

**DATE:** October 3, 2024  
**TO:** Invited Roofing Contractor Bidder  
**RE:** Addendum Two (2)  
**PROJECT:** **Michener Library Roof Replacement – Phase I & 2**  
1400 22nd St, Greeley, CO 80631  
**PROJECT NO.:** 2024-080M23

To Whom it May Concern:

The following changes, clarifications and/or corrections to the bid documents and schedule are made prior to the pre-bid meeting on-site. Please note the following items/modifications to the scope of project to be included as part of the bid:

1. The attached project drawing set includes the plumbing scope drawing sheets P0.01-P2.06 (seven additional drawing sheets). No changes to the roofing scope or drawing sheets were made as part of this addendum. The full drawing set consists of 16 pages, nine in the roofing series "R-###" and seven in the plumbing series "P#.#".

Please note that this project requires plumbing and concrete coring scope that involves GPR services and reporting, see associated project drawings and specifications for details. It is the University's expectation that all contractors attending the pre-bid meeting on **October 16, 2024, 10:00AM** will bring associated subcontractors to complete all scopes of work in order to review the project scope at the time of our site walk. It is highly probable that this will be the contractor's only opportunity to walk the site for scope review prior to bid submission date.

This Addendum does not include a date change for submission of proposals.

This Addendum does not include a time extension for the performance of work described herein.

Receipt of this addendum is to be acknowledged on the bid form.

Sincerely,  
Robert Piane, AIA  
Vice President of Architectural Services  
Email: [robertpiane@amtechsls.com](mailto:robertpiane@amtechsls.com)

**End of Addendum 2**

# UNIVERSITY OF NORTHERN COLORADO - JAMES A. MICHENER LIBRARY ROOFING PROJECT

2024-080M23 MICHENER LIBRARY ROOF REPLACEMENT - AMTECH PROJECT NO.: DEN.2023.001048

## PROJECT:

### JAMES A. MICHENER LIBRARY ROOFING PROJECT

1400 22ND STREET,  
GREELEY, CO 80631

## OWNER:

### UNIVERSITY OF NORTHERN COLORADO

501 WEST 20TH STREET,  
GREELEY, CO 80639

## CONSULTANT:

### AMTECH SOLUTIONS, INC.

1720 SOUTH BELLAIRE STREET, SUITE 1200  
DENVER, COLORADO 80222  
TEL: (303) 738-0823  
WEBSITE: WWW.AMTECHSLS.COM



## APPLICABLE DESIGN CODES:

- 2021 INTERNATIONAL EXISTING BUILDING CODE (IEBC).
  - SECTION(S) 602.1:
    - LEVEL 1 ALTERATION.
  - SECTION(S) 705.1, 705.2, 706.2, AND 706.3.2:
    - REEROOFING GENERAL, ROOF REPLACEMENT DOWN TO ROOF DECK, STRUCTURAL ADDITION OF ROOF, AND ROOF DIAPHRAGMS IN HIGH WIND REGIONS
- 2021 INTERNATIONAL BUILDING CODE (IBC).
  - SECTION(S) 1505.1:
    - CLASSIFICATION OF THE ROOF: CLASS A.
  - SECTION(S) 1504.4 AND 1504.6:
    - WIND AND EDGE METAL REQUIREMENTS.
- 2021 INTERNATIONAL ENERGY CONSERVATION CODE (IECC).
  - SECTION(S) C503.2.1:
    - REFER TO ROOFING SCOPE OF WORK NOTES ON SHEET R-101.
- 2021 INTERNATIONAL PLUMBING CODE (IPC).
- 2021 INTERNATIONAL FUEL AND GAS CODE (IFGC).
- 2021 INTERNATIONAL MECHANICAL CODE (IMC).
- 2023 INTERNATIONAL ELECTRIC CODE (IEC).
- AMERICAN NATIONAL STANDARDS INSTITUTE AND SINGLE-PLY ROOFING INDUSTRY (ANSI/SPRI):
  - ES-1 AND GT-1.

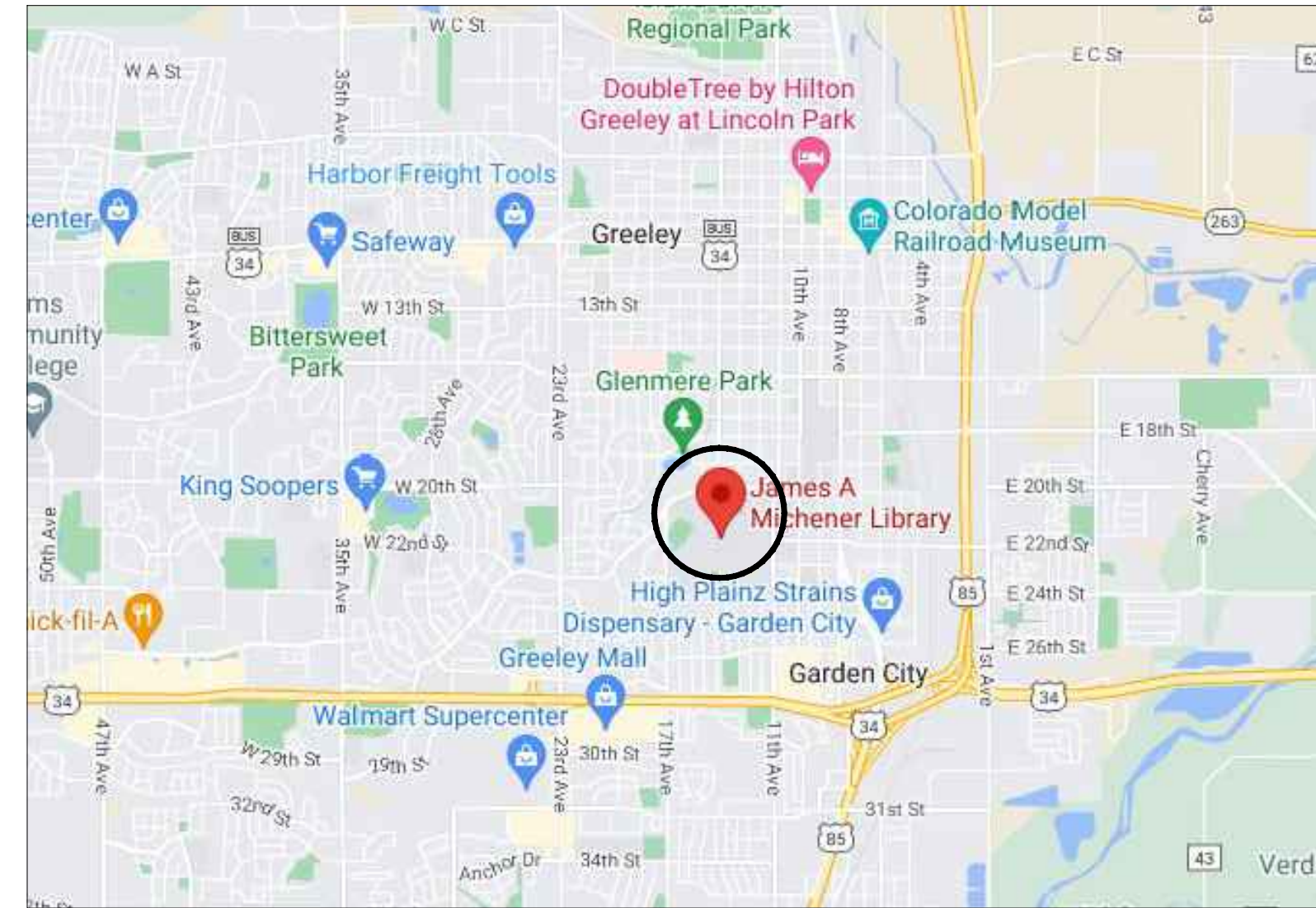
## BUILDING DATA:

- FIRE SPRINKLED - MONITORED ALARM.
- CONSTRUCTION TYPE III-B - NON-COMBUSTIBLE:
  - MASONRY AND CONCRETE FRAMING WITH CONCRETE DECKING.
- OCCUPANCY CLASSIFICATION:
  - GROUP B - BUSINESS - EDUCATIONAL OCCUPANCY FOR STUDENTS ABOVE GRADE TWELVE (12).
- CLIMATE ZONE: 5B

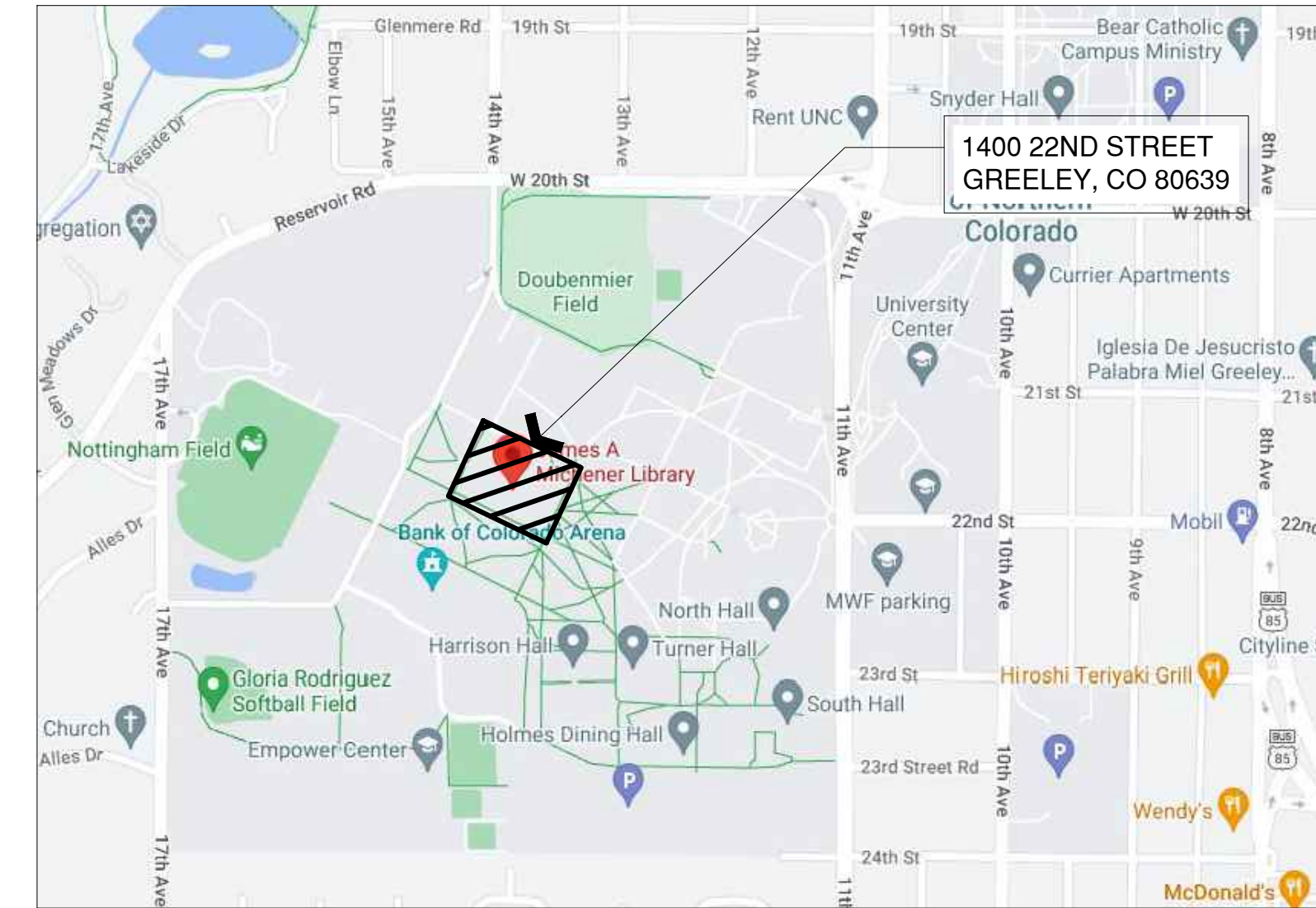
## CODE EXCEPTIONS AND CLARIFICATIONS:

- 2021 IEBC - SECTION 705 REROOFING - 705.1 GENERAL:
  - ROOF REPLACEMENT OR ROOF RECOVER OF EXISTING LOW-SLOPE ROOF COVERINGS SHALL NOT BE REQUIRED TO MEET THE MINIMUM DESIGN SLOPE REQUIREMENTS OF 1/4 UNIT VERTICAL IN 12 UNITS HORIZONTAL (2-PERCENT SLOPE) IN SECTION 1507 OF THE INTERNATIONAL BUILDING CODE FOR ROOFS THAT PROVIDE POSITIVE ROOF DRAINAGE. RECOVERING OR REPLACING AN EXISTING ROOF COVERING SHALL NOT BE REQUIRED TO MEET THE REQUIREMENTS FOR SECONDARY (EMERGENCY OVERFLOW) DRAINS OR SCUPPERS IN SECTION 1502 OF THE INTERNATIONAL BUILDING CODE FOR ROOFS THAT PROVIDE FOR POSITIVE ROOF DRAINAGE. FOR THE PURPOSES OF THIS EXCEPTION, EXISTING SECONDARY DRAINAGE OR SCUPPER SYSTEM REQUIRED IN ACCORDANCE WITH THIS CODE SHALL NOT BE REMOVED UNLESS THEY ARE REPLACED BY SECONDARY DRAINS OR SCUPPERS DESIGNED AND INSTALLED IN ACCORDANCE WITH SECTION 1502 OF THE INTERNATIONAL BUILDING CODE.
- 2021 IEBC - SECTION 708 ENERGY CONSERVATION - 708.1 MINIMUM REQUIREMENTS:
  - LEVEL 1 ALTERATIONS TO EXISTING BUILDINGS OR STRUCTURES DO NOT REQUIRE THE ENTIRE BUILDING OR STRUCTURE TO COMPLY WITH THE ENERGY REQUIREMENTS OF THE INTERNATIONAL ENERGY CONSERVATION CODE OR INTERNATIONAL RESIDENTIAL CODE. THE ALTERATIONS SHALL CONFORM TO THE ENERGY REQUIREMENTS OF THE INTERNATIONAL ENERGY CONSERVATION CODE OR INTERNATIONAL RESIDENTIAL CODE AS THEY RELATE TO NEW CONSTRUCTION ONLY.
- 2021 IECC - CHAPTER 4 COMMERCIAL ENERGY EFFICIENCY
  - SECTION C402 BUILDING ENVELOPE REQUIREMENTS - SUBSECTION C402.2.1.1 TAPERED, ABOVE-DECK INSULATION BASED ON THICKNESS:
    - WHERE USED AS A COMPONENT OF A ROOF/CEILING ASSEMBLY R-VALUE CALCULATION, THE SLOPED ROOF INSULATION R-VALUE CONTRIBUTION TO THAT CALCULATION SHALL USE THE AVERAGE THICKNESS IN INCHES ALONG WITH THE MATERIAL R-VALUE-PER-INCH SOLELY FOR R-VALUE COMPLIANCE AS PRESCRIBED IN SECTION 402.1.3.
  - SECTION C402 BUILDING ENVELOPE REQUIREMENTS - SUBSECTION C402.2.1.2 MINIMUM THICKNESS, LOWEST POINT:
    - THE MINIMUM THICKNESS OF ABOVE-DECK ROOF INSULATION AT ITS LOWEST POINT, GUTTER EDGE, ROOF DRAIN OR SCUPPER, SHALL BE NOT LESS THAN 1-INCH.
- 2021 INTERNATIONAL PLUMBING CODE
  - SECTION 1105 ROOF DRAINS
  - SECTION 1108.1 SECONDARY (EMERGENCY OVERFLOW) DRAINS OR SCUPPERS
    - WHERE ROOF DRAINS ARE REQUIRED, SECONDARY (EMERGENCY OVERFLOW) ROOF DRAINS OR SCUPPERS SHALL BE PROVIDED WHERE THE ROOF PERIMETER CONSTRUCTION EXTENDS ABOVE THE ROOF IN SUCH A MANNER THAT WATER WILL BE ENTRAPPED IF THE PRIMARY DRAINS ALLOW BUILDUP FOR ANY REASON.
  - DESCRIPTION:
    - THE PIT ROOF (ROOF AREA C) WAS CONSTRUCTED WITHOUT A ROOF DRAIN AND CURRENTLY HAS A SUMP PUMP IN THE SOUTHWEST CORNER THAT PUMPS WATER ONTO THE ADJACENT MAIN ROOF AREA. THE SUMP PUMP HAS AN ALARM THAT IS INTEGRATED WITH THE BUILDING AUTOMATION SYSTEM TO ALERT FACILITY MAINTENANCE OF OPERATION FAILURES.
  - NEW PRIMARY AND OVERFLOW ROOF DRAINS WILL BE INSTALLED INTO THE CONCRETE PIT ROOF DECK AND SEPARATE DRAIN LINES WILL BE PIPED THROUGH THE INTERIOR OF THE BUILDING TO THE 2ND FLOOR AND OUT THROUGH AN EXTERIOR WALL TO DRAIN INTO A CONDUCTOR HEAD AND OPEN FACED DOWNSPOUT FOR THE PRIMARY LINE AND A DOWNSPOUT NOZZLE FOR THE OVERFLOW DRAIN LINE. RE: PLUMBING.

## REGION MAP:



## VICINITY MAP:



## SHEET INDEX:

- R-100 COVER SHEET
- R-101 ROOF ASSEMBLIES AND SCOPE OF WORK NOTES
- R-200 DESIGN NOTES AND FASTENING SCHEDULES
- R-201 STAGING PLAN
- R-300 ROOF PLAN
- R-301 CONCRETE COATING - ALTERNATES #2 & #3
- R-400 PARTIAL SECTIONS
- R-500 ROOFING DETAILS
- R-501 ROOFING DETAILS
- P0.01 PLUMBING GENERAL INFORMATION
- P0.02 PLUMBING SPECIFICATIONS
- P0.03 PLUMBING SPECIFICATIONS
- P2.03 LEVEL 1 AND MEZZ. PLUMBING PLANS
- P2.04 LEVEL 2 PLUMBING PLAN
- P2.05 LEVEL 3 PLUMBING PLAN
- P2.06 ROOF LEVEL PLUMBING PLAN

## AERIAL MAP:



## ABBREVIATIONS:

APVD.	APPROVED	MTL.	METAL
CONT.	CONTINUOUS	MIN.	MINIMUM
(E)	EXISTING	(N)	NEW
(ETR)	EXISTING TO REMAIN	O.C.	ON CENTER
EXP.	EXPANSION	PENE.	PENETRATION
(FA)	FULLY ADHERED	REQ.	REQUIREMENT
GA.	GAUGE	R.T.S.	REINFORCED TERMINATION STRIP
GALV.	GALVANIZED	SHT.	SHEET
GYP.	GYPSUM	SIM.	SIMILAR
JT.	JOINT.	TYP.	TYPICAL
MANU.	MANUFACTURER	U.O.N.	UNLESS OTHERWISE NOTED
MAX.	MAXIMUM	V.I.F.	VERIFY IN FIELD
(MA)	MECHANICALLY ATTACHED		

## MATERIALS

	2x BLOCKING		SUBSTRATE - GENERAL
	ADHESIVE/PRIMER		SUBSTRATE - WOOD
	BACKER-ROD		SUBSTRATE - CONCRETE
	BONDING ADHESIVE		STEEL
	GYPSUM BOARD		URETHANE SEALANT
	LOW-RISE FOAM		VAPOR RETARDER
	PLYWOOD		WATER CUT-OFF MASTIC
	RIGID INSULATION		



KEY PLAN LEGEND

CLIENT  
UNIVERSITY OF NORTHERN COLORADO  
501 WEST 20TH STREET  
GREELEY, CO 80639

PROJECT  
JAMES A. MICHENER LIBRARY  
ROOFING PROJECT  
1400 22ND STREET  
GREELEY, CO 80631

PROJECT NO. DEN.2023.001048  
DATE 09/2024  
DRAWN BY DJD  
CHECKED BY RKP & SAP  
DATE REVISION



SHEET TITLE  
COVER SHEET

SHEET NO.  
R-100

**GENERAL NOTES:**

- ALL CONDITIONS OR PENETRATIONS MAY NOT BE SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS, MEASUREMENTS/DIMENSIONS, QUANTITIES, LOCATIONS, ETC. AND NOTIFYING AMTECH SOLUTIONS OF ANY DISCREPANCIES PRIOR TO BIDDING.
- ALL SHEET METAL WORK MUST COMPLY WITH SMACNA AND ANSI/SPRI ES-1 AND GT-1 AS REFERENCED IN THE APPLICABLE VERSION OF THE IBC AND IEBC.
- THE WORK OF THIS CONTRACT SHALL BE COMPLETED IN ACCORDANCE WITH THE ATTACHED DRAWINGS, DOCUMENTS AND SPECIFICATIONS.
- ALL MATERIALS TO BE USED ON THIS PROJECT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDED SPECIFICATIONS FOR INSTALLATION.
- CONTRACTOR(S) SHALL COORDINATE THE WORK OF THIS CONTRACT TO AVOID ANY INTERFERENCE WITH ADJOINING AREAS.
- ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS MUST BE SUBMITTED TO AMTECH SOLUTIONS IN WRITING FOR APPROVAL.
- CONTRACTOR SHALL EXERCISE EXTREME CARE NOT TO DAMAGE THE ADJACENT CONSTRUCTION OF THE BUILDING. ANY DAMAGE SHALL BE CORRECTED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
- CONTRACTOR SHALL PROVIDE ALL SAFE GUARDS, AS REQUIRED, TO PRECLUDE INJURY TO AMTECH SOLUTIONS, THE OWNER'S AND CONTRACTOR'S PERSONNEL, AND TO ALL OTHER PERSONS AT THE CONSTRUCTION SITE.
- CONTRACTOR SHALL PERFORM ALL WORK AS INDICATED ON CONTRACT DOCUMENTS INCLUDING BUT NOT LIMITED TO: ROOFING AND ASSOCIATED CURB AND PARAPET WALL FLASHINGS AND MODIFICATIONS. ALL SATELLITE RECEIVERS, ANTENNAS, EQUIPMENT SUPPORTS AND PENETRATIONS NOT UTILIZED ARE TO BE REMOVED AND DISCARDED AS DIRECTED BY THE OWNER AND AMTECH SOLUTIONS. ALL OPERATIONAL SATELLITE RECEIVERS, ANTENNAS, ETC. ARE TO BE REMOVED AND RE-INSTALLED USING MANUFACTURER APPROVED DETAILS AS DIRECTED BY AMTECH SOLUTIONS.
- ANY EXISTING CABLES/CONDUITS LYING ON THE ROOF SHALL BE REMOVED AND/OR RE-INSTALLED AS DIRECTED BY THE OWNER AND AMTECH SOLUTIONS.
- AVOID PENETRATION SEALER POCKETS AT ROOF PENETRATIONS (INSTALL ONLY WHERE REQUIRED AND APPROVED BY AMTECH SOLUTIONS).
- WHERE EXISTING EXTERIOR LIGHTING AND ELECTRICAL EQUIPMENT INTERFERES WITH THE CONSTRUCTION OF THE NEW ROOF, FASCIAS, OR SOFFITS, SUCH FIXTURES SHALL BE REMOVED AND RE-INSTALLED TO THE SATISFACTION OF THE OWNER AND AMTECH SOLUTIONS.
- CONTRACTOR SHALL EXTEND EXISTING HVAC ROOF TOP UNITS AND INTERIOR DUCTWORK THAT WILL BE DISTURBED DUE TO NEW WORK, INCLUDING BUT NOT LIMITED TO: CURBS, DUCTWORK, PIPING, ELECTRICAL, ETC. IN ORDER TO MAINTAIN AN 8-INCH MINIMUM FLASHING HEIGHT AS REQUIRED BY CODE, DUE TO INSTALLATION OF NEW ROOF SYSTEM.
- ALL ROOF PIPE VENTS AND OTHER ROOF PENETRATION(S) SHALL BE EXTENDED UP TO MAINTAIN AN 8-INCH MINIMUM FLASHING HEIGHT ABOVE NEW ROOF, AS REQUIRED BY CODE. EXTENSIONS SHALL BE OF LIKE MATERIALS AND WELDED IF METAL.
- ALL METAL FASCIA, COPINGS, LEADERS, SCUPPERS, GUTTERS, DOWNSPOUTS, ETC. ARE TO BE FACTORY PRE-FINISHED (COLOR TO BE SELECTED AND APPROVED BY OWNER).
- ALL DIMENSIONS FOR ALL EXISTING CONSTRUCTION CONDITIONS ARE APPROXIMATE AND ARE TO BE FIELD VERIFIED BY THE CONTRACTOR(S).
- CONTRACTOR IS TO VERIFY LOCATION, COUNT AND SIZES OF ROOF PENETRATIONS AND DRAINS PRIOR TO THE COMMENCEMENT OF WORK.
- ALL NEW CONTINUOUS FLASHINGS ARE TO BE INSTALLED AT A CONSISTENT HEIGHT. MINIMUM FLASHING HEIGHTS ARE TO BE CALCULATED AT INSULATION HIGH POINTS.
- THE NEW ROOF SYSTEM AND PERFORMANCE IS TO ADHERE TO LOCAL BUILDING CODE AND DESIGN WIND SPEED REQUIREMENTS AS SPECIFIED.
- REFER TO ACCOMPANYING SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- SPECIFICATIONS ARE TO TAKE PRECEDENCE OVER CONFLICTING INFORMATION ON DRAWINGS.
- CONTRACTOR IS TO MAINTAIN PROPER DRAINAGE OF THE ROOF(S) THROUGH ALL PHASES OF ROOF CONSTRUCTION.
- ALL NAILERS ARE TO BE FLUSH WITH THE TOP OF ADJACENT SUBSTRATES.
- MATERIALS TO BE USED WITHIN THE SCOPE OF WORK ITEMS BELOW ARE DEFINED WITHIN THE PROJECT SPECIFICATIONS AS BOTH THE BASIS OF DESIGN AND APPROVED MATERIAL EQUIVALENTS. FINAL SELECTION OF MATERIALS TO BE SELECTED BY THE AWARDING CONTRACTOR AND APPROVED THROUGH THE SUBMITTAL PROCESS, PRIOR TO CONSTRUCTION.

**ROOFING NOTES:**

- MATERIALS CAN BE STORED ON THE ROOF, SO LONG AS THEY ARE ON PALLETS/CRIBBING, COVERED WITH TARPS (NO PLASTIC) AND THE ROOF STRUCTURE IS NOT OVERLOADED.
- MATERIALS STORED ON THE GROUND SHOULD BE SECURED IN A FENCED IN AREA OR IN A COVERED TRAILER TO ENSURE THEY ARE SECURE. ALL ONSITE STORAGE MUST FIRST BE REVIEWED AND APPROVED BY BOTH THE OWNER AND CONSULTANT.
- ALL MATERIALS SHALL BE KEPT DRY FROM STANDING WATER, FALLING WATER, AND CONDENSATION WHEN ON THE GROUND AND ROOF.
- BONDING ADHESIVES, MASTICS, CAULKING, ETC. ARE TO BE STORED BETWEEN 60 TO 80 DEGREES, AND NOT ALLOWED TO FREEZE.
- THE CONTRACTOR IS TO TEAR-OFF, LAY-UP, AND COMPLETE DETAILS ON ROOF AREAS BY THE END OF EACH WORKDAY.
- ROOF DETAILING AND SHEET METAL INSTALLATION NEED TO FOLLOW CLOSELY BEHIND THE ROOF MEMBRANE INSTALLATION.
- NIGHT-SEALS ARE PARAMOUNT! CONTRACTOR IS REQUIRED TO TIE-IN THE NEW ROOF SYSTEM TO THE EXISTING ROOF, SUCH THAT NO WATER CAN MIGRATE INTO THE NEW ROOF ASSEMBLY AND/OR THE BUILDING.
- THE AMBIENT TEMPERATURE REQUIREMENT FOR INSTALLATION IS 40 DEGREES AND RISING.
- CONTRACTOR IS REQUIRED TO PROTECT ALL NEWLY INSTALLED ROOF MEMBRANES THAT THEY WILL WORK OVER WITH CLEAN TARPS AND PLYWOOD.
- ALL TRASH AND DEBRIS MUST BE REMOVED FROM THE ROOF SURFACE/LEVEL AS WELL AS THE GROUNDS DAILY.
- CONTRACTOR TO REPLACE ANY MISSING/ BROKEN DRAIN STRAINERS AND PARTS WITH NEW TO MATCH EXISTING. ALL DRAINS STRAINERS AND CLAMPING RINGS ARE TO BE CLEANED, PRIMED, AND PAINTED.
- NEW 1/2-INCH (OR ONE SLOPE GREATER THAN EXISTING ROOF SLOPE) CRICKETS MUST BE INSTALLED ON THE HIGH SIDE OF ALL CURBS AND PENETRATIONS WIDER THAN 24-INCHES.
- NEW WALKWAY PADS ARE TO BE INSTALLED AS INDICATED ON THE ROOF PLANS AND AT ALL LADDERS, ROOF HATCHES/ACCESS, RTU ACCESS PANELS, UNDER ALL SATELLITE SUPPORT SLEDS, AND AROUND ALL SIDES OF SERVICEABLE MECHANICAL EQUIPMENT. NOT ALL WALK PADS ARE SHOWN.
  - DO NOT INSTALL WALK PADS IN A MANNER THAT WILL CREATE WATER PONDING CONDITIONS.
  - WALK PADS SHALL NOT BE INSTALLED OVER MEMBRANE SEAMS OR VALLEYS.
- ALL INSULATION BOARD JOINTS SHALL BE 1/8" OR LESS IN WIDTH. FILL ALL UNEVEN OR OVERSIZED JOINTS.
- MEMBRANE ADHESIVE APPLICATION MUST BE ALLOWED TO PROPERLY FLASH OFF BEFORE MATING. ENSURE ADHESIVE IS DRY TO THE POINT OF BEING TACKY, BUT NOT STRINGY TO THE TOUCH. DO NOT ALLOW ADHESIVE TO "DRY-OUT" COMPLETELY.
- PROVIDE 4" LAP JOINTS FOR ALL SHEET METAL FLASHING RECEIVERS.
- PROVIDE CURBS FOR ALL ROOF MOUNTED EQUIPMENT WITH A DECK OPENING OF GREATER.
- ALL MEMBRANE SEAMS MUST BE STRIPPED-IN WITH A MINIMUM 6" WIDE SEMI-CURED COVER TAPE.
- ALL INSIDE AND OUTSIDE CORNER DETAILING TO BE INSTALLED PER MANUFACTURER REQUIREMENTS.

**ROOF REPLACEMENT NOTES:**

- THIS PROJECT IS FOR A FULL ROOF RECOVER OF THE EXISTING MICHENER LIBRARY ROOF SYSTEM AS DEFINED BY THE SCOPE OF WORK.
- THE EXISTING ROOF SYSTEMS CONSISTS OF:
  - A GRAVEL EMBEDDED FLOOD COAT OVER BUR ROOFING PILES, PERLITE COVER BOARD, RIGID INSULATION, AND A FIBERGLASS BASE SHEET. ALL ROOFING LAYERS HAD BEEN SET IN ASPHALT OVER A LIGHTWEIGHT CONCRETE TOPPING SLAB, SLOPED TO DRAIN, OVER A FULL STRENGTH CONCRETE ROOF DECK.
  - APPROX. R-VALUE OF THE EXISTING ROOF ASSEMBLY: R-14.00.
- ALL IN SCOPE ROOF AREAS WILL BE REMOVED DOWN TO THE MOPPED ASPHALT OVER THE EXISTING LIGHTWEIGHT CONCRETE TO REMAIN IN PLACE. ALL LOOSE ASPHALT MATERIAL TO BE REMOVED AND DISPOSED. ALL EXISTING MODIFIED-BITUMEN FLASHINGS TO BE REMOVED AND DISPOSED. THE EXISTING TO REMAIN SUBSTRATE IS TO BE CLEANED AND PREPARED FOR THE INSTALLATION OF THE FOLLOWING NEW ROOF ASSEMBLY (TOP-DOWN):
  - ROOF RECOVER ASSEMBLY @ ROOF AREAS A AND B:**
    - EXISTING GRAVEL EMBEDDED ASPHALT FLOOD COAT TO BE REMOVED (SWEEP OR SPURRED) AND DISPOSED.
    - EXISTING BUILT-UP ROOFING PILES TO BE CLEANED AND PRIMED WITH THE INSTALLATION OF THE FOLLOWING NEW MATERIALS (TOP TO BOTTOM):
      - NEW 0.060-INCH (60 MIL) NON-REINFORCED BLACK EPDM MEMBRANE - (FULLY ADHERED OVER)
      - ONE (1) LAYER OF NEW 3.0" COMPOSITE POLYISOCYANURATE INSULATION BOARD - 1/2-INCH HIGH DENSITY POLYISOCYANURATE COVER BOARD LAMINATED OVER A 2.5-INCH RIGID POLYISOCYANURATE INSULATION (48" X 48" BOARDS) - (SET IN NEW LOW RISE FOAM ADHESIVE OVER)
        - TOTAL THICKNESS: MIN. 3-INCHES AND R-16.9
      - THE RECENTLY SWEEP/SPURRED, CLEANED, AND PRIMED BUR SUBSTRATE.
        - ROOFING CONTRACTOR TO SPUD/REMOVE THE EXISTING AGGREGATE EMBEDDED FLOOD COAT PER MANUFACTURER REQUIREMENTS ONLY.
        - ROOF RECOVER SYSTEM TO MEET THE INSTALLATION REQUIREMENTS AS DESCRIBED AND OUTLINED WITHIN THE PROJECT DOCUMENTS.
    - TOTAL THERMAL RESISTANCE VALUE (NEW ASSEMBLY + EXISTING ASSEMBLY): R-30.9.
  - ROOF RECOVER ASSEMBLY @ ROOF AREAS A1, A2, A3, AND A4:**
    - EXISTING GRAVEL EMBEDDED ASPHALT FLOOD COAT TO BE REMOVED (SWEEP OR SPURRED) AND DISPOSED.
    - EXISTING BUILT-UP ROOFING PILES TO BE CLEANED AND PRIMED WITH THE INSTALLATION OF THE FOLLOWING NEW MATERIALS (TOP TO BOTTOM):
      - NEW 0.060-INCH (60 MIL) NON-REINFORCED BLACK EPDM MEMBRANE - (FULLY ADHERED OVER)
      - ONE (1) LAYER OF NEW 1/2-INCH HIGH DENSITY POLYISOCYANURATE COVER BOARD (48" X 48" BOARDS) - (SET IN NEW LOW RISE FOAM ADHESIVE OVER)
        - TOTAL THICKNESS: MIN. 3-INCHES AND R-16.9
      - NEW 1/4" PER FOOT SLOPED TAPERED POLYISOCYANURATE INSULATION (48" X 48" BOARDS) - (SET IN NEW LOW RISE FOAM ADHESIVE OVER)
      - THE RECENTLY SWEEP/SPURRED, CLEANED, AND PRIMED BUR SUBSTRATE.
        - ROOFING CONTRACTOR TO SPUD/REMOVE THE EXISTING AGGREGATE EMBEDDED FLOOD COAT PER MANUFACTURER REQUIREMENTS ONLY.
        - ROOF RECOVER SYSTEM TO MEET THE INSTALLATION REQUIREMENTS AS DESCRIBED AND OUTLINED WITHIN THE PROJECT DOCUMENTS.
    - TOTAL THERMAL RESISTANCE VALUE (NEW ASSEMBLY + EXISTING ASSEMBLY): R-30.9.
  - ROOF RECOVER ASSEMBLY @ ROOF AREA C:**
    - EXISTING GRAVEL EMBEDDED ASPHALT FLOOD COAT TO BE REMOVED (SWEEP OR SPURRED) AND DISPOSED.
    - EXISTING ALUMINUM COATING OVER MODIFIED-BITUMEN MEMBRANE TO REMAIN.
      - REMOVE ALL EXISTING LOOSE/DELAMINATED COATING MATERIAL TO SOUND/SECURED COATINGS.
    - EXISTING TO REMAIN BUILT-UP ROOFING PILES AND MODIFIED-BITUMEN CAP SHEET TO BE CLEANED AND PRIMED WITH THE INSTALLATION OF THE FOLLOWING NEW MATERIALS (TOP TO BOTTOM):
      - NEW 0.060-INCH (60 MIL) NON-REINFORCED BLACK EPDM MEMBRANE - (FULLY ADHERED OVER)
      - ONE (1) LAYER OF NEW 1/2-INCH HIGH DENSITY POLYISOCYANURATE COVER BOARD (48" X 48" BOARDS) - (SET IN NEW LOW RISE FOAM ADHESIVE OVER)
      - THE RECENTLY SWEEP/SPURRED, CLEANED, AND PRIMED BUR AND MODIFIED-BITUMEN MEMBRANE SUBSTRATE.
        - ROOF RECOVER SYSTEM TO MEET THE INSTALLATION REQUIREMENTS AS DESCRIBED AND OUTLINED WITHIN THE PROJECT DOCUMENTS.
      - TOTAL THERMAL RESISTANCE VALUE (NEW ASSEMBLY + EXISTING ASSEMBLY): R-30.9.

