

**SUBMIT QUOTATION FOR ROOF REPAIRS ON THE
FOLLOWING PROJECT SITE:**

TULSA PUBLIC SCHOOLS

**EISENHOWER INTERNATIONAL SCHOOL
3111 E. 56TH STREET
TULSA, OKLAHOMA 74105**

**TULSA LEGACY – UPPER ACADEMY (CHEROKEE SCHOOL)
6001 N. PEORIA STREET
TULSA, OKLAHOMA 74126**

**PREPARED FOR:
CHRIS HUDGINS
EXECUTIVE DIRECTOR BOND PROJECTS AND ENERGY MANAGEMENT
3027 SOUTH NEW HAVEN AVENUE
TULSA, OKLAHOMA 74147**

NOVEMBER 2022

TABLE OF CONTENTS

- 1.01 RELATED DOCUMENTS
- 1.02 SUMMARY
- 1.03 QUALITY CONTROL
- 1.04 PRE-BID INFORMATION
- 1.05 SUBSTITUTIONS
- 1.06 ACCEPTABLE MANUFACTURERS
- 1.07 REFERENCES
- 1.08 DELIVERY, STORAGE AND HANDLING
- 1.09 SITE CONDITIONS
- 1.10 UNIT PRICES
- 1.11 PREVENTATIVE MAINTENANCE SERVICE AGREEMENT
- 2.01 GENERAL
- 2.02 WOOD BLOCKING & CURBS
- 2.03 INSULATION
- 2.04 MECHANICAL FASTENERS
- 2.05 ROOFING MATERIALS
- 2.06 METAL FLASHINGS
- 2.07 SYSTEM PERFORMANCE REQUIREMENTS
- 3.01 EXAMINATION
- 3.02 GENERAL WORKMANSHIP
- 3.03 PREPARATION
- 3.04 CARPENTRY

- 3.05 THERMAL INSULATION
 - 3.06 ROOF SYSTEM APPLICATION
 - 3.07 FLASHINGS
 - 3.08 RESTORATION REPAIRS
 - 3.09 SURFACING TREATMENT ON FLASHINGS
 - 3.10 SURFACING APPLICATION
 - 3.11 WALKWAYS
 - 3.12 ROOF RESTORATION COATING
 - 3.13 ADJUSTING AND CLEANING
- ROOFTOP DRAWINGS (N.T.S)

PART I - GENERAL

1.01 RELATED DOCUMENTS

General conditions, Supplementary Conditions, and Division I of these specifications govern work herein.

1.02 SUMMARY

- A. Furnish and install specified roofing and related components to the following Tulsa Public School sites. Roof sections designated for restoration and roof replacement are designated on the attached roof drawings. The work included under these specifications shall consist of furnishing all items, materials, operations, or methods listed, mentioned, indicated, or scheduled in these specifications, including all labor, materials, equipment, insurance, transportation, and incidentals necessary and required for project completion.
- B. Work Includes: **TOTAL ROOF RESTORATION:**
Eisenhower International School
Tulsa Legacy – Upper Academy (Cherokee School)
1. **Eisenhower International:** Roof Restoration shall include removing all loose aggregate, asphalt bitumen, dirt, and sediment using a heavy-duty industrial vacuum. Surfaces shall be cleaned thoroughly.
 2. Roof contractor shall include in their bid proposal the cost for the manufacturer to conduct an infra-red scan to determine the extent of wet insulation on this project prior to the restoration. Wet insulation areas shall be identified with high grade yellow marking reflective paint.
 3. Remove and replace all wet insulation identified by infra-red scan and Replace with matching type and thickness. Removal and replacement of all wet insulation shall be included in roof contractors bid proposal. Roof contractor are to field verify all wet insulated areas and dimensions, deck type, insulation composition and thickness.
 4. Remove and repair blisters, ridges, buckles and other existing roofing membrane irregularities.
 5. Refer to Roof Section 3.06 to determine roof sections that require the removal of the existing aggregate and flood coat. Roof Sections not identified under Roof Section 3.06 shall require full restoration.
 6. Repair and reinforce perimeter metal edge, wall and curb flashings and all projection flashings and details in strict accordance with roof specifications and manufacturer's requirements.
 7. Replace all rotted and/or weathered wood blocking supports and replace with new with strap.
 8. All plumbing piping, utility conduit, railing and ladders shall be cleaned, primed, and painted. Color selected by TPS.
 9. Apply final flood coat of restoration coating at 7.5 gallons per 100 sq. ft. and broadcast new and clean aggregate.
 10. Roof system manufacturers shall provide their Ten (10) year roof

system inspection, preventative maintenance, and housekeeping program. See Section 1.11 for coverage requirements.

