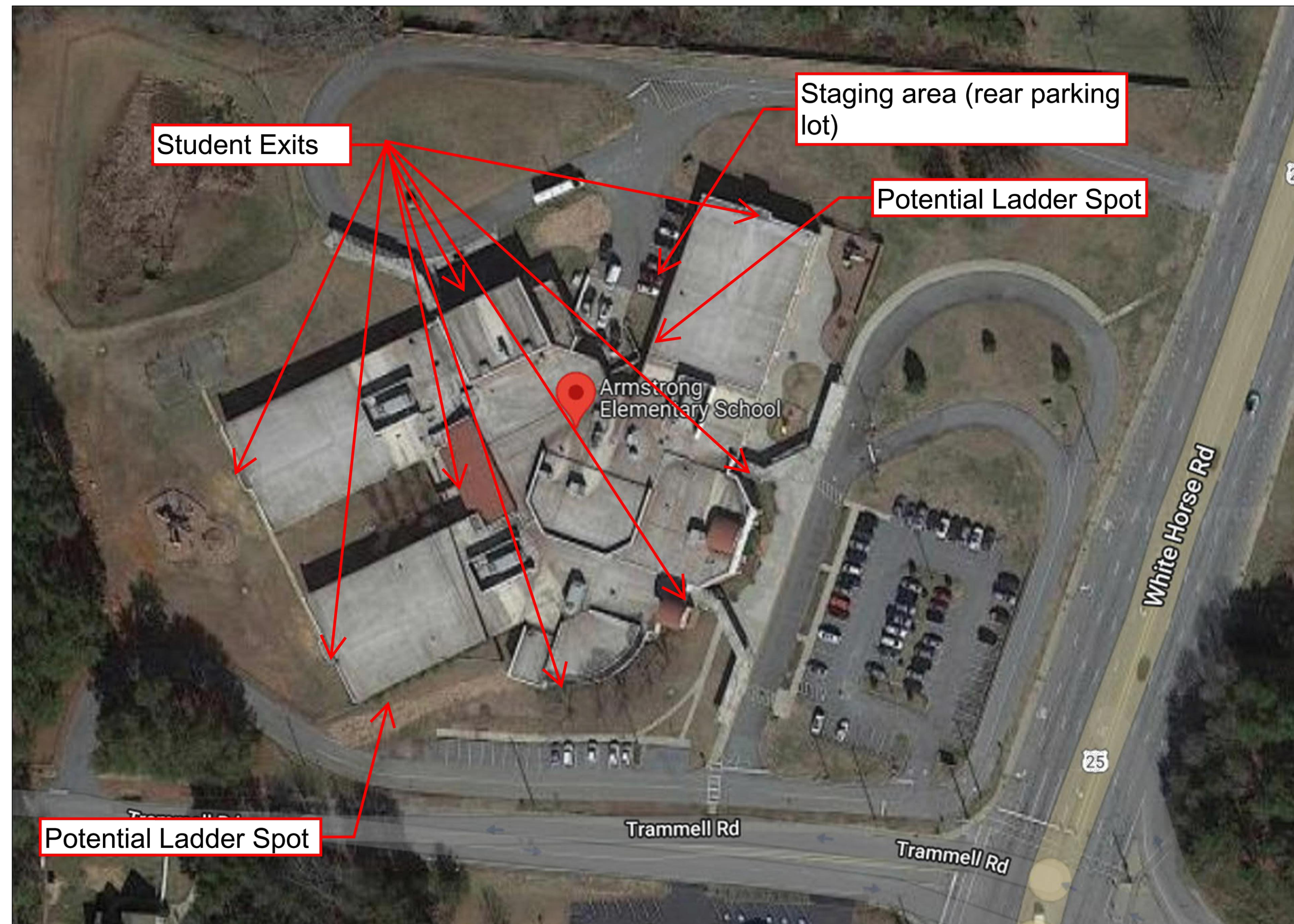
- I. Signed, sealed and dated
- II. Fully coordinated within and with the Construction Documents
- This information shall be part and within the drawing sheet set.

ADDITIONAL QUESTIONS

1. Prepare a site plan showing the life safety plan during construction and any additional details on how the contractor will keep the school administration informed about issues that may affect daily operations in the building.	Contractor will maintain contact with administrative staff and inform them of cutoffs or other interruptions to daily operations.
2. Will there be additional weight added to the existing structure?	The amount of weight being added is approximately equal to the amount of weight being removed.
3. What will the insulation values be in areas being reroofed? Confirm the insulation will meet current energy codes.	Insulation values will be an R-value of 21 in areas being reroofed. An R-Value of approximately 1 will be added in recover.
4. Will the existing roof drainage stay the same and meet current code?	Gutter sizing will be increased in certain locations to meet current code. Overflow scuppers will be added at necessary locations. Downspout sizing will remain the same.
5. What will the new roof assembly consist of?	Assembly will consist of 2-ply mod bit membrane on top of adhered coverboard on top of existing BUR system. Wet areas will be removed down to deck and dry insulation will be installed.
6. What type of inspections will be performed?	Periodic quality assurance inspections will be performed along with final warranty inspections.
7. Once the project is complete send a copy of the Warranty Letter to OSF.	Acknowledged.
8. Is there roof mounted equipment (mechanical or other) and if new equipment curbs or curb adaptors would be needed.	No new curbs needed. In some locations curbs will need to be raised to meet 8" flashing height requirement.

2 of 2

Version May 2021



Consulting Engineers and Scientists

2701 Westport Road
Charlotte, North Carolina
p. 704.509.1777
Project No. FH216232
Terracon NC License No.: F-0869

terracon.com

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TWL

DRAWN BY:

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APR REVIEWER:

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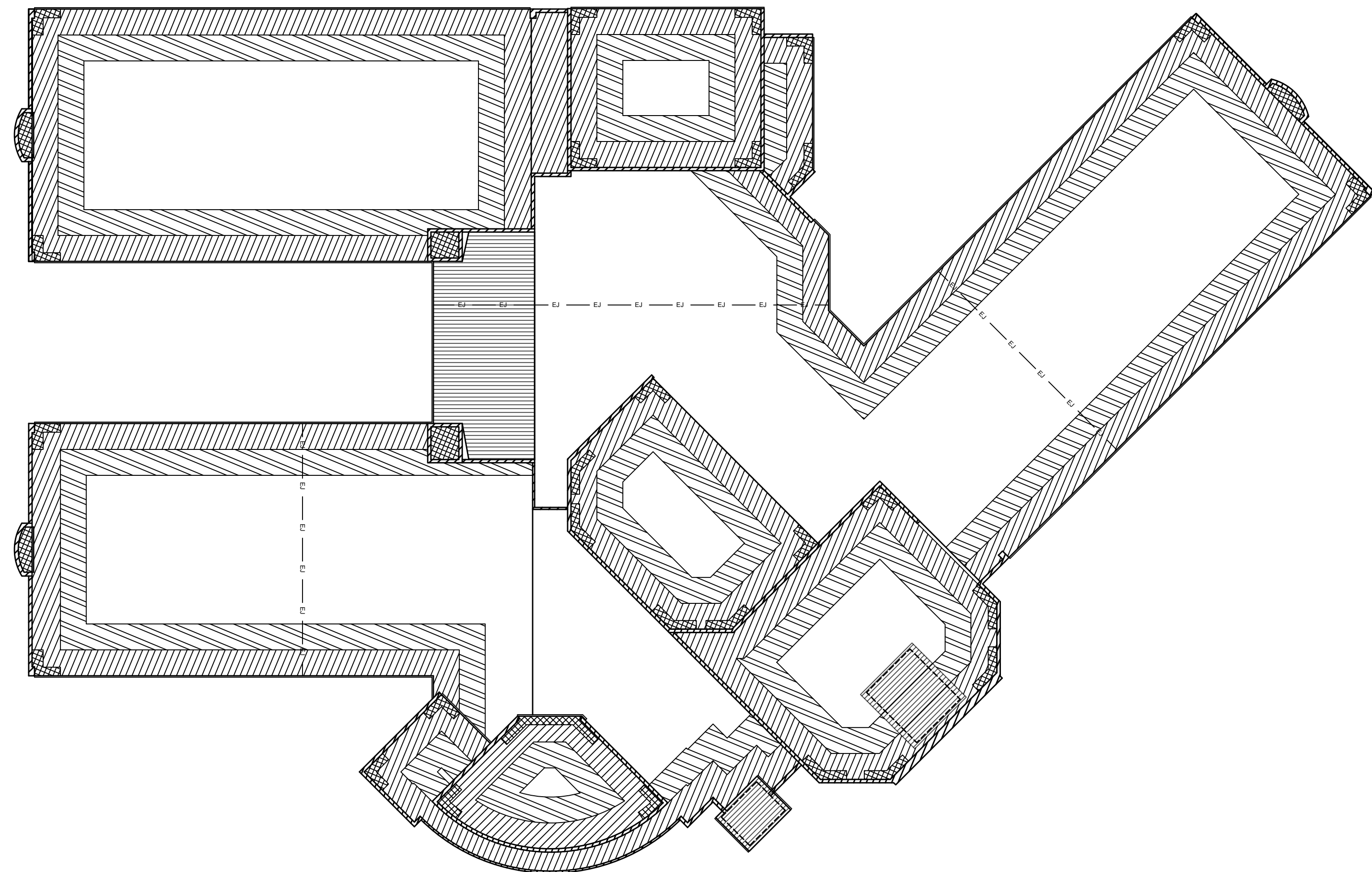
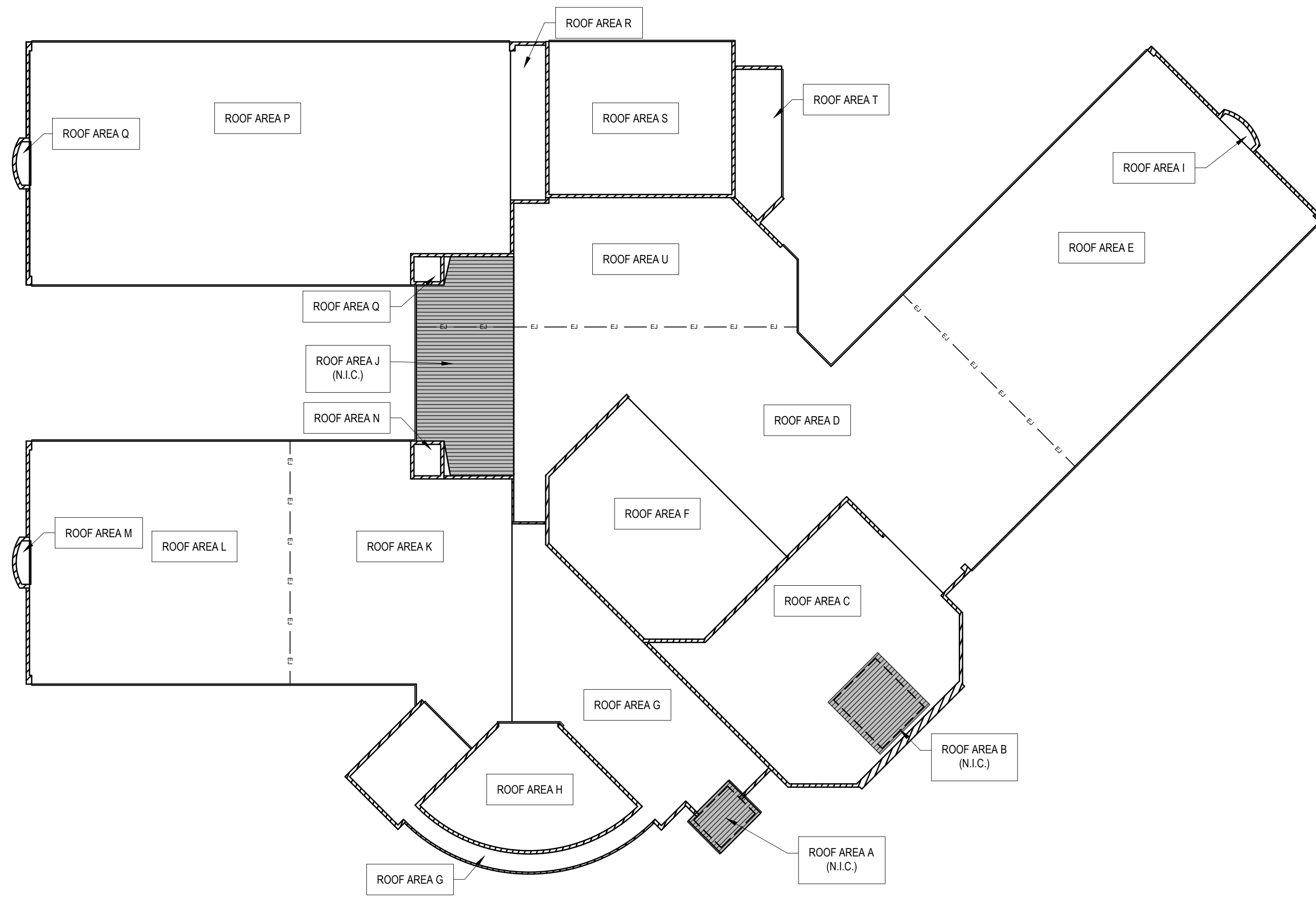
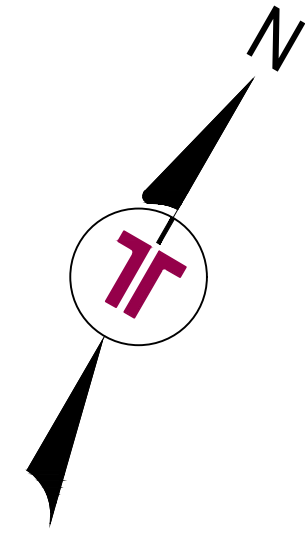
LIFE SAFETY PLAN &
SC OSF FORM F3

