

Santa Maria Public Airport District
ROOF REPAIR: 3335 CORSAIR CIRCLE
Addendum No. 1
(January 29, 2024)

Contractors interested in bidding the work of this project are hereby notified of the following additions, deletions, changes, revisions, and/or modifications to the Plans and Specifications for this project.

I Changes to Contract Specifications:

1.01 Revise text on page 3, bottom of table of contents:

Appendix A: Roof Replacement Technical Specification
Appendix B: Santa Maria Public Airport District Contractors Guidebook
Appendix C: Operational Safety on Airports During Construction

To now read:

Appendix A: Santa Maria Public Airport Customs Building Roof Replacement
Technical Specifications

1.02 Revise text on page 28:

(l) Appendices:
Appendix A: Technical Roof Repair Specifications.
Appendix B: Santa Maria Airport Contractor Guidebook. (NOT THIS PROJECT)
Appendix C: FAA AC 150-5370-2G, Operational Safety on Airports During Construction.
(NOT THIS PROJECT)

To now read:

(l) Appendices:
Appendix A: Santa Maria Public Airport Customs Building Roof Replacement
Technical Specifications

1.03 Technical Specifications, Sections 10 – 13 (11 pages) is included as an attachment to this Addendum. Bidder to insert the Technical Specifications, Sections 10 – 13, in its entirety, into the specifications book after Section 90 Measurement and Payment.

1.04 Santa Maria Public Airport Customs Roof Replacement Technical Specifications (25 pages) is included as an attachment to this Addendum. Bidder to insert the Santa Maria Public Airport Customs Building Roof Replacement Technical Specifications, in its entirety, into the specification book as Appendix A.

No changes to bid date or time: **2:00 pm, February 21, 2024**

Bidding Contractors must acknowledge receipt of this Addendum in the appropriate blank on Page 17 of the contract book.

END OF ADDENDUM No. 1

/s/ Martin Pehl
General Manager

Attachments:

1. Technical Specifications prepared by Tartaglia Engineering (11 pages)
2. Appendix A: Santa Maria Public Airport Customs Building Roof Replacement
Technical Specifications (25 pages)

TECHNICAL SPECIFICATIONS

SECTION 10 - GENERAL REQUIREMENTS

10-1. NOTIFICATION

The Santa Maria Public Airport District (SMPAD) shall be supplied at all times with the names and telephone numbers of at least two (2) persons in charge of, or responsible for, the work, who can be reached for emergency work twenty-four (24) hours a day, seven (7) days a week. The Contractor shall notify the District and the Engineer at least forty-eight (48) hours prior to the commencement of any phase of the work on the project. The Contractor shall notify SMPAD and the Engineer at least thirty (30) days prior to the commencement of any runway closure periods.

10-2. PROJECT SCHEDULE, WORK SCHEDULE AND TIME LIMITATIONS

It is understood that time is of the essence in starting and completing construction. Therefore, the District intends to award the construction contract in a timely manner and the Contractor shall be prepared to meet the following project schedule:

<u>Event</u>	<u>Date</u>
Bid Opening:	In accordance with the Notice to Bidders
Board Contract Award:	Within 30 days of bid opening
Notice to Proceed:	Within 10 days of acceptance of contract documents including bonds and insurance
First Day of Construction:	Within 10 days of the Notice to Proceed

The Contractor shall submit to the Engineer at the preconstruction meeting (or sooner if possible) a work plan and schedule for accomplishment of all work called for by the contract. The Contractor's schedule shall conform with the above schedule.

10-3. TIME OF COMPLETION AND LIQUIDATED DAMAGES

A. Overall Contract Time:

The work on the project shall begin in accordance with the project schedule in Section 10-2 after receipt of the "Notice to Proceed" from SMPAD and all work shall be completed within **30 calendar days** after the starting date set forth therein.

Should the above time schedule not be met, it is agreed that the Contractor shall be liable for and shall pay to SMPAD, as fixed, agreed, and liquidated damages and not as a penalty, the sum of **Five Hundred Dollars (\$500.00) per day for each and every calendar day** of delay in completion of the work from the date of completion as specified herein or in any written extension of time granted by SMPAD, up to and including thirty (30) calendar days past the date established for completion. Contractor shall pay to District the sum of \$1,000.00 per calendar day as liquidated damages for each calendar day that Project shall remain incomplete past thirty (30) days after the date established for completion. Times of completion as specified will be enforced. Liquidated damages will be deducted from final payments and do not include overtime inspection charges.

10-4. RUNWAY CLOSURE - WORK WITHIN THE ROFA

Not a part of this project.

10-5. TAXIWAY AND TAXILANE CLOSURE

Not a part of this project.

10-6. APRON CLOSURE

No apron closures, this project.

10-7. DUST CONTROL

To the extent that a roof repair / replacement project can and does create dust, the Contractor's attention is directed to Section 10 of the State Specifications. Full compensation for dust control shall be included in other items of work. If necessary, the Engineer will instruct the Contractor to clean pavements in proximity that are presenting accumulated dust. Said cleaning operation could include mechanical sweeping, vacuum effort and/or adequate blowers, as necessary.

The Contractor's responsibility for Dust Control extends over evenings, weekends, holidays, and any extended non-work periods.

10-8. WATERING

Not a part of this project.

10-9. PRECEDENCE OF CONTRACT DOCUMENTS

The order of precedence of documents shall be: (1) Rules & Regulations of Federal/State Agencies relating to the source of funds for this project, (2) Permits from other agencies as may be required by law, (3) Special Provisions, (4) FAA Technical Specifications, (5) Technical Specifications including Appendices, (6) Plans, and (7) General Conditions.

Change orders, addendums, supplemental agreements, and approved revisions to plans and specifications will take precedence over documents listed above. Detailed plans shall have precedence over general plans.

Whenever any conflict appears in any portion of the contract, it shall be resolved by application of the order of precedence, unless determined otherwise by the Engineer. Additionally, with any conflict or inconsistency with contract document, unless instructed otherwise by the Engineer, the Contractor shall assume that the option or alternative that is more expensive, more labor intensive, and/or takes more time to complete, is the option or alternative required. Work required of the plans, either expressed or implied through the understanding of general, industry-standard construction practice, shall be considered as included in this contract.

10-10. PRECONSTRUCTION MEETING

Prior to the start of construction, the Engineer will schedule a meeting with Airport representatives and tenants and representatives of the several businesses in proximity to the work. The Contractor will be called upon to indicate, at this meeting, the proposed operations to accomplish the work. Prior to, or at the preconstruction meeting, the Contractor shall submit a written schedule of work to the Engineer for approval.

A "Notice to Proceed" will not be issued until the written schedule has been reviewed and approved by the Engineer.

10-11. SUBMITTALS

Submittals are required for all material intended for use on this project. The Contractor shall provide six (6) identical submittal packages for all material. Each submittal shall be clearly marked indicating all parameters that identify quality, integrity and capability, including but not limited to size, style, class, color, rating, conforming standard, etc. Manufactures cut sheets must be clearly marked. Material mix designs must specifically reference this project, and shall not be more than 6-months old from the date of the start of work on this project.

At Contractor option, submittals can be via electronic format, .pdf. Each submittal shall be complete, color, and marked up as previously described. Electronic file names shall be logical and uniform to allow for easy electronic filing and retrieval, one file per submittal (includes transmittal, cover sheet, and submittal material). Re-submittal file shall be a logical progression of the first submittal, for example: Resubmittal for Submittal 4 could be labeled "Submittal 4.1" or "Submittal 4, rev 1".

10-12. PROJECT SUPERINTENDENCE

A representative of the general contractor shall be on the project site at all times work is being performed by any contractor and /or subcontractor force. The general contractor representative shall be of a status and position to direct and control the subcontractor, and to take input and direction from the inspector and forward to the subcontractor.

10-13. POSTINGS

Not required of this contract.

10-14. PORTABLE RESTROOM FACILITIES

On-site restroom facilities are not available for use by Contractor forces. The Contractor shall provide restroom facilities at quantities and at locations throughout the project as necessary to adequately serve all general contractor and sub contractor forces working on this project. Portable restroom facilities shall be serviced regularly throughout the duration of the project.

10-15. PROJECT OFFICE

A project field office is not required of this project.

10-16. PROJECT PLANS

There are no plans for this project.

10-17. AS-BUILT PLANS

Not required of this project.

10-18. PROGRESS PAYMENTS

A schedule for progress payments will be established at the Pre-Construction Conference. It is typical to receive a progress payment every 30 days. On occasion, small projects may have just one progress payment.

In advance of any progress payment, the following will be reviewed:

- A. Submittal status.
- B. Access control badging (if applicable).
- C. As-Built Plans. Contractor is to keep these current.
- D. Certified Payroll statements, including benefit statements for the general contractor and all sub-contractors.

E. Dust control and storm water pollution prevention compliance.

The status of these items may impact the progress for periodic progress payments to the Contractor.

10-19 FACILITIES DURATION

In the event the contract requires contractor-provided facilities to support the field operation, the Contractor shall assume the duration of need for said facilities shall be the contract time period plus 50%. This applies to the following, at a minimum:

- A. Portable restroom
- B. Delineation
- C. Traffic control
- D. Access control / perimeter security
- E. Area lighting
- F. Project sign board

10-20 CONSTRUCTION SURVEY

Not required of this project.