11. **Tulsa Legacy – Upper Academy (Cherokee School)**

1. Power wash existing acrylic coating from built-up roof system.
2. Remove all loose dirt, sediment, and loose coating from roof Surface.
3. Remove/Replace all wet insulation designated by infra-red scan. Roof contractor is responsible for determining insulation type and thickness to match existing.
4. Three (3) ply replacement areas with composite ply HT and Burmastic MC adhesive.
5. Remove all buckles, splits, wrinkles etc., in the flashing Membrane. Where flashings are to be removed, flash wall/curb with One (1) ply composite ply and One (1) ply Standard FR MB in Burmastic MC flashing adhesive.
6. Repair and reinforce drains and scuppers. Remove existing scupper inserts and fabricate and install new inserts. Ensure all corners, laps are soldered.
7. Remove existing pitch pans and fabricate and install new pitch pans with hoods.
8. Remove existing wood blocking supports and replace with new wood, strap, protection pad and steel, where required.
9. Prime prepared surface with geogard primer. Apply recommended base coat and polyester in specified coating. Apply Top coat as recommended. **ROOF CONTRACTOR IS REQUIRED TO REVIEW INSTALLATION MANUAL FOR APPLYING THIS COATING SYSTEM PRIOR TO BID AND APPLICATION.**
10. Replace existing PVC/copper condensate lines and replace with 3/4" galvanized steel piping and clamp to seam with appropriate connection. Set piping on wood blocking with pads and straps. Position drain line into scupper and/or drain. Provide Tee overflow.
12. Roof Section 6: Remove existing roof down to existing steel structure. Existing structure is to be beefed and new steel decking installed. Deck Details will be provided in Addendum #1.
13. **Roofing Contractors shall include in their bid proposal the following cost for possible contingencies, unknowns such as deck repairs, wood blocking replacement, fascia replacement, roof drains etc. The balance of this fund shall be credited to TPS upon the completion of this project.**
Eisenhower International School - \$ 25,000.00
Tulsa Legacy – Upper Academy - \$ 5,000.00
14. **Five (5) year roof maintenance repairs for the following school sites: Cost of these maintenance repairs shall be included in Roof**

Contractors Bid Form as an add to the Tulsa Legacy – Upper Academy Project.

- Anderson Elementary School (Sections A – G)
- Bell Primary School (Sections A – K)
- Celia Clinton School (O, P, Q, R, S)
- Daniel Webster Middle and High School
(Sections Automotive A, Athletic Facility Addition, Annex 1 & 3)
- East Central High School (Sections A – L)
- McClure School (Sections East Connecting Wing & Kitchen)
- McKinley School (Sections F, G, H)
- McLain High School (Section Athletic Building)
- Mitchell School (Sections A, B, C, D, E, F, G)
- Park School (Sections A, A2, B, B2, C, C2, D, D2, E, F)
- Penn Elementary (Sections A – G)
- Remington School (Sections A – D)
- Springdale School (Sections H & I)
- Transportation Building
- Tulsa Enrollment Center (Sections A – I)
- Wayman Tisdale Fine Arts Academy (Sections Elevators, A -W)
- Will Rogers High School (Annex)
- Wright School (A – E)

1.03 QUALITY CONTROL

A. Roof Contractor shall:

1. Be experienced in roof restoration.
2. Be acceptable by the Tulsa Public Schools.
3. Be a Manufacturer Approved/Certified Contractor experienced with the specified roof restoration system. Obtain written certification from the manufacturer of the BUR system certifying that installer is approved by manufacturer for installation of the specified roofing repairs.
4. Installer's Field Supervision: Installer must maintain full-time supervisor/foreman on jobsite during times that roofing work is in progress. Supervisor must have a minimum of 5 years experience in roofing work like nature and scope of specified roofing.
5. Installer shall have installed a minimum of three (3) projects of the specified restoration system on projects of similar design and scope.
6. Roofing contractor shall agree to participate in allowances and adjustments for five (5) years of the warranty period when it is determined that defects are a result of application and workmanship errors. All defects noted during this time will be corrected by the roof contractor at their own expense.
7. Installer shall have in place a formal safety program available for review.

- B. Roofing material manufacturer shall:
1. Be Associate Member in good standing with National Roofing Contractors' Association (NRCA) for at least ten (10) years.
 2. Be nationally recognized in roofing, waterproofing, and moisture survey industry.
 3. Be approved by the Tulsa Public Schools.
 4. Has not been in Chapter 11 during the last five (5) years.
 5. Be an established roof manufacturing firm with a history of producing and manufacturing roofing systems for at least the manufacturer's longest warranty, and not less than the specified warranty length.
 6. Provide Tulsa Public Schools names of at least 3 local qualified and certified applicators of having experience with the specified roof repair systems.
 7. Provide a local full-time local Field Technical Services Representative employee available for monitoring project work on a periodic basis. Provide point of contact designated to monitor project.
 8. Employ full-time local Field Technical Services Representative available for final roof inspection. Provide point of contact designated for final inspection.
 9. Copy of roof manufacturer's formal preventative maintenance Service Agreement detailing yearly roof inspections, preventative maintenance, and general housekeeping services and 24 hour a day toll free leak response hotline described under warranty section of this specification.
 10. The presence and activity of the manufacturer's representative and/or owner's representative shall in no way relieve the roof contractor of their contractual responsibilities or duties.

1.04 PRE-BID INFORMATION

- A. Comply with requirements established by the Tulsa Public Schools.
- B. Submit the following information to the Tulsa Public Schools prior to the scheduled bid date:
1. Product compatibility:
 - a) Written verification from roofing material supplier that major roofing components, including (but not limited to) coatings, cold process modified adhesives; roofing ply sheets; reinforcement fabric felts and mats; mastics; insulation adhesives and sealants are all compatible with each other.
 - b) Written verification from primary roofing manufacturer that all major roofing components are manufactured by the primary roofing manufacturer for quality assurance and compatibility. Provide notarized statement from Officer of the primary roofing manufacturer verifying this requirement.
 2. Copy of Ten (10) year roof preventative maintenance service agreement for roof maintenance, inspection and 24-hour leak response

- hotline process.
3. Letter from roofing contractor that they agree to participate in allowances and adjustments for five (5) years of the warranty service agreement period when it is determined by the roof system manufacturer that defects in the roofing assembly are a result of application and workmanship errors. All defects noted during this time will be corrected by the roof contractor at their own expense.
 4. Letter from the roof system manufacturer that the technical service representative overseeing the project for specification compliance and installation quality is employed by the roof system manufacturer and have been an employee for a minimum of five (5) years. Technical service representative shall be prepared to respond to problems associated with roofing project within a 2-hour time period.

