

CITY COUNCIL

The City of Orange Township, New Jersey

DATE March 7, 2023

NUMBER 126-2023

TITLE:

A RESOLUTION AWARDING A CONTRACT TO WEATHERPROOFING TECHNOLOGIES, INC., 3735 GREEN ROAD, BEACHWOOD, OH 44122, THROUGH THE EDUCATIONAL SERVICES COMMISSION OF NEW JERSEY CO-OP FOR THE REPAIR OF THE ROOF OF THE ORANGE PUBLIC LIBRARY.

WHEREAS, the Orange Public Library was established by referendum under (N.J.S.A. 40:54-2); and

WHEREAS, N.J.A.C. 15:21-12 establishes mandatory annual appropriation for the maintenance of a free public library; and

WHEREAS, The City of Orange Township City Council approved the allocation of funding of \$234,000.00 for the repair of the roof; and

WHEREAS, the City of Orange Township entered into cooperative pricing agreement with the Educational Services Commission of New Jersey and selected weatherproofing technologies, inc from the approved vendor list; and

WHEREAS, the Chief Financial Officer of the City of Orange Township has prepared the necessary Certificate of Availability of Funds, a copy of which is attached hereto and made part hereof, certifying that monies are available in the Account No. T-11-00-000-000.

NOW, THEREFORE BE IT RESOLVED, the Orange City council hereby authorized to award a contract to weatherproofing technologies, inc. for the repair of the roof of the Orange Public Library ; and

BE IT FURTHER RESOLVED, that the Municipal Council of the City of Orange Township does hereby authorize the Mayor and the Business Administrator to transfer the allocated funds to the Orange Public Library account.

Adopted: **March 7, 2023**

Joyce L. Lanier
City Clerk

Tency Eason
Council President



CITY OF ORANGE
FINANCE DEPARTMENT

CERTIFICATION OF FUNDS
Municipal Open Space Trust Fund

I, Nile Clements, Chief Financial Officer for the City of Orange, do hereby certify to the best of my knowledge and belief that there are now sufficient funds in the Municipal Open Space Trust Fund to Contract with:

Vendor Name: Weatherproofing Technologies
Address#1: 3735 Green Road

City: Beachwood
State: Ohio
Zip Code: 44122

Purpose: Repair the Library roof

Fund: Municipal Open Space Trust
Account Name : Municipal Open Space Trust Reserves
Account Numbers: T-11-00-000-000-000

Vendor ID: WEATH015

Purchase Order #: 23-00602

PENDING RESOLUTION

Amount not to exceed: \$ 234,000.00

Division Head

Date

Nile Clements

3/1/2023

Chief Financial Officer

Date



A Subsidiary of Tremco Incorporated

3735 Green Road, Beachwood, OH 44122 Phone: 216.292.5000

www.wtiservices.com

Jeffrey A. Dorfier
Field Advisor
908-616-6437
jdorfier@tremcoinc.com

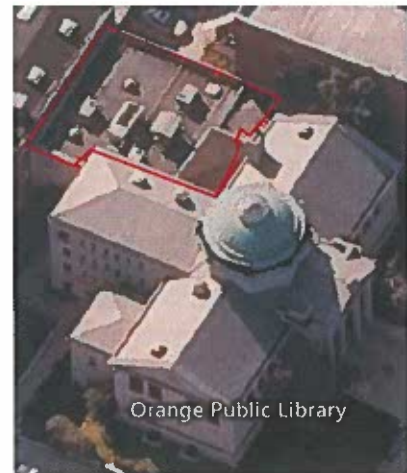
9/29/2022

Mr. Louis Copeland
City of Orange
29 North Day Street
Orange, NJ 07050

RE: Roof Replacement Proposal – Orange Public Library

Dear Mr. Copeland

Weatherproofing Technologies, Inc. is pleased to present our proposal for full roof removal and replacement at the Orange Public Library located at 348 Main Street in Orange, NJ. The scope of work and the associated Line-Item Proposal is for a turnkey operation as specified and bid by the ESCNJ (Contract #: Roofing and Envelope Services Bid #ESCNJ/AEPA 21D).



The project is based on complete roof removal and replacement of both the flat EPDM and sloping modified bituminous roof systems in the rear of the library and as illustrated above. These areas total approximately 3,600 square feet.

The following scope of work will be followed:

1. Remove and replace all roofing materials including membrane, insulation, base flashings, metal edge, trim, gutters and dispose of properly at off-site location.
2. Inspect deck for damage and repair/patch/replace as needed.
3. At one (1) large cooling/HVAC unit, disconnect, remove and dispose of at off-site location.
4. At four (4) HVAC curbs, disconnect, raise, install new pressure treated wood blocking, re-secure and re-connect units.
5. On wood deck section, mechanically attach base sheet and 1/4" Dens-deck to structural deck.
6. On concrete deck section, prime concrete (as needed) and adhere (using insulation adhesive) 2" base layer insulation, 1/8" tapered insulation and 1/4" Dens-deck to structural deck.
7. Install 60-mil, fully adhered, KEE membrane in bonding adhesive.
8. Heat weld/fuse all laps and seams.
9. Install KEE-coated metal at perimeter and heat weld/fuse membrane flashings.
10. Install new gutters, downspouts and rain-water leaders.
11. Re-use existing thru-wall counter flashings, repairing as needed.
12. Install new retro-fit roof drains assemblies as needed.
13. Provide a twenty (20) year, material and labor manufacturer warranty with complimentary housekeeping and preventive maintenance at years 2, 5, 10, and 15.

PROJECT INVESTMENT:**NOT TO EXCEED**

City of Orange – 2022 Roofing Projects	Warranty	Project Investment
Orange Public Library Re-Roof	20	\$206,000
Remove & Dispose One (1) Large Cooling Unit	n/a	\$9,000
Raise Four (4) Existing HVAC Units	n/a	\$17,000
Recommended Contingency – Deck Repair	n/a	\$2,000
TOTAL NOT TO EXCEED ESTIMATE:		<u>\$234,000</u>

- Exclusions not Estimated in Costs Listed Above
 - a. Hazardous materials removal.
 - b. Permit fees.
 - c. Police/DPW road closure fees.
 - d. Signed and sealed drawings.

- This price is valid until December 1st, 2022. After this time, project conditions are subject to reassessment and price increases to the line time costs may apply.

- This Proposal is an offer by WTI to provide the Scope of Work set forth above to the Customer on the terms and conditions set forth herein and in WTI's standard terms and conditions (a copy of which may be obtained at (<http://www.tremcoroofing.com/filesshare/terms/TandCWTI.pdf>), which are hereby incorporated by reference (together, the "Terms and Conditions"). The Terms and Conditions will govern the Work to the exclusion of any other or different terms, including in any customer purchase order, unless otherwise expressly agreed in writing pursuant to a Master Agreement or similar contract with Customer signed by an authorized representative of WTI.

Thank you for the opportunity to serve you and the City of Orange.

Respectfully Submitted,



Jeffrey A. Dorfler

Field Advisor

P: 908-616-6437

E: JDorfler@tremcoinc.com



PROJECT MANUAL



CITY OF ORANGE

**ORANGE PUBLIC LIBRARY
348 MAIN STREET
ORANGE, NEW JERSEY 07050**

**2022 ROOFING PROJECT SPECIFICATIONS
WTI PROPOSAL #5052870**

**TREMCO REPRESENTATIVE:
JEFF DORFLER**

OCTOBER, 2022

**WEATHERPROOFING TECHNOLOGIES, INC.
3735 GREEN ROAD
BEACHWOOD, OHIO 44122**

SECTION 01010
SUMMARY OF WORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and Contract Documents, included in the contract, apply to Work of this Section.

1.02 SECTION INCLUDES

- A. Contract description
- B. Work by subcontractor
- C. Subcontractor use of site (and premises)
- D. Submission of Proposals
- E. Quality Control
- F. Extra Work
- G. Unauthorized Work
- H. Work sequence
- I. Owner Occupancy
- J. Restoration and clean-up
- K. Submittals
- L. Delivery, Storage and Handling
- M. Site Conditions
- N. Unit prices
- O. Warranty

1.03 RELATED SECTIONS

- A. Section 01025 Measurement and Payment
- B. Section 01700 Contract Closeout

- C. Section 02060 Demolition
- D. Section 07540 Thermoplastic Membrane Roofing
- E. Section 13280 Asbestos Abatement

1.04 CONTRACT DESCRIPTION

- A. **Contract Type: Stipulated Sum Price and Unit Prices.**
 - 1. **INTENTION OF PLANS AND SPECIFICATIONS:** The intent of the Drawings and Specifications is to describe the Work that the Subcontractor undertakes, in full compliance with the Contract, and it is understood that the Subcontractor will furnish all materials, machinery, equipment, tools, supplies, transportation, labor, permits and all other incidentals necessary to the satisfactory execution and completion of the Work. The plans and specifications are complementary, and what is called for by either is as binding as if called for by both.
- B. **Plans and Specifications:**
 - 1. Subcontractor must notify WTI of any omissions, contradictions or conflicts. WTI will provide necessary corrections or additions to plans and specifications by addendum. If subcontractor does not so notify WTI of any such condition, it will be assumed that the subcontractor has included the necessary items in his proposal to complete this specification.
 - 2. It is the intent that this be a completed project as far as the contract documents set forth. It is not the intent that different phases of work on this project be delegated to various trades and subcontractors by the contract documents. Roofing subcontractor must make their own contracts with various subcontractors, setting forth the work these subcontractors will be held responsible for. Roofing subcontractor alone will be held responsible for the work of his / her subcontractor by WTI for the completed project. The roofing subcontractor is required to have his subcontractor comply with all Owner and WTI safety and security requirements.
 - 3. If the subcontractor feels a conflict exists between what is considered good roofing practice and these specifications subcontractor shall state in writing all objections 7 days prior to submitting quotations.
 - 4. Tremco CPG Inc. (Tremco) takes responsibility for furnishing quality materials and for providing specifications and recommendations for their proper installation. As neither Tremco itself nor its Representatives practice architecture or engineering, Tremco offers no opinion on and expressly disclaims any responsibility for the soundness of, or the effect upon, any structure or building materials. If any questions arise as to the soundness of or the effect upon any structure or building materials, or the structure's ability to support a planned installation properly, the Owner should obtain opinions of competent structural engineers or other qualified design professionals before proceeding.
 - 5. Subcontractors of WTI shall have his own supervision on site at all times when his subcontractors are present.

6. Roofing subcontractor shall have his own supervision on site at all times when his subcontractors are present.

1.05 WORK BY SUBCONTRACTOR.

A. Work under this contract includes:

1. Furnish and install specified roofing and related components to the specified roofs by the roofing subcontractor at the *City of Orange located in Orange, New Jersey*.
2. Disconnect and re-connection of mechanical equipment by mechanical subcontractor, all electrical work shall be performed by licensed electrical subcontractor.
3. Subcontractor shall include in their proposal, modifications for electrical, mechanical, plumbing, gas, ductwork, refrigerant reclamation and replacement, stanchions, and miscellaneous items affected when installing new roof system and related components.

B. Protection:

1. Subcontractor shall be responsible for the full and adequate protection of the Owner's facilities, existing roof systems, personnel, equipment, products and materials, as well as protection of its own employees and equipment. Subcontractor shall comply with all applicable federal, state, and local OSHA, EPA, and NIOSH requirements. Lawns, shrubbery, paved areas, and buildings shall be protected from damage. Repair damage at no extra cost to Owner.
2. Daily House Keeping:
 - a. Prior to leaving the site daily the roofing subcontractor shall remove all trash from the roofing project and grounds such as paper, insulation or pieces and all other trash/scrap generated by the roofing crew. All subcontractors shall remove all trash generated by their respective work daily.
 - b. The site will be acceptable to the WTI project superintendent prior to the crew departing the site, the WTI project superintendent and the subcontractor foreman shall conduct a daily walk to make sure the roof and grounds are left in a satisfactory condition.
 - c. Roofing subcontractor shall protect existing roof systems by placing temporary plywood walkways in areas of access.
3. The roofing subcontractor shall perform appropriate inspections, surveys and file timely notifications to proper authorities prior to starting roof renovation or demolition activities. Inspectors, project planners, project managers, subcontractors and workers involved in the roof project shall have appropriate training, licenses and registrations.

C. General Project Requirements:

1. All roofing applications shall be in accordance with specifications and manufacturer's details.
2. Additional items as discussed at Pre-proposal meeting shall be included in base proposal, refer to Pre-proposal meeting notes as issued by WTI Construction Manager.

3. Unless specified to be reused, All products shall be new and delivered to site in manufacturer's original packaging.
4. Perimeter edge material, fabrication, and installation shall meet ES-1 requirements.
5. All flashings shall extend a minimum of 8 inches above finished roof surface unless previously accepted by Owner's representative and an authorized Manufacturer's agent.
6. All Flashings shall be removed to sound substrate, prime substrate as required by manufacturer, refer to current product data sheets for requirements.
7. Where applicable, Remove and reinstall existing security camera components as needed to accommodate the new roof installation.
 - a. Disconnect and re-installation shall be performed by a licensed security camera Subcontractor.
 - b. Prior to removal: Verify operational condition of existing system to establish base line. Document existing field of view.
 - c. Reinstall to match existing locations and field of view.
8. Subcontractor shall verify existing roof construction and measurements.
9. In case of conflict between project construction documents, including details and specifications, the most stringent requirements shall govern.
10. Roofing subcontractor shall provide additional line item proposal costs for the work that is not included in their base proposal cost.
11. Refer to *Section 13280 Asbestos Abatement* for detailed information.
12. The roofing subcontractor is responsible for ensuring roof drainage system included in the specified roof replacement work is free flowing. Flush drainage system to verify free flowing prior to the project start and at the project completion. Subcontractor shall notify WTI if roof drainage system is found slow flowing or inoperative prior to the project start.
13. The roofing subcontractor is responsible for damages resulting from failure to maintain the work areas in water tight condition and the costs resulting from this, including time required by the owner's employees, shall be charged to the subcontractor. The work areas include areas under construction, areas of storage, and areas used for access.
14. Subcontractor shall take all precautions needed to prevent damage or breakage of lines/piping while lifting or moving them.
 - a. Provide and install adequate temporary support of all electric, gas and chemical supply lines during roof replacement.
 - b. All energized lines must be locked out and tagged out by owner prior to demolition, all reconnections and re-energizing to be performed by licensed contractors.
15. Prior to demolition work, roofing subcontractor shall furnish and install interior protection where needed to prevent roofing related debris from entering the building.
 - a. Subcontractor to provide daily clean up necessary to bring the interior/room to as was condition prior to starting. These areas to be inspected daily.
16. **COVID 19 Requirements:**
 - a. WTI along with the Subcontractor shall follow the requirements that the Owner has in place.

- D. Scope of Work (TremPly KEE FB Membrane Roofing System):**
1. Specified Roof Replacement Areas:
 - a. Roof Sections: 1 and 2.
 - b. Refer to Project Overview drawing for roof area location.
 2. Supply all labor, transportation, material, apparatus, tools, and permits necessary for removal of the existing roof system and installation of a Fully Adhered TremPly KEE FB (Ketone Ethylene Ester Fleeceback) Roofing System by Tremco CPG Inc. (Tremco).
 - a. Subcontractor shall provide test welds prior to welding membrane seams each time welding machine is started from a cooled state.
 - b. Subcontractor shall probe seams daily prior to leaving site.
 3. Demolition Work:
 - a. Complete removal and disposal of existing roofing system and related components including but not limited to, aggregate, field membrane, flashing membrane, metal flashings, gutters, scuppers, downspouts, insulation, defective wood blocking and accessories down to the underlying roof decking.
 - b. Remove and dispose of designated HVAC unit as directed at Pre-proposal meeting.
 - (1) Infill decking as specified below.
 - c. Replace or repair existing defective roof decking at an additional approved per square foot cost.
 - (1) Coordinate deck removal with Owner and cordon-off areas beneath defective roof decking during removal and replacement.
 - (2) Refer to Safety Requirements outlined in Paragraph 1.16 SITE CONDITIONS of this section.
 - d. Replace or repair existing defective wood blocking on an additional approved per linear foot cost basis. Install new pressure treated wood blocking to replace defective wood blocking.
 - e. Remove and dispose of obsolete rooftop curbs, pitch pockets and miscellaneous penetrations. Install new roof decking or metal plating over opening.
 - (1) Owner shall identify items to be removed (See paragraph 1.05 A #2).
 - (2) Infill metal deck opening:
 - (a) Install 1/8 inch steel plate over openings less than 2 by 2 feet.
 - (b) Install 1/4 inch steel plate over openings greater than 2 by 2 feet and less than 3 by 3 feet.
 - (c) Lap plate over decking a minimum of 6 inches on all sides.
 - (d) Mechanically attach plating to decking a minimum of 12 inches o.c.
 - (e) Openings greater than 3 by 3 feet shall be evaluated by an independent professional structural engineer to determine infill decking and framing requirements.
 - i) The engineer shall be a qualified professional engineer registered and licensed in the project state.

- ii) Structural engineer shall provide design of deck infill.
- (3) Infill wood deck opening:
 - (a) Install new decking to match existing deck thickness and type.
 - (b) Attach boards to roof decking using manufacturer's recommended fasteners and attachment criteria.
 - (c) Deck replacement to span a minimum of three (3) structural supports.
 - (d) Subcontractor's base proposal shall include reattachment of existing roof decking where found loose or not adequately attached.
- f. Replace existing scupper assemblies.
 - (1) Raise or lower roof scupper opening to accommodate the new roof system elevation. Adjust scupper heights as required to provide positive drainage. Work shall include masonry work, plumbing connections and accessories. Replace existing scupper metal flashings, conductor box and downspout with new.
- g. Install approved retro-fit drain assemblies.
- 4. Prepare the roof substrate prior to installing the new roof system.
 - a. Install pressure treated wood blocking as required to match new insulation heights at wall junctions, roof edges, and penetrations and as indicated on detail drawings.
 - b. Install pressure treated wood blocking to top-side of parapet wall as required.
 - (1) Attach wood blocking to wall using appropriate fasteners.
 - (2) Top of parapet shall be at the same elevation all around perimeter.
 - c. Raise existing HVAC roof curbs, miscellaneous curbs, and plumbing vent stacks to a minimum of 8 inches above the new roof surface.
 - d. Clean roof deck and wall surfaces of dust, debris, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- 5. Roof Section 2:
 - a. Install separator sheet.
 - (1) Sweep roof deck clean.
 - b. Install one ply of BURmastic Composite Ply HT.
 - (1) Fasten as required to hold in place during installation of barrier.
- 6. Roof Section 1.
 - a. Install tapered roof insulation system.
 - (1) Sweep roof deck clean prior to roof insulation application.
 - (2) Prime deck in accordance with manufacturer's written instructions.
 - (3) Install 2.0 inch minimum thickness tapered polyisocyanurate insulation system with 1/8 inch per foot slope.
 - (a) Insulation Board Size: 4 by 4 feet.
 - (b) Individual insulation board thickness shall be 1.5 inches minimum thickness and 3.5 inches maximum thickness.

- (c) Install insulation boards in two (2) or more layers when required board thickness exceeds 3.5 inches.
 - (4) Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards.
 - (5) Stagger insulation board joints a minimum of 12 inches in both directions from joints of the previous insulation layer.
 - (6) Install 4 by 4 feet tapered insulation sumps at roof drain locations and 2 by 2 feet tapered insulation sumps at scupper locations (excluding overflow roof drains and scuppers).
 - (7) Adhere insulation layers, saddles, crickets, coverboard, tapered edge strips, and fibered cant strips using Tremco Low Rise Foam Insulation Adhesive as specified below.
 - b. Install tapered insulation saddles or crickets to promote positive drainage along valley lines between roof drains and scuppers, along walls, at high side of roof curbs and as instructed at Pre-proposal meeting.
 - (1) Tapered insulation saddle and cricket slope shall equal twice the roof slope, minimum 1/4 inch per foot slope.
 - (2) Saddle widest width shall equal or exceed 1/3 of the distance between the roof drains or scuppers.
 - (3) Subcontractor is responsible for the elimination of ponding water along valley lines.
 - (4) Adhere saddles and crickets as specified.
 - c. Install 4 by 4 feet by 1/4 inch DensDeck Prime Roof Board as coverboard.
 - (1) Stagger coverboard joints a minimum of 12 inches in both directions from joints of the underlying insulation layer.
 - (2) Adhere coverboard as specified.
 - d. Install tapered edge strips.
 - (1) Install tapered edge strips where blocking height exceeds insulation height.
 - (2) Adhere tapered edge strips as specified.
 - e. Insulation Adhesive Application:
 - (1) Apply adhesive in accordance with specifications and details.
 - (2) Clean and prime substrate as required by manufacturer.
 - (3) Decrease field-of-the-roof adhesive spacing between ribbons (rows) in perimeters and corners as defined in FM Loss Prevention Data Sheet 1-29 and noted below (round down to a dimension that is practical with respect to board size and application):
 - (a) In the roof perimeter, not more than 60 percent of the field-of-the-roof adhesive ribbon spacing between rows or area.
 - (b) In the roof corners, not more than 40 percent of the field-of-the-roof adhesive ribbon spacing between rows or area.
 - (4) Refer to manufacturer's Product Data sheet for detailed material and application requirements.
- 7. Roof Section 2:
 - a. Sweep roof deck clean.

- b. Install one ply of BURmastic Composite Ply HT.
 - (1) Fasten as required to hold in place.
 - c. Install 4 by 4 feet by 1/4 inch DensDeck Prime Roof Board as barrier board.
 - (1) Stagger barrier board joints a minimum of 12 inches in both directions from joints of the underlying decking.
 - d. Mechanically attach barrier boards to roof decking using approved insulation fastener and plate system as follows:
 - (1) Attach insulation in the field of the roof at a minimum rate of one (1) fastener per every 2 square feet.
 - (2) Enhance perimeter edge and corner fastening.
 - (a) Increase fastener density by 50 percent along roof perimeters.
 - (b) Increase fastener density to one (1) fastener per every 1 square foot at roof corners. It is not necessary to install fasteners closer than one per 1 square foot.
 - (3) The width of the roof corner and perimeters is defined as the smaller of .1 times the building lesser plan dimension or .4 times the building eave height.
 - (4) Increased fastening may be required based on local wind uplift requirements.
8. Install 60 mil TremPly KEE Fleece-back (FB) fully adhered Single Ply Roofing System including TremPly KEE flashing membrane and accessories.
- a. Substrate must be smooth, dry, and free of debris or other irregularities.
 - b. Adhere TremPly KEE FB membrane to substrate with TremPly KEE FB Bonding Adhesive. Do NOT use TremPly KEE FB Bonding Adhesive with smooth backed membrane.
 - c. Mix Bonding Adhesive thoroughly before use.
 - d. Position membrane in intended location and fold back.
 - e. Apply bonding adhesive, to the substrate only, at a rate of 90 to 100 square feet per gallon ensuring 100 percent coverage. Allow solvents to dissipate so the adhesive becomes sticky, but not stringy, to the touch.
 - f. Do NOT allow the adhesive to “over cure” or dry out before rolling in the membrane.
 - g. Carefully roll in membrane and broom the membrane in place to assure positive contact.
 - h. Do not allow bonding adhesive to contaminate membrane and flashing lap areas.
 - i. Roll membrane with a 75 pound membrane roller or equivalent to remove wrinkles and ensure positive contact with the substrate.
9. Heat-weld overlap seams of flashing and field membrane.
10. Install succeeding full rolls in same manner.
- a. Overlap sides three (3) inches.
 - b. Abut ends, gap width between membrane sheets shall not exceed 1/8 inch.
11. Mechanically attach membrane sheets at roof perimeter. Fasteners shall be minimum 1-1/4 inch long galvanized ring shank nails spaced at 6 inches.

12. Mechanically attach membrane sheets at penetrations. Fasteners shall have 2-3/8 inch diameter barbed metal plates. Fasteners shall be spaced a maximum of 12 inches on center and 1-1/8 inch from sheet edge in a true and straight.
13. Membrane Seaming:
 - a. All edge surfaces to be seamed by hot air welding. Surfaces must be wiped with solvent using clean rags.
 - b. Heat-weld laps with approved welding equipment. Adjust welding speed and temperature base upon ambient conditions and material.
 - c. Perform and evaluate weld tests each time robotic welding machine is allowed to cool.
14. TremPly KEE FB Membrane End Laps.
 - a. Install 6-inch wide cover strip over end lap. Cut cover strip corners round. Heat-weld cover strip centered over end lap.
15. Heat-weld a 4 inch round field cut flashing membrane (unreinforced) centered over each T-joint.
16. Install 45 mil TremPly KEE (non-fleece backed) flashing details per manufacturer's written specifications, recommendations and detail drawings.
 - a. Flashings shall be installed as shown on the detail drawings and per manufacturer's written standards. All membrane flashings shall be installed concurrently with the roof membrane as the project progresses.
 - b. The flashing membrane shall be fully adhered to a dry, smooth solvent-resistant and compatible substrate using TremPly KEE LV Bonding Adhesive. Surfaces to receive adhesive must be clean, dry, and free from oil, grease, or other contaminants
 - c. Position flashing membrane in intended location and fold back. Apply bonding adhesive in full coverage to the back side of the flashing membrane at a rate of 100 square feet per gallon **and** to the vertical substrate at a rate of 90 square feet per gallon ensuring 100 percent coverage (approximately 50 square feet per gallon coverage). Allow solvents to dissipate so the adhesive becomes sticky, but not stringy, to the touch.
 - d. Position flashing membrane in intended location and fold back. Apply adhesive in full coverage to the vertical substrate at a rate of 50 square feet per gallon ensuring 100 percent coverage. Apply adhesive by roller, do not spray. Roll flashing membrane into the wet adhesive, broom membrane into place then pressure roll to assure positive contact.
 - e. Do not allow Bonding Adhesive to contaminate membrane and flashing lap areas. Heat-weld overlap seams of flashing and field membrane.
 - f. Install TremFlash (TF) Tape or Tremco Water Block Sealant between wall and top edge of flashing membrane. Secure the top of the installed flashing membrane with a termination bar fastened 6 inches o.c. and cover with metal counterflashing.
 - g. Flash all pipes with TremPly KEE Pre-Fabricated Flashing Boots where possible. Field fabricate pipe flashing with TremPly KEE non-reinforced membrane per manufacturer's standard roofing systems details when a pre-molded flashing is not feasible.

- h. Fabricate all metal flashings with flanges using membrane coated metal. Heat-weld a 5-inch wide KEE cover strip to flashing membrane and coated metal flange.
- i. Install new curb details.
- j. Heat-weld all flashing laps with approved welding equipment.
- 17. Install sheet metal details per specifications, WTI, SMACNA, and manufacturer's requirements and standards.
 - a. Install sheet metal in accordance with attached detail drawings.
 - b. Detail drawings are to show intent and may be modified to fit field conditions and project specifications.
 - (1) Submit revised detail(s) for approval prior to installation.
 - c. The minimum requirements for sheet metal work are commercial quality Kynar Pre-Finished Metal (excluding Membrane Coated Metal). Fabrication shall comply with SMACNA, NRCA, and manufacturer's recommendations.
 - (1) Color: Chosen by Owner from manufacturer's standard color chart.
 - d. Install miscellaneous metal flashings and related accessories using manufacturer's membrane coated metal.
 - (1) Membrane coated metal shall be provided by membrane manufacturer and match membrane type installed.
 - (2) Install scuppers, pitch pans with hoods, gravel stop fascia, drip edge, and miscellaneous metal-flanged details.
 - (3) Fabricate metal flashings with flanges using membrane coated metal. Secure flange to wood blocking as specified.
 - (4) Set flange in Tremco TF Tape.
 - (5) Apply TremSEAL Pro Sealant as indicated on detail drawings.
 - (6) Heat-weld a 6-inch wide (reinforced) cover strip to field membrane and coated metal flange.
 - (7) Seal pitch pans with TremSEAL Pitch Pocket Sealer.
 - e. Remove and replace counterflashings, storm collars, sleeve flashings, and miscellaneous metal-flanged details using 24 gauge Stainless Steel unless specified otherwise (excluding Membrane Coated Metal).
 - (1) Membrane coated metal shall be provided by membrane manufacturer and match membrane type installed.
 - (2) Set flange in Tremco TF Tape.
 - (3) Apply TremSEAL Pro Sealant as indicated on detail drawings.
 - (4) Anchor reglet counterflashings using lead wedges spaced 8 inches.
 - (5) Install miscellaneous metal flashings and related accessories.
 - f. Install seamless gutters with downspouts. Size to match existing.
 - (1) Gutters: .050 inch Kynar pre-finished aluminum.
 - (2) Downspouts: .040 inch Kynar pre-finished aluminum.
 - (a) Include outlet tubes and accessories.
 - (3) Install 3/16 by 1 inch aluminum gutter brackets
 - (a) Maximum spacing: 30 inches o.c.
 - (b) Color to match gutter.

- (4) Install gutter straps spaced at 30 inches o.c.
 - (a) Stagger brackets and straps.
 - (5) Color: Chosen by owner from manufacturer's standard color chart.
 - (6) Terminate downspouts to match existing, install concrete splash blocks, replace existing.
18. Install new pressure treated wood sleepers with KEE Walk pads at existing wood sleeper and conduit/pipe locations. Sleepers to be sized to support conduit /pipe/equipment. Secure and flash existing pipe supports per manufacturer's details, standards and as directed by WTI's project superintendent.
 19. Install TremPly KEE walkway pads at roof access points, to match existing walkway plan, and as directed at Pre-proposal meeting.

1.06 SUB-CONTRACTOR USE OF SITE (AND PREMISES)

- A. Limit use of site (and premises) to allow:
 1. Owner occupancy.
 2. Work by others and work by owner.
 3. Existing Emergency Building Exits shall be usable at all times during Construction.
 4. Construction Operations: Limited to areas as stated in pre-proposal meeting.

1.07 SUBMISSION OF PROPOSALS

- A. The Construction Manager shall send an email through e-Builder that shall be used for Subcontractor's submission of Proposals. In addition, the Subcontractor shall submit their Proposal online through the e-Builder process:
 1. Invite Subcontractors
 - a. Shall receive email about bid invitation
 - b. From E-Builder address: bounces@e-builder.net (you may need to add this address to your safe senders list check spam folder)
 - (1) First Time invited Subcontractor will have to Create an account through the e-builder portal
 - c. This Login will be used for all future bidding processes.
 2. Previous Subcontractor shall use their company's existing login criteria.
 3. If you are having a problem with e-Builder, signing on or submitting your proposal, call or email e-Builder Technical Support.
 - a. Inside the U.S.: [888-288-5717](tel:888-288-5717).
 - b. Outside of the U.S.: [800-580-9322](tel:800-580-9322).
 - c. Email: support@e-builder.net.
 4. Subcontractors' questions
 - a. They can be asked in Question and Response tab and entered here.
 - b. The Project Construction Manager is then responsible for relying information
 - c. Proposal Due Date is "non-negotiable" this date shall be set at the project Pre-Proposal Meeting
 5. Subcontractors can save draft of proposal before final submission
 - a. Subcontractor shall have access to make changes to proposal until final bid submission end date.

- b. Subcontractors shall have the ability to export information using excel icon in right hand corner of submission tab.
- B. Proposal Details
1. Questions shall be accepted through e-Builder until time and date indicated at Pre-Proposal Meeting.
 2. Replies to questions shall be through e-Builder.
 3. Proposals shall be submitted electronically through e-Builder.
 4. Proposals are due at time and date indicated at Pre-Proposal Meeting, late proposals will not be accepted.
- C. Submit the following attachments with your Proposal:
1. Sample of Certificates of Insurance.
 2. Non-Tremco material list with quantity.
 3. Your Proposal form filled out on-line.
 - a. Proposal form shall include cost for a 100 percent payment and performance bond for the total value of the project including all labor and material.
 - b. Refer to *Section 01025 Measurement and Payment* for prevailing wage requirements.
- D. **Sealed proposal packages shall be submitted to WTI no later than as determined by WTI at the Pre-Proposal Meeting.**
- E. WTI reserves the right to reject any or all proposals or to waive any informality in the proposal. No Subcontractor may withdraw his proposal for a period of 90 days after the date set for the opening thereof.

**ORIGINAL SEALED PROPOSALS SHALL CONTAIN WTI PROPOSAL #5052870
AND BE SUBMITTED TO:**

WEATHERPROOFING TECHNOLOGIES INC.
3735 Green Road, Beachwood, OH 44122

Attn: Nathan Donatelli, WTI Construction Manager
Phone: (216) 318-9319 E-Mail: ndonatelli@wtiservices.com

1.08 QUALITY CONTROL

- A. Subcontractor Shall:
1. Submit an affidavit attesting the subcontractor has in place and fully implemented a written Health, Safety and Environmental plan and the plan is compliant with all applicable Federal, State, and local regulations.
 2. Be experienced in the specified roofing.
 - a. 5 Year minimum.
 3. For portions of this project where asbestos removal and disposal occur, roofing subcontractor or their subcontractor, shall be State certified for asbestos abatement work.
 4. Be acceptable to owner.
 5. Be manufacturer certified or approved Subcontractor.
 6. Has not been in Chapter 7 during the last Ten (10) years.