**MISCELLANEOUS SCOPE ITEMS:**

- THE FOUR (4) CORNERS OF THE MAIN ROOF - AREAS A1-A4 - SURROUNDED BY LARGE CONCRETE CURBS, WILL BE RECEIVING A 1/4-INCH TAPERED SYSTEM IN ADDITION TO THE FULL ROOF ASSEMBLY NOTED ABOVE. REFER TO THE ROOF PLAN ON R-300 FOR ADDITIONAL INFORMATION AND PROPOSED TAPERED SLOPE.
- SKYLIGHT CURB FLASHINGS:
  - THE EXISTING CONTINUOUS CHANNEL GAPS BETWEEN EACH SKYLIGHT DOME WILL HAVE THE EXISTING EPDM STRIPPING-PLIES REMOVED FOR INSTALLATION OF NEW MATERIALS.
  - EXISTING SUBSTRATE TO BE CLEANED, PRIMED, AND PREPARED FOR THE INSTALLATION OF A NEW LIQUID REINFORCED FLASHING PER THE DETAILS ON R-501.
- INSTALLATION OF NEW ROOF DRAIN BOWLS AND ASSOCIATED PIPING, FITTINGS, ACCESSORIES AND DOWNSPOUT, AND RELEASE NOZZLES FOR ONE PRIMARY DRAIN AND ONE OVERFLOW DRAIN IN THE PIT ROOF AREA C. THIS WORK WILL REQUIRE CORING THROUGH CONCRETE FLOOR AND WALL SLABS, GPR EFFORTS TO LOCATE STEEL REINFORCING PRIOR TO DRILLING, AND INSTALLING PIPING THROUGH INTERIOR FINISHES. RE: PLUMBING.

**ALTERNATES**

- ADDITIVE ALTERNATE #1:**
  - IN LIEU OF THE PROPOSED 60-MIL EPDM MEMBRANE - SUPPLEMENT, FURNISH, AND INSTALL A NEW 90-MIL NON-REINFORCED BLACK EPDM MEMBRANE IN CONJUNCTION WITH THE PROJECT DOCUMENTS MEETING BOTH PROJECT DOCUMENT AND MANUFACTURER REQUIREMENTS FOR INSTALLATION AND DETAILING. ADD ALT #1 PROJECT WARRANTY REQUIREMENTS:
    - LOW-SLOPE EPDM MEMBRANE - MANUFACTURER'S 20-YEAR NDL (NO DOLLAR LIMIT) WITH 2.0-INCH HAIL FOR 90-MIL FULLY ADHERED MEMBRANES, AND A 72-MPH WIND RIDER.
    - PERIMETER METALS - 20-YEAR NDL (NO DOLLAR LIMIT) WITH A 120-MPH WIND RIDER AND A 20-YEAR MINIMUM KYNAR FINISH WARRANTY.
    - CONTRACTOR - 2 YEAR WORKMANSHIP WARRANTY.
- ADDITIVE ALTERNATE #2**
  - REMOVING AND REPLACING EXISTING CONCRETE COATING - CONCRETE CURB AND CAP AND PARTIAL PARAPET WALL COATING SCOPE:
    - DESCRIPTION: THE ELEVATED CONCRETE CURBS AND LOUVER VENT CAPS HAVE BEEN COATED WITH A COMBINATION OF SILICONE AND ACRYLIC COATINGS THAT ARE DAMAGED, DETERIORATED, AND FAILING THROUGHOUT. THE CONCRETE SUBSTRATE HAS ALSO DETERIORATED IN ISOLATED LOCATIONS.
    - SCOPE OF WORK:
      - REMOVE EXISTING COATING AT ALL HORIZONTAL AND VERTICAL CONCRETE CURB AND CAP LOCATIONS TO BARE CONCRETE USING THE GENTLEST MEANS POSSIBLE.
      - REPAIR CONCRETE WITH PATCH MATERIAL TO PROVIDE A SMOOTH AND SOUND SUBSTRATE. ENSURE PATCH REPAIR HAS ADEQUATE TIME TO CURE PRIOR TO APPLYING NEW COATING.
      - APPLY NEW SILICONE COATING PER MANUFACTURER AND PROJECT DOCUMENT REQUIREMENTS AT ALL HORIZONTAL AND VERTICAL CONCRETE CURB AND CAP LOCATIONS AND PARTIAL PARAPET WALL AREAS WITH EXISTING COATING ONLY (THIS EXCLUDES THE UNCOATED INTERIOR VERTICAL WALLS AND HORIZONTAL FACES OF THE PARAPET WALLS).
      - NEW COATING TO APPLIED AFTER THE EPDM TERMINATION BAR, COUNTER FLASHING, AND SEALANT HAS BEEN INSTALLED TO PROVIDE DETAILING THAT PROMOTES DRAINAGE ONTO THE ROOF.
      - WARRANTY: CONTRACTOR TO PROVIDE MAXIMUM MANUFACTURER MATERIAL WARRANTY FOR THE THICKNESS OF THE SELECTED COATING SYSTEM AND A MINIMUM 2-YEAR WORKMANSHIP WARRANTY IN ACCORDANCE WITH THE PROJECT DOCUMENTS.
- ADDITIVE ALTERNATE #3**
  - APPLYING NEW CONCRETE COATING - PARAPET WALL TOP FACE AND INTERIOR WALL COATING SCOPE:
    - DESCRIPTION: MOST OF THE TOP AND INTERIOR VERTICAL WALL FACES OF THE CONCRETE PARAPET PERIMETER WALLS ARE UNCOATED.
    - SCOPE OF WORK:
      - REPAIR UNCOATED CONCRETE WITH PATCH MATERIAL TO PROVIDE A SMOOTH AND SOUND SUBSTRATE. ENSURE PATCH REPAIR HAS ADEQUATE TIME TO CURE PRIOR TO APPLYING NEW COATING.
      - APPLY NEW SILICONE COATING TO ALL UNCOATED CONCRETE ON THE FULL LENGTH OF ALL INTERIOR VERTICAL WALLS AND HORIZONTAL FACES OF THE PARAPET WALLS.
      - NEW COATING TO APPLIED AFTER THE EPDM TERMINATION BAR, COUNTER FLASHING, AND SEALANT HAS BEEN INSTALLED TO PROVIDE DETAILING THAT PROMOTES DRAINAGE ONTO THE ROOF.
      - WARRANTY: CONTRACTOR TO PROVIDE MAXIMUM MANUFACTURER MATERIAL WARRANTY FOR THE THICKNESS OF THE SELECTED COATING SYSTEM AND A MINIMUM 2-YEAR WORKMANSHIP WARRANTY IN ACCORDANCE WITH THE PROJECT DOCUMENTS.

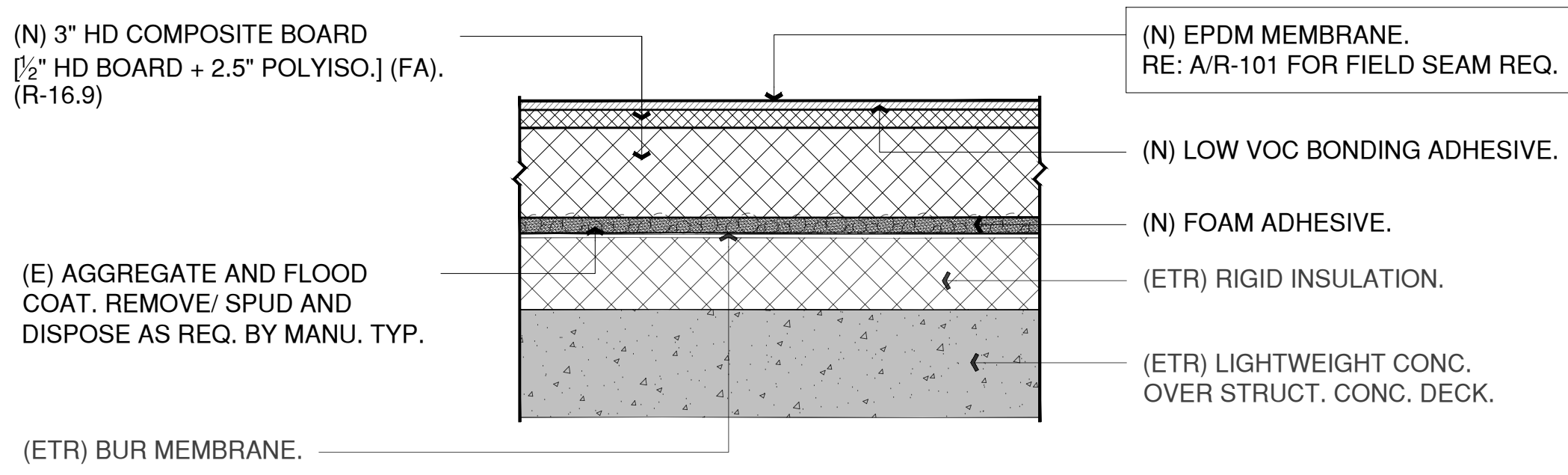
**ROOF ASSEMBLY NOTES:**

- GENERAL:**
  - VERIFY THAT SUBSTRATES ARE DRY, CLEAN, SMOOTH AND FREE OF SHARP EDGES, BURRS, DEEP DEPRESSIONS, LOOSE MATERIAL, OIL, GREASE OR OTHER FOREIGN MATERIAL PRIOR TO INSTALLATION.
  - BEGINNING INSTALLATION MEANS ACCEPTANCE OF ALL EXISTING SURFACE CONDITIONS.
  - NEATLY CUT AND FIT MATERIALS AROUND PENETRATIONS AND PROJECTIONS.
  - ONLY DRY MATERIALS ARE TO BE INSTALLED AND ONLY AS MUCH AS CAN BE COMPLETED AND DETAILED THE SAME DAY.
  - ALL MATERIAL THAT HAS BECOME WET DURING STORAGE WILL BE MARKED AND REMOVED FROM THE JOBSITE BY THE CONTRACTOR.
  - COORDINATE AND CONFIRM THAT MANUFACTURER'S ASSEMBLY MEETS OR EXCEEDS THE MINIMUM SPECIFIED ROOF ASSEMBLY RATING.
  - LISTED ATTACHMENT CRITERIA ARE MINIMUMS; ADDITIONAL OR ENHANCED ATTACHMENT REQUIRED BY MANUFACTURER'S IS TO BE PROVIDED AT NO ADDITIONAL COST.
- BARE BACK EPDM MEMBRANES - NON-REINFORCED:**
  - MEMBRANE SHEET MUST BE LOOSELY LAID OUT AND ALLOWED TO RELAX FOR A MINIMUM OF 30-MINUTES PRIOR TO INSTALLATION.
  - BONDING ADHESIVES ARE TO BE APPLIED IN FULL COVERAGE, EVENLY, TO BOTH THE SUBSTRATE AND THE BACK OF THE MEMBRANE SHEET.
  - ALLOW THE ADHESIVE TO DRY TO A POINT OF BEING TACKY, BUT NOT STRINGY TO THE TOUCH. DO NOT ALLOW ADHESIVE TO "DRY-OUT" COMPLETELY. THE MEMBRANE AND SUBSTRATE WILL BE DRY (NON-TACKY) TO THE FINGER TOUCH.
  - ENSURE SHEETS ARE INSTALLED WITH LAPS SHINGLED IN THE DIRECTION OF THE ROOF SLOPE DRAINAGE, TO PREVENT BACKWATER LAPS.
  - SHEET EDGES ARE TO BE LAPPED AT LEAST 3-INCHES, AS REQUIRED BY THE MANUFACTURER.
  - ALL HORIZONTAL AND VERTICAL MEMBRANE SEAMS ARE TO BE OVERLAP WITH A MANUFACTURER APPROVED, 6-INCH SEMI-CURED COVER TAPE.
- INSULATION BOARD:**
  - BOARDS ARE TO BE INSTALLED WITH A MINIMUM 12-INCH MATERIAL STAGGER IN ALL DIRECTIONS.
  - GAPS BETWEEN BOARDS GREATER THAN 1/8-INCH ARE NOT ALLOWED. FILL GAPS WITH ADDITIONAL MATERIAL OR LOW-RISE FOAM ADHESIVE.
  - ALL COVER BOARDS INSTALLED IN FOAM ADHESIVE SHALL BE STEPPED INTO PLACE AND POSITIONED; WEIGHTED DOWN WITH FULL 5-GAL ADHESIVE PAILS (35# WEIGHT MINIMUM) UNTIL THE BEAD FOAM ADHESIVE HAS SET.
    - WEIGHTS ARE TO BE POSITIONED WITH ONE IN THE CENTER AND ONE ON EACH CORNER, SO THAT NO CUPPING OR LACK OF ADHESION OCCURS. INSULATION THAT "BOUNCES" OR DEPRESSES UNDER FOOT PRESSURE IS UNACCEPTABLE.
  - WEIGHTS ARE TO REMAIN IN PLACE ON THE COVER BOARDS FOR A MINIMUM OF 10 MINUTES.

1

**ROOF ASSEMBLY @ ROOF AREAS A AND B (TYPICAL) - [MAIN ROOF AND PENTHOUSE]**

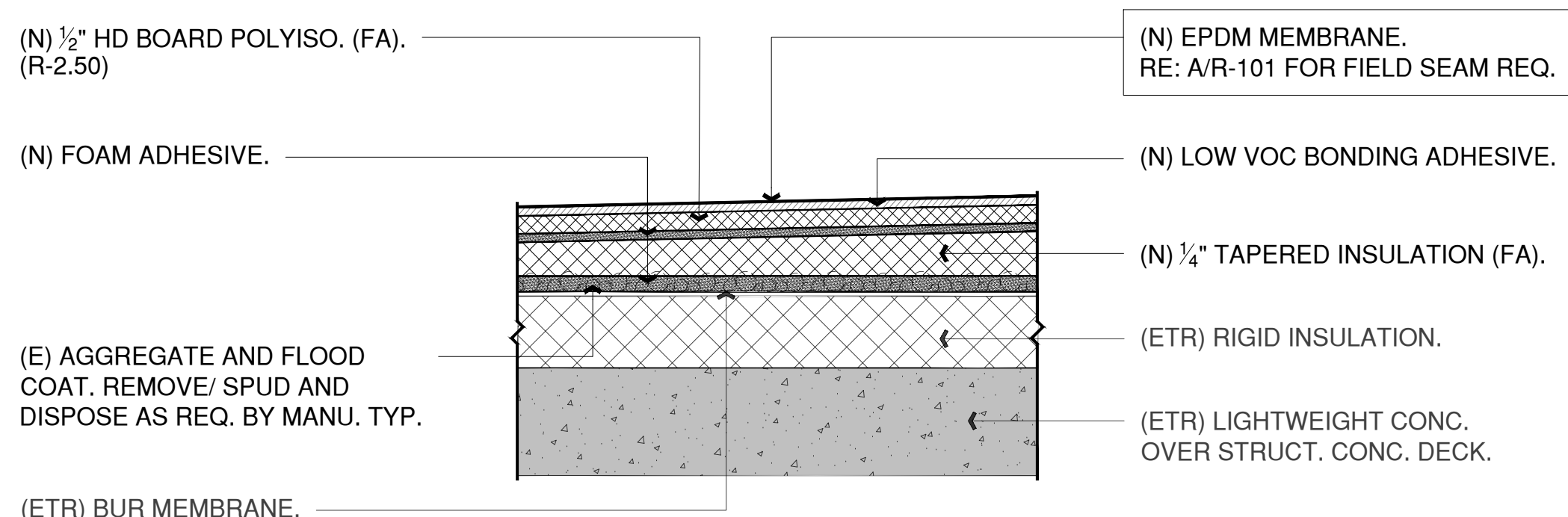
NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



2

**ROOF ASSEMBLY @ ROOF AREAS A1, A2, A3, AND A4 (TYPICAL) - [MAIN ROOF CORNERS]**

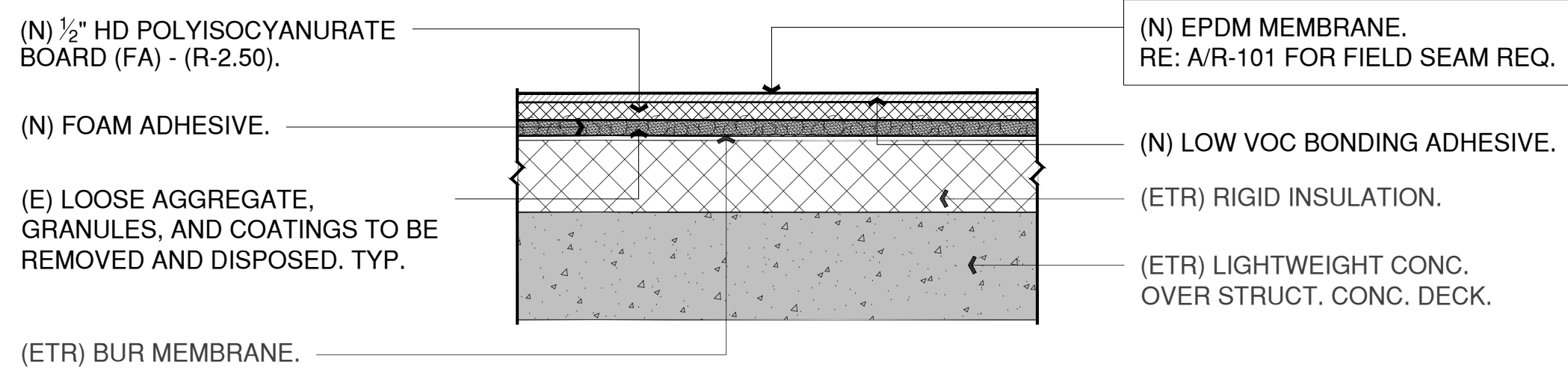
NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



3

**ROOF ASSEMBLY @ ROOF AREA C (TYPICAL) - [PIT ROOF]**

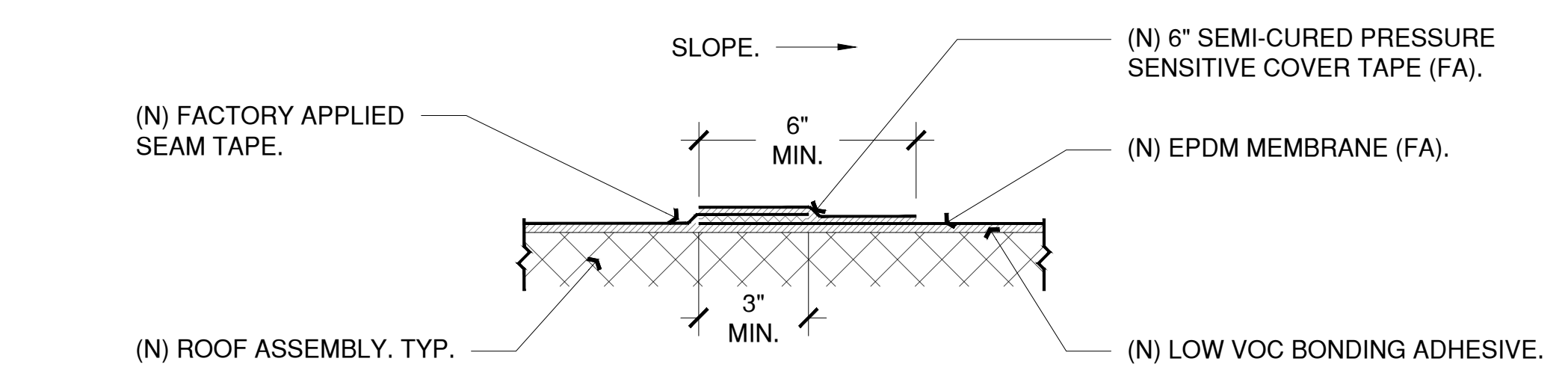
NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



A

**EPDM FIELD MEMBRANE SEAM OVERLAY (TYPICAL @ ALL SEAMS)**

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



**ROOF DETAIL NOTES:**

- PARAPET WALL/ ROOF EDGE FLASHINGS:**
  - NEW MEMBRANES MUST EXTEND DOWN THE OUTSIDE FACE OF THE PARAPET WALL/ROOF EDGE A MINIMUM OF 2" PAST THE BOTTOM WOOD NAILER.
  - FULLY ADHERE MEMBRANE TO THE PARAPET EXTERIOR.
  - MINIMUM 12"X12" WIDE UNCURED EPDM PATCHES MUST BE INSTALLED AT ALL MEMBRANE SEAM ANGLE CHANGES.
- COUNTER FLASHINGS:**
  - ALL EXISTING SURFACE MOUNTED COUNTER FLASHING METALS AND ASSOCIATED FASTENERS/SEALANTS ARE TO BE REMOVED AND DISPOSED.
  - EXISTING REGLETS TO REMAIN IN PLACE ARE TO HAVE THEIR EXISTING SEALANTS RAKED OUT AND EXPOSED SURFACES CLEANED PRIOR TO INSTALLATION OF NEW TOOLED-IN SEALANT.
  - EXISTING REGLETS TO BE DOUBLE-CUT AS NEEDED LEAVING 1" TO 2" OF EXISTING MATERIAL FOR NEW COUNTER FLASHING TIE-IN.
  - NEW SEALANTS TO BE TOOLED-IN, CREATING A WATER SHEDDING SURFACE.
  - ENSURE ALL WEEP HOLES REMAIN EXPOSED.
  - INSTALL NEW LEAD WEDGES @ 8" O.C. MAX. FOR ALL REGLET COUNTER FLASHING CONDITIONS. TYP.
  - BEND COUNTER FLASHING METALS 90-DEGREES @ END LOCATIONS, TO MEET FLUSH WITH WALL SUBSTRATE AND SEAL WITH NEW URETHANE SEALANT. TYP.
- ROOF DRAINS:**
  - STANDARD DRAIN SUMPS ARE 8'-0" X 8'-0". WHERE APPLICABLE, REFER TO ROOF PLAN ON R-300 FOR ELONGATED DRAIN SUMPS THAT EXCEED THE MINIMUM DIMENSIONS.
  - REMOVE ALL LEAD AND OTHER FLASHINGS.
  - REMOVE THE EXISTING CLAMPING RING AND STRAINER TO ALLOW FOR THE NEW FLASHING INSTALLATION.
  - RAISE/LOWER EXISTING DRAIN BOWL AS NEEDED TO ACCOMMODATE NEW ROOF ROOF ASSEMBLY THICKNESS.
  - CONTRACTOR TO WATER TEST ALL PRIMARY AND OVERFLOW DRAINS PRIOR TO CONSTRUCTION TO ENSURE DRAINS HAVE PROPER FLOW AND NO BLOCKAGE.
  - ALL STRAINERS AND CLAMPING RINGS TO BE CLEANED, PRIMED AND PAINTED BEFORE REINSTALLATION, PER THE SPECIFICATION REQUIREMENTS.
  - ALL BOLTS OR CLAMPS MUST BE IN PLACE TO PROVIDE CONSTANT COMPRESSION ON WATER CUT-OFF-MASTIC.
  - CUT THE MEMBRANE SO IT EXTENDS 1-INCH, FROM THE ATTACHMENT POINTS OF THE DRAIN CLAMPING RING.
  - FIELD SPLICES MUST BE LOCATED AT LEAST 6 INCHES OUTSIDE THE DRAIN SUMP.
  - MEMBRANE SEAMS SHALL NOT PASS THROUGH THE DRAIN SUMP.

TABLE 1.0 - ROOF ASSEMBLY ATTACHMENT SCHEDULE:

ROOF MATERIAL	ATTACHMENT TYPE	ATTACHMENT MATERIAL	ZONE 1 ATTACHMENT RATE	ZONE 2 ATTACHMENT RATE	ZONE 3 ATTACHMENT RATE
MEMBRANE	ADHESIVE	BONDING ADHESIVE	FULL COVERAGE	FULL COVERAGE	FULL COVERAGE
INSULATION BOARDS	ADHESIVE	LOW RISE FOAM - CONTINUOUS RIBBONS (NOTE 1)	4" O.C.	4" O.C.	4" O.C.

NOTES:

1. LOW-RISE FOAM BEADS ARE TO BE APPLIED WET WITH A MINIMUM THICKNESS OF 3/4-INCH. LOW-RISE FOAM MUST BE ALLOWED TO RISE AND DEVELOP STRING/BODY (APPROXIMATELY 1 1/2 - 2 MIN.). STRING TIME WILL VARY BASED ON ENVIRONMENTAL CONDITIONS LIKE TEMPERATURE AND HUMIDITY. DO NOT ALLOW THE ADHESIVE TO OVER-CURE PRIOR TO SETTING MATERIALS. DO NOT INSTALL MATERIALS IN WET BEADS.

DESIGN NOTES:

- 2021 INTERNATIONAL BUILDING CODE.
- 2021 INTERNATIONAL EXISTING BUILDING CODE - CHAPTER 7 - ALTERATION LEVEL 1 - REMOVE AND REPLACE WITH LIKE.
  - SECTION 706.2 - ADDITION OR REPLACEMENT OF ROOFING:
    - EXCEPTION 2: THE INCREASED DEAD LOAD IS DUE ENTIRELY TO THE ADDITION OF A SECOND LAYER OF ROOF COVERING WEIGHING 3 POUNDS PER SQUARE FOOT OR LESS OVER AN EXISTING SINGLE LAYER OF ROOF COVERING.
  - ESTIMATED INCREASE OF DEAD LOAD DUE TO ROOF RECOVER:
 

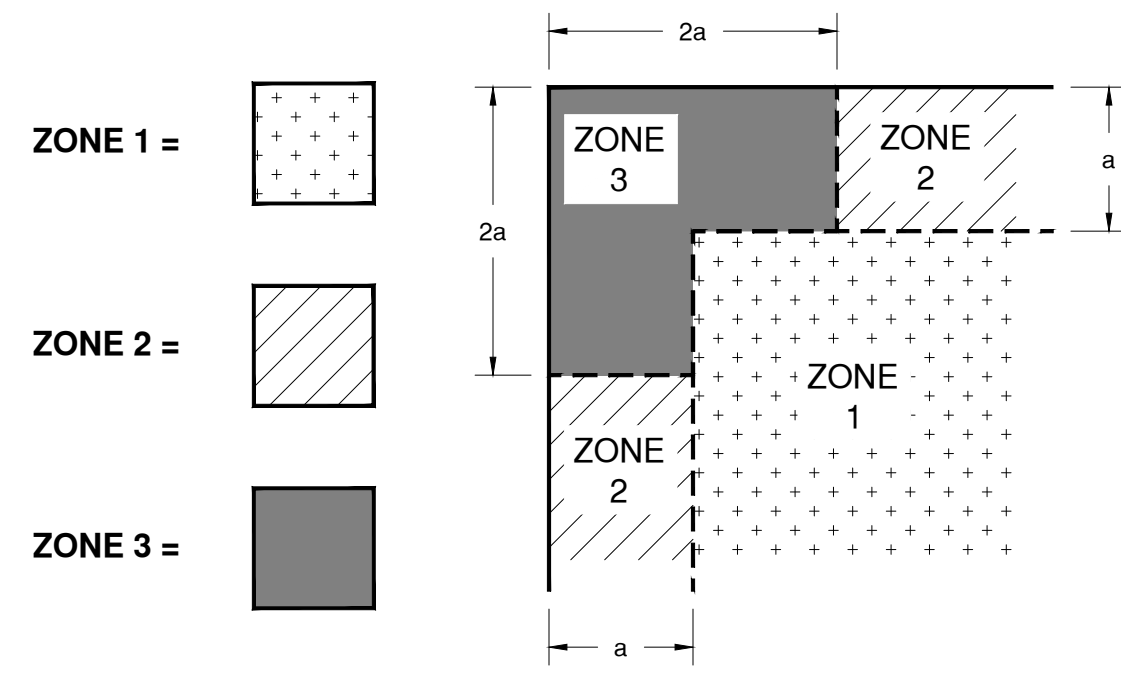
2.1.1.0.1. ROOF AREAS A AND B:	1.5 PSF.
2.1.1.0.2. ROOF AREAS A1-A4:	1.5 PSF.
2.1.1.0.3. ROOF AREA C:	1.0 PSF.

ASCE 7-16 - WIND DESIGN NOTES:

- 3-SECOND PEAK GUST: 115 MPH
- EXPOSURE: C
- CONFIGURATION: ENCLOSED
- RISK CATEGORY: III

ASCE 7-16 - STRENGTH DESIGN VALUES:

- ALL ROOF AREAS:
  - DESIGN HEIGHT (h): 70- FEET
  - 1.1.1. a: 18.0- FEET
  - ZONE 1 FIELD: -53.4 PSF
  - ZONE 2 EDGE: -83.8 PSF
  - ZONE 3 CORNER: -114.2 PSF
  - ZONE 4 WALL FIELD: -43.2 PSF
  - ZONE 5 WALL CORNER: -66.9 PSF



PLYWOOD SHEATHING FASTENING ILLUSTRATION:

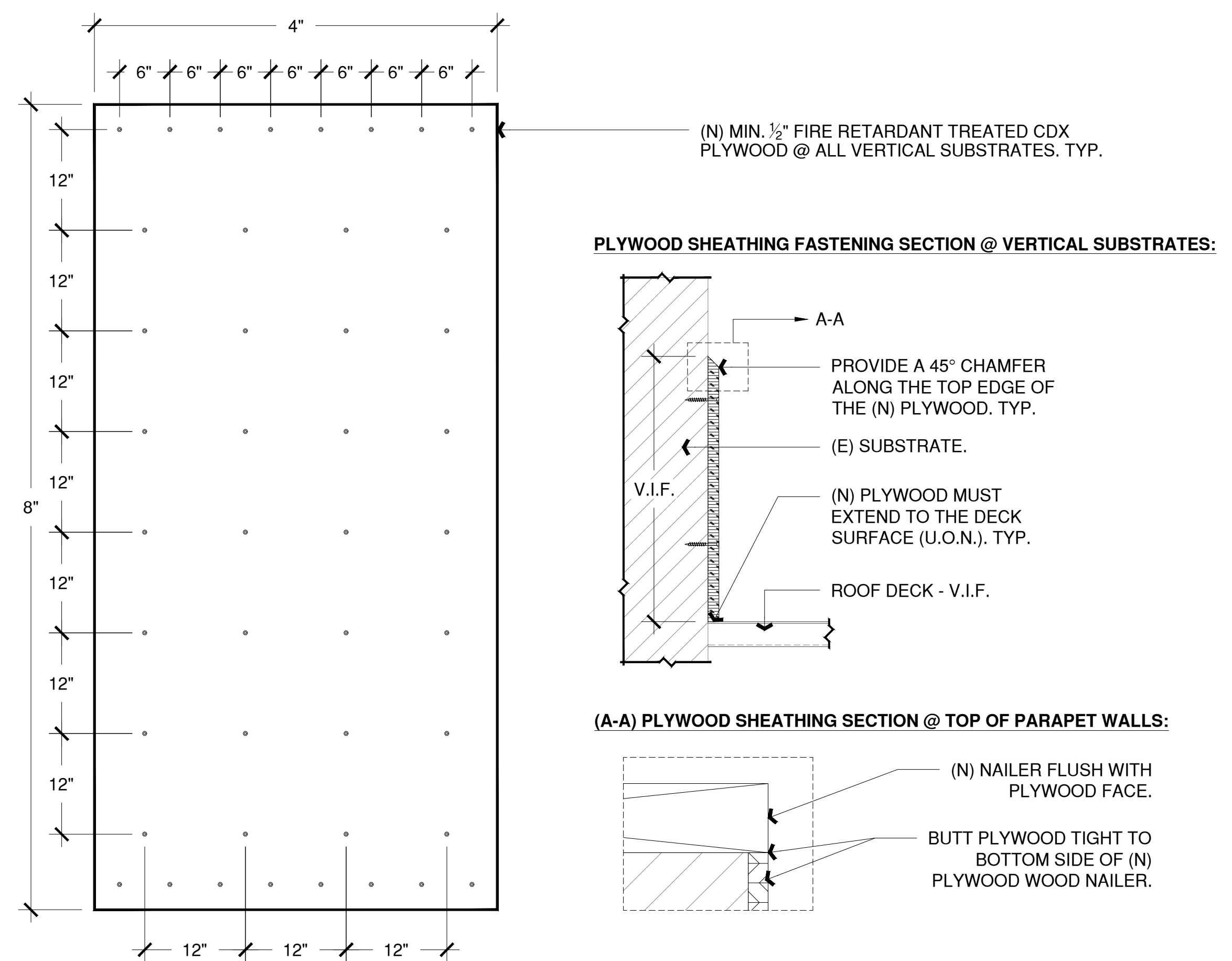
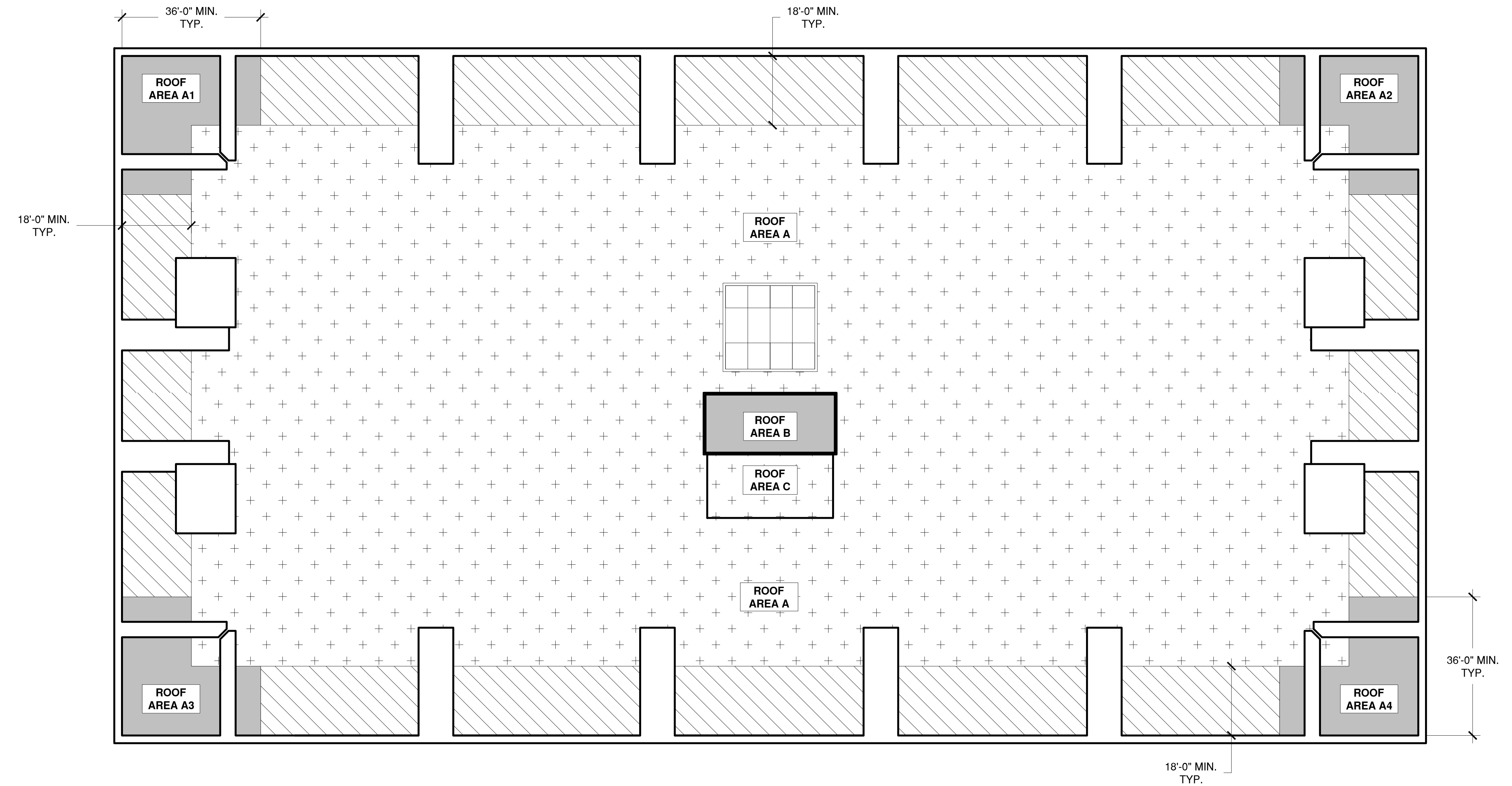