SHEET NUMBER:

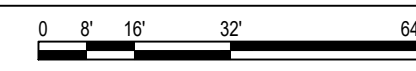
G-102

KEY PLAN

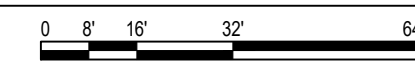
WIND ZONE PLAN



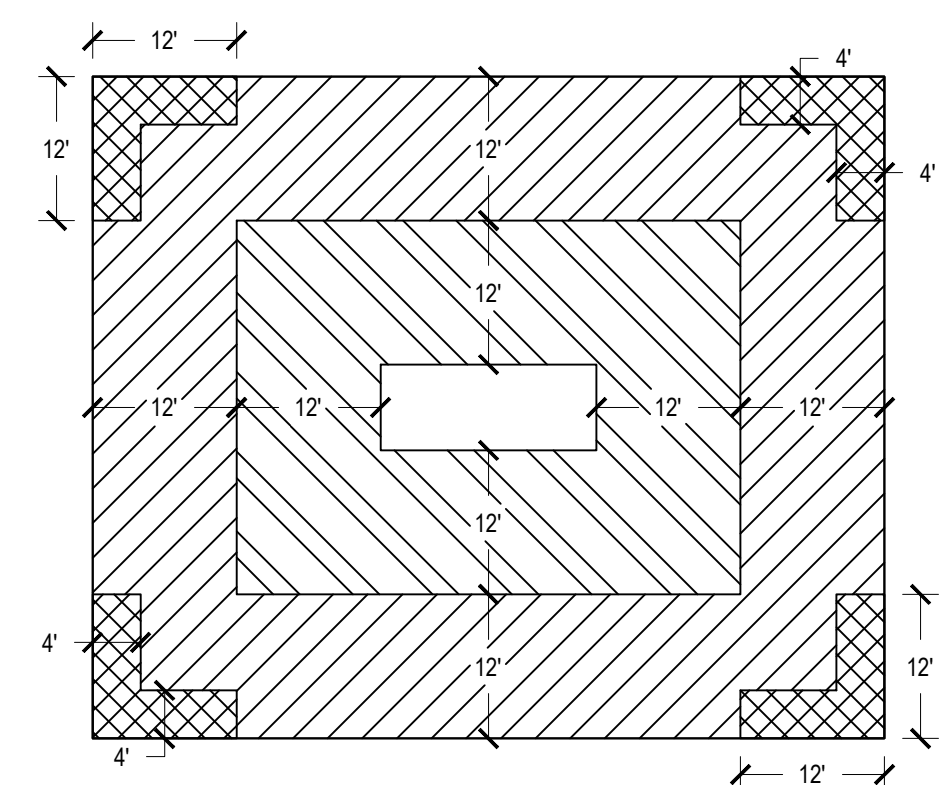
1 KEY PLAN
1/32"=1'-0"



2 WIND ZONE PLAN
1/32"=1'-0"



TYP. WIND ZONE AREAS



LEGEND

- ZONE 1 - 22 psf
- ZONE 1 - 38 psf
- ZONE 2 - 50.0 psf
- ZONE 3 - 69 psf

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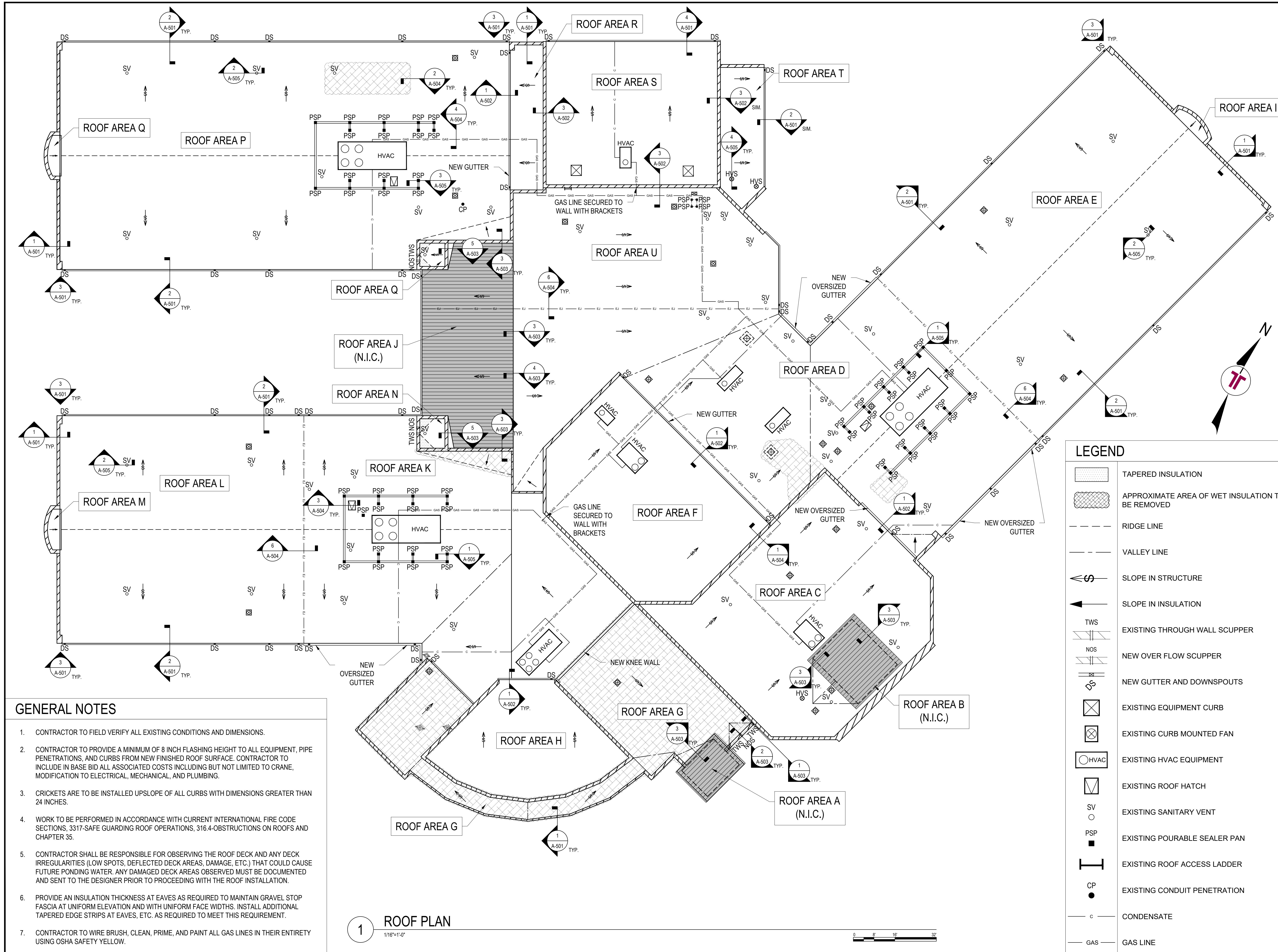
PROJECT TEAM:
DESIGNED BY:
TWL
DRAWN BY:
IMM
APR REVIEWER:
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SHEET TITLE:
KEY PLAN AND
WIND ZONE PLAN

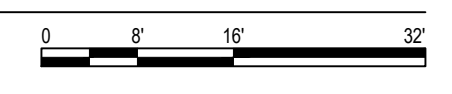
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G-103



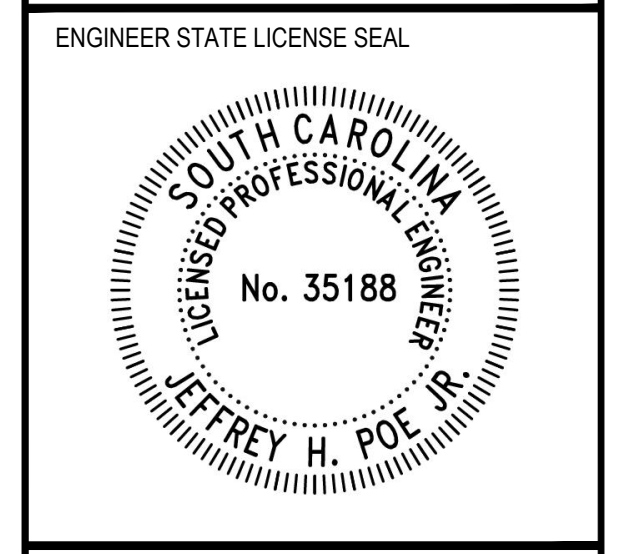
- ### GENERAL NOTES
- CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS.
 - CONTRACTOR TO PROVIDE A MINIMUM OF 8 INCH FLASHING HEIGHT TO ALL EQUIPMENT, PIPE PENETRATIONS, AND CURBS FROM NEW FINISHED ROOF SURFACE. CONTRACTOR TO INCLUDE IN BASE BID ALL ASSOCIATED COSTS INCLUDING BUT NOT LIMITED TO CRANE, MODIFICATION TO ELECTRICAL, MECHANICAL, AND PLUMBING.
 - CRICKETS ARE TO BE INSTALLED UPSLOPE OF ALL CURBS WITH DIMENSIONS GREATER THAN 24 INCHES.
 - WORK TO BE PERFORMED IN ACCORDANCE WITH CURRENT INTERNATIONAL FIRE CODE SECTIONS, 3317-SAFE GUARDING ROOF OPERATIONS, 316.4-OBSTRUCTIONS ON ROOFS AND CHAPTER 35.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR OBSERVING THE ROOF DECK AND ANY DECK IRREGULARITIES (LOW SPOTS, DEFLECTED DECK AREAS, DAMAGE, ETC.) THAT COULD CAUSE FUTURE PONDING WATER. ANY DAMAGED DECK AREAS OBSERVED MUST BE DOCUMENTED AND SENT TO THE DESIGNER PRIOR TO PROCEEDING WITH THE ROOF INSTALLATION.
 - PROVIDE AN INSULATION THICKNESS AT EAVES AS REQUIRED TO MAINTAIN GRAVEL STOP FASCIA AT UNIFORM ELEVATION AND WITH UNIFORM FACE WIDTHS. INSTALL ADDITIONAL TAPERED EDGE STRIPS AT EAVES, ETC. AS REQUIRED TO MEET THIS REQUIREMENT.
 - CONTRACTOR TO WIRE BRUSH, CLEAN, PRIME, AND PAINT ALL GAS LINES IN THEIR ENTIRETY USING OSHA SAFETY YELLOW.