1.05 SUBSTITUTIONS

- A. When a particular make or trade name is specified, it shall be indicative of the standard required. Bidders/manufacturers seeking approval shall submit the following seven (7) days prior to the bid date to the Tulsa Public Schools:
 1. Written application with explanation of why it should be considered.
 2. Accredited testing laboratory certificate comparing substitute's physical/performance attributes to those specified. Test reports shall be no more than one (1) year old and shall show a direct comparison using the same ASTM test standards as specified in Part 2 of this document.
- B. Only substitutes approved in writing by the Tulsa Public Schools prior to the scheduled bid date will be considered.
- C. Notification of approvals will be mailed at least 4 days before bid opening.
- D. The Tulsa Public Schools reserves the right to be the final authority on the acceptance or rejection of any substitute.

1.06 ACCEPTABLE ROOF SYSTEM MANUFACTURERS

- A. While these specifications may in some cases describe a specific manufacturer and model number which has been determined as acceptable and suited to the Tulsa Public School needs, they are not intended to eliminate from consideration any comparable material of equal or greater quality which the manufacturer may have available and which will meet the needs of the Tulsa Public Schools.
- B. Pre-qualification of roofing material manufacturer shall be required. Submit all information requested under 1.03 no later than seven (7) days prior to bid date for consideration, including, but not limited to, all material and testing documentation as specified, including UL approvals as specified for this project.

- C. Manufacturers seeking approval through substitution must submit all documentation as stated in 1.05 SUBSTITUTIONS to be considered.
- D. Only those manufacturers whose materials comply with the specified standards shall be approved for this project.
- E. Project meetings:
 - 1. **Pre-Bid Conference:**
 - a) A mandatory pre-bid meeting is scheduled for **Tuesday November 29th at 10:00 am., beginning at the Eisenhower International School located at 3111 E. 56th St.** This pre-bid meeting will commence promptly and will include a walkover of the roof sections listed including the review of the roof specification documents. Response to questions which are not addressed in the bidding documents or require modification will be included in an addendum and provided to all bidding roof contractors.
 - 2. **Bid Date:**
 - a) **Tuesday December 13th at 2 p.m.**
 - 3. Pre-construction conference and completion schedule.
 - a) Will be scheduled by the Tulsa Public Schools within fifteen (15) days after notice of award to proceed.
 - b) Attendance:
 - (1) Roofing material manufacturer.
 - (2) Roof Contractor and project foreman.
 - (3) Representative of the Tulsa Public Schools.
 - c) Agenda:
 - (1) Payment terms.
 - (2) Tax exemption certificate.
 - (3) Execution of Tulsa Public Schools-Roof Contractor Agreement.
 - (4) Distribution of contract documents.
 - (5) Submittal of list of subcontractors, material submittals, and progress schedule.
 - (6) Designation of responsible personnel.
 - (7) Walkover inspection.
 - 4. Progress meetings:
 - a) Will be scheduled by Tulsa Public Schools as required.
 - b) Attendance:
 - (1) Roofing material manufacturer/roof contractor.
 - (2) Job superintendent.
 - (3) Tulsa Public Schools representative.
 - c) Minimum agenda:
 - (1) Review of work progress.

- (2) Field observations, problems, and decisions.
- (3) Identification of problems which impede planned progress.
- (4) Maintenance of progress schedule.
- (5) Corrective measures to regain projected schedules.
- (6) Planned progress during succeeding work period.
- (7) Coordination of projected progress.
- (8) Maintenance of quality and work standards.
- (9) Effect of proposed changes on progress schedule and coordination.
- (10) Other business relating to work.

5. Final inspection:

- a) Will be scheduled by the roofing material manufacturer upon job completion.
- b) Attendance:
 - (1) Roof Contractor.
 - (2) Roofing material manufacturer.
 - (3) Tulsa Public Schools representative.
- c) Minimum agenda:
 - (1) Walkover inspection.
 - (2) Identification of problems which may impede issuance of service agreement.

F. Random sampling:

1. Roofing material:

- a. During course of work, Tulsa Public Schools Representative may secure samples according to ASTM D140-88 of materials being used from containers at job site and submit them to an independent laboratory for comparison to specified material.
- b. Should test results prove that a material is not functionally equal to the specified material:
 - (1) Roof Contractor shall pay for all testing.
 - (2) Roofing installed and found not to comply with the specifications shall be removed and replaced at no change in the contract price.

G. Plans and specifications:

- 1. Roof Contractor must notify owner and specifier of any omissions, contradictions, or conflicts seven (7) days before bid date. The Tulsa Public Schools and manufacturer will provide the necessary corrections or additions to plans and specifications by addendum. If the roof contractor does not so notify owner and specifier of any such condition, it will be assumed that the roof contractor has included the necessary items in the bid to complete this specification.
- 2. It is the intent that these roofing projects be completed by a manufactured certified roof contractor that has met the criteria to

provide the long-term service agreement. It is not the intent for these roof projects to bid and later be subcontracted out to an unqualified roofing company and labor personnel. All roofing work completed on the Tulsa Public Schools sites will be performed by the contracted company. The Roof Contractor alone will be held responsible by the Tulsa Public Schools for the completed project.

3. If the roof contractor feels a conflict exists between what is considered good roofing practice and these specifications, roof contractor shall state in writing all objections prior to submitting quotations.
4. It is the contractor's responsibility during the work, to bring to the attention of the Tulsa Public Schools representative any defective membrane, insulation or deck discovered where not previously identified.

1.07 REFERENCES

- A. ASTM - American Society for Testing and Materials, Philadelphia, PA.
- B. U.L. – Underwriter's Laboratory.
- C. SMACNA - Sheet Metal and Air-Conditioning Contractors National.
- D. NRCA - National Roofing Contractors Association, Chicago, IL.
- E. IBC – International Building Code.