TABLE 2.0 - FASTENER SCHEDULE:

ELEMENT	SUBSTRATE	FASTENER	NUMBER AND SPACING
WOOD NAILER/ BLOCKING	CONCRETE BLOCK OR MASONRY WALL	1/2" STAINLESS STEEL CONCRETE SCREWS	12" O.C. MAX. STAGGERED (NOTE 1) 1.0" PENET., MIN. PULL-OUT RESISTANCE OF 1,000 POUNDS
	HORIZONTAL WOOD NAILER	#12 MIN. WOOD/STEEL SELF-DRILLING SCREWS	2 ROWS/12" O.C. EACH ROW, MIN. (NOTE 1) 3/4" PENET., MIN. PULL-OUT RESISTANCE OF 100 POUNDS
	VERTICAL WOOD NAILER	#12 MIN. WOOD/STEEL SELF-DRILLING SCREWS	2 ROWS/12" O.C. EACH ROW, MIN. (NOTE 1) 3/4" PENET., MIN. PULL-OUT RESISTANCE OF 100 POUNDS
WOOD DECK	WOOD DECKING	#15 CORROSION RESISTANT STEEL SCREWS	PER SPECIFICATIONS
HOOK STRIP (CLEAT METAL)	WOOD	#8 WOOD SCREWS	6" O.C. MAX. (NOTE 1)
	CONCRETE	3/16" STAINLESS STEEL NAIL-IN EXPANSION FASTENER	6" O.C. MAX. (NOTE 1)
DRIP EDGE	WOOD	4D RING SHANK NAILS.	SEE HOOK STRIP 2 ROWS/3"-4" O.C. MAX. STAGGERED (NOTE 1)
	WOOD	4D RING SHANK NAILS.	SEE HOOK STRIP 2 ROWS/3"-4" O.C. MAX. STAGGERED (NOTE 1)
GRAVEL STOP	CONCRETE BLOCK OR MASONRY WALL	OUTSIDE-CONTINUOUS HOOK STRIP, INSIDE EDGE GALVANIZED ROOFING NAILS	SEE HOOK STRIP 12" O.C. MAX. STAGGERED (NOTE 1)
	CONCRETE BLOCK OR MASONRY WALL	3/16" STAINLESS STEEL NAIL-IN EXPANSION FASTENERS	6" O.C. MAX. (NOTE 1)
RTS/SEAM FASTENING PLATES	CONCRETE BLOCK OR MASONRY WALL	3/16" STAINLESS STEEL NAIL-IN EXPANSION FASTENERS	6" O.C. MAX. (NOTE 1)
	PLYWOOD/STEEL STUDS	#15 CORROSION RESISTANT STEEL SCREWS	
METAL FLASHING RECEIVER	CONCRETE BLOCK OR MASONRY WALL	3/16" STAINLESS STEEL NAIL-IN EXPANSION FASTENERS	12" O.C. MAX. (NOTE 1)
METAL COUNTER FLASHING	METAL FLASHING RECEIVER	#15 NEOPRENE WASHERED SELF-DRILLING SCREWS	8" O.C. MAX. (NOTE 1)
PLYWOOD SHEATHING (ILLUSTRATION ON R-200)	METAL STUD FRAMING	#15 CORROSION RESISTANT STEEL SCREWS	6" O.C. MAX. @ EDGES AND 12" O.C. MAX. IN THE FIELD @ EACH STUD LOCATION (NOTE 1)
	CONCRETE BLOCK OR MASONRY WALL	3/16" STAINLESS STEEL NAIL-IN EXPANSION FASTENERS	
METAL WALL PANELS	CONCRETE BLOCK OR MASONRY WALL	CLAD WALL WITH PLYWOOD PRIOR TO PANEL INSTALL	SEE PLYWOOD SHEATHING
	PLYWOOD/STEEL STUDS	#10 CORROSION RESISTANT SELF-TAPPING TEK SCREWS	12" O.C. MAX. ALONG PANEL LEG (NOTE 1)
WALL PANEL CLOSURE METALS	CONCRETE BLOCK OR MASONRY WALL	CLAD WALL WITH PLYWOOD PRIOR TO PANEL INSTALL	SEE PLYWOOD SHEATHING
	PLYWOOD/STEEL STUDS	#10 CORROSION RESISTANT SELF-TAPPING TEK SCREWS	8" O.C. MAX. (NOTE 1)
STEEL MECHANICAL CURB	WOOD	#12 METAL TO WOOD FASTENER	6" O.C. MAX. AROUND FULL CURB PERIMETER

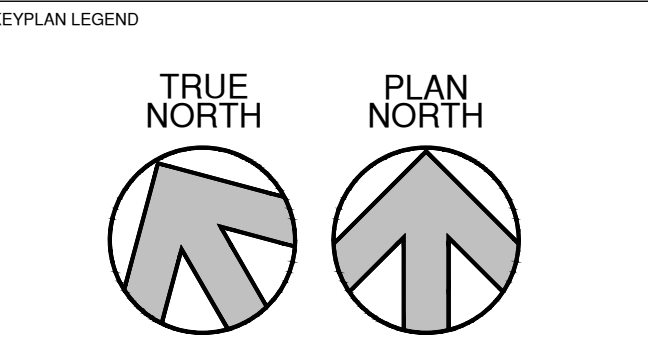
NOTES:

1. FASTENER FREQUENCY SHALL BE DOUBLED WITHIN 10 FEET OF CORNERS.



WIND ZONE ROOF PLAN

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



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GREELEY, CO 80639

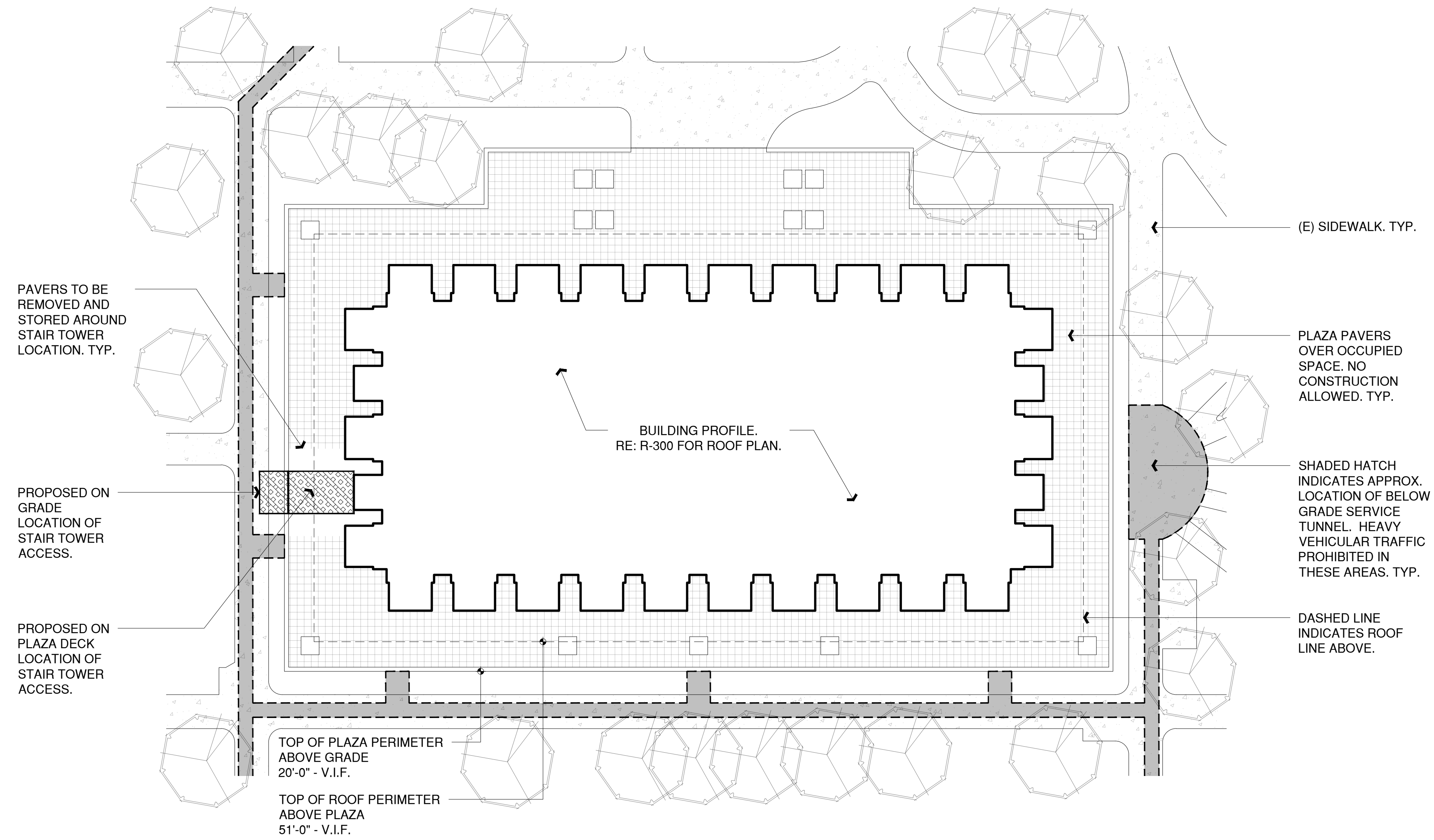
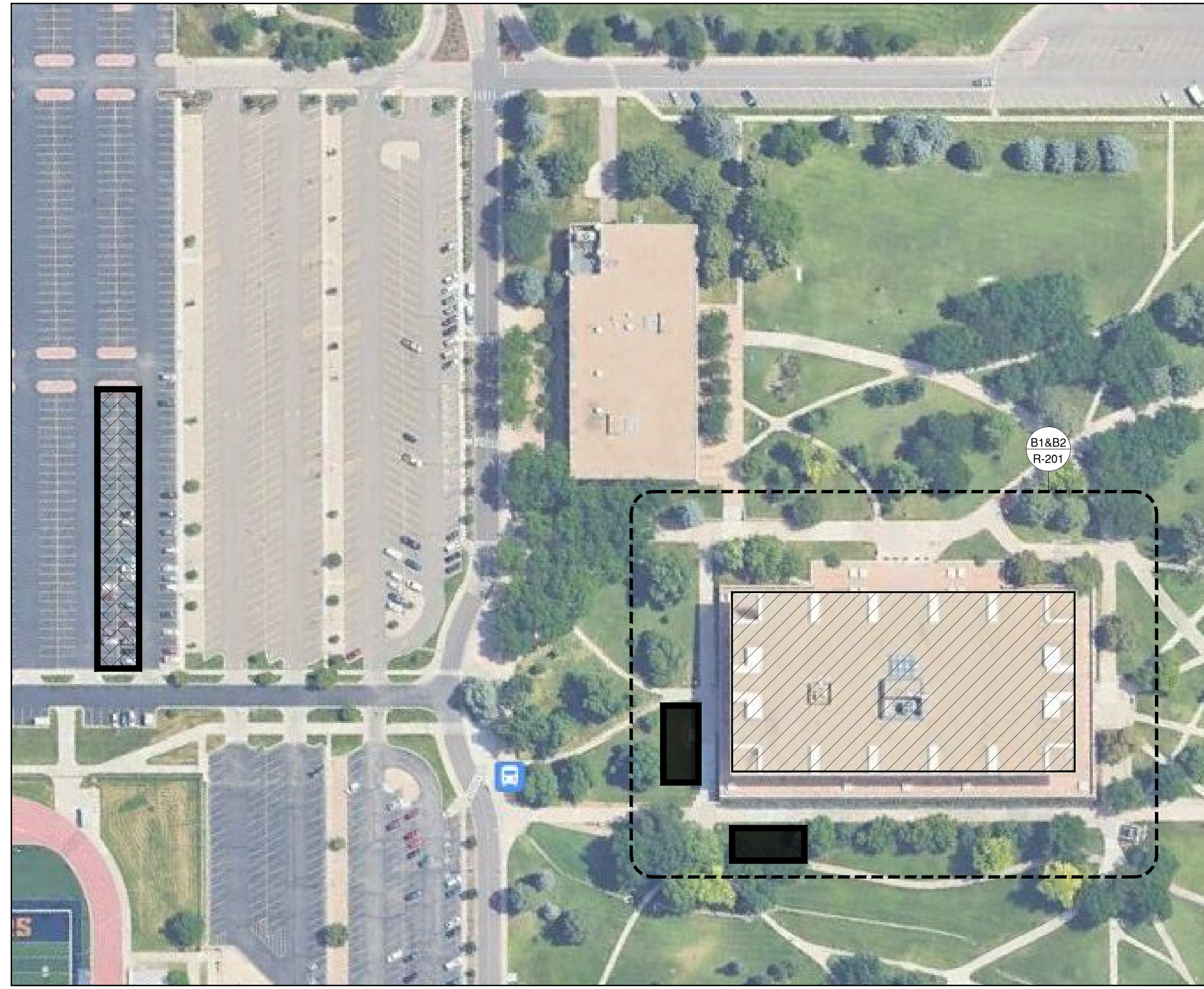
PROJECT  
JAMES A. MICHENER LIBRARY ROOFING PROJECT  
1400 22ND STREET  
GREELEY, CO 80631

PROJECT NO.	DEN.2023.001048
DATE	09/2024
DRAWN BY	DJD
CHECKED BY	RKP & SAP
DATE	REVISION

AMTECH SOLUTIONS  
1720 South Bellaire Street, Suite 1200  
Denver, Colorado 80222  
(303) 738-0823 | www.amtechsls.com

SHEET TITLE  
DESIGN NOTES AND FASTENING SCHEDULES

SHEET NO.  
R-200



**B0** CONTRACTOR STAGING AND ACCESS LOCATION(S) PLAN

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)

**CONTRACTOR STAGING REQUIREMENTS:**

- CONTRACTOR STAGING/PARKING.
- CRANE AND GRAVEL TRUCK ACCESS
- UNC MICHENER LIBRARY ROOF.

**STAGING AND ACCESS NOTES:**

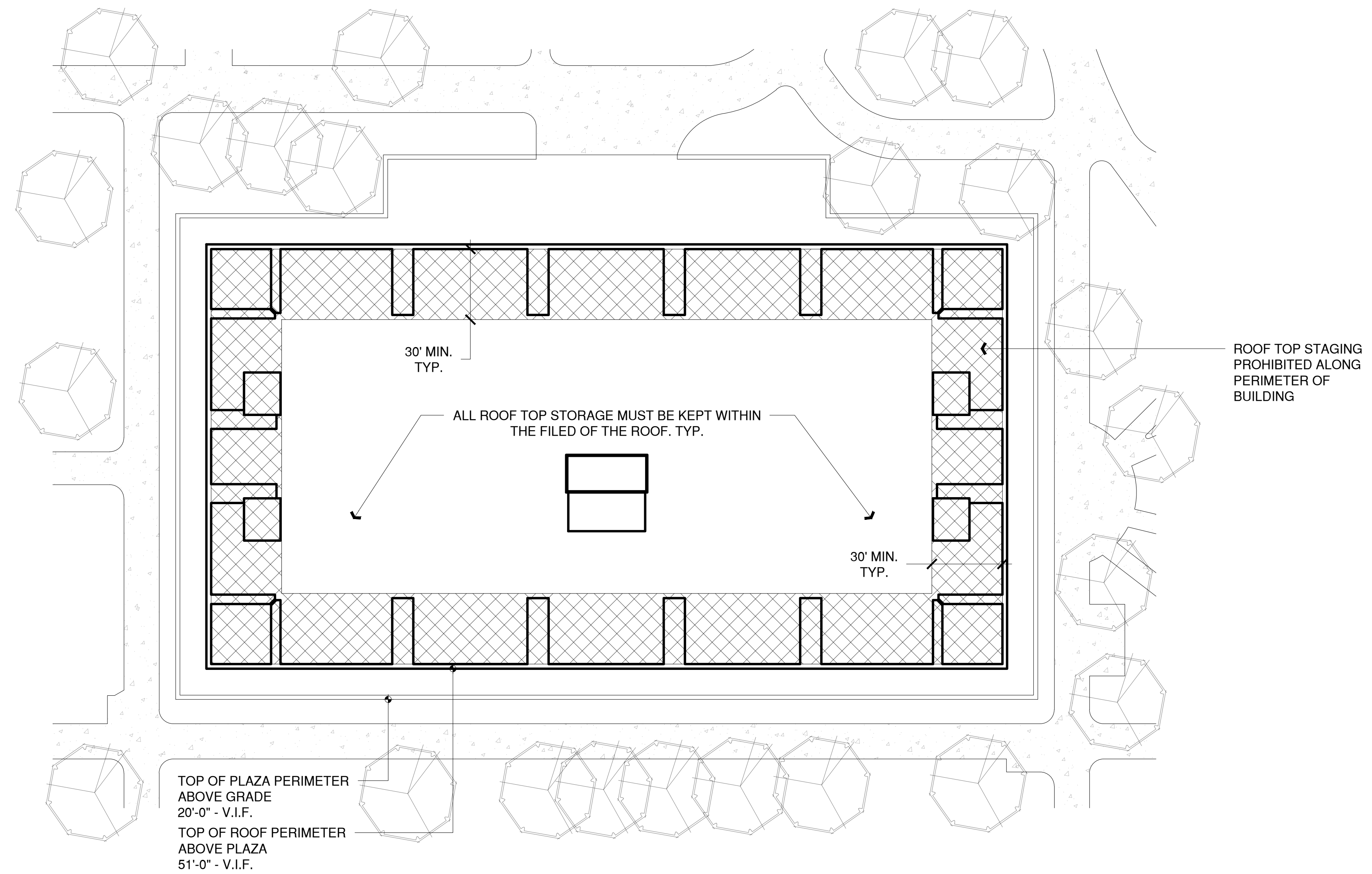
1. CONTRACTOR TO COORDINATE ALL STAGING, PARKING, CRANE, AND TRUCK ACCESS WITH UNC.
2. CONTRACTOR TO PROTECT SUBSTRATE AND ADJACENT SURFACES FOR ALL ACCESS POINTS.
3. NO EQUIPMENT IS TO BE PLACED ON TOP OF PLAZA PAVERS.
4. CONTRACTOR TO PHOTO DOCUMENT ALL STAGING, PARKING, CRANE, AND TRUCK LOCATION CONDITIONS PRIOR TO THE START OF MOBILIZATION/ CONSTRUCTION
5. MAX LOAD OVER TUNNELS: = 250 PSF.
6. ROOF TOP ACCESS BY EXTERIOR MEANS. INTERIOR ACCESS PER OWNER APPROVAL ONLY.
7. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL BUILDING FIRE EGRESS EXIST, PATHS, AND LOCATIONS AS REQUIRED BY LOCAL AHJ.

**STAIR TOWER SCAFFOLDING NOTES**

1. **GENERAL**
  - 1.1. EXTERIOR STAIR TOWER INSTALLATION AND PROJECT DURATION PERFORMANCE THROUGH PROJECT DURATION TO ADHERE TO THE REQUIREMENTS OF THE LOCAL AHJ, OSHA REGULATIONS, AND ANSI STANDARDS.
  - 1.2. STAIR TOWER ERECTION, ASSEMBLY, AND SAFETY REGULATIONS ARE THE RESPONSIBILITY OF THE STAIR TOWER CONTRACTOR/ENGINEER AND SHALL BE DESIGNATED AS A DEFERRED SUBMITTAL AND DELEGATED DESIGN THROUGH THE ROOFING CONTRACTOR.
  - 1.3. INSTALLATION PLAN, LOCATION, AND ASSEMBLY TO BE REVIEWED BY BOTH THE OWNER AND OWNER'S ROOFING CONSULTANT FOR REVIEW AND APPROVAL, PRIOR TO MOBILIZATION AND INSTALLATION.
2. **PLANNING AND PREPARATION**
  - 2.1. REFER TO STAGING PLAN B1 ON R-201 FOR PROPOSED INSTALLATION LOCATION.
  - 2.2. CONTRACTOR TO COORDINATE WITH SCAFFOLDING CONTRACTOR/ENGINEER AND PROJECT TEAM TO CONDUCT A SITE ASSESSMENT TO DETERMINE THE SCAFFOLDING LOCATION AND HEIGHT REQUIREMENTS.
  - 2.3. CONTRACTOR TO ENSURE COMPLIANCE WITH LOCAL REGULATIONS AND SAFETY STANDARDS AND ACQUIRE NECESSARY PERMITTING FOR SCAFFOLDING ERECTION.
3. **TESTING**
  - 3.1. **LOAD TESTING:**
    - 3.1.1. CONTRACTOR TO COORDINATE WITH SCAFFOLDING CONTRACTOR TO ENSURE LOAD TESTING IS PERFORMED ON THE BUILDING PRIOR TO INSTALLATION.
    - 3.1.2. TESTING METHODS, DURATION, AND INSPECTIONS TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER AND SCAFFOLDING CONTRACTOR/ENGINEER.
  - 3.2. **ANCHOR TESTING:**
    - 3.2.1. PULL-OUT TESTING, EMBEDMENT DEPTH, AND TORQUE TESTING TO BE PERFORMED PRIOR TO STAIR TOWER INSTALLATION AND IN ACCORDANCE WITH MANUFACTURER AND SCAFFOLDING CONTRACTOR/ENGINEER.
  - 3.3. **VISUAL INSPECTION**
    - 3.3.1. CONDUCT A THOROUGH VISUAL INSPECTION OF ALL ANCHORS, CONNECTIONS, AND SCAFFOLD COMPONENTS TO CHECK FOR ANY SIGNS OF DAMAGE OR IMPROPER INSTALLATION.
  - 3.4. **ALIGNMENT AND PLUMBNESS:**
    - 3.4.1. ENSURE THAT VERTICAL POSTS ARE PLUMB AND THAT THE SCAFFOLD STRUCTURE IS CORRECTLY ALIGNED.
  - 3.5. **LOAD DISTRIBUTION** - CHECK THAT THE LOAD IS EVENLY DISTRIBUTED ACROSS THE SCAFFOLD BASE AND THAT THE ANCHORING POINTS ARE ADEQUATELY SUPPORTING THE LOAD.
  - 3.6. **MOVEMENT TESTING** - ENSURE THAT THERE IS NO EXCESSIVE MOVEMENT OR SWAYING OF THE SCAFFOLD UNDER LOAD CONDITIONS.
4. **DOCUMENTATION AND REPORTING**
  - 4.1. RECORD KEEPING - MAINTAIN DETAILED RECORDS OF ALL TESTING PROCEDURES, RESULTS, AND INSPECTIONS.
  - 4.2. REPORTING - PROVIDE REPORTS ON TEST RESULTS AND ANY CORRECTIVE ACTIONS TAKEN TO RELEVANT STAKEHOLDERS OR REGULATORY BODIES AS REQUIRED.
5. **MATERIAL AND EQUIPMENT CHECK**
  - 5.1. SCAFFOLDING CONTRACTOR/ENGINEER TO VERIFY THAT ALL SCAFFOLDING COMPONENTS (TOWERS, STAIRS, PLATFORMS, GUARDRAILS, ETC.) ARE IN GOOD CONDITION, PRIOR TO INSTALLATION.
  - 5.2. CHECK FOR ANY MISSING OR DAMAGED PARTS.
6. **FOUNDATION SETUP**
  - 6.1. THE UNIVERSITY OF NORTHERN COLORADO (UNC) HAS INDICATED THAT A PORTION OF THE PAVER PLAZA TERRACE CAN BE UTILIZED FOR STAIR TOWER PLACEMENT AND PARTIAL SUPPORT.
    - 6.1.1. PAVERS AND ASSOCIATED PEDESTALS MUST BE REMOVED AND STORED ONSITE WITH AMPLE PROTECTION TO ENSURE DAMAGES DO NOT OCCUR TO THE PAVERS THROUGH THE CONSTRUCTION DURATION UNTIL THEY CAN BE REINSTALLED.
  - 6.2. STAIR TOWER BASE PLATE SUPPORTS CAN BE SET ON THE THE ABOVE DECK (BELOW PLAZA PAVERS) MONOLITHIC WATERPROOFING MEMBRANE.
    - 6.2.1. CONTRACTOR TO DOCUMENT THE EXISTING MEMBRANE CONDITIONS PRIOR TO INSTALLATION OF THE NEW STAIR TOWER.
    - 6.2.2. THE MEMBRANE AND ADJACENT AREAS MUST BE PROTECTED DURING THE FULL DURATION OF CONSTRUCTION.
    - 6.2.3. ANY DAMAGES THAT OCCUR DURING CONSTRUCTION TO THE MEMBRANE, PAVERS, AND ADJACENT AREAS, ARE THE SOLE RESPONSIBILITY OF THE ROOFING CONTRACTOR AND THEIR SUBCONTRACTORS TO BRING THESE AREAS THAT HAVE BEEN COMPROMISED BACK TO PRE-CONSTRUCTION CONDITIONS.
    - 6.2.4. CONTRACTORS MUST RESTORE THE BUILDING FACADE TO ITS ORIGINAL CONDITION WHERE SCAFFOLDING IS ANCHORED. ANCHORS SHOULD BE DISCREETLY PLACED IN INCONSPICUOUS AREAS, SUCH AS FACADE CLADDING JOINTS OR MORTAL LINES, TO MINIMIZE VISIBLE REPAIRS AND PRESERVE THE FACADES APPEARANCE AFTER THE SCAFFOLDING IS REMOVED.
7. **TRAINING AND ACCESS**
  - 7.1. ENSURE THAT ALL PERSONNEL USING THE SCAFFOLD ARE TRAINED IN ITS PROPER USE.
  - 7.2. PROVIDE SAFETY BRIEFINGS AND ENSURE THAT PERSONAL PROTECTIVE EQUIPMENT (PPE) IS USED.
8. **REGULAR INSPECTIONS**
  - 8.1. CONDUCT REGULAR INSPECTIONS DURING THE PROJECT TO ENSURE CONTINUED SAFETY AND COMPLIANCE.
  - 8.2. ADDRESS ANY ISSUES OR ADJUSTMENTS NEEDED PROMPTLY.

**B1** CONTRACTOR STAGING AND ACCESS LOCATION(S) PLAN

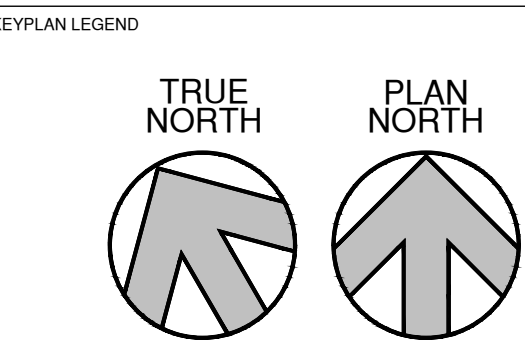
NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (SCALE: 1/32" = 1'-0")



**B2** ROOF TOP STAGING PLAN

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (SCALE: 1/32" = 1'-0")

LEGEND



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UNIVERSITY OF NORTHERN COLORADO  
501 WEST 20TH STREET  
GREELEY, CO 80639

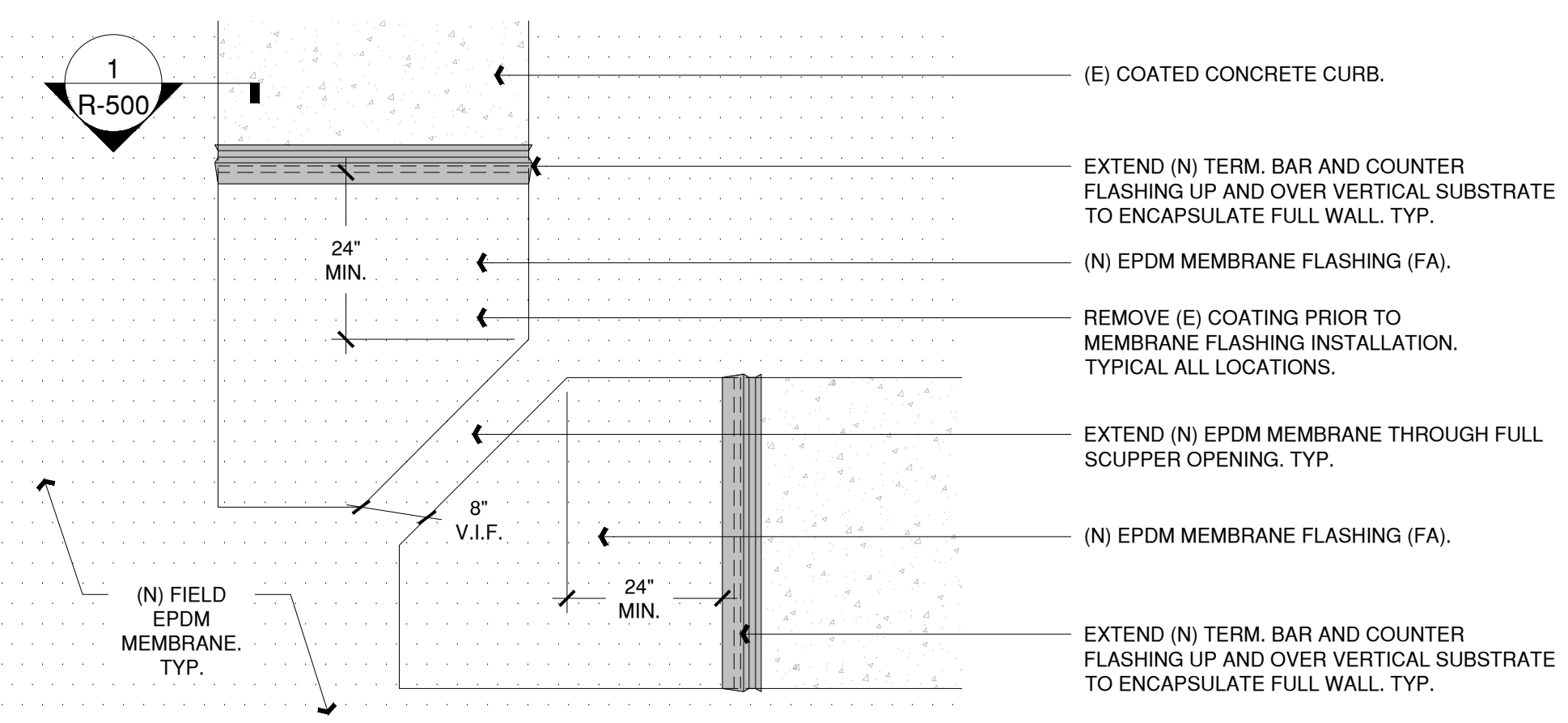
PROJECT  
JAMES A. MICHENER LIBRARY ROOFING PROJECT  
1400 22ND STREET  
GREELEY, CO 80631

PROJECT NO.	DEN.2023.001048
DATE	09/2024
DRAWN BY	DJD
CHECKED BY	RKP & SAP
DATE	REVISION

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SHEET TITLE  
CONTRACTOR STAGING PLAN

SHEET NO.  
R-201



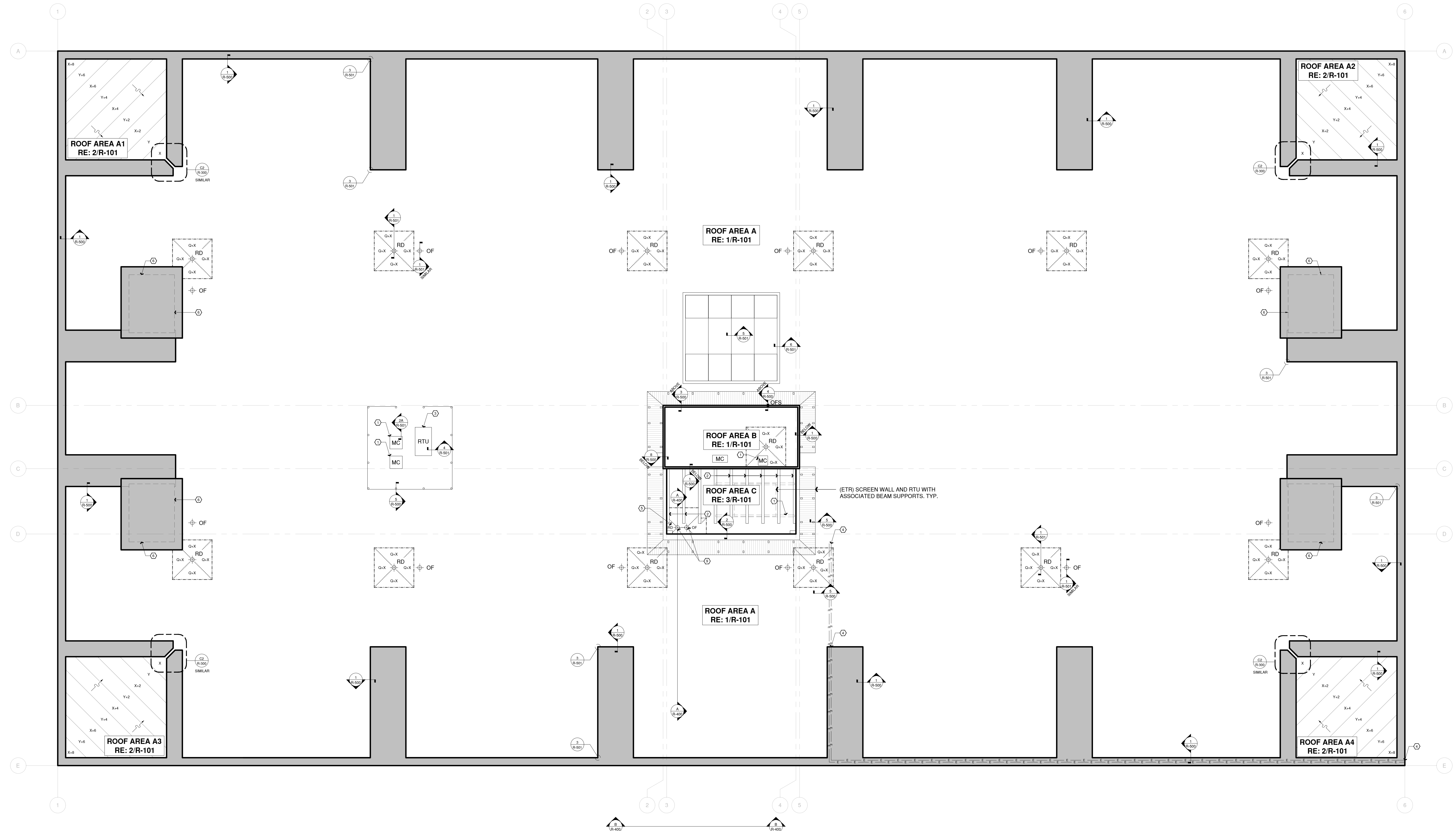
**C2** RAISED CURB THRU-WALL CHANNEL FLASHING (TYPICAL)  
NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)

**KEYNOTES:**

- EXISTING SHEET METAL CURB CAPS AND STEEL BEAMS:**
    - CLEAN/GRIND METAL OF ALL CONTAMINATES TO BARE STEEL.
    - TREAT AREAS OF STEEL FOUND TO HAVE SIGNS OF RUSTING WITH RUST INHIBITING COATING.
    - INSTALL A NEW LIQUID REINFORCED FLASHING OVER ALL HORIZONTAL AND VERTICAL SURFACES OF THE EXISTING SHEET METAL AND STEEL BEAMS PER MANUFACTURER INSTALLATION REQUIREMENTS.
  - EXISTING PIT ROOF CURB SHEET METAL CAPS TO BE REMOVED WITH THE INSTALLATION OF NEW EPDM UP AND OVER, TO FULLY ENCAPSULATE ALL CURBS, TYPICAL.
  - EXISTING ROOF TOP UNIT TO BE RAISED AS NECESSARY TO MEET THE MINIMUM 8-INCH FLASHING REQUIREMENTS. EXTEND ALL DUCT WORK AND ELECTRICAL AS REQUIRED.
  - CONTRACTOR TO COORDINATE WITH OWNER REGARDING ALL WALL MOUNTED ELECTRICAL UNITS, CAMERAS, AND UNISTRUT SUPPORTS WHERE INTERFERENCE WITH ROOFING WORK MAY OCCUR. ELECTRICAL TO ONLY BE REMOVED AND REINSTALLED.
  - CONTRACTOR TO COORDINATE WITH OWNER REGARDING REMOVAL AND DISPOSAL OF THE EXISTING PIT ROOF SUMP PUMP.
- CONTRACTOR TO ENSURE EXISTING TO REMAIN LOUVERS ARE NOT COVERED BY NEW ROOFING MATERIALS. TYPICAL.
  - EXISTING BALLASTED/FREESTANDING EQUIPMENT TO BE DISCONNECTED, STORED, AND REINSTALLED BY CONTRACTOR PER OWNER DIRECTION. COORDINATE WITH OWNER TO ANY WORK AROUND UNIT.
  - CONTRACTOR TO COORDINATE WITH OWNER PRIOR TO ABANDONED CURB/PENETRATION REMOVAL. ALL ABANDONED CURBS MARKED FOR REMOVAL WILL NEED TO HAVE THE ROOF DECK OPENINGS PATCHED AND REPAIRED WITH NEW ROOFING INSTALLED OVER THESE LOCATIONS. OVERLAY DECK WITH NEW MINIMUM 3'X3' 16-GA. SHEET METAL FLAT STOCK FOR OPENINGS THAT ARE 2'X2' OR LESS. FASTEN NEW FLAT STOCK SHEET METAL AT 6-INCHES ON CENTER AT 3-INCHES FROM THE EDGE OF THE DECK OPENING, TYPICAL.
  - INSTALL NEW PRIMARY AND OVERFLOW ROOF DRAINS, SUMPS, AND ACCESSORIES. RE: PLUMBING AND DETAIL 1 ON R-501 FOR SIM. DRAINAGE FLASHING CONDITIONS. DESIGN INTENT IS TO INSTALL NEW DRAINS IN DIFFERENT CELL OF THE CONCRETE SLAB.