7. Provide list of at least 5 projects available for inspection employing the same roof system.

B. Project meetings:

1. Pre-proposal meeting:
 - a. Will be held at place and time determined by Weatherproofing Technologies, Inc. and Owner.
 - b. Attendance:
 - (1) WTI Construction Manager
 - (2) WTI Project Superintendent.
 - (3) Roofing Subcontractor / other Subcontractors.
 - (4) Representative of Owner.
 - (5) Tremco Sales Representative.
 - c. Minimum Agenda:
 - (1) Review of contract documents.
 - (2) Review of specification.
 - (3) Walkover inspection.
2. Pre-Construction Meeting:
 - a. Shall be scheduled by Weatherproofing Technologies, Inc. and Owner.
 - b. Attendance:
 - (1) WTI Construction Manager
 - (2) WTI Project Superintendent.
 - (3) Roofing Subcontractor / other subcontractors.
 - (4) Representative of Owner
 - (5) Tremco Sales Representative.
 - c. Minimum Agenda:
 - (1) Designation of responsible personnel-roles and responsibilities.
 - (2) Construction schedule.
 - (3) Operational requirements.
 - (4) Site safety plan review.
 - (5) Review of submittals.
 - (6) Walkover inspection.
3. Weekly Progress Meetings:
 - a. Shall be scheduled by WTI project superintendent and Owner.
 - b. Attendance:
 - (1) WTI Project Superintendent.
 - (2) Roofing Subcontractor / other subcontractors.
 - (3) Representative of Owner
 - (4) Tremco Sales Representative if available.
 - c. Minimum agenda:
 - (1) Review of work progress.
 - (2) Identification of problems, which impede planned progress.
 - (3) Corrective measures to regain projected schedules.
 - (4) Develop punch list of items requiring correction.
4. Final Inspection:
 - a. Will be scheduled by WTI Superintendent upon job completion.

- b. Attendance:
 - (1) WTI Project Superintendent.
 - (2) Roofing Subcontractor / other subcontractors.
 - (3) Representative of Owner
 - (4) Tremco Sales Representative.
- c. Minimum agenda:
 - (1) Walkover inspection.
 - (2) Identification of problems, which may impede issuance of warranty.

C. Regulatory Requirements:

- 1. State Adopted International Building Code Requirements
- 2. Local Building Code Requirements
- 3. Underwriters Laboratories (UL)
 - a. UL Classified Fire Rating – UL 790, Class A
- 4. Factory Mutual
 - a. FM 1-90 Insulation and Base Sheet Attachment Standards
 - b. FM Property Loss Prevention Data Sheets
 - (1) 1-28, 1-29, 1-49

1.09 EXTRA WORK

- A. Change orders will not be approved for any reason other than items that were totally unforeseen. Any unforeseen items should be immediately brought to the attention of WTI project superintendent.

1.10 UNAUTHORIZED WORK

- A. Work performed which is not provided for in the Contract, and Work done beyond limits shown on the Plans or as directed, or Extra Work done without written authorization will be considered unauthorized, shall be at the expense of the roofing subcontractor, and will not be measured or paid for by W.T.I. or the Owner. Work so done may be ordered removed, and replaced at the roofing subcontractor's expense, at the sole discretion of Weatherproofing Technologies, Inc.

1.11 WORK SEQUENCE

- A. Construct Work in phases to accommodate Owner's occupancy requirements during the construction period; coordinate construction schedule and operations with WTI project superintendent.

1.12 OWNER OCCUPANCY

- A. The Owner will occupy the premises (Building) during the entire period of construction.
- B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.
- C. Schedule the Work to accommodate Owner occupancy.

1.13 RESTORATION AND CLEAN-UP

- A. During the construction period, the Subcontractor shall, on a daily basis, place all of his waste materials and "non-broomable" debris into containers.
- B. Upon completion of the Work and before acceptance and final payment is made, the Work shall be cleaned of all rubbish, excess materials, false Work, temporary structures, and equipment; and all parts of the Work shall be left in a neat, presentable condition, satisfactory to the Owner. This Work shall be considered incidental to the overall project and no additional compensation will be allowed.

1.14 SUBMITTALS

- A. The subcontractor shall provide the following at Pre-Construction meeting:
 - 1. All approved non-Tremco Materials Specification Data Sheets along with Safety Data Sheet and samples for each product.
 - 2. Tapered plans per roof section.
 - 3. Tapered saddle/cricket insulation plan per roof section.
- B. The subcontractor shall provide to WTI prior to Pre-Construction meeting:
 - 1. Their Site-Specific Safety Plan.
 - 2. OSHA 300 logs.
 - 3. Sub-contractor Roles and Responsibilities signed.
 - 4. Payment and performance bonds for 100 percent of the Contract Price. The contract price is defined as proposal price of the contract. The penal amount of the performance bonds shall be 100 percent of the proposal price including all labor and all material.
 - 5. Insurance certificate with Tremco CPG Inc., Weatherproofing Technologies, Inc., and Owner named as the additionally insured.
 - 6. Properly executed Subcontractor Agreement.
- C. The subcontractor shall provide a Waste Manifest signed by a facility representative and submitted to WTI upon project completion. A Waste Manifest is required when one or more of the following are included or added to the specified work:
 - 1. Asbestos Abatement.
 - 2. Hazardous material disposal required by federal, state or local codes.
- D. The subcontractor shall provide to WTI upon project completion:
 - 1. Fully executed Final Waiver of Lien from Subcontractor, Subcontractor's laborers and material men, and Sub-Subcontractors of Subcontractor.
 - 2. Three Year Subcontractor's Warranty.

1.15 DELIVERY, STORAGE AND HANDLING

- A. Delivery of materials:
 - 1. Deliver materials to job-site in new, dry, unopened, and well-marked containers showing product and manufacturers name.

2. Deliver materials in sufficient quantity to allow continuity of work.
 3. Coordinate delivery with owner.
 4. Do not order project materials or start work before receiving written notice to proceed.
- B. Storage of materials:
1. Store roll goods on ends only. Discard rolls, which have been flattened, creased, or otherwise damaged. Place materials on pallets. Store roll goods on level pallets. Do not stack pallets.
 2. Store materials marked "KEEP FROM FREEZING" in areas where temperatures will remain above 40 degrees Fahrenheit.
 3. For insulation, remove plastic packaging shrouds. For felt rolls, slit the top of the plastic shrink-wrap only. Cover top and sides of all stored materials with tarpaulin (not polyethylene). Secure tarpaulin. Canvas tarpaulin only to be used for material protection.
 4. Rooftop storage: Disperse material to avoid concentrated loading.
 5. Do not store materials in open or in contact with ground or roof surface.
 6. Store all materials on a raised platform covered with secured canvas tarpaulin (not polyethylene), top to bottom. Cover all materials when project is not in progress and maintain the ability at all times to cover the materials when required, such as during an unanticipated rain shower.
- C. Subcontractor shall assume full responsibility for the protection and safekeeping of products stored on premises.
- D. Material handling:
1. Handle materials to avoid bending, tearing, or other damage during transportation and installation.
 2. Material handling equipment shall be selected and operated so as not to damage existing construction or applied roofing. Do not operate or locate material handling equipment in areas that will hinder smooth flow of vehicular or pedestrian traffic.

1.16 SITE CONDITIONS

- A. Field measurements and material quantities:
1. Subcontractor shall have SOLE responsibility for accuracy of all measurements, estimates of material quantities and sizes, and site conditions that will affect work.
- B. Existing conditions:
1. Building space directly under roof area covered by this specification will be utilized by on-going operations.
 2. Access to roof shall be as outlined in pre-construction meeting.
 3. Move air-conditioning units and other equipment as required to install roofing materials complete and in accordance with plans and specifications. When units and equipment are to be moved, they shall be carefully disconnected and removed to a protected area so as not to damage any part or component thereof. Reconnect units in such a way that they are restored to a prior work operating condition.

Guard against dust, dirt and odors from entering the building during HVAC equipment relocation by field fabricating temporary covers and/or seals.

4. A mechanical and/or electrical company licensed to perform such work shall perform all disconnection and re-connection. Subcontractor shall include in his price, cost for adjustments to roof drains to appropriate elevations to conform to new roof specifications. Work including new drain installation shall be performed by licensed plumbing company.
 5. All work shall be the responsibility of the roofing subcontractor unless otherwise noted. All work shall be considered that of what is necessary to complete the Scope of Work as written above.
- C. Waste Disposal:
1. Do not re-use, re-cycle or dispose of material manufacturer's product containers except in accordance with all applicable regulations. The user of manufactured products is responsible for proper use and disposal of product containers.
- D. Safety requirements:
1. All application, material handling, and associated equipment shall conform to and be operated in conformance with OSHA safety requirements.
 - a. Subcontractor shall follow WTI and Owner safety programs.
 2. Comply with federal, state, local and Owner fire and safety requirements.
 3. Notify WTI project superintendent whenever work is expected to be hazardous to Owner, employees, and/or operators.
 4. A crewman with two-way communication (i.e., radio, mobile phone) shall be maintained by the subcontractor as a floor area guard whenever tear-off work is being conducted and when roof decking is being repaired or replaced. Aisle ways shall have traffic cones and safety tape put up to warn and/or divert personnel from walking beneath areas under construction. Floor guard shall be maintained until base ply is completely installed.
 5. The subcontractor, whenever power tools, roofing kettles, fuels, solvents, torches, and open flames are being used shall maintain fire extinguishers within easy access.
 6. Roofing subcontractor is required to have an OSHA approved fall protection plan in place prior to the start of work. The roofing subcontractor shall include in his proposal all safety railing and barricades to protect his crews. The roofing subcontractor shall present a safety plan prior to the pre-construction meeting. All fall protection shall conform to state and federal regulations as outlined in OSHA CODE OF FEDERAL REGULATION 29 PART 1926.500 SUB PART M. The awarded roofing subcontractor shall submit a safety plan to WTI for submittal to the owner containing to each item listed below as it pertains to the specific project.
- E. Fall Protection: Fall protection is required whenever subcontractors are working on a surface that has an unprotected side or edge that is six (6) feet or more above a lower level. An unprotected edge is one that has a parapet wall that is less than 39 inches in height. The slope of the roof dictates which fall protection system or systems may be used.
1. Low Slope Roofs
 - a. (Slope is less than or equal to 4 in 12.) On low slope roofs, employees shall be protected from falling by guardrail systems, personal fall arrest systems, or a combination of warning line system and guardrail system, or warning

line system and personal fall arrest system, or warning line system and safety monitoring system. On roofs 50 feet or less in width, the use of a safety monitoring system alone is permitted.

2. Steep Roofs
 - a. (Slope is greater than 4 in 12.) On steep roofs, employees shall be protected from falling by guardrail systems with toe boards or personal fall arrest systems.
3. Warning Line System
 - a. When mechanical equipment (mechanical equipment meaning all motor or human-propelled, wheeled equipment used for roofing work except wheelbarrows and mop carts) is not being used, the warning line shall be erected no less than six (6) feet from the roof edge.
 - b. When mechanical equipment is being used, the warning line shall be erected not less than six (6) feet from the roof edge that is parallel to the direction of mechanical equipment operation and not less than ten (10) feet from the roof edge, perpendicular to the direction of the mechanical equipment operation.
 - c. Stanchions shall be set not further than 12 feet apart.
 - d. Warning lines shall be a height of 39 inches at the highest point and 34 inches at the lowest point, including sag. They shall be flagged at not more than six (6) foot intervals with high visibility material.
 - e. All employees working outside the warning line and within six (6) feet of the roof edge must wear a full safety harness with the "D" ring located in the rear. A six (6) foot shock-absorbing lanyard with rollout protection also must be used. This lanyard is to be located between the lifeline and the harness. In cases where work outside the warning line is to be performed, a Safety Monitoring System or an approved OSHA fall protection system may be used. (See section below)

F. Safety Monitoring System

1. A documented competent person monitors the safety of all employees on a roofing or sheet metal crew and warns them when it appears to the monitor that they are unaware of a hazard or are acting in an unsafe manner. The competent person must be on the same roof as, and within visual sighting distance of, the employees and must be close enough to verbally communicate with the employees.
2. Only used on low slope roofs that are 50 feet or less in width if no other fall prevention system is installed. Can be used on low slope roofs of any width if combined with a warning line system.
3. No mechanical equipment shall be used with this system.
4. Parapet Wall Clamp-On Guardrail System
 - a. Used on roofs where the parapet wall is less than 39 inches.
 - b. Clamp-on posts must be spaced eight (8) feet or less apart.
 - c. Top rail positions 42 inch plus or minus 3 inches high.
 - d. Mid-rail between the top rail and top of the parapet wall at 21 inches.
 - e. If a section of the railing has to be removed to perform work, lifelines, and safety harnesses with six (6) foot lanyards must be used while working in the unprotected area.

- f. If 1/4 inch steel cable is used at the top and mid-rail, the top cable must be flagged at no more than six (6) foot intervals with a highly visible material.

G. Guardrail Systems

1. Top edge of top rail shall be 42 inches plus or minus 3 inches above the working surface.
2. Mid-rails are required if there is no wall or parapet wall at least 21 inches higher. When used, mid-rails shall be installed at a height midway between the top edge of the guardrail and the working level.
3. Guardrail posts shall be at least two (2) inch by four (4) inch lumber spaced not more than eight (8) feet apart on centers.
4. The top rail shall be at least two (2) by four (4) inch lumber. The intermediate rail shall be at least one (1) inch by six (6) inch lumber.
5. Toe boards shall be a minimum of 3-1/2 inches in vertical heights.
6. When guardrail systems are used at hoisting areas, a chain, gate, or removable guardrail section shall be placed across the access opening between guardrail sections when hoisting operations are not taking place. When guardrail systems are used at holes or skylights, they shall be erected on all unprotected sides or edges of the hole.
7. When guardrail systems are used at holes or skylights, they shall be erected on all unprotected sides or edges of the hole.
8. When guardrail systems are used around holes used for ladder access, they shall be provided with a gate or be so offset that a person cannot walk directly into the hole.
9. Manila, plastic or synthetic rope used for top rails or mid-rails shall be inspected as frequently as necessary to ensure that it continues to meet OSHA strength requirements.

H. Catch Platforms

1. Catch platforms consist of ladder jack scaffolding with guardrails, mid-rails and toe boards or welded tube scaffolding with guardrails, mid-rails and toe boards.
2. Both of the above scaffolds must have platform that extend two (2) feet wide or better beyond the eave with no gap.

I. Personal Fall Arrest System

1. Only full body harnesses with either shock-absorbing lanyard or lifelines, or a combination thereof, shall be used when required. All snap hooks shall be of the locking variety.
2. Personal fall arrest systems shall be rigged such that an employee can neither free-fall more than six (6) feet or contact any lower level.
3. Self-retracting lifelines shall automatically limit free-fall distance to two feet or less.

J. Covers

1. Cover for holes in floors, roofs, and other surfaces shall be capable of supporting, without failure, at least twice the weight of employees, equipment and materials that may be imposed on the cover at any one time.
2. Covers shall be secured when installed to prevent accidental displacement by the wind, equipment or employees.
3. All covers shall be color-coded or marked with the work "HOLE" or "COVER".
4. Covers shall not be stood on, sat on nor have any materials placed upon them.

- K. Skylights
1. Skylights shall be protected by either a standard guardrail system or a cover installed in such a way as to resist twice the weight of an employee without deflecting and contacting any portion of the skylight.
 2. The roofing subcontractor shall comply with Owner safety program. All roofing subcontractor employees shall attend the safety orientation course prior to the start of work.
 3. All safety requirements must be in place prior to each day's work. The WTI project superintendent will conduct a daily safety review. Work shall not start until all safety requirements are in order.
- L. Environmental requirements:
1. Do not work in rain, snow, or in presence of water.
 2. Do not work in temperatures below 40 degrees Fahrenheit.
 3. Do not install materials marked "KEEP FROM FREEZING" when daily temperatures are scheduled to fall below 40 degrees Fahrenheit.
 4. Do not perform masonry work below 40 degrees Fahrenheit.
 5. Remove any work exposed to freezing.
 6. The roofing subcontractor will use some or all of the following methods to minimize disruptions to building occupants and operations due to odor and will be performed at no additional cost to the owner.
 - a. Divert air intake from work area by attaching scoops or temporary ductwork.
 - b. Temporarily shut down or block air intakes.
- M. Security requirements:
1. Comply with Owner security requirements.
 2. Provide Owner with current list of accredited persons.
- N. Temporary sanitary facilities:
1. The roofing subcontractor shall furnish, install, and maintain temporary sanitary facilities for employee use during project construction. The suitable location will be determined at the pre-construction meeting. Remove on project completion.
 2. Place portable toilets in conformance with applicable laws, codes, and regulations.

1.17 UNIT PRICES

- A. Refer to Proposal Form.

1.18 WARRANTIES:

- A. Refer to *Section 01700 Contract Closeout* for warranty requirements.

PART 2 – PRODUCTS - Not Used

PART 3 – EXECUTION - Not Used

END OF SECTION

SECTION 01025
MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and contract documents, including *Section 01010 SUMMARY OF WORK*, apply to this section.

1.02 SECTION INCLUDES

- A. Measurement and payment criteria applicable to portions of the Work performed under a unit price payment method.
- B. Defect assessment and non-payment for rejected Work.

1.03 RELATED SECTIONS

- A. Section 01010 Summary of Work
- B. Section 01700 Contract Closeout
- C. Section 02060 Demolition
- D. Section 07540 Thermoplastic Membrane Roofing
- E. Section 13280 Asbestos Abatement

1.04 AUTHORITY

- A. Measurement methods delineated in the individual specification sections complement the criteria of this section. In the event of conflict, the requirements of the individual specification section govern.
- B. Total project percentage of completion is based on:
 - 1. Scope of Work (Roof Replacement)
 - a. 5 Percent - Mobilization.
 - b. 20 Percent - Tear-Off and Disposal.
 - c. 50 Percent - Insulation and Membrane.
 - d. 10 Percent - Flashing.
 - e. 10 Percent - Metal Work.
 - f. 5 Percent - Demobilization and Clean-Up.

1.05 UNIT QUANTITIES SPECIFIED

- A. Quantities indicated in the Proposal Form are for proposal and contract purposes only. Quantities and measurements supplied or placed in the Work and verified by WTI.
- B. Subcontractor shall be responsible for any additional material.

1.06 MEASUREMENT OF QUANTITIES

- A. Stipulated Sum/Price Measurement: Items measured by area, linear means or combination of both, as appropriate, as a completed item or unit of the Work and as described in paragraph 1.04 Authority of this section.

1.07 PAYMENT

- A. Per instructions at pre-proposal meeting from WTI.
- B. Refer to attached Subcontractor Agreement.

1.08 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.

1.09 NON-PAYMENT FOR REJECTED PRODUCTS

- A. Payment will not be made for any of the following:
 - 1. Products wasted or disposed of in a manner that is not acceptable.
 - 2. Products determined as unacceptable before or after placement.
 - 3. Products not completely unloaded from the transporting vehicle.
 - 4. Products placed beyond the lines and levels of the required Work.
 - 5. Products remaining on hand after completion of the Work.
 - 6. Loading, hauling, and disposing of rejected products.

1.10 SCHEDULE OF UNIT PRICES

- A. Refer to Proposal Form.

1.11 TIME FOR COMPLETION

- A. Time is of the essence; subcontractor's proposed working days must accurately reflect the time required for completing the roofing project as specified therein.
 - 1. WTI and the sub-contractor understand and agree that if the work is not completed within the time completion required by the agreement and the pre-proposal documents, WTI will suffer damage. The parties agree that it will be impractical and infeasible to determine the amount of actual damages, therefore it is agreed that the sub-contractor shall pay to WTI as fixed and liquidated damages and not as penalty, the sum of \$800.00 per day for each working day over the stated document days until all work is completed and accepted. The sub-contractor and his/her

surety shall be liable for the amount thereof which shall be deducted from any payments due to or become due to the sub-contractor.

1.12 PREVAILING WAGE REQUIREMENTS

- A. Subcontractor's proposal shall include all costs associated with local prevailing wage rates and fringe benefits as defined by the City of Orange and Local Department of Labor.

PART 2 - PRODUCTS

- A. Not used

PART 3 - EXECUTION

- A. Not used

END OF SECTION

SECTION 01700
CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and contract documents, including *Section 01010 SUMMARY OF WORK*, apply to this section.

1.02 SECTION INCLUDES

- A. Closeout procedures
- B. Final cleaning
- C. Adjusting
- D. Project record documents
- E. Operation and maintenance data
- F. Warranties

1.03 RELATED SECTIONS

- A. Section 01010 Summary of Work
- B. Section 01025 Measurement and Payment
- C. Section 02060 Demolition
- D. Section 07540 Thermoplastic Membrane Roofing
- E. Section 13280 Asbestos Abatement

1.04 CLOSEOUT PROCEDURES

- A. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.05 FINAL CLEANING

- A. Execute final cleaning prior to final project assessment.
- B. Clean debris from roofs, gutters, downspouts, and drainage systems.
- C. Clean site; sweep paved areas, rake clean landscaped surfaces of all roofing related debris.

- D. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.06 ADJUSTING

- A. Adjust equipment on the roof top that has been reset and relocated.

1.07 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change orders and other modifications to the Contract.
 - 5. Reviewed shop drawings, product data, and MSDS information sheets.
 - 6. Manufacturer's instructions for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's roofing system.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.

1.08 WARRANTIES:

- A. Roofing Subcontractor's Guarantee:
 - 1. Upon project completion and Owner acceptance, effective upon complete payment the Roofing Subcontractor shall issue Weatherproofing Technologies, Inc. a guarantee against defective workmanship and materials for a period of three (3) years.
- B. Tremco Warranty:
 - 1. Upon project completion, Tremco acceptance, and once complete payment has been received by Tremco, Tremco shall deliver to Owner a Tremco Roofing System Quality Assurance Warranty for a period of Twenty (20) years.
 - 2. Roof Sections: 1 and 2.

PART 2 – PRODUCTS - Not used.

PART 3 – EXECUTION - Not used.

END OF SECTION

SECTION 02060
DEMOLITION

PART 1- GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and Contract Documents, including *Section 01010 Summary of Work*, apply to work of this section.

1.02 SECTION INCLUDES

- A. Existing conditions, demolition by removal and disposal of existing membrane to substrate, remove and dispose all flashings and counter flashings to substrate.

1.03 RELATED SECTIONS

- A. Section 01010 Summary of Work
- B. Section 01025 Measurement and Payment
- C. Section 01700 Contract Closeout
- D. Section 07540 Thermoplastic Membrane Roofing
- E. Section 13280 Asbestos Abatement

1.04 EXISTING CONDITIONS

- A. The subcontractor shall verify existing roof construction and square footage.

PART 2 – PRODUCTS

- A. Not used

PART 3 - EXECUTION

3.01 PREPARATION

- A. Protection:
 - 1. Roofing subcontractor shall be responsible for protection of property during course of work. Paved areas and building shall be protected from damage. Repair damage at no extra cost to owner.
 - 2. Provide at site prior to commencing removal of debris, a dumpster or dump truck to be located adjacent to the building.
 - 3. Limit preparation to those areas that can be covered with installed roofing material on the same day or before arrival of inclement weather.

4. Arrange work sequence to avoid use of newly constructed roofing, as well as existing roofing for storage, walking surface, and equipment movement. Protect surface with runways constructed of smooth surface plywood over one inch thick insulation board where access is absolutely required. Ensure full protection of new and existing roof surfaces against mechanical damage.
5. Construct an enclosed chute on drops 20 feet or greater from roof for removal of debris. Protect building surfaces at chute/set-up area with tarpaulin. Secure tarpaulin. Remove dumpster from premises when full and empty at approved, legal dumping or refuse area.
6. Clean, power-wash if required any stains or marring caused by demolition.

3.02 GENERAL REQUIREMENTS

- A. Demolition as follows:
 1. Demolish, remove and dispose of existing roof system to underlying decking.
 - a. Refer to *Section 13280 Asbestos Abatement*.
 2. Remove and dispose of all membrane and metal flashings to substrate.
 3. Remove and dispose of obsolete or abandoned roof top equipment (as directed by owner). Work includes disconnection and disposal of all related components.
 4. Sweep roof deck clean, dry deck if wet; replace if deteriorated.

3.03 CLEANING

- A. Clean up:
 1. Immediately upon job completion, roof membrane and flashing surfaces shall be clean of debris.
 2. Clean drains, gutters and downspouts.

END OF SECTION

SECTION 07540
THERMOPLASTIC MEMBRANE ROOFING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and contract documents, including Section 01010 Summary of Work, apply to this section.

1.02 SUMMARY

- A. This section includes the materials and application procedures for a Fully Adhered Ketone Ethylene Ester Fleeceback (KEE FB) (Fleece Back) Single-Ply Thermoplastic Roofing System.

1.03 RELATED SECTIONS INCLUDE THE FOLLOWING:

- A. Section 01010 Summary of Work
- B. Section 01025 Measurement and Payment
- C. Section 01700 Contract Closeout
- D. Section 02060 Demolition
- E. Section 13280 Asbestos Abatement

1.04 DEFINITIONS

- A. Tremply KEE Roof Membrane is a thermoplastic single ply roof membrane that is comprised of an elastomeric TremPly Ketone Ethylene Ester (KEE). Tremply KEE Roof Membrane is available in nominal 45 and 60 mil thickness; smooth and fleeceback versions and meets LEED requirements.
- B. Roofing Terminology:
 - 1. Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

1.05 PERFORMANCE REQUIREMENTS

- A. General:
 - 1. Install a watertight, single ply thermoplastic roofing system with compatible components that will not permit the passage of liquid water and will withstand wind loads, thermally induced movement, and exposure to weather.

1.06 REFERENCES

- A. ASTM - American Society for Testing and Materials, West Conshohocken, PA.
- B. NRCA - National Roofing Contractors Association, Chicago, IL
- C. UL - Underwriter's Laboratory, Northbrook, IL.
- D. TRC – Tremco CPG Inc. Research Center - Beachwood, OH

1.07 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with roofing work only when existing and forecasted weather conditions permit roofing to be installed. Single Ply Membrane Systems shall not be installed during periods of precipitation.
- B. Applications that involve known, severe exposures require a complete review by Tremco CPG Inc. before their acceptance. This includes, but is not limited to, unusual building exposure to wind, unusual roof slope, unusual roof use, unusual exposure to contaminants, openings in the structure (greater than 10% of the wall surface), which could be left open in a storm, roofs subject to positive pressure conditions and roofs greater than 45 feet in height. For roofs subject to special job conditions, contact an authorized manufacturer's agent.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Basis-of-Design Manufacturer/Product: The roof system specified in this Section is based upon products of Tremco CPG Inc. (Tremco), Beachwood, OH, (800) 562-2728, www.tremcoroofing.com. Subject to compliance with requirements, provide the named product.

2.02 SINGLE-PLY THERMOPLASTIC ROOF MEMBRANE MATERIALS

- A. TremPly KEE FB (Fleeceback) Field Membrane Sheet:
 - 1. TremPly Kee FB Sheeting
 - a. Elastomeric sheeting comprised of an elastomeric TremPly Ketone Ethylene Ester (KEE) based on Elvaloy, blended with CPE and PVC and reinforced with a high strength, wick resistant polyester fabric.
 - b. Exceeds the performance requirement of ASTM D 4434/D4434M-09, Type IV.
 - c. Surface Color: Chosen by owner from manufacturer's standard color chart.
 - d. Thickness: As specified.
 - 2. Field Membrane Adhesive:

- a. KEE FB Bonding Adhesive
 - (1) A solvent borne bonding adhesive designed specifically for adhering TremPly KEE FB membranes.
 - (2) KEE FB Bonding Adhesive is used to adhere KEE Fleeceback Membrane and flashings to approved substrates. *Not for use with Non-fleeced membranes.*

2.03 BASE FLASHING MATERIALS

A. Base Flashing Sheets:

1. TremPly KEE Elastomeric Sheeting
 - a. Elastomeric sheeting comprised of an elastomeric TremPly Ketone Ethylene Ester (KEE) based on Elvaloy, blended with Ketone Ethylene Ester flexibilizer reinforced with a high strength, wick resistant polyester fabric.
 - b. Exceeds the performance requirement of ASTM D 6754-15.
 - c. Color to match field membrane.
 - d. Thickness: As specified.
2. TREMPLY KEE Perimeter Sheet
 - a. Elastomeric sheeting comprised of an elastomeric TremPly Ketone Ethylene Ester (KEE) based on Elvaloy, blended with Ketone Ethylene Ester flexibilizer reinforced with a high strength, wick resistant polyester fabric.
 - b. Exceeds the performance requirement of ASTM D 6754-15.
 - c. Color to match field membrane.
 - d. Thickness: As specified.

B. Base Flashing Adhesive:

1. KEE LV Single Ply Bonding Adhesive
 - a. Low VOC asbestos free solvent based contact-type bonding adhesive.

C. Membrane Coated Metal Flashing:

1. TREMPLY KEE Coated Metal
 - a. Manufactured from a flexible non-reinforced TremPly KEE membrane factory laminated to hot-dipped galvanized steel. The metal consists of 24 gauge (0.023" minimum) G90 hot dipped galvanized steel, laminated on one side with a 20 mil unreinforced TREMPLY KEE Membrane.
 - (1) Color to match field membrane.
 - (2) Size: 4 by 10 feet per sheet

D. Flashing Accessories:

1. KEE Cover Strip by Tremco
 - a. 6 inch White Reinforced Flashing Membrane
2. Drain Flashing Membrane:
 - a. KEE (Non-Reinforced) Flashing Membrane by Tremco
 - (1) Thickness: Match membrane.
3. Vent Pipe Boots:
 - a. Prefabricated Flashing Boots by Tremco

- (1) Unreinforced KEE membrane
 - (2) Thickness: 60 mil
 - (3) Pipe Size:
 - (a) Small 1 inch to 4 inches
 - (b) Large 4 inches to 8 inches
 - b. Field Fabricated Boots
 - (1) KEE (Unreinforced) Flashing Membrane by Tremco
 - (2) Thickness: 60 mil.
4. Corners (inside and outside):
 - a. Prefabricated Universal Corners by Tremco
 - (1) Unreinforced KEE membrane
 - (2) Thickness: 60 mil
 - (3) Size: 3-1/2 inches (nominal) to all edges
5. T-Joint Patches:
 - a. KEE T-Joint Patches by Tremco
 - b. Thickness: 60 mil
6. Drain Sealant:
 - a. Tremco Water Block Sealant
 - (1) Gray colored, high performance, low VOC, permanently flexible gun grade Synthetic Rubber Sealant. *Use only for unexposed applications.*
 - b. Approved equal by others.

2.04 MEMBRANE FASTENERS AND PLATES

- A. All screw type fasteners shall be a minimum #15 shank diameter for membrane securement. Hex head fasteners are not permitted for insulation or membrane securement. Membrane fastener shall include a TremPly KEE Plus Stress Plate.
- B. Membrane to Concrete Decks:
 1. Olympic HD or CD-10 fastener and XHD membrane plate
 2. Deckfast #15 HS fastener and 2-1/2 inch HS membrane plate
 3. ITW Buildex #15 Roofgrip fastener and 2-3/8 inch barbed seam plate
- C. Membrane to Steel and Wood Decks:
 1. Tremco #1510 XHD, Extra Heavy Duty Fasteners and XHD membrane plate.
 2. Olympic XHD Fastening System with XHD membrane plate.
 3. Tru-Fast EHD fastener and 2.4 inch barbed seam plate.

2.05 ACCESSORY MATERIALS

- A. Metal cleaner:
 1. Mineral spirits
- B. Membrane cleaner:
 1. Acetone by others.

- C. Termination bar:
 - 1. Aluminum, with caulk receiver:
 - a. 1/4 by 1 inch
 - 2. Primer:
 - a. TremPrime Non-Porous Primer
 - 3. Caulking:
 - a. TremSEAL Pro
 - 4. Compressible tape:
 - a. TremFlash (TF) Tape
- D. Temporary Tie-in Materials.
 - 1. Three ply application of Sheeting Bond and BURmesh
 - 2. Foam Pack by others.
- E. Pitch Pan Fill:
 - 1. Base fill:
 - a. ASTM C928-92a, rapid hardening non-shrink grout.
 - 2. Top fill:
 - a. TremSEAL Pitch Pocket Sealer
 - (1) Two component (1:1 ratio), solvent free, low odor urethane sealant.
 - b. Pourable Sealer by others:
 - (1) Two-part polyurethane, two-color for reliable mixing.
- F. Air Seal:
 - 1. Backer Rod by others:
 - a. Joint backing rod, closed cell polyethylene, non-bleeding neoprene, or butyl.
 - 2. Foam Pack by others.

2.06 WALKWAY

- A. Walkway Roll
 - 1. TremPly KEE Walkway is manufactured from a UV stable, proprietary KEE modified vinyl and designed to improve rooftop safety, especially when the surface is wet. KEE Walkway is asbestos free.
 - 2. Roll Size: 30 inches by 50 feet by 5/32 inch thick.
 - 3. Color: Light Yellow

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas, and conditions under which roofing will be applied, with installer present, for compliance with requirements.
- B. Verify that roof openings and penetrations are set in place and braced.

- C. Verify that roof drains are properly clamped into position.
- D. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at roof penetrations and terminations and match the thickness of insulation required.

3.02 PREPARATION

- A. Clean substrate of dust, debris, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

3.03 JOB CONDITIONS

- A. Prior to the use of any roofing material, consult Material Safety Data Sheets for applicable cautions and warnings.
 - 1. Do not use oil or bituminous base roof cement with thermoplastic materials.
 - 2. Do not install membrane directly in contact with new or resaturated asphalt.
 - 3. Do not expose membrane or accessories to temperatures of 180 degrees Fahrenheit or above.
 - 4. Do not allow waste products (petroleum grease, oil or solvents, etc.) or direct steam venting to come in contact with the roofing system. Any exposures not typical for normal roofing installation must be presented to manufacturer for assessment of any impact on the performance of the roofing system.
 - 5. Do not install membrane directly in contact with coal tar roof surfaces.
 - a. Install polyethylene vapor retarder ply (minimum 10 mil) under new insulation layer when thermoplastic membrane system is installed over existing coal tar roofs.
 - 6. Ponding conditions will adversely affect performance of the roofing system.
 - a. Where positive drainage does not exist, water removal from roof surface should be facilitated by lowering drains, and/or installing additional drains, tapered insulation, or an approved lightweight insulating concrete slope system.