1.08 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 manufacturer's name.
 2. Deliver materials in sufficient quantity to allow continuity of work.
 3. Coordinate delivery with Tulsa Public Schools.
- B. Do not order project materials or start work before receiving Tulsa Public Schools written approval.
- C. Storage of materials:
 1. Store roll goods on ends only. Discard rolls which have been flattened, increased, or otherwise damaged. Place materials on pallets. Do not stack pallets.
 2. Stack insulation on pallets.
 3. Store materials marked "keep from freezing" in areas where temperatures will remain above 40 F.
 4. Store metal roof deck on pallets with one end elevated to provide drainage.
 5. Remove plastic packaging shrouds. Cover top and sides of all stored materials with tarpaulin (not polyethylene). Secure tarpaulin.

6. Store roofing materials in ventilated water-tight trailers. Remove plastic packaging shrouds.
7. Materials necessary for two (2) day's work may be stockpiled on roof. Disperse material to avoid concentrated loading.
8. No materials may be stored in open or in contact with ground or roof surface.
9. Should the roof contractor be required to quickly cover material temporarily, such as during an unanticipated rain shower, all materials shall be stored on a raised platform covered with secured canvas tarpaulin (not polyethylene), top to bottom.
10. Roof Contractor shall assume full responsibility for the protection and safekeeping of products stored on the Tulsa Public Schools premises.
11. The Tulsa Public Schools reserves the right to stop roof contractor's roofing activity during excessively windy days when such weather conditions increase the risk of damage to the grounds, buildings, public automobiles, and property.

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 situate material handling equipment in locations that will hinder smooth flow of vehicular or pedestrian traffic.
3. **ROOF CONTRACTOR IS NOT TO STORE ROOFING MATERIALS, EQUIPMENT ETC., ON SURROUNDING ROOF SECTIONS NOT INCLUDED IN THESE SPECIFICATIONS. WHERE ROOF SECTIONS ADJOIN ROOF AREAS NOT BEING ADDRESSED IN THESE SPECIFICATIONS, THE ROOF CONTRACTOR SHALL ROPE AND FLAG AREA TO AVOID TRAVERSING ONTO ROOF SYSTEM.**

1.09 SITE CONDITIONS

A. Field measurements and material quantities:

1. **Roof system applicator 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. Do not interrupt the Tulsa Public Schools operations unless prior written approval is received from the Tulsa Public Schools.
2. Access to roof shall be from exterior only.
Air-conditioning units, wind screens and other equipment shall be

moved 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 and shall be reconnected in such a way that they are restored to a prior work operating condition. Appropriate measures shall be taken to prevent dust, vapors, gases, or odors from entering the building during roof removal, replacement, or repair.

3. All disconnection and reconnection shall be performed by a mechanical and/or electrical personnel provided by the roofing contractor.
4. When wind or decorative screens are to be removed, roof contractor is required to disassemble components and store on protective plywood to be reinstalled once new roof assembly has been completed. All components found deteriorated or otherwise damaged shall be replaced to provide appropriate support/bracing.
5. **All HVAC units with PVC condensate piping or missing piping shall be piped with ¾" galvanized piping with Tee overflow. Attached appropriately.**

C. Asbestos:

1. Roof Contractor agrees to exonerate, indemnify, defend, and hold harmless the Tulsa Public Schools and roofing material manufacturer from and against all claims, demands, lawsuits, damages, expenses, and losses incurred by Contractor's removal of asbestos-containing materials from Tulsa Public Schools buildings and work site. Roof Contractor must conduct its operations according to applicable requirements including but not limited to those established by:
 - a) Occupation 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 Authorities/Agencies.
 - f) State or Local Health Department(s).
 - g) State or Local Building Code Authorities.
 - h) Other federal, state, or local agencies or authorities.
2. Roof Contractor 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, contractors and workers involved in the roof project shall have appropriate training, licenses, and registrations. Roof Contractor shall be responsible for determining and implementing regulatory compliance activities, including but not limited to work practices, engineering controls, personal protection, air monitoring, testing, hazard communication, material handling, record retention, and arranging for waste disposal/handling.

3. Roof Contractor must file a Uniform Hazardous Waste Manifest from proper landfill site for each load of asbestos containing material removed. Copies must be sent to owner and material manufacturer/specifier. Transportation of waste shall be in accordance with applicable Department of Transportation (DOT) requirements.
- D. Safety requirements:
1. All application, material handling, and associated equipment shall conform to and be operated in conformance with OSHA safety requirements.
 2. Comply with federal, state, local and Tulsa Public Schools fire and safety requirements.
 3. Advise the Tulsa Public Schools whenever work is expected to be hazardous to Tulsa Public Schools, employees, and/or operators.
 4. Maintain a crewman as a floor area guard whenever roof decking is being repaired or replaced.
 5. Maintain fire extinguisher within easy access whenever power tools and torches are being used.
 6. Roof Contractor will post all notices, make all communications, and otherwise comply with California Proposition 65 requirements concerning notification of those who may be exposed to Prop 65 listed chemicals, as revised from time to time. Roof Contractor will also comply with other requirements concerning the safe use and handling of roofing materials, including preventing vapors from entering buildings.
- E. Waste Disposal:
1. Do not re-use, re-cycle or dispose of product containers except in accordance with all applicable regulations. The user of product containers is responsible for proper use and disposal of product containers.
- F. Environmental requirements:
1. Do not work in rain, snow, or in presence of water.
 2. Do not work in temperatures below 40 F.
 3. Do not install materials marked "keep from freezing" when daily temperatures are scheduled to fall below 40 F.
 4. Do not perform masonry work below 40 F.
 5. Remove any work exposed to freezing.
 6. Advise the Tulsa Public Schools when volatile materials are to be used near air ventilation intakes so that they can be shut down or blocked as requires.
- G. Temporary sanitary facilities:
1. Furnish, install, and maintain temporary sanitary facilities for employee use during project. Remove on project completion.