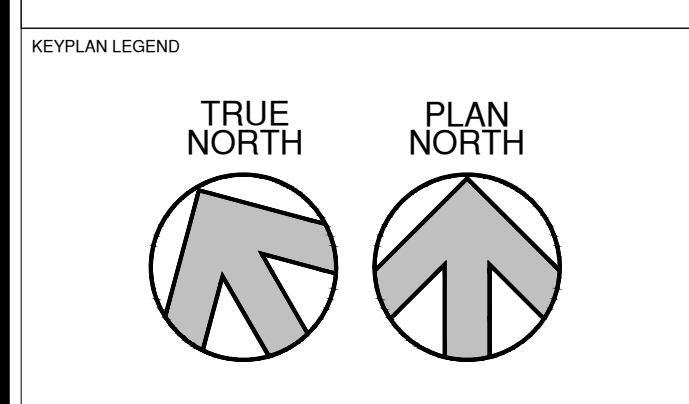
LEGEND

	SECTION AND DETAIL REFERENCE
	ROOFING KEY NOTE
	STRUCTURAL ROOF SLOPE
	1/2" TAPERED ROOF SLOPE
	RIIDGE LINE
	VALLEY LINE
	PRIMARY ROOF DRAIN
	OVERFLOW ROOF DRAIN
	THRU-WALL ROOF DRAIN
	THRU-WALL SCUPPER
	OVERFLOW SCUPPER
	ROOF HATCH
	WALL-TO-ROOF EXPANSION JOINT
	ROOF-TO-ROOF EXPANSION JOINT
	CONTROL JOINT
	EXISTING GAS LINE
	EXISTING CONDUIT LINE
	EXISTING LIGHTNING PROTECTION
	HOT STACK PENETRATION
	VENT PIPE PENETRATION
	SOIL PIPE PENETRATION
	DAVIT ARM PENETRATION
	TIE-BACK ANCHOR PENETRATION
	ELECTRICAL LINE PENETRATION
	GAS LINE PENETRATION
	PIPE PENETRATION
	ROOF TOP UNIT
	EXHAUST HOOD
	EXHAUST FAN
	MECHANICAL EQUIPMENT CURB
	FREE STANDING MECHANICAL EQUIPMENT
	ABANDONED EQUIPMENT CURB TO BE REMOVED AT OWNER'S DIRECTION
	NEW 1/2" TAPERED CURBETS WITH 1/2" TAPERED EDGE STRIP
	NEW WALKWAY PAD
	SKYLIGHT
	SPLASH BLOCK
	ROOF AREA ELEVATION OFFSET
	ELEVATION TAG



**C1** ROOF PLAN  
NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)

- CONTRACTOR TO REMOVE ONLY AS MUCH ROOFING PER DAY AS THEY ARE ABLE TO MAKE WATERTIGHT AND SECURE AT THE END OF THEIR WORK DAY. ANY DAMAGE CAUSED BY WEATHER OR OTHER ELEMENTS AS A RESULT OF UNFINISHED ROOFING WILL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL REPLACE/REPAIR ALL INTERIOR AND EXTERIOR DAMAGE, RESULTING FROM UNFINISHED/UNPROTECTED ROOF CONSTRUCTION AT THEIR OWN EXPENSE.
- ALL CONDITIONS OR PENETRATIONS MAY NOT BE SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS AND MEASUREMENTS.
- DETAIL CALL OUTS AND KEY NOTES MAY ONLY BE REFERENCED ONCE ON THE DRAWINGS. ONCE A PARTICULAR CALL OUT OR KEY NOTE HAS BEEN REFERENCED OR INDICATED BY LEGEND, IT MAY NOT BE REFERENCED AGAIN ON THE DRAWINGS, BUT ITS USE SHALL BE TYPICAL.
- ROOF TAPER PLANS ARE PRELIMINARY. ROOFING CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND COORDINATE WITH ROOF MEMBRANE MANUFACTURER AND/ OR SUPPLIER FOR FINAL DRAINAGE TAPER PLANS TO BE REVIEWED AND APPROVED BY AMTECH PRIOR TO CONSTRUCTION.
- GRID LINES ARE FOR REFERENCE ONLY.



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SHEET TITLE  
ROOF PLAN

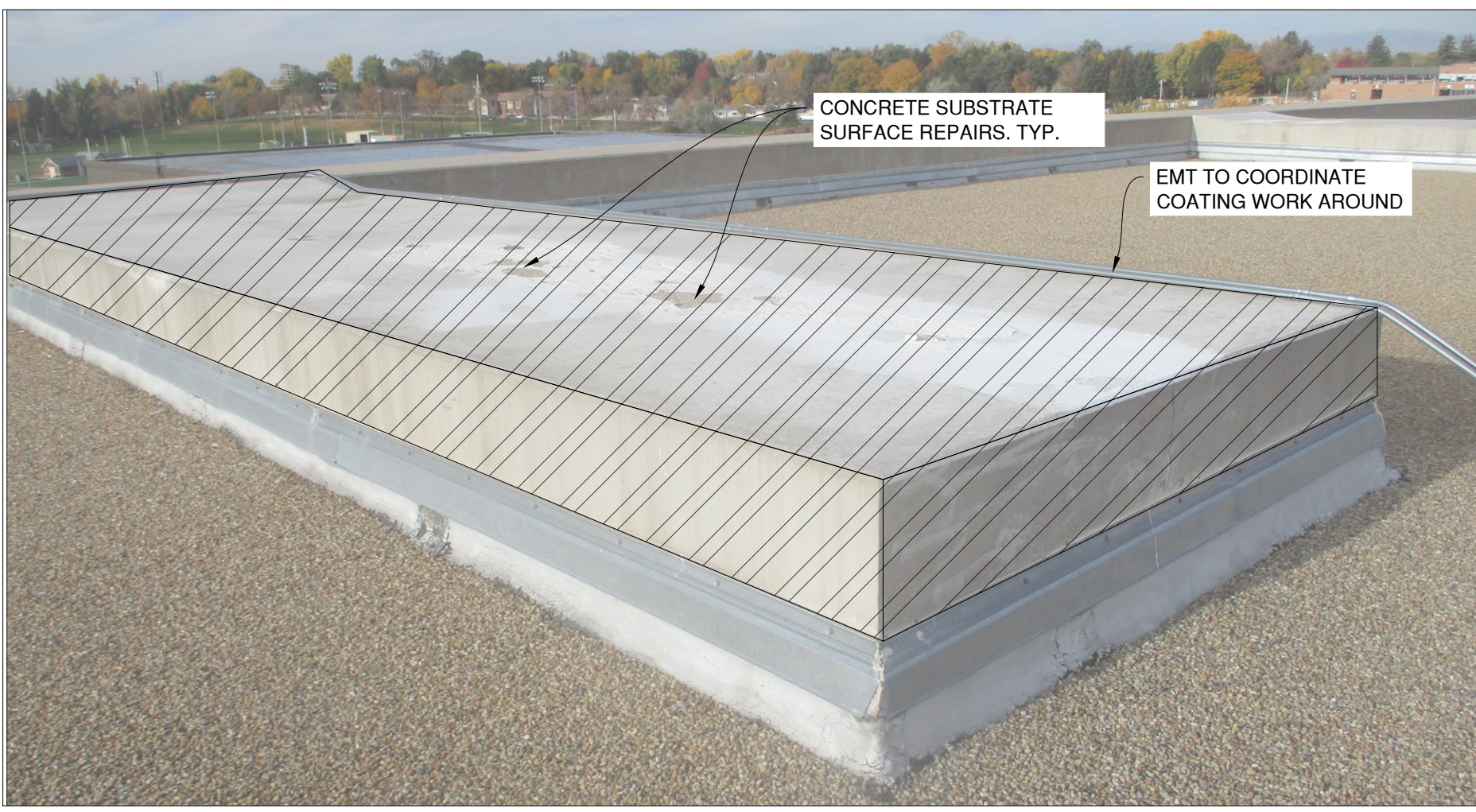
SHEET NO.  
R-300

**CONCRETE COATING KEYNOTES:**

1. AT RAISED CURB THRU-WALL CHANNEL FLASHING, TERMINATE COATING AT TERMINATION BAR THAT WILL EXTEND UP AND OVER THE VERTICAL SUBSTRATE OF THE WALL TO ENCAPSULATE FULL WALL. TYPICAL ALL LOCATIONS. RE: C2/R-300.
2. COORDINATE TEMPORARY REMOVAL, STORAGE, AND REINSTALLATION OF THE ELECTRICAL CONDUITS WITH UNC TO COMPLETE CONCRETE COATING WORK. TYPICAL ALL LOCATIONS.
3. NEW COATING TO BE APPLIED AFTER THE EPDM TERMINATION BAR, COUNTER FLASHING, AND SEALANT HAS BEEN INSTALLED TO PROVIDE DETAILING THAT PROMOTES DRAINAGE ONT THE ROOF. TYPICAL AT ALL LOCATIONS.

**LEGEND:**

- (E) CONCRETE COATING AREAS (INCLUDING INTERIOR VERTICAL WALL FACES TO TOP OF (E) ROOF TERMINATION - NOT SHOWN) TO REMOVE COATING AND APPLY SILICONE COATING SYSTEM (ADDITIVE ALTERNATE #2).
- (N) SILICONE COATING APPLIED AT EXPOSED CONCRETE PARAPET WALLS THAT ARE NOT CURRENTLY COATED (INCLUDING INTERIOR VERTICAL WALL FACES TO NEW ROOF TERMINATION - NOT SHOWN) (ADDITIVE ALTERNATE #3).



**D COATED CONCRETE CURB - TYPICAL**  
NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



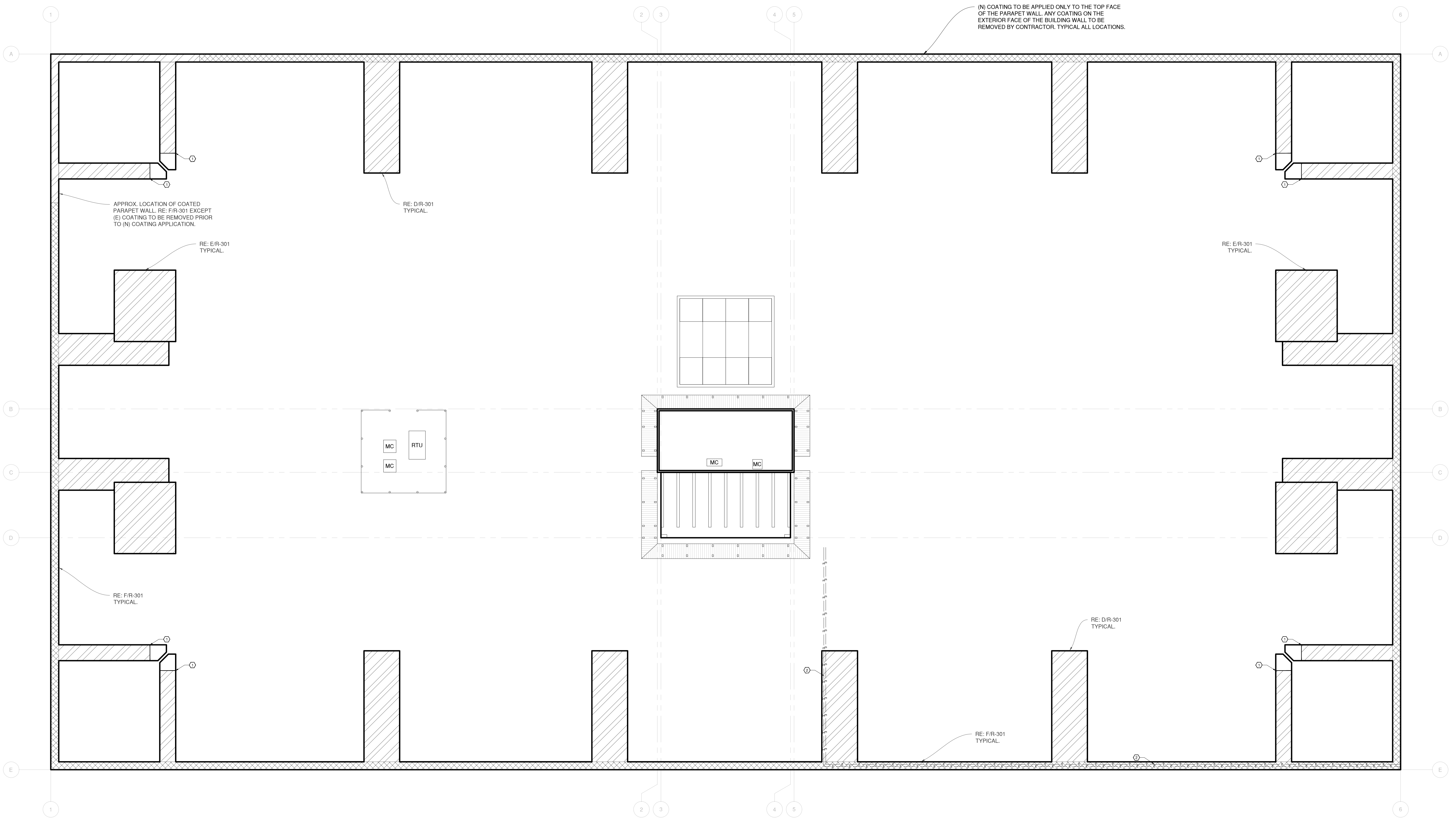
**E COATED CONCRETE LOUVER VENT CAP & CURB - TYPICAL**  
NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



**F UNCOATED PARAPET WALL - TYPICAL**  
NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)

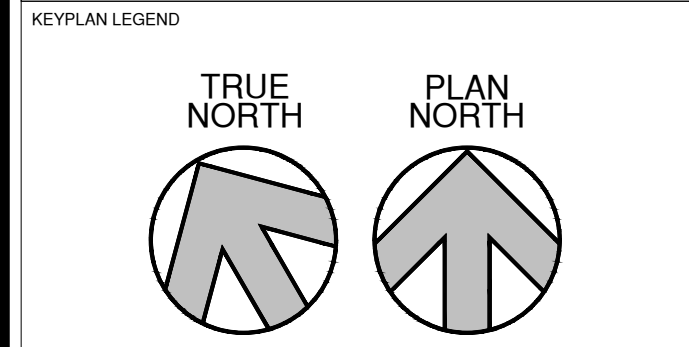
**LEGEND**

	SECTION AND DETAIL REFERENCE
	ROOFING KEY NOTE
	STRUCTURAL ROOF SLOPE
	1/2" TAPERED ROOF SLOPE
	RIIDGE LINE
	VALLEY LINE
	PRIMARY ROOF DRAIN
	OVERFLOW ROOF DRAIN
	THRU-WALL ROOF DRAIN
	THRU-WALL SCUPPER
	OVERFLOW SCUPPER
	ROOF HATCH
	WALL-TO-ROOF EXPANSION JOINT
	ROOF-TO-ROOF EXPANSION JOINT
	CONTROL JOINT
	EXISTING GAS LINE
	EXISTING CONDUIT LINE
	EXISTING LIGHTNING PROTECTION
	HOT STACK PENETRATION
	VENT PIPE PENETRATION
	SOIL PIPE PENETRATION
	DAVIT ARM PENETRATION
	TIE-BACK ANCHOR PENETRATION
	ELECTRICAL LINE PENETRATION
	GAS LINE PENETRATION
	PIPE PENETRATION
	ROOF TOP UNIT
	EXHAUST HOOD
	EXHAUST FAN
	MECHANICAL EQUIPMENT CURB
	FREE STANDING MECHANICAL EQUIPMENT
	ABANDONED EQUIPMENT CURB TO BE REMOVED AT OWNERS DIRECTION
	NEW 1/2" TAPERED CRACKETS WITH 1/2" TAPERED EDGE STRIP
	NEW 1/2" TAPERED CRACKETS WITH 1/2" TAPERED EDGE STRIP
	SKYLIGHT
	SPLASH BLOCK
	ROOF AREA ELEVATION OFFSET
	ELEVATION TAG



**C3 ROOF PLAN - CONCRETE COATING NOTES**  
NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)

1. CONTRACTOR TO ENSURE ALL WORK AREAS ARE WATERTIGHT AND SECURE AT THE END OF THEIR WORK DAY. ANY DAMAGE CAUSED BY WEATHER OR OTHER ELEMENTS AS A RESULT OF UNFINISHED WORK WILL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL REPLACE/REPAIR ALL INTERIOR AND EXTERIOR DAMAGE, RESULTING FROM UNFINISHED/UNPROTECTED ROOF CONSTRUCTION AT THEIR OWN EXPENSE.
2. ALL CONDITIONS OR PENETRATIONS MAY NOT BE SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS AND MEASUREMENTS.
3. DETAIL CALL OUTS AND KEY NOTES MAY ONLY BE REFERENCED ONCE ON THE DRAWINGS. ONCE A PARTICULAR CALL OUT OR KEY NOTE HAS BEEN REFERENCED OR INDICATED BY LEGEND, IT MAY NOT BE REFERENCED AGAIN ON THE DRAWINGS, BUT ITS USE SHALL BE TYPICAL.
4. GRID LINES ARE FOR REFERENCE ONLY.



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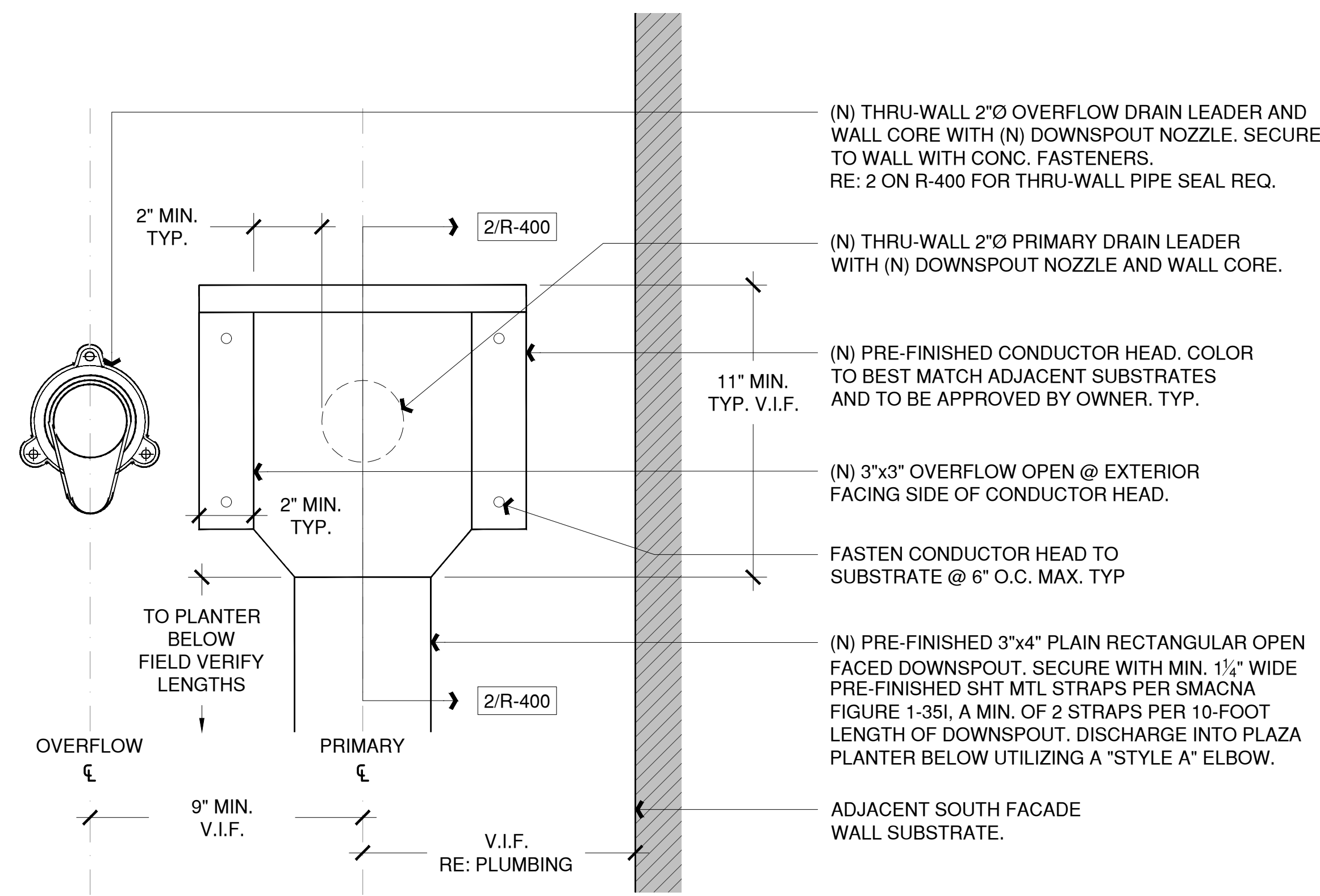
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**SHEET TITLE**  
ROOF PLAN - CONCRETE COATING ALTERNATES #2 & #3

**SHEET NO.**  
R-301

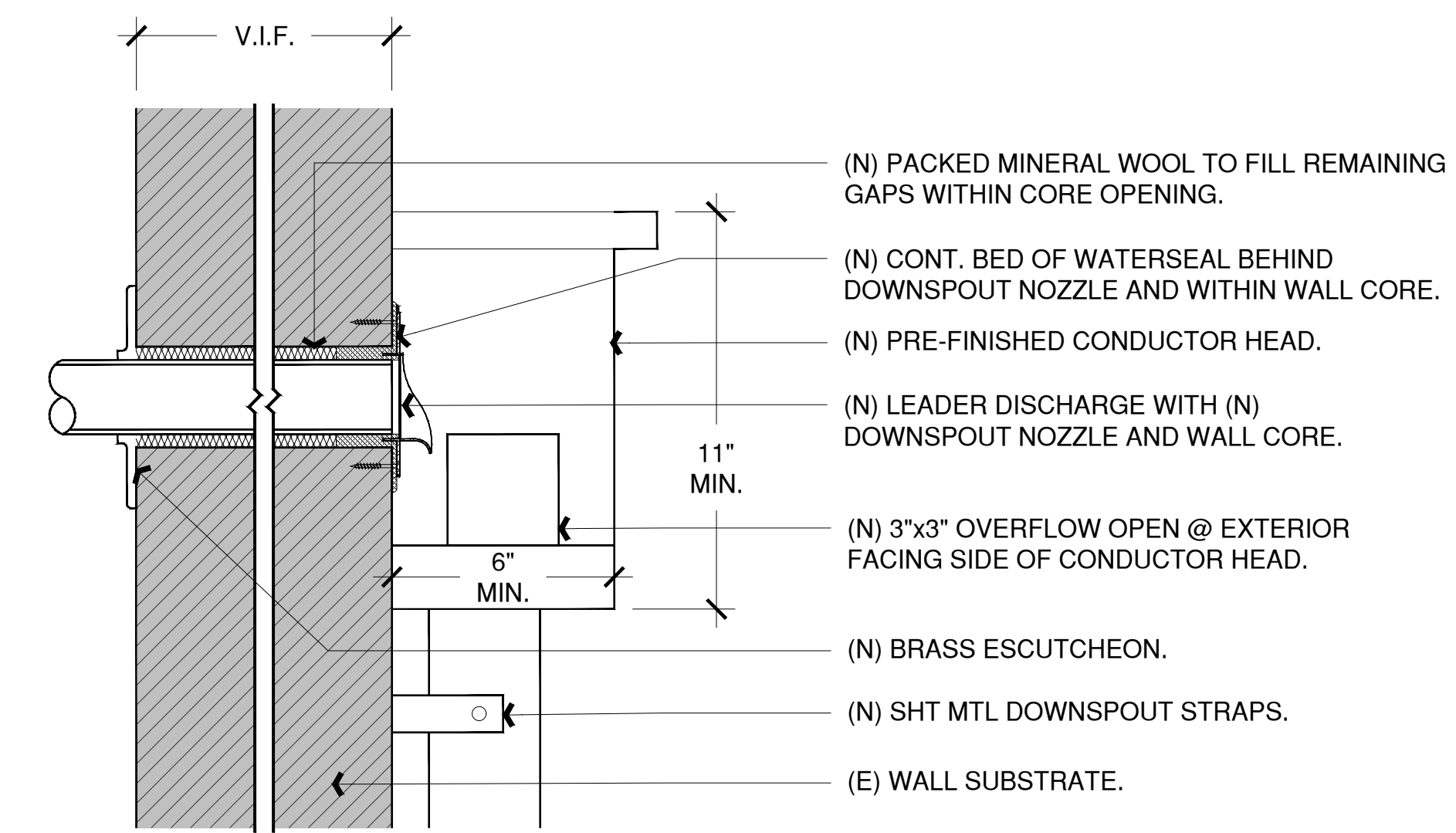
NOTES:

- CONTRACTOR IS RESPONSIBLE FOR MEANS AND METHODS OF ACCESS FOR PLUMBING MODIFICATIONS AT INTERIOR AREAS AND PROTECTION OF OWNER'S ASSETS (E.G. LIBRARY STACKS). ALL INTERIOR FINISHES TO BE RETURNED TO PRE-CONSTRUCTION CONDITION AS APPROVED BY UNC.
- CONTRACTOR TO TAKE EXTREME CARE TO PROTECT ADJACENT CONSTRUCTION AND SYSTEMS (E.G. STRUCTURAL CONCRETE, GLAZING, MEP, FIRE AND LIFE SAFETY) DURING PLUMBING MODIFICATIONS AND INSTALLATION. ANY DAMAGE TO ADJACENT CONSTRUCTION SYSTEMS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CORRECT AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR WILL BE RESPONSIBLE FOR REPAIRING ALL INTERIOR FINISHES AT THE PLUMBING PIPE PENETRATIONS OF INTERIOR WALLS AND PLENUM SPACES INCLUDING BUT NOT LIMITED TO GYPSUM/PLASTER AND PAINT REPAIRS ONCE PLUMBING MODIFICATIONS HAVE BEEN COMPLETED..
- REFER TO PROJECT SPECIFICATIONS FOR CONDUCTOR HEAD AND DOWNSPOUT MATERIALS AND INSTALLATION REQUIREMENTS.
- NEW EXTERIOR WALL MOUNTED CONDUCTOR HEAD AND OPEN FACE DOWNSPOUTS TO BEST MATCH EXISTING ADJACENT METAL OR SUBSTRATE COLORS. ALL COLORS TO BE SELECTED AND APPROVED BY OWNER.
- INSTALL NEW SPLASH BLOCKS PER SPECIFICATION REQUIREMENTS AT EXTERIOR DOWNSPOUT DISCHARGE LOCATIONS.
- CONCRETE PENETRATION REQUIREMENTS:
  - LOCATE & AVOID ALL IMBEDDED CONCRETE STEEL REINFORCEMENT OR STRUCTURAL MEMBERS PRIOR TO ANY CUTTING OR CORING. NO FLOOR, WALL, OR FOUNDATION/GRADE BEAM PENETRATIONS MAY BE INSTALLED WITHOUT PRIOR REVIEW AND APPROVAL OF THE ENGINEER.
  - PROVIDE THE LOCATIONS OF THE PROPOSED PENETRATIONS TO THE ENGINEER TO REVIEW AND ASSESS WHETHER FURTHER STRUCTURAL EVALUATION IS REQUIRED.
  - PRIOR TO PENETRATING A FLOOR OR WALL, SCAN THE EXISTING STRUCTURE WITH A PACOMETER, GROUND PENETRATING RADAR (GPR) OR OTHER SUITABLE METHOD TO LOCATE EXISTING IMBEDDED CONCRETE STEEL REINFORCEMENT IN THE VICINITY OF THE PROPOSED OPENING. IDENTIFY THE PROPOSED LOCATION OF THE PENETRATION TO DETERMINE IF THE PROPOSED LOCATION IS ACCEPTABLE OR IF THE PENETRATION WILL NEED TO BE SHIFTED TO CLEAR CRITICAL REINFORCING OR STRUCTURAL MEMBERS.
  - THE CUTTING OF ANY EXISTING REINFORCEMENT IS NOT ACCEPTABLE WITHOUT REVIEW AND APPROVAL BY A STRUCTURAL ENGINEER. INDISCRIMINATELY CUTTING THROUGH REINFORCING TO INSTALL PENETRATIONS WITHOUT PRIOR STRUCTURAL CONSIDERATION IS NOT ACCEPTABLE AS IT COULD CAUSE STRUCTURAL FAILURE OF THE FLOOR, ROOF OR WALL.
- VERIFY NEW ROOF DRAINS AND DRAIN PIPING ARE CLEAR OF DEBRIS, OPEN AND FUNCTIONAL, THAT PIPING IS PROPERLY CONNECTED AND SEALED TO DRAIN BOWLS AND ALL DRAIN COMPONENTS ARE IN SERVICEABLE CONDITION.
- ALL NEW ROOF DRAINS ARE TO BE WATER TESTED FOR POTENTIAL LEAKS/BLOCKAGES AFTER INSTALLATION. ALL FINDINGS SHALL BE DOCUMENTED AND REPORTED TO THE OWNER AND OWNER'S CONSULTANT. ANY LEAKS/BLOCKAGES WILL FALL UNDER THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR AND/OR REPLACE ANY PARTS AS NECESSARY AT NO EXPENSE TO THE OWNER. RE: PLUMBING.



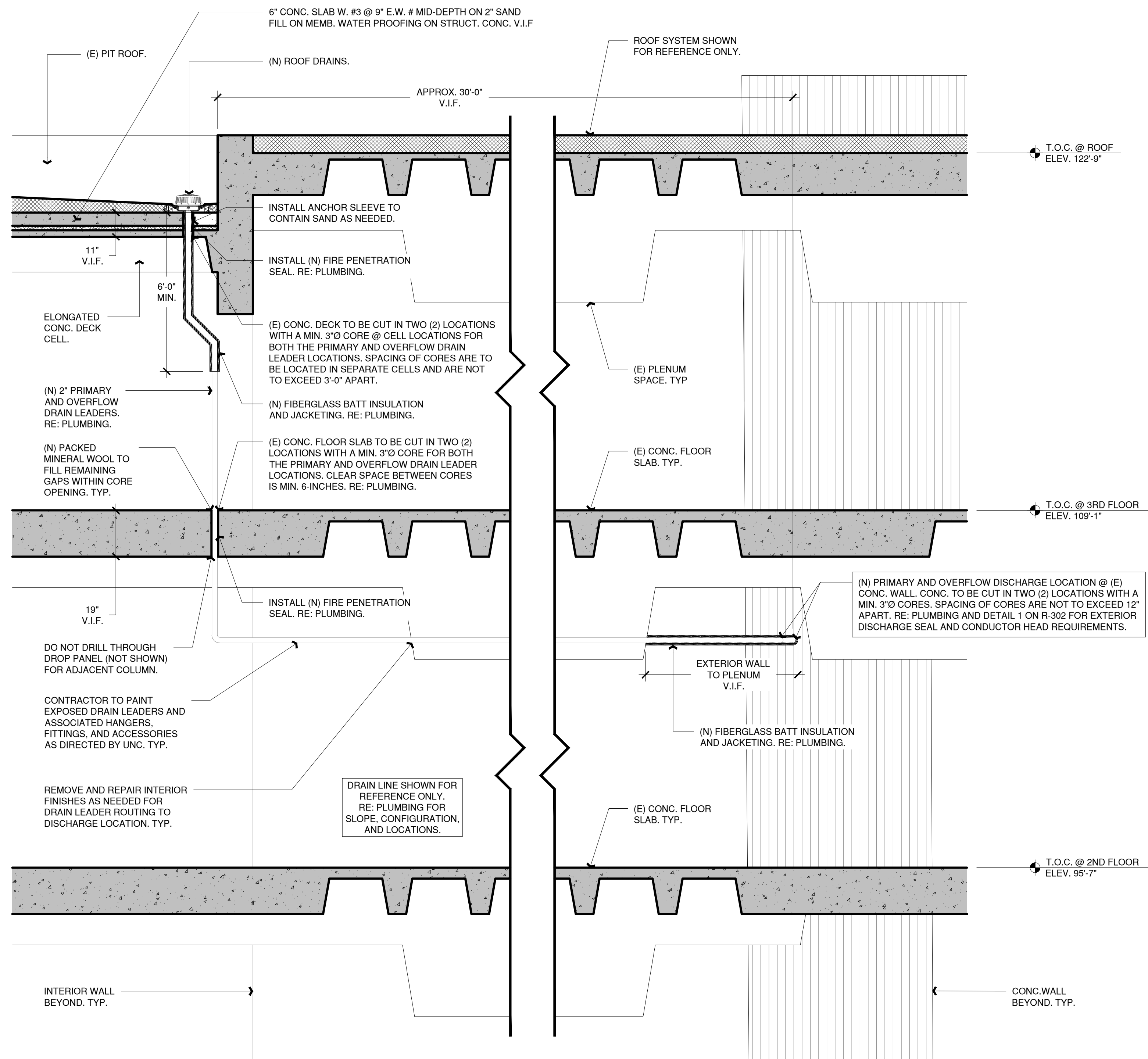
**1** EXTERIOR WALL MOUNTED CONDUCTOR HEAD AND LAMBS TONGUE @ NEW PIT DRAIN DISCHARGE LOCATION