1 ROOF PLAN
1/16"=1'-0"



LEGEND

	TAPERED INSULATION
	APPROXIMATE AREA OF WET INSULATION TO BE REMOVED
	RIDGE LINE
	VALLEY LINE
	SLOPE IN STRUCTURE
	SLOPE IN INSULATION
	EXISTING THROUGH WALL SCUPPER
	NEW OVER FLOW SCUPPER
	NEW GUTTER AND DOWNSPOUTS
	EXISTING EQUIPMENT CURB
	EXISTING CURB MOUNTED FAN
	EXISTING HVAC EQUIPMENT
	EXISTING ROOF HATCH
	EXISTING SANITARY VENT
	EXISTING POURABLE SEALER PAN
	EXISTING ROOF ACCESS LADDER
	EXISTING CONDUIT PENETRATION
	CONDENSATE
	GAS LINE



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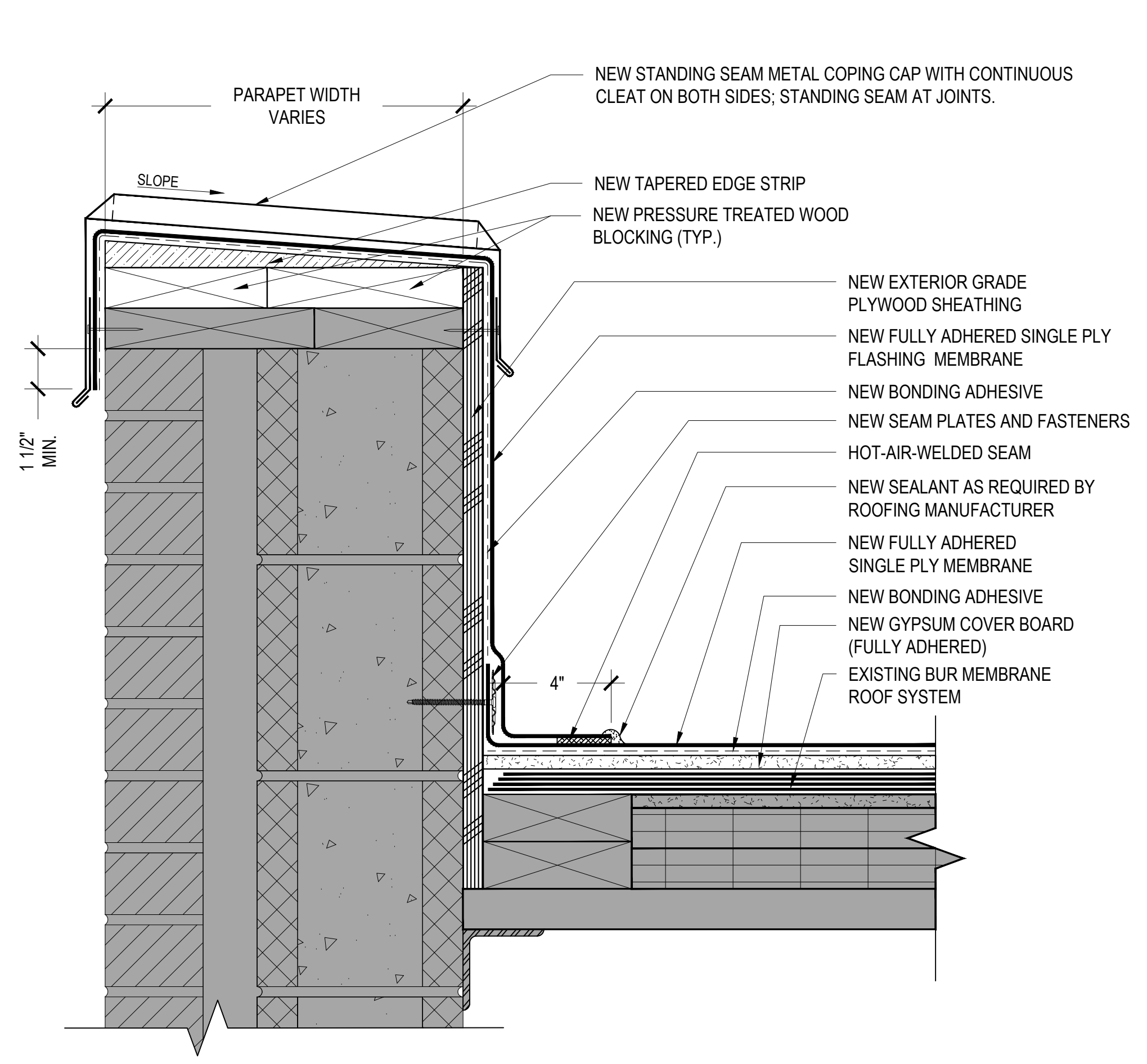
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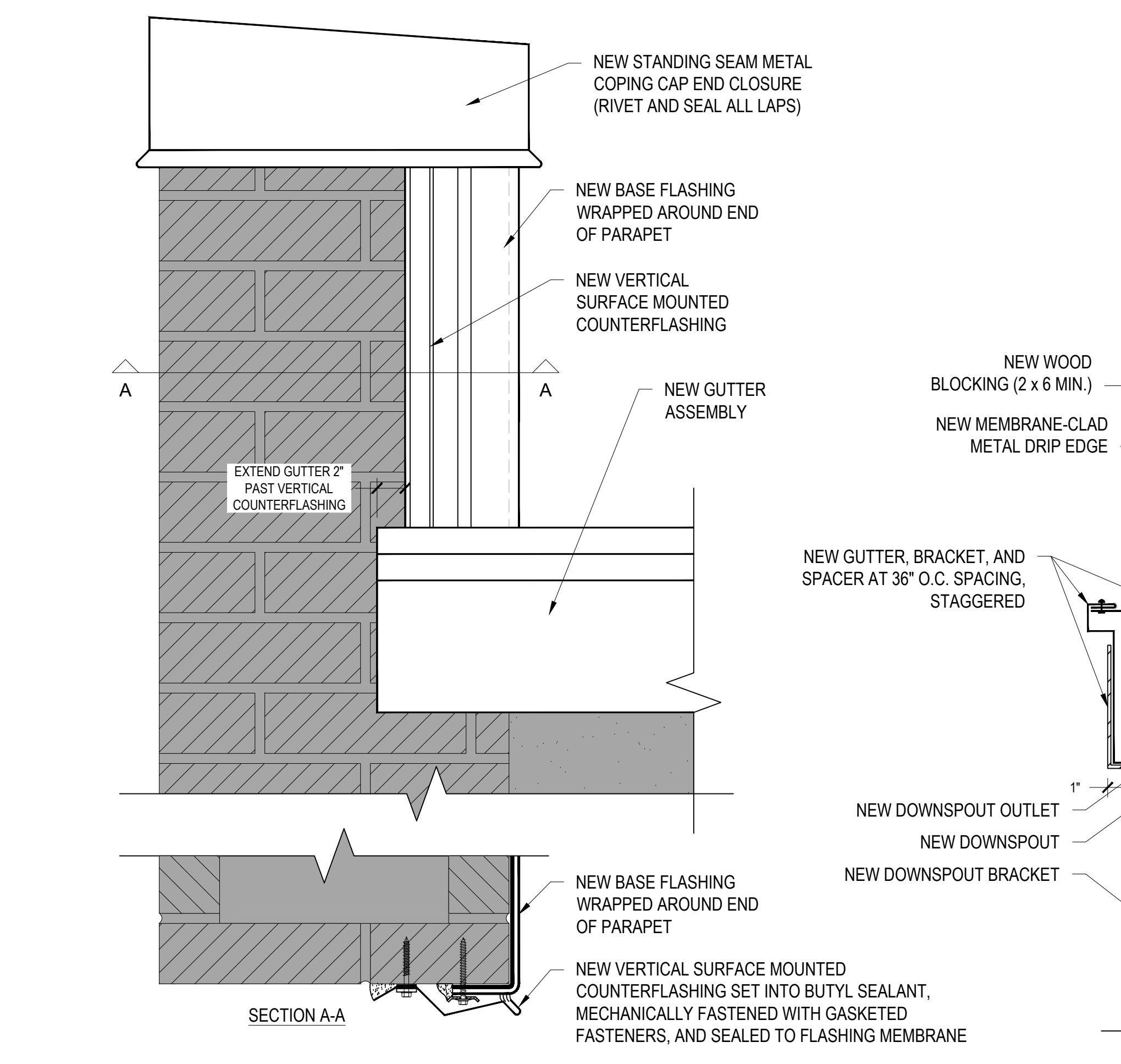
TERRACON'S PROJECT NUMBER:
FH216232