2. Place portable toilets in conformance with applicable laws, codes, and regulations.

1.10 UNIT PRICES

- A. Quote unit prices on Unit Price Sheet provided as follows:
 1. Steel Deck Repairs - \$ sq. ft.
 2. Wood blocking replacement - 2' X 4' \$/linear ft.
2' X 6' \$/linear ft.
 3. New drain installation and lineal foot cost for piping.

1.11 PREVENTATIVE MAINTENANCE SERVICE AGREEMENT

- A. Service Agreement:
 1. Upon project completion, and Tulsa Public Schools inspections and restoration system manufacturer acceptance, Manufacturer shall provide a Twelve (12) year QA Manufacturer's warranty on the Tulsa Legacy – Upper Academy (Cherokee School). Provide a Ten (10) year roof maintenance service agreement program on the Eisenhower International and Tulsa Legacy – Upper Academy Schools. Roof maintenance program shall cover yearly inspections, proactive preventative maintenance, and housekeeping of the roof's as well as a 24 hour a day leak reporting response and tracking service. The specific areas covered shall be as follows:
 - a. Roof Inspection includes:
 1. Yearly visual inspection of the roof membrane and roof surface conditions.
 2. Inspection of the flashing systems including the metal edges, base flashings on equipment and adjoining walls, counterflashing's and termination details, soil stacks and vents, and inspections of rooftop projections and equipment including, pitch pans, HVAC equipment and access hatches.
 3. Roof manufacturer shall provide reports from these roof inspections. The reports shall become part of the roof database maintained on the roof system. This database shall be updated because of each inspection.
 - b. Preventative Roof Maintenance Services shall include:
 1. Metal edge components – tears, splits and breaks in roof membrane flashings will be repaired with appropriate repair mastics and membranes.
 2. Tears and splits in flashing membrane will be repaired with appropriate repair mastics and membranes. Unsecured rooftop equipment will be secured. Exposed fasteners will be sealed. Termination bars and counterflashing's will be sealed.
 3. Roof membrane repairs shall consist of tears, breaks, and

splits in the flashing membrane. All splits, and blisters which threaten the roof integrity of the roof membrane will be cleaned, primed, and repaired with appropriate repair materials. Metal projections (hoods and clamps) will be sealed.

- c. Housekeeping shall include:
 - 1. Removal of incidental debris (i.e., leaves, branches, paper, and similar items).
 - 2. Removal of debris from roof drains, scuppers, gutters, and downspouts.
- d. Leak response service shall include:
 - 1. 24 hour a day toll free leak response phone number.
 - 2. List of local and qualified roof contractors who will respond to leaks within established timelines.
 - 3. Roof Manufacturer shall provide quarterly leak reports of leak activity in calendar quarters where leaks have occurred.
- e. Web-based Information Management System:
 - 1. To manage roofing assets, the roof system manufacturer shall provide to the Tulsa Public Schools a web-based computerized data management program to monitor all yearly roof inspections, completed maintenance and leak reports, review specifications, drawings, and photographs. Data will always be available in a secure, password-protected environment.

PART II - PRODUCTS

2.01 GENERAL

- A. Comply with quality control, references, specifications, and manufacturer's data. **PRODUCTS CONTAINING ASBESTOS ARE PROHIBITED ON THIS PROJECT. USE ONLY ASBESTOS-FREE PRODUCTS.**
- B. Use products with personal protection. User must read container label and material safety data sheets prior to use.

2.02 WOOD BLOCKING & CURBS

- A. Lumber:
 - 1. Southern Pine; No. 2 grade; free from warping and visible decay; pressure-treated with alkaline copper quaternary (ACQ) to meet AWPB, LP-22, 0.40 retention, and marked.

2.03 INSULATION

- A. Overlay insulation board:
 - 1. Overlay insulation board:
Top Layer: ASTM C208 cellulosic fiber and water resistant binders, Six (6) sided asphalt impregnated, chemically treated for deterioration and manufactured by GAF, Celotex Blue Ridge or approved equal.
Match existing thickness.
- B. Bottom Layer insulation board:
 - 1. Class 1 Polyisocyanurate insulation with organic/fiberglass facer.
 - 2. Manufactured by Johns Manville, Atlas Energy or approved equal.
Match existing thickness.

2.04 MECHANICAL FASTENERS

- A. Wood to wood:
 - 1. Galvanized, common, annular ring nail.
 - 2. Length: Sufficient to penetrate underlay blocking 1-1/4 inches.
- B. Wood to masonry:
 - 1. Anchor bolts, 1/2-inch diameter with 5/8-inch washer.
- C. Galvanized sheet steel to wood blocking:
 - 1. Type II, Style 20, roofing nails, galvanized steel wire, flat head, diamond point, round, barbed shank.
 - 2. Length: Sufficient to penetrate wood blocking 1-1/4 inches minimum.
- D. Drawband:
 - 1. Gold Seal stainless steel worm gear clamp by Murray Corporation, Cockeysville, MD.
 - 2. Power-Seal stainless steel worm drive clamps by Breeze Clamp Company, Saltsburg, PA.