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



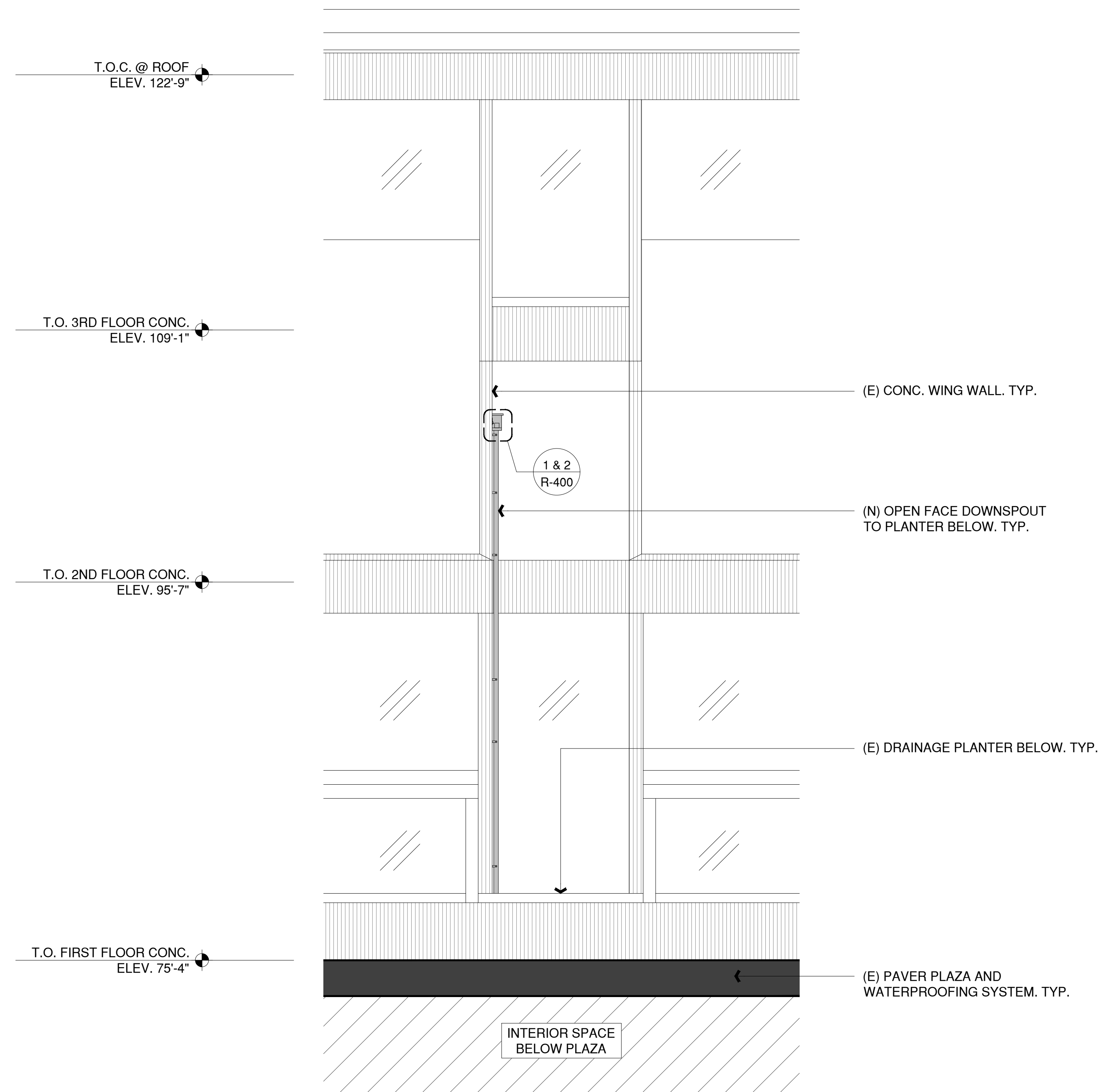
**2** CONDUCTOR HEAD @ NEW PRIMARY PIT DRAIN DISCHARGE LOCATION

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



**A** PARTIAL BUILDING SECTION @ ROOF PIT, 3RD FLOOR, AND 2ND FLOOR

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



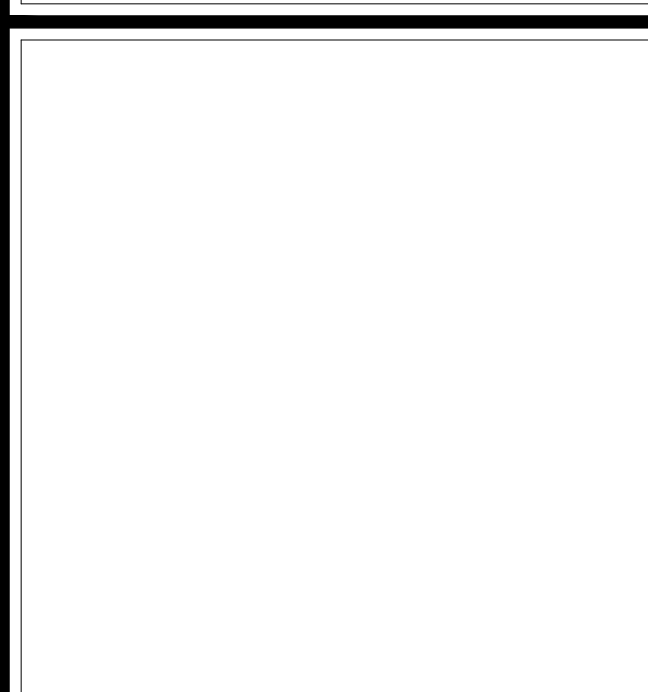
**B** PARTIAL SOUTH ELEVATION @ NEW DOWNSPOUT NOZZLE, OVERFLOW, AND DOWNSPOUT LOCATION

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)

ISSUED FOR: 100% CONSTRUCTION DOCUMENTS

LEGEND

- SECTION AND DETAIL REFERENCE
- ROOFING DETAIL NUMBER
- ROOFING PAGE NUMBER
- NOT IN CONTRACT
- ROOFING KEY NOTE
- STRUCTURAL ROOF FLOOR
- 1/2" TAPERED ROOF SLOPE
- RIDGE LINE
- VALLEY LINE
- PRIMARY ROOF DRAIN
- OVERFLOW ROOF DRAIN
- THRU-WALL ROOF DRAIN
- THRU-WALL SCUPPER
- OVERFLOW SCUPPER
- ROOF HATCH
- WALL TO ROOF EXPANSION JOINT
- ROOF TO ROOF EXPANSION JOINT
- CONTROL JOINT
- EXISTING GAS LINE
- EXISTING CONDUIT LINE
- EXISTING LIGHTNING PROTECTION
- SHS HOT STACK PENETRATION
- SVP VENT PIPE PENETRATION
- SQP SOIL PIPE PENETRATION
- DAV DAVIT ARM PENETRATION
- GTA TIE-BACK ANCHOR PENETRATION
- SEP ELECTRICAL LINE PENETRATION
- GSP GAS LINE PENETRATION
- SPP PIPE PENETRATION
- RTU ROOF TOP UNIT
- EH EXHAUST HOOD
- EF EXHAUST FAN
- MEC MECHANICAL EQUIPMENT CURB
- ACCU FREE STANDING MECHANICAL EQUIPMENT
- AB ABANDONED EQUIPMENT CURBS TO BE REMOVED AT OWNER'S DIRECTION
- NEW 1/2" TAPERED CONCRETES WITH 1/2" TAPERED EDGE STRIP
- NEW SKYWAY PAD
- SKL SKYLIGHT
- SB SPLASH BLOCK
- RA ROOF AREA ELEVATION OFFSET
- ELEVATION TAG



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SHEET TITLE

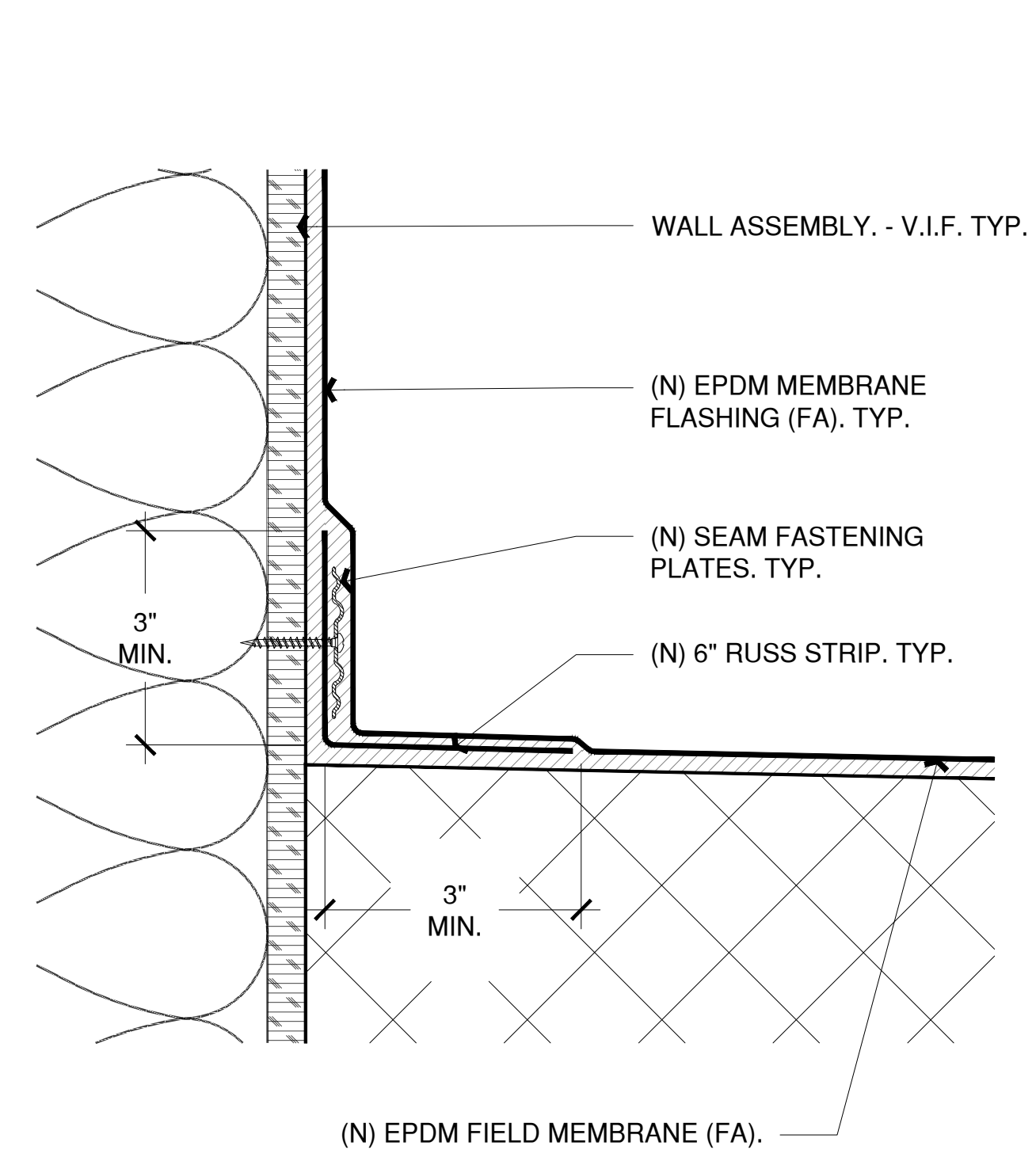
PARTIAL SECTIONS

SHEET NO.

R-400

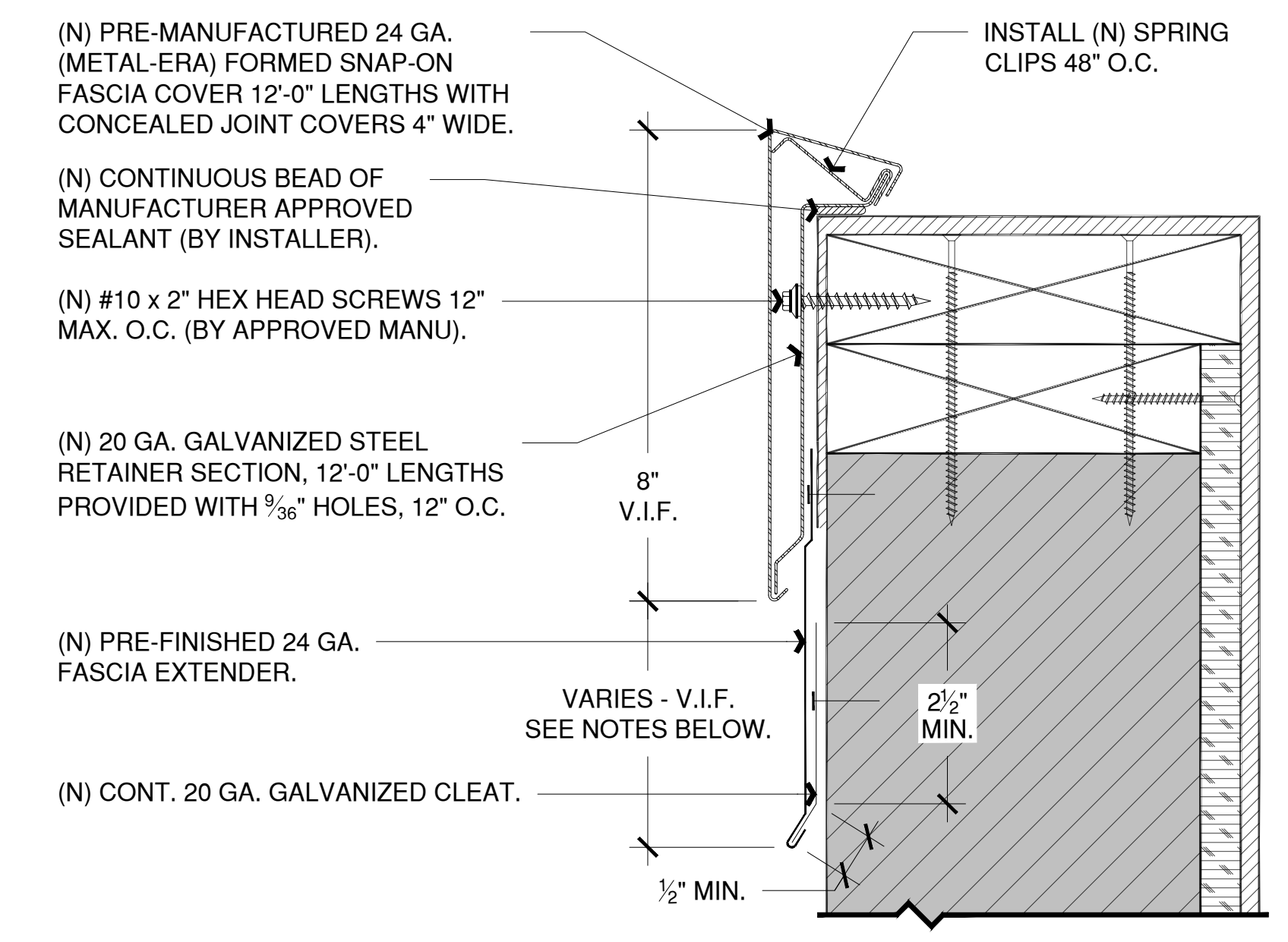


LEGEND



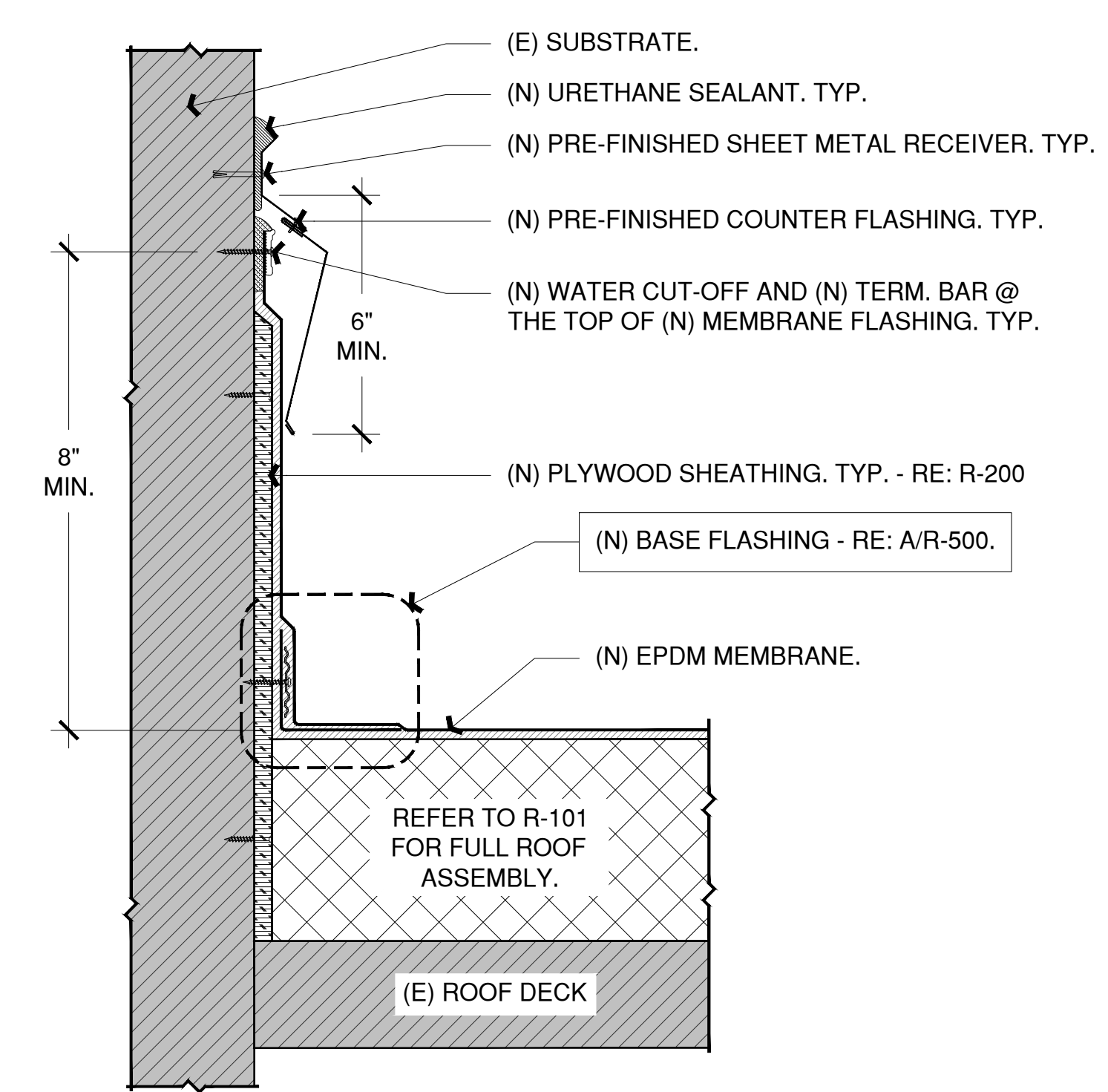
**A** EPDM BASE FLASHING (TYPICAL)

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



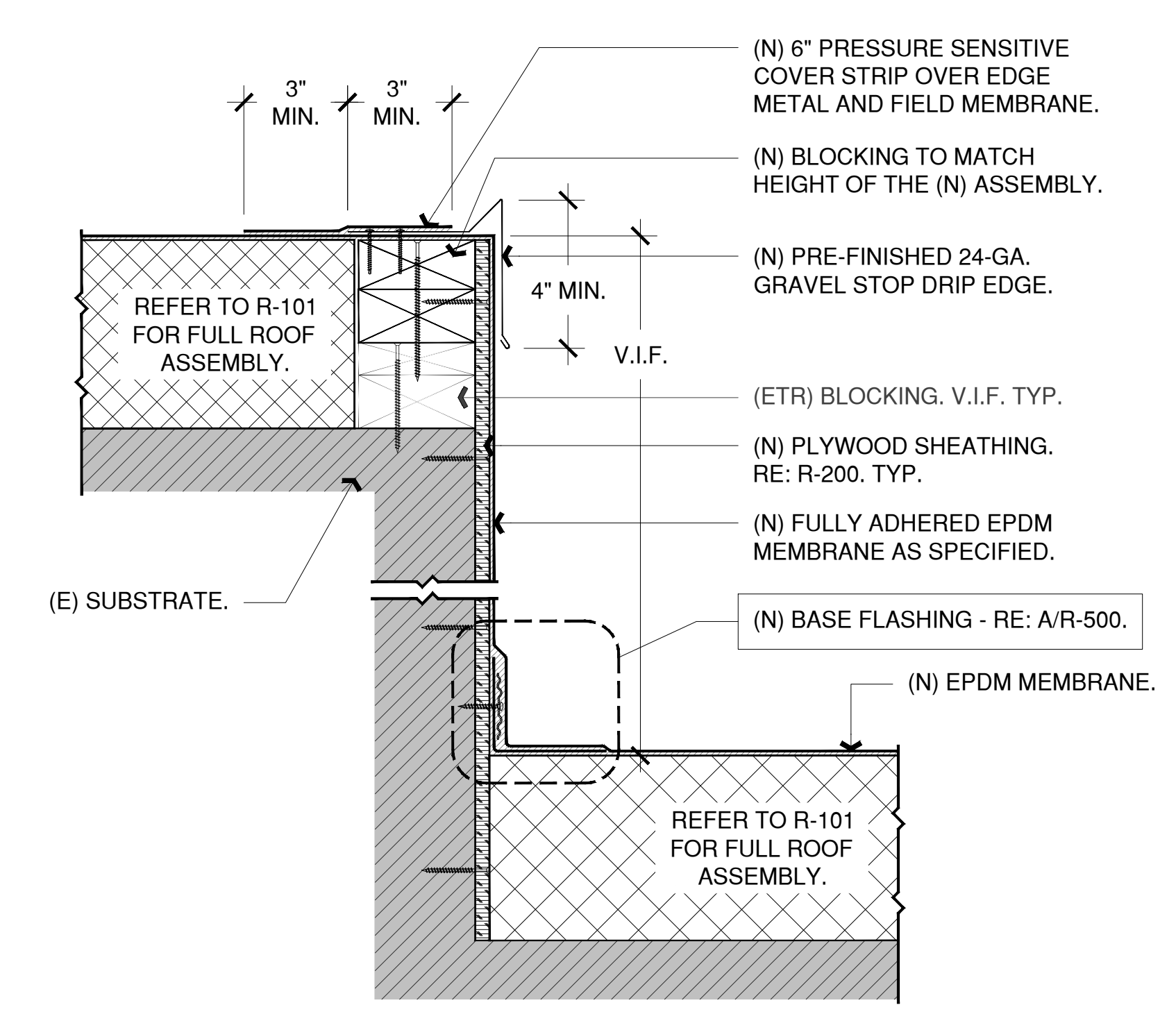
**B** PERIMETER METAL ASSEMBLY (TYPICAL)

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



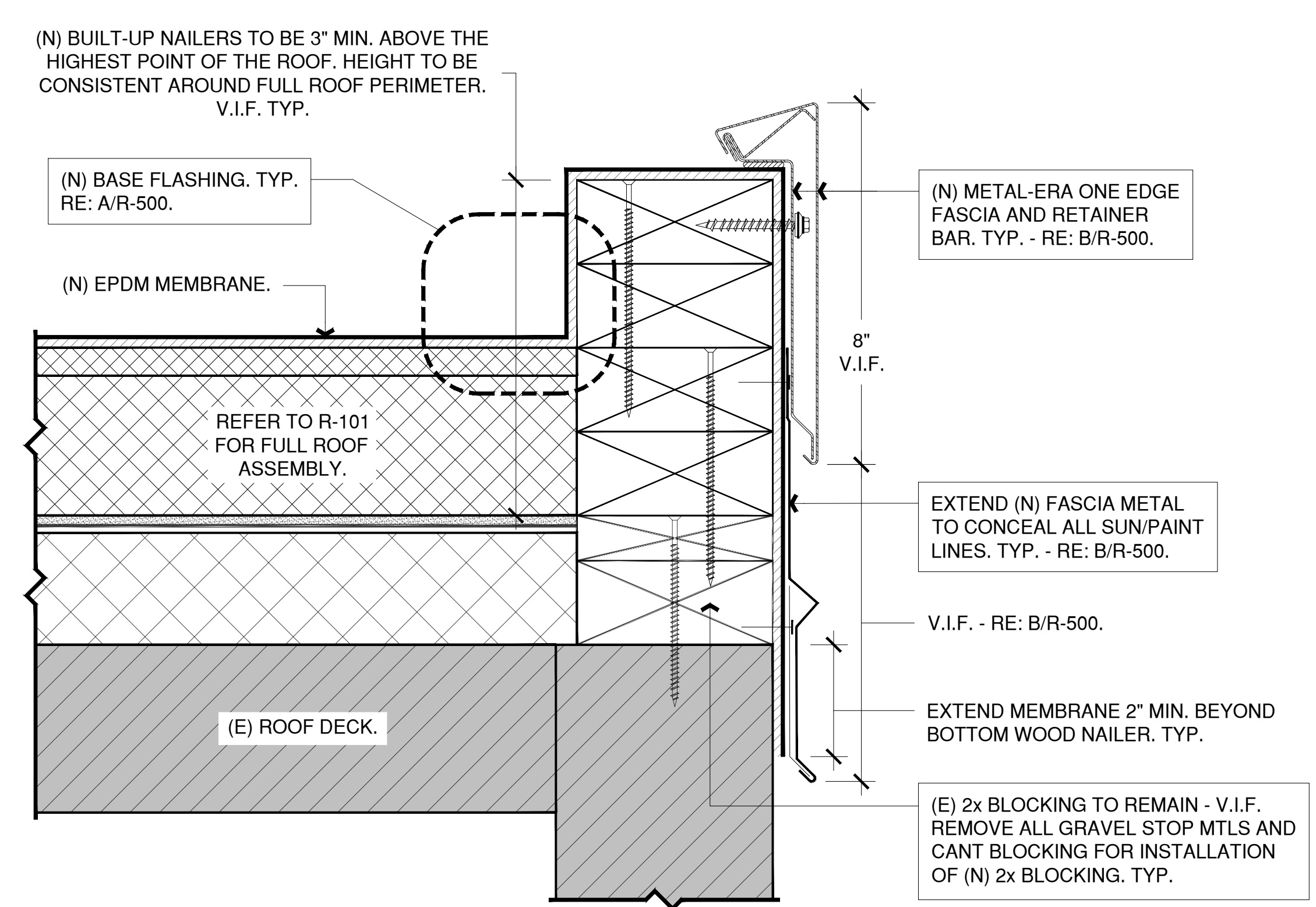
**1** SURFACE MOUNTED COUNTER FLASHING (TYPICAL)

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



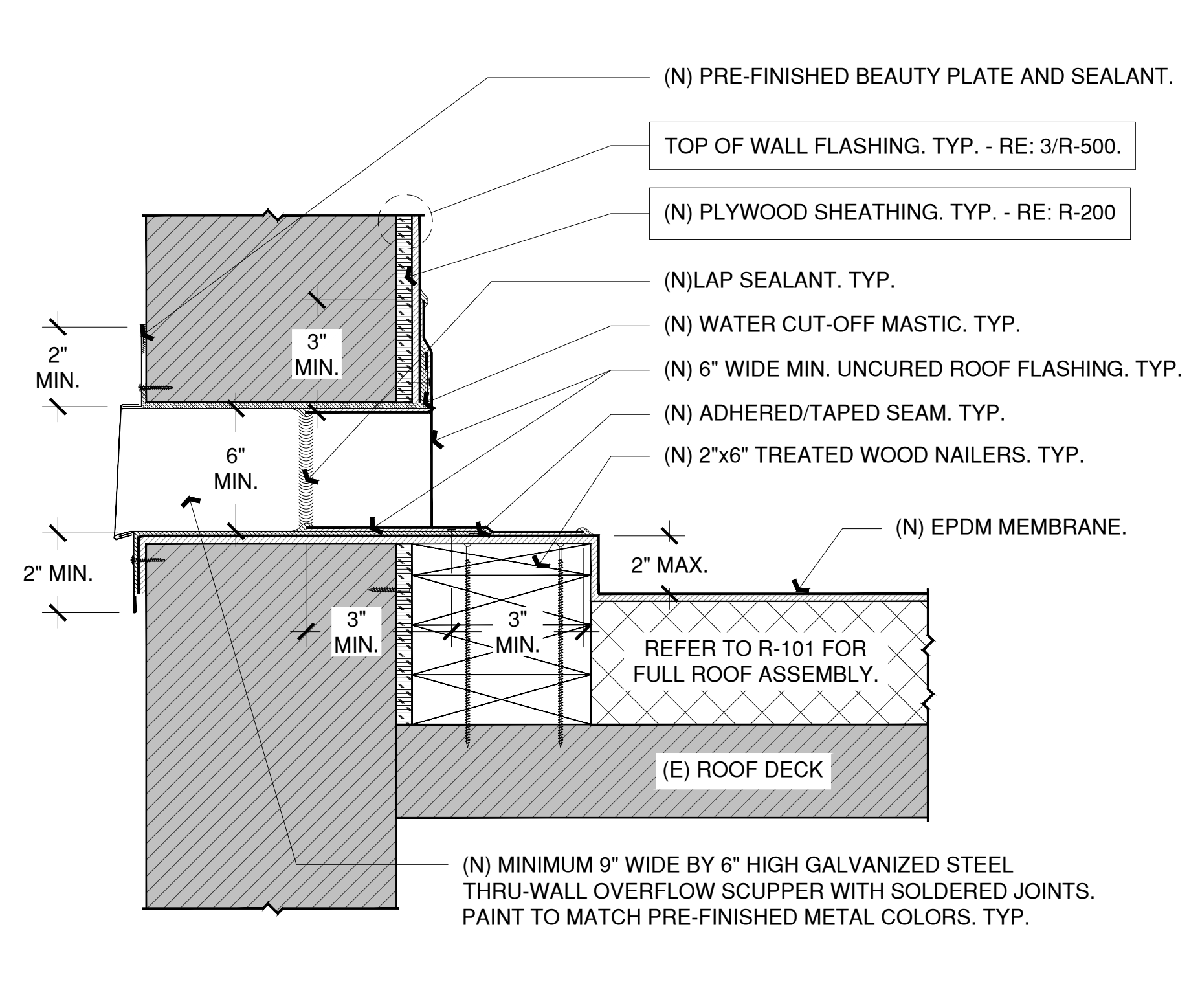
**2** ROOF-TO-ROOF CURB FLASHING (TYPICAL)

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



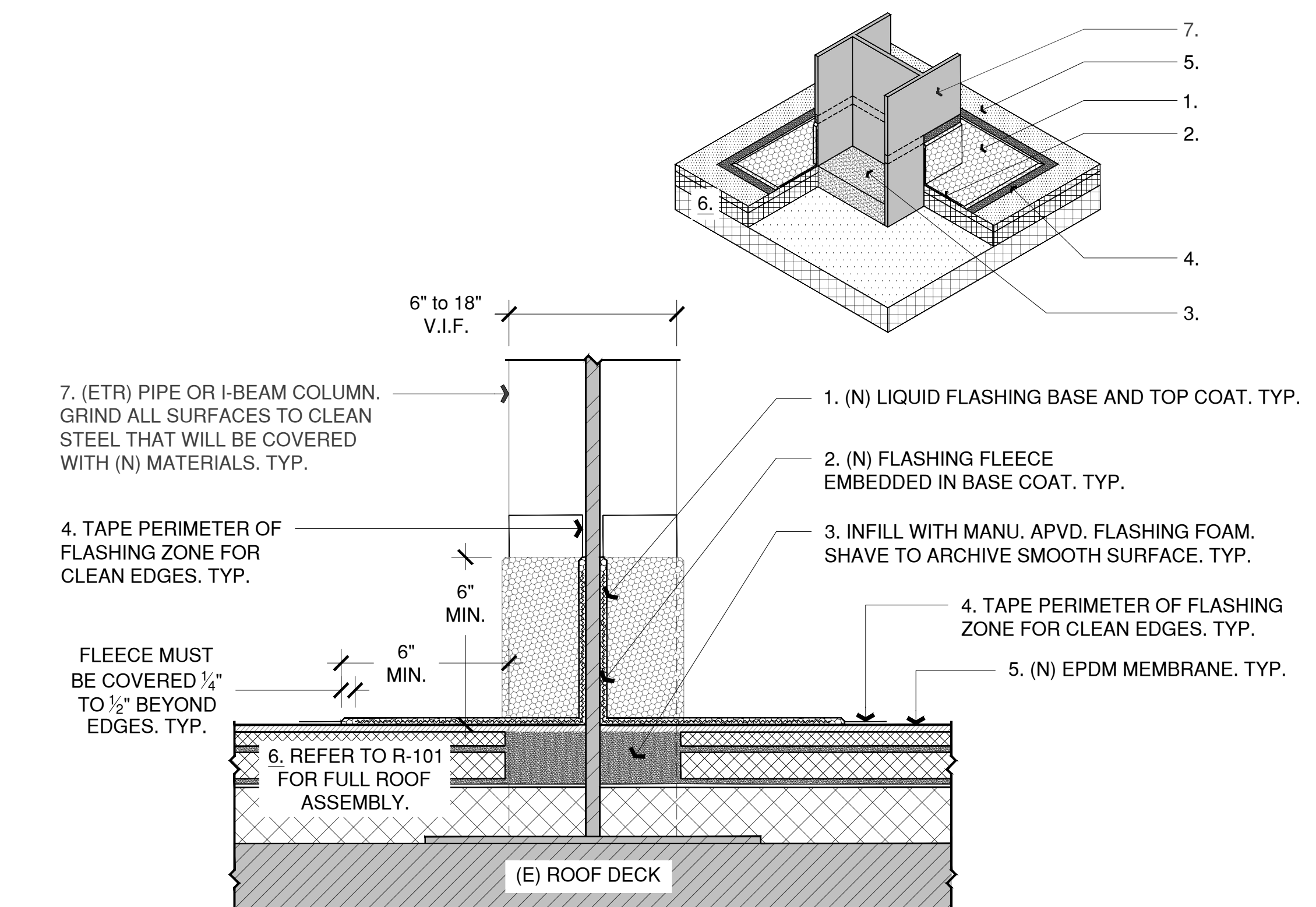
**3** PENTHOUSE EDGE METAL FLASHING (TYPICAL)

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



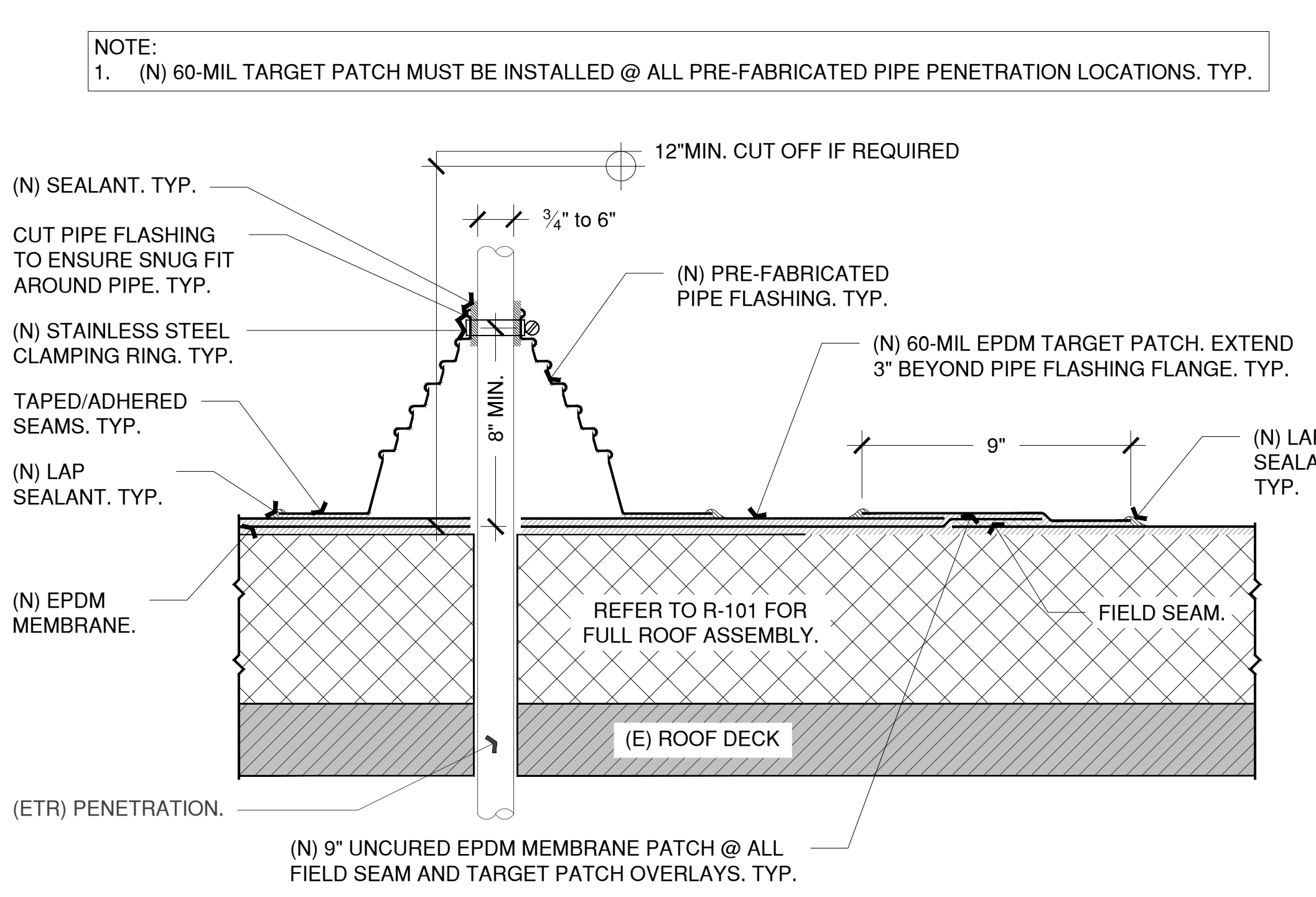
**4** OVERFLOW SCUPPER FLASHING (TYPICAL)