10-21 CERTIFIED PAYROLL

The general contractor and all subcontractors are obligated to prepare and provide certified payroll statements and benefit statements at intervals in-line with contractor pay periods, not to exceed 30 days. Benefit statements shall be updated as employee benefits change. Statements shall be uploaded to the California Department of Industrial Relations (DIR) site intended to receive and log such information. Once the work begins, statements shall be prepared for each established period, including non-work periods, until such times as the work is deemed complete by the Owner. In addition, an electronic file copy of each prepared statement shall be e-mailed to the Owner.

10-22 MEASUREMENT AND PAYMENT

Any costs associated with any of the general requirements outlined in this section including, but not necessarily limited to, facility closure requirements, delineators, submittals, pavement cleaning, scheduling, maintaining access, water, attending meetings, providing general contractor representation at all times subcontractors or on-site, portable restrooms and other construction facilities, as-built plans, certified payrolls, etc., shall be included in other items of work and no additional measurement or payment (compensation) will be made therefore.

END OF SECTION

SECTION 11 – SAFETY AND SECURITY

11-1. GENERAL

The purpose of this section is to bring to the attention of the Contractor special safety regulations which are required when work is being performed adjacent to buildings, parking lots, and public rights-of-way, or within the Airport Operations Area (AOA).

11-2. STORAGE OF EQUIPMENT AND MATERIALS

- A. Equipment temporarily stored at the project shall be stored at the designated contractor yard, inside the airport perimeter security fence.
- B. All materials delivered to the project shall be stored at the designated contractor yard, inside the airport perimeter security fence.
- C. Material and equipment shall be positioned / parked / stored such-as to avoid being an attractive nuisance. Particular attention shall be given to this requirement over weekends, holidays, and non-work periods.

11-3. OPERATION OF EQUIPMENT

Each piece of self-powered equipment or vehicle shall carry, displayed in full view above the vehicle or piece of equipment, a flashing amber dome-type light (daylight or darkness) or FAA-standard orange and white checkered flag (daytime only).

11-4. VEHICLE OPERATIONS AND ACCESS

- A. Refer to the project layout plan for the contractor point of access to the airport.
- B. All vehicles must use haul routes designed by the airport to gain access to the various locations of work. Any deviation from designated haul routes must be approved, in advance, by the airport.
- C. Aircraft taxiing, taking off or landing, emergency vehicles, or airport vehicles shall have right-of-way over all construction vehicles.
- D. The speed limit of 15 mph, maximum, shall be observed by all construction vehicles on the taxiways or runway.
- E. Active aircraft maneuvering areas shall be kept clean of dirt, sand, oil, and other foreign material and debris at all times.

11-5. LIMITATIONS ON CONSTRUCTION

- A. Any open flame, welding, or torch-cutting operations are prohibited unless adequate fire and safety precautions are approved by the Engineer prior to commencement of said operations.
- B. Any open trenches, excavations, earth voids created by felled trees, and stockpiled material at the construction site should be prominently marked with red flags and/or cones and lighted by light units acceptable to the Engineer during hours of restricted visibility and/or darkness.
- C. No debris, grindings, chips, mulch, timber, or waste material generated from this project shall be deposited on airport property at all, either inside or outside the fence.

11-6. DELINEATION OF WORK AREAS

The Contractor shall be responsible for clearly delineating the limits, or phases, of his operation. Delineation shall be installed in accordance with the industry standard delineation practices and details included on the plans. Delineation left overnight shall be clearly and adequately lighted. Batteries shall be replaced monthly.

For building improvement projects including roof repair and replacement projects, the Contractor shall install and maintain delineation around the structure a distance out from the exterior wall of the structure equal to half the wall height, at a minimum.

11-7. PUBLIC RIGHT OF WAY

No interaction with the public right-of-way during the completion of the work of this contract.

11-8. AIR-BAND RADIO

Not required of this project.

11-9. SECURITY

Throughout the duration of the project, the security of the airport provided by the perimeter fence and access gates shall remain equal to the pre-project condition. The integrity of the perimeter fence shall remain intact during construction. If necessary to facilitate construction, the Contractor shall construct, install, and maintain temporary perimeter fencing of equal or greater integrity than existing. All temporary fence alignments shall be reviewed and approved by the Engineer before installing.

Manual access gates normally closed will remain closed. After entering or exiting the airport through an automatic gate, the Contractor shall remain in close proximity to the gate until the gate is fully closed, prohibiting airport access to any other individual.

After entering the airport through a manual gate, the Contractor must lock himself in. All manual gates shall be locked after leaving the airport as well. During material import or export operations, the Contractor shall maintain a sentry at the access gate. The sentry shall be prepared to deny access to any unauthorized individuals. The gate shall be locked during all sentry breaks or lunch.

All employees working inside the fence at Santa Maria Airport shall successfully proceed through a background security check and security training program, and then receive a photo identification (badge) that shall be carried with the worker at all times while inside the fence. Upon receipt of a badge, the employee is considered safe and suitable for work within the secured area. He is responsible for himself. In addition, the employee can be considered an escort, tasked to accompany those whom do not acquire a badge. As an escort, he is responsible for himself and those in his charge.

- A. Non-badged workers shall work under the direct control of an escort. This means close enough to hear and respond to verbal commands, and no further than 50 feet separation.
- B. The escort responsibility is full time, from the moment the non-badged employee enters the secured area until the moment he leaves. If the escort goes to lunch, all non-badged employees in his charge go to lunch. If a non-badged employee goes to the bathroom, the escort and all other non-badged employees under the charge of the escort go to the bathroom.
- C. Due to the critical communication link responsibilities of escorts, they must remain away from operating equipment an adequate distance to hear and be heard.
- D. Truck drivers including material delivery drivers shall be badged or shall motor in and out of the airport under direct control of an escort.

- E. A violation of the security badging program including escort responsibility (worker, employee, material delivery driver) will result in TSA review and possible financial and work capability sanctions. It is possible that fines could exceed \$10,000 for each violation. In addition, it is possible that an employee or truck driver may be escorted off the airport, with future access denied.
- F. Fines levied against the Airport District by any state or federal agency for safety and security violations attributed to contractor operations, will be passed directly, dollar for dollar, on to the general contractor, being deducted from final payments.

11-10. NIGHT WORK LIGHTING

Contractor shall provide night-shift lighting to the level prescribed by Cal-OSHA, for all night work. Lighting shall cover the complete work area, the point of entry to the airport, and periodically along the on-airport access route between contractor yard and work area. Night lighting shall be pointed down toward the work and out of the view of approaching pilots and aircraft. Night lighting shall remain in-place until adequate final inspection and acceptance of work areas and haul route surfaces by the inspector. All night shift lighting must be off and completely removed from the ROFA before re-opening the runway.

11-11. MEASUREMENT AND PAYMENT

Measurement for Safety and Security shall be at a straight line rate in proportion to the percent of overall contract completeness, for each bid schedule.

Payment for Safety and Security shall be at the contract lump sum price bid under Bid Item No. 2, Safety and Security.

The Contractor's bid price for Safety and Security **shall not exceed ten percent (10%)** of the total amount of the bid. In the event the project includes multiple bid schedules with multiple Safety and Security bid items, the maximum amount of each Safety and Security bid item shall not exceed ten percent (10%) of the bid schedule total. Payments made for Safety and Security will be excluded from consideration in determining compensation under changed conditions.

Payments as described shall be full compensation for the furnishing of all materials and for all labor, equipment, tools and incidentals necessary to complete the items of work as described herein.

END OF SECTION

SECTION 12 - MOBILIZATION

12-1. MOBILIZATION

Mobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies, submittals, schedule preparation, and incidentals to the project site; for the establishment of all material storage yards, portable restroom facilities, sanitary facilities, and other facilities as required for work on the project; for the procurement of construction water; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various contract items on the project site.

12-2. MEASUREMENT AND PAYMENT

Payment for mobilization shall be made at the contract lump sum price bid under Bid Item No. 1, Mobilization. This price shall be full compensation for the furnishing of all materials and for all labor, equipment, tools and incidentals necessary to complete the items of work.

Mobilization will be paid to 100% of the lump sum amount at the time the overall progress payment reaches or exceeds 50% of the total contract amount. Prior to this point, Mobilization will be paid for in straight line proportions thereof.

The Contractor's bid price for Mobilization **shall not exceed eight percent (8%)** of the total amount of the bid. In the event the project includes multiple bid schedules with multiple Mobilization bid items, the maximum amount of each Mobilization bid item shall not exceed eight percent (8%) of the bid schedule total. Payments made for mobilization will be excluded from consideration in determining compensation under changed conditions.

END OF SECTION

SECTION 13 – ROOF REPAIR / REPLACEMENT

13-1. GENERAL

This item shall consist of furnishing all labor, equipment, and materials as necessary to satisfactorily perform all roof repair / replacement work on an existing structure, including but not limited to permit acquisition (contractor-paid), removal and disposal of existing materials, purchase, delivery and installation of new materials, and satisfactory completion of roof repair / replacement as described here-in, and in referenced technical specifications elsewhere in this booklet.

In addition, the work includes removal and replacement of select failed, individual sheathing pieces, agreed upon with the Inspector.

13-2. STANDARDS AND PERMITS

- A. All work shall be in conformance with the California Building Code (CBC), as last revised.
- B. The permitting agency for this project / work is the City of Santa Maria. On behalf of the Santa Maria Public Airport District, the Contractor shall apply for, pay for, and secure a building permit for this work.

13-3. TECHNICAL SPECIFICATIONS

- A. All materials, work, and workmanship shall be in conformance with the technical specifications included as an appendix to this specification / contract book.