3.04 GENERAL INSTALLATION REQUIREMENTS

- A. Install thermoplastic roofing membrane system according to roofing system manufacturer's written instructions and applicable recommendations of ARMA/NRCA's "Quality Control Guidelines for the Application of Thermoplastic Roofing".
- B. Install roofing system per manufacturer's published specifications manual.

- C. Coordinate installation of roofing system components so insulation and roofing plies are not exposed to precipitation or remain exposed at the end of the workday or when rain is forecast.
- D. Provide water cutoffs at end of each day's work to cover exposed ply sheets and insulation. Water tightness of the water cutoffs is the subcontractor's responsibility.
- E. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
- F. Remove and discard temporary seals before beginning work on adjoining roofing.
- G. Substrate-Joint Penetrations: Prevent adhesive from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.
- H. It is the building owner's responsibility or that of its architect, engineer, or subcontractor to determine if the Building Code criteria are met for the particular geographic area where the building is located or the particular construction of the building.

3.05 INSULATION INSTALLATION

- A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with roofing system manufacturer's written instructions for installing roofing insulation.
- C. Refer to *Section 01010 Summary of Work* for detailed requirements.

3.06 HOT AIR WELDING EQUIPMENT

- A. Seams can only be made by the hot-air welding process. When the membrane is properly fused, the hot-air heat welding process produces seams that are as strong as the membrane itself. The following information is presented as a guide to assist subcontractors in utilizing hot-air heat welding equipment. Prior to actual selection and operation of the hot-air heat welding equipment, refer to the manufacturer's operating instructions. The operation of hot-air heat welding equipment, and the results obtained utilizing this equipment, are the responsibility of the roofing subcontractor.
 - 1. Leister Variant Automatic Welder
 - a. Power Requirements: 220 volts, 30 amp, and 7500 watts single phase.
 - b. Power cord and plugs: #10 wire with 3-prong twist plug. #10 wire may be used up to 150 feet in length. For longer lengths, consult an electrician for line voltage drop.
 - c. Element: 4500 Watts
 - d. Adjustment Tools: Adjustable wrench, various metric box wrenched, various metric Allen wrenches, screwdrivers, 40mm nozzle only.

- e. Additional Weight: A 45lb. Supplemental weight is required for the automatic welder. It shall rest on the aluminum housing over the rear wheels when the welder is being used.
2. Leister "Triac" Hand Welder
 - a. Power requirements: 115 volts, 15 amps, and 1800 watts single phase.
 - b. Power cord #12. Check with electrician for line voltage drop for length over 200'.
 - c. Element: 1600 Watt
 - d. Accessories: 40mm nozzle, various silicone and metal rollers.
3. Power Generators
 - a. If a power generator is used only for the automatic welder, a minimum of 220 volts, 30 amps and 7500-watts unit is required. If additional items are used such as hand welder, screw guns or other equipment, increased generator capacity is required. A minimum 220 volt, 30 amp and 1000 watts generator is recommended.

3.07 ADHERED ROOF MEMBRANE INSTALLATION

- A. Install membrane according to roofing system manufacturer's written instructions, starting at low point of roofing system. Place ply sheets to ensure water will flow over or parallel to, but never against exposed edges. Shingle in direction to shed water.
 1. Install sheet according to ASTM D 6754.
 2. Provide air seal where required at perimeter, curbs and penetration flashings.
 3. Membrane shall be fully adhered to properly installed and prepared substrate surface.
 - a. Clean roof and wall surfaces of dust, debris, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
 4. Plan the placement of Roof Membrane to facilitate the fabrication of the least number of seams. Ensure that water flows over or along, but not against, the exposed edges.
 5. Mechanically attach field sheets at roof perimeter and penetrations. Fasteners shall include specified barbed metal plates. Fasteners shall be placed at 12 inches on center and 1-1/8 inch from sheet edge in a true and straight.
 - a. The roof perimeters and corners may require additional design to develop the necessary resistance for local wind conditions. Contact manufacturer for additional information if the building is located where winds may exceed standard warranty conditions or special code provisions are required.
 6. The membrane shall be cut to fit neatly around all penetrations and roof projections.
 7. The roofing membrane shall be unrolled and positioned with a minimum 3-inch overlap. Laps shall be shingled with, or run parallel to, the slope of the roof.

- B. Install specified field membrane sheets.**
- 1. General:**
 - a. Install field sheets using specified adhesive.
 - b. Surfaces to receive adhesive must be clean, dry, and free from oil, grease, or other contaminants.
 - 2. Field Sheet Application:**
 - a. Plan placement of field membrane to ensure water will flow over or along, but not against membrane laps and side laps.
 - b. Begin membrane installation at low point of deck. Allow sheet to overhang roof edge a minimum of 1-1/2 inches below lower edge of wood nailer.
 - c. Position sheeting in a manner, which provides sufficient material to facilitate flashing. The roofing membrane shall be unrolled and positioned square with the roof edge. Laps shall be shingled with, or run parallel to, the slope of the roof.
 - d. Overlap side laps 3 inches and abut end laps.
 - (1) Gap width between membrane sheets shall not exceed 1/8 inch.
 - (2) Install 6-inch wide cover strip membrane centered over end lap. Cut cover strip corners round. Heat-weld cover strip over end lap.
 - (3) Minimum width of welded lap shall be 1-1/2 inches.
 - (4) Reposition sheet when necessary. Do not stretch material unevenly.
 - e. Install succeeding rolls in same manner. Avoid wrinkles. Reposition sheet when necessary. Do not stretch material unevenly.
 - f. Fold sheet back so one-half (1/2) of the underside of the sheet is exposed. Ensure the sheet fold is smooth with no wrinkles or buckles.
 - g. Apply bonding adhesive in full coverage to the substrate only.
 - (1) The adhesive shall be applied to substrate at a minimum rate of 1-gallon per every 100 to 120 square feet (PP Endure Bio rate is: 1 gallon per 50 square feet). The adhesive shall be applied in a smooth even coating with no globs, puddles, voids or similar irregularities. Coverage will vary based on substrate porosity. Only areas that can be completely covered in the same day shall be coated with adhesive.
 - (2) Apply adhesive to the substrate. Install membrane immediately into adhesive avoiding any air entrapment. Do not wait for adhesive to dry. Membrane must be rolled into wet adhesive. If the surface dries, re-apply bonding adhesive.
 - (3) Bonding adhesive shall not be applied to lap (seam) areas that are to be welded to flashings or adjacent membrane sheets by means of hot air welding procedures. If contamination occurs, remove any contaminants prior to hot air welding seams.
 - h. Apply adjoining sheets in same manner, lapping edges a minimum of 3 inches.
 - i. Mechanically attach membrane sheets to roof decking at roof perimeters and penetrations using #15 heavy duty fasteners and 2 3/8 inch diameter barbed metal plates. Fasteners shall be spaced a minimum of 12 inches on center with disc centered 1-1/8" from the sheet edge.

- (1) Field membrane sheets may be mechanically attached at vertical walls using a metal termination bar.
 - (2) Run field membrane a minimum of 1-1/2 inches onto the vertical wall substrate and secure sheet to wall using a metal termination bar and appropriate fastener placed a minimum of 12 inches on center. Trim excess membrane from top of termination bar prior to flashing application.
 - (3) Wood blocking installation may be omitted at wall junctions when fielded membrane is attached to wall.
- j. Minimize foot traffic on freshly applied membrane until adhesive is fully cured.
- C. Perimeter/Projection Attachment:
1. Mechanically attach roofing membrane at roof perimeters, curbs, and pipe/stack penetrations greater than 12 inches in diameter, on both sides of expansion joints and other areas where the membrane must be anchored to prevent movement, stress or damage to the roofing membrane.
 2. Provide mechanical attachment at deck angle changes in excess of a 2 inch rise per 12 inch run (including drain sump areas).
 3. Follow the recommendations of Factory Mutual Loss Prevention Data Sheets 1-28, 1- 49 and 1-29.
- D. Roof Drain Detail:
1. Prepare substrate around each roof drain to prevent membrane bridging or distortion and to provide a smooth transition from the roof surface to the drain clamping ring.
 2. Remove existing flashing and bituminous materials from drain components down to bare clean metal.
 3. Install minimum 1/2 inch bead of drain sealant over entire drain bowl rim (approximately 1/2 tube per drain).
 4. Install 2-piece drain flashing detail.
 - a. Terminate field membrane along outside edge of sump. Install target patch consisting of unreinforced KEE flashing membrane over drain sump and past drain bowl rim. Extend flashing a minimum of 3 inches outside of the sump area and heat weld to field sheet.
 5. Clamp flashing collar to drain. Fully compress drain sealant between the new membrane and the drain bowl rim forming a solid seal between the two. Evenly compress the assembly to avoid cracking or breaking the clamping ring. Replace cracked or broken drain clamping rings.
 - a. All bolts and/or clamps must be in place in order to provide constant, even compression. Missing drain bolts and clamps shall be replaced.
 6. Neatly cut membrane within drain at rim. Membrane to extend 1 inch into bowl.
 7. For working drains, remove drain plug upon completion of work each day.
 8. Plug new drains to prevent water entry until service connection is completed.

- E. Membrane Seaming:
1. Clean seam areas, overlap roofing membrane, and hot-air weld side and end laps of roofing membrane according to manufacturer's written instructions to ensure a watertight seam installation.
 2. All surfaces shall be clean and dry. Ensure both mating surfaces are free of debris and no moisture is present on the splicing surfaces.
 - a. Using a clean rag saturated with appropriate cleaner, thoroughly clean seam area at least 4 inches wide on both sheets. Change rags frequently to avoid depositing previously removed materials.
 3. Using an approved automatic heat welding machine or hand held heat gun and steel roller, weld a continuous seam. Minimum width of welded lap shall be 1-1/2 inch when using an automatic welder. Hand welds shall be a minimum of 2-inches wide. Only approved Automatic Walker Welders shall be used to weld seams (see Hot Air Welder Equipment).
 4. Special attention must be paid to areas where multiple layers of membrane (3 or more) come together (T-joints).
 - a. If probing these areas reveals the presence of voids or cold welds on 45 mil membrane, install a 4 inch round field cut flashing membrane (unreinforced) to the formed T-joint.
 5. Allow hot air welder to warm up. Insert the nozzle tip of the hot air welder into seam area. Move nozzle at a steady speed along the seam area, immediately applying pressure behind the air nozzle with a neoprene roller or weighted wheel to ensure positive contact of the heated roof membrane lap.
 6. Test lap edges with probe to verify seam weld continuity.
 - a. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
 - b. All welded seams must be manually checked for voids or seal deficiencies by probing the entire seam area with a dull cotter key extractor after the seam has cooled. Properly constructed laps will not separate at the lap interface when tested. In addition, there must be destructive testing performed at the beginning of every workday and every time there is an interruption in the welding process (i.e. Power failure, welder shut down and job site conditions change). All deficiencies must be repaired.
 - c. Repair tears, voids, and lapped seams in roofing membrane that does not meet requirements.

3.08 GENERAL FLASHING REQUIREMENTS AND STRIPPING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.
- B. All flashings shall be installed as shown on the detail drawings. All membrane flashings shall be installed concurrently with the roof membrane as the project progresses. No temporary flashings shall be allowed without prior written approval of the authorized manufacturer's agent. If any water is allowed to enter under the new roofing due to

incomplete flashings, the affected area shall be removed and replaced at subcontractor's expense.

- C. Flashings shall not be applied over existing thru-wall flashings or weep holes. All flashings shall extend a minimum of 8-inches above roof level unless previously accepted by Owner's representative and an authorized manufacturer's agent. All existing flashings shall be removed before applying a new flashing. Install flashings in a neat and uniform manner with a "rounding" of all exposed corners. Care should be taken to ensure that the flashing does not bridge where there is a change of direction.
- D. Flash all pipes with Pre-fabricated Flashing Boots where possible. Field fabricate pipe flashings with unreinforced flashing membrane per manufacturer's standard roofing systems details when a pre-molded flashing is not feasible.
- E. Fabricate all metal flanged flashings using Membrane Coated Metal. Hot air weld a 6-inch wide cover strip to flashing membrane and coated metal flange.
- F. Mix adhesive vigorously by hand to achieve a homogeneous blend. DO NOT use electrical equipment or open flame near adhesive. Do not thin adhesive with solvents.
- G. Flashing Membrane Application:
 - 1. Install membrane flashing details per manufacturer's written specifications, recommendations, and details drawings.
 - 2. Apply specified bonding adhesive in full coverage to both the substrate and to the back side of the flashing membrane.
 - 3. The base flashing membrane shall be fully adhered to a dry, smooth solvent-resistant and compatible substrate using approved bonding adhesive.
 - 4. When the membrane has been cut to correct width and length, embed the flashing into the substrate adhesive, taking care to avoid wrinkles.
 - 5. Position membrane in intended location and fold back.
 - 6. Apply specified bonding adhesive in full coverage to both the substrate and the back side of the membrane using approved solvent-resistant roller or power roller equipment.
 - a. The adhesive shall be applied at a rate of 1-gallon per every 50 square feet. The adhesive shall be applied in a smooth even coating with no globs, puddles, voids or similar irregularities. Coverage will vary based on substrate porosity.
 - b. Allow adhesive to dry to a tacky feel when touched with the back side of a dry finger (approximately 5 - 10 minutes) before bonding membrane to substrate. Drying time of the adhesive increases with the presence of higher humidity or cooler temperatures.
 - c. Do not allow adhesive to fully dry prior to placing membranes. If the surface dries to the point that it no longer feels tacky, re-apply bonding adhesive and allow to flash off to the proper drying condition.

7. Mate the membrane to the substrate avoiding any air entrapment, and apply pressure by means of roller to ensure complete bonding.
8. Bonding adhesive shall not be applied to lap (seam) areas that are to be welded to flashings or adjacent membrane sheets by means of hot air welding procedures. If contamination occurs, remove any contaminates prior to hot air welding seams.
9. Care should be taken to ensure that the flashing does not bridge where there is a change of direction.
10. Apply consistent pressure to entire surface of membrane using a steel hand roller to achieve full adhesion of the sheet to the flashing substrate. Ensure complete bond and continuity without wrinkles or voids.
11. Clean seam areas and weld side and end laps to ensure a watertight seam installation.
12. The top of the installed flashing shall be fastened under metal counterflashing, coping cap, or through wall metal reglet. The maximum distance between fasteners shall be 8 inches through flat bar or 12 inches through metal reglet. Install specified sealant between masonry walls and top edge of flashing membrane prior to fastening.
13. Install prefabricated universal corners for sealing all inside and outside corners.

3.09 WALKWAY PAD APPLICATION

- A. Install walkway pads as specified.
- B. Install new pressure treated wood sleepers with walk pads at existing wood sleeper and conduit/pipe locations. Sleepers to be sized to support conduit /pipe/equipment. Secure and flash existing pipe supports per manufacturer's details, standards and as directed by WTI's project superintendent.
- C. Heat weld walkway pad to field membrane.
 1. Clean, smooth membrane ply surface with soap and water. Allow drying. All surfaces must be clean and dry prior to walkway application.
 2. For heat welding, allow the hot air welder to warm up. Insert the nozzle tip of the hot air welder to the attachment area. Move nozzle at a steady speed, immediately applying pressure behind the air nozzle with a neoprene roller or weighted wheel to ensure positive contact of the heated Walkway Roll to the roof membrane.
 - a. Minimum width of welded lap shall be 2.0 inches and 6.0 inches long when performing hand welds.
 - b. Spot weld Walkway Roll to roof membrane. Attachment of walkway roll should not impede drainage.
 3. Field test heat welded laps to assure proper construction.
 4. Perform field test after lap area cools to ambient temperatures. Properly constructed heat welds will not separate at the lap interface when tested.

3.10 DAILY WATERSTOP/TIE-INS

- A. Install tie-in.
1. Remove embedded gravel/debris from top ply of felt along termination.
 - a. Width: 24 inches
 2. Remove dirt and debris from tie-in area.
 - a. Width: 24 inches
 3. Adhere 12 and 18-inch wide ply sheets from exposed deck to existing roofing with a continuous 1/16 thick application of tie-off mastic. Glaze cut-off with surfacing mastic. Extend 18 inch wide felt 3 inches either side 12-inch felt.
 4. Install "deadman" insulation filler at insulation staggers.
 5. Extend new roofing membrane at least 24 inches onto prepared area of adjacent existing roofing. Seal edge with 6 inches wide reinforcing membrane embedded between alternate courses of tie-off mastic.
 6. Remove temporary connection at beginning of next workday by cutting membrane evenly along edge of existing roof system. Remove "deadman" insulation fillers.
- B. Alternate Tie-in:
1. Remove embedded gravel/debris from top ply of felt along termination.
 - a. Width: 24 inches
 2. Remove dirt and debris from tie-in area.
 - a. Width: 24 inches
 3. Adhere 12 and 18-inch wide ply sheets from exposed deck to existing roofing with a continuous 1/16 thick application of tie-off mastic. Glaze cut-off with surfacing mastic. Extend 18-inch wide felt 3 inches either side 12-inch felt.
 4. Install "deadman" insulation filler at insulation staggers.
 5. Extend new roofing membrane at least 24 inches onto prepared area of adjacent existing roofing.
 6. Attach membrane ply lap over underlying membrane with adhesive and/or membrane fasteners and seam plates.
 7. Apply spray foam over leading edge of tie-in ply lap and exposed membrane fasteners and seam plates.
 8. Remove temporary connection at beginning of next workday by cutting membrane evenly along edge of existing roof system. Remove "deadman" insulation fillers.

3.11 FIELD QUALITY CONTROL

- A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.

3.12 PROTECTING AND CLEANING

- A. Protect roofing membrane from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to WTI project superintendent.

- B. Prior to performing work on a completed roof area that may cause damage the new roof, the roofing membrane and flashing shall be protected from physical damage. Proper and adequate protection includes installing a slip-sheet in the work area overlaid with plywood or OSB Board in order to dissipate the effects of traffic on the finished roof surface and to prevent impact damage to the system caused by dropped tools and or equipment. If damage does occur to the roof system it must be immediately repaired in order to preserve the integrity of the roof insulation.
- C. Correct deficiencies in or remove roofing that does not comply with requirements, repair substrates, reinstall roofing, and repair base flashings to a condition free of damage and deterioration at the time of Substantial Completion and according to warranty requirements.
- D. Clean over spray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.
- E. Subcontractor shall be responsible for vehicles and other property that is contaminated by cold adhesive over spray or drippage.

3.13 FINAL CLEANING

- A. Remove all project related heavy debris and clear drains and scuppers. Ensure that drains and downspouts are clear.
- B. Using a 2,500 PSI power washer, with or without a rotating head, wash areas to loosen and remove dirt from the surface of the membrane.
- C. If dirt still resides on the surface of the roof, use a mild, biodegradable detergent and scrub pads to further loosen the dirt and lift it from the membrane surface. Ensure that the detergent used complies with local codes and that, if run-off is prohibited, that the water is captured and properly disposed of.
- D. If detergent is used, rinse the surface of the roof to remove residual detergent. Ensure that all runoff has been captured if necessary in your area.
- E. For areas that may still have residual and hard to remove contaminants on the surface, wipe areas with acetone and WHITE RAGS ONLY, then rinse.

END OF SECTION

SECTION 13280
ASBESTOS ABATEMENT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and contract documents, including Section 01010 SUMMARY OF WORK, apply to this section.

1.02 SECTION INCLUDES

- A. Asbestos containing roof material notification, removal and disposal requirements.

1.03 RELATED SECTIONS

- A. Section 01010 Summary of Work
- B. Section 01025 Measurement and Payment
- C. Section 01700 Contract Closeout
- D. Section 02060 Demolition
- E. Section 07540 Thermoplastic Membrane Roofing

1.04 QUALITY ASSURANCE

- A. The following are requirements throughout this project:
 - 1. Subcontractor shall be licensed by the State. Subcontractor and/or asbestos abatement subcontractor shall be certified as an Asbestos Hazard Abatement Subcontractor whenever friable asbestos is encountered or OSHA action limits are exceeded. Owner and Subcontractor agree to exonerate, indemnify, defend and hold harmless roofing material manufacturer and Weatherproofing Technologies, Inc., from and against all claims, demands, lawsuits, damages, expenses and losses incurred by Subcontractor's removal of asbestos-containing materials from Owner's building and work site. Subcontractor must conduct its operation according to applicable requirements including but not limited to those established by:
 - a. Occupational Safety and Health Administration (OSHA)
 - b. Environmental Protection Agency (EPA)
 - c. Department of Transportation (DOT)
 - d. State or Local Air Pollution Control Authorities/Agencies
 - e. State or Local Solid Waste or Hazardous Waste
 - f. State or Local Health Department(s)
 - g. State or Local Building Code Authorities

- C. Contract with a recognized and qualified testing laboratory for independent air monitoring by certified technician as required by federal, state or local requirements.
- D. Workers engaged in tear-off activities shall wear protective clothing and respirators approved for asbestos removal per federal, state, local requirements.
- E. Roofing subcontractor shall take materials removed from the roof to a dump site approved for the disposal of the type of material involved. Complete landfill receipts shall be provided to WTI superintendent for all disposals of materials containing asbestos.

3.02 REPLACEMENT AND DISPOSAL

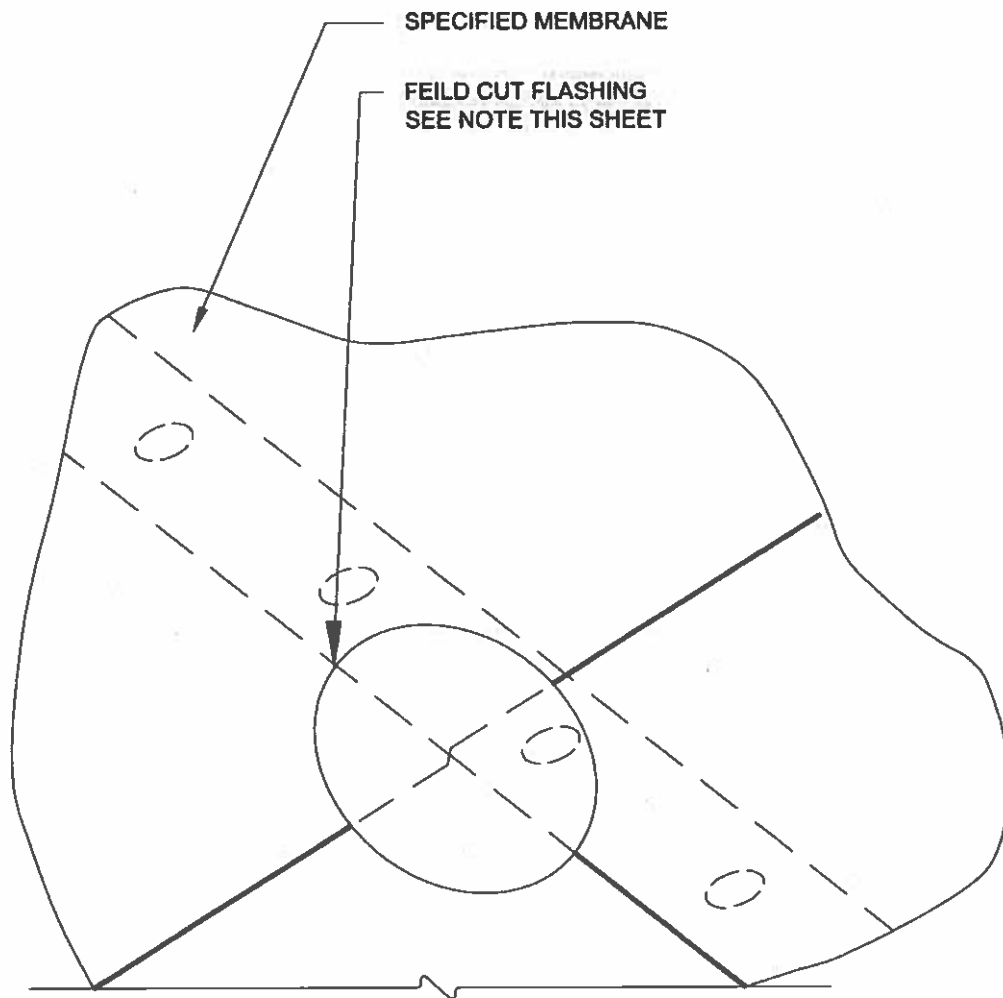
- A. Removal and Disposal of Asbestos Containing Material and Health Hazardous Material:
 - 1. Should the Work included under this Contract include the removal of asbestos containing substances, the roofing subcontractor is responsible for the satisfactory removal and disposal of the materials in an approved manner in accordance with all Federal, State and local codes, laws and regulations as amended.
- B. Landfill Records:
 - 1. Submit evidence of receipt and acceptance of hazardous wastes, such as asbestos-containing material, by a landfill facility licensed to accept hazardous wastes.

END OF SECTION

STANDARD DETAIL DRAWINGS

THE FOLLOWING DETAIL DRAWINGS ARE TO SHOW INTENT AND MAY BE MODIFIED TO FIT FIELD CONDITIONS AND PROJECT SPECIFICATIONS.

SUBMIT REVISED DETAIL(S) FOR APPROVAL PRIOR TO INSTALLATION.



SPECIFIED MEMBRANE

FEILD CUT FLASHING
SEE NOTE THIS SHEET

NOTE:
HEAT-WELD A 4" ROUND FIELD CUT FLASHING MEMBRANE (UNREINFORCED).
CENTER THE FLASHING OVER EACH T-JOINT ON A 60-MIL THICK OR GREATER MEMBRANE (AS SHOWN).

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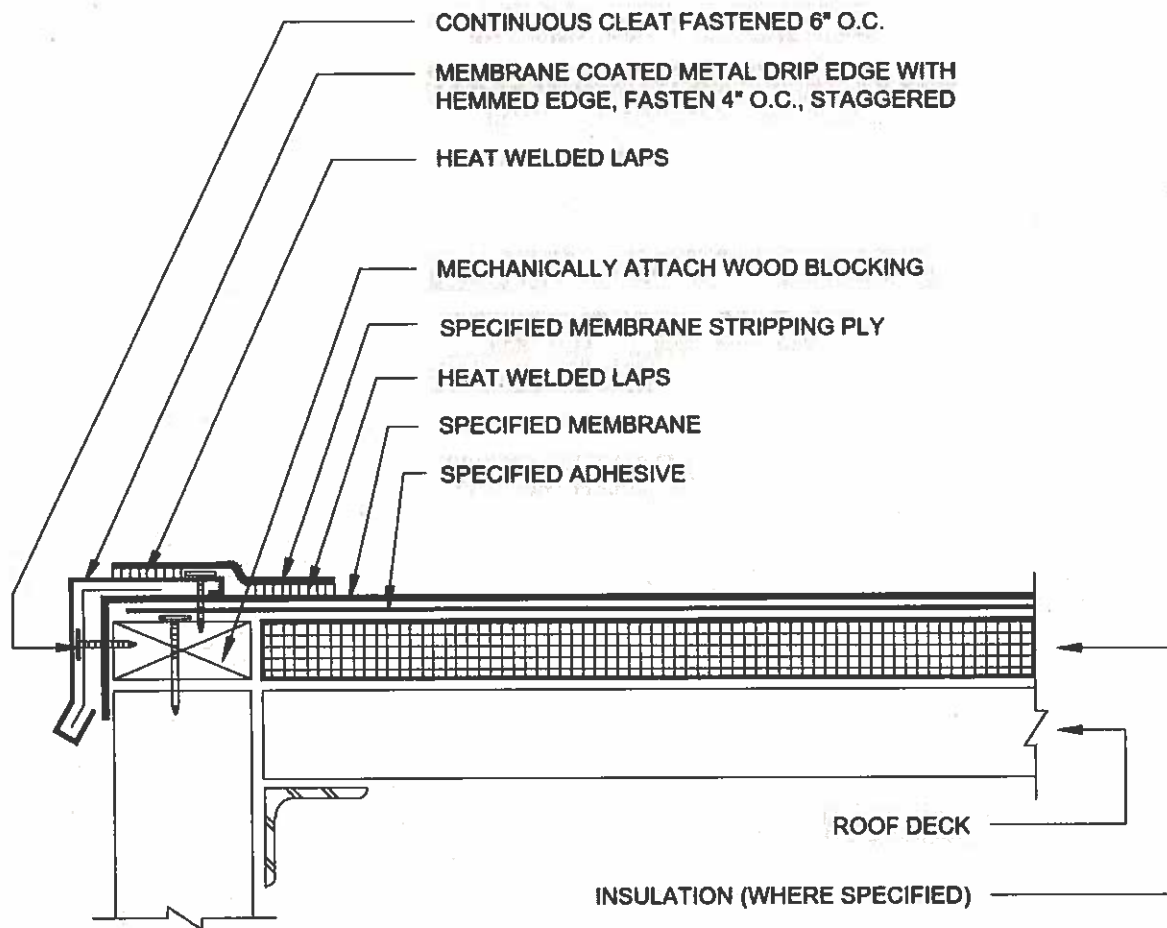
SHEET TITLE:

T-JOINT DETAIL

SCALE: NTS

DRAWING No.:

1



NOTES:

- 1) MAX. FACE DIMENSION SHOULD BE 5" TO PREVENT DISTORTION FROM "OIL CANNING." IF SURFACE DISTORTION IS ACCEPTABLE, FACE DIMENSION MAY BE INCREASED TO 8".
- 2) FOR FASCIAS GREATER THAN 8" INSTALL IN TWO SECTIONS.

TREMCO®

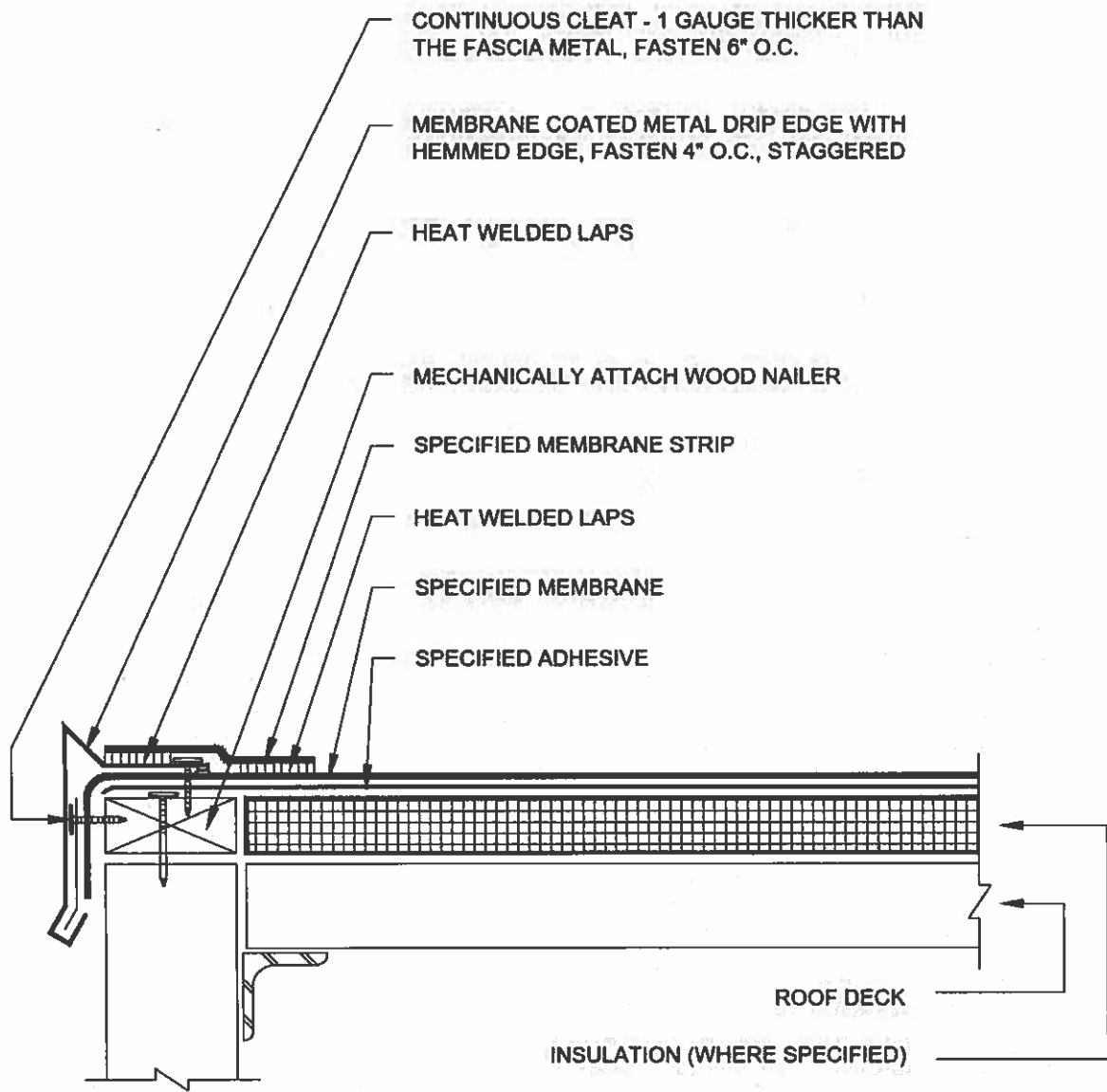
SHEET TITLE:

MEMBRANE COATED
METAL ROOF EDGE DETAIL

SCALE: NTS

DRAWING No.:

2

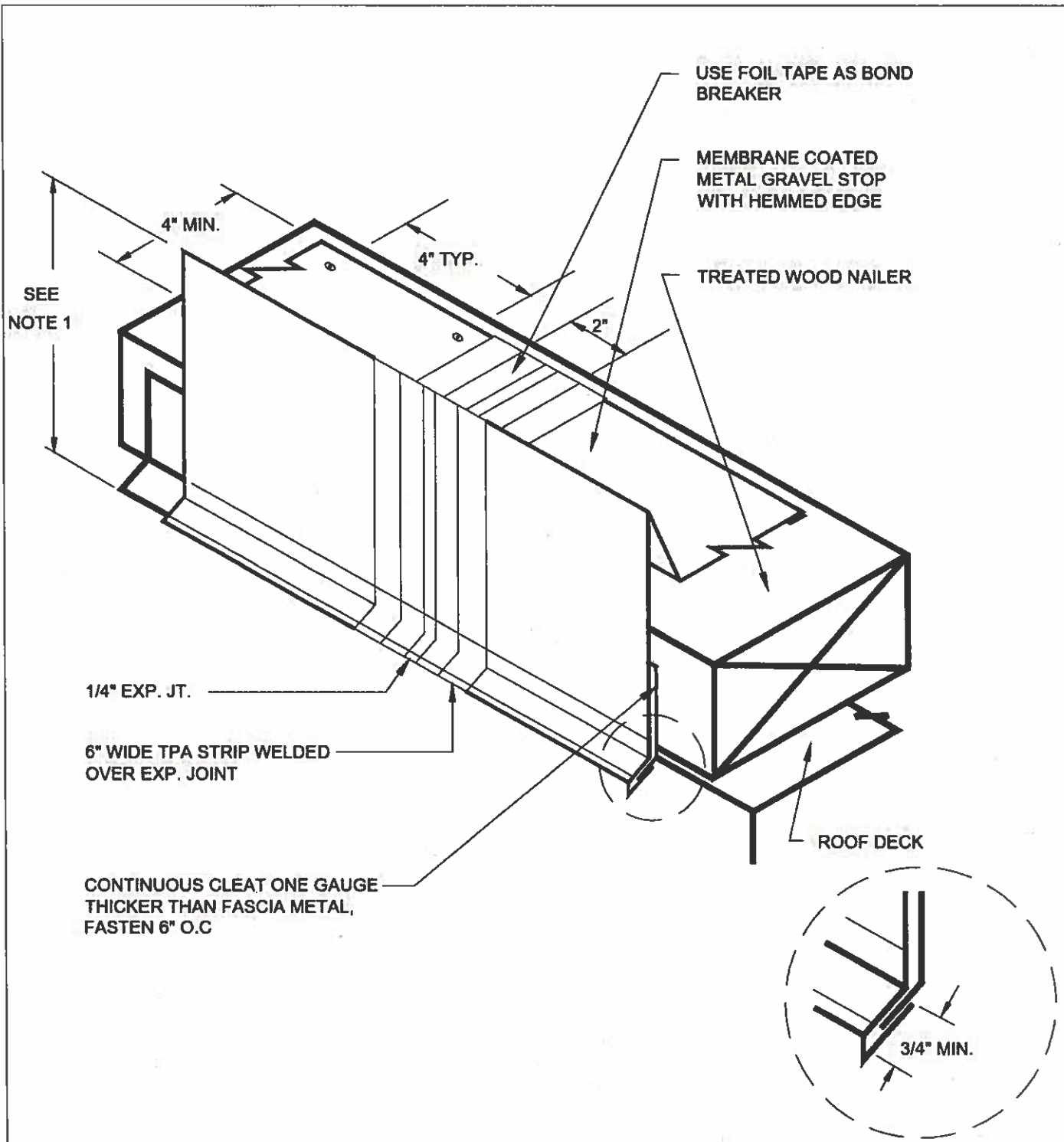


TREMCO[®]

SHEET TITLE:
**MEMBRANE COATED
 METAL GRAVEL STOP EDGE**

SCALE: **NTS**

DRAWING No.:
3



SEE NOTE 1

1/4" EXP. JT.