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



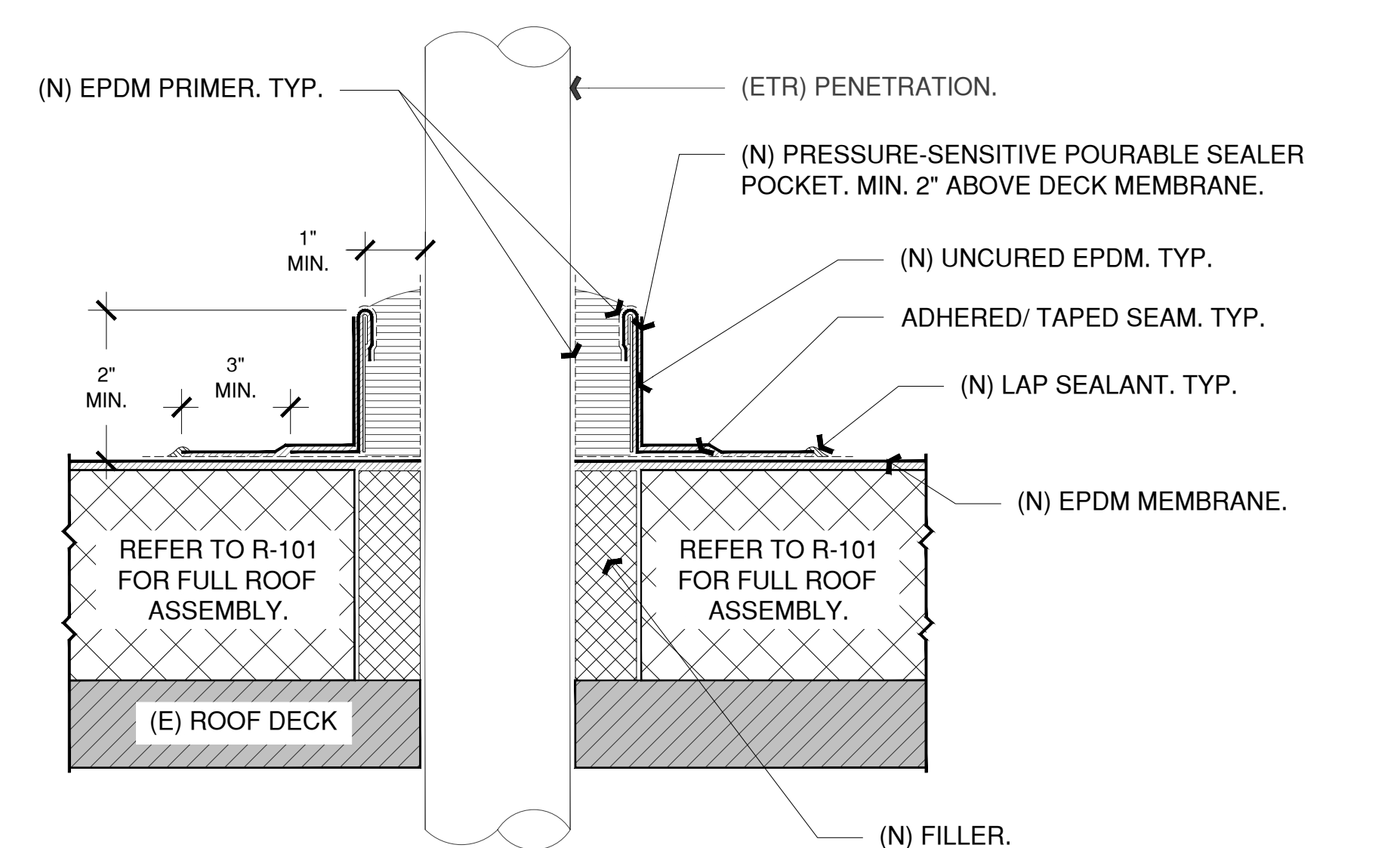
**5** LIQUID REINFORCED FIELD PENETRATION FLASHING (TYPICAL)

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



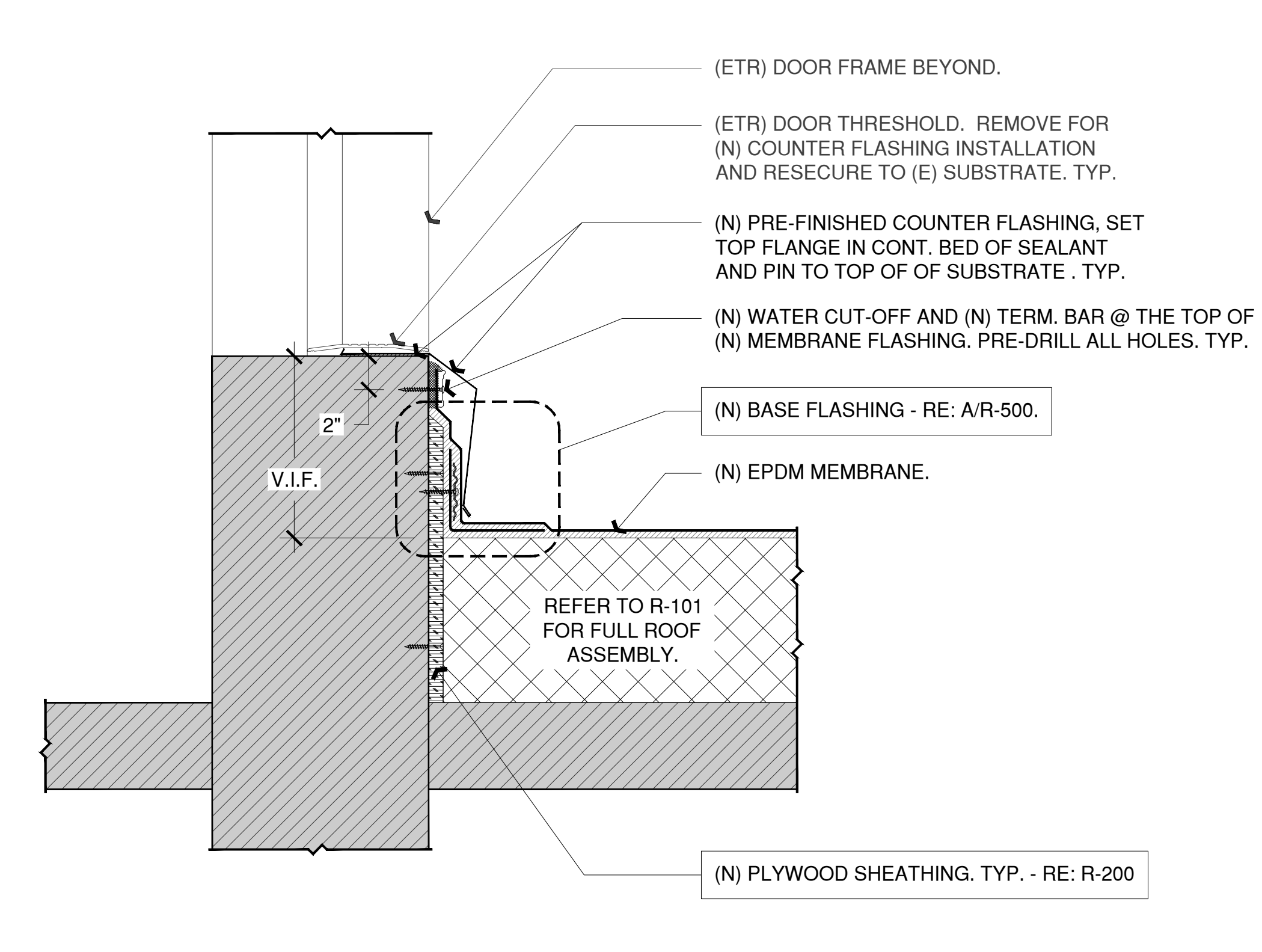
**6** PRE-MOLDED PENETRATION FLASHING (TYPICAL)

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



**7** POURABLE SEALER FLASHING (TYPICAL)

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



**8** DOOR THRESHOLD FLASHING (TYPICAL)

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



KEY PLAN LEGEND

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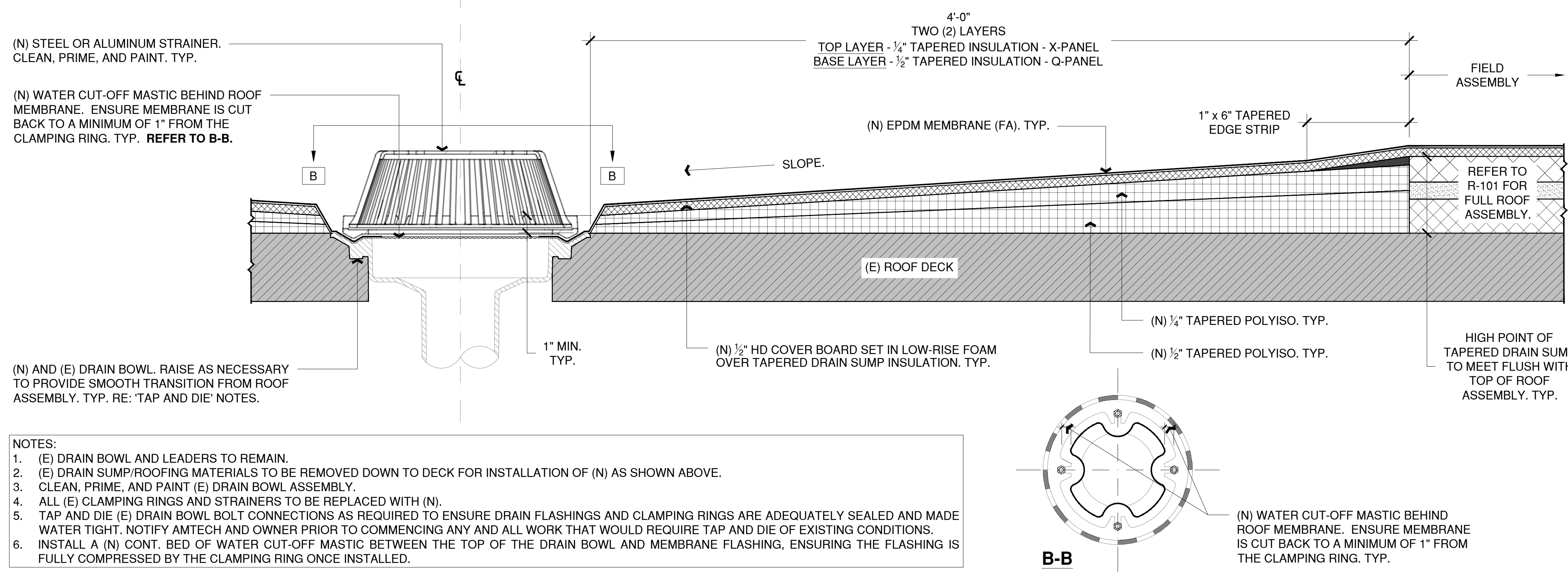
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SHEET TITLE  
ROOFING DETAILS

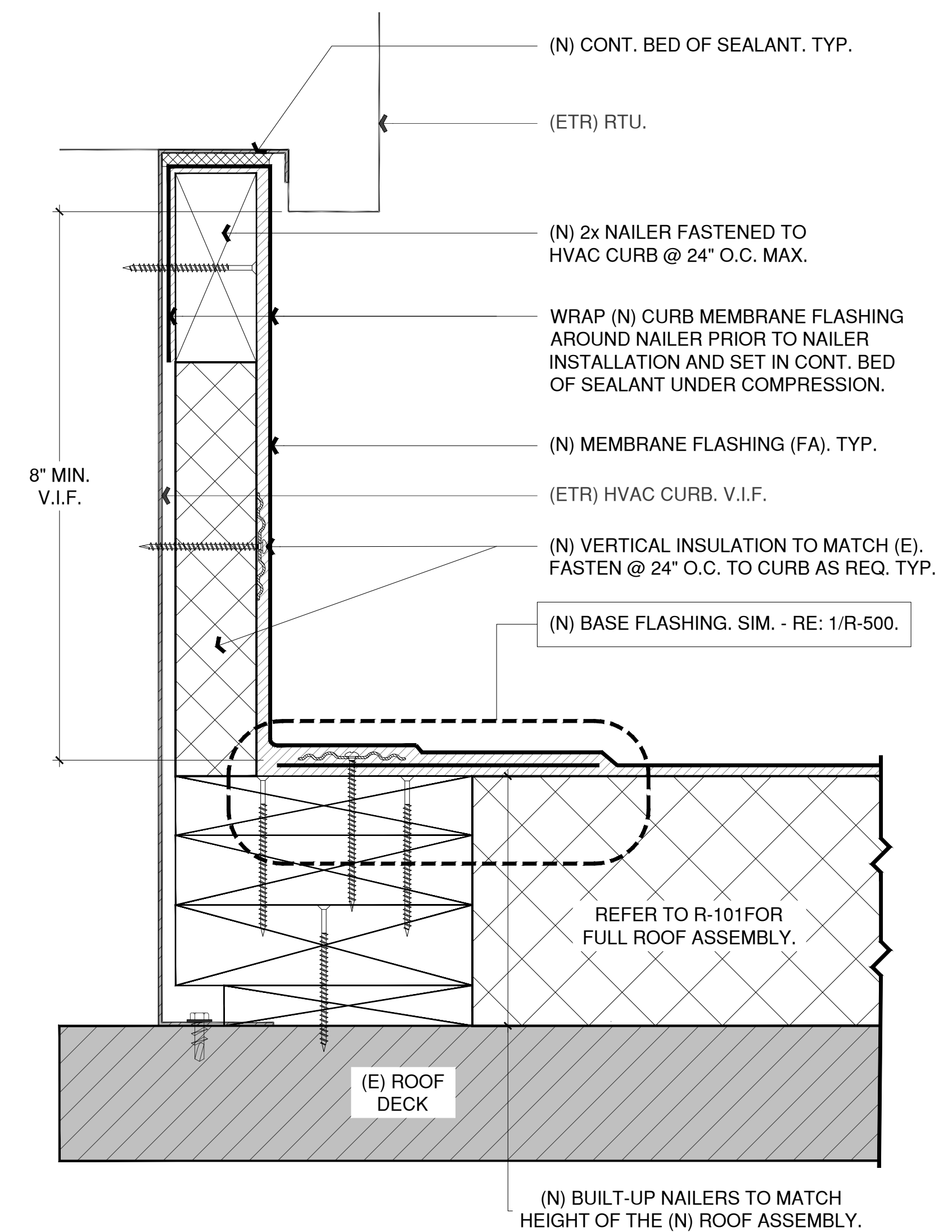
SHEET NO.  
R-500



- NOTES:
- (E) DRAIN BOWL AND LEADERS TO REMAIN.
  - (E) DRAIN SUMP/ROOFING MATERIALS TO BE REMOVED DOWN TO DECK FOR INSTALLATION OF (N) AS SHOWN ABOVE.
  - CLEAN, PRIME, AND PAINT (E) DRAIN BOWL ASSEMBLY.
  - ALL (E) CLAMPING RINGS AND STRAINERS TO BE REPLACED WITH (N).
  - TAP AND DIE (E) DRAIN BOWL BOLT CONNECTIONS AS REQUIRED TO ENSURE DRAIN FLASHINGS AND CLAMPING RINGS ARE ADEQUATELY SEALED AND MADE WATER TIGHT. NOTIFY AMTECH AND OWNER PRIOR TO COMMENCING ANY AND ALL WORK THAT WOULD REQUIRE TAP AND DIE OF EXISTING CONDITIONS.
  - INSTALL A (N) CONT. BED OF WATER CUT-OFF MASTIC BETWEEN THE TOP OF THE DRAIN BOWL AND MEMBRANE FLASHING, ENSURING THE FLASHING IS FULLY COMPRESSED BY THE CLAMPING RING ONCE INSTALLED.

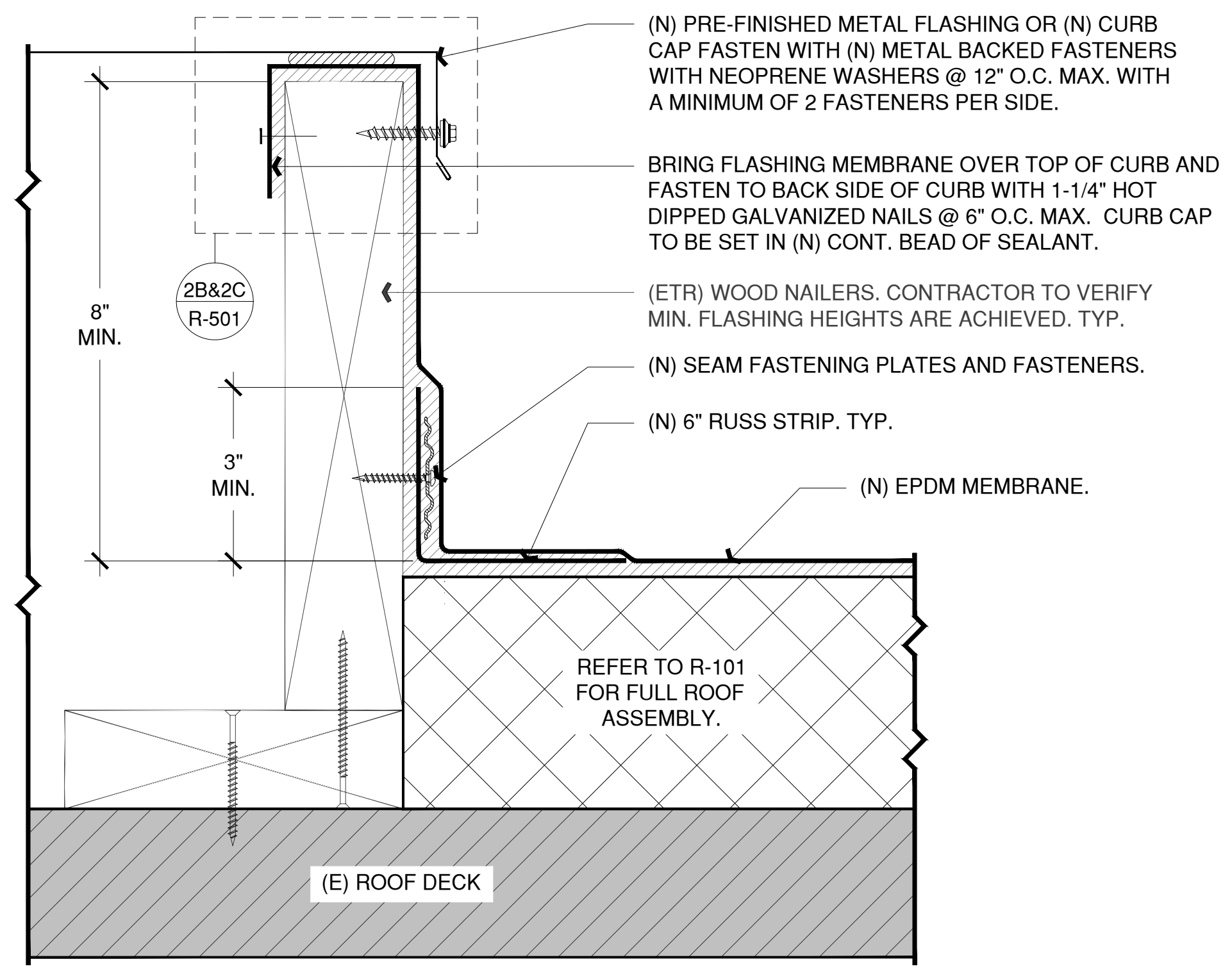
**1 TAPERED DRAIN SUMP ASSEMBLY (TYPICAL)**

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



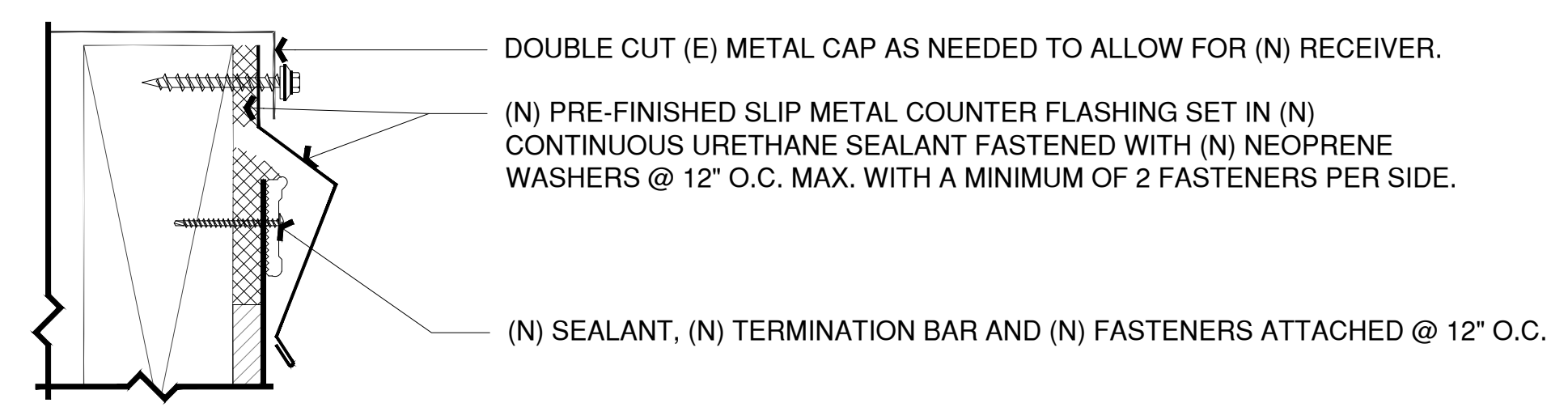
**4 LARGE MECHANICAL CURB FLASHING (TYPICAL)**

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



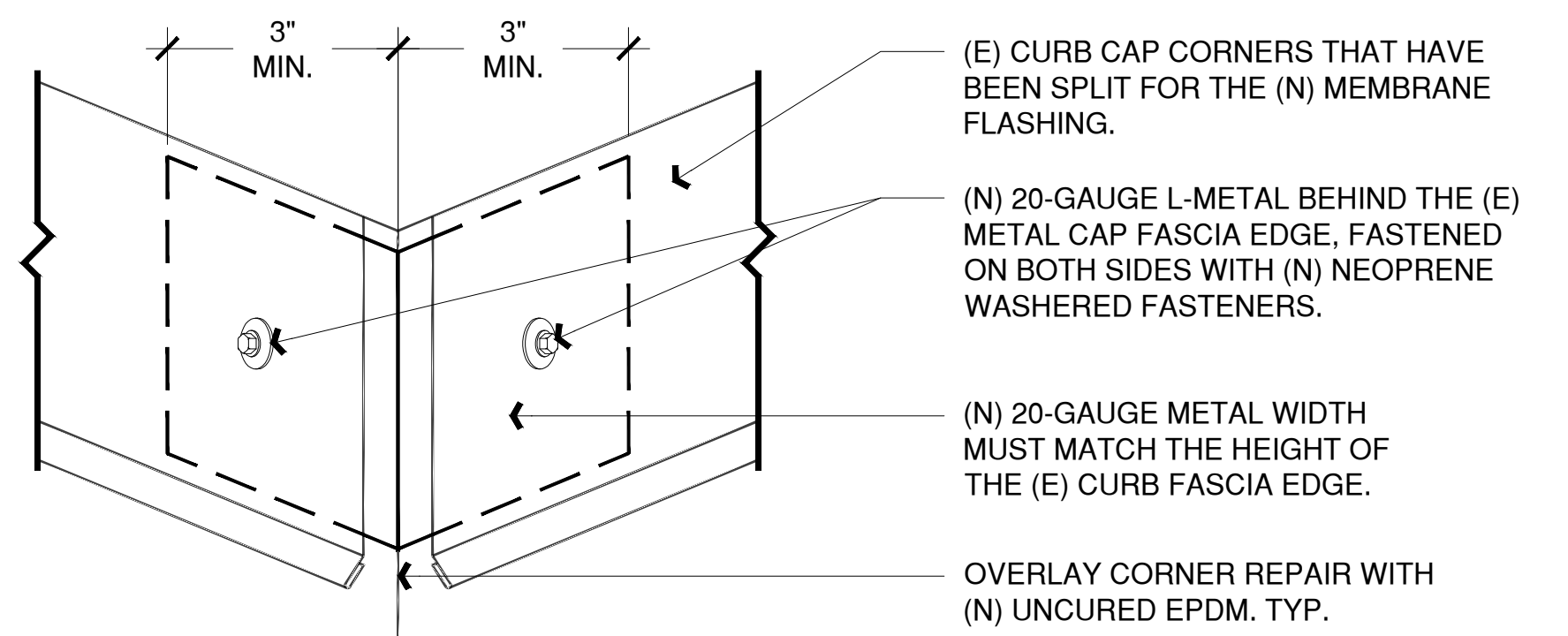
**2A MECHANICAL CURB FLASHING (TYPICAL)**

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



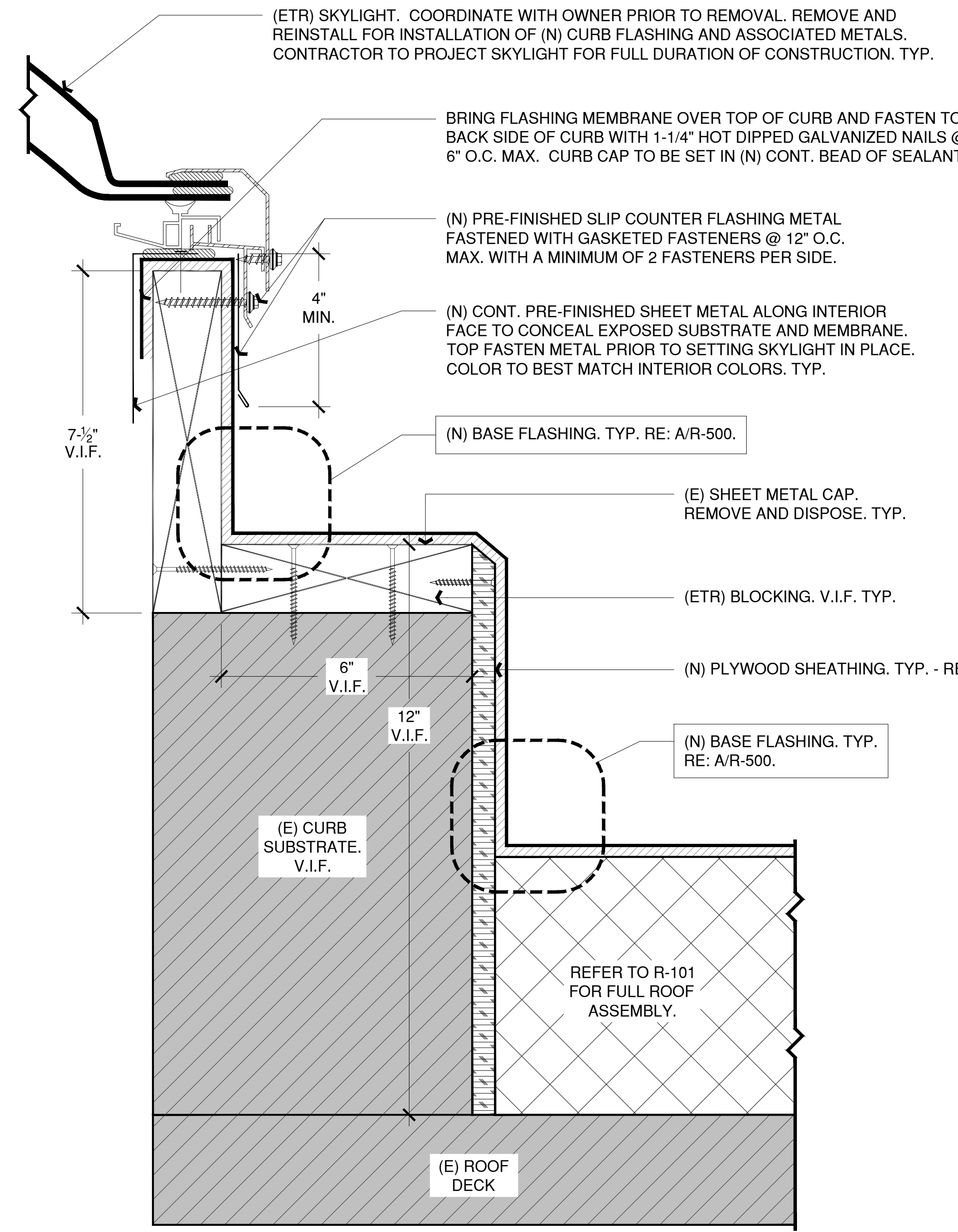
**2B ALTERNATE CURB FLASHING**

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



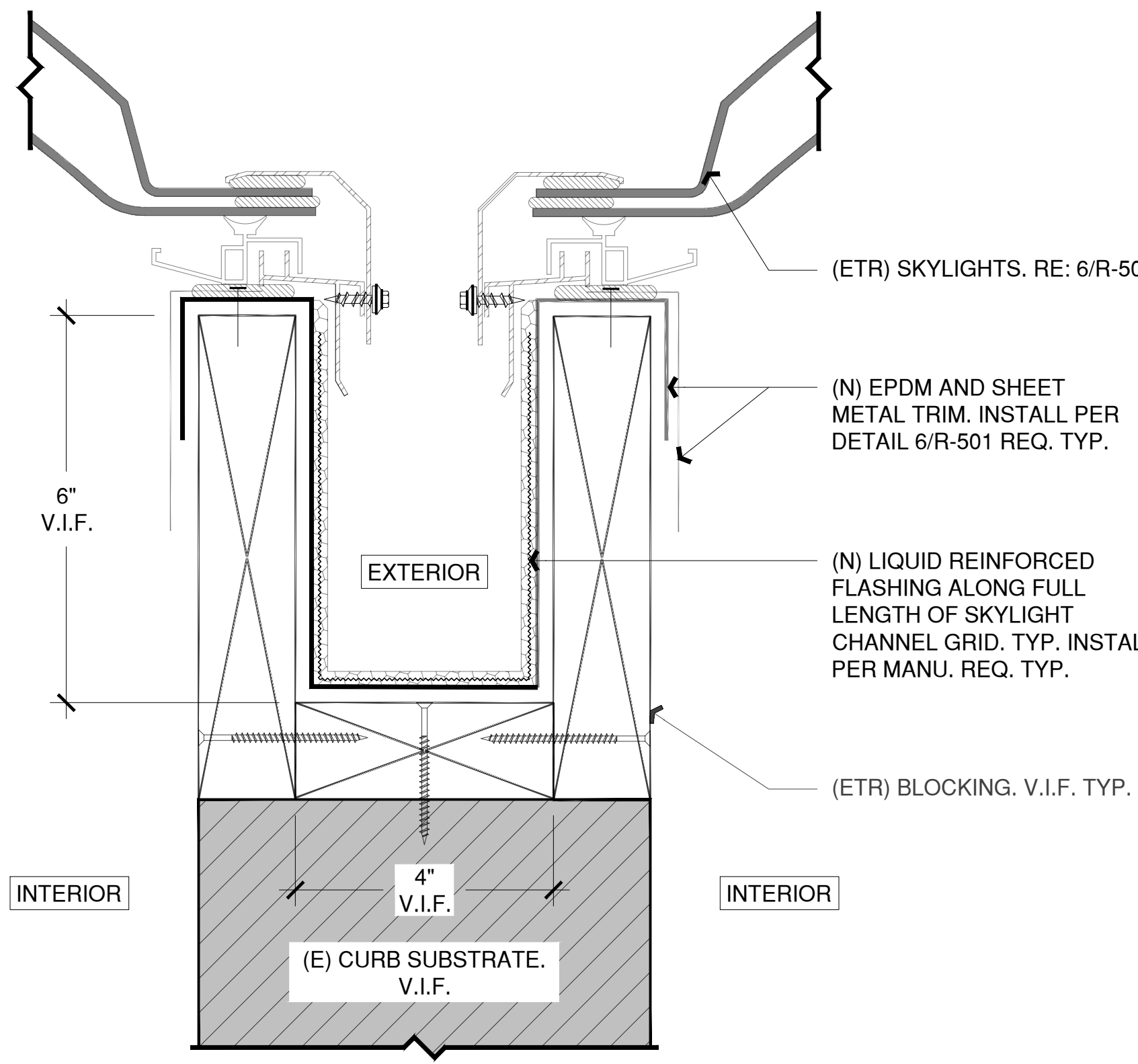
**2C EXISTING CURB CAP CORNER REPAIR (TYPICAL)**

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



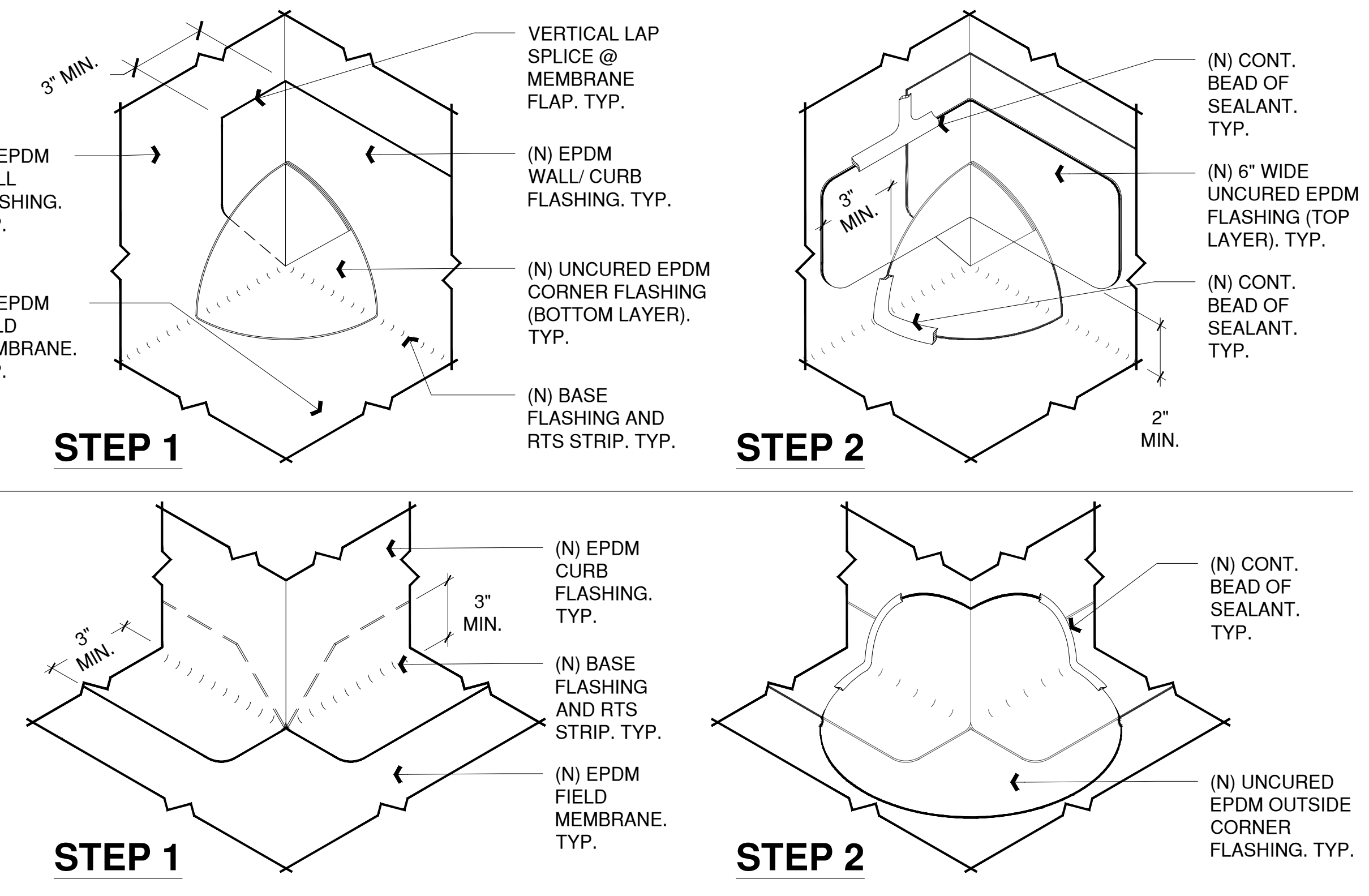
**6 SKYLIGHT CURB FLASHING (TYPICAL)**

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



**5 SKYLIGHT CHANNEL GRID FLASHING (TYPICAL)**

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



**3 EPDM INSIDE AND OUTSIDE CORNER DETAILING (TYPICAL)**

NOTE: SIMILAR - ACTUAL CONDITIONS MAY VARY (N.T.S.)