SHEET TITLE:
ROOF PLAN

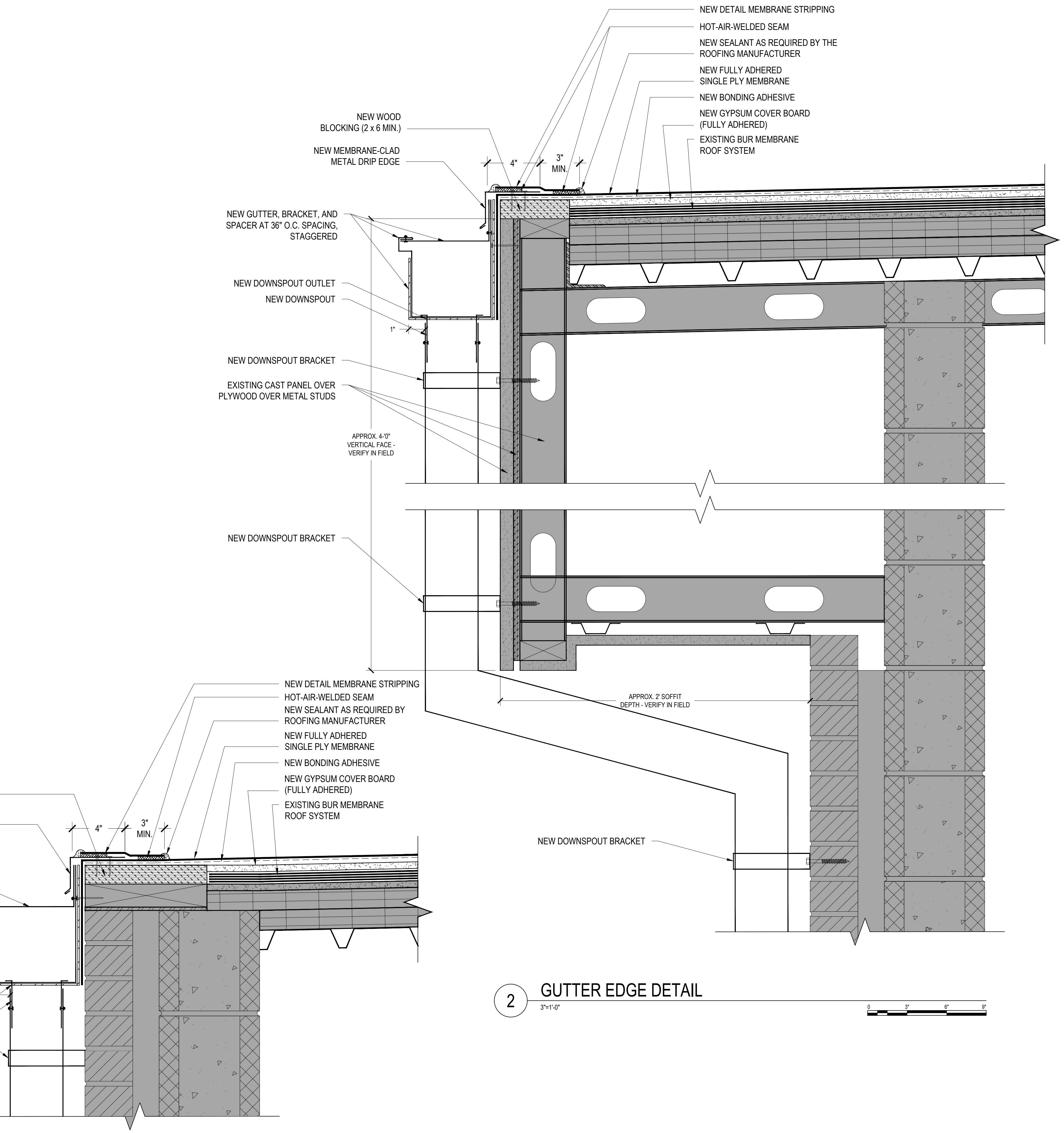
SHEET NUMBER:
A-101



1 PARAPET DETAIL
3"=1'-0"



3 PARAPET TERMINATION DETAIL
3"=1'-0"



4 GUTTER EDGE DETAIL
3"=1'-0"

2 GUTTER EDGE DETAIL
3"=1'-0"

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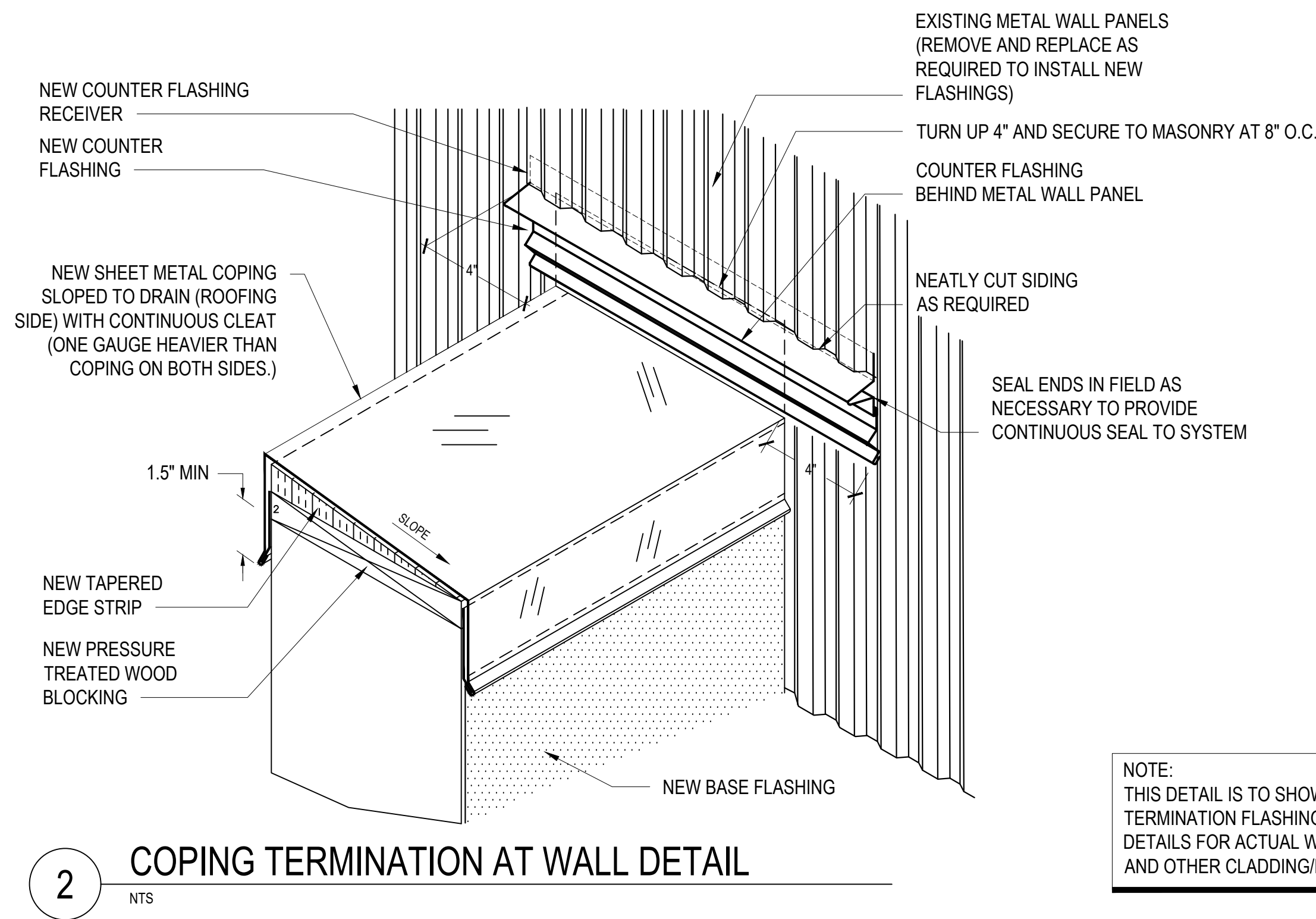
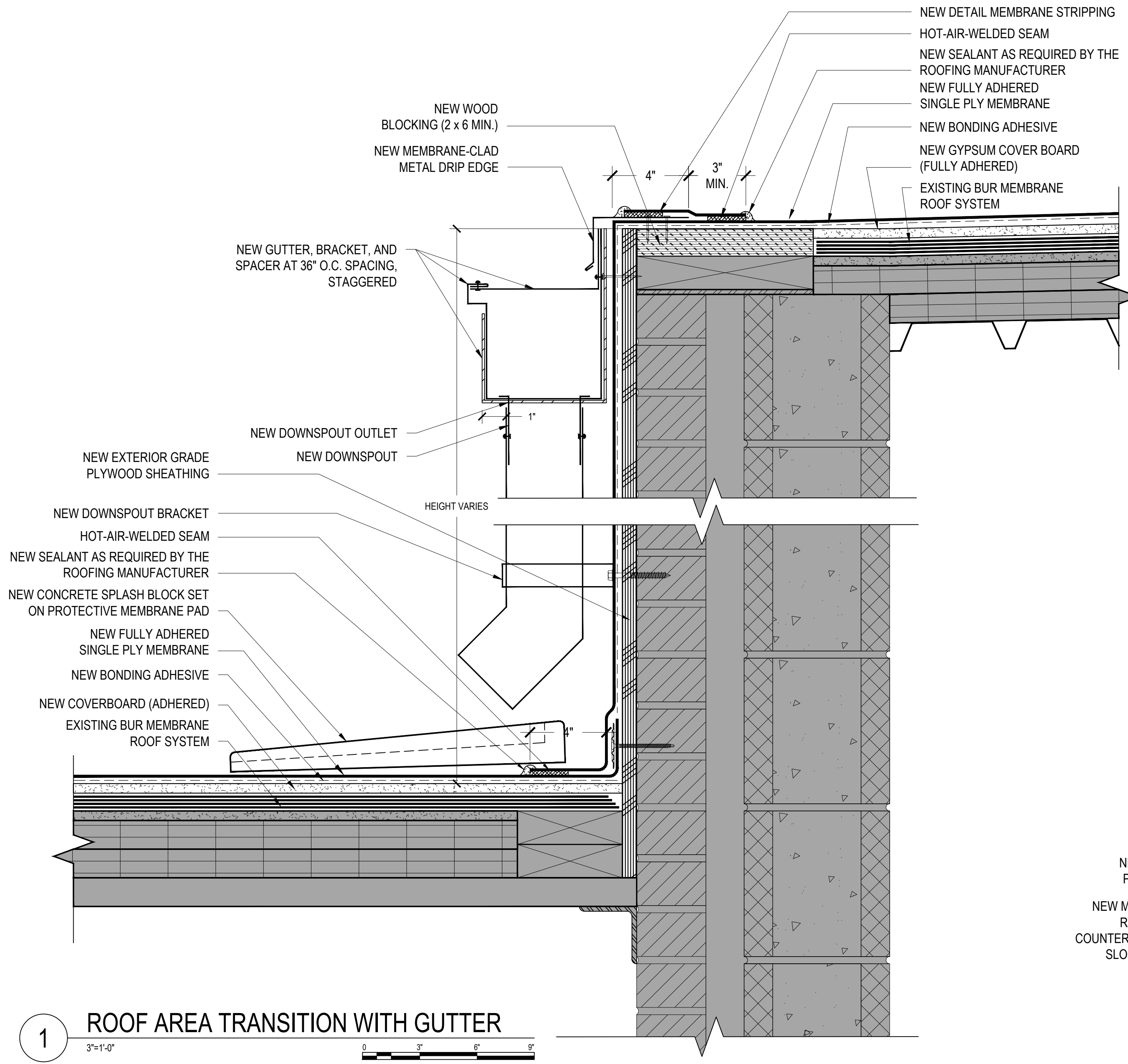
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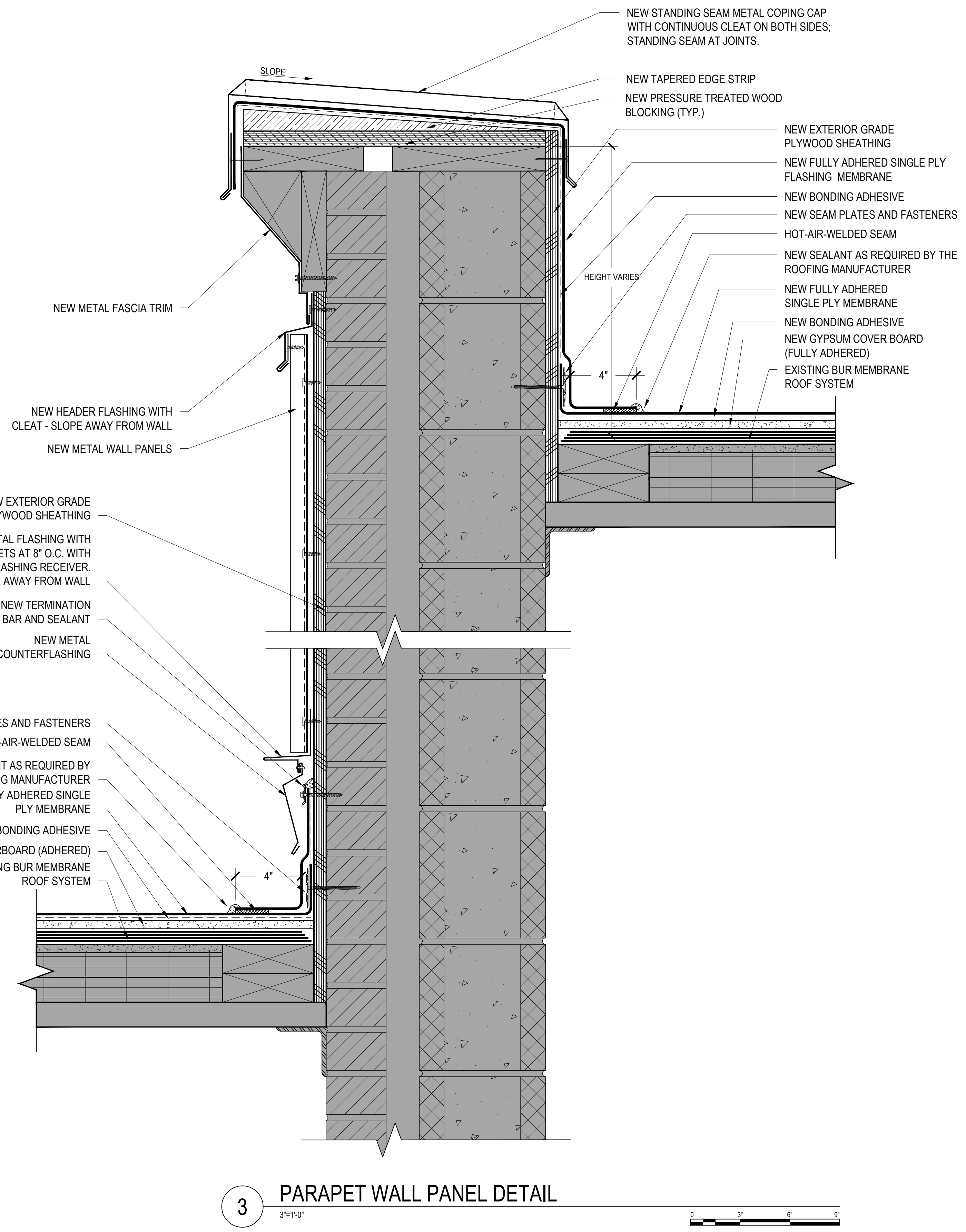
SHEET TITLE:
DETAILS

SHEET NUMBER:

A-502



NOTE:
 THIS DETAIL IS TO SHOW COPING CAP TERMINATION FLASHING. REFER TO OTHER DETAILS FOR ACTUAL WALL CONSTRUCTION AND OTHER CLADDING/ROOFING COMPONENTS.