6" WIDE TPA STRIP WELDED OVER EXP. JOINT

CONTINUOUS CLEAT ONE GAUGE THICKER THAN FASCIA METAL, FASTEN 6" O.C

USE FOIL TAPE AS BOND BREAKER

MEMBRANE COATED METAL GRAVEL STOP WITH HEMMED EDGE

TREATED WOOD NAILER

ROOF DECK

3/4" MIN.

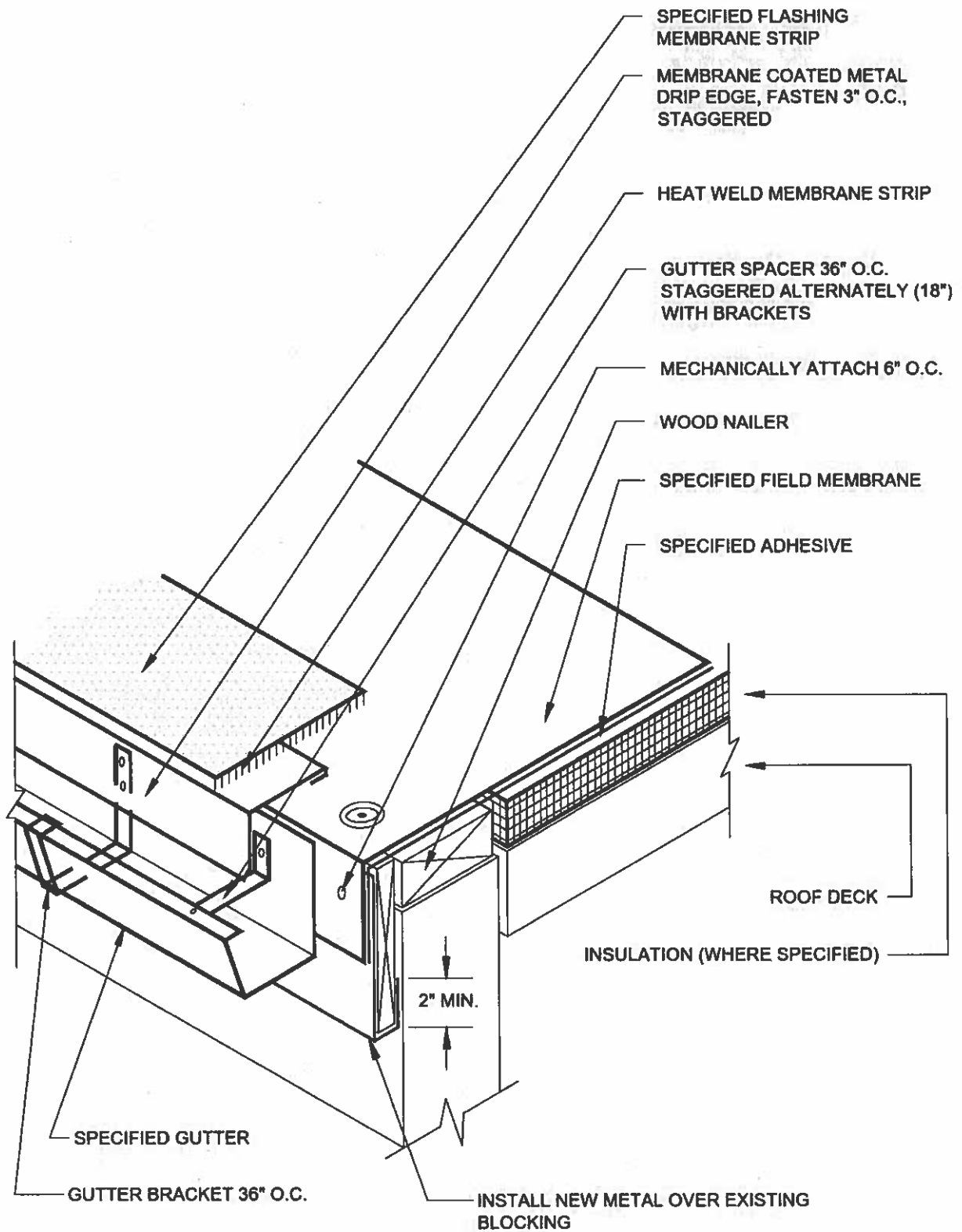
NOTES:

- 1) MAX FACE DIMENSION SHOULD BE 5" TO PREVENT DISTORTION FROM "OIL CANNING." IF SURFACE DISTORTION IS ACCEPTABLE, FACE DIMENSION MAY BE INCREASED TO 8".
- 2) FOR FASCIAS GREATER THAN 8" INSTALL IN TWO SECTIONS.



SHEET TITLE:
MEMBRANE COATED METAL GRAVEL STOP

SCALE: NTS
 DRAWING No.: 4

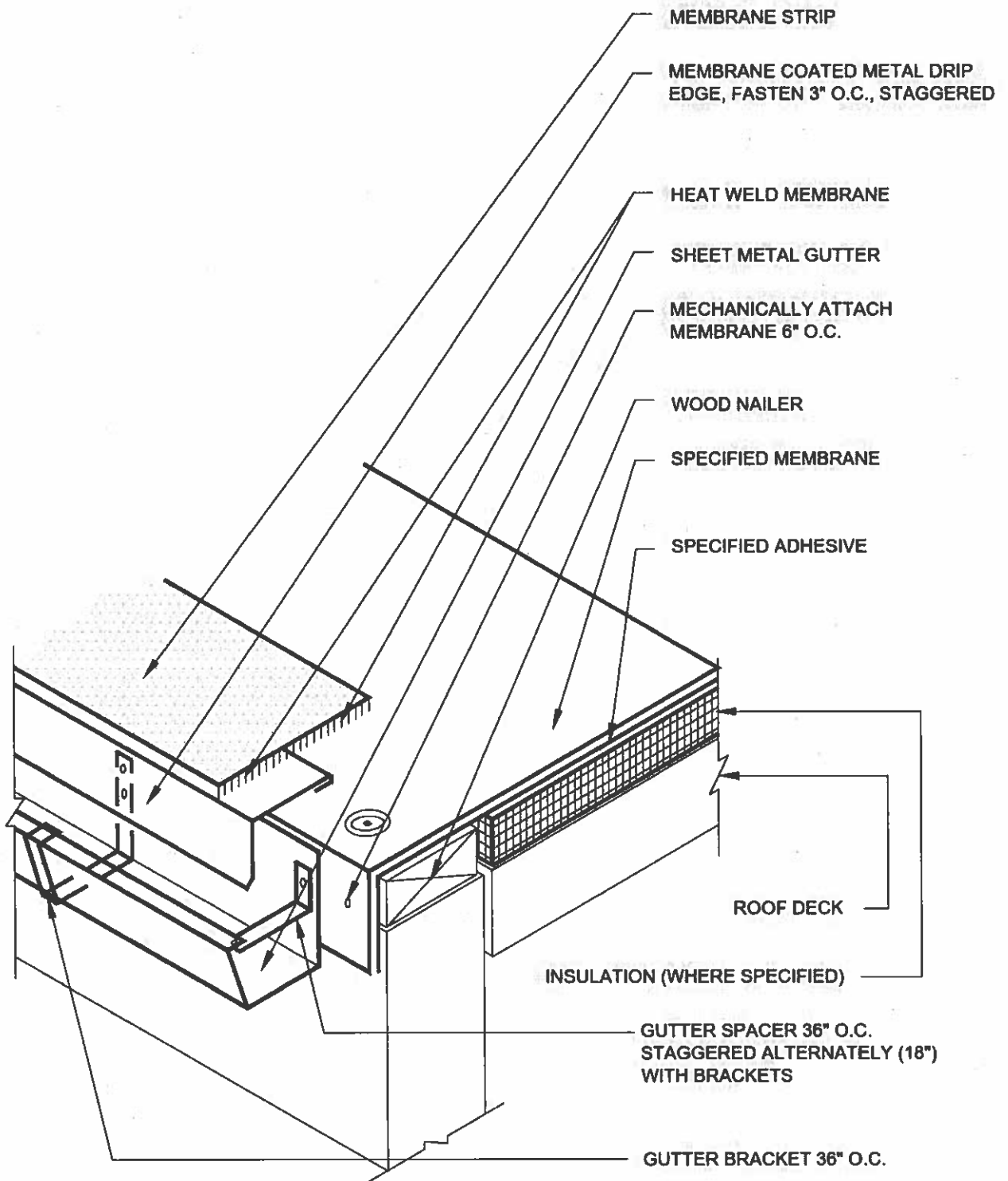


TREMCO®

SHEET TITLE:
ROOF EDGE WITH GUTTER

SCALE NTS

DRAWING No.:
 5A



TREMCO®

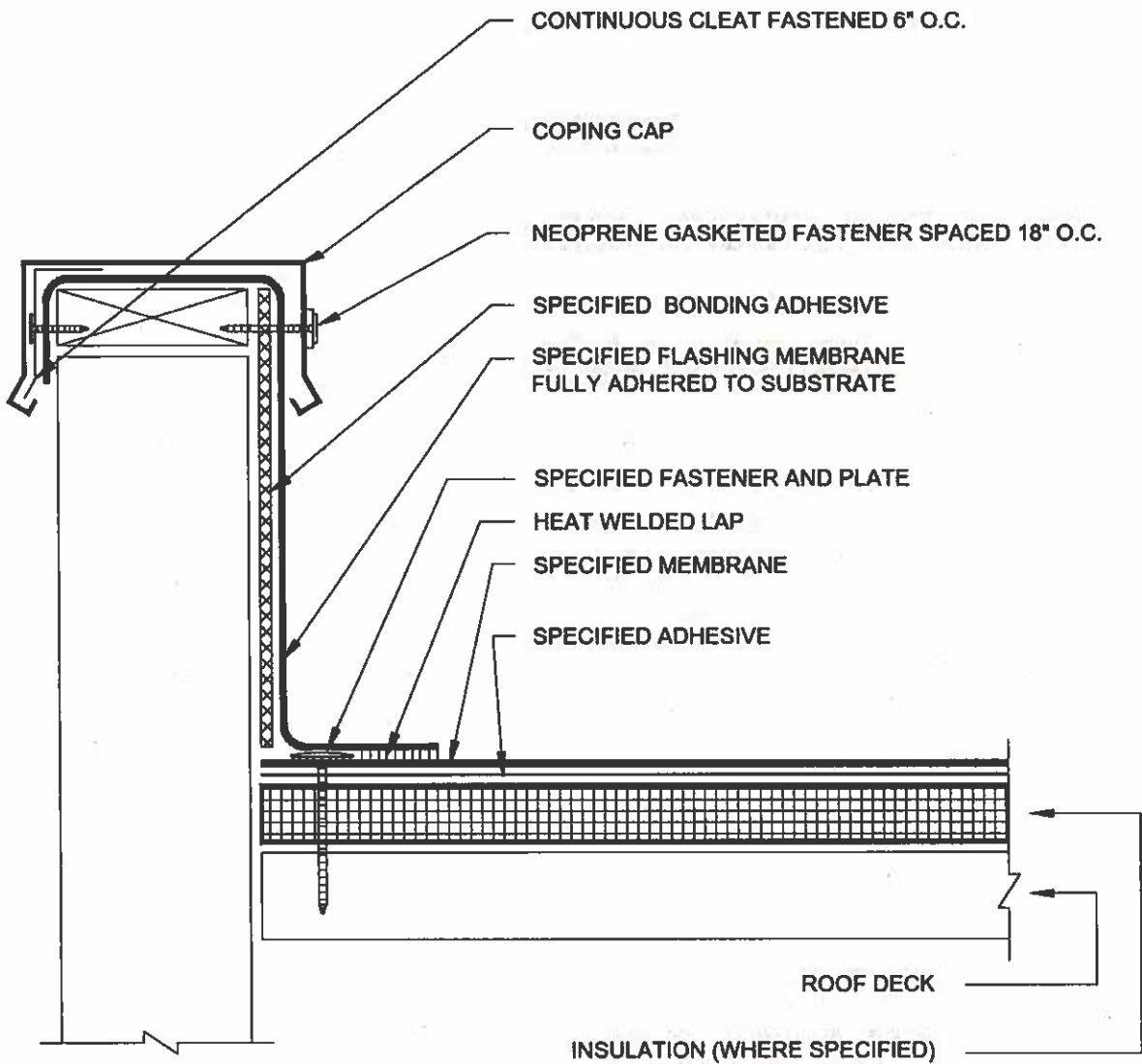
SHEET TITLE:

ROOF EDGE WITH GUTTER

SCALE NTS

DRAWING No.:

5



NOTE:

1) WORK WITH NRCA ES-1 DETAILS FOR COPING FABRICATION, INSTALLATION, AND FASTENING REQUIREMENTS.



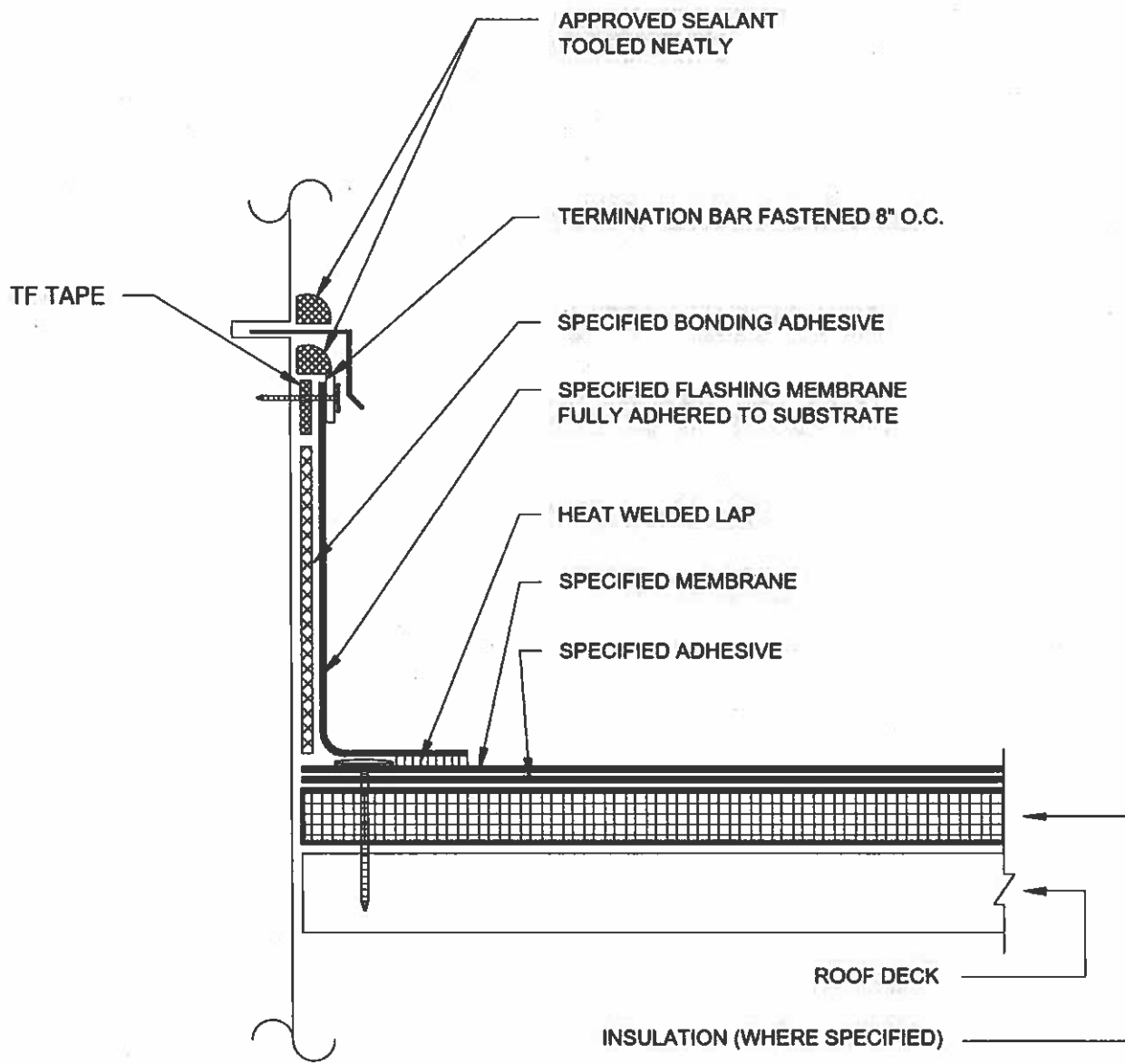
SHEET TITLE:

PARAPET WALL FLASHING

SCALE: NTS

DRAWING No.:

6



NOTE:

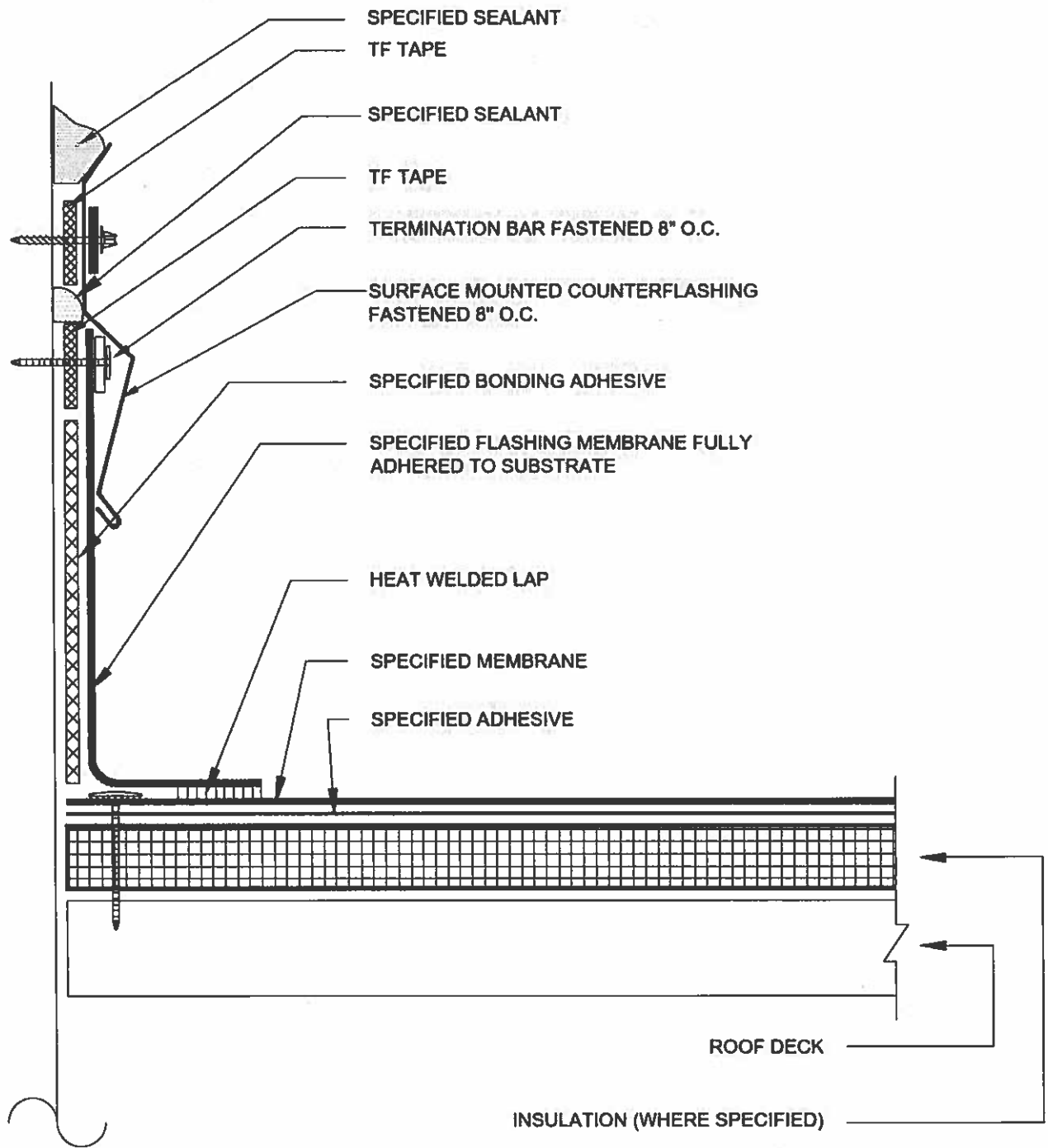
- 1) FLASHING MUST BE A MINIMUM OF 8" HIGH. DO NOT COVER OR BLOCK WEEP HOLES WITH FLASHING OR SEALANT.



SHEET TITLE:
**REGLET METAL
 COUNTERFLASHING DETAIL**

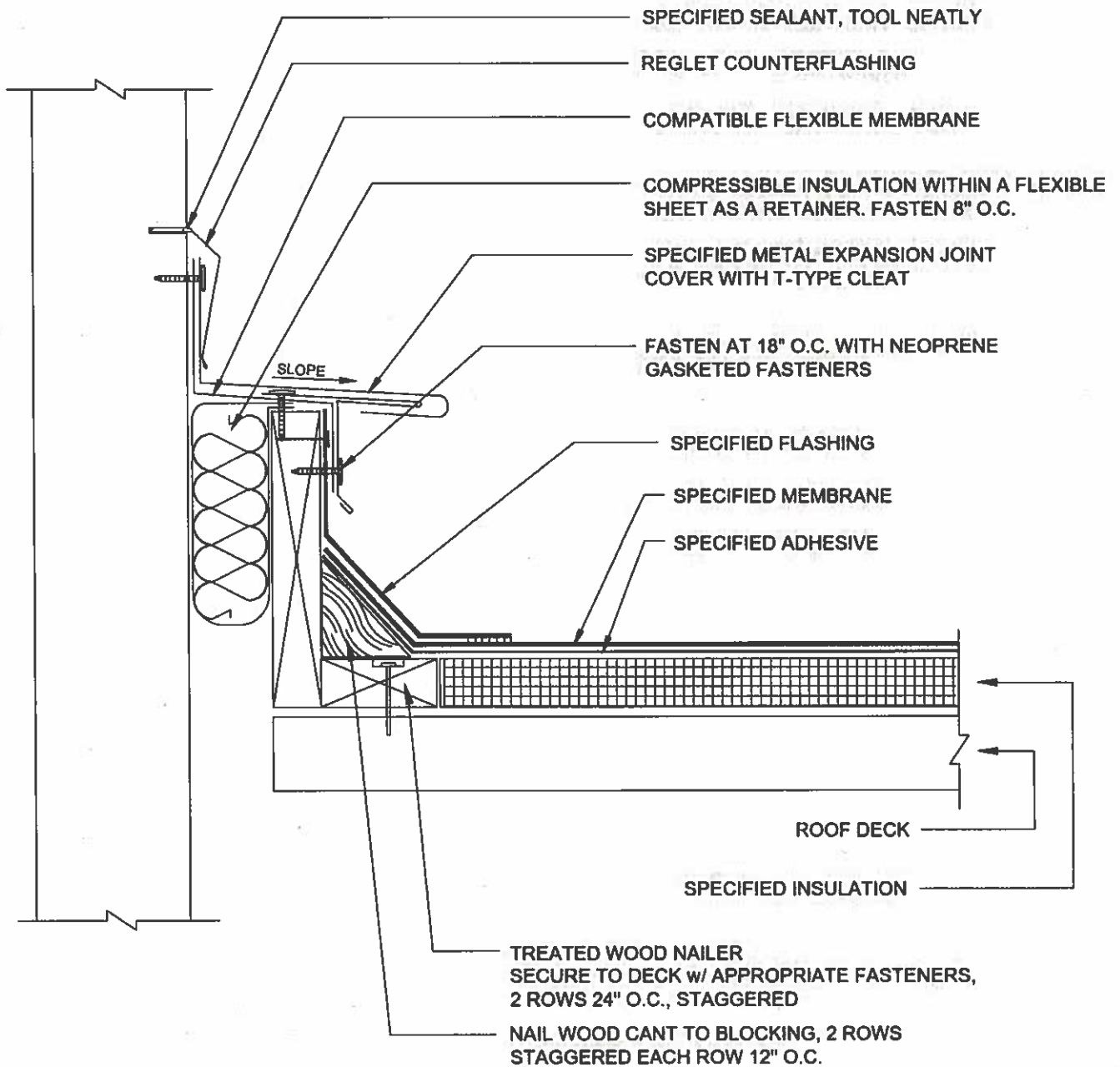
SCALE: **NTS**

DRAWING No.:
7



SHEET TITLE:
**WALL FLASHING FOR CONCRETE
 WALLS AND PARAPETS**

SCALE: NTS
 DRAWING No.: 8



NOTE:

- 1) WOOD NAILER SECURED TO THE DECK PER FACTORY MUTUAL LOSS PREVENTION DATA I-49.

TREMCO[®]

SHEET TITLE:

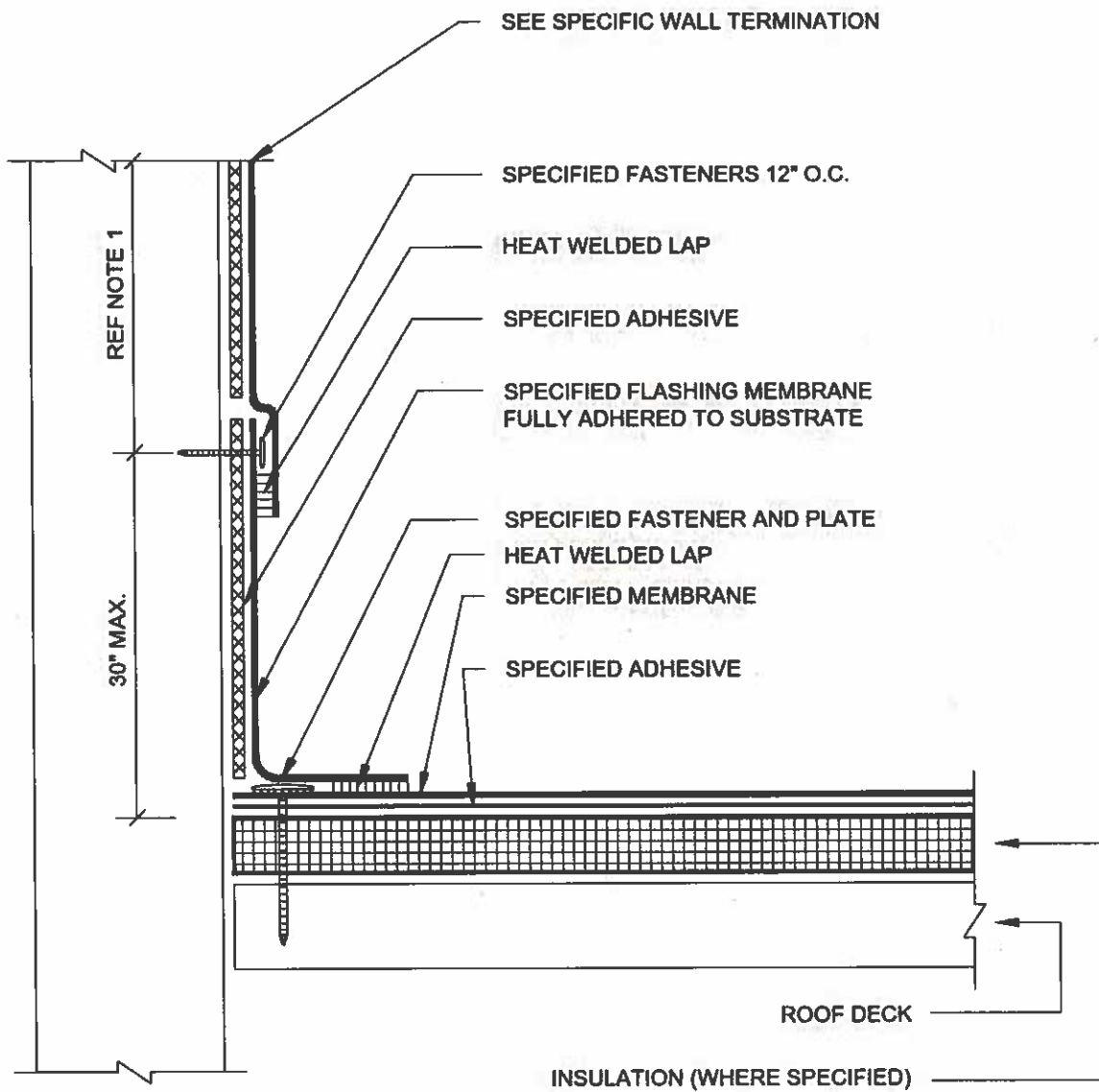
EXPANSION JOINT WALL
FLASHING DETAIL

SCALE:

NTS

DRAWING No.:

9



NOTE:

- 1) VERTICAL WALL FLASHING TERMINATIONS SHALL NOT EXCEED 30" WITHOUT ADDITIONAL PARALLEL HORIZONTAL ROWS OF TERMINATION BARS BETWEEN THE DECK AND THE TERMINATION POINT OF THE FLASHING. SPACING BETWEEN HORIZONTAL ROWS SHALL NOT EXCEED 24".