13-4. MATERIALS

- A. Roof Sheathing: ½” thick APA-rated radiant barrier CDX plywood.
- B. All other materials in accordance with the technical specifications included in the appendix.

13-5. CONSTRUCTION METHODS

- A. All work and workmanship, methods, and procedures shall be in conformance with the technical specifications included as an appendix to this specification / contract book.
- B. The contractor is responsible for site / worker safety, providing ample lifts, braces, supports, scaffolds, etc., as necessary to safely accomplish the effort.
- C. Delineate the work site to help define a public limited access space around the building.
- D. Contractor is advised the work of this project may take place concurrent with other construction efforts in proximity including on / inside this structure. Contractor shall provide reasonable accommodations for access to others on the site.
- E. Maintain a clean site, removing and disposing excess materials / waste materials as it is generated. All materials shall be secured, capable of withstanding prop-blast winds (50 mph) from nearby aircraft, at any time, evenings and weekends included.
- F. Coordinate and schedule inspection by the permitting agency as necessary to satisfy all conditions and requirements of the permit and applicable codes.
- G. Gain input from the Inspector regarding the individual sheathing pieces that are to be removed and replaced. Remove and dispose roof sheathing that has failed or deteriorated. Install replacement sheathing in accordance with the specifications.

13-6. SOLID WASTE DISPOSAL

- A. In accordance with state mandates to all municipalities and public agencies including special districts, the Santa Maria Public Airport District has a goal to minimize the volume (tons) of waste material delivered to the landfill.
- B. Material to be sorted and classified as necessary to be accepted as recyclable by the local receiving facilities.
- C. All material collected shall be loaded into street-legal weighted tank trucks, hauled off the airport, and legally disposed. The contractor shall provide copies of disposal receipts for all loads hauled off.
- D. Contractor to document all solid waste material leaving the site, with a break-out for material delivered to recycle centers and material sent to the landfill.
- E. No material shall be dumped on -site.

13-7. ACCEPTANCE

- A. The roof repair / replacement shall have been satisfactorily performed in accordance with these specifications.
- B. All required inspections shall have been performed and satisfactorily documented. The inspectors card shall be signed off and delivered to the District.
- C. The City of Santa Maria Permit shall be complete and closed.
- D. Off-site disposal documents to be delivered to the District, including disposal receipts and a contractor-prepared spreadsheet showing each load.
- E. The work site shall be swept clean, and the area shall be free of all residual dirt, dust, excess construction materials, solid waste materials, etc.
- F. The port-a-potty shall be removed from the site, all contractor locks to be removed, and all security badges returned to the District.

13-8. MEASUREMENT AND PAYMENT

The measurement for pavement for Remove and Replace Roof, Complete, shall be on a job-lot basis, for acceptably performing the work of this specification.

The measurement for payment for Remove and Replace Roof Sheathing shall be on a per-sheet basis (each), or portion thereof, with each sheet being 4.0-foot by 8.0-foot dimension. It is understood the quantity identified in the bid schedule is a maximum quantity. Actual measurements for work complete shall be less than or equal to this amount.

Payment for Remove and Replace Roof, Complete shall be at the bid Lump Sum amount for Bid Item 2, based on percent complete milestones, in 10% increments.

Payment for Remove and Replace Roof Sheathing shall be at the bid Per Unit price for Bid Item 3, based on the quantity of actual sheathing pieces removed and replaced, as counted in the field by the Inspector. It is understood the final quantity for payment shall be less than or equal to the estimated quantity.

Said payments as described shall be considered full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete these items of work.

END OF SECTION

**APPENDIX A
SANTA MARIA PUBLIC AIRPORT
CUSTOMS BUILDING
ROOF REPLACEMENT TECHNICAL SPECIFICATIONS**

Santa Maria Public Airport

Customs Building Roof Replacement June 2023





075416 KETONE ETHYLENE ESTER (KEE) ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Removal of existing roofs down to decking.
2. Mechanically-fastened thermoplastic KEE roofing system on wood deck, including:
3. Roof insulation.
4. Roof insulation cover board.
5. Removal of unused roof hatch and decking over opening.
6. Walkway material.

B. Unit Prices: Refer to Division 01 Section "Unit Prices" for description of Work in this Section affected by unit prices.

1. Unit Price #1: Wood deck repair per 4'x8' sheet of plywood installed

C. Contractor must work within pre-determined dates and times for working on each campus. Schedule to be provided by Owner prior to *bid* date.

1.2 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D1079 "Standard Terminology Relating to Roofing and Waterproofing" and glossary in applicable edition of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" for definition of terms related to roofing work in this Section.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Roofing Conference: Conduct conference at Project site.

1. Meet with Owner, Owner's Consultant, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
2. Review drawings and specifications.
3. Review methods and procedures related to roofing installation, including manufacturer's written instructions.

4. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
5. Examine substrate conditions and finishes for compliance with requirements, including flatness and fastening.
6. Review structural loading limitations of roof deck during and after roofing.
7. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
8. Review governing regulations and requirements for insurance and certificates if applicable.
9. Review temporary protection requirements for roofing system during and after installation.
10. Review roof observation and repair procedures after roofing installation.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Wind Uplift Resistance Submittal: For roofing system, indicating compliance with wind uplift performance requirements.

1.5 INFORMATIONAL SUBMITTALS

- A. Contractor's Product Certificate: Submit certificate, indicating products intended for Work of this Section, including product names and numbers and manufacturers' names, with statement indicating that products to be provided meet the requirements of the Contract Documents.
- B. Qualification Data: For Installer, Manufacturer and Roofing Inspector.
 1. Include letter from Manufacturer written for this Project indicating approval of Installer.
- C. Warranties: Unexecuted sample copies of special warranties.

1.6 CLOSEOUT SUBMITTALS

- A. Executed copies of warranties.
- B. Maintenance Data: To include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of five years' experience installing products comparable to those specified, able to communicate verbally with Contractor, Owner's Consultant, and employees, and qualified by the manufacturer to install manufacturer's product and furnish warranty of type specified.

- B. **Manufacturer Qualifications:** Approved manufacturer listed in this Section, UL listed for roofing systems comparable to that specified for this Project, with minimum five years' experience in manufacture of thermoplastic roof membrane products in successful use in similar applications.
- C. **Roofing Inspector Qualifications:** A technical representative of manufacturer and experienced in the installation and maintenance of the specified roofing system, qualified to perform roofing observation and inspection specified in Field Quality Control Article, to determine Installer's compliance with the requirements of this Project, and approved by the manufacturer to issue warranty certification. The Roofing Inspector shall be one of the following:
 - 1. An authorized full-time technical employee of the manufacturer.
- D. **Manufacturer's Installation Instructions:** Obtain and maintain on-site access to manufacturer's written recommendations and instructions for installation of products.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.9 PROJECT / FIELD CONDITIONS

- A. **Weather Limitations:** Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
- B. **Daily Protection:** Coordinate installation of roofing so insulation and other components of roofing system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.
 - 1. Provide tie-offs at end of each day's work to cover exposed roofing and insulation with a course of roofing sheet securely in place with joints and edges sealed.
 - 2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing.

3. Remove temporary plugs from roof drains at end of each day.
4. Remove and discard temporary seals before beginning work on adjoining roofing.

1.10 WARRANTY

- A. **Manufacturer's Warranty:** Roof System Manufacturer's standard form in which Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within warranty period, as follows.
 1. **Form of Warranty:** Manufacturer's standard warranty form.
 2. **Scope of Warranty:** Work of this Section and including sheet metal details and termination details installed by the roof system Installer and approved by the Roof System Manufacturer.
 3. **Warranty Period:** 20 years from date of completion.
- B. **Manufacturer Inspection Services:** By manufacturer's technical representative, to report maintenance responsibilities to Owner necessary for preservation of Owner's warranty rights. The cost of manufacturer's inspections is included in the Contract Sum.
 1. **Inspections to occur in following years:** 2, 5, 10, 15 following completion.
- C. **Installer Warranty:** Installer's warranty signed by Installer, as follows.
 1. **Form of Warranty:** Form acceptable to Roofing Manufacturer and Owner.
 2. **Scope of Warranty:** Work of this Section.
 3. **Warranty Period:** 2 years from date of completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. **Basis of Design:** The roof system specified in this Section is based upon products of Tremco CPG Inc, Beachwood, OH, (800) 562-2728, www.tremcoroofing.com that are named in other Part 2 articles. Provide specified products.
- B. **Source Limitations:** Obtain components for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. **General Performance:** Installed membrane roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Membrane roofing and base flashings shall remain watertight.

1. Accelerated Weathering: Roofing system shall withstand 10,000 hours of exposure when tested according to ASTM G152, ASTM G154, or ASTM G155.
 2. Impact Resistance: Roof membrane shall resist impact damage when tested according to ASTM D3746/D3746M, ASTM D4272/D4272M, or the "Resistance to Foot Traffic Test" in FM Approvals 4470.
- B. Flashings and Fastening: Provide base flashings, perimeter flashings, detail flashings and component materials and installation techniques that comply with requirements and recommendations of the following:
1. FM Global 1-49: Loss Prevention Data Sheet for Perimeter Flashings.
 2. FM Global 1-29: Loss Prevention Data Sheet for Above Deck Roof Components.
 3. NRCA Roofing Manual (Sixth Edition) for construction details and recommendations.
 4. SMACNA Architectural Sheet Metal Manual (Seventh Edition) for construction details.
- C. Exterior Fire-Test Exposure: ASTM E108, Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.
- D. Solar Reflectance Index: Not less than 78 when calculated according to ASTM E1980, based on testing identical products by a qualified testing agency.
- E. Energy Performance: Roofing system shall have an initial solar reflectance index of not less than 0.70 and an emissivity of not less than 0.75 when tested according to CRRC-1.