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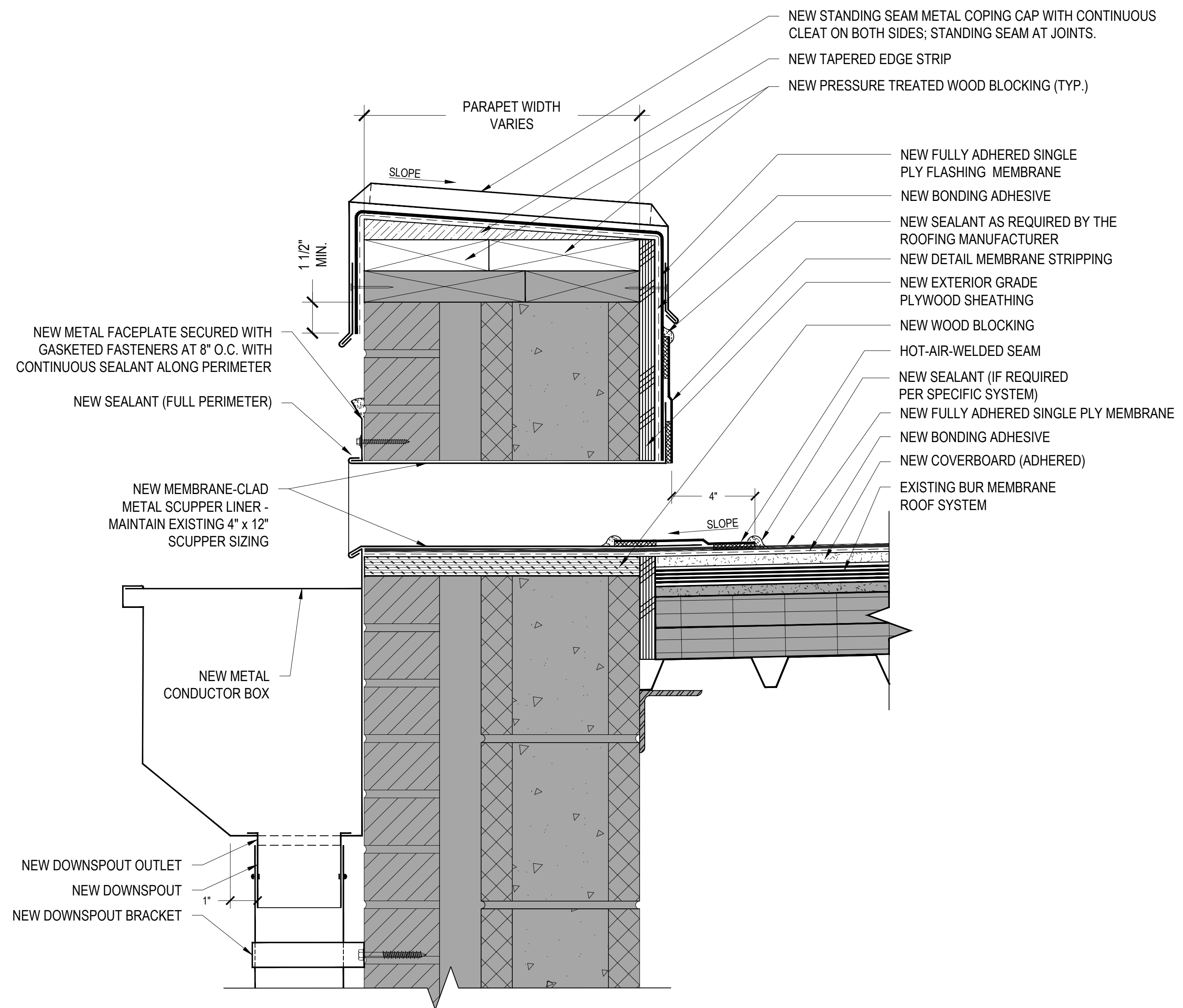
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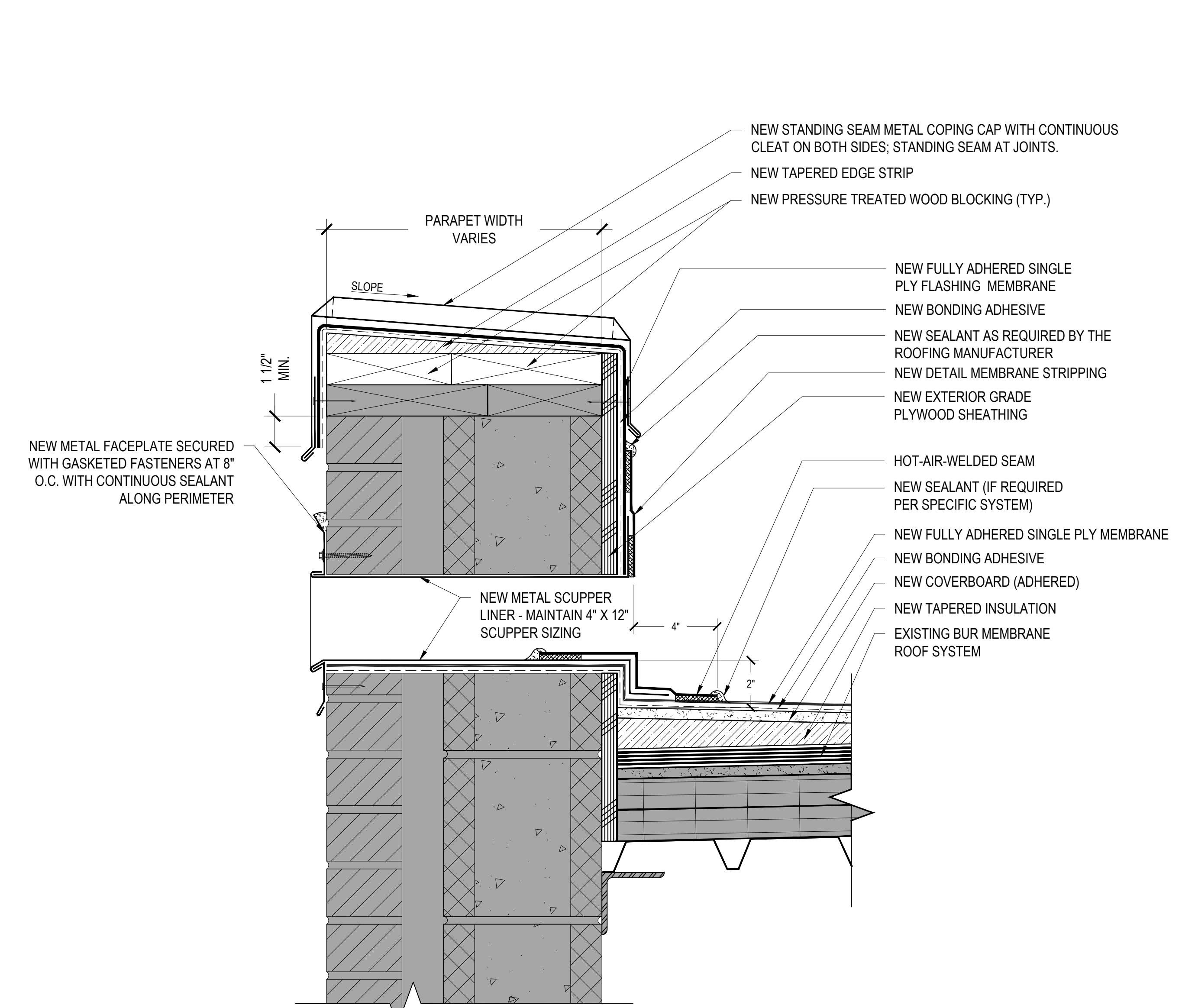
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A-503



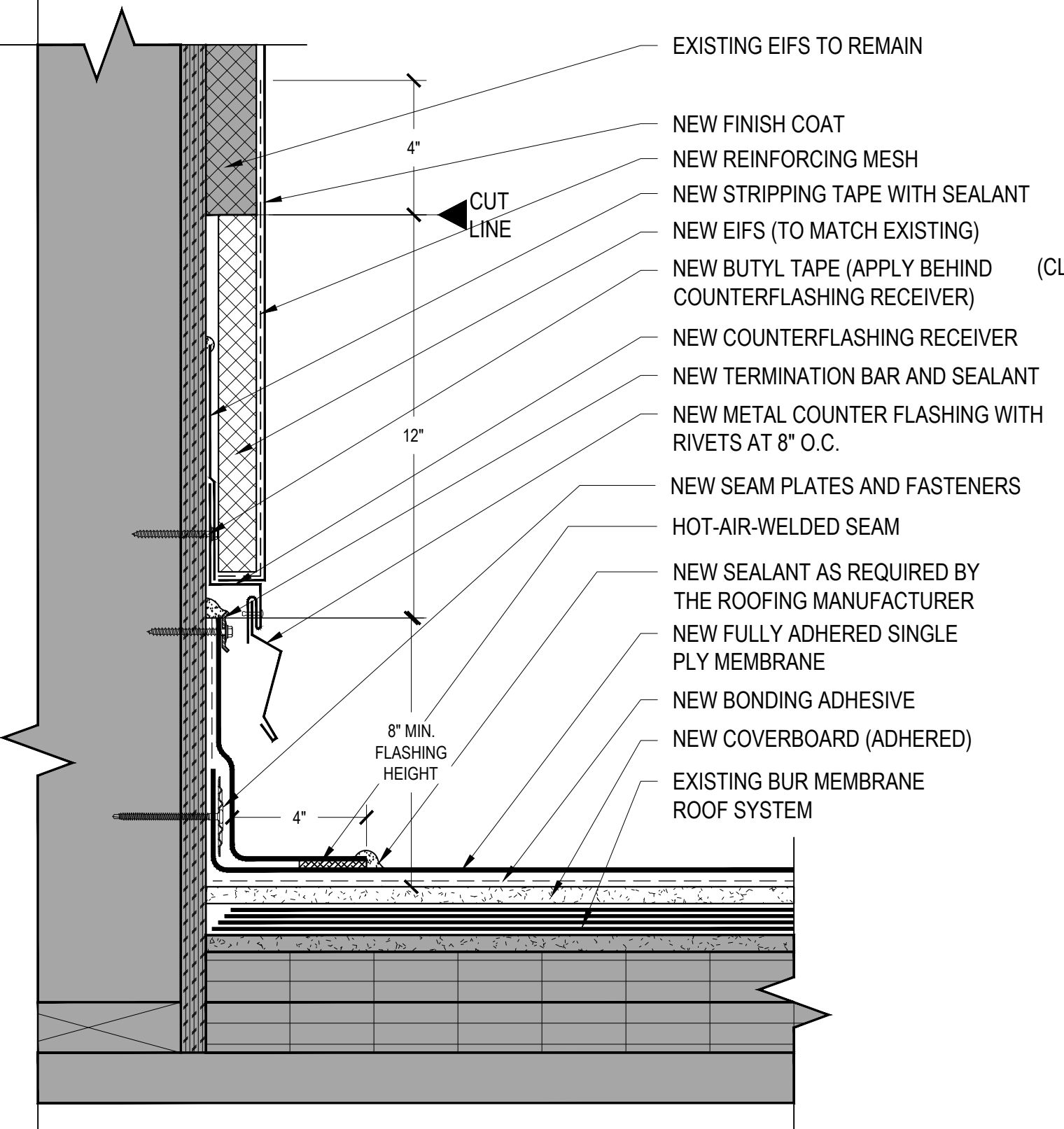
1 THRU WALL SCUPPER DETAIL

3"=1'-0" 0 3" 6" 9"