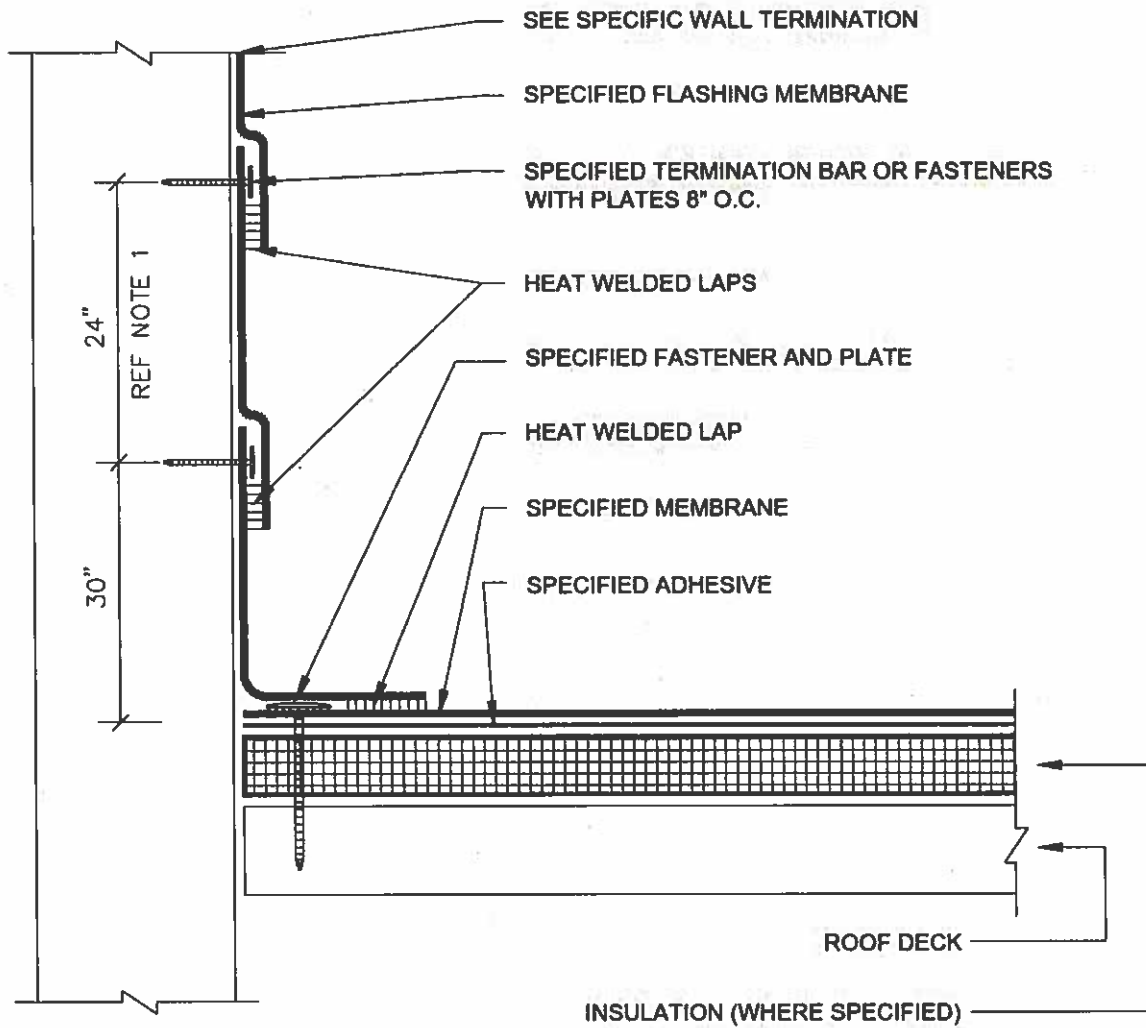
TREMCO®

SHEET TITLE

**HIGH PARAPET WALL
FLASHING DETAIL**

SCALE: NTS

DRAWING No: 10



NOTE:

- 1) VERTICAL WALL FLASHING TERMINATIONS SHALL NOT EXCEED 30" WITHOUT ADDITIONAL PARALLEL HORIZONTAL ROWS OF TERMINATION BARS BETWEEN THE DECK AND THE TERMINATION POINT OF THE FLASHING. SPACING BETWEEN HORIZONTAL ROWS SHALL NOT EXCEED 24".

TREMCO®

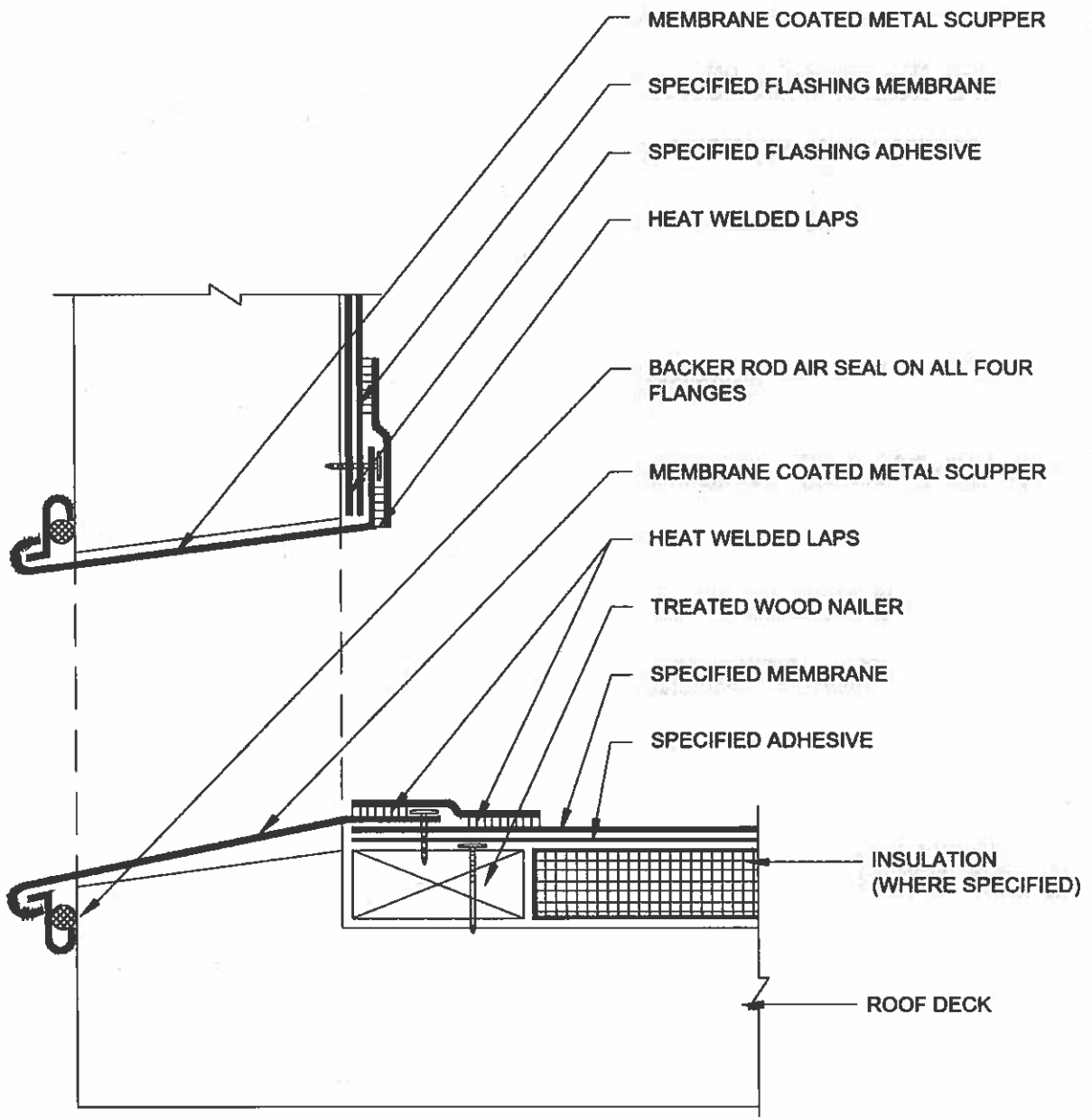
SHEET TITLE:

PARAPET WALL FLASHING
DETAIL

SCALE: NTS

DRAWING No.:

11

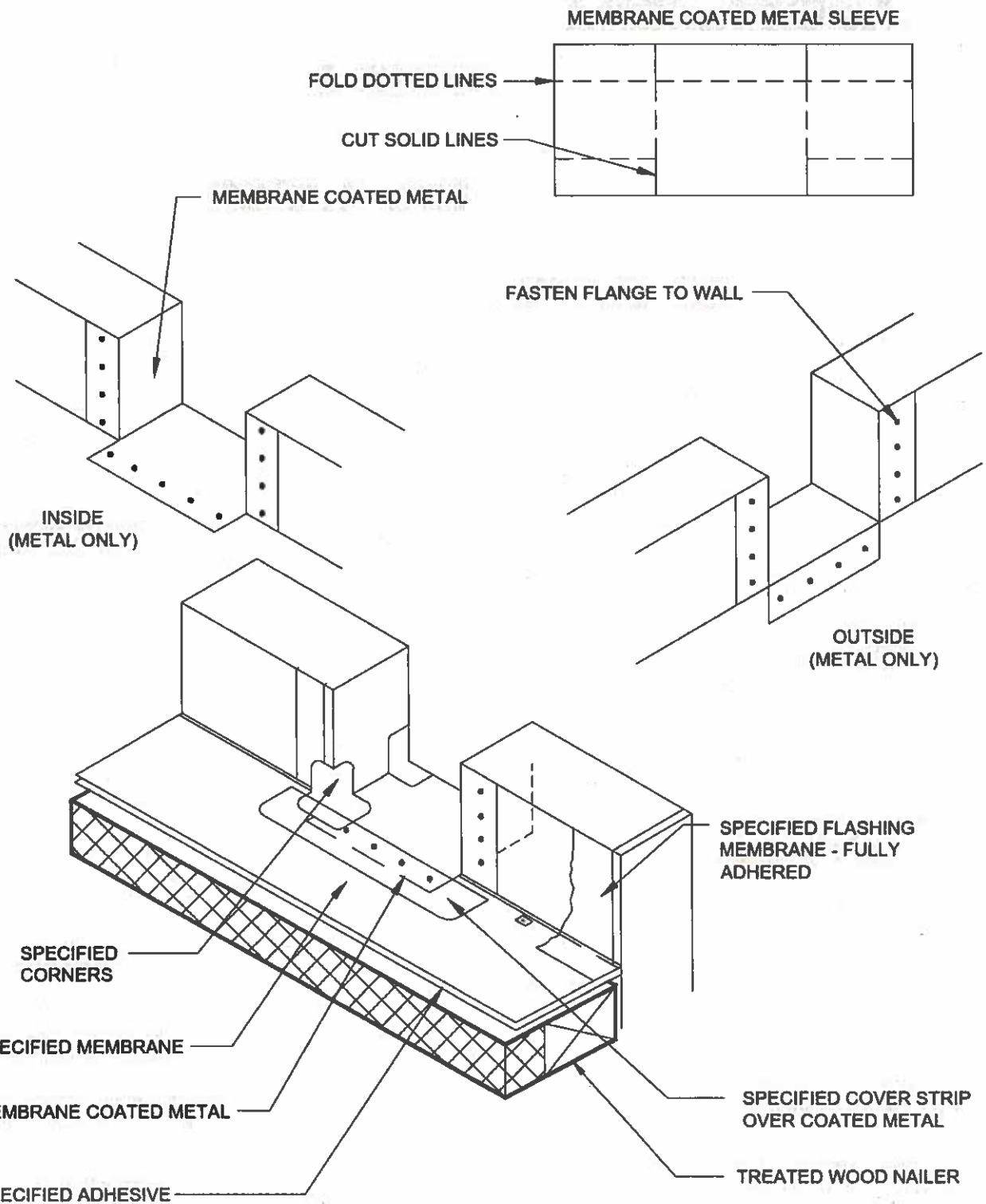


TREMCO[®]

SHEET TITLE:
**THROUGH WALL SCUPPER
 DETAIL**

SCALE: **NTS**

DRAWING No.:
12



NOTES:

- 1) SEE DETAIL 12
- 2) PERIMETER WOOD NAILER MAY BE OMITTED WHEN FIELD MEMBRANE IS TURNED UP AND SECURED TO WALL WITH FLAT METAL TERMINATION BAR.

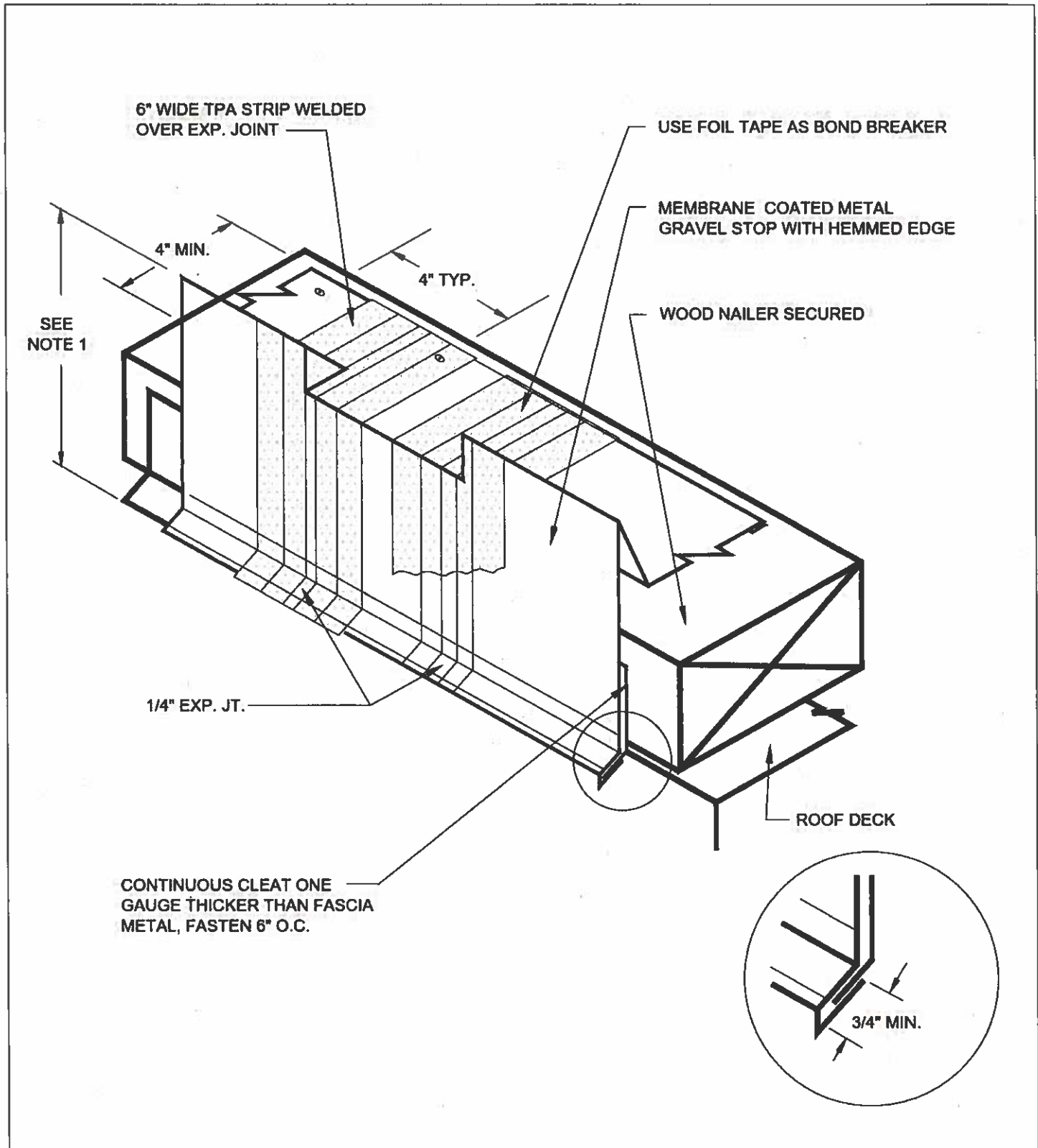
TREMCO[®]

SHEET TITLE:

ISOMETRIC VIEW
THROUGH-WALL SCUPPER

SCALE: NTS

DRAWING No.: 13



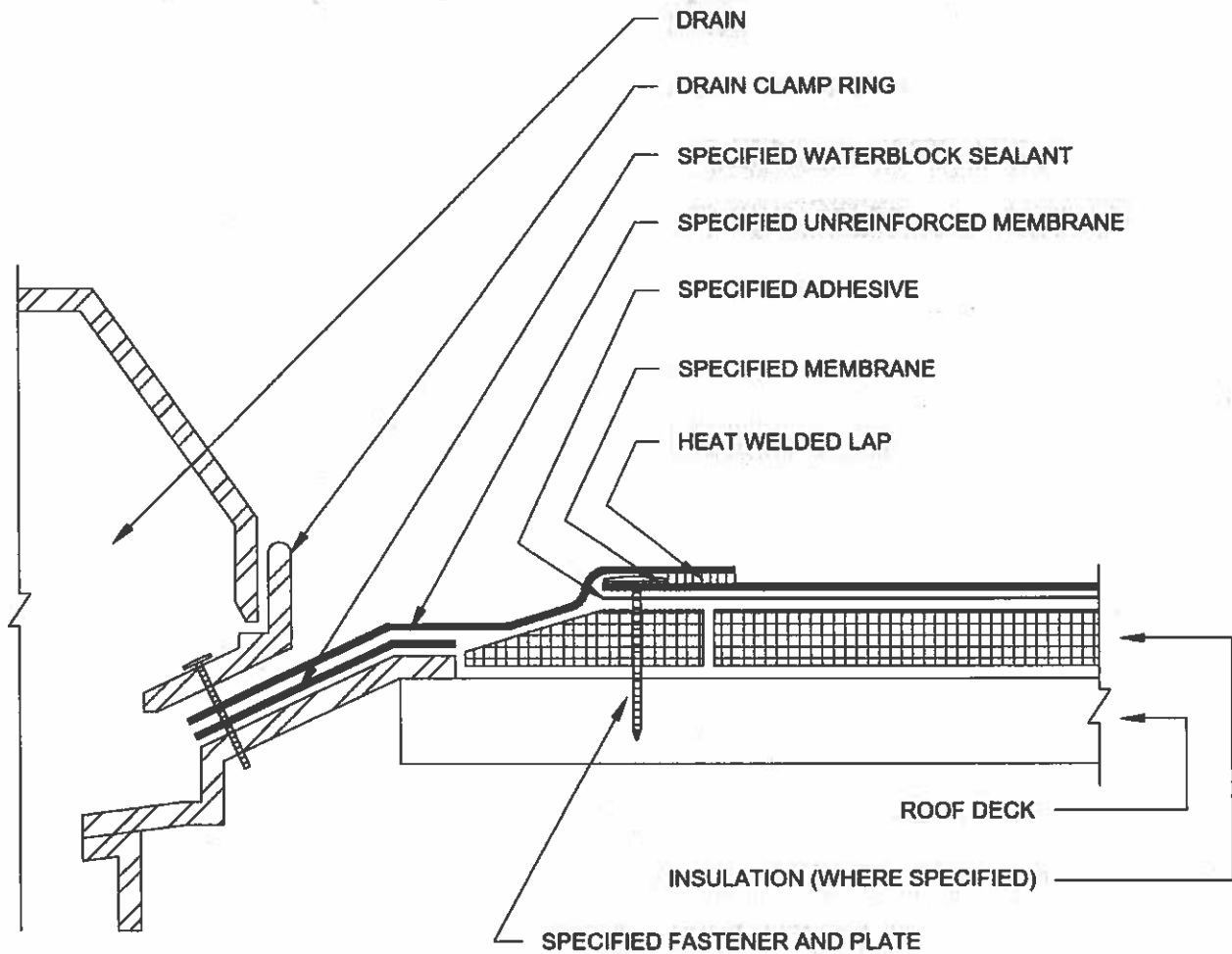
NOTES:

- 1) MAXIMUM FACE DIMENSION SHOULD BE 5" TO PREVENT DISTORTION FROM "OIL CANNING." IF SURFACE DISTORTION IS ACCEPTABLE, FACE DIMENSION MAY BE INCREASED TO 8".
- 2) FOR FASCIAS GREATER THAN 8" INSTALL IN TWO SECTIONS
- 3) SPECIFIED MEMBRANE TO BE FULLY ADHERED IN SPECIFIED ADHESIVE.

TREMCO[®]

SHEET TITLE:
**GRAVEL STOP SCUPPER
 DETAIL**

SCALE: **NTS**
 DRAWING No.:
14



NOTES:

- 1) THIS TWO PIECE DESIGN MUST BE USED WHEN INSTALLING FLEECE BACKED MEMBRANE.
- 2) MEMBRANE MUST EXTEND MINIMUM 1" BEYOND THE BOLT HOLES.
- 3) FIELD WELD MUST NOT PASS UNDER THE CLAMPING RING.

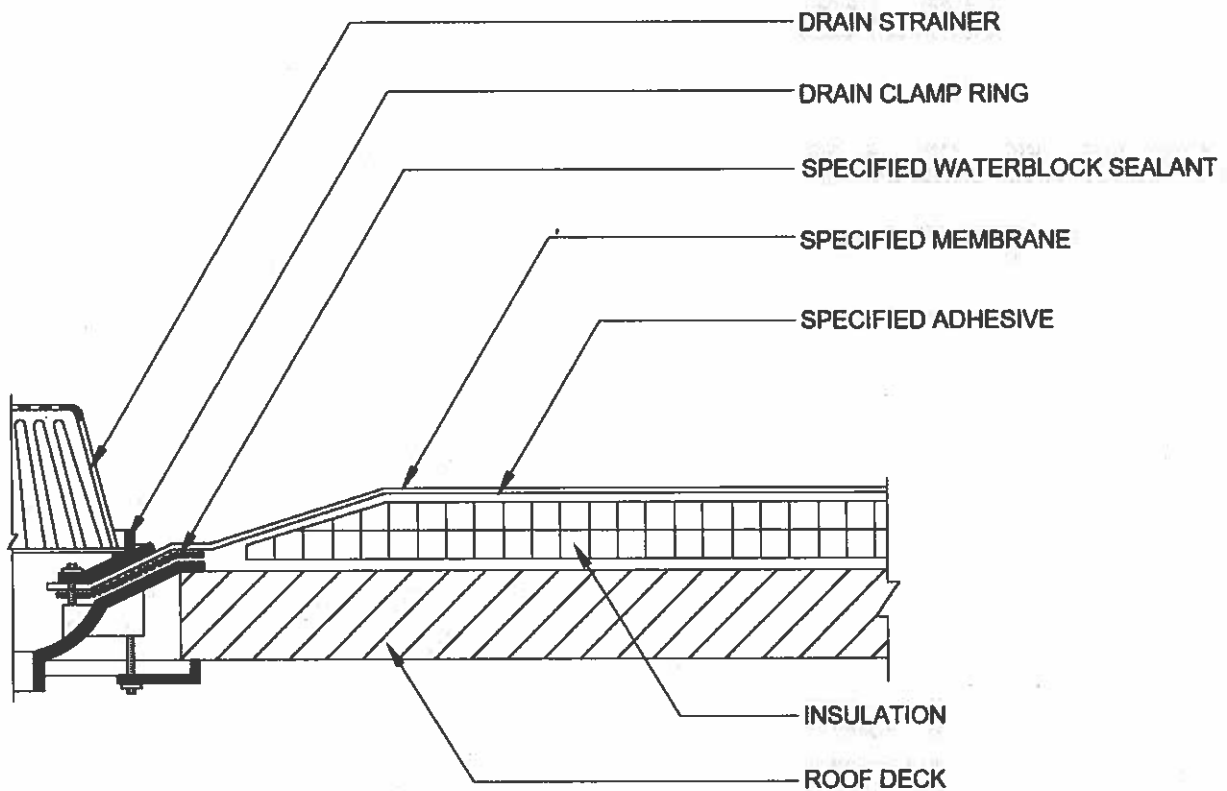
TREMCO®

SHEET TITLE:

DRAIN DETAIL

SCALE: **NTS**

DRAWING No.:
15A



NOTES

1. A FIELD WELD CANNOT PASS WITHIN 9" (227 mm) OF THE CLAMPING, OR WITHIN THE DRAIN SUMP ITSELF.
2. MEMBRANE MUST EXTEND MINIMUM 1" (25.4 mm) BEYOND THE BOLT HOLES. THE CLAMPING RING BOLTS MUST PENETRATE THE MEMBRANE.
3. TAPERED INSULATION TO CREATE A ROOF SUMP AS SPECIFIED
4. APPLY WATER BLOCK SEALANT AS SPECIFIED.
5. ASPHALT OR STONE PAVER MUST STOP AT DRAIN SUMP.

TREMCO®

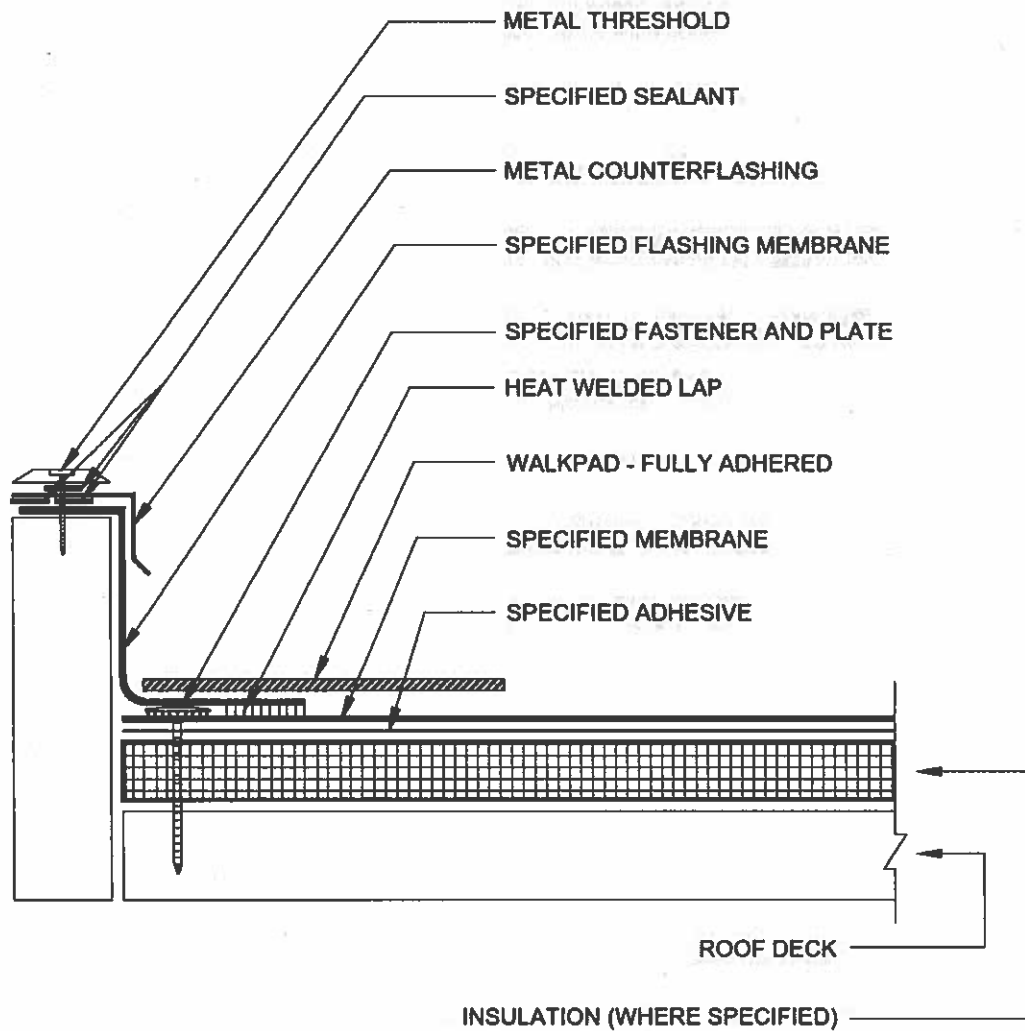
SHEET TITLE:

DRAIN DETAIL

SCALE: NTS

DRAWING No.:

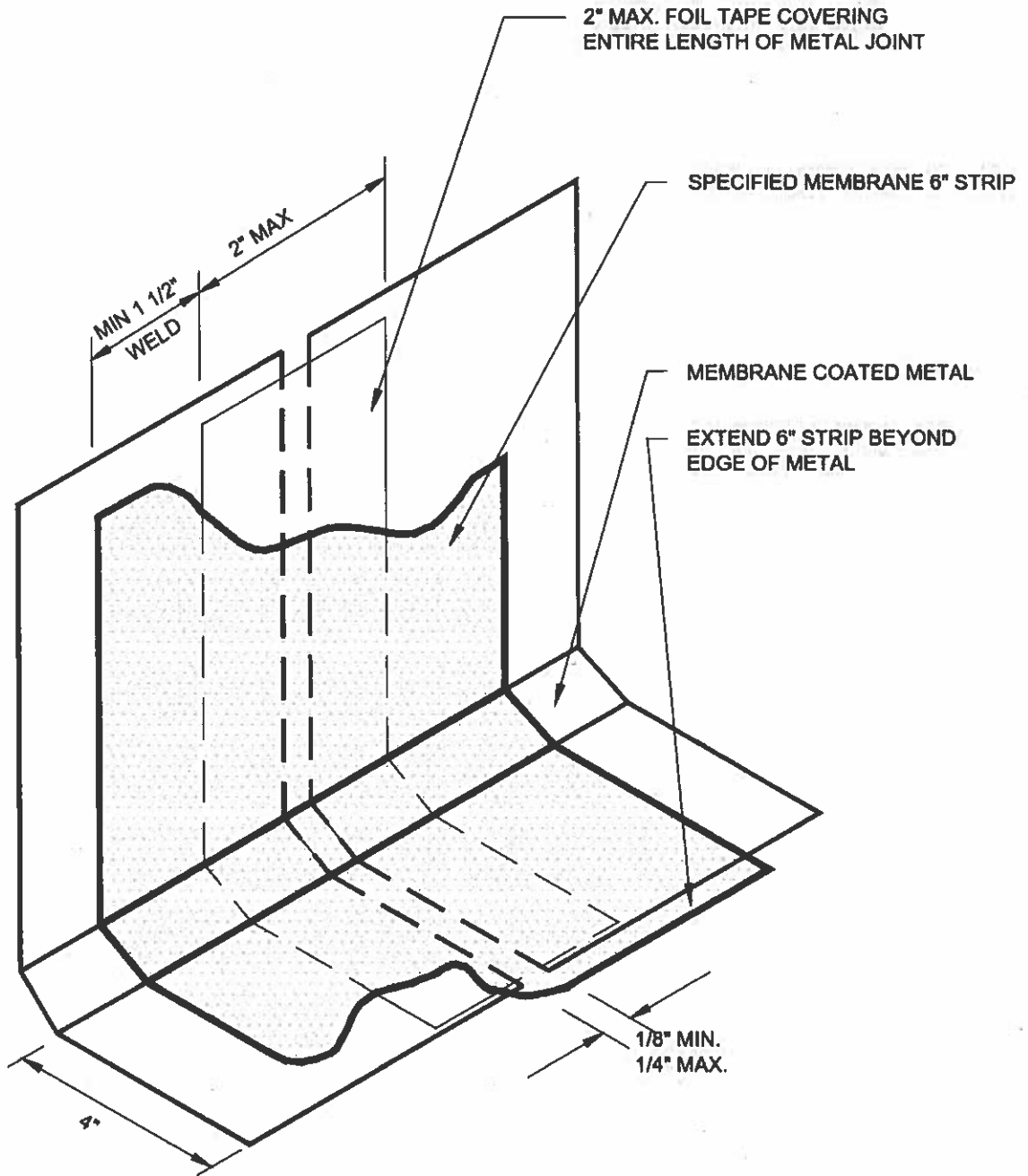
15



TREMCO®

SHEET TITLE:
**DOOR THRESHOLD
 FLASHING DETAIL**

SCALE: **NTS**
 DRAWING No.: **16**



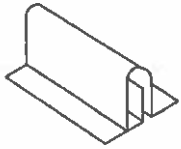
NOTES:

- 1) THE SPECIFIED MEMBRANE TO BE FULLY ADHERED IN SPECIFIED ADHESIVE.