2.3 MATERIALS, GENERAL

- A. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roof membrane manufacturer based on testing and field experience.

2.4 THERMOPLASTIC MEMBRANE MATERIALS

A. KEE Roof Membrane:

1. Thermoplastic Ketone Ethylene Ester (KEE) coated polyester fabric-reinforced sheet, ASTM D6754.
 - a. Basis of design product: Tremco, TremPly **KEE Single Ply Roof Membrane**.
 - b. Breaking Strength, minimum, ASTM D751: Machine direction, 500 lbf (87 kN/m); Cross machine direction, 400 lbf (70 kN/m).
 - c. Tear Strength, minimum, ASTM D751: Machine direction, 125 lbf (21 kN/m); Cross machine direction, 145 lbf (25 kN/m).
 - d. Elongation at Break, ASTM D751: 20 percent.

- e. Dynamic Impact/Puncture Resistance, ASTM D5635: Pass.
 - f. Minimum Membrane Thickness, nominal, less backing, ASTM D751: **45 mils**
 - g. Thickness over fiber, optical method: 0.014 inches.
 - h. Accelerated Weathering, ASTM G155 and ASTM G154: Not greater than 5,000 hr., no cracking or crazing.
 - i. Abrasion Resistance, ASTM D3389: Not greater than 2,000 cycles, H-18 wheel, 1,000 g load.
 - j. Color: White.**
 - k. Solar Reflectance Index (SRI), ASTM E1980: 110 (White, initial), 86 (White, 3-yr aged).
- B. Sheet Flashing: Manufacturer's standard, smooth-backed, sheet flashing of same material, type, reinforcement, thickness and color as KEE roof membrane.

2.5 AUXILIARY ROOFING MATERIALS

- A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use, and compatible with membrane roofing.
- 1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
- B. Flashing Membrane Adhesive:
- 1. Bonding adhesive, solvent based fast drying, VOC-compliant, for bonding KEE smooth-backed single ply membranes and flashings to substrates.
 - a. Basis of design product: Tremco, TremPly KEE LV Bonding Adhesive.
 - b. VOC, maximum, ASTM D 3960: 200 g/L.
- C. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch (25 mm by 3 mm) thick; with anchors.
- D. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening components to substrate, and acceptable to membrane roofing system manufacturer.
- E. Prefabricated Pipe Flashings: As recommended by roof membrane manufacturer.
- F. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

2.6 ROOF INSULATION MATERIALS

- A. General: Preformed roof insulation boards manufactured or approved by roofing manufacturer, selected from insulation manufacturer's standard sizes, suitable for application, and of thicknesses indicated.
 - 1. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated, not less than two times the roof slope.
- B. Roof Insulation: Provide roof insulation product in thicknesses indicated in Part 3 as follows:
 - 1. Board Insulation, Polyisocyanurate: CFC- and HCFC- free, with recycled content glass-fiber mat facer on both major surfaces, ASTM C1289 Type II Class 1.
 - a. Basis of design product: Tremco, **Trisotech Insulation**.
 - b. Compressive Strength, ASTM D1621
 - c. Conditioned Thermal Resistance at 75 deg. F (24 deg. C): 14.4 at 2.5 inches (50.8 mm) thick.
 - d. **Thickness: R10= 1.75"**

2.7 ROOF INSULATION ACCESSORIES

- A. Cover Board:
 - 1. Gypsum panel, glass-mat-faced, ASTM C1177/C1177M.
 - a. Basis of design product: **Tremco/GP Gypsum DensDeck**.
 - b. **Thickness: 1/4 inch**
- B. Insulation Cant Strips: ASTM C 208, Type II, Grade 1, cellulosic-fiber insulation board.
- C. Wood Cant Strips: Comply with requirements in Division 06 rough carpentry Section.
- D. Tapered Edge Strips: ASTM C 208, Type II, Grade 1, cellulosic-fiber insulation board.
- E. Substrate Joint Tape: 6- or 8-inch- (150- or 200-mm-) wide, coated, glass fiber.
- F. Insulation Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer.

2.8 SHEET METAL

- A. Counter Flashings:
 - 1. 24ga galvanized steel

2. Accessories as required for complete installation. Accessories to have same finish. Trim as required to provide necessary protection to the membrane flashings.
- B. Coping Caps and edge metals:
1. Fabricate from: Tremco Clad metal; see typical details attached.
- 2.9 WALKWAY MATERIALS
- A. Walkway / Protection Mat Material:
1. Walkway roll, reinforced PVC/TPA membrane roll with serrated slip-resistant surface, fabricated for heat welding to compatible PVC/TPA membrane surface.
 - a. Basis of design product: Tremco, **TPA Walkway Roll.**
 - b. Roll Size: 36 inches by 60 foot
 - c. **Thickness / Color: Gray, 0.072 inch**
 - d. Tensile, Grab ASTM D751: 200 lbf
 - e. Tear Strength, Tongue: 45 lbf
 - f. Low Temp Flex: -40 deg F.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
1. Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place.
 2. Wood Roof Deck: Verify that deck is sound and dry and securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16 inch (1.6 mm) out of plane relative to adjoining deck.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, 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.

- C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.3 INSTALLATION, GENERAL

- A. Install roofing system in accordance with manufacturer's written instructions and approved details.
- B. NRCA Installation Details: Install roofing system in accordance with applicable NRCA Manual Plates and NRCA recommendations; modify as required to comply with manufacturer's approved details and perimeter fastening requirements of FM Global references if applicable.

3.4 ROOF HATCH REMOVAL

- 1. Remove and dispose of unused roof hatch.
- 2. Install wood framing/bocking needed to allow for new plywood deck to be secured per local building code.

3.5 INSULATION INSTALLATION

- A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with membrane roofing system and insulation manufacturer's written instructions for installing roof insulation.
- C. Tapered Insulation and Crickets: Install tapered insulation under area of roofing to conform to slopes indicated.
 - 1. Where crickets are indicated or required to provide positive slope to drain, make slope of crickets minimum of two times the roof slope, not less than 1/4 inch in 12 inches (1:48).
- D. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches (70 mm) or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.
 - 1. Flat Insulation System on Sloped Roof Deck: Install insulation at minimum thickness as follows:
 - a. Minimum total thickness of Continuous Insulation: R10
 - 2. Insulation Drain Sumps: Tapered insulation sumps, not less than 2 by 2 ft. (600 by 600 mm), sloped to roof drain; sump to maximum depth of not more than 1 inch (25 mm) less than the Project-stipulated continuous insulation thickness based upon code requirements.
- E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.

- F. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with insulation.
 - 1. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.
- G. Mechanically Fastened Insulation: Install each layer of insulation and secure to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
 - 1. Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof.
- H. Cover Boards: Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches (150 mm) in each direction. Loosely butt cover boards together.
 - 1. Secure cover boards to resist uplift pressure at corners, perimeter, and field of roof.
 - 2. Mechanically fasten cover boards.

3.6 MECHANICALLY FASTENED MEMBRANE ROOFING INSTALLATION

- A. Mechanically fasten membrane roofing over area to receive roofing and install according to roofing system manufacturer's written instructions.
 - 1. For in-splice attachment, install membranes roofing with long dimension perpendicular to steel roof deck flutes.
- B. Start installation of membrane roofing in presence of roofing system manufacturer's technical personnel.
- C. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- D. Mechanically fasten or adhere membrane roofing securely at terminations, penetrations, and perimeter of roofing.
- E. Apply membrane roofing with side laps shingled with slope of roof deck where possible.
- F. In-Seam Attachment: Secure one edge of membrane sheet using fastening plates or metal battens centered within membrane seam and mechanically fasten membrane sheet to roof deck.
- G. Welded Seams: Clean seam areas, overlap membrane roofing, and hot-air weld side and end laps of membrane roofing and sheet flashings according to manufacturer's written instructions to ensure a watertight seam installation.
 - 1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of sheet membrane.
 - 2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.

3. Repair tears, voids, and lapped seams in roofing that does not comply with requirements.

H. Spread sealant bed over deck drain flange at roof drains and securely seal membrane roofing in place with clamping ring.

3.7 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.

E. Seal top termination of base flashing with a metal termination bar and a continuous bead of joint sealant.

F. HVAC CURBS:

1. All equipment on platform type curbs: units are to be lifted in place and pan/curb is to be roofed over with KEE Membrane.

2. No equipment or conduits are to be installed or reinstalled into top of curb. Work with Owner to relocate mounting points away from curb's roofing material.

3. Reuse or discard existing sheet metal pans at Owners discretion.

3.8 WALKWAY INSTALLATION

A. Flexible Walkways: Install walkway products in locations indicated. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

1. Install a min of 60LF at existing locations and from entry points to HVAC units.

3.9 SHEET METAL FLASHINGS

A. All metal work shall be completed in conjunction with the roofing and flashing operation so as to provide a daily watertight condition.

B. Fabricate and install flashing to comply with Manufactures standard details, project drawings and the recommendations of SMACNA Sheet Metal Manuals for fabrication and Factory Mutual Loss Prevention Data Sheet I-49.

C. Metal shall be installed to provide adequate resistance to bending and to allow for normal thermal expansion and contraction. Allow for minimum 1/4" space between metal joints.