KEYPLAN LEGEND

CLIENT  
UNIVERSITY OF NORTHERN COLORADO  
501 WEST 20TH STREET  
GREELEY, CO 80639

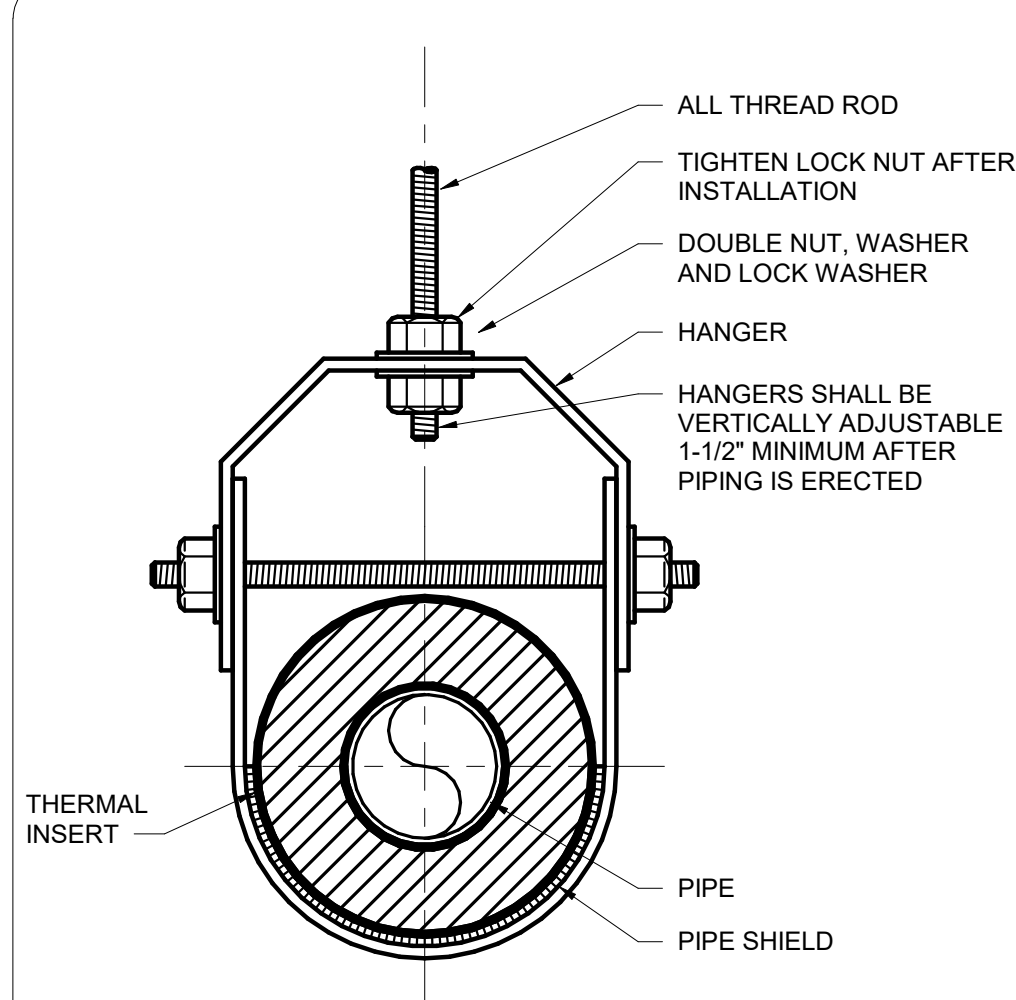
PROJECT  
JAMES A. MICHENER LIBRARY  
ROOFING PROJECT  
1400 22ND STREET  
GREELEY, CO 80631

PROJECT NO.	DEN.2023.001048
DATE	09/2024
DRAWN BY	DJD
CHECKED BY	RKP & SAP
DATE	
REVISION	

**AMTECH SOLUTIONS**  
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SHEET TITLE  
ROOFING DETAILS

SHEET NO.  
R-501

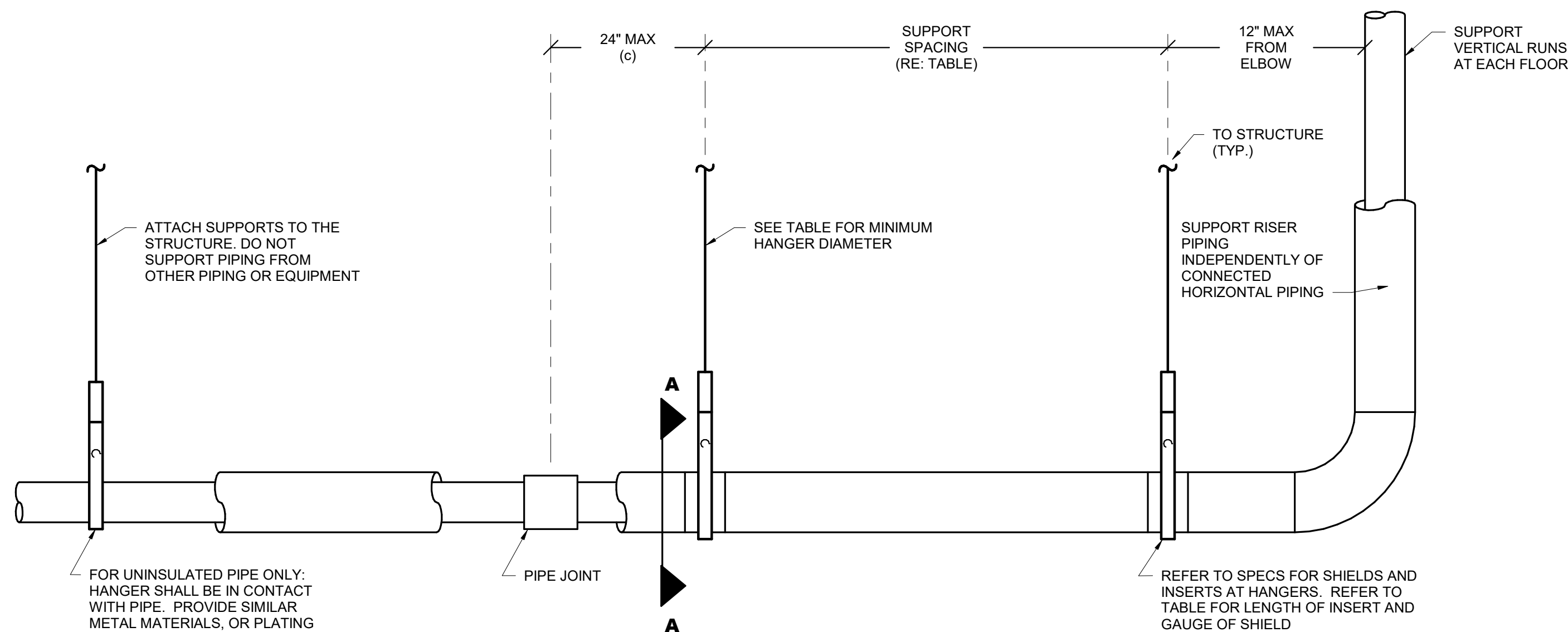


**SECTION A-A**  
CLEVIS HANGER DETAIL

- NOTES:**
- ALL PARTS OF THE HANGER SHALL BE GALVANIZED, UNLESS CONTACTING COPPER PIPING, THEN HANGER SHALL BE COPPER, OR SHALL HAVE DIELECTRIC TAPE SEPARATION. SEE SPECIFICATIONS FOR INSULATION, THERMAL INSERT, AND PIPE SHIELD REQUIREMENTS.
  - FOR SIZES 2-INCH AND SMALLER, A GUIDE SHALL BE INSTALLED MIDWAY BETWEEN THE VERTICAL SUPPORTS. THE MAXIMUM HORIZONTAL SPACING OF CAST IRON HANGERS SHALL BE INCREASED UP TO 10 FEET WHERE 10-FOOT LENGTHS OF PIPE ARE INSTALLED.
  - 18\"/>

MAXIMUM VERTICAL SPACING (FT.)	THERMAL SHIELD		HUB AND SPIGOT & NO-HUB CAST IRON PIPE	
	LENGTH (IN.)	THICKNESS (IN.)	MAX. HORIZONTAL SPACING (FT.) (B)	MIN. ROD SIZE (IN.)
1/2	12	0.048	-	-
3/4	12	0.048	-	-
1	12	0.048	-	-
1 1/4	12	0.048	5	3/8
1 1/2	12	0.048	5	3/8
2	12	0.048	5	3/8
2 1/2	12	0.048	5	1/2
3	12	0.048	5	1/2
4	12	0.06	5	1/2
5	18	0.06	5	1/2
6	18	0.06	5	5/8
8	24	0.075	5	3/4
10	24	0.075	5	3/4
12	24	0.075	5	3/4

- FOR SIZES 2-INCH AND SMALLER, A GUIDE SHALL BE INSTALLED MIDWAY BETWEEN THE VERTICAL SUPPORTS. THE MAXIMUM HORIZONTAL SPACING OF CAST IRON HANGERS SHALL BE INCREASED UP TO 10 FEET WHERE 10-FOOT LENGTHS OF PIPE ARE INSTALLED.
- 18\"/>



**GENERAL NOTE:**  
WHERE SEVERAL PIPES CAN BE INSTALLED IN PARALLEL AND AT SAME ELEVATION, PROVIDE TRAPEZE HANGERS.

**1** PLUMBING PIPE HANGER DETAIL - INSULATED & NON-INSULATED  
NOT TO SCALE

PLUMBING LEGEND			
ALL SYMBOLS IN LEGEND MAY NOT NECESSARILY BE USED ON THIS PROJECT			
ABBREVIATIONS AND DESCRIPTIONS			
AFF ABOVE FINISHED FLOOR	I.E INVERT ELEVATION	TYP TYPICAL	WORK NOTE SYMBOL
AP ACCESS PANEL	NC NORMALLY CLOSED	VTR VENT THROUGH ROOF	REVISION SYMBOL AND CLOUD
FF FINISHED FLOOR	NO NOT IN CONTRACT	SCW SOFT COLD WATER	DIRECTION OF CUT
UNO UNLESS NOTED OTHERWISE	NO NORMALLY OPEN	SHW SOFT HOT WATER	SECTION DESIGNATION
EL CENTER LINE ELEVATION	SD STORM/RAINWATER DRAIN ABOVE FLOOR OR GRADE	GW GREASE WASTE	SHEET ON WHICH SECTION IS LOCATED
CW COLD WATER (CW)	SD STORM/RAINWATER DRAIN BELOW FLOOR OR GRADE	NP NON-POTABLE WATER	ELEVATION DESIGNATION
HW HOT WATER (HW)	OD OVERFLOW DRAIN ABOVE FLOOR OR GRADE	G NATURAL GAS	DIRECTION OF VIEW
HWC HOT WATER CIRCULATING (HWC)	OD OVERFLOW DRAIN BELOW FLOOR OR GRADE	LP LIQUIFIED PETROLEUM GAS	SHEET ON WHICH ELEVATION IS LOCATED
W SANITARY WASTE ABOVE GRADE OR FLOOR	OD OVERFLOW DRAIN BELOW FLOOR OR GRADE	CA COMPRESSED AIR	POINT OF CONNECTION NEW TO EXISTING
BD SANITARY (BUILDING DRAIN) BELOW GRADE OR FLOOR	SIO PIPING TO SAND/OIL INTERCEPTOR BELOW FLOOR OR GRADE	PD PUMP DISCHARGE	SHEET ON WHICH DETAIL IS LOCATED
BD SANITARY (BUILDING DRAIN) BELOW GRADE OR FLOOR	SIO EXISTING WORK IS SHOWN AS LIGHT LINES TO BE DEMOLISHED WORK IS SHOWN WITH BOLD DASHED LINES	D DRAIN	DETAIL NUMBER
PC POINT OF CONNECTION NEW TO EXISTING	NEW WORK IS SHOWN AS BOLD SOLID LINES	TW TEMPERED WATER	BREAK LINE
DIA, D DIAMETER		(N) NEW	CONTINUANCE LINE
		(E) EXISTING	
		(R) RELOCATED	
		(F) FUTURE	
		W# PLUMBING RISER REFERENCE	
		RISER NUMBER	
VALVES AND FITTINGS			
ELBOW UP	STRAINER	BALL VALVE	GAS PRESSURE REGULATOR
ELBOW DOWN	STRAINER WITH BLOWOFF VALVE	GATE VALVE	PRESSURE/TEMPERATURE TAP
TEE UP	FLOOR SINK (1/2 GRATE SHOWN)	PLUG VALVE	PRESSURE GAUGE W/ COCK
TEE DOWN	FLOOR DRAIN	SOLENOID VALVE	FLOW SWITCH
RISE OR DROP	ROOF DRAIN	PRESSURE REDUCING VALVE	PRESSURE SWITCH
BRANCH-TOP CONNECTION	OVERFLOW DRAIN	CHECK VALVE	PRESSURE INDICATOR
BRANCH-BOTTOM CONNECTION	CLEANOUT FLOOR (FCO) OR GRADE (GCO)	GLOBE VALVE	WELL GAUGE COCK
GATE VALVE IN VERTICAL	CLEANOUT WALL (WCO)	THERMOSTATIC MIXING VALVE	WATER HAMMER ARRESTER W/ BALL VALVE
P-TRAP	CLEANOUT PLUG (LCO)	BUTTERFLY VALVE	AQUASTAT
PIPE CAP OR PLUG	WALL HYDRANT WITH VACUUM BREAKER	CIRCUIT SETTER	VACUUM BREAKER
UNION	HOSE BIBB WITH VACUUM BREAKER	CIRCUIT SETTER ASSEMBLY RE: PLUMBING DETAIL	VALVE IN YARD BOX
WALL HYDRANT WITH VACUUM BREAKER	EXPANSION JOINT	GAS COCK	HOSE END BALL VALVE WITH VACUUM BREAKER
HOSE BIBB WITH VACUUM BREAKER	PIPE ANCHOR	TEMPERATURE/PRESSURE RELIEF VALVE	VACUUM BREAKER
EXPANSION JOINT	PIPE ALIGNMENT GUIDE	AUTOMATIC AIR VENT	BACKFLOW PREVENTER
PIPE ANCHOR	FLEXIBLE CONNECTION	MANUAL AIR VENT	BACKFLOW PREVENTER
PIPE ALIGNMENT GUIDE			
FLEXIBLE CONNECTION			
MEDICAL GAS SYMBOLS			
OXYGEN	NITROGEN	NITROGEN	MEDICAL COMPRESSED AIR
VACUUM	NITROUS OXIDE	N2O NITROUS OXIDE	WASTE ANESTHESIA GAS DISPOSAL
GAS	WASTE ANESTHESIA GAS DISPOSAL	OX OXYGEN	DENTAL VACUUM
MEDICAL COMPRESSED AIR	ZONE VALVE BOX	VAC VACUUM	DENTAL COMPRESSED AIR
		MV MEDICAL VACUUM	
LABORATORY SYMBOLS			
LAB COMPRESSED AIR	DEIONIZED WATER	LAB BUILDING DRAIN BELOW FLOOR OR GRADE	
LAB GAS (NAT. OR PROP.)	DEIONIZED WATER CIRCULATING	LAB VENT	
LAB VACUUM	LAB WASTE ABOVE FLOOR OR GRADE		
LAB NITROGEN			
FIRE PROTECTION			
POST INDICATOR VALVE	DELUGE VALVE OR PREACTION VALVE	SUCTION MAIN OR FIRE LINE LEAD-IN	FIRE HOSE VALVE CABINET (SURFACE MOUNTED)
NON-INDICATING VALVE (NON-RISING STEM)	PRESSURE SWITCH	W PUBLIC WATER MAIN	FIRE HOSE VALVE CABINET (RECESSED)
OUTSIDE SCREW & YOKE VALVE (RISING STEM)	ANGLE VALVE (FIRE HOSE VALVE)	F FIRE	FIRE STANDPIPE DESIGNATION
FIRE DEPARTMENT CONNECTION	ANGLE DRAIN VALVE AND SIGHT GLASS	SP FIRE SPRINKLER	FIRE SPRINKLER RISER DESIGNATION
FREE STANDING FIRE DEPARTMENT CONNECTION	BUTTERFLY VALVE W/ TAMPER SWITCH	FSP FIRE STANDPIPE	
WATER FLOW SWITCH	OUTSIDE LIGHT AND HORN	DFSP DRY FIRE STANDPIPE	
ALARM CHECK VALVE (HORIZONTAL OR VERTICAL)	TAMPER SWITCH	ASD AUTOMATIC FIRE SPRINKLER SYSTEM DRAIN	
DRY PIPE VALVE	FIRE HOSE RACK	NEW SPRINKLER HEAD	
		E EXISTING SPRINKLER HEAD	
		SIDEWALL SPRINKLER HEAD	

PLUMBING FIXTURE SCHEDULE						
PLAN CODE	DESCRIPTION	LOCATION	FIXTURE			NOTES
			MFR.	MODEL	MOUNTING STYLE	
DSN-1	DOWNSPOUT NOZZLE	EXTERIOR WALL	J. R. SMITH	1770	WALL	-
ORD-1	OVERFLOW DRAIN	ROOF	J.R. SMITH	1010	ROOF	-
RD-1	ROOF DRAIN	ROOF	J.R. SMITH	1010	ROOF	-

- PLUMBING GENERAL NOTES**
- DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY. WHATEVER IS CALLED FOR IN EITHER IS BINDING AS THOUGH CALLED FOR IN BOTH.
  - THE EQUIPMENT SPECIFIED ON THE DRAWINGS HAVE BEEN SELECTED AS THE BASIS DESIGN. THE USE OF REVIEWED OR SPECIFIED EQUALS SHALL BE COORDINATED BY THE CONTRACTOR FOR SPACE REQUIREMENTS, EQUIPMENT DIMENSIONS AND PERFORMANCE.
  - DRAWINGS ARE DIAGRAMMATIC AND SHOW THE GENERAL DESIGN INTENT, ARRANGEMENT AND EXTENT OF SYSTEMS. DO NOT SCALE DRAWINGS NOR USE AS SHOP DRAWINGS. WHERE ALTERNATE ROUTING, OFFSETS AND TRANSITIONS ARE REQUIRED FOR FIELD COORDINATION OF ALL TRADES, THIS CONTRACTOR SHALL MAKE CHANGES WITHOUT ADDITIONAL COSTS.
  - CONTRACTOR SHALL NOT SHUT-OFF/PUT OUT OF SERVICE ANY SYSTEMS/SERVICES WITHOUT FIRST COORDINATING ALL DOWNTIME WITH OWNER'S PERSONNEL. CONTRACTOR SHALL PROVIDE A DETAILED M.O.P. AS REQUIRED. DO NOT BEGIN WORK WITHOUT WRITTEN APPROVAL.
  - ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY DIRECTED OTHERWISE.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATION AND INSTALLING SLEEVES, INSERTS AND SUPPORTS AS REQUIRED FOR THIS SCOPE OF WORK AND/OR CORE DRILL REQUIREMENTS. COORDINATE WITH GENERAL CONTRACTOR AND STRUCTURAL ENGINEER AS REQUIRED.
  - CONTRACTOR SHALL CLOSELY COORDINATE NEW PLUMBING WITH ALL NEW AND EXISTING MECHANICAL, PLUMBING, ELECTRICAL, FIRE PROTECTION, ARCHITECTURAL AND STRUCTURAL MEMBERS. REFER TO DIVISION 22 FOR CEILING SPACE ALLOCATION PRIORITIES.
  - CONTRACTOR SHALL FIELD VERIFY ALL PLUMBING ITEMS PRIOR TO SUBMITTING A BID. NO ADDITIONAL COST WILL BE ALLOWED FOR CONTRACTOR'S FAILURE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS.
  - ALL PLUMBING SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE CODES LISTED ON THIS SHEET AND THE ARCHITECTURAL CODE PLAN.
  - CONTRACTOR SHALL PROVIDE SUBMITTALS ON ITEMS LISTED IN THE PLUMBING SCHEDULES AND AS REQUIRED IN EACH SECTION OF SPECIFICATION TO THE ENGINEER FOR REVIEW PRIOR TO THE ORDER, PURCHASE OR INSTALLATION OF THESE SAME ITEMS.
  - ALL EXISTING EQUIPMENT TO BE REMOVED SHALL HAVE ALL RELATED HOUSEKEEPING PADS, PIPING, CONTROLS, GAUGES, ELECTRICAL SERVICE, HANGERS, SUPPORTS AND ANY MISCELLANEOUS RELATED SERVICE OR PARTS REMOVED COMPLETELY.
  - PROVIDE REDLINE MARKUPS OF ANY FIELD CHANGES OR MODIFICATIONS ON THE CONSTRUCTION DOCUMENTS. REDLINE DRAWINGS SHALL BE REQUIRED WHETHER COORDINATION DRAWINGS ARE REQUIRED OR NOT.
  - EQUIPMENT E.E.R. AND/OR C.O.P. SHALL COMPLY WITH ASHRAE 90.1.
  - EXISTING EQUIPMENT AS NOTED ON DRAWINGS SHALL BE RETURNED TO THE OWNER AT THEIR DESIGNATED LOCATION.

**ADOPTED/ENFORCED CODES REQUIRED**

2021 INTERNATIONAL BUILDING CODE
2021 INTERNATIONAL MECHANICAL CODE
2021 INTERNATIONAL PLUMBING CODE
2021 INTERNATIONAL FUEL GAS CODE
2021 INTERNATIONAL ENERGY CONSERVATION CODE
2021 INTERNATIONAL FIRE CODE
2023 NATIONAL ELECTRICAL CODE
AND LOCAL AMENDMENTS

**PROJECT NARRATIVE**

THIS PROJECT CONSISTS OF THE ADDITION OF A ROOF DRAIN AND AN OVERFLOW DRAIN INTO THE DEPRESSED PORTION OF THE EXISTING ROOF. THE PRIMARY AND OVERFLOW DRAINS ARE ROUTED DOWN THROUGH LEVEL THREE AND THROUGH THE LEVEL 2 CEILING SPACE TO THE BUILDING EXTERIOR.

**DRAWING LIST - PLUMBING**

P0.01	PLUMBING GENERAL INFORMATION
P0.02	PLUMBING SPECIFICATIONS
P0.03	PLUMBING SPECIFICATIONS
P2.03	LEVEL 1 & MEZZ. PLUMBING PLANS
P2.04	LEVEL 2 PLUMBING PLAN
P2.05	LEVEL 3 PLUMBING PLAN
P2.06	ROOF LEVEL PLUMBING PLAN
TOTAL # OF SHEETS: 7	

**CONTACT LIST**

<b>DENVER AND COLORADO SPRINGS OFFICES</b> 14143 DENVER WEST PKWY, SUITE 550 GOLDEN, CO 80401 303.422.7400	<b>TAMPA BAY AND MELBOURNE OFFICES</b> 6555 N. WICKHAM ROAD, SUITE 104 MELBOURNE, FL 32940 321.241.4142
<b>PROJECT ENGINEER / DESIGNER</b> MATT KREIDER 720.937.2442 MKREIDER@BCER.COM	<b>PROJECT MANAGER</b> BYRON BALLANTYNE 303.405.2907 BBALLANTYNE@BCER.COM

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PLUMBING GENERAL INFORMATION



Sheet  
P0.01



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SECTION 220000 - BASIC PLUMBING REQUIREMENTS

- 1.1 SUMMARY
A. COORDINATE ALL SERVICES SHUTDOWN WITH THE OWNER.
1.2 PROJECT CONDITIONS
A. BE RESPONSIBLE FOR ALL DAMAGE TO THE PROPERTY OF THE OWNER OR TO THE WORK OF OTHER CONTRACTORS DURING THE CONSTRUCTION AND GUARANTEE PERIOD.
1.3 ACCESSIBILITY
A. INSTALL EQUIPMENT AND MATERIALS TO PROVIDE REQUIRED ACCESS FOR SERVICING AND MAINTENANCE.
1.4 ROUGH-IN
A. VERIFY FINAL LOCATIONS FOR ROUGH-INS WITH FIELD MEASUREMENTS AND WITH THE REQUIREMENTS OF THE ACTUAL EQUIPMENT TO BE CONNECTED.
1.5 PERMITS AND FEES
A. OWNER SHALL PAY ALL TAP, DEVELOPMENT, METER, ETC., FEES REQUIRED FOR CONNECTION TO MUNICIPAL AND PUBLIC UTILITY FACILITIES.
1.6 PLUMBING INSTALLATIONS
A. DRAWINGS ARE DIAGRAMMATIC IN CHARACTER AND DO NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, VALVE, FITTING, ETC.
1.7 CUTTING AND PATCHING
A. PROTECT THE STRUCTURE, FURNISHINGS, FINISHES, AND ADJACENT MATERIALS NOT INDICATED OR SCHEDULED TO BE REMOVED.
1.8 TEMPORARY FACILITIES
A. NEW PLUMBING FIXTURES SHALL NOT BE USED WITHOUT WRITTEN PERMISSION FROM THE OWNER.
1.9 PRODUCT OPTIONS AND SUBSTITUTIONS
A. MATERIALS AND EQUIPMENT OF EQUIVALENT QUALITY MAY BE SUBSTITUTED FOR THOSE SCHEDULED OR IDENTIFIED BY NAME ON THE DRAWINGS IF SO, REVIEWED BY THE ARCHITECT AND OWNER PRIOR TO BIDDING.

- 1.10 PLUMBING SUBMITTALS
A. THE CONTRACTOR IS TO PREPARE A SUBMITTAL SCHEDULE THAT COINCIDES WITH THE OVERALL CONSTRUCTION SCHEDULE.
B. SUBMIT SHOP DRAWINGS DETAILING DIMENSIONS, REQUIRED CLEARANCES, METHODS OF ASSEMBLY OF COMPONENTS, AND MOUNTING AND CONNECTION DETAILS.
C. THE ENGINEER SHALL BE GIVEN A SUBMITTAL REVIEW TIME OF TEN WORKING DAYS UPON RECEIPT OF SUBMITTAL.
D. THE MANUFACTURER'S MATERIAL OR EQUIPMENT LISTED IN THE SCHEDULE OR IDENTIFIED BY NAME ON THE DRAWINGS ARE THE TYPES TO BE PROVIDED FOR THE ESTABLISHMENT OF SIZE, CAPACITY, GRADE AND QUALITY.
E. ALL EQUIPMENT SHALL CONFORM TO THE STATE AND/OR LOCAL ENERGY CONSERVATION STANDARDS.
F. SUBMITTAL OF SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES WILL BE ACCEPTED ONLY WHEN SUBMITTED BY AND STAMPED BY THE CONTRACTOR.
G. IF MORE THAN ONE RE-SUBMITTALS (EITHER FOR SHOP DRAWINGS OR FOR AS-BUILT DRAWINGS) ARE MADE BY THE CONTRACTOR, THE OWNER RESERVES THE RIGHT TO CHARGE THE CONTRACTOR FOR SUBSEQUENT REVIEWS BY THEIR CONSULTANTS.
1.11 REQUESTS FOR INFORMATION
A. ALL 'REQUESTS FOR INFORMATION' SUBMITTED BY THE CONTRACTOR SHALL INCLUDE A PROPOSED SOLUTION AND AN ESTIMATED COST/SCHEDULE IMPACT.
B. SCHEDULE THE WORK TO PROVIDE THE ENGINEER SHALL BE GIVEN A MINIMUM REVIEW TIME OF [FIVE] UPON RECEIPT OF RFI'S TO PROVIDE A RESPONSE.
1.12 PLUMBING COORDINATION DRAWINGS
A. REVIEW IN DETAIL ALL FLOOR PLANS, REFLECTED CEILING PLANS, ELEVATIONS, SECTIONS, AND DETAILS TO CONCLUSIVELY COORDINATE WITH ALL TRADES AND INTEGRATE ALL INSTALLATIONS.
1.13 RECORD DOCUMENTS
A. AT PROJECT CLOSEOUT, SUBMIT RECORD DRAWINGS OF INSTALLED SYSTEMS.
1.14 OPERATION AND MAINTENANCE DATA
A. REFER TO DIVISION 1.
B. IN ADDITION TO THE INFORMATION REQUIRED BY DIVISION 1 FOR MAINTENANCE DATA, INCLUDE THE FOLLOWING INFORMATION:
1. DESCRIPTION OF PLUMBING EQUIPMENT, FUNCTION, NORMAL OPERATING CHARACTERISTICS AND LIMITATIONS, PERFORMANCE CURVES, ENGINEERING DATA AND TESTS, AND COMPLETE NOMENCLATURE AND COMMERCIAL NUMBERS OF ALL REPLACABLE PARTS.
2. MANUFACTURER'S PRINTED OPERATING PROCEDURES TO INCLUDE START-UP, BREAK-IN, ROUTINE AND NORMAL OPERATING INSTRUCTIONS, REGULATION CONTROL, STOPPING, SHUTDOWN, AND EMERGENCY INSTRUCTIONS, AND SUMMER AND WINTER OPERATING INSTRUCTIONS.
3. MAINTENANCE PROCEDURES FOR ROUTINE PREVENTATIVE MAINTENANCE AND TROUBLESHOOTING; DISASSEMBLY, REPAIR, AND REASSEMBLY; ALIGNING AND ADJUSTING INSTRUCTIONS.
4. SERVICING INSTRUCTIONS AND LUBRICATION CHARTS AND SCHEDULES.
5. MANUFACTURER'S SERVICE MANUALS FOR ALL PLUMBING EQUIPMENT PROVIDED UNDER THIS CONTRACT.
6. INCLUDE THE VALVE TAG LIST.
7. NAME, ADDRESS AND TELEPHONE NUMBER OF PARTY TO BE CONTACTED FOR 24-HOUR SERVICE FOR EACH ITEM OF EQUIPMENT.
8. STARTING, STOPPING, LUBRICATION, EQUIPMENT IDENTIFICATION NUMBERS AND ADJUSTMENT CLEARLY INDICATED FOR EACH PIECE OF EQUIPMENT.
9. COMPLETE PARTS LIST.
10. PLUMBING WARRANTIES.
C. THIS CONTRACT WILL NOT BE CONSIDERED COMPLETED, NOR WILL FINAL PAYMENT BE MADE, UNTIL ALL SPECIFIED MATERIAL IS RECEIVED IN THIS OPERATING AND MAINTENANCE REPORT AND THE MANUAL IS REVIEWED BY THE ARCHITECT.
1.15 DEMOLITION
A. DURING THE DEMOLITION PHASE OF THIS CONTRACT, IT IS THE RESPONSIBILITY OF THIS CONTRACTOR TO CAREFULLY REMOVE EXISTING EQUIPMENT, PIPING, FIXTURES AND RELATED ITEMS EITHER AS SHOWN ON THE DEMOLITION DRAWINGS AS BEING REMOVED, OR AS REQUIRED FOR THE WORK.
B. THE LOCATION OF EXISTING EQUIPMENT, PIPES, AND OTHER COMPONENTS SHOWN ON THE DRAWINGS HAS BEEN TAKEN FROM EXISTING DRAWINGS AND IS, THEREFORE, ONLY AS ACCURATE AS THAT INFORMATION. ALL EXISTING CONDITIONS SHALL BE VERIFIED FROM FIELD MEASUREMENTS WITH NECESSARY ADJUSTMENT BEING MADE TO THE DRAWING INFORMATION.
1.16 WARRANTIES
A. THE ENTIRE MECHANICAL SYSTEM SHALL BE WARRANTED NO LESS THAN ONE YEAR FROM THE TIME OF ACCEPTANCE BY THE OWNER.
B. PROVIDE COMPLETE WARRANTY INFORMATION FOR EACH ITEM TO INCLUDE PRODUCT OR EQUIPMENT TO INCLUDE DATE OR BEGINNING OF WARRANTY OR BOND; DURATION OF WARRANTY OR BOND; AND NAMES, ADDRESSES, AND TELEPHONE NUMBERS AND PROCEDURES FOR FILING A CLAIM AND OBTAINING WARRANTY SERVICES.

END OF SECTION 220000

SECTION 220500 - COMMON WORK RESULTS FOR PLUMBING

- 1.1 PIPE ESCUTCHEONS
A. APPROVED MANUFACTURERS: BRASSCRAFT, DEARBORN, KEENEY, MCGUIRE.
B. PROVIDE PIPE ESCUTCHEONS AS SPECIFIED HEREIN WITH INSIDE DIAMETER CLOSELY FITTING PIPE OUTSIDE DIAMETER, OR OUTSIDE OF PIPE INSULATION WHERE PIPE IS INSULATED.
C. FOR WATERPROOF FLOORS, AND AREAS WHERE WATER AND CONDENSATION CAN BE EXPECTED TO ACCUMULATE, PROVIDE CAST BRASS OR SHEET BRASS ESCUTCHEONS, SOLID OR SPLIT HINGED.
D. FOR DRY AREAS: PROVIDE SHEET STEEL ESCUTCHEONS, SOLID OR SPLIT HINGED.
E. INSTALL PIPE ESCUTCHEONS ON EACH PIPE PENETRATION THROUGH FLOORS, WALLS, PARTITIONS, AND CEILINGS WHERE PENETRATION IS EXPOSED TO VIEW.
1.2 FIRE AND SMOKE BARRIER PENETRATION SEALS
A. APPROVED MANUFACTURERS: 3M, DOW CORNING, FLAME STOP, METACALK, HILTI, HOLDRITE.
B. PROVIDE UL LISTED FIRESTOPPING SYSTEMS COMPOSED OF COMPONENTS THAT ARE COMPATIBLE WITH EACH OTHER, THE SUBSTRATES FORMING OPENINGS, AND THE ITEMS, IF ANY, PENETRATING THE FIRESTOPPING UNDER CONDITIONS OF SERVICE AND APPLICATION, AS DEMONSTRATED BY THE FIRESTOPPING MANUFACTURER BASED ON TESTING AND FIELD EXPERIENCE.
1.3 PIPE SLEEVES
A. PROVIDE PIPE SLEEVES OF ONE OF THE FOLLOWING:
1. SHEET METAL: AT INTERIOR PARTITIONS AND CEILINGS OTHER THAN SUSPENDED CEILINGS FABRICATE FROM GALVANIZED SHEET METAL; ROUND TUBE CLOSED WITH SNAP LOCK JOINT, WELDED SPIRAL SEAMS, OR WELDED LONGITUDINAL JOINT.
2. IRON PIPE: AT EXTERIOR PENETRATIONS, BOTH ABOVE AND BELOW GRADE, FABRICATE FROM CAST IRON OR DUCTILE IRON PIPE; REMOVE BURRS.
3. STEEL PIPE: AT ALL OTHER LOCATIONS, FABRICATE FROM SCHEDULE 40 GALVANIZED STEEL PIPE; REMOVE BURRS.
4. WHERE PIPE PENETRATIONS OCCUR IN NON-FIRE RATED FLOORS, ROOF SLABS, OR WALLS, THE SPACE BETWEEN PIPE INSERT AND THE SLEEVE SHALL BE PACKED ON EACH END WITH MINERAL WOOL OR OTHER NON-COMBUSTIBLE MATERIAL, POSITIVELY FASTENED IN PLACE.
5. INSTALL PIPE SLEEVES OF TYPES INDICATED WHERE PIPING PASSES THROUGH WALLS, FLOORS, CEILINGS, AND ROOFS.
6. EXTEND FLOOR SLEEVES IN ALL LOCATIONS 3/4-INCH ABOVE FLOOR FINISH SLOPED TO DRAIN AND 4-INCH ABOVE FINISHED FLOOR IN ALL MECHANICAL EQUIPMENT ROOMS AND PIPE CHASES.
7. FOR PIPES PENETRATING FOUNDATION WALLS, WATER-PROOFING MEMBRANE FLOORS OR OTHER PLACES WHERE WATER LEAKAGE COULD BE ENCOUNTERED, INSTALL LINK-SEAL WALL SLEEVES BY GPT INDUSTRIES IN MANNER RECOMMENDED BY THE MANUFACTURER.