2.05 ROOFING MATERIALS

- A. Adhesives:
 - 1. Interply adhesive:
 - a) Power Ply cold process adhesive by Tremco or approved equal.
- B. Base roofing plies:
 - 1. Polyester/Fiberglass Mat/Polyester Trilaminate reinforced high strength ply sheet manufactured by Tremco or approved equal.
- C. TRA Elastomeric Sheeting:
 - 1. 45 mil reinforced EPDM/SBR sheeting.
- D. Restoration Coating:
 - 1. Ecolastic water-based restoration coating for the use with asphalt bitumen and modified roofs by Tremco or approved equal.

E. Related materials:

1. Asphalt mastic:
 - a) ASTM D 4586-86 fibrated asphalt mastic.
2. Asphalt primer:
 - a) ASTM D 41-85.
3. Cant strip:
 - a) ASTM C 208-72 (1982), impregnated fiberboard.
4. Flashing bitumen:
 - a) ELS mastic asphalt.
5. Flashing emulsion:
 - a) Self-reinforcing, polymer modified, asphalt emulsion.
6. Flashing surfacing:
 - a) Ready-mixed aluminum coating.
7. Flashing membrane:
 - a) 45 Mil TRA elastomeric Sheeting.
8. Flashing ply:
 - a) Polyester/Fiberglass Mat/Polyester trilaminate reinforced ply sheet.
9. Pitch pan cement:
 - a) ASTM C 928-89, rapid hardening non shrink grout.
10. Pitch pan mastic:
 - a) ASTM D 4586-86 fibrated asphalt mastic.
11. Roofing aggregate:
 - a) Hard, durable, opaque; washed free of clay, loam, sand, or other foreign substances.
 - b) Do not use: Crushed gravel, white dolomite (marble chips), Joplin chats, scoria, limestone, volcanic rock, crushed oyster and clam shells, crushed brick tile, or cinders.
 - c) ASTM D 1863-86, size six (6).
12. Sealants:
 - a) Draw band sealant:
 - (1) FS TT-S-00230C (2), single component, acrylic sealant.
13. Walkway panels:
 - a) Three (3) ft. by four (4) ft., granule surfaced, fiberglass reinforced panel.
14. Expansion Joint Sheeting:
 - a) 45 mil TRA polyester reinforced flashing membrane by Tremco or approved equal.
15. TRA Sheeting adhesive:
 - a) Black elastomeric sheeting adhesive by Tremco or approved equal.
16. Insulation Adhesive:
 - a). Expandable Foam insulation adhesive by Tremco or approved equal.

2.06 METAL FLASHINGS

- A. Termination bar:
 - 1. ASTM B 2221-85a - aluminum bar:
 - a) 3/16 x 1 inch.

- B. Perimeter Metal Edge and ledge, Parapet Coping Covers, Conductor Heads, Gutters, Downspouts:
 - 1. Pre-painted Galvanized Steel: ASTM A 526-85, sheet steel with 1.25 oz./sq. galvanized coating. **ROOF CONTRACTOR SHALL PROVIDE TO THE TULSA PUBLIC SCHOOLS A CHART DISPLAYING METAL COLOR OPTIONS FOR REVIEW AND SELECTION.**
 - a) Gage: Twenty-four (24).
 - 2. Paint finish at exposed sides: Factory baked-on two (2) coat system comprised of One (1) coat of full 70% resin fluorocarbon (polyvinylidene fluoride PV2) by Kynar 500 or approved equal.
 - 3. Install commercial grade metal leaf and debris screens at gutters secured with set screws installed at 12" o.c.
 - 4. Provide overflow outlets at all new conductor head locations. Overflow Openings shall follow current local plumbing code.

- C. Metal Counterflashing and Scupper Inserts:
 - 1. Galvanized Steel: ASTM A 526-85, sheet steel with 1.25 oz./sq. galvanized coating.
 - a) Gage: Twenty-four (24).
 - b) Solder: ASTM B32-89, alloy grade 50A. Neutralize flux after soldering.
 - 2. All seams and joints of scupper inserts shall be either soldered or a hem interlock break installed in accordance with the manufacturer's roof detail drawings.

- D. Pitch pans with hood:
 - 1. Galvanized Steel: ASTM A 526-85, sheet steel with 1.25 oz./sq. galvanized coating.
 - a) Gage: Twenty-four (24).
 - b) Solder: ASTM B32-89, alloy grade 50A. Neutralize flux after soldering.
 - 2. All seams and joints shall be either soldered or a hem interlock break installed in accordance with the manufacturer's roof detail drawings.

- E. Piping through roof box:
 - 1. Galvanized Steel: ASTM A 526-85, sheet steel with 1.25 oz./sq. galvanized coating.
 - a) Gage: Twenty-four (24).
 - b) Solder: ASTM B32-89, alloy grade 50A. Neutralize flux after soldering.

- F. Drains:
1. Roof drains shall be 4" and attached to existing drain piping with Tyler no-hub clamp.
 2. All drain components shall be cast iron. Including drain body, clamping ring, underdeck clamp and strainer.
 1. Acceptable manufacturers:
 - a) Donovan Manufacturing Co., North Reading, MA.
 - b) Josam Manufacturing Co., Michigan City, IN.
 - c) Smith Manufacturing Co., Inc., Montgomery, AL.
 - d) Tyler Pipe, Tyler, TX.
 - e) Zurn Industries, Inc., Erie, PA.
- G. Lead Flashings:
1. ASTM B 29-79(1984), four (4) lb. sheet lead.
- H. Metal Roof Coating:
1. Liquid Applied Acrylic elastomeric coating to meet or exceed Tremco's AlphaGard Bio System. **Color:** White.
- I. Work shall be in accordance with Architectural Sheet Metal Manual, as issued by Sheet Metal and Air Conditioning Contractors' National Association, Inc., (SMACNA).