D. Counter flashings:

1. Replace existing counter flashings and trims with galvanized unless directed otherwise.
- E. Perimeter Edge Metal Flashings:
1. Shall have a 4” minimum nailing flange and hemmed metal drip edge unless noted.
 2. Fasten metal flashings 3" o.c. using galvanized annular ring nails.
 3. Install adjacent pieces of coated metal flashing with 1/4” gap. Apply a 2” wide bond breaker tape. Hot air weld a 6” strip of TPA membrane, over the tape, to each piece of flashing to form a watertight splice.
 4. Continuous cleats are required on edge metal facias with a face height larger then 3”.

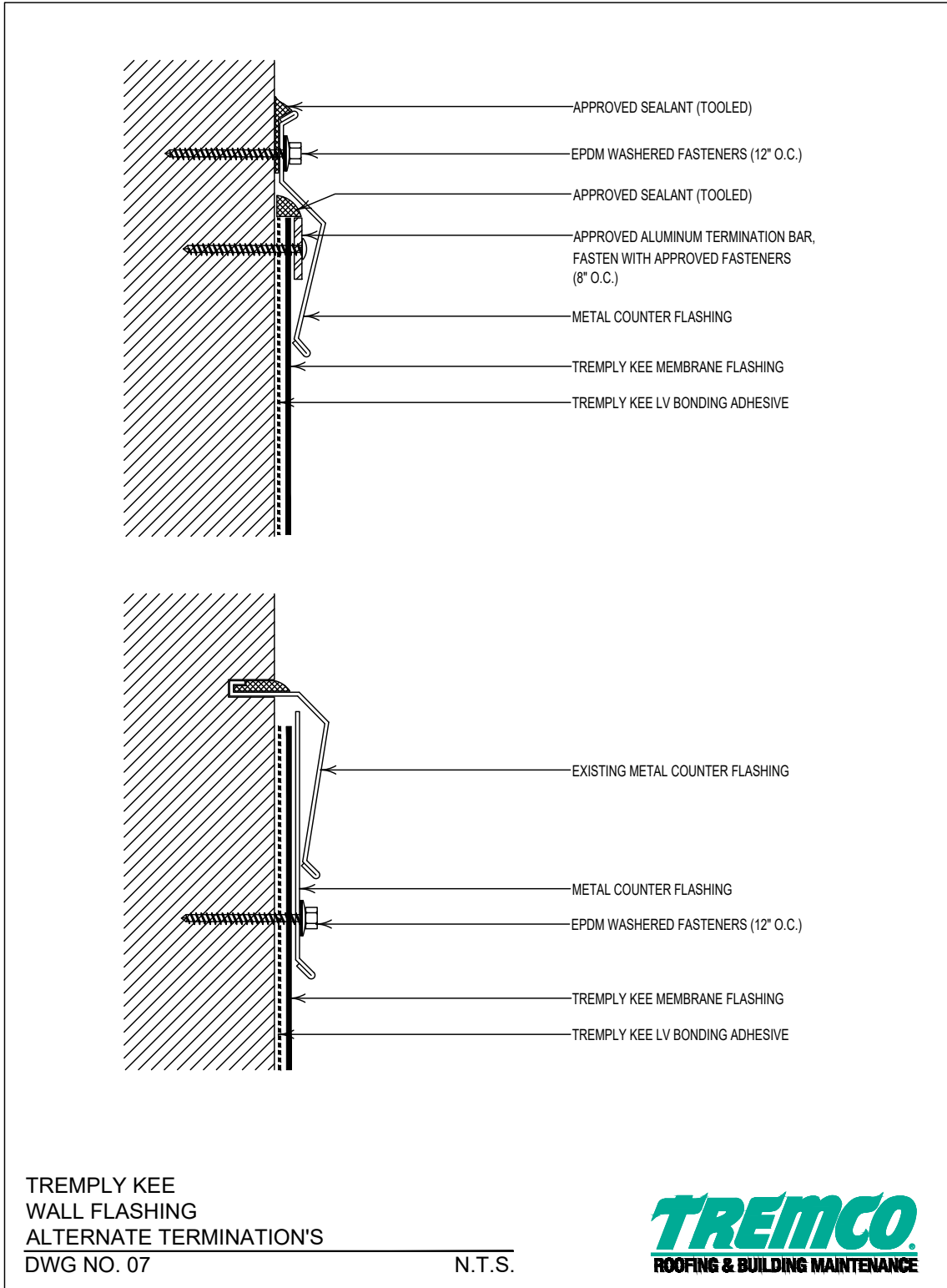
3.10 FIELD QUALITY CONTROL

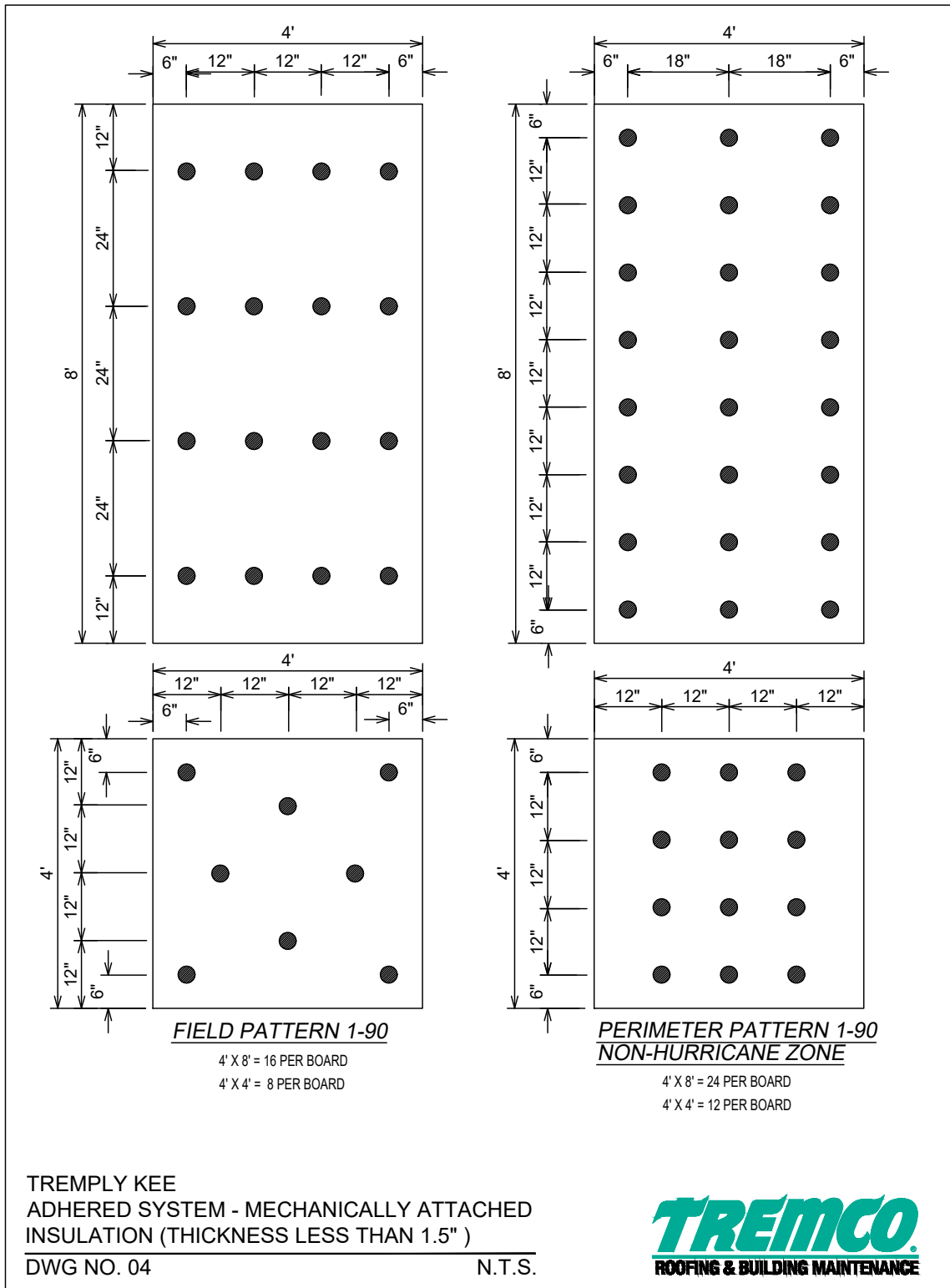
- A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.
- B. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.
- C. Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.11 PROTECTING AND CLEANING