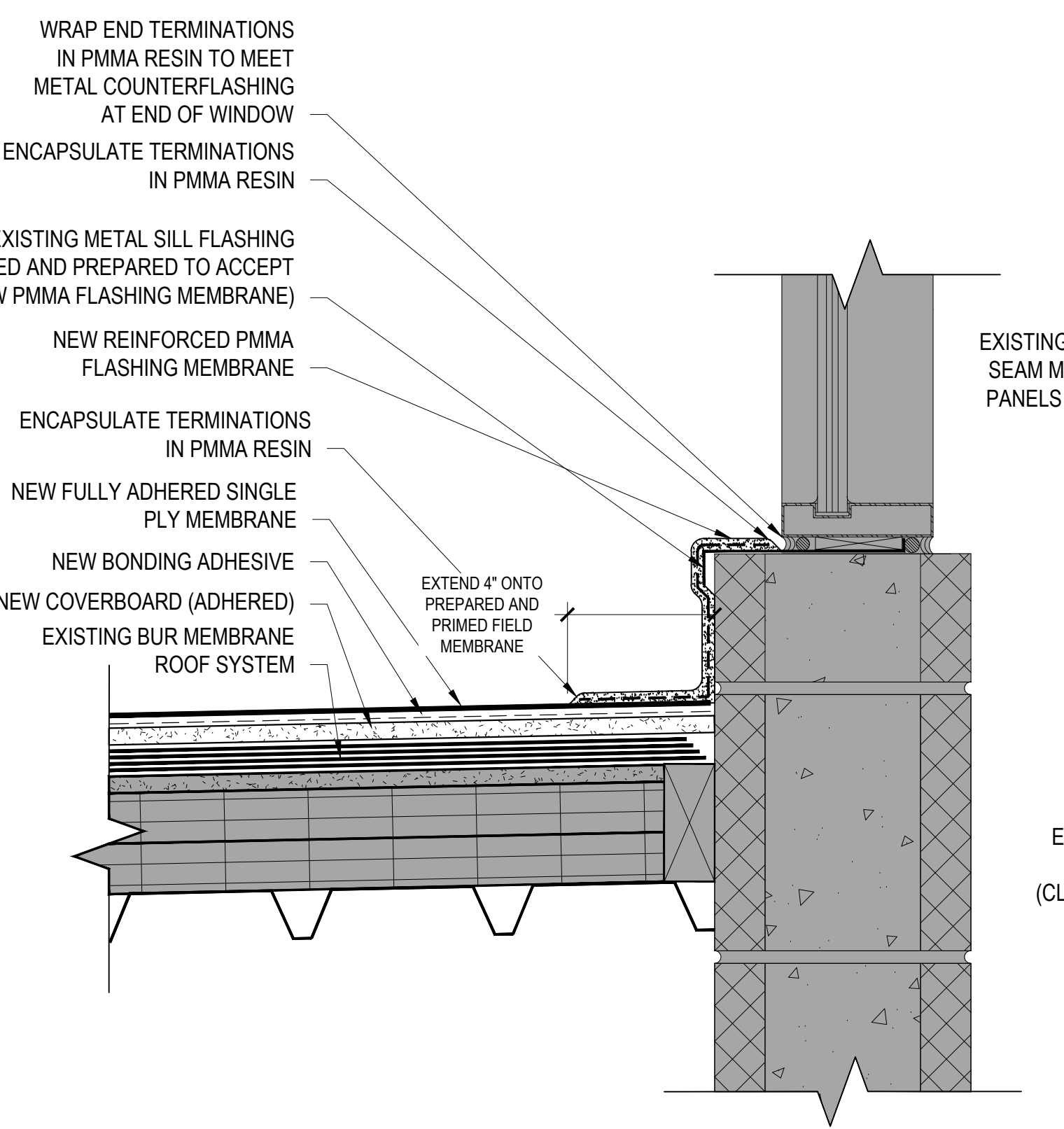
2 NEW OVERFLOW SCUPPER DETAIL

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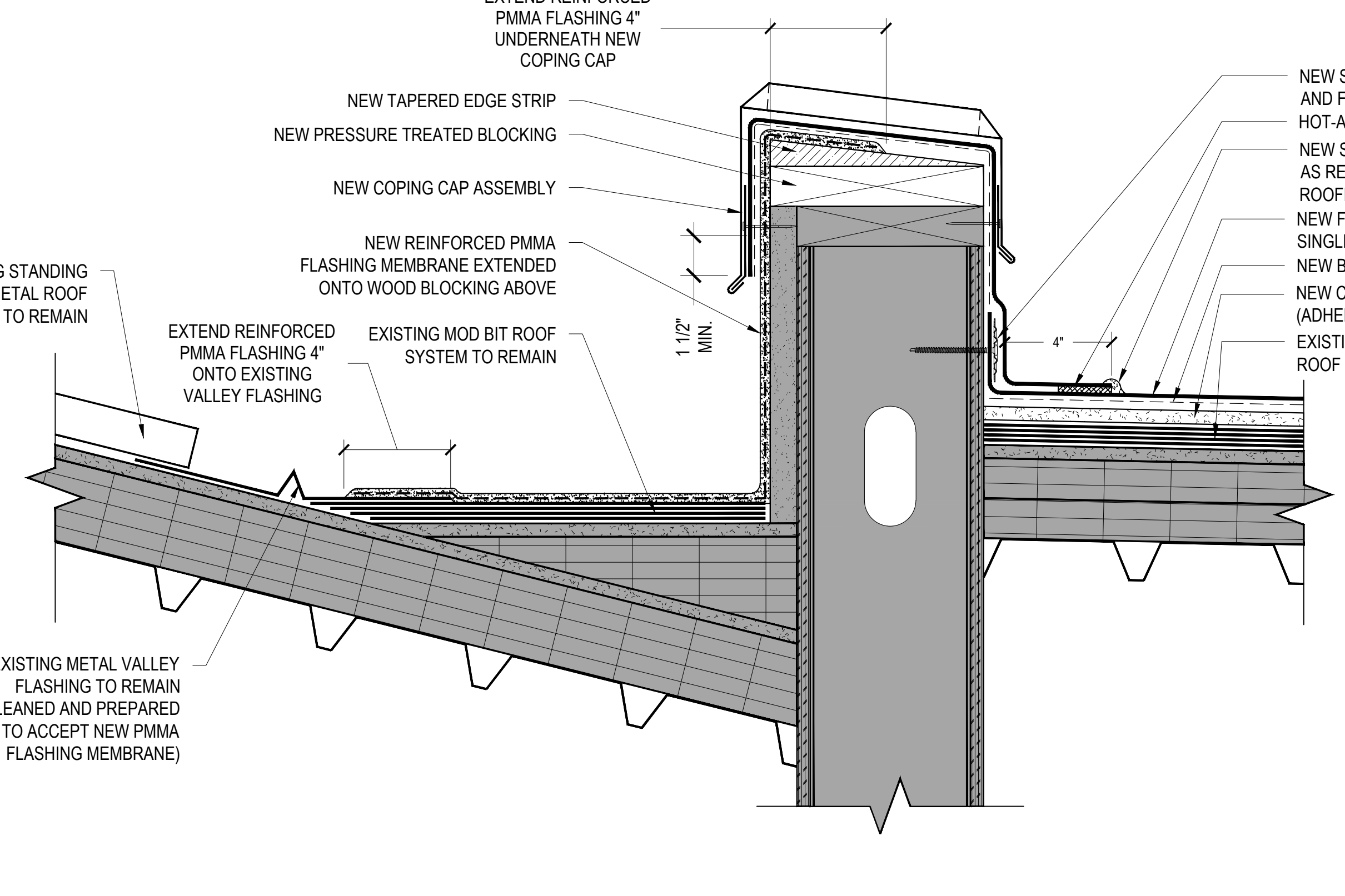
3 BASE FLASHING DETAIL

3"=1'-0" 0 3" 6" 9"



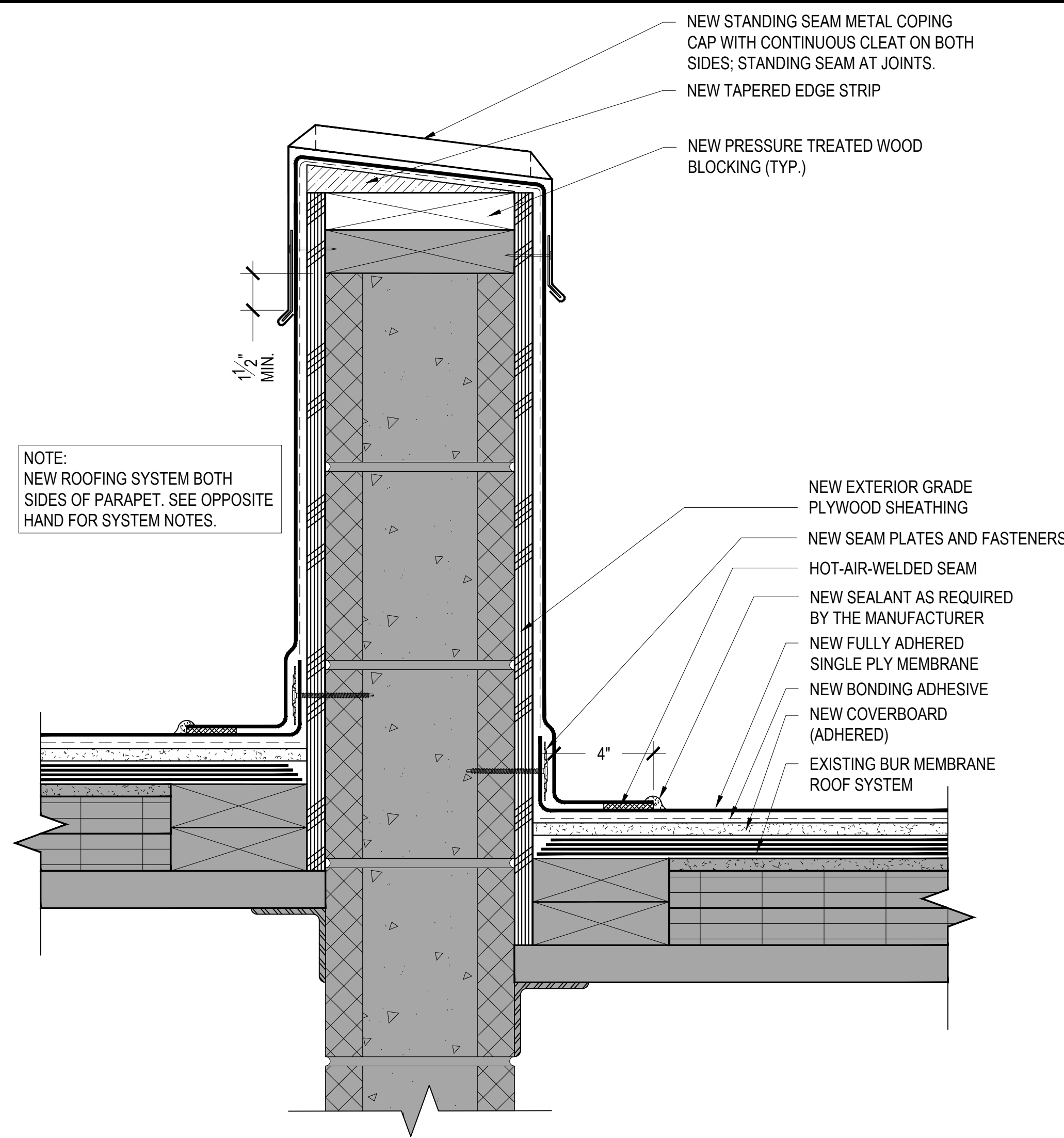
4 BASE FLASHING AT WINDOW DETAIL

3"=1'-0" 0 3" 6" 9"