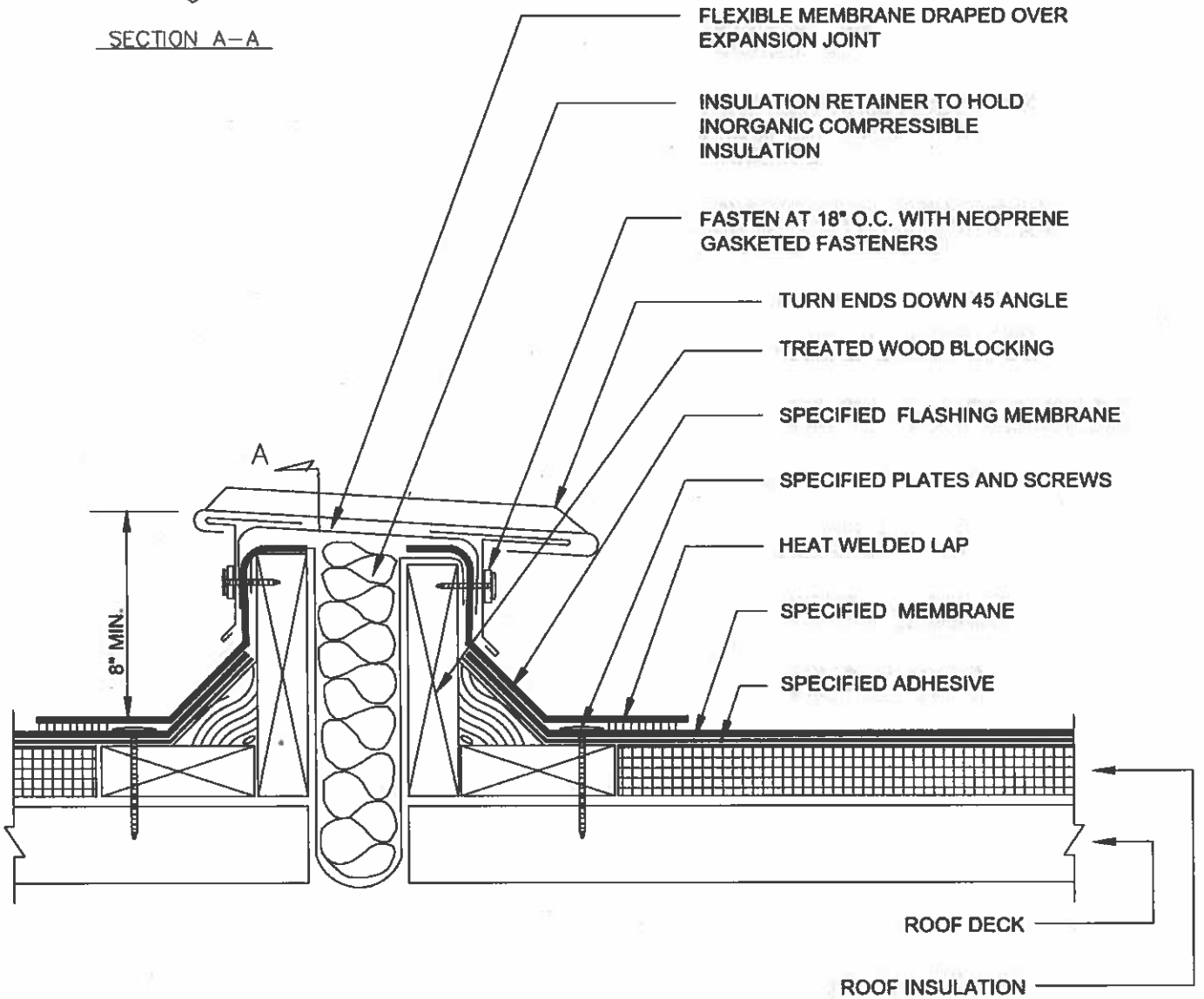
TREMCO®

SHEET TITLE:
**MEMBRANE COATED METAL BASE
 FLASHING BUTT JOINT**

SCALE: **NTS**
 DRAWING No.: **17**



SECTION A-A

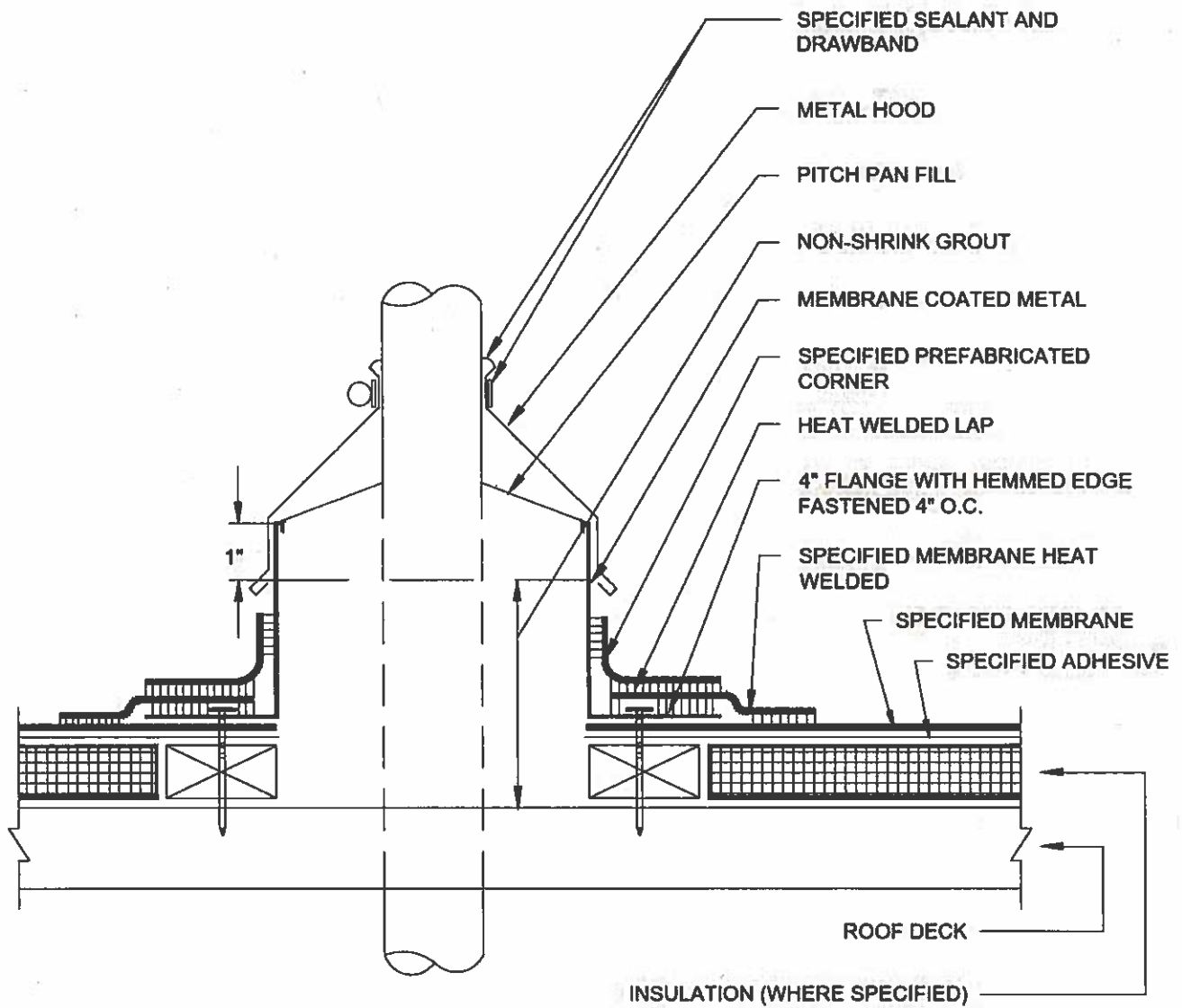


TREMCO®

SHEET TITLE:
EXPANSION JOINT CURB

SCALE NTS

DRAWING No.:
18



NOTES:

- 1) USE MEMBRANE COATED METAL TO FORM PITCH PAN.
- 2) ALLOW 2" MINIMUM CLEARANCE AROUND THE PROJECTION.
- 3) SPECIFIED PREFABRICATED CORNERS MUST BE USED AT ALL 4 CORNERS

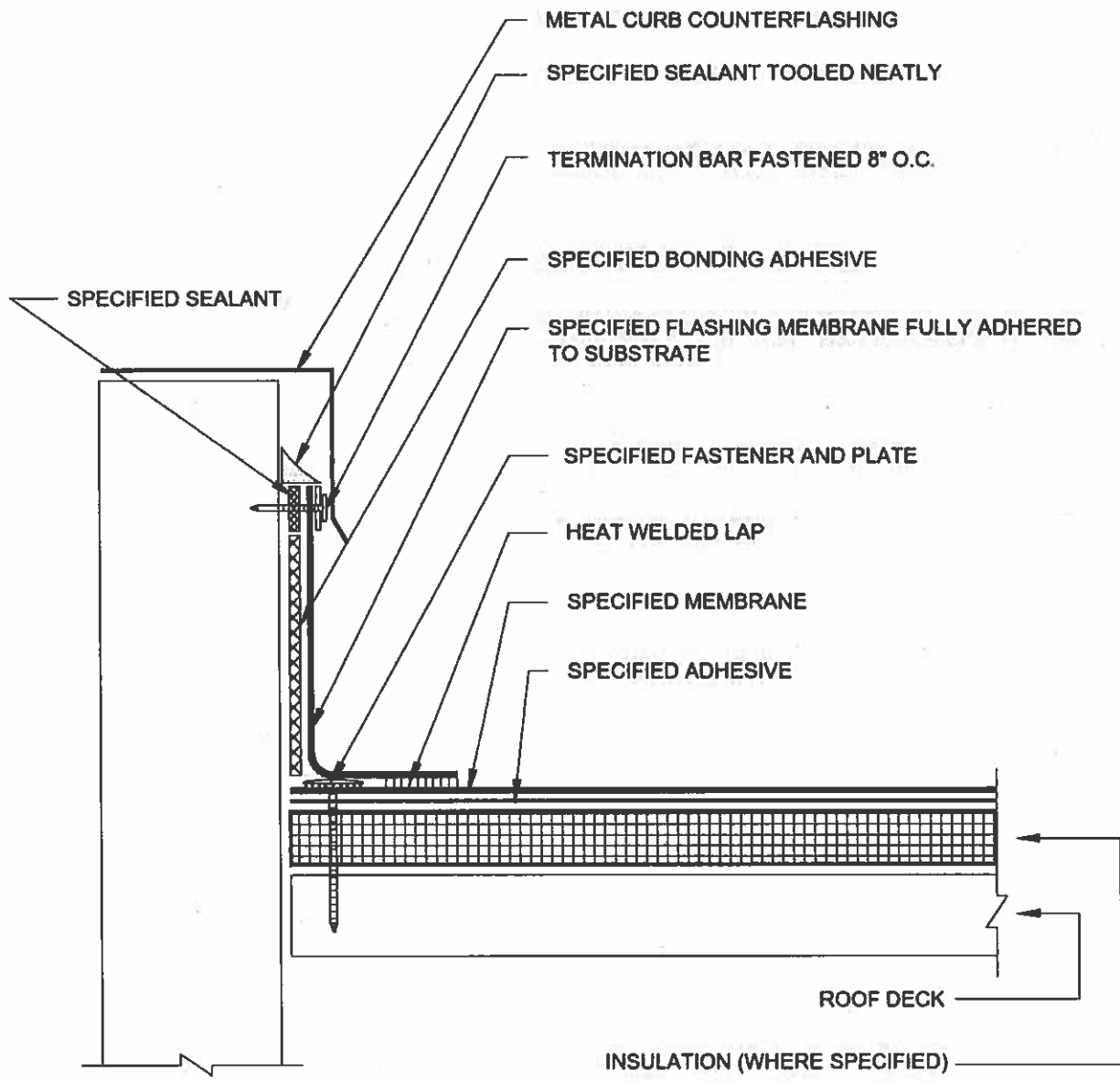
TREMCO®

SHEET TITLE:

PITCH POCKET
FLASHING DETAIL

SCALE: NTS

DRAWING No.: 19

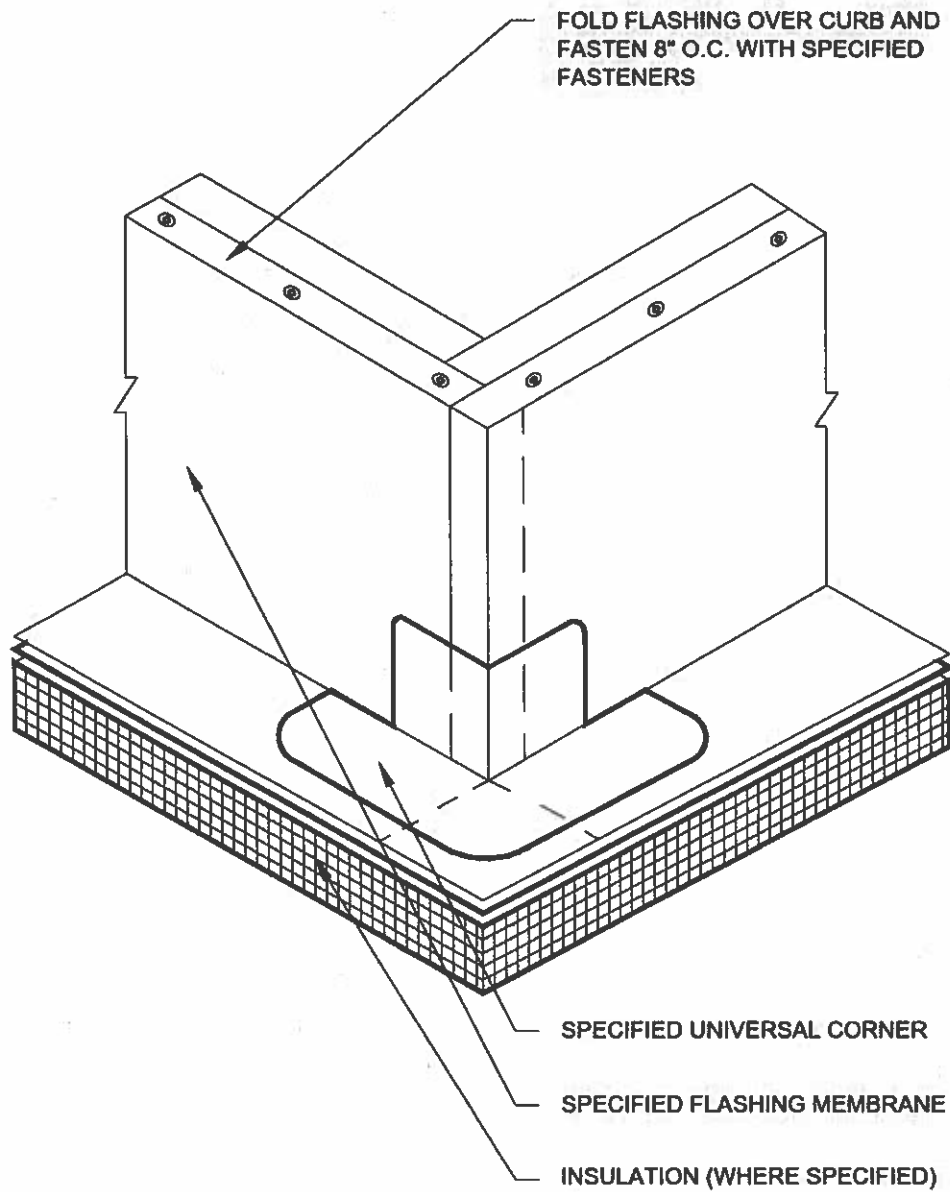


NOTES:
 1) ALL FLASHING SHALL BE A MINIMUM OF 8" HIGH.



SHEET TITLE:
 CURB FLASHING DETAIL

SCALE: NTS
 DRAWING No.: 20



NOTES:

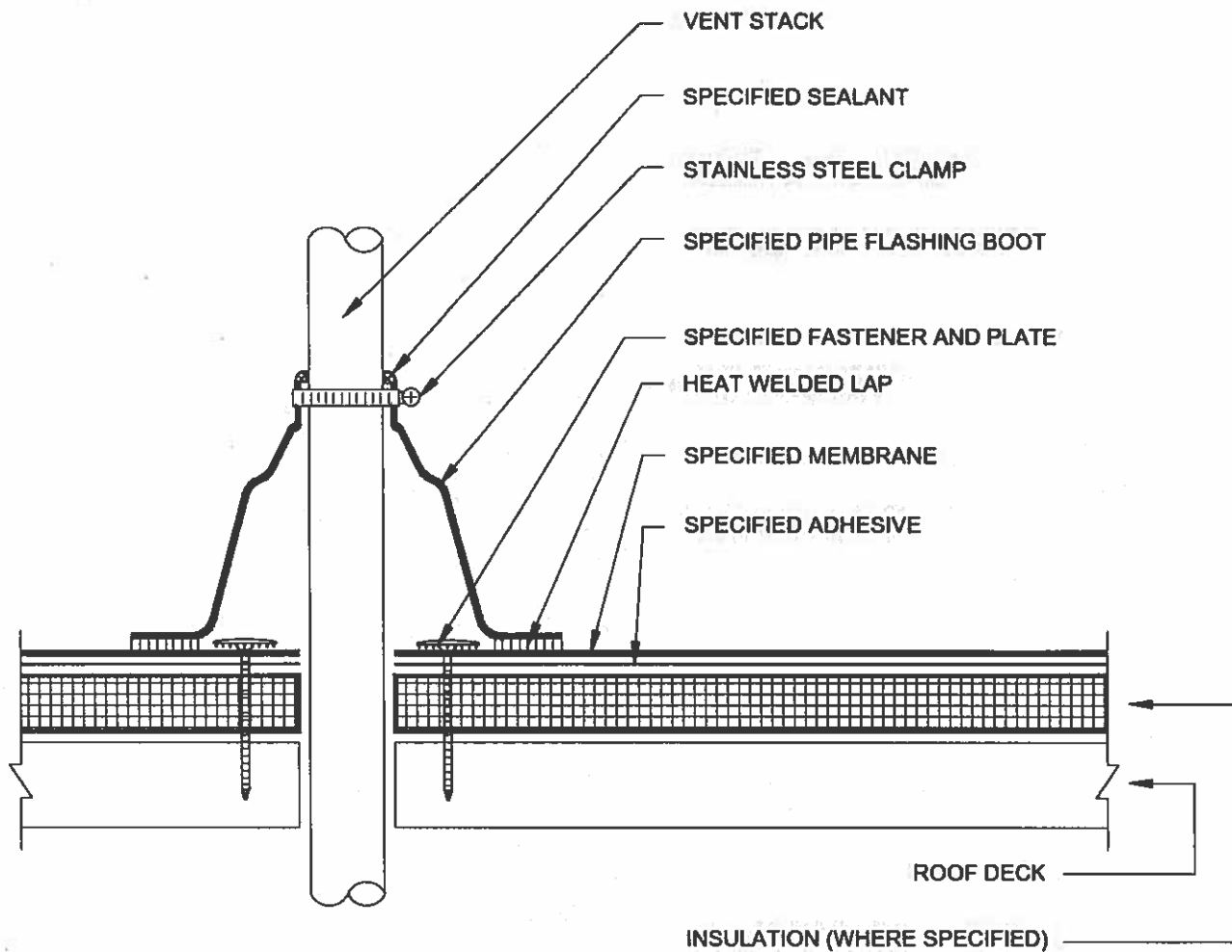
- 1) USE THIS DETAIL WHEN COUNTERFLASHING IS PART OF THE CURB MOUNTED EQUIPMENT.
- 2) USE THE SPECIFIED FASTENERS AND PLATE AROUND THE CURB PER WRITTEN SPECIFICATIONS.
- 3) THE SPECIFIED MEMBRANE TO BE FULLY ADHERED IN SPECIFIED ADHESIVE.

TREMCO[®]

SHEET TITLE:
CURB FLASHING DETAIL

SCALE: NTS

DRAWING No.:
21



NOTES:

- 1) DO NOT CUT PREFABRICATED BOOT. IT MUST BE PULLED OVER VENT PIPE.
- 2) PREFABRICATED BOOTS ARE AVAILABLE IN SMALL & LARGE SIZES, AND MUST BE USED WHENEVER POSSIBLE TO FLASH PIPES 1" TO 8" IN DIAMETER.

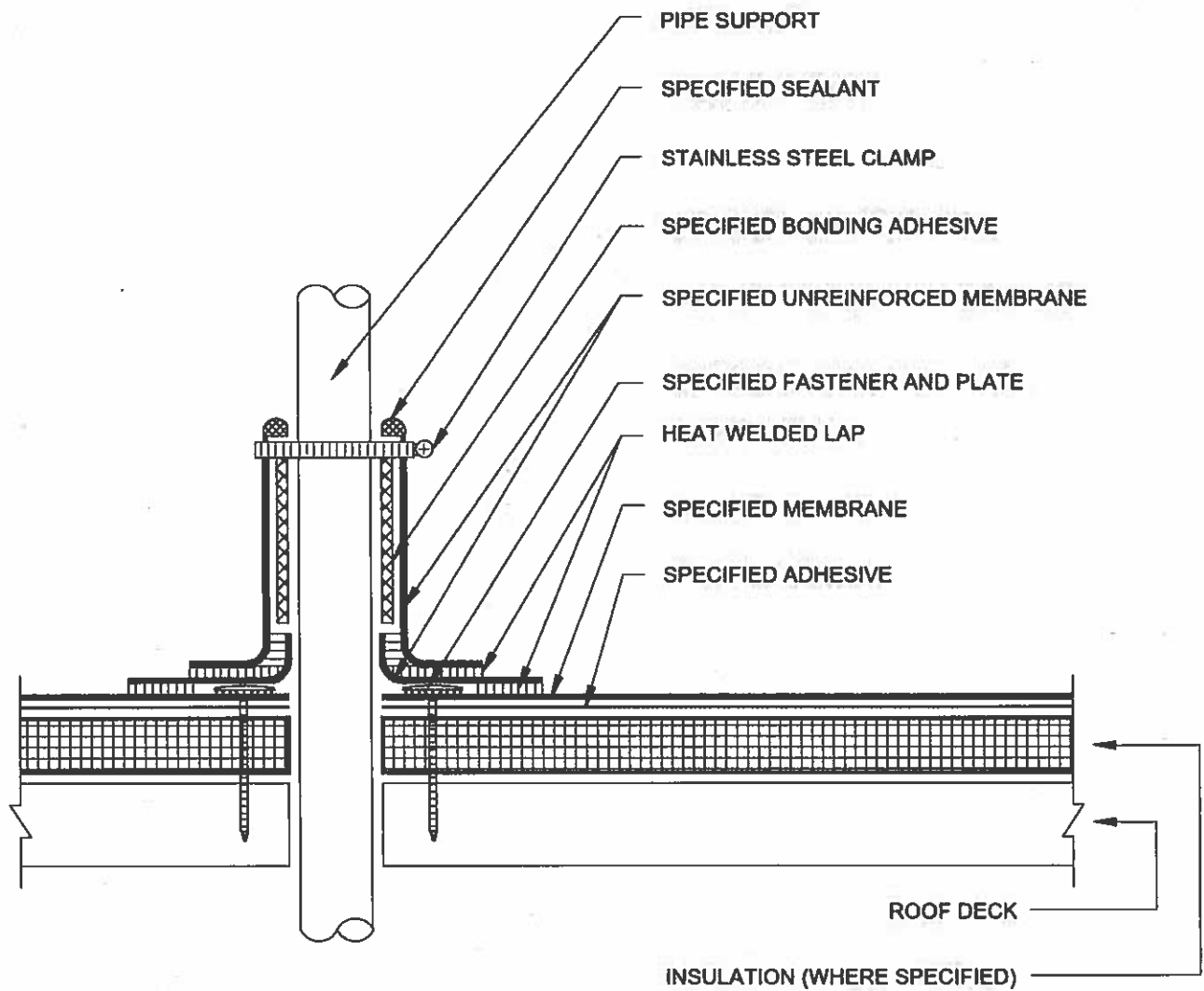
TREMCO[®]

SHEET TITLE:

PREFABRICATED
VENT PIPE FLASHING

SCALE: NTS

DRAWING No.:
22



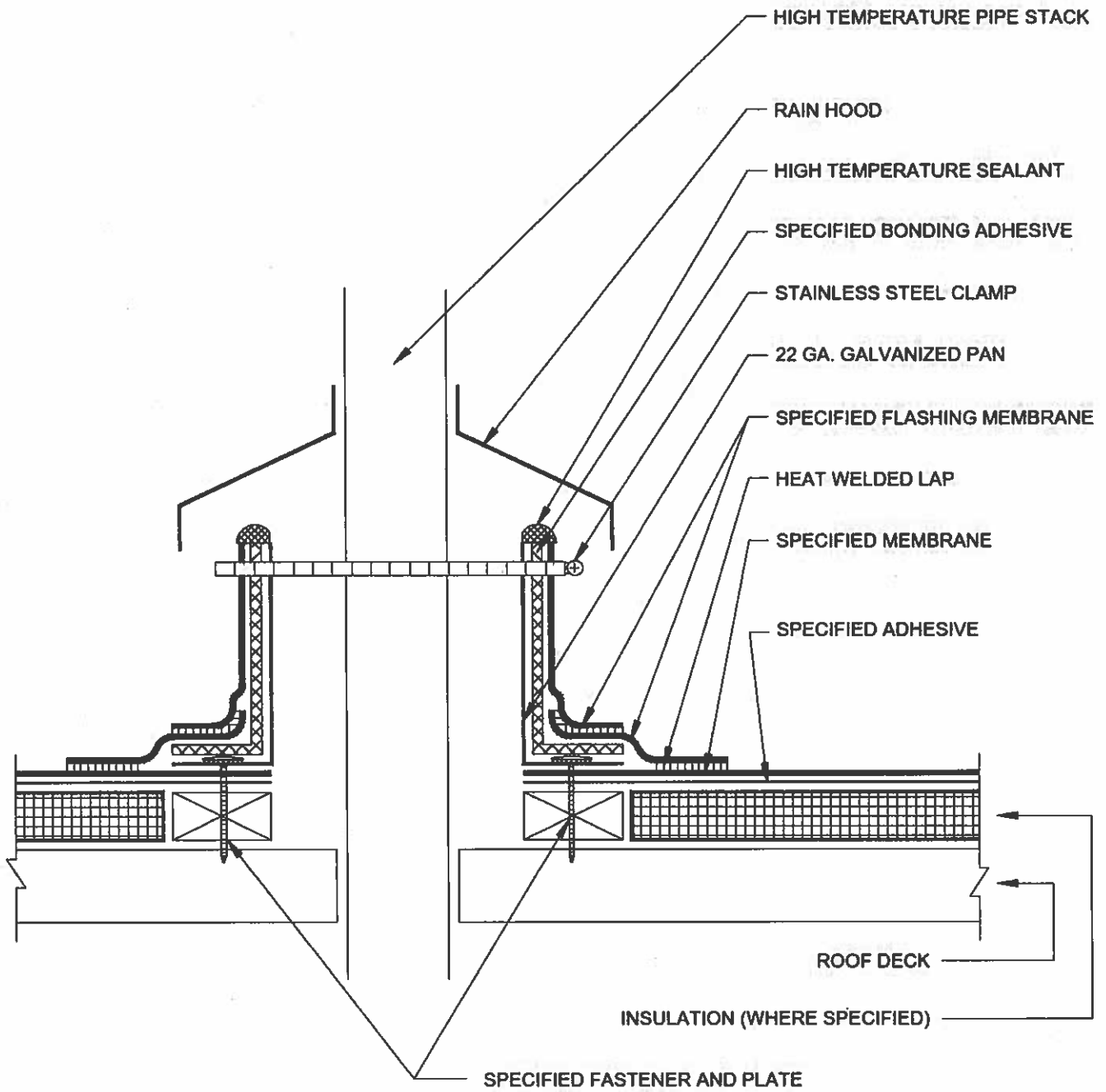
TREMCO®

SHEET TITLE:

TWO-PIECE
PIPE FLASHING

SCALE: NTS

DRAWING No.:
23



NOTES:

1) THIS DETAIL TO BE USED WHEN TEMPERATURE OF STACK EXCEEDS 140°F.

TREMCO®

SHEET TITLE:

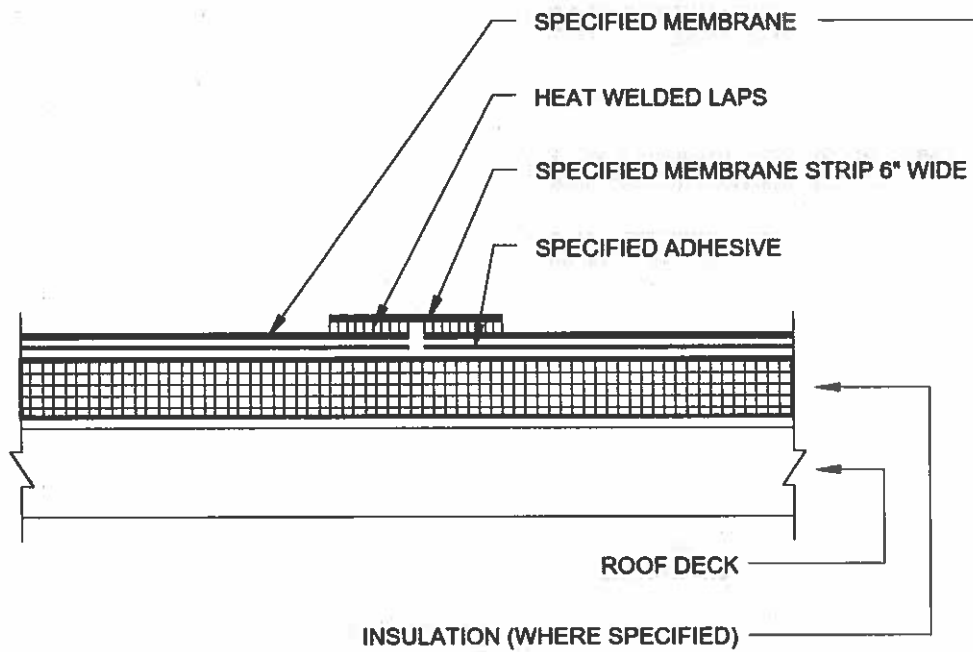
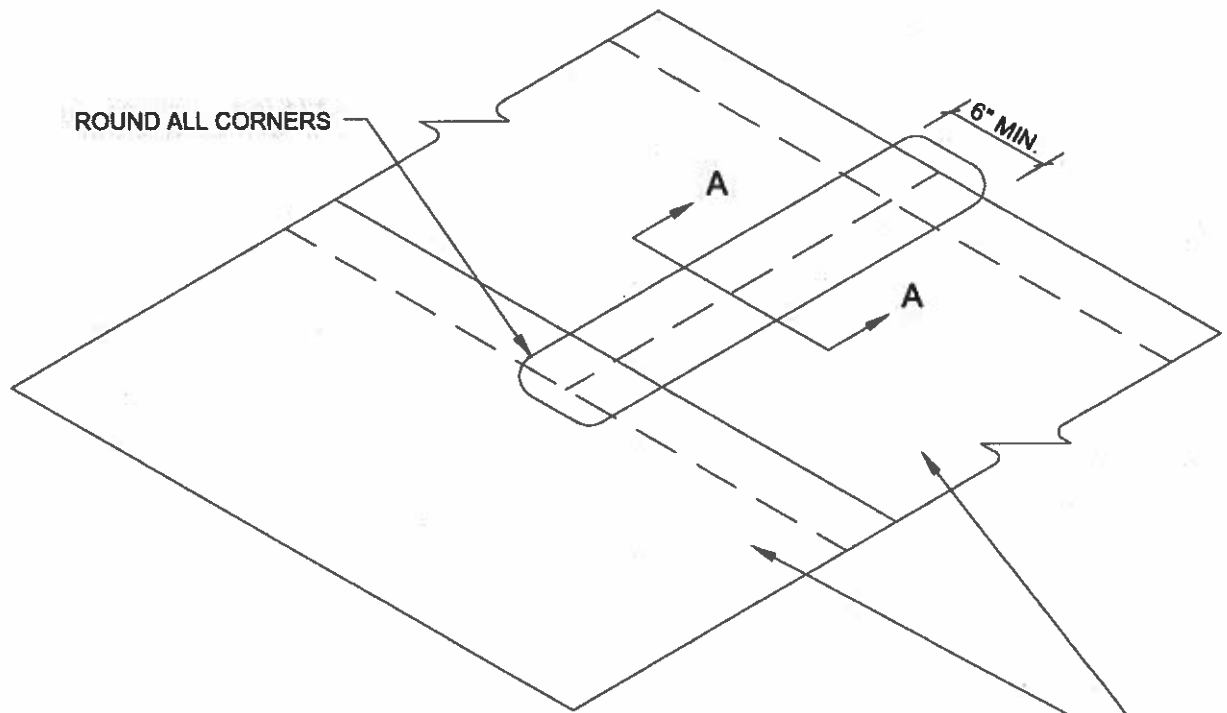
HIGH TEMPERATURE
PIPE FLASHING

SCALE:

NTS

DRAWING No.:

24



SECTION A-A

NOTES:

- 1) THIS END LAP DETAIL TO BE USED WITH FLEECE BACKED MEMBRANE ONLY.