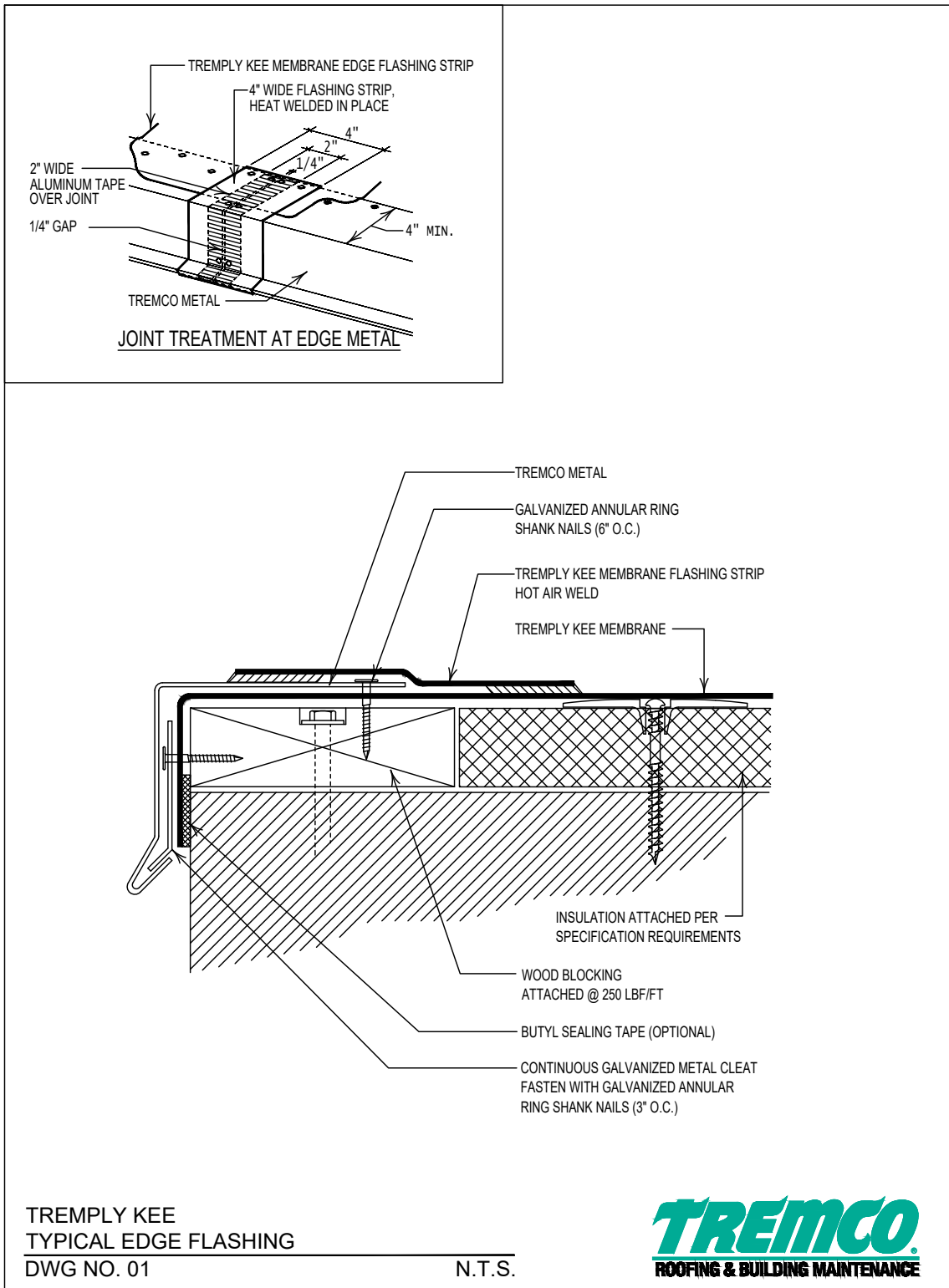
- A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Owner's Consultant and Owner.
- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements; repair substrates; and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 075416