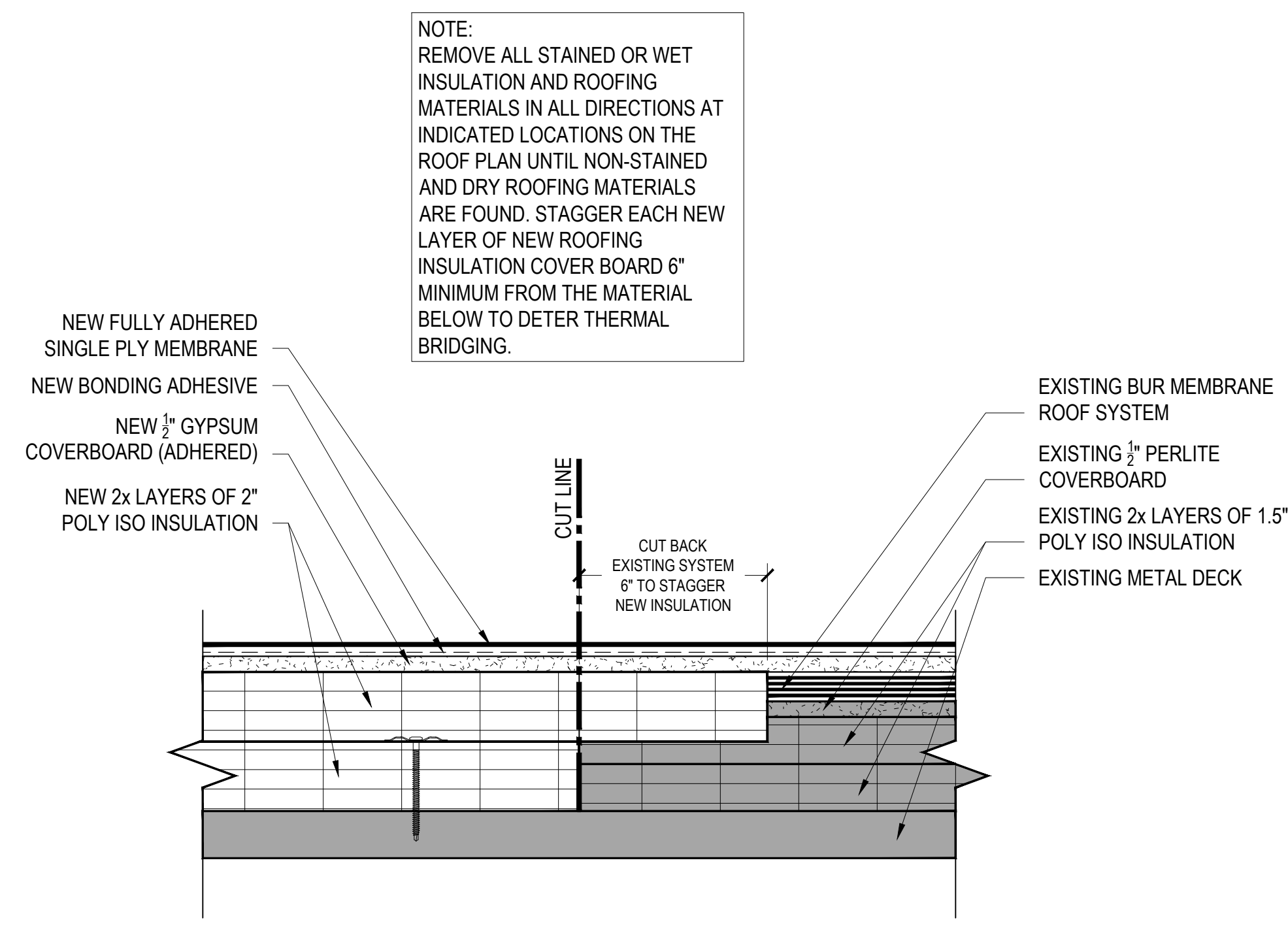


5 METAL ROOF CRICKET DETAIL

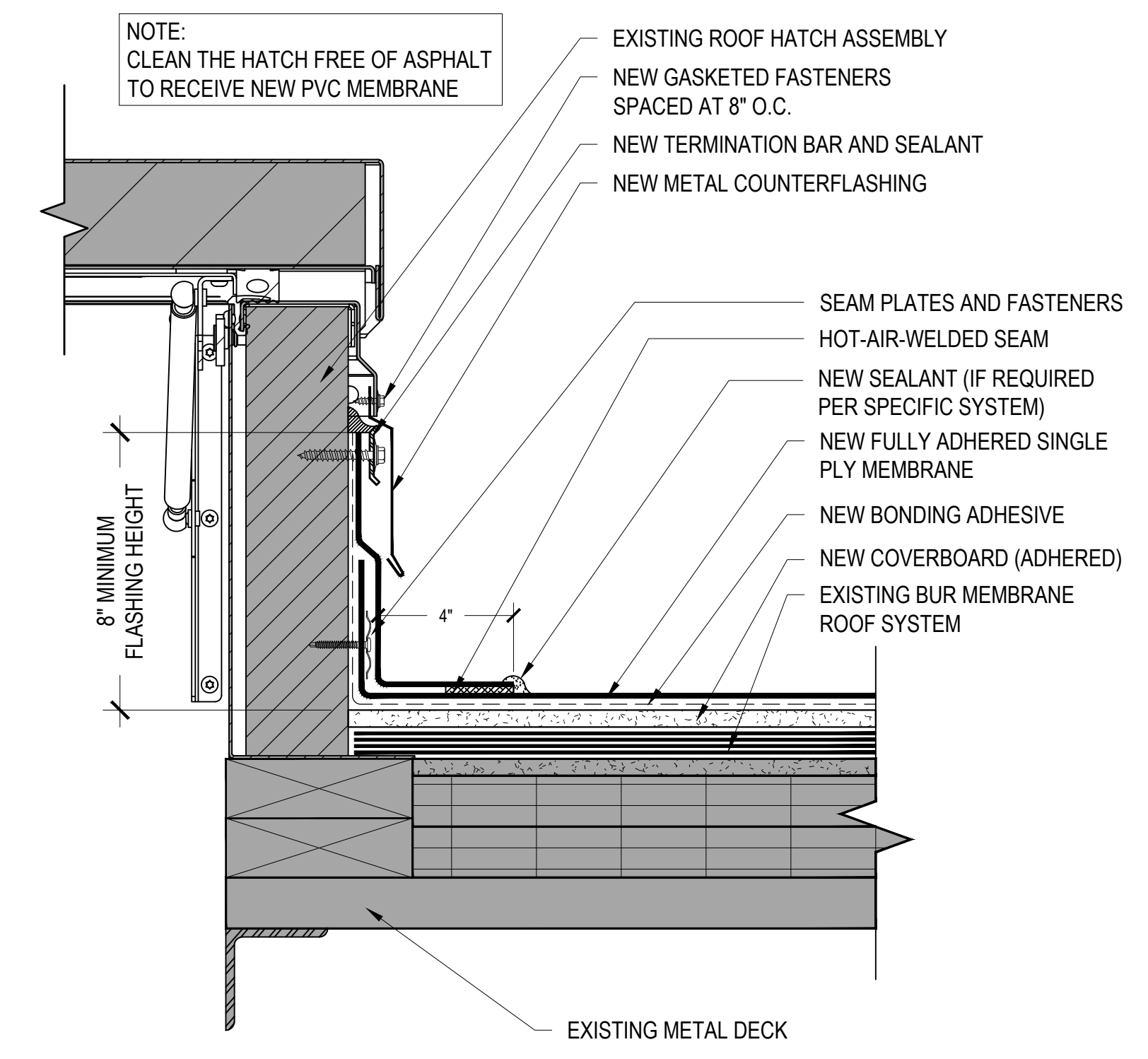
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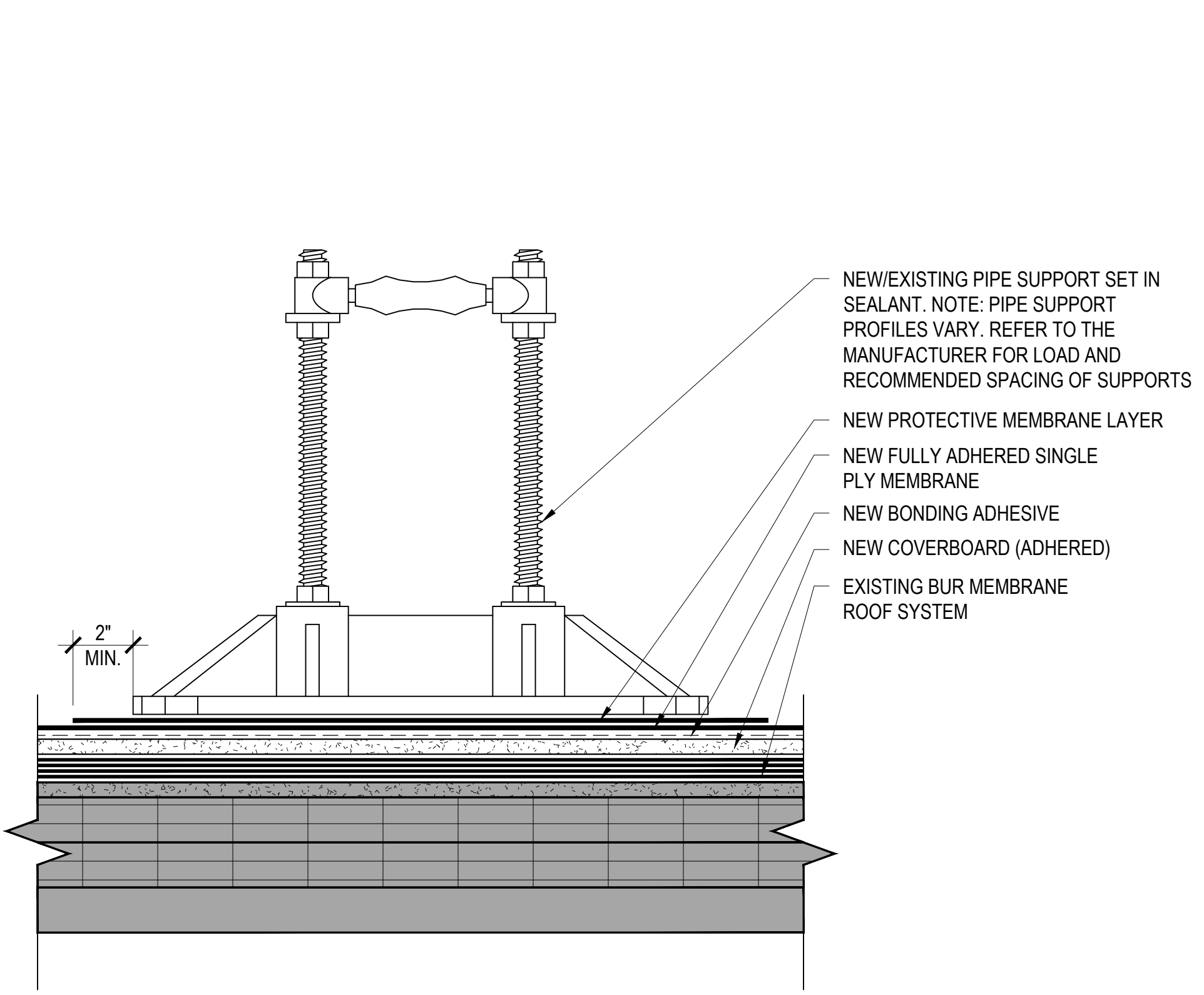
1 ROOF TO ROOF PARAPET DETAIL
3"=1'-0"



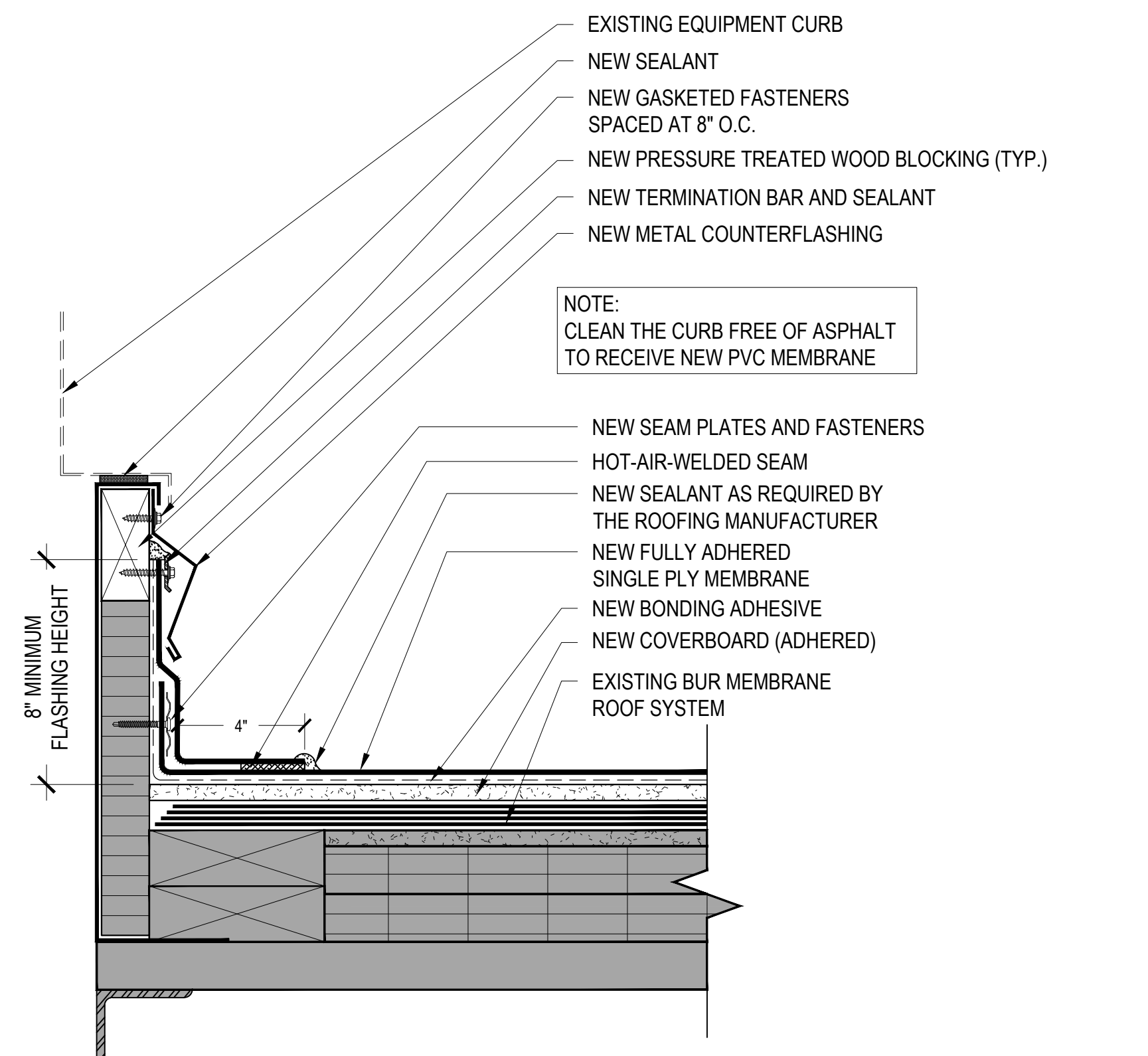
2 WET INSULATION REPLACEMENT DETAIL
3"=1'-0"



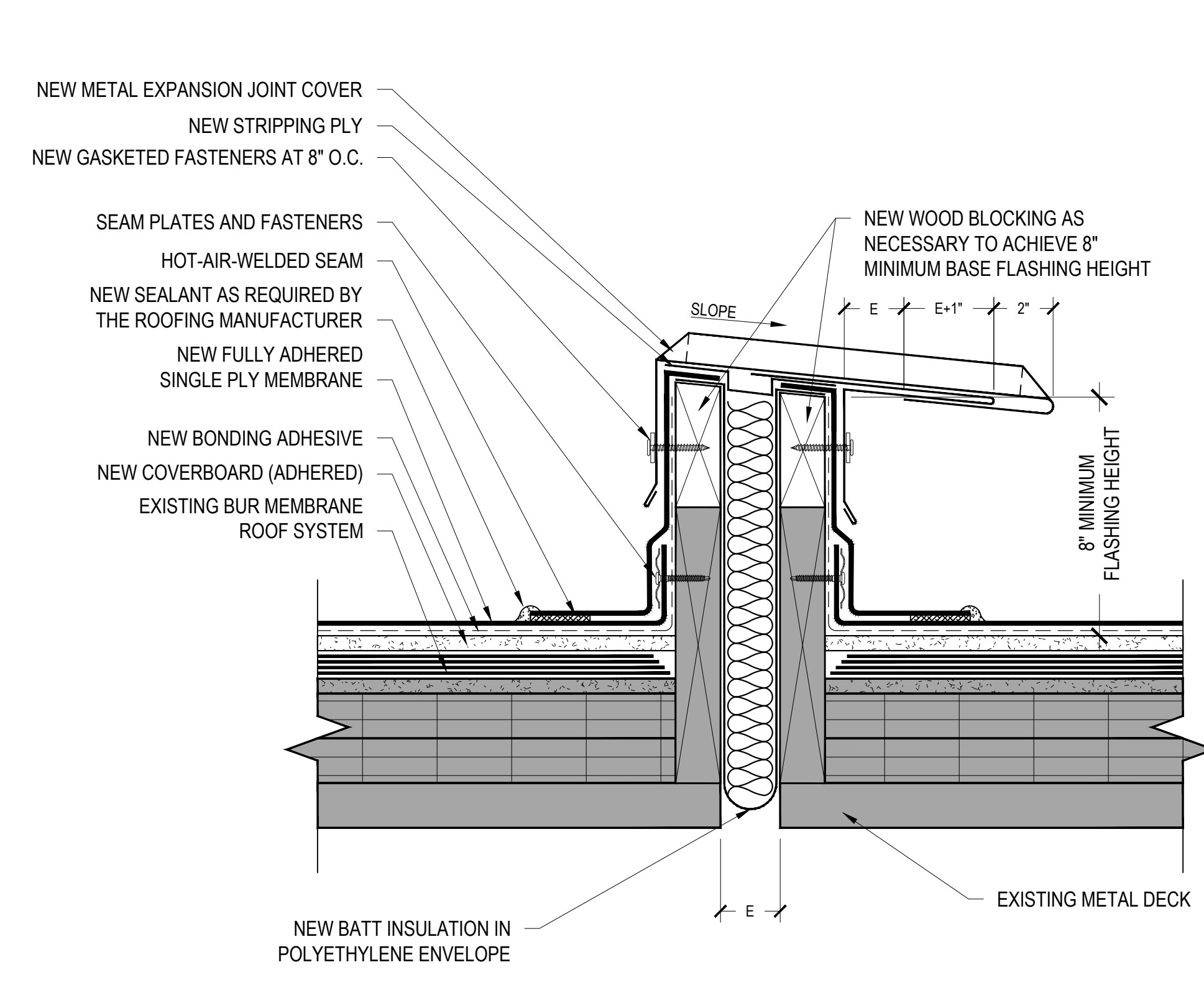
3 ROOF HATCH DETAIL
3"=1'-0"