2.07 ROOF SYSTEM PERFORMANCE REQUIREMENTS:

A. POLYESTER/FIBERGLASS MAT/POLYESTER TRILAMINATE REINFORCED HIGH STRENGTH BASE PLY

<u>Property</u>	<u>Typical Value</u>	<u>Test Method</u>
Thickness	.055 in (1.2mm)	ASTM D 5147-97
Weight	38 lb/100 ft ²	ASTM D 5147
Breaking strength	145 lbf/in MD 135 lbf/in XD	ASTM D 5147
Pliability, 1/2 in. radius bend	No failures	ASTM D 146-78a (1986)
Mass of desaturated polyester/glass mat, min	3.5 lb/100 ft ²	ASTM D 228-78a (1986)
Tear strength	225 lbf MD 190 lbf XMD	ASTM D 5147
Asphalt	10.0 lb/100 ft ²	ASTM D 228-69 (1978)

B. FIBRATED ASPHALT MASTIC

<u>Property</u>	<u>Typical Value</u>	<u>Test Method</u>
Asbestos content	None	ASTM D 276-87
Viscosity @ 77 F	480,000 - 1,000,000 cP	ASTM D 2196-86
Density @ 77 F	9.3 lb/gal	ASTM D 1475-85
Nonvolatile Matter	80%	ASTM D 4586-86
Behavior at 140 degrees F.		

C. TRA ELASTOMERIC FLASHING MEMBRANE

<u>Property</u>	<u>Typical Value</u>	<u>Test Method</u>
Thickness	0.045 MIL	ASTM D 2136
Breaking strength	261 lbf/in. MD 150 lbf/in. XMD	ASTM D 751
Tear Strength	94 lbf 59 lbf XMD	ASTM D 751

D. POWER PLY COLD PROCESS INTERPLY ADHESIVE.

<u>Property</u>	<u>Typical Value</u>	<u>Test Method</u>
Asbestos content	None	ASTM D276-87
Viscosity @ 25 deg. C.	80 – 200 Pa s	ASTM D2196-81
Density @ 25 deg. C	0.98 kg/l (8.2lb/gal)	ASTM D1475-85
Nonvolatile Matter	75%	ASTM D4479-85

PART III - EXECUTION

3.01 EXAMINATION

- A. Verify conditions as satisfactory to receive work.
- B. Do not begin roofing until all unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions.
- C. Verify that work of other trades penetrating roof deck or requiring men and equipment to traverse roof deck has been approved by the Tulsa Public Schools, roof manufacturer, and roofing contractor.
- D. Check projections, curbs, and deck for inadequate anchorage, foreign material, moisture, or unevenness that would prevent the quality and execution of the new roofing system.

3.02 GENERAL WORKMANSHIP

- A. Substrate: Free of foreign particles prior to laying roof membrane.
- B. Phased application: Not permitted. All plies shall be completed each day.
- C. Traffic and equipment: Kept off completed plies until adhesive has set.
- D. Wrapper and packaging materials: Not to be included in roofing system.
- E. Entrapped aggregate: Not permitted within new membrane. Its discovery is sufficient cause for rejection.
- F. Ply shall never touch ply, even at roof edges, laps, tapered edge strips, and cants.
- G. Fit plies into roof drain rims; install lead flashing and finishing plies; secure clamping collars; install domes.
- H. Extend roofing membrane to top edge of cant at wall and projection bases.
- I. Cut out fishmouths/side laps which are not completely sealed, patch. Replace all sheets which are not fully and continuously bonded.
- J. Cold Process Tanker: Free of contaminants.
- K. Application rates: Bitumen quantities for waterstop/tie-offs, flashings, miscellaneous detail applications, and minimum kettle capacity are not included in application rates. To account for these factors, add approximately twenty-five (25) percent additional bitumen on a total-job average basis.
- L. Mechanical fasteners:
 - 1. Seated firmly in discs with fastener heads flush or below disc's top surface.
- M. Length: Sufficient to accommodate roof insulation thickness and engage steel deck 3/4 inch.
- N. Insulation:
 - 1. Install insulation boards in courses parallel to roof edges mopping surface up.
 - a) Firmly butt each insulation board to surrounding boards. Do not jam or deform boards.
 - b) Eliminate open joints and uneven surfaces.
 - 2. Maximum insulation gap: 1/4 inch.
 - 3. Fill insulation board joint gaps larger than 1/4 inch with roof insulation.

4. Maximum elevation variation between boards at joints: 1/8 inch.
 5. Cut and fit insulation boards where roof deck intersects vertical surfaces. Cut board 1/4 inch from vertical surface.
 6. Stagger joints at least six (6) inches.
 7. Filler size: Eighteen (18) inches in length or width, minimum.
- O. Insulation: Form continuous insulation joints over deck flange. Do not cantilever insulation edges over deck ribs. Minimum bearing surface: 1-1/2 inches.

3.03 PREPARATION

A. Protection:

1. Roof Contractor shall be responsible for protection of property during course of work. Lawns, shrubbery, paved areas, and building shall be protected from damage. Repair damage at no extra cost to the Tulsa Public Schools.
2. Provide at jobsite prior to commencing removal of debris, a dumpster or dump truck to be located adjacent to building where directed by the Tulsa Public Schools. Where roof elevations extend beyond two stories, roof contractor shall construct an enclosed chute from roof for removal of debris from roof area. Roof contractor shall protect building surfaces at chute/set-up areas with tarpaulin. Secure tarpaulin appropriately to ensure tarp remains in place throughout project progress. Remove dumpster from premises when full and empty at approved dumping or refuse area. Deliver dumpster to site for further use. Upon job completion, dumpster/chute shall be removed from premises. Spilled or scattered debris shall be cleaned-up immediately. Removed material to be disposed from roof as it accumulates.
3. Roofing, flashings, membrane repairs, and insulation shall be installed and sealed in a watertight manner on same day of installation or before arrival of inclement weather.
4. At start of each workday drains within daily work area shall be plugged. Plugs to be removed at end of each workday or before arrival of inclement weather.
5. Preparation work shall be limited to those areas that can be covered with installed roofing material on same day and before arrival of inclement weather.
6. Arrange work sequence to avoid use of newly constructed roofing for storage, walking surface, and equipment movement. Move equipment and ground storage areas as work progresses.
7. Protect building surfaces at chute/set-up areas with tarpaulin. Secure tarpaulin. Remove dumpster from premises when full and empty at approved dumping or refuse area. Deliver empty dumpster to site for further use. Upon job completion, dumpster shall be removed from premises. Spilled or scattered debris shall