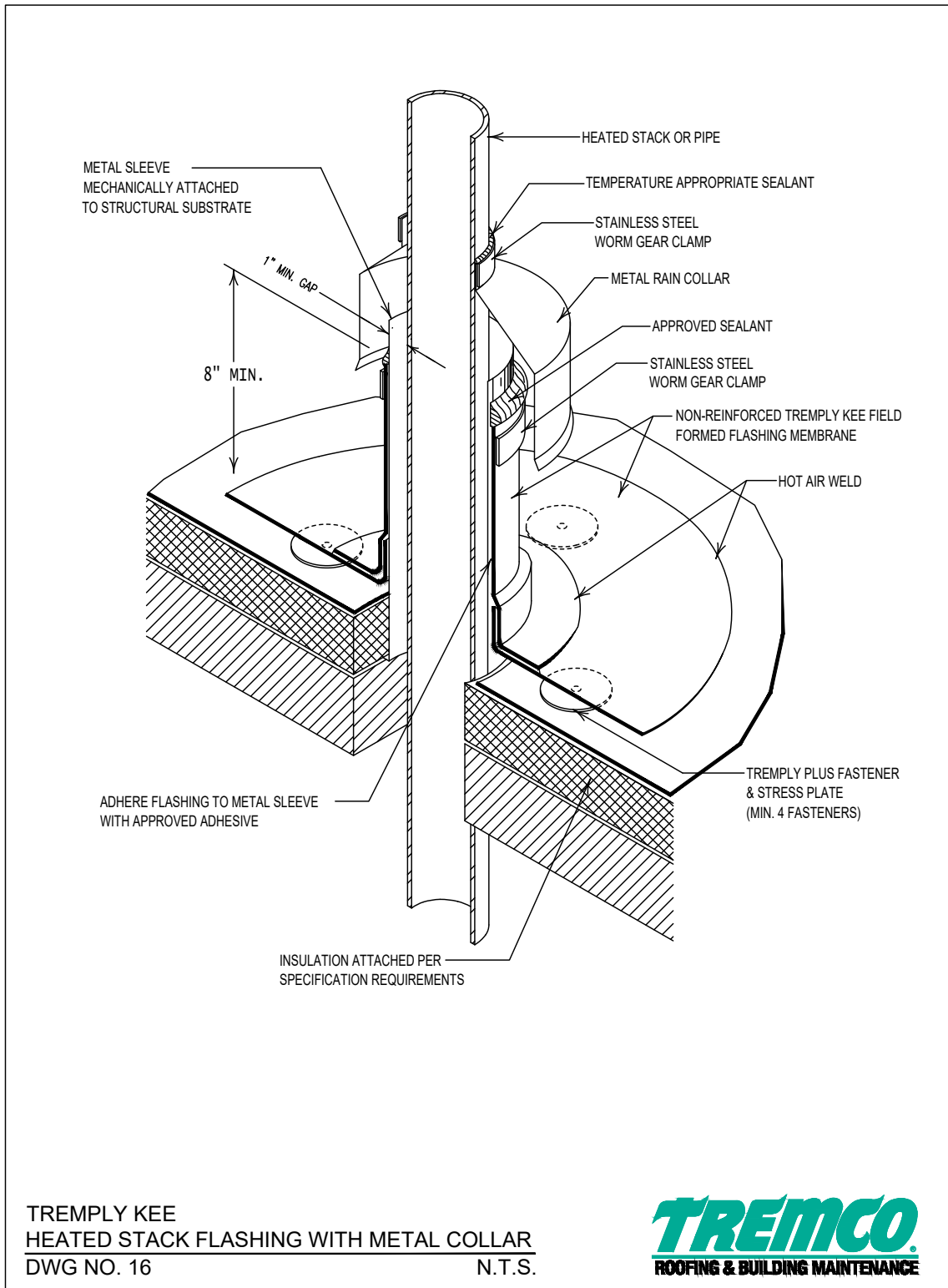




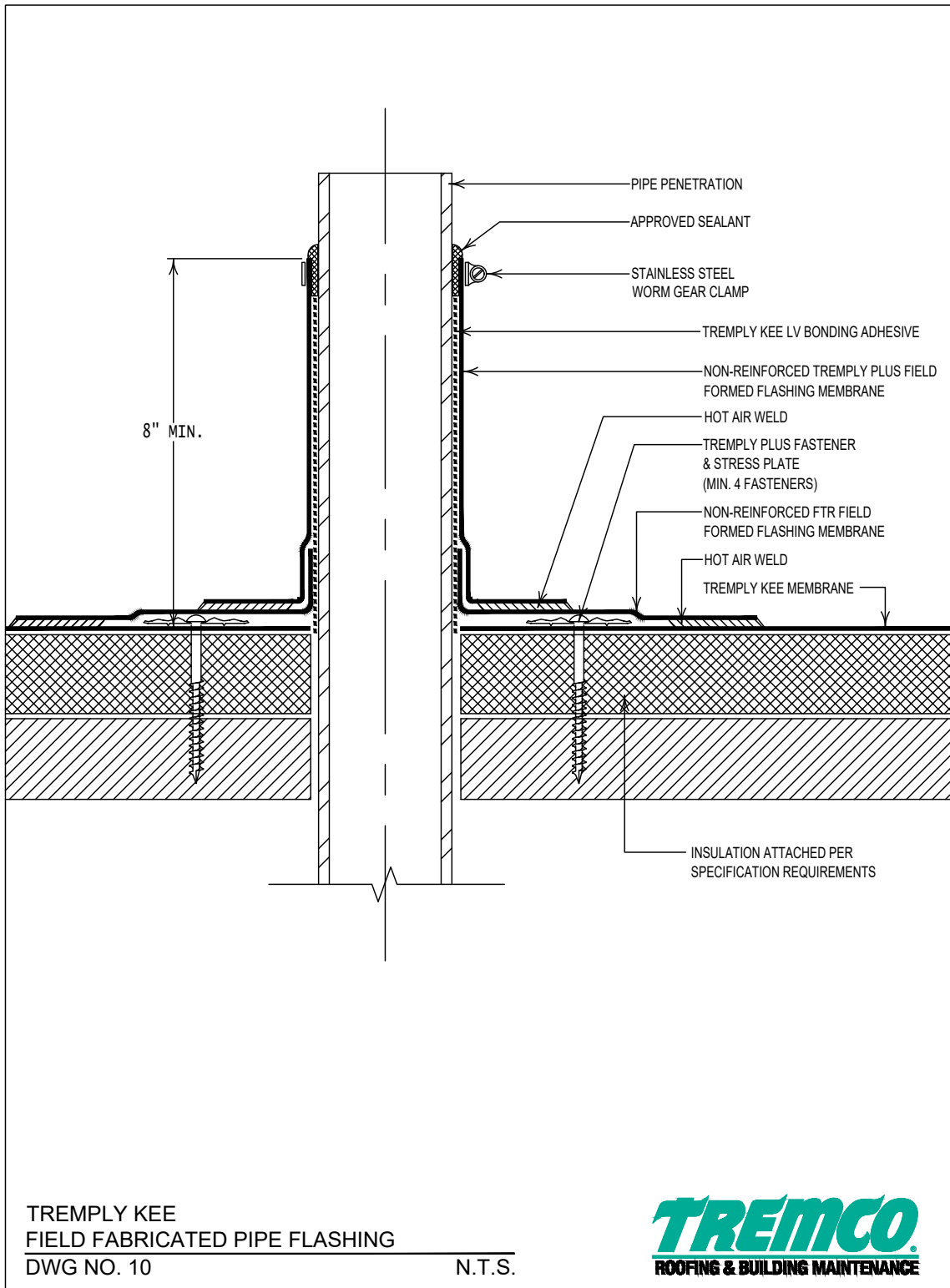
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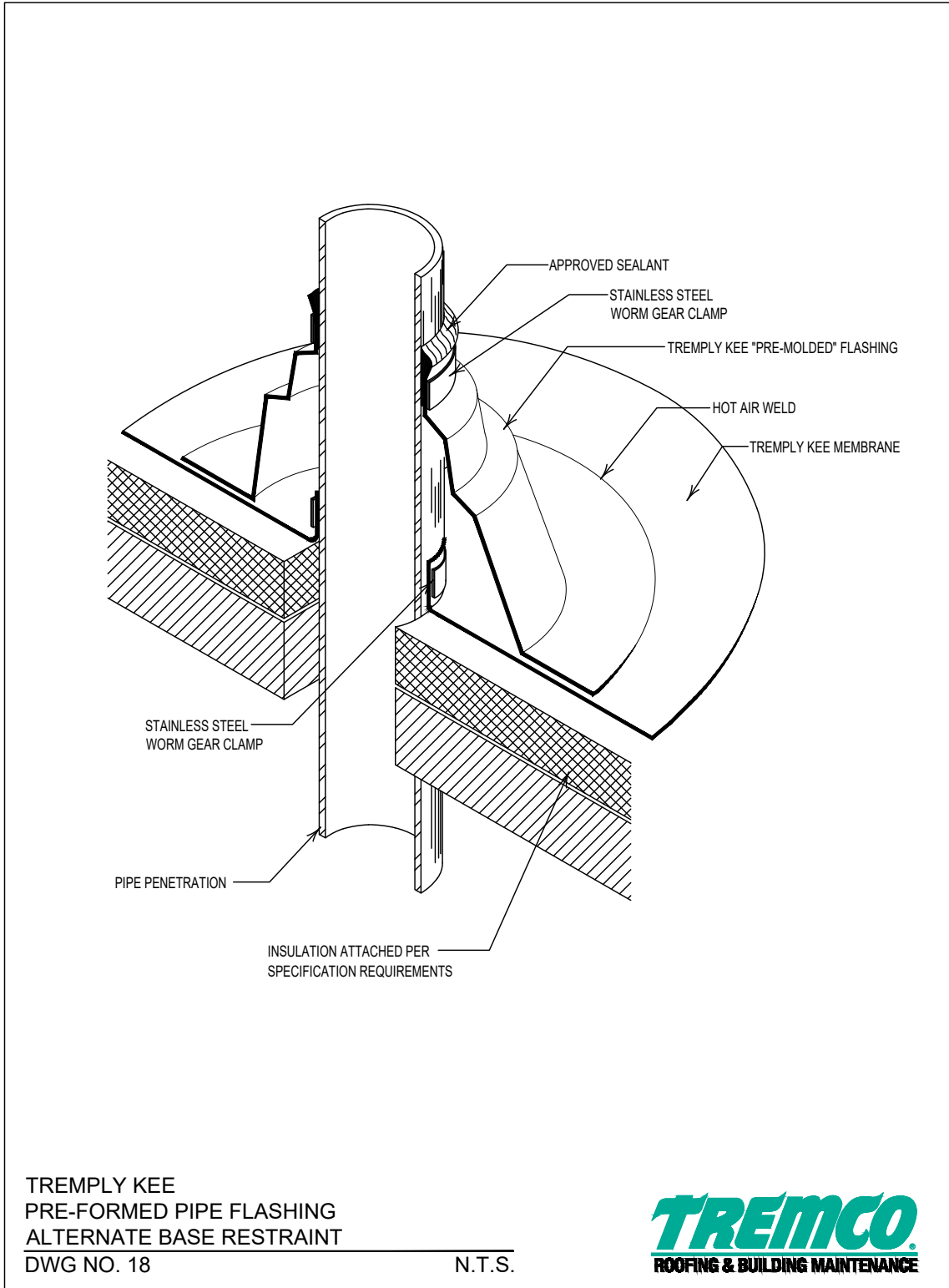
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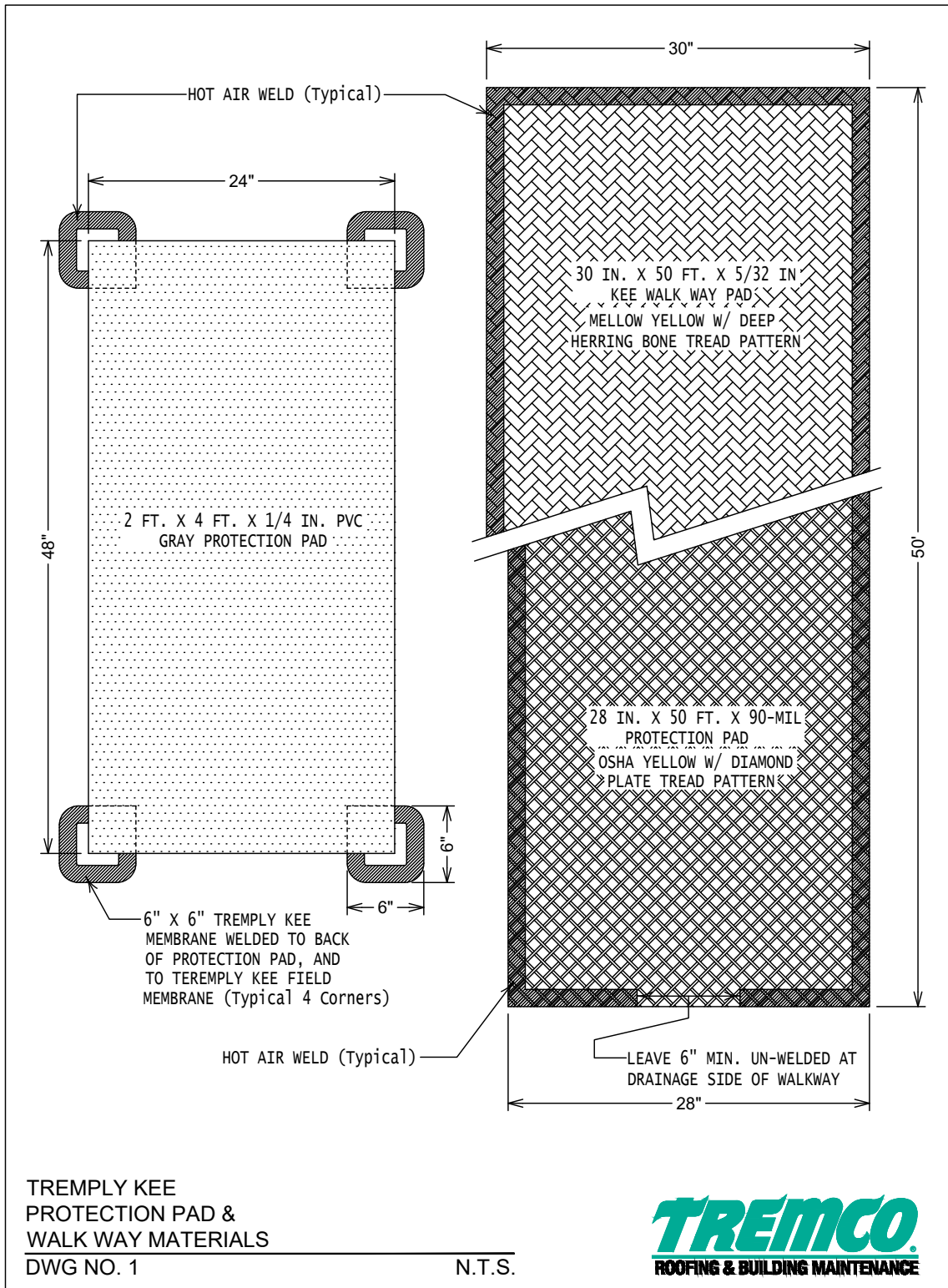