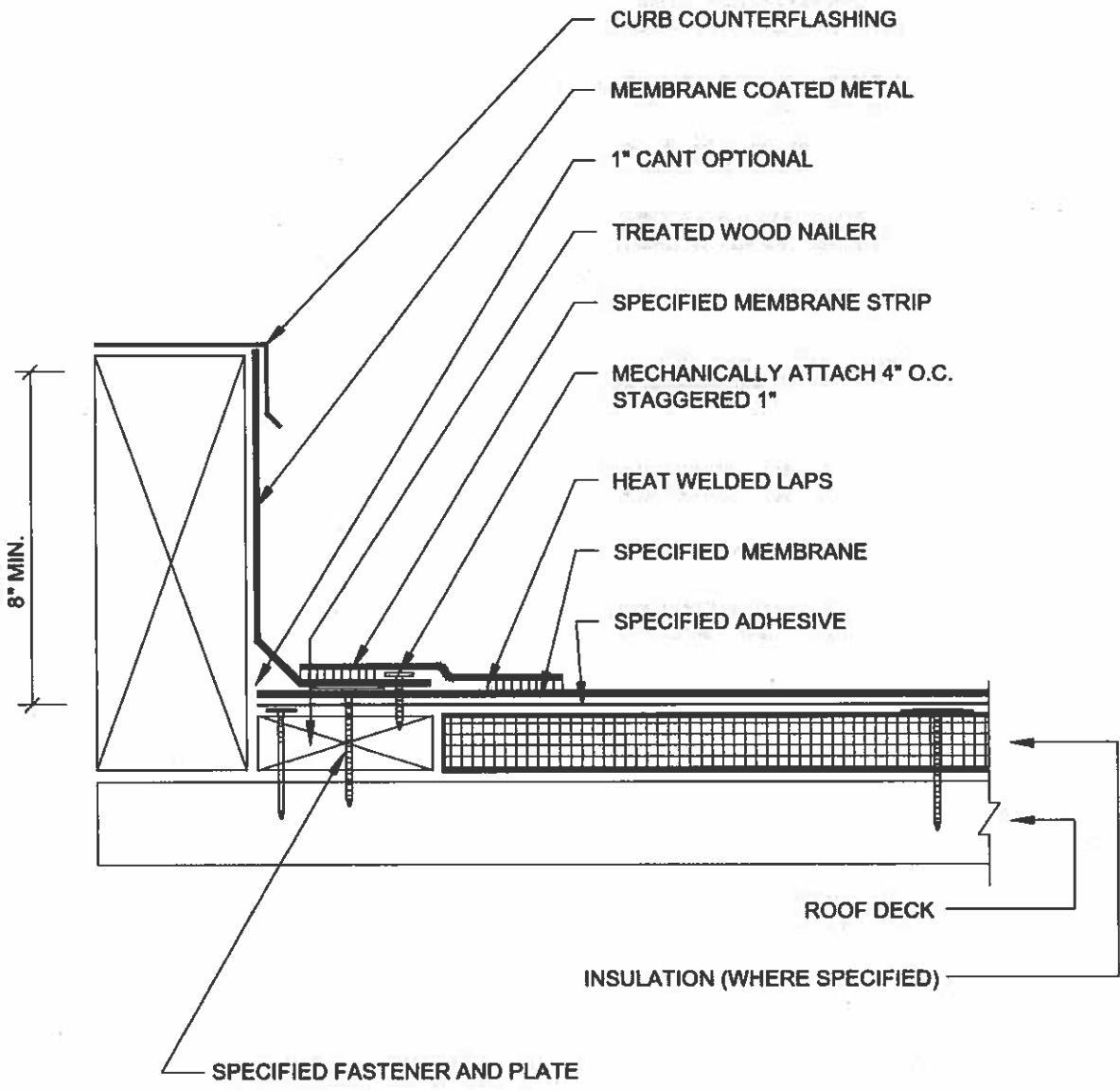


SHEET TITLE:

END LAP DETAIL

SCALE **NTS**

DRAWING No.:
25



NOTES:

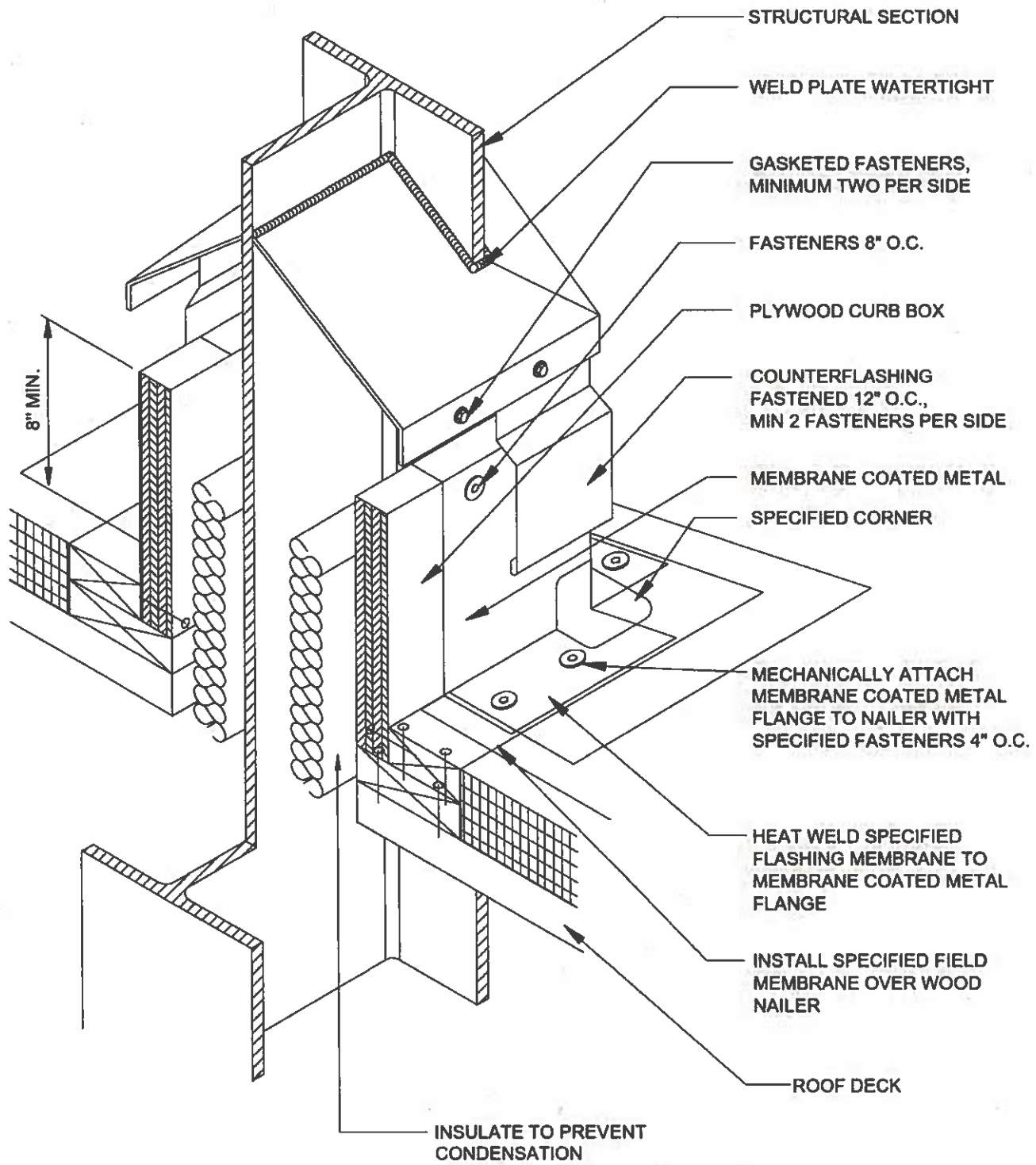
- 1) SPACING AND FASTENING OF NAILERS SHALL CONFORM TO FACTORY MUTUAL LOSS PREVENTION DATA SHEET I-49.



SHEET TITLE:
**CURB FLASHING USING
 MEMBRANE COATED METAL**

SCALE **NTS**

DRAWING No.:
26



NOTES:

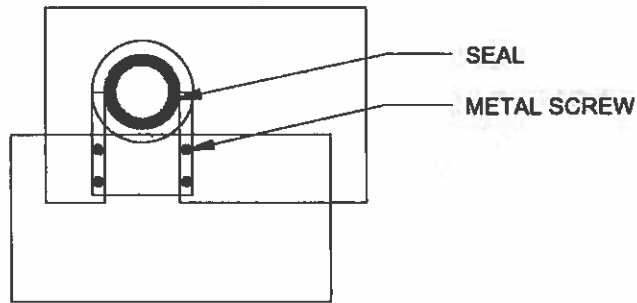
1) THE SPECIFIED MEMBRANE TO BE FULLY ADHERED IN SPECIFIED ADHESIVE.



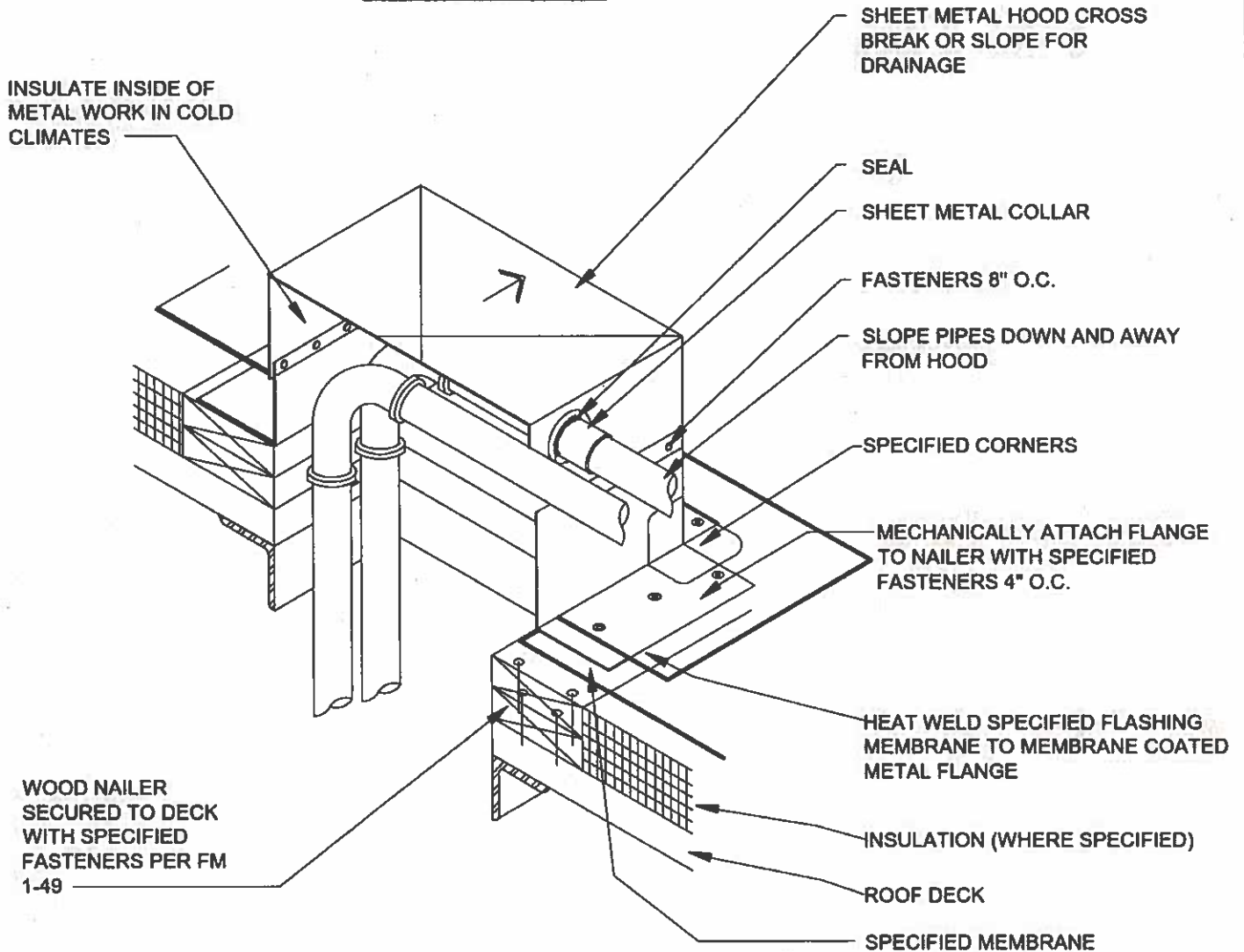
SHEET TITLE:
I-BEAM FLASHING DETAIL

SCALE: NTS

DRAWING No.: 27



CLOSURE DETAIL



NOTES:

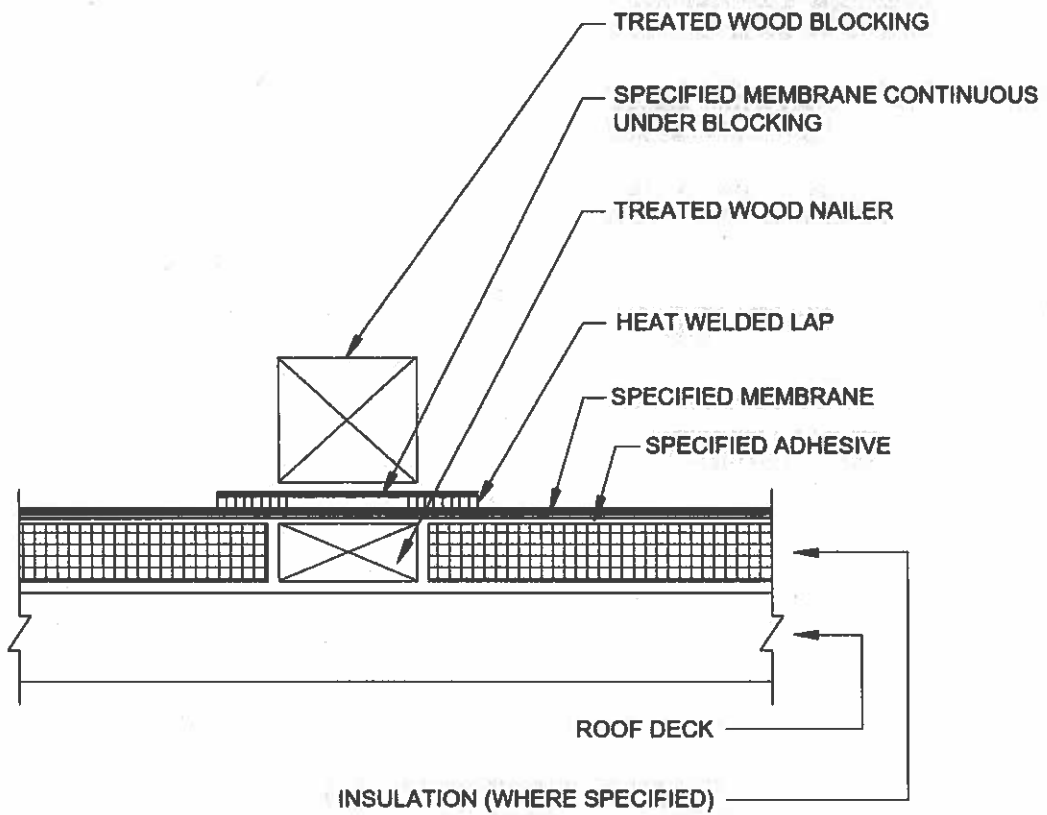
- 1) THE SPECIFIED MEMBRANE TO BE FULLY ADHERED IN SPECIFIED ADHESIVE.



SHEET TITLE:
**MULTIPLE PIPE PENETRATION
 DETAIL**

SCALE: **NTS**

DRAWING No.:
28

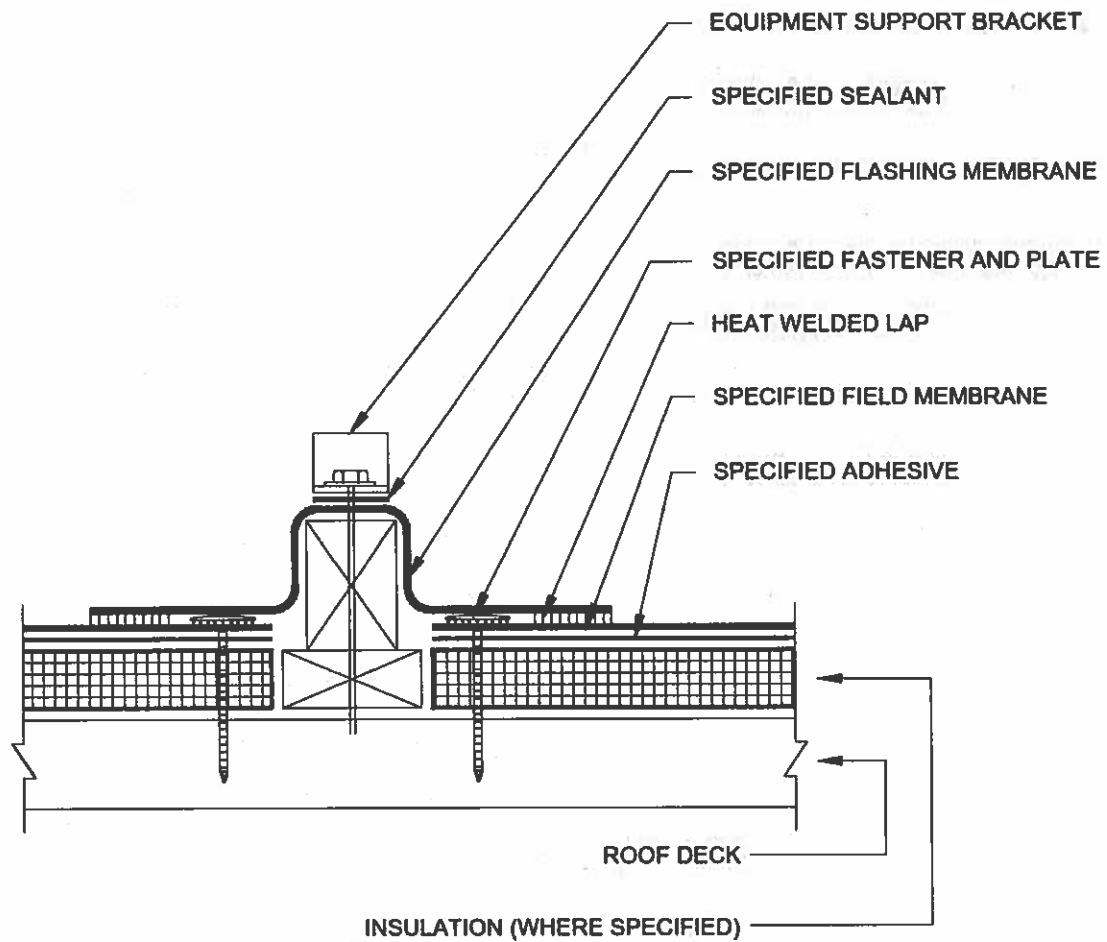


TREMCO®

SHEET TITLE
EXPOSED SLEEPER

SCALE **NTS**

DRAWING No.:
29



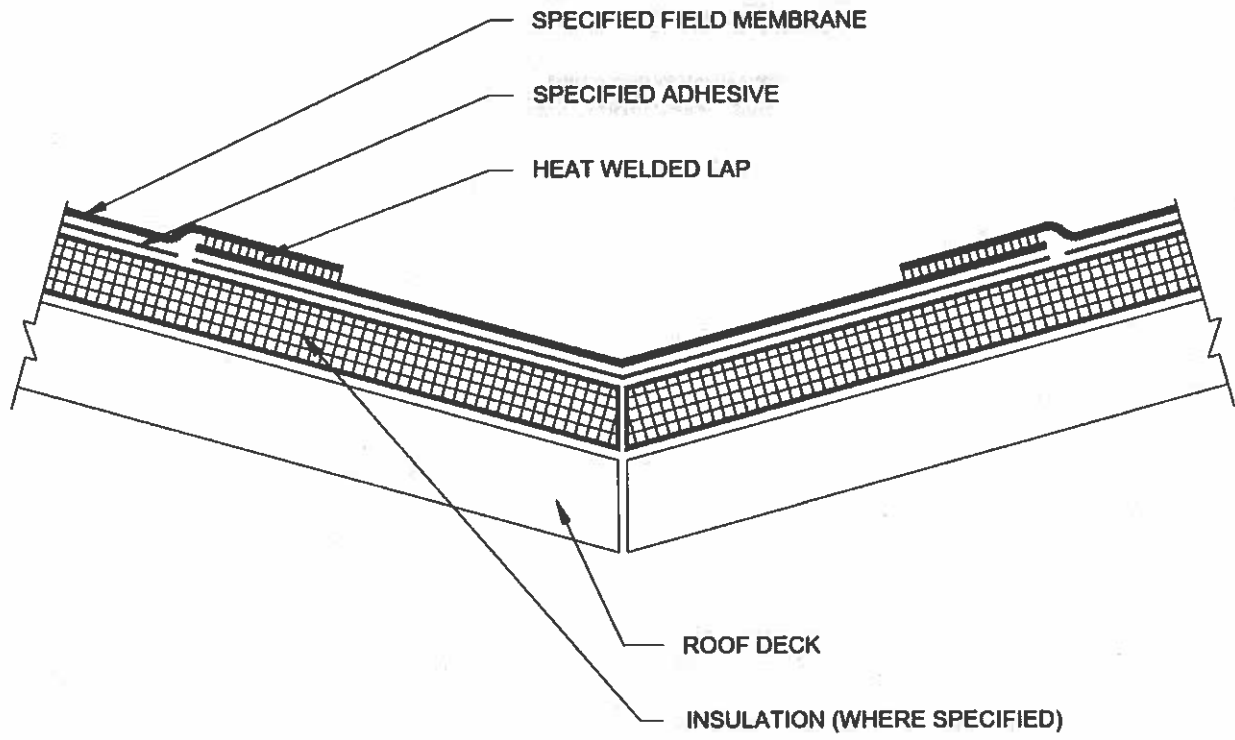
NOTES:

- 1) SLEEPER HEIGHT SHOULD BE SUFFICIENT TO ELEVATE THE EQUIPMENT SUPPORT BRACKET ABOVE THE WATER LEVEL.

TREMCO®

SHEET TITLE:
**FIXED EQUIPMENT SUPPORT
 DETAIL**

SCALE: **NTS**
 DRAWING No.:
30

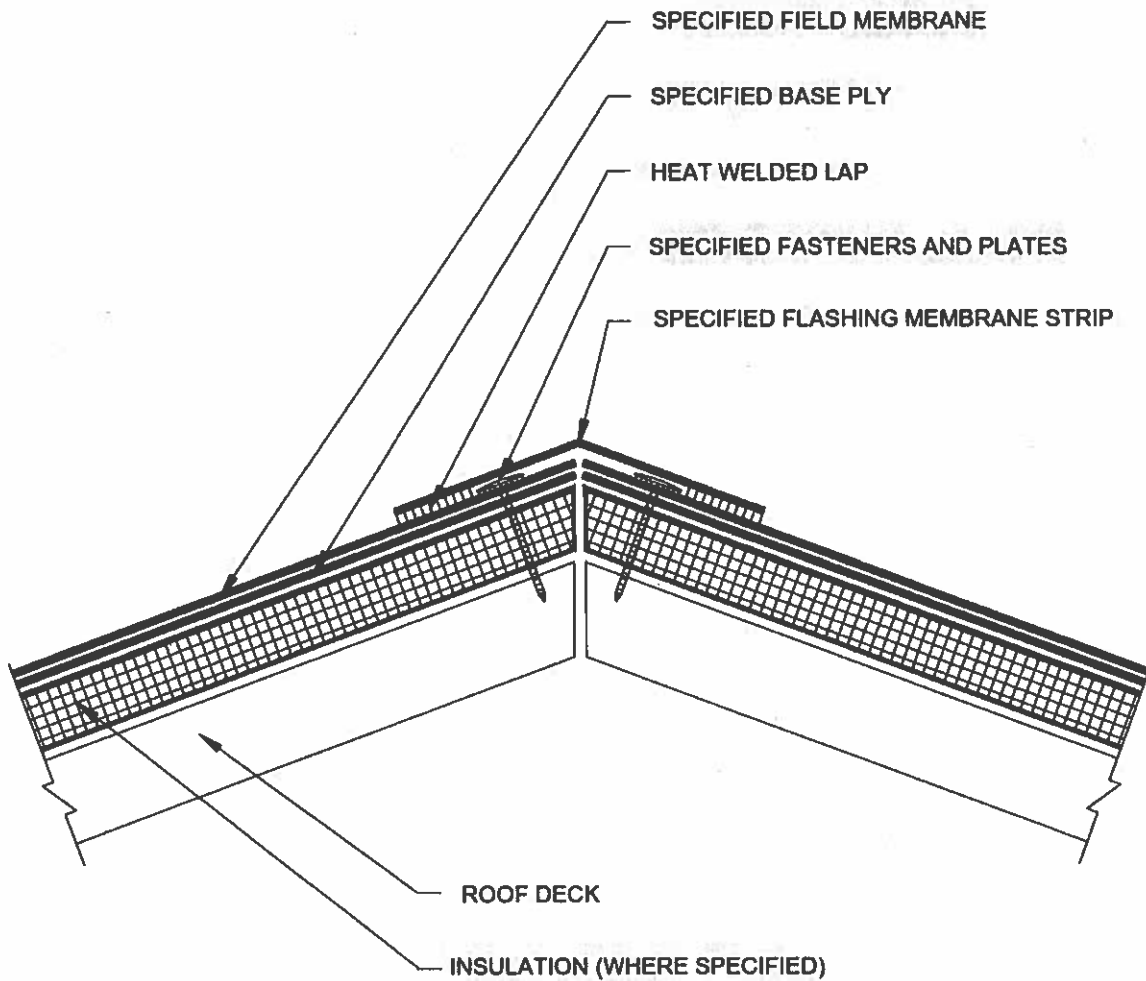


TREMCO®

SHEET TITLE:
VALLEY FLASHING

SCALE: **NTS**

DRAWING No.:
31



NOTES:

- 1) MEMBRANE FASTENER SPACING NOT TO EXCEED 12" O.C.
- 2) THE SPECIFIED MEMBRANE TO BE FULLY ADHERED IN SPECIFIED ADHESIVE.

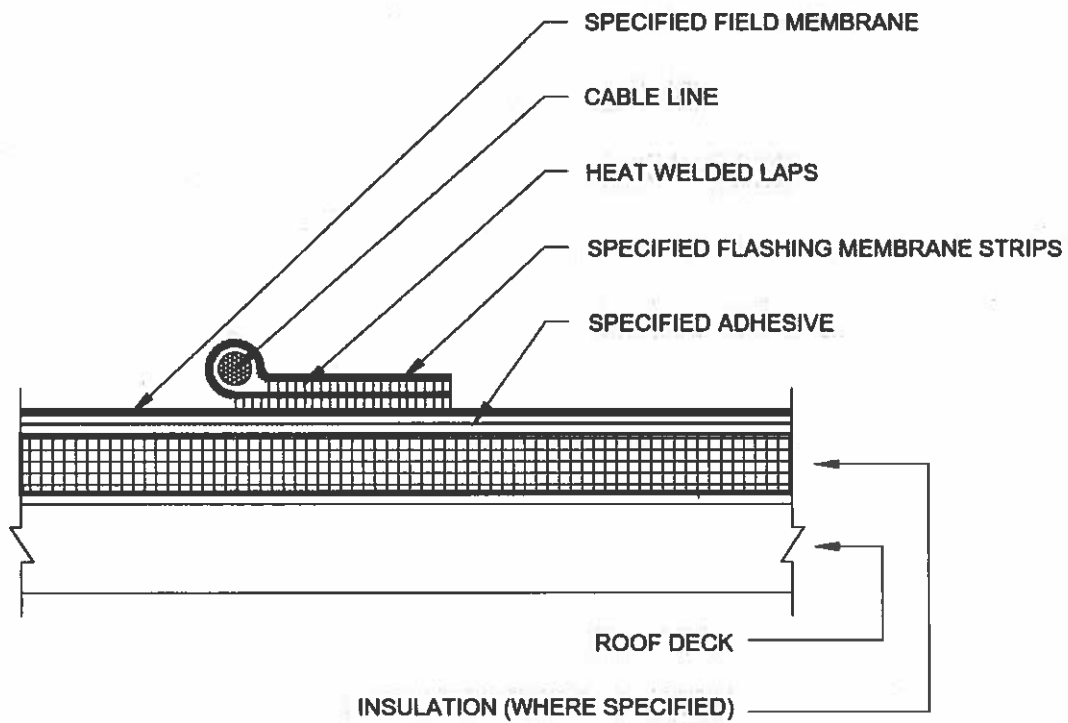
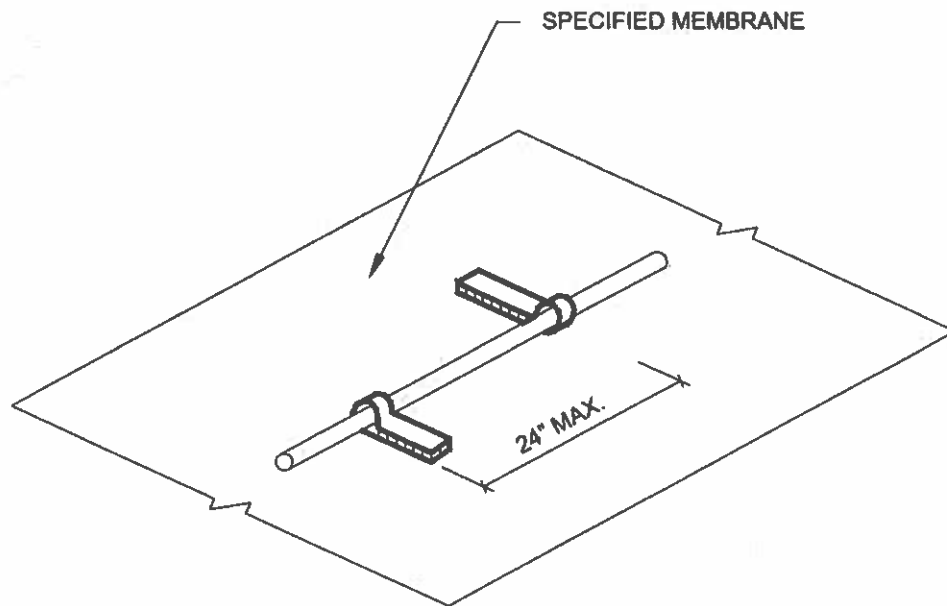
TREMCO®

SHEET TITLE

RIDGE FLASHING

SCALE **NTS**

DRAWING No. **32**

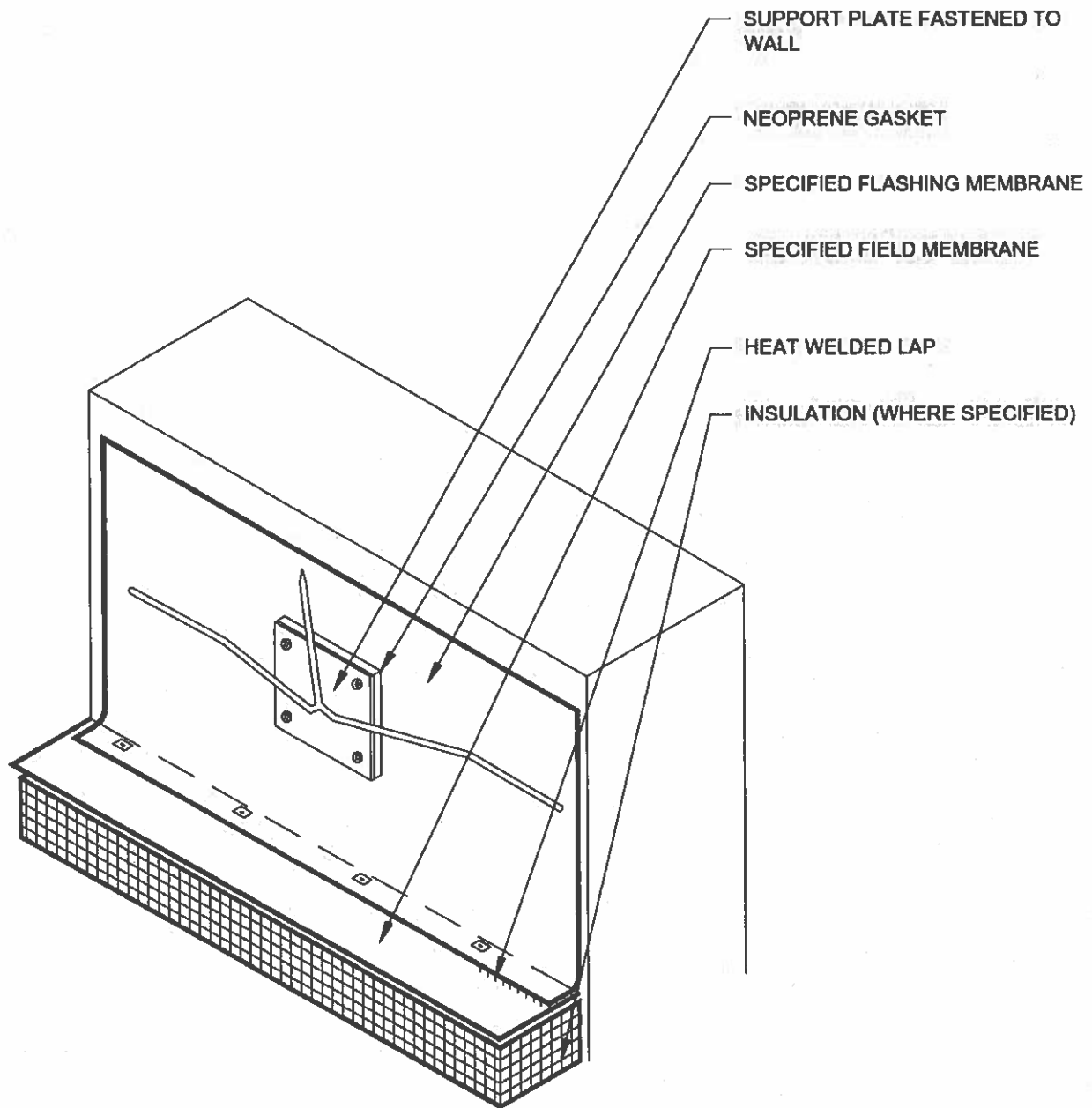


TREMCO[®]

SHEET TITLE:
**LIGHTNING CABLE SUPPORT
 STRAP**

SCALE: NTS

DRAWING No.:
 33



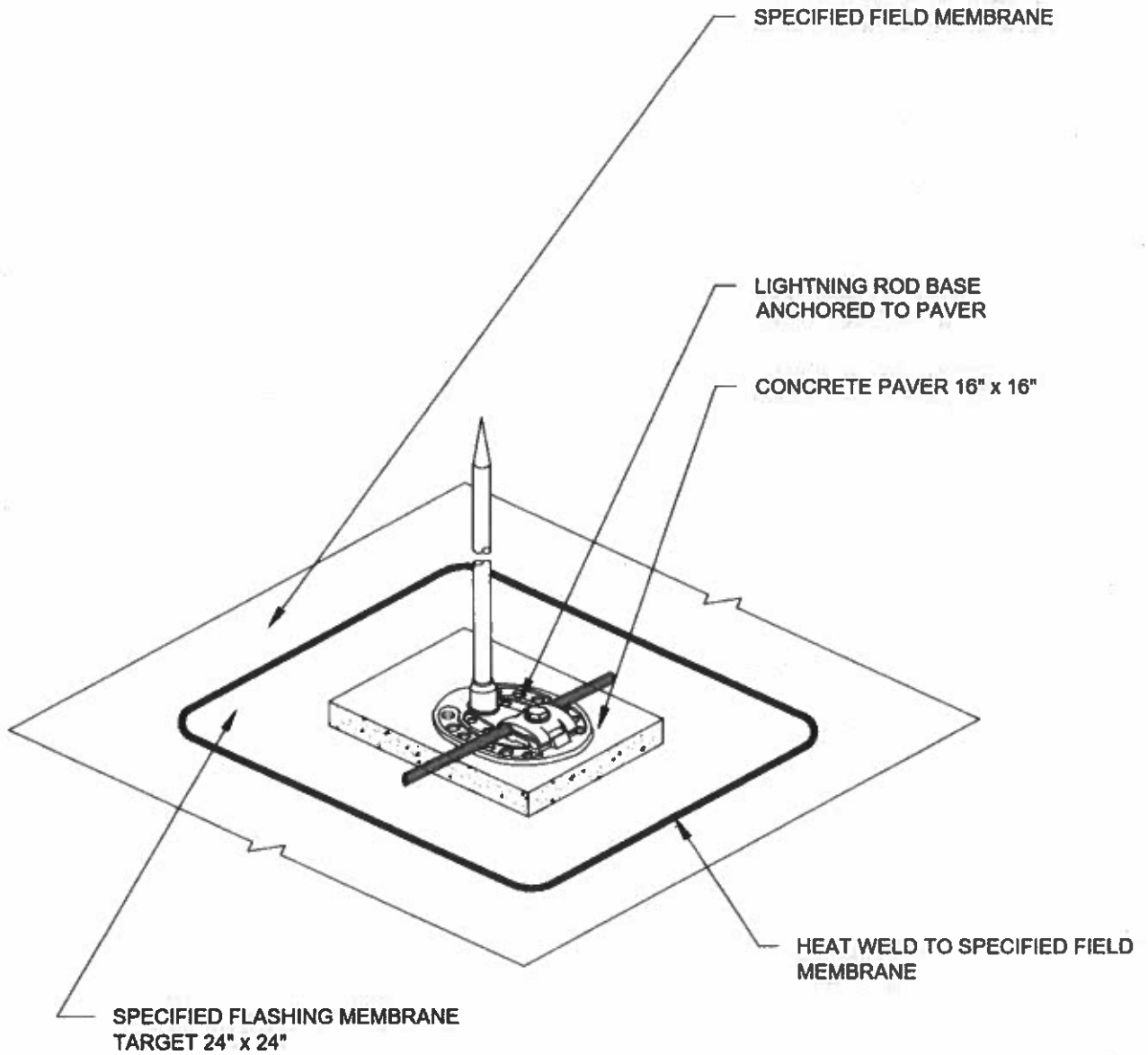
NOTES:

- 1) THE SPECIFIED MEMBRANE TO BE FULLY ADHERED IN SPECIFIED ADHESIVE.