END OF SECTION 220500

SECTION 220520 - HANGERS AND SUPPORTS FOR PLBG PIPING AND EQUIP

- 1.1 PIPE HANGERS AND SUPPORTS
A. APPROVED MANUFACTURERS: B-LINE, CARPENTER AND PATTERSON, FEE & MASON, PHD MANUFACTURING, ELCEB METAL PRODUCTS, ERICO/CADDY, LINISTRUT, HILTI, ANVIL.
B. HANGERS AND SUPPORT COMPONENTS SHALL BE FACTORY FABRICATED OF MATERIALS, DESIGN, AND MANUFACTURER.
C. PROVIDE FACTORY-FABRICATED GUIDES, OF CAST SEMI-STEEL OR HEAVY FABRICATED STEEL, CONSISTING OF BOLTED TWO-SECTION OUTER CYLINDER AND BASE WITH TWO-SECTION GUIDING SPIDER BOLTED TIGHT TO PIPE, SIZE GUIDE AND SPIDERS TO CLEAR PIPE AND INSULATION (IF ANY), AND CYLINDER.
D. FIELD ASSEMBLED EXPANSION ANCHORS REQUIRE SUBMITTED SHOP DRAWINGS FOR REVIEW BY MECHANICAL AND STRUCTURAL ENGINEERS.
E. PRIOR TO INSTALLATION OF HANGERS, SUPPORTS, ANCHORS AND ASSOCIATED WORK, INSTALLER SHALL MEET AT PROJECT SITE WITH CONTRACTOR, INSTALLER OF EACH COMPONENT OF ASSOCIATED WORK, INSPECTION AND TESTING AGENCY REPRESENTATIVES (IF ANY), INSTALLERS OF OTHER WORK REQUIRING COORDINATION WITH WORK OF THIS SECTION AND ARCHITECT FOR PURPOSE OF REVIEWING MATERIAL SELECTIONS AND PROCEDURES TO BE FOLLOWED IN PERFORMING THE WORK IN COMPLIANCE WITH REQUIREMENTS SPECIFIED.
F. INSTALL BUILDING ATTACHMENTS WITHIN CONCRETE OR ON STRUCTURAL STEEL.
G. INSTALL HANGERS, SUPPORTS, CLAMPS AND ATTACHMENTS TO SUPPORT PIPING PROPERLY FROM BUILDING STRUCTURE.
H. INSTALL HANGERS AND SUPPORTS TO ALLOW CONTROLLED MOVEMENT OF PIPING SYSTEMS, TO PERMIT FREEDOM OF MOVEMENT BETWEEN PIPE ANCHORS, TO FACILITATE ACTION OF EXPANSION JOINTS, EXPANSION LOOPS, EXPANSION BENDS AND SIMILAR UNITS AND WITHIN ONE FOOT OF EACH HORIZONTAL ELBOW.
I. INSTALL PIPING AND HANGERS AS INDICATED IN THE DETAIL ON THE DRAWINGS OR THE CODE, WHICHEVER IS MOST RESTRICTIVE.

END OF SECTION 220520

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**SECTION 220553 - PLUMBING IDENTIFICATION**

- A. APPROVED MANUFACTURERS: ALLEN SYSTEMS, BRADY, BRIMAR INDUSTRIES, INDUSTRIAL SAFETY SUPPLY, SETON.
- B. IDENTIFICATION SHALL COMPLY WITH:
  - 1. EXISTING BUILDING STANDARDS: COMPLY WITH THE EXISTING LETTERING SIZE, LENGTH OF COLOR FIELD, COLORS AND IDENTIFICATION METHOD AS PRESENTLY EXISTS IN THE EXISTING BUILDING UNLESS OTHERWISE INDICATED.
- C. PIPE MARKERS SHALL BE EITHER:
  - 1. SNAP-ON TYPE: PROVIDE MANUFACTURER'S STANDARD PRE-PRINTED, SEMI-RIGID SNAP-ON, COLOR-CODED PIPE MARKERS, COMPLYING WITH ANSI A13.1.
  - 2. TAPE TO PIPE (OR INSULATION) WITH COLOR-CODED, 3-MIL THICK, PLASTIC ADHESIVE TAPE, NOT LESS THAN 3/4-INCH WIDE; FULL CIRCLE AT BOTH ENDS OF PIPE MARKER, TAPE LAPPED 1-1/2-INCH. INCLUDE ARROWS IN THE DIRECTION OF FLOW.
  - 3. LOCATE PIPE MARKERS WHEREVER PIPING IS EXPOSED TO VIEW IN OCCUPIED SPACES, MACHINE ROOMS, ACCESSIBLE MAINTENANCE SPACES (SHAFTS, TUNNELS, PLENUMS) AND EXTERIOR NON-CONCEALED LOCATIONS.
  - 4. LOCATE PIPE MARKERS NEAR EACH VALVE AND CONTROL DEVICE, NEAR EACH BRANCH, EXCLUDING SHORT TAKE-OFFS FOR FIXTURES.
  - 5. LOCATE PIPE MARKERS AT EACH PIPE BRANCH, WHERE THERE COULD BE QUESTION OF FLOW PATTERN, NEAR LOCATIONS WHERE PIPES PASS THROUGH WALLS OR FLOORS/CEILINGS, OR ENTER NON-ACCESSIBLE ENCLOSURES, AT ACCESS DOORS, MANHOLES AND SIMILAR ACCESS POINTS WHICH PERMIT VIEW OF CONCEALED PIPING.
  - 6. LOCATE PIPE MARKERS NEAR MAJOR EQUIPMENT ITEMS AND OTHER POINTS OF ORIGINATION AND TERMINATION.
  - 7. PIPE MARKERS SHALL BE SPACED INTERMEDIATELY AT MAXIMUM SPACING OF 25-FOOT ALONG EACH PIPING RUN, EXCEPT REDUCE SPACING TO 15-FOOT IN CONGESTED AREAS OF PIPING AND EQUIPMENT, ON PIPING ABOVE REMOVABLE ACOUSTICAL CEILINGS.
- D. ACCESS PANEL MARKERS: PROVIDE MANUFACTURER'S STANDARD 1/16-INCH THICK ENGRAVED PLASTIC LAMINATE ACCESS PANEL MARKERS, WITH ABBREVIATIONS AND NUMBERS CORRESPONDING TO CONCEALED VALVE. INCLUDE 1/8-INCH CENTER HOLE TO ALLOW ATTACHMENT.

END OF SECTION 220553

**SECTION 220700 - PLUMBING INSULATION**

- 1.1 FIBERGLASS PIPING INSULATION
  - A. APPROVED MANUFACTURERS: KNAUF FIBER GLASS, JOHNS-MANVILLE, MANSON INSULATION, OWENS-CORNING.
  - B. ASTM C 547, TYPE I, RIGID MOLDED, NONCOMBUSTIBLE 0.23 "K" VALUE AT 75-DEGREE F MEAN TEMPERATURE, MAXIMUM SERVICE TEMPERATURE 950 DEGREE F, MOISTURE ABSORPTION LESS THAN 0.2% BY VOLUME, COMPOSITE 25/50-FLAME SPREAD/SMOKE DEVELOPED RATING (ASTM E 84, UL 723, AND NFPA 255).
  - C. VAPOR RETARDER JACKET: ASTM C 1136, 45LBS/M TENSILE STRENGTH (ASTM D 828), OR BEACH PUNCTURE 50 OZ IN/IN TEAR MINIMUM (ASTM D 781). WHITE KRAFT PAPER REINFORCED WITH GLASS FIBER YARN AND BONDED TO ALUMINUM FOIL, SECURED WITH SELF-SEALING LONGITUDINAL LAPS AND BUTT STRIPS.
  - D. CONNECT WITH PRESSURE SENSITIVE COLOR MATCHING VINYL TAPE.
- 1.2 CALCIUM SILICATE PIPING INSULATION
  - A. APPROVED MANUFACTURERS: JOHNS-MANVILLE, MANSON INSULATION.
  - B. ASTM C 533, TYPE I, RIGID MOLDED, NONCOMBUSTIBLE (ASTM E 136), 0.42 "K" VALUE AT 300-DEGREE F MEAN TEMPERATURE, MAXIMUM SERVICE TEMPERATURE 1200 DEGREE F, 180 PSI COMPRESSIVE STRENGTH FOR 5 PERCENT COMPRESSION (ASTM C 169), FLEXURAL STRENGTH 70 PSI (ASTM C 203), 0/0 FLAME SPREAD/SMOKE DEVELOPED RATING (ASTM E 84).
  - C. TIE WIRE: 16-GAUGE STAINLESS STEEL WITH TWISTED ENDS ON MAXIMUM 12-INCH CENTERS.
  - D. APPROVED MANUFACTURERS: CHILDERS, FOSTER, CEEL-CO., JOHNS-MANVILLE, KNAUF, 3M, DESIGN POLYMETRICS, PIC PLASTICS.
  - E. PVC PLASTIC ONE-PIECE, GLOSS WHITE, MOLDED FITTING COVERS WITH FACTORY INSTALLED FIBERGLASS INSULATION INSERTS: 20 MIL (30 MIL FOR EXTERIOR APPLICATIONS) CUT AND CURLED GLOSS WHITE JACKETING MATERIAL. COMPOSITE 25/50 FLAME SPREAD/SMOKE DEVELOPED RATING (ASTM E84). CONNECT WITH TACKS AND PRESSURE SENSITIVE COLOR MATCHING VINYL TAPE.
  - F. CANVAS: UL LISTED FABRIC, 6 OZ/SQ YD, PLAIN WEAVE COTTON TREATED WITH DILUTE FIRE-RETARDANT LAGGING ADHESIVE. FOSTER 30-36, CHILDERS CP-50AMV1 OR DUCT MATE LAG IT.
  - G. ALUMINUM: 0.016-INCH THICK SHEET WITH FACTORY APPLIED MOISTURE BARRIER WITH LONGITUDINAL SLIP JOINTS AND 2-INCH LAPS, DIE SHAPED FITTING COVERS.
  - H. STAINLESS STEEL: TYPE 304 STAINLESS STEEL, 0.010-INCH.
- 1.3 PIPING INSULATION APPLICATION
  - A. COLD PIPING INSULATION SHALL BE FIBERGLASS OR FLEXIBLE ELASTOMERIC; 1/2-INCH THICKNESS UP TO 1-1/4-INCH PIPE SIZE, 1-INCH THICKNESS FOR 1 1/2-INCH PIPE SIZE AND LARGER. APPLICATIONS: POTABLE AND NON-POTABLE COLD WATER, POTABLE CHILLED WATER, INTERIOR ABOVEGROUND STORM WATER, INTERIOR ABOVE GROUND OVERFLOW STORM PIPING WITHIN SIX (6) LINEAL FEET OF ROOF BOWL, PLUMBING VENTS WITHIN SIX (6) LINEAL FEET OF ROOF OUTLET, ROOF AND OVERFLOW DRAIN BOWLS.
  - B. INSULATE EACH CONTINUOUS RUN OF PIPING WITH FULL-LENGTH UNITS OF INSULATION, WITH SINGLE CUT PIECE TO COMPLETE RUN. DO NOT USE SCRAPS.
  - C. APPLY INSULATION TO PIPING WITH ALL JOINTS TIGHTLY FITTED TO ELIMINATE VOIDS.
  - D. APPLY INSULATION ON COLD SURFACES WITH A CONTINUOUS, UNBROKEN VAPOR SEAL. HANGERS, SUPPORTS, AND ANCHORS THAT ARE SECURED DIRECTLY TO COLD SURFACES MUST BE ADEQUATELY INSULATED AND VAPOR SEALED TO PREVENT CONDENSATION. SEAL PIPE TERMINATIONS IN CHILLED WATER OR GLYCOL SYSTEMS EVERY FOUR (4) PIPE SECTIONS WITH VAPOR BARRIER COATING.
  - E. PROTECT VAPOR-BARRIER JACKETS ON PIPE INSULATION FROM PUNCTURE OR OTHER DAMAGE. AVOID THE USE OF STAPLES ON VAPOR BARRIER JACKETS. SEAL VAPOR BARRIER PENETRATIONS WITH VAPOR BARRIER COATING.
  - F. EXTEND PIPING INSULATION WITHOUT INTERRUPTION THROUGH WALLS, FLOORS AND SIMILAR PIPING PENETRATIONS, EXCEPT WHERE FIRE-STOPPING MATERIALS ARE REQUIRED.
  - G. PROVIDE THERMAL SHIELD INSERTS ON ALL PIPE (REFER TO 230529). FOR PIPING BELOW AMBIENT TEMPERATURE, APPLY VAPOR BARRIER LAP CEMENT ON BUTT JOINTS AND SEAL WITH 3-INCH WIDE VAPOR BARRIER TAPE.
    - 1. MINIMUM INSULATION INSERT LENGTHS:
      - A. 1-1/2 TO 2-1/2-INCH PIPE: 18-INCHES
      - B. 3 TO 6-INCH PIPE: 12-INCHES
      - C. 8 TO 10-INCH PIPE: 16-INCHES
      - D. 12-INCH AND LARGER PIPE: 22-INCHES
  - H. APPLY GALVANIZED METAL SHIELDS BETWEEN HANGERS OR SUPPORTS AND PIPE INSULATION. FORM SHIELDS TO FIT THE INSULATION AND EXTEND UP TO THE CENTERLINE OF THE PIPE. THE SHIELD LENGTH SHALL BE 4-INCHES LESS THAN THE ASSOCIATED INSULATION HANGER INSERT TO ALLOW FOR VAPOR RETARDING BUTT JOINTS ON EACH SIDE OF THE SHIELDS.
  - I. APPLY ADHESIVES, MASTICS AND COATINGS AT MANUFACTURER'S RECOMMENDED MINIMUM COVERAGE PER GALLON.
  - J. REPLACE ALL DAMAGED INSULATION IN WHOLE; REPAIR OF DAMAGED INSULATION WILL NOT BE ACCEPTED.

END OF SECTION 220700

**SECTION 221413 - STORM DRAINAGE PIPING**

- 1.1 ABOVE GRADE PIPING
  - A. APPROVED MANUFACTURERS: TYLER PIPE, AB&I, CHARLOTTE PIPE & FOUNDRY
  - B. PIPE LESS THAN 30-FEET OF HEAD AND PIPE 1-1/2-INCH TO 10-INCH: SERVICE CLASS HUBLESS CAST IRON SOIL PIPE: CIPSI 301, ASTM A888. FITTINGS SHALL BE CIPSI 301, HUBLESS CAST IRON, LONG SWEEP BENDS. COUPLINGS SHALL BE FOR ASTM A898 PIPE, CIPSI 310 COUPLING, ASSEMBLY OF STAINLESS-STEEL SHIELD AND CLAMP WITH ASTM C564 ELASTOMERIC SEALING SLEEVE. COUPLING SHALL BE CERTIFIED BY NSF FOR CIPSI 310 TESTING AND MANUFACTURED IN USA.
  - C. PIPE LESS THAN 30-FEET OF HEAD AND PIPE 2-INCH TO 15-INCH: SERVICE CLASS CAST IRON HUB-AND-SPIGOT SOIL PIPE, ASTM A74. FITTINGS SHALL BE ASTM A74 SERVICE CLASS CAST IRON HUB AND SPIGOT COMPRESSION JOINT, LONG SWEEP BENDS. SEALING GASKETS SHALL BE NEOPRENE, COMPLYING WITH ASTM C564.
  - D. INSTALL PLUMBING DRAINAGE PIPING WITH 1/8-INCH PER FOOT (1 PERCENT) DOWNWARD SLOPE IN DIRECTION OF DRAIN FOR PIPING 3-INCH AND SMALLER.
  - E. PROVIDE THRUST RESTRAINTS CONSISTING OF BRACING TO STRUCTURE AND RODDED JOINTS AT BRANCHES AND CHANGES IN DIRECTION FOR CAST IRON PIPE 5-INCHES AND LARGER SUSPENDED WITHIN THE BUILDING AND FOR ALL CHANGES IN DIAMETER GREATER THAN TWO PIPE SIZES.
  - F. PROVIDE SWAY BRACING TO PREVENT SHEAR AT JOINTS ON CAST IRON PIPING SUSPENDED IN EXCESS OF 18-INCHES ON SINGLE ROD HANGERS.
  - G. PROVIDE RIGID SUPPORT SWAY BRACING AT ALL CHANGES IN DIRECTION GREATER THAN 45 DEGREES FOR ALL SUSPENDED CAST IRON PIPING FOR PIPE SIZES 4-INCH AND LARGER.
- 1.2 DRAINAGE PIPING SPECIALTIES
  - A. CLEANOUTS SHALL BE MANUFACTURED BY JOSAM, JAY R. SMITH, TYLER PIPE, ZURN, WADE, WOODFORD, PRECISION PLUMBING PRODUCTS, WATTS.
    - 1. CLEANOUT PLUGS: ASTM A74, CAST BRASS, THREADS COMPLYING WITH ANSI B2.1.
    - 2. WALL CLEANOUT: CLEANOUT TEE WITH RAISED HEAD BRASS PLUG TAPPED FOR 1/4-20 THREAD; FLAT STYLE CHROME PLATED WALL COVER PLATE WITH HOLES FOR 1/4-INCH BOLT; 1/4-20 THREADED BOLT WITH CHROME PLATED FLAT HEAD OR PROVIDE FIRE RATED ACCESS PANEL/ASSEMBLY COMPATIBLE WITH THE WALL RATING.
    - 3. LINE CLEANOUT: CAST IRON TAPPED CLEANOUT FERRULE WITH RAISED HEAD BRASS PLUG.
  - B. INSTALL ABOVE GROUND PIPING CLEANOUTS AND BUILDING DRAIN PIPING CLEANOUTS AS INDICATED, AND AT:
    - 1. EACH CHANGE IN DIRECTION OF PIPING GREATER THAN 45 DEGREES
    - 2. MINIMUM INTERVALS OF 50-FEET
    - 3. THE BASE OF EACH VERTICAL SOIL OR WASTE STACK
    - 4. THE EGRESS OF BUILDING (SURFACE CLEANOUT).
  - C. WHERE CLEANOUTS ARE LOCATED AT A FIRE RATED WALL, PROVIDE AND INSTALL FIRE-RATED ACCESS PANELS TO MAINTAIN WALL RATING. PROVIDE PANEL SIZED TO ALLOW ACCESS TO THE CLEANOUT.
- 1.3 FIELD QUALITY CONTROL
  - A. PIPING SYSTEM TEST: TEST DRAINAGE AND VENT SYSTEM IN ACCORDANCE WITH THE PROCEDURES OF THE AUTHORITY HAVING JURISDICTION, OR IN THE ABSENCE OF A PUBLISHED PROCEDURE, AS FOLLOWS:
    - 1. TIGHTLY CLOSE ALL OPENINGS IN THE PIPING SYSTEM EXCEPT THE HIGHEST OPENING AND FILL THE SYSTEM WITH WATER TO THE POINT OF OVERFLOW.
    - 2. MAINTAIN WATER IN THE SYSTEM, OR IN THE PORTION UNDER TEST, FOR AT LEAST 15 MINUTES BEFORE INSPECTION STARTS; THE SYSTEM SHALL THEN BE TIGHT TO ALL POINTS. NO SECTION SHALL BE TESTED WITH LESS THAN A 10-FOOT HEAD OF WATER.
    - 3. CLOSE ROOF DRAINS AT THE LOWEST POINT AND FILL WITH WATER TO THE POINT OF OVERFLOW.

END OF SECTION 221413

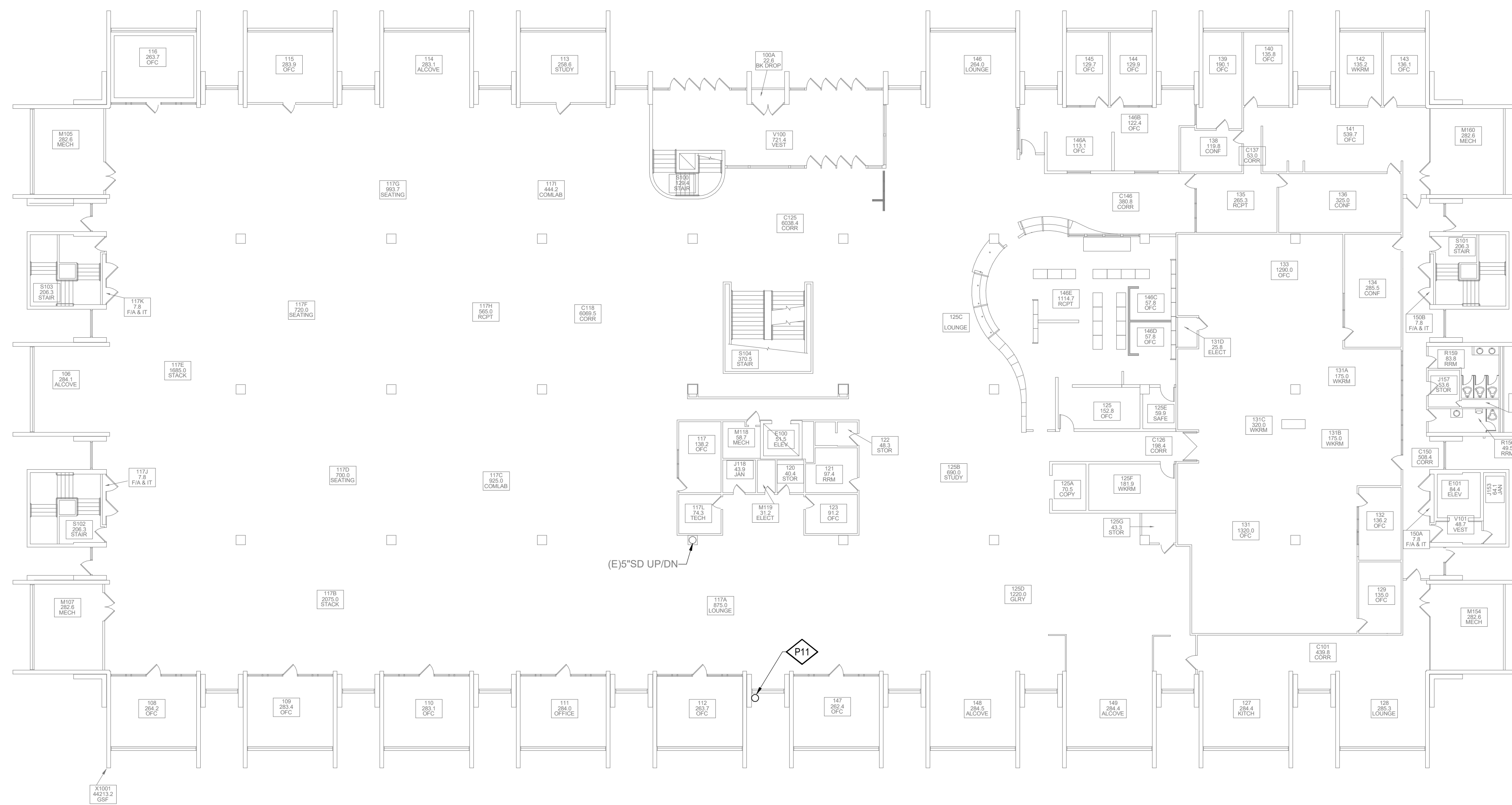
**SECTION 224000 - PLUMBING FIXTURES**

- 1.1 FIXTURES
  - A. APPROVED MANUFACTURERS:
    - 1. ROOF AND OVERFLOW DRAINS: J.R. SMITH, JOSSAM
  - B. INSTALL PLUMBING FIXTURES LEVEL AND PLUMB, IN ACCORDANCE WITH FIXTURE MANUFACTURER'S WRITTEN INSTRUCTIONS, ROUGH-IN DRAWINGS, AND PERTINENT CODES AND REGULATIONS, THE ORIGINAL DESIGN, AND THE REFERENCED STANDARDS.
  - C. COMPLY WITH THE INSTALLATION REQUIREMENTS OF ANSI A117.1 AND PUBLIC LAW 90-480 WITH RESPECT TO PLUMBING FIXTURES FOR THE PHYSICALLY HANDICAPPED. ARRANGE FLUSH VALVE HANDLES WITH PROPER ORIENTATION TO MEET ADA REQUIREMENTS.
  - D. FASTEN PLUMBING FIXTURES SECURELY TO SUPPORTS OR BUILDING STRUCTURE. SECURE DOMESTIC WATER PIPING BEHIND OR WITHIN WALL CONSTRUCTION TO PROVIDE RIGID INSTALLATION.
  - E. SEAL FIXTURES TO WALLS AND FLOORS USING SILICONE SEALANT AS SPECIFIED IN DIVISION 7. MATCH SEALANT COLOR TO FIXTURE COLOR.

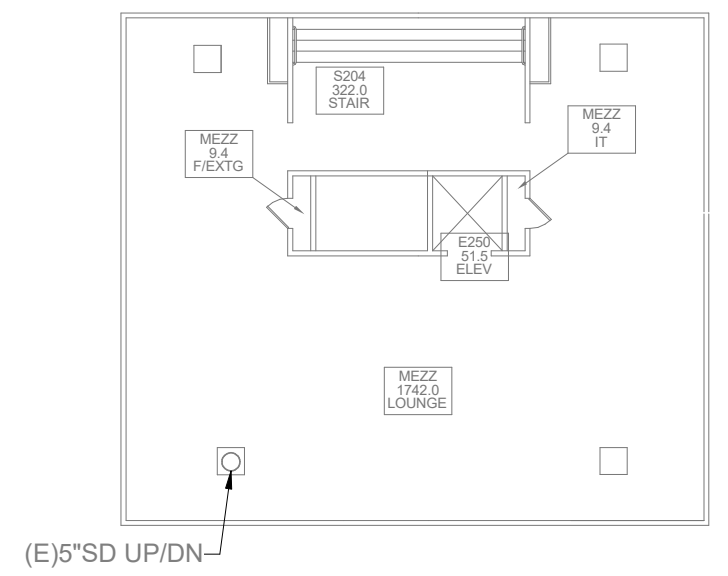
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1 LEVEL 1 PLUMBING PLAN  
1/16" = 1'-0"  
16' 8' 0' 16'



2 MEZZANINE LEVEL PLUMBING PLAN  
1/16" = 1'-0"  
16' 8' 0' 16'

**GENERAL NOTES**

1. EXISTING FLOORPLANS AND PIPING LOCATIONS ARE APPROXIMATE. CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING BID.
2. NEW ROUTING IS SCHEMATIC IN NATURE AND IS TO BE CONFIRMED PRIOR TO BEGINNING CONSTRUCTION.
3. CONTRACTOR TO UTILIZE GROUND PENETRATING RADAR TO LOCATE ALL CORE DRILLING LOCATIONS.

**WORK NOTES**

P11 PROVIDE NEW OPEN FACED DOWNSPOUT LEADER ON EXISTING EXTERIOR. COORDINATE EXACT DISCHARGE LOCATION AND ROUTING WITH ARCHITECT AND EXISTING CONDITIONS. REFER TO SHEET R-400

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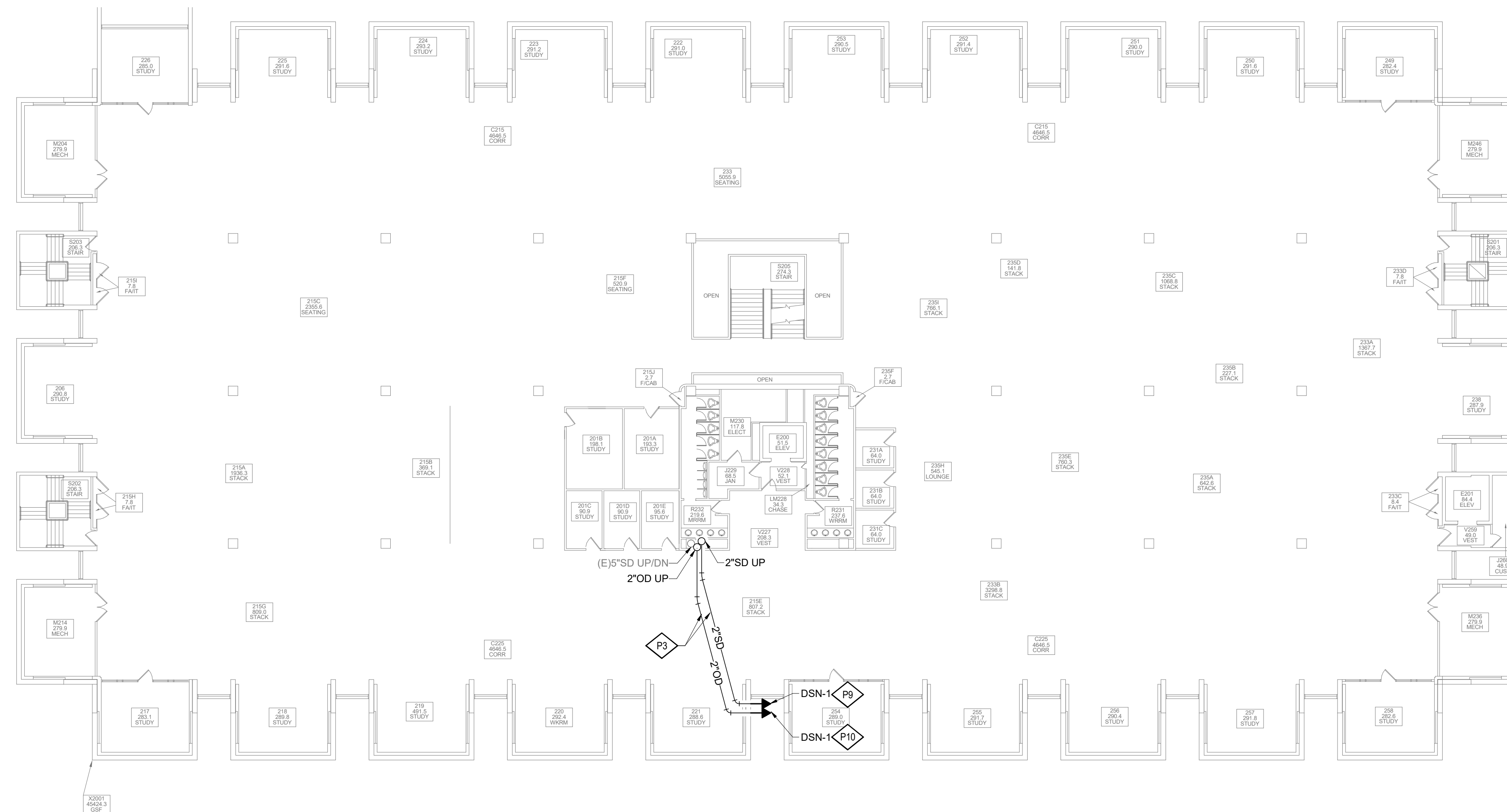
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LEVEL 1 & MEZZ. PLUMBING PLANS



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1 LEVEL 2 PLUMBING PLAN  
 1/16" = 1'-0"  
 16' 8' 0'

- | GENERAL NOTES |   |
|---------------|---|
| 1.            | EXISTING FLOORPLANS AND PIPING LOCATIONS ARE APPROXIMATE. CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING BID. |
| 2.            | NEW ROUTING IS SCHEMATIC IN NATURE AND IS TO BE CONFIRMED PRIOR TO BEGINNING CONSTRUCTION.                                  |
| 3.            | CONTRACTOR TO UTILIZE GROUND PENETRATING RADAR TO LOCATE ALL CORE DRILLING LOCATIONS.                                       |
- 
- | WORK NOTES |   |
|------------|---|
| P3         | OFFSET NEW STORM AND OVERFLOW PIPING IN EXISTING PLENUM AND ROUTE DOWN ADJACENT TO COLUMN IN EXISTING CHASE SPACE.  |
| P9         | PROVIDE NEW DOWNSPOUT FOR NEW STORM DRAIN. DOWNSPOUT TO DISCHARGE INTO NEW COLLECTOR HEAD ON BUILDING EXTERIOR COORDINATE WITH EXISTING FACADE. REFER TO SHEET R-400 FOR MORE INFORMATION ON OVERFLOW NOZZLE. |
| P10        | PROVIDE NEW DOWNSPOUT FOR NEW OVERFLOW DRAIN.   |

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 LEVEL 2 PLUMBING PLAN



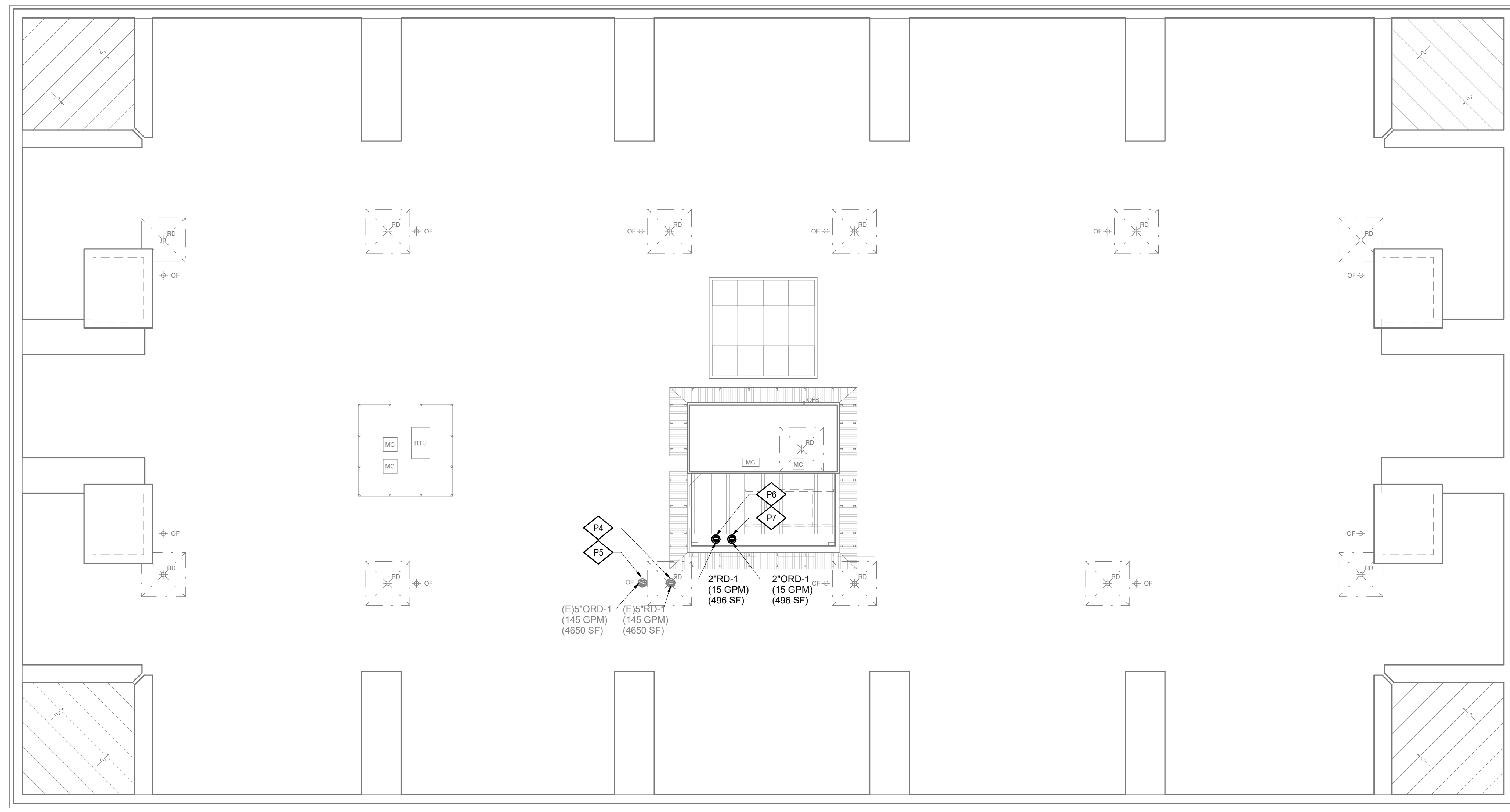
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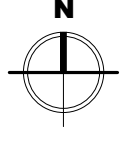
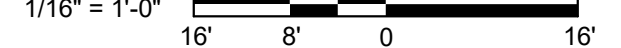
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**1** ROOF LEVEL PLUMBING PLAN  
 1/16" = 1'-0"  


**GENERAL NOTES**

1. EXISTING FLOORPLANS AND PIPING LOCATIONS ARE APPROXIMATE. CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING BID.
2. NEW ROUTING IS SCHEMATIC IN NATURE AND IS TO BE CONFIRMED PRIOR TO BEGINNING CONSTRUCTION.
3. CONTRACTOR TO UTILIZE GROUND PENETRATING RADAR TO LOCATE ALL CORE DRILLING LOCATIONS.

**WORK NOTES**

- |    |  |
|----|--|
| P4 | EXISTING ROOF DRAIN TO REMAIN.   |
| P5 | EXISTING OVERFLOW DRAIN TO REMAIN.   |
| P6 | NEW ROOF DRAIN, SIZED AS NOTED. COORDINATE EXACT LOCATION WITH NEW ROOF PLANS.     |
| P7 | NEW OVERFLOW DRAIN, SIZED AS NOTED. COORDINATE EXACT LOCATION WITH NEW ROOF PLANS. |

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 ROOF LEVEL PLUMBING PLAN



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