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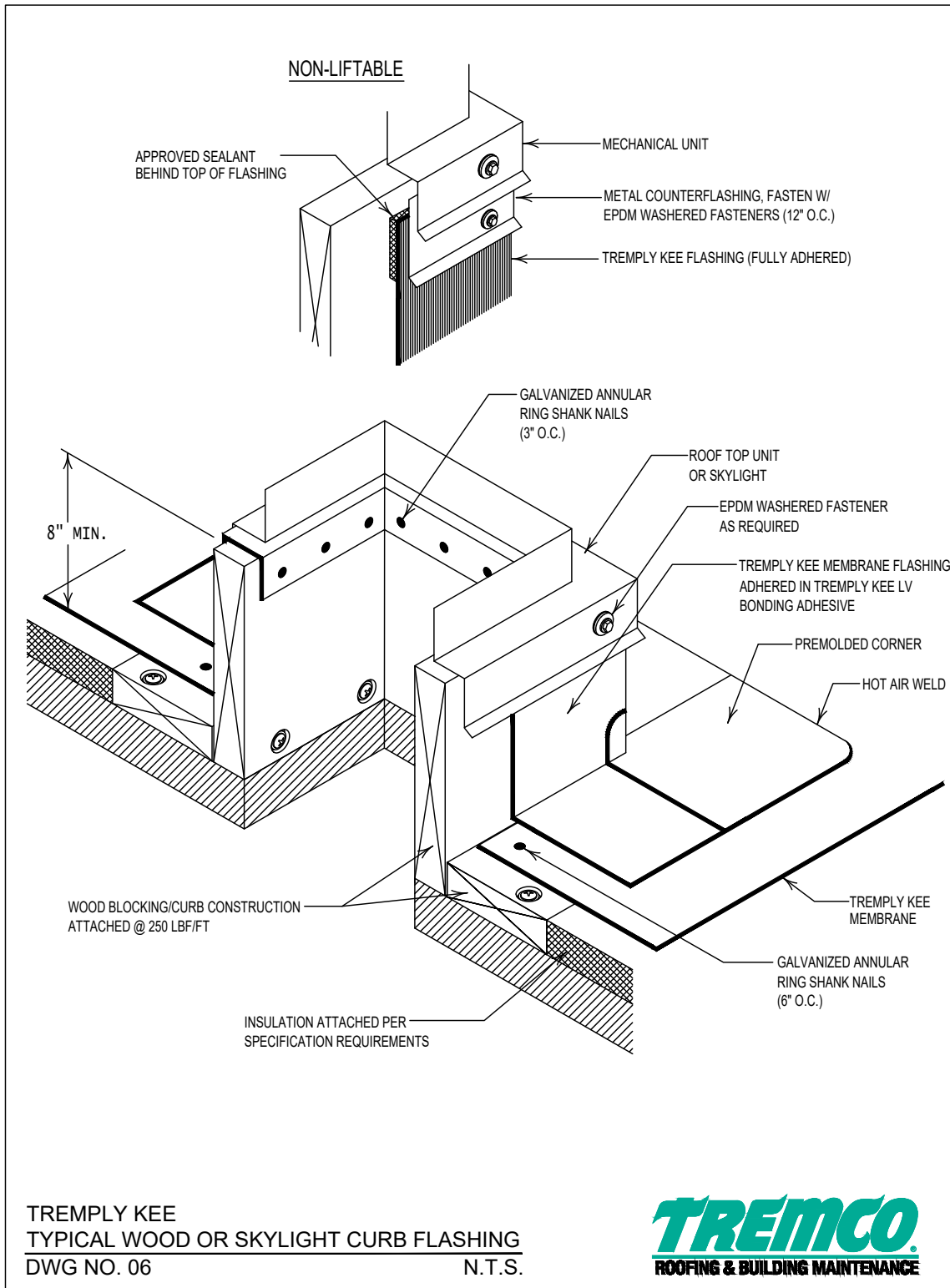


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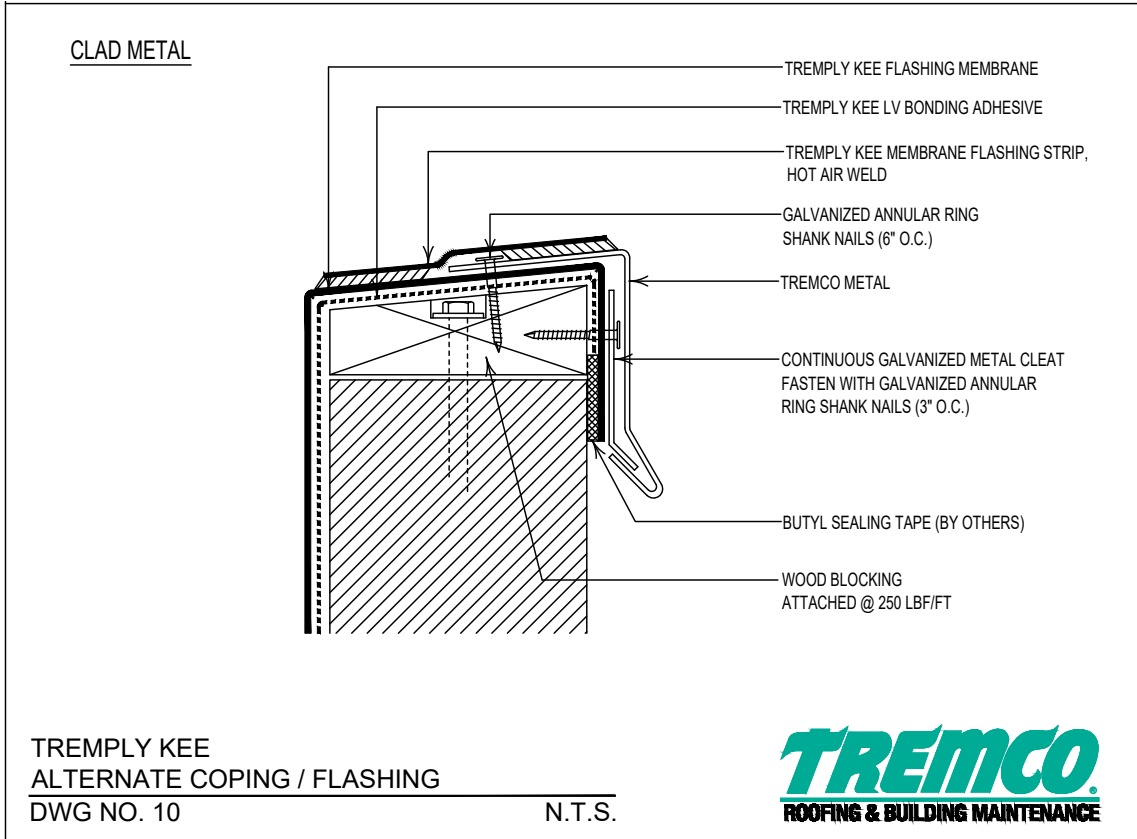




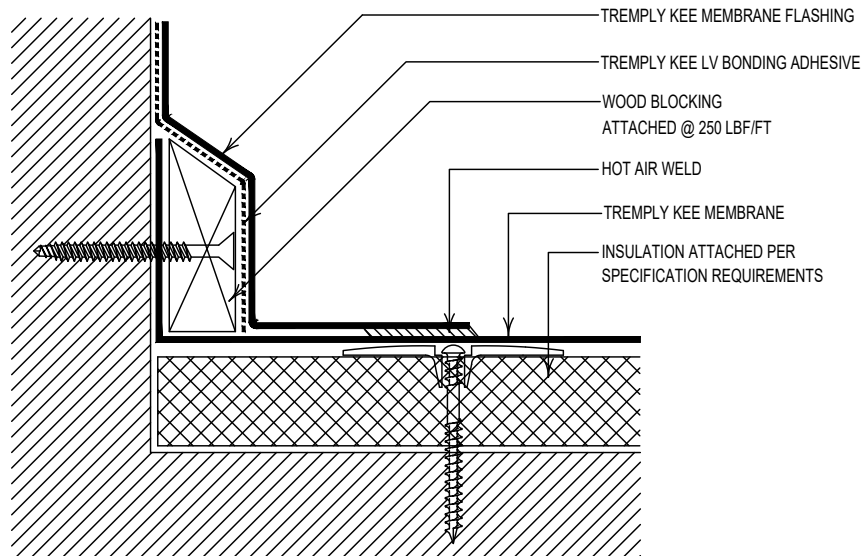
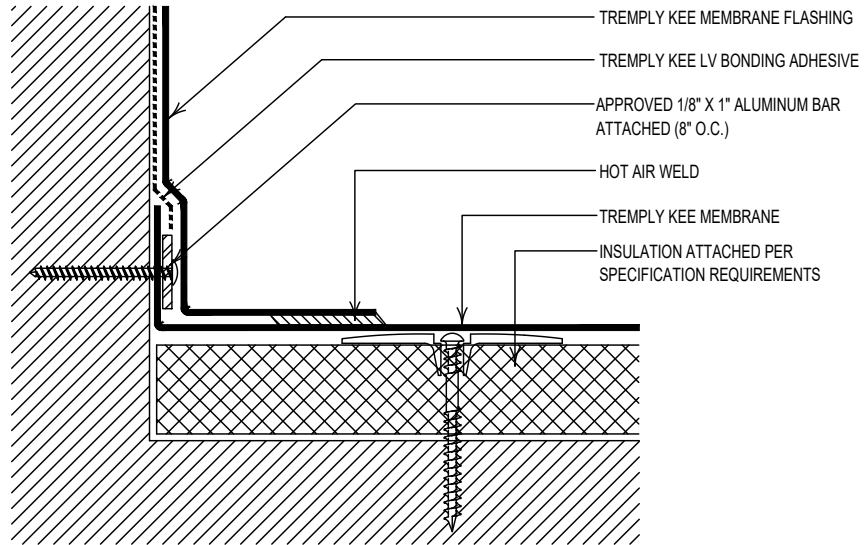
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TREMPY KEE
WALL FLASHING
ALTERNATE "BASE" SECUREMENT
DWG NO. 06

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