TREMCO®

SHEET TITLE:
WALL MOUNTED LIGHTNING ROD
DETAIL

SCALE: NTS
DRAWING No.: 34



NOTES:

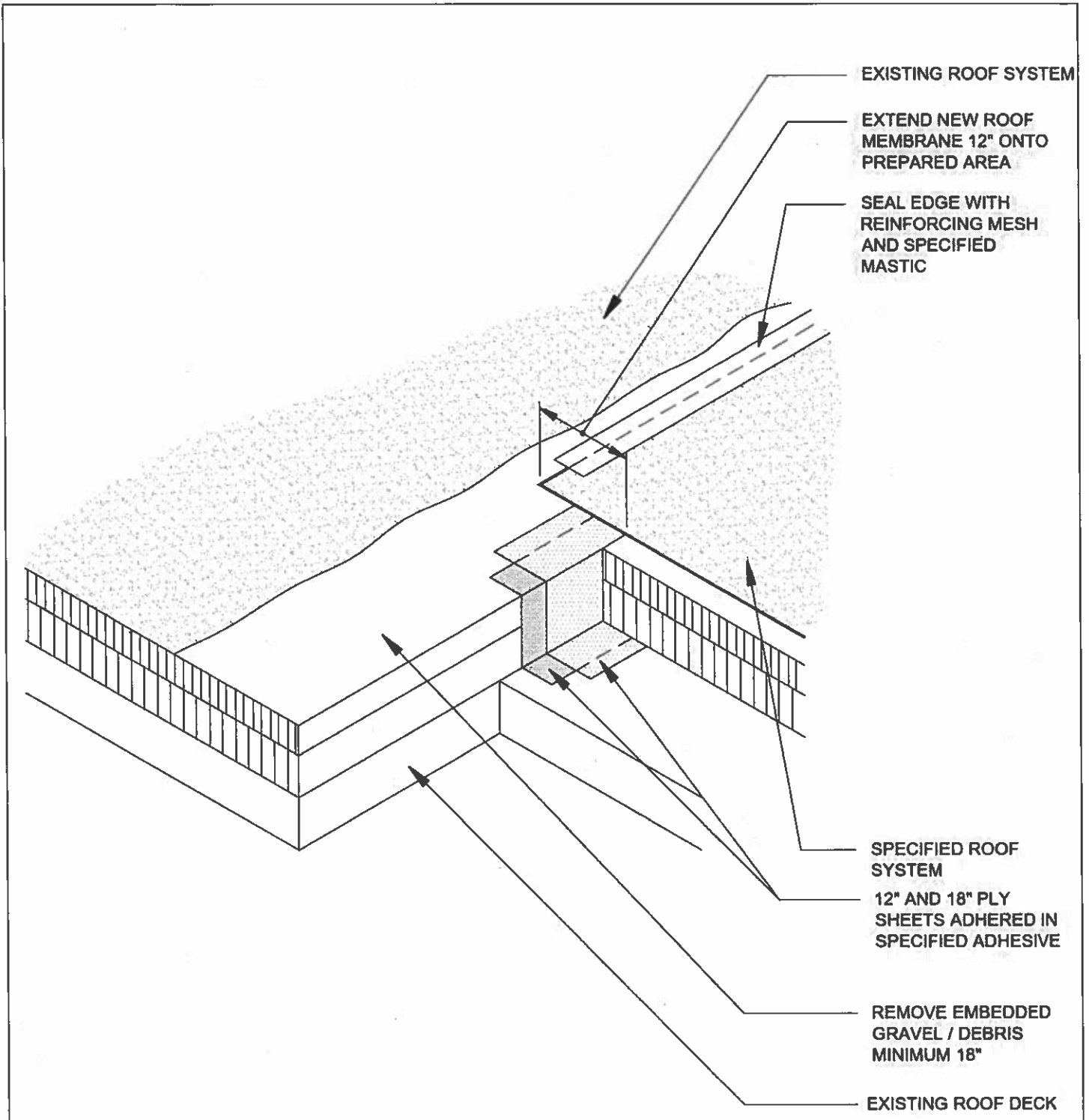
- 1) THE SPECIFIED MEMBRANE TO BE FULLY ADHERED IN SPECIFIED ADHESIVE.

TREMCO[®]

SHEET TITLE:
LIGHTNING ROD BASE DETAIL

SCALE: NTS

DRAWING No.:
35



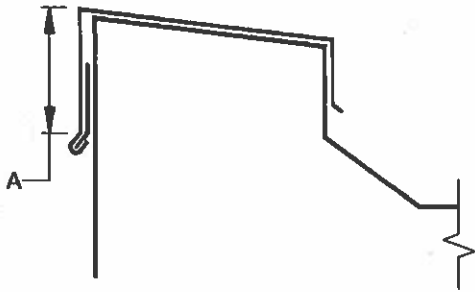
NOTES:

- 1) THE SPECIFIED MEMBRANE TO BE FULLY ADHERED IN SPECIFIED ADHESIVE.

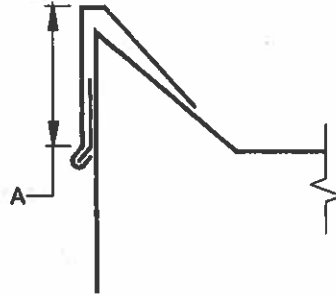


SHEET TITLE:
DAILY WATERSTOP / TIE-IN

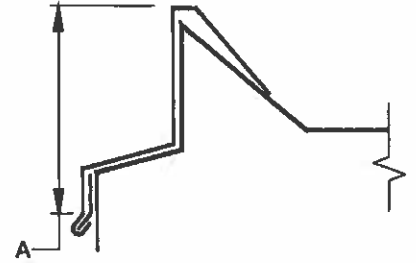
SCALE: **NTS**
 DRAWING No.:
36



COPING



CAP FLASHING
AND FASCIA



VARIATIONS

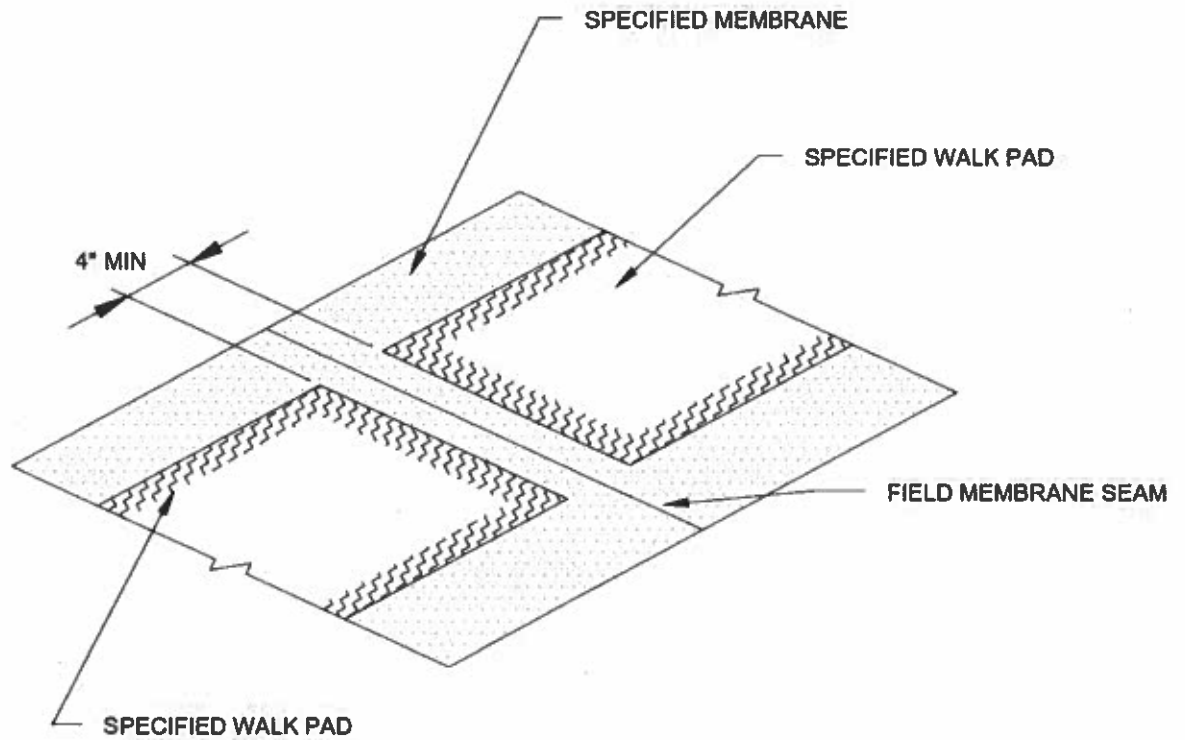
EXPOSED RFACE WITHOUT BREAKS "A" DIMENSIONS	GALVANIZED IRON	COLD ROLLED COPPER	ALUMINUM 3003-H14
UP TO 6" FACE	24 GA.	16 OZ.	.040" (18 GA.)
6" TO 8" FACE	24 GA.	16 OZ.	.050" (16 GA.)
8" TO 10" FACE	22 GA.	20 OZ.	.064" (14 GA.)
10" TO 15" FACE	20 GA.	ADD BRAKES TO STIFFEN	.080" (12 GA.)

TREMCO[®]

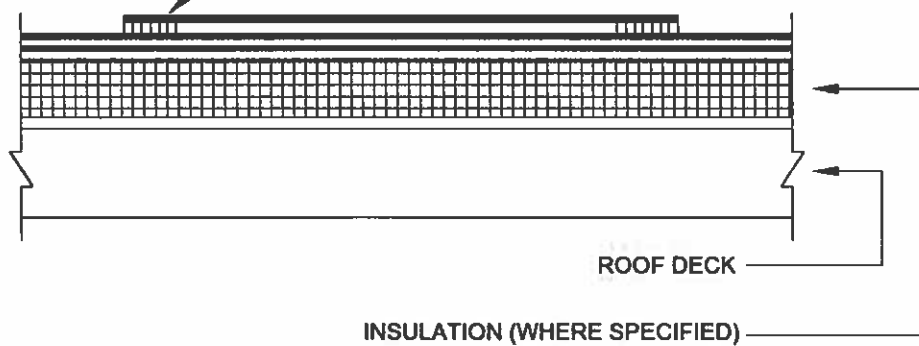
SHEET TITLE:
GAUGE OR THICKNESS GUIDE
(MINIMUM)

SCALE: NTS

DRAWING No.:
37



HEAT WELD WALK PADS IN PLACE ALL 4 SIDES. DO NOT CROSS FIELD MEMBRANE SEAMS. START AND STOP WALK PAD INSTALLATION 2" FROM FIELD SEAM.



NOTES:

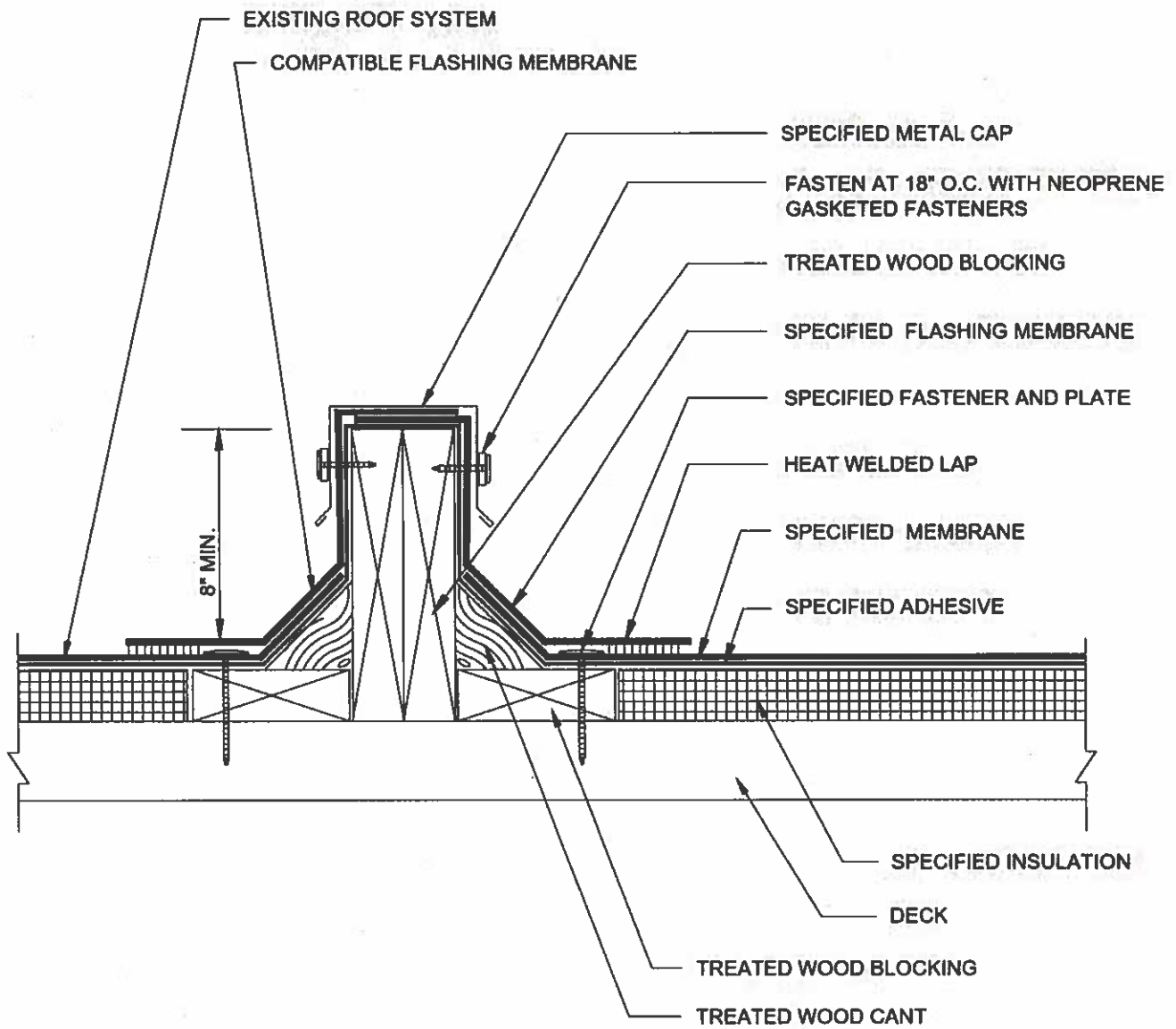
- 1) THE SPECIFIED MEMBRANE TO BE FULLY ADHERED IN SPECIFIED ADHESIVE.

TREMCO[®]

SHEET TITLE:
WALK PAD INSTALLATION

SCALE: NTS

DRAWING No.:
38



NOTE:

1. AREA DIVIDER SHALL PROVIDE MINIMUM 8" FLASHING HEIGHT AT BOTH ROOF SECTIONS.
2. INSTALL COMPATIBLE FLASHING MEMBRANE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AT EXISTING ROOF SECTION(S), HEAT WELD LAPS.
3. WOOD BLOCKING TO BE NOMINAL 2x6 MINIMUM.

TREMCO[®]

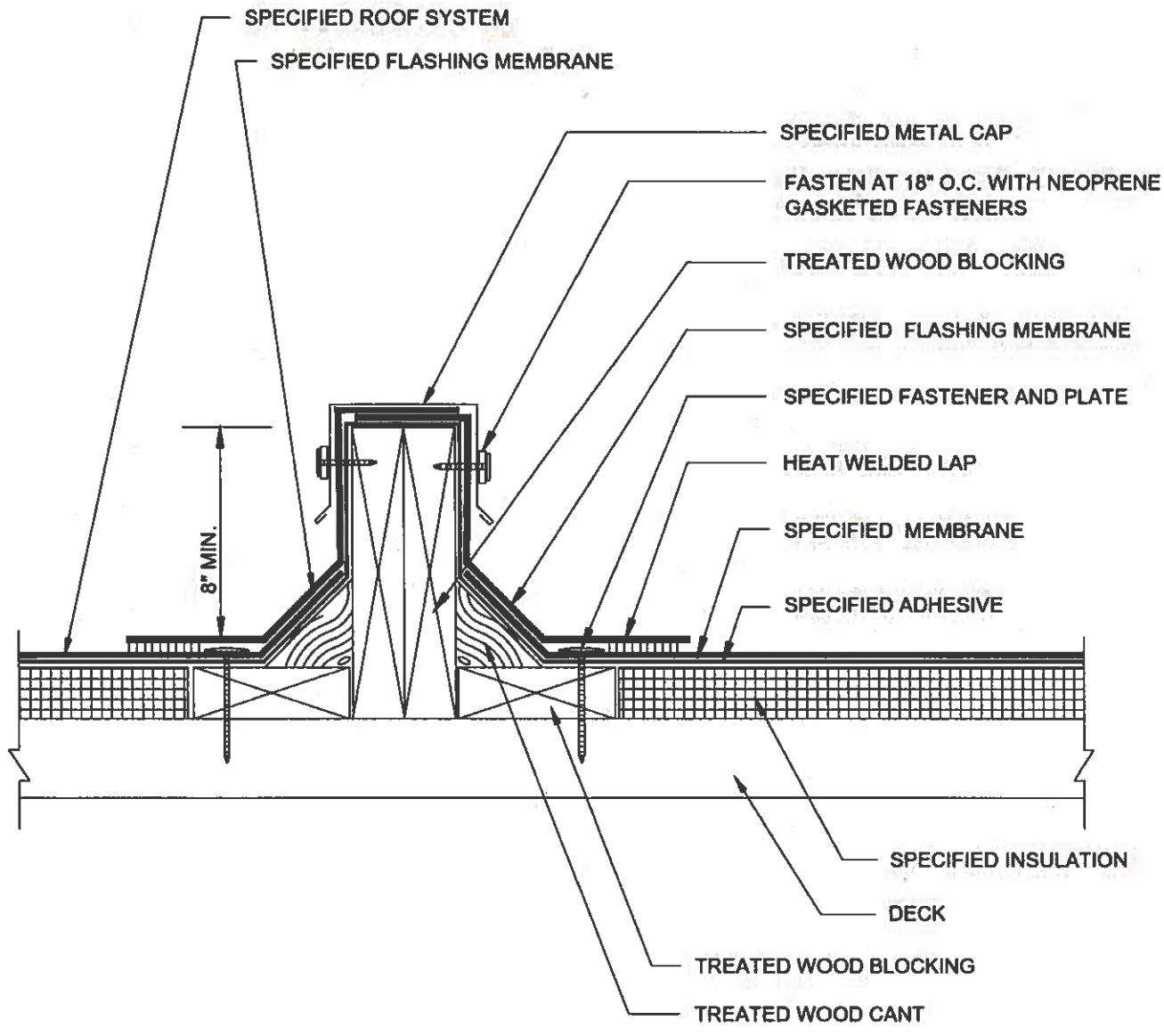
SHEET TITLE:

AREA DIVIDER CURB

SCALE: NTS

DRAWING No.:

39



NOTE:

1. AREA DIVIDER SHALL PROVIDE MINIMUM 8" FLASHING HEIGHT AT BOTH ROOF SECTIONS.
2. WOOD BLOCKING TO BE NOMINAL 2x6 MINIMUM.



SHEET TITLE:
AREA DIVIDER CURB

SCALE: **NTS**
 DRAWING No.:
39A

PROJECT OVERVIEW DRAWING





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ESCNJ AWARDED VENDORS

Athletics

Ben Shaffer Recreation Inc.
Fitness Lifestyles, Inc.
Metuchen Center, Inc. dba Garden State Apparel
Nickerson NY, LLC
Partac Peat
Riddell

Auto Parts & Supplies

Parts Authority, LLC

Bleachers

Nickerson Corporation

Boiler

Liberty Mechanical
Manhattan Welding Company, Inc.

Buildings & Grounds

Always Safe Sidewalk
Atra Janitorial Supply Co., Inc.
Bio-Shine, Inc.
Buckeye International, Inc.
Craftmaster Hardware
EA Morse
Envirox, LLC
eTemp
Ferguson Enterprises
General Chemical & Supply, Inc.
HD Supply Facilities Maintenance, LTD.
Hillyard, Inc.
Imperial Bag & Paper, LLC
Karcher North America
Kutol, Products Co.
Mainline Commercial Pools, Inc.
NaceCare Solutions
Nickerson Corporation
Nickerson NJ, LLC
Nilfisk-Advance, Inc.
Northeast Janitorial Supply Inc.
Oak Security Group
Penn Jersey Paper Co.

Buildings & Grounds cont'd.

Pro-Link, Inc.
Scoles Floorshine Industries
Simplify Chemical Solutions, Inc.
South Jersey Paper Products
Spartan Chemical Company, Inc.
Spruce Industries, Inc.
Tennant Sales and Service Co.
Triple S
United Sales USA Corp.
WB Mason

Building Management Systems

A.M.E., Inc.

Carpet

Commercial Interior Direct, Inc.
Direct Flooring
Hannon Floor Covering Corporation
The Gillespie Group

Career & Technical Education

Midwest Technology Products

Ceiling Tiles

Commercial Interiors Direct
General Chemical & Supply, Inc.
HD Supply Facilities Maintenance, LTD.
The Gillespie Group

Classroom Supplies

School Specialty, Inc.

Commercial Air Purifiers

RFS Commercial, Inc.

Commodities

Constellation New Jersey, Inc.
Direct Energy Business, LLC/NRG
Great American Gas & Electric
Woodruff Energy





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ESCNJ AWARDED VENDORS

Concrete

RFS Commercial, Inc.

Conservation

Cenergistic

Copy Machines



Konica Minolta Business Solutions, Inc.
Kyocera Document Solutions, Inc.

Cosmetology

The Burmax Company

COVID Testing

RCA Laboratory Services LLC dba GENETWORx

Digital Learning & Professional Development

Gaggle
Mind Play

Disaster Recovery

allRisk, Inc.
Insurance Restoration Specialists

Disinfection Services/COVID/Mold

Pathogend of New Jersey

Document Management

Accelerated Information Systems
AccuScan
Atlantic Business Products
Foveonics Imaging Technologies, Inc.

Electrical Vehicle Charging Stations

Timothy P. Bryan Electric Company, Inc.

Electrician

Lighton Industries
Magic Touch Construction
MTB Electric, LLC
Northeast Electrical Services, LLC
Signal Electric Corporation

Electrician cont'd.

Tri-State Light & Energy, Inc.
Troller Electric, LLC

Equipment and Tool Rental

HERC Rentals, Inc.
Hudson Machinery LLC

Facility Management Software



Brightly Software

Fencing

Fox Fence Enterprises

Fire Extinguisher/Alarms

Alarm & Communications Technologies, Inc.
Allied Fire & Safety Equipment Company, Inc.
Fire & Security Technologies
Open Systems Integrators, Inc.

Flooring

Classic Flooring Finishing, Inc.
Commercial Interior Direct
Direct Flooring
Hannon Floor Covering Corporation
The Gillespie Group



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ESCNI AWARDED VENDORS

Food Service

MAP International Import & Export Corporation
Sam Tell & Son, Inc.



Furniture

Aarco Products, Inc.
Academy Furniture and Supplies
Ackerson Furniture
Allied Plastics Company
Alumni Classroom Furniture
Amcase, Inc.
Arntab Manufacturing
Artco-Bell Corporation
BaiLar Interior Services
BFI
Biofit Engineering
Brodart Company
Claridge Products
Commercial Furniture Group
Commercial Interiors Direct
Computer Comfort, Inc.
Creative Library Concepts
Custom Educational Furnishings
Datum Filing Systems
Diversified Woodcrafts
Egan Visual/West
Environamics, Inc.
ESI Ergonomics Solutions
Exemplis, LLC
Fleetwood Group
Fomcore
Global Industries Group
Hann Manufacturing, Inc.
Haskell Office
Hertz Furniture Systems, LLC
Hon Company
Indiana Furniture Industries, Inc.
Interior Concepts Corporation
JMJS., Inc.

Furniture cont'd.

Jonti-Craft
Krueger International (KI)
Lakeshore Learning Materials
Lesro Industries
LIAT, LLC
Library Interiors, Inc.
Loftwall, Inc.
Longo Associates, Inc.
Mediatechnologies, LLC
MiEn Company
Milder Office
ModuForm, Inc.
National Public Seating (NPS)
Nickerson New Jersey
Nickerson NY, LLC
Palmer Hamilton
Palmieri Furniture, Inc.
Protective Solutions, LLC
Paragon Furniture, Inc.
Rapp Productions dba Furniture Lab
RFS Commercial, Inc.
Safco Products Company
Sauder Education
School Specialty, Inc.
Senator International, Inc.
Sico America
Smith Systems Manufacturing
Soyka Smith Design Studios
Special-T, LLC
Tanner North Jersey, Inc.
Toldeo Furniture
Trendway Corporation
Via, Inc.
Virco, Inc.
VS America
W B Manufacturing
W B Mason Company, Inc.



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ESC NJ AWARDED VENDORS

Generators

Foley, Inc.
Power Place, Inc.
Stewart and Stevenson Power Products, LLC

Glass & Glazing Services

Crystal Clear Glass

Grounds Equipment

Cherry Valley Tractor Sales
EquipTech, LLC dba Bobcat of Central Jersey
Deere & Company
E-Z-Go, Division of Textron, Inc.
Foley, Inc.
Groff Tractor New Jersey, LLC
Hoffman Equipment - JCB, Inc. North America
Jesco, Inc.
Kenvil Power Equipment, Inc.
KLBL, Inc. dba Vic Gerard Golf Cars
Laurel Lawnmower Services, Inc.
Lawn & Golf Supply, Inc.
McGrath Municipal Equipment
Modern Group, Ltd.
North Jersey Bobcat, Inc.
Ocean County Equipment, Inc. dba ACE Outdoor Power
Power Place, Inc.
Storr Tractor Company
Trius, Inc.
Turf Equipment & Supply Company, Inc.
U.S. Municipal Supply, Inc.

HVAC

All Coast Service Incorporated
Hanna's Mechanical Contracting, Inc.
Hutchins HVAC, Inc.
Inline Air Conditioning Company, Inc.
Liberty Mechanical Contractors, Inc.
McCloskey Mechanical Contractors, Inc.
Midcoast Mechanical, Inc.

Job Order Contracting

Consultant - Gordian

**Kitchen Equipment Maintenance and Repair
Services – Time and Material**

Jay Hill Repairs

Lawn Care

JCW, Inc. dba Natural Green Lawn Care
Fisher & Son Company, Inc

Lead Testing Consulting Services

Tectonic Engineering & Surveying Consultants P.C.
TTI Environmental, Inc.
Whitman

Lighting

Franklin-Griffith
Tristate LED, Inc.
Hellas Construction, Inc.

Lockers

Nickerson Corporation

Medical

Medco
Medcaleshop, Inc.
School Health Corporation
School Nurse Supply, Inc.
V.E. Ralph & Sons, Inc.

Mercury Flooring

B & G Restoration
Coastal Environmental Compliance, LLC

Modular Buildings

Mobilease Modular Space, Inc.

Musical

K & S Music
The Music Shop. LLC

Occupational & Physical Therapy Services

The Stepping Stones Group, LLC



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ESCNI AWARDED VENDORS

Office Supplies

W. B. Mason Company, Inc.

Paint and Paint Services

GPC, Inc.
The Sherwin Williams Co.

Paper

W B Mason Company, Inc.

Paving

Garden State Sealing, Inc.
Murray Paving & Concrete, LLC

Personal Protective Equipment/Etc.

Bio-Shine
EAI Education
Northeast Janitorial Supply, Inc.
Ran R Group, dba Eastern Janitorial Company
Special-T, LLC
W B Mason Company, Inc.

Pest Control Services

Alliance Pest Services

Photocatalytic Oxidation Air Purifiers

Bio-Shine, Inc.

Playground

Ben Shaffer Recreation, Inc.
Downes Forest Products, LLC
Marturano Recreation Company, Inc.
Rubberrecycle, LLC
Whirl Corporation, Inc.

Plumbing

Magic Touch Construction Co., Inc.
JMTK, LLC dba Rand Plumbing

Pool Supplies & Repair

Leslie's Poolmart, Inc.
Main Line Commercial Pools, Inc.

Printing

Allegra/Princeton
Atlantic Envelope Company
Concept Printing, Inc.
Courier Printing Corp.
Deans Graphics –now known as *Precision Print and Design LLC*
Envelopes & Printed Products, Inc.
Premium Productions, Inc.
Ridgewood Press

Radio Rentals

Goosetown Communications

Recording Systems

BIS Digital

Recycling Containers

T.M. Fitzgerald and Associates

Repair & Maintenance - JOC

Murray Paving & Concrete, LLC
Ascend Construction

Roofing



Weatherproofing Technologies, Inc. (Tremco)

School Bus

AT New York City, LLC
Creative Bus Sales, Inc.
H.A. DeHart & Son, Inc.
Robert H. Hoover & Sons, Inc.
Seon Systems Sales, Inc.
Van-Con, Inc.
Wolffington Body Company, Inc.



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ESCNJ AWARDED VENDORS

Scientific Equipment, Accessories & Supplies

School Specialty, Inc.

Scoreboards & Marquees



Daktronics Inc.
Nickerson Corporation

Security

Arrow Security
E.A. Waetjan, Inc.
Eastern DataComm, Inc.
Gemba Security Solutions, LLC
Metro One LPSG, Inc.
Open Systems Integrators, Inc.
Raptor Technologies, LLC.
Signal Electric Corp.
Turn-Key Technologies, Inc.
Window Film Depot, Inc.

Services

Architectural Tile Restoration, LLC
Core & Main LP
Enerwise Global Technologies, Inc., d/b/a CPower
Total Administrative Services Corporation
Tile Restoration, Inc.

Shredding

Imwoth, LLC dba IDS Auto Shred

Signs & Graphics

KC Sign

Snow

Cherry Valley Tractor Sales
Power Place, Inc.
Cliffside Body

Speech

Advance Education Advisement Corporation

**Spray Injection Pothole Patching System Rental and
Repair Services**

Patch Management, Inc.

Staffing

Delta-T Group

Stage Curtains

Ackerson Drapery & Decorator Services, Inc.

Technology

Apple, Inc.



CDW Government, LLC
Dellicker Strategies, LLC

Telecommunications

Cablevision
Cherry Road Technologies
Comcast Business
Data Network Solutions
Evolve IP
Lightpath NJ, LLC
PenTel Data
Planet Networks
RFP Solutions, Inc.
Spectrotel
Verizon
Vonage
Xtel Communications, Inc.

Tent Rental & Purchase

L & A Tent Rental, Inc.

Tires & Tire Repairs

Barnwell House of Tires

Toner

The Treehouse, Inc.



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ESCNI AWARDED VENDORS

Tree Trimming/Removal

Independence Constructors Corporation of New Jersey

Turf, Track & Courts



FieldTurf USA, Inc. -Subcontractor for Field Turf
Hellas Construction, Inc.
Shaw Integrated & Turf Solutions
Sprinturf, LLC

Ultra Violet Lighting

RFS Commercial, Inc.

Uniforms

Cintas Corporation #2
Keyport Army Navy
Smart Stitch, LLC

Vape Detection

Coskey Electronic Systems, LLC

Vehicles

A & K Equipment Co., Inc.

Altec Industries, Inc.
AT Northern DBA Mid-Atlantic Truck Centre
Bellmawr Truck Repair Co., Inc.
Beyer Brothers Corp.
Bucks County International, Inc.
Campbell Freightliner, LLC
Cliffside Body Corp.
Dejana Truck & Utility Equipment Co. or Dejana Truck
Detachable Container & Compactor Corp. dba Detcon
Elizabeth Truck Center
Eagle Equipment, Inc. dba Pierce Equipment Co.
First Choice Automotive Parts & Equipment
Frank's Truck Center, Inc.
Gabrielli Truck Sales
H.A. DeHart & Son, Inc.
Hudson County Motors, Inc.

Vehicles cont'd.

Mall Chevrolet
Mohawk Resources, Ltd.
Nielsen Ford of Morristown, Inc.(formerly Beyer Ford, LLC)
North Jersey Truck Center
Omaha Standard, LLC dba American Roll-off
Reed Systems, LTD
Robert H. Hoover & Sons, Inc.
Sanitation Equipment Corporation
Steril-Koni USA, Inc.
Tony Sanchez, LTD
Tri State Environmental Services, LLC
Trius, Inc.
US Municipal Supply, Inc.
Vacuum Sales, Inc.
Versalift East, LLC
W. E. Timmerman Co., Inc.

Water Bottle Filling Stations

Ferguson Enterprises, LLC