4 PIPE SUPPORT DETAIL
3"=1'-0"



5 EQUIPMENT CURB DETAIL
3"=1'-0"



6 EXPANSION JOINT DETAIL
3"=1'-0"

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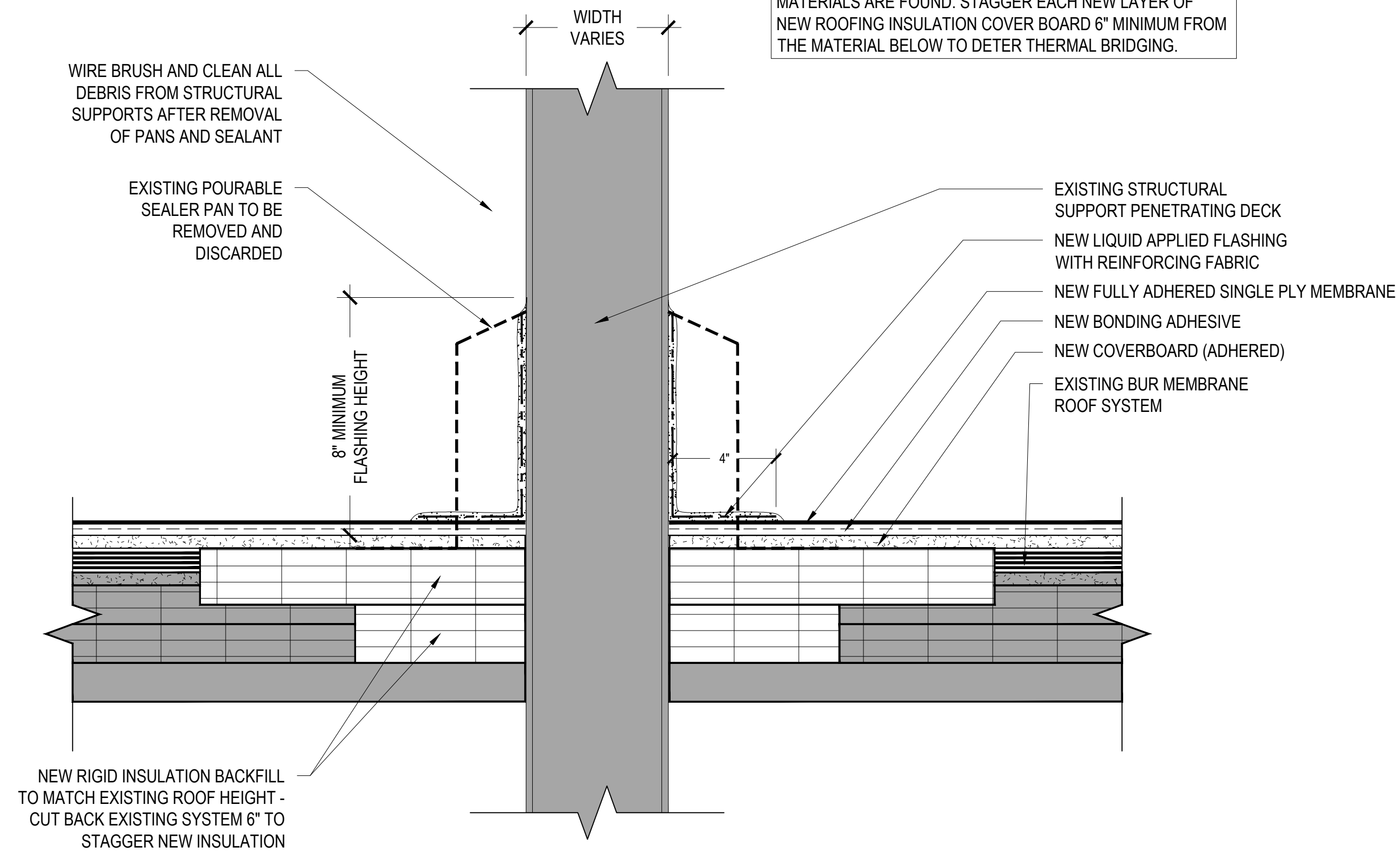
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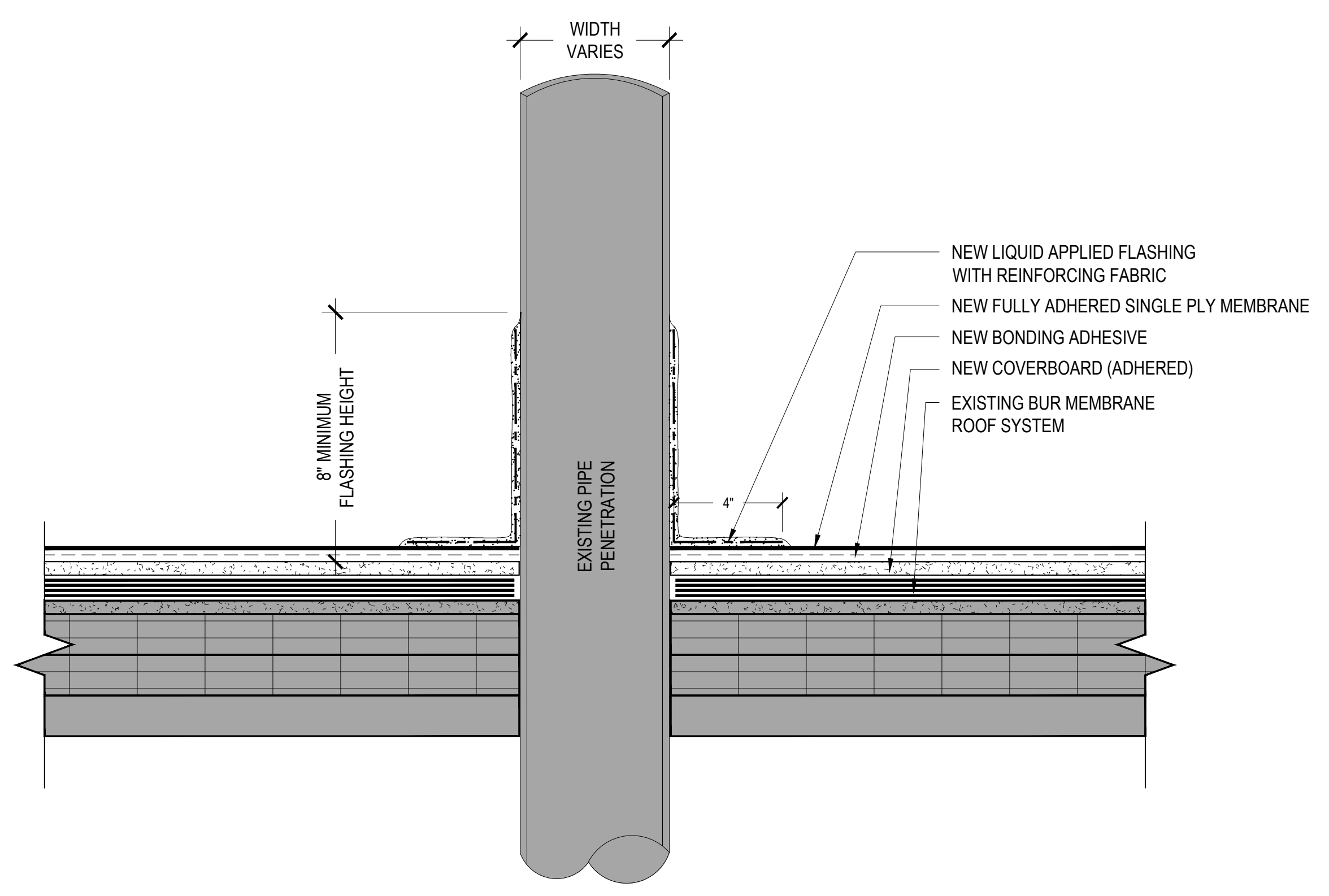
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A-505

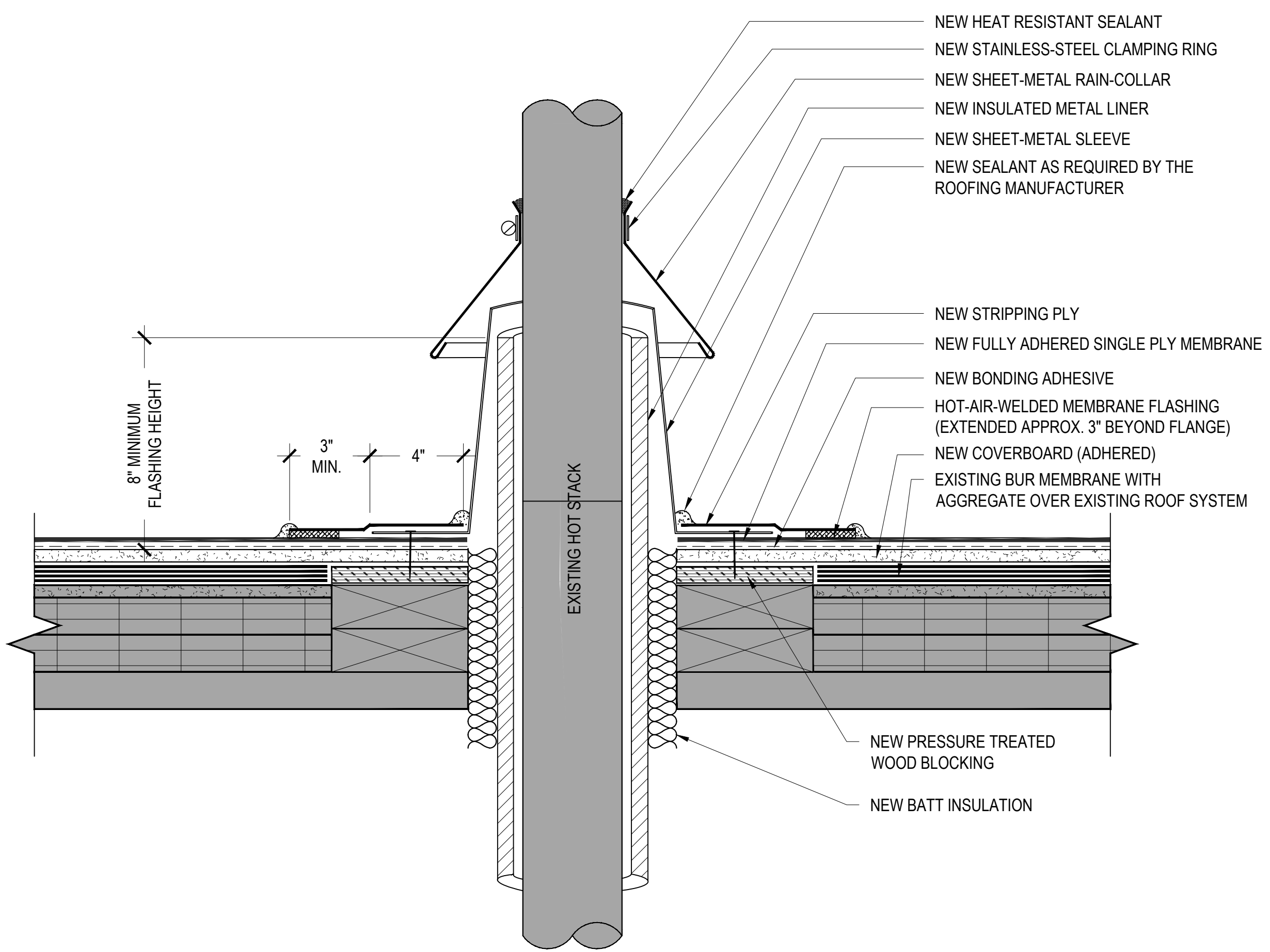
NOTE:
 REMOVE ALL STAINED OR WET INSULATION AND ROOFING MATERIALS IN ALL DIRECTIONS AT INDICATED LOCATIONS ON THE ROOF PLAN UNTIL NON-STAINED AND DRY ROOFING MATERIALS ARE FOUND. STAGGER EACH NEW LAYER OF NEW ROOFING INSULATION COVER BOARD 6" MINIMUM FROM THE MATERIAL BELOW TO DETER THERMAL BRIDGING.



1 POURABLE SEALER PENETRATION
 3"=1'-0"



2 PIPE PENETRATION DETAIL
 3"=1'-0"



3 HOT STACK FLASHING DETAIL
 3"=1'-0"