be cleaned-up immediately. Removed material to be disposed from roof as it accumulates.

8. At end of each working day, removal areas shall be sealed with water stops along edges to prevent water entry.
9. Provide clean plywood walkways and take other precautions required to prevent tracking of aggregate/debris from existing membrane into new work area where aggregate/debris pieces can be trapped within new roofing membrane. Contractor shall instruct and police workmen to ensure that aggregate/debris is not tracked into new work areas on workmen's shoes or equipment wheels. Discovery of entrapped aggregate/debris within new membrane is sufficient cause for its rejection.

B. Surface Preparation: Roof Restoration

Wet Insulation Removal:

1. Remove: Where designated by marking paint remove wet insulation discovered by infra-red roof scan conducted by roofing system manufacturer.
2. Remove all dirt, loose aggregate, and asphalt bitumen etc., using a industrial vacuum. Dispose of debris appropriately.
3. Unused skylights and equipment.
4. Abolished skylights and equipment will be marked with colored marking paint and designated during the pre-bid meeting.
5. Add new drains, where designated.

3.04 CARPENTRY

A. Roof edge:

1. Mechanically attach new wood blocking, where required to equal final insulation thickness along perimeter edge of roof sections designated on roof drawing. Offset blocking layers twelve (12) inches, weave corners.
2. Install wood blocking and secure to existing wood blocking with fasteners spaced at twelve (12) inches o.c. staggered.

B. Low Profile Expansion Joint:

1. Mechanically attach 2 - 2 X 4 wood blocking horizontal to opening. Fasteners shall be installed in two (2) rows staggered. Spacing in anyone (1) row shall not exceed twenty-four (24) inches.

3.05 THERMAL INSULATION

A. Insulation System:

1. Install bottom layer of insulation in accordance with manufacturer's requirements to ensure appropriate installation.
2. Mechanically attach to steel decking at the rate of One (1) fastener every two (2) sq. ft. Install 50% additional fasteners along

- perimeter edge and building corners and ensure insulation board is firm under foot.
3. Ensure the insulation board joints are staggered a minimum of six (6) inches.
 4. Install at all roof sites and sections tapered crickets and saddles at drain locations, building corners, between scuppers, high sides of sides etc., to minimize ponding water conditions.
- B. Overlayment Installation:
1. Set the specified insulation in ribbon applications of insulation adhesive at the rate of 1.5 gallons or 0.3 gallons per 100 sq. ft. Ensure insulation board joints are staggered a minimum of six (6) inches and immediately walk insulation boards into adhesive to ensure complete bond.

3.06 ROOF SYSTEM APPLICATION

EISENHOWER INTERNATIONAL SCHOOL

- A. Remove existing aggregate/asphalt bitumen and all defined areas of wet insulation designated by infra-red scan. Remove all surfacing, dirt etc., using an industrial vacuum. Ensure surface is completely clean. Match insulation thickness and roofing plies as designated.
- B. Prime surface completely and install two (3) plies of trilaminate high strength base plies and set in alternate applications of cold process adhesive. Place ply sheets to ensure water will flow over of parallel to; but, never against exposed edges.
- C. Immediately after installation, broom and/or roll ply sheet. Ensure continuous seal and contact between adhesive and felts, including ends, edges, and laps without wrinkles, fish mouths or blisters.
- D. Apply uniform and continuous pressure to exposed edges and end laps to ensure complete adhesion.
- E. Avoid walking on plies until adhesive has set.
- F. Overlap previous day's work. Provide headers where new roof membrane terminates to the previous day's work.
- G. Lap ply membrane ends four (4) inches. Stagger end laps three (3) feet minimum.
 1. Embed each ply in a uniform and continuous application of interply mastic. Interply application Rate: 2 gallons per 100 sq. ft.
- H. Fabricate and install new metal edge assembly to match existing. Metal is to be retrofitted over the existing metal.

3.07 FLASHINGS

- A. General flashing requirements:
1. TRA Flashing:
 - a) Adhere one (1) ply flashing ply to flashing substrate in a continuous application of flashing bitumen. Remove wrinkles and voids. Overlap sections four (4) inches.
 - b) Extend flashing ply four (4) inches beyond toe of cant.
 - c) Cut elastomeric flashing sheeting in lengths not to exceed ten (10) feet. Apply sheeting bond adhesive sheeting ply in a continuous 1/16-inch-thick application. Adhere sheeting membrane to bonding adhesive. Lap flashing membrane ends four (4) inches; extend membrane six (6) inches beyond toe of cant; press sheet firmly in place. Ensure complete bond and continuity without wrinkles or voids. Adhere laps with flashing bitumen. Seal vertical laps and base of sheeting membrane with two (2) plies of reinforcing membrane embedded between alternate continuous courses of asphalt mastic.
 2. Base flashing height:
 - a) **Not less than eight (8) inches, not higher than twelve (12) inches above finished roofing surface.**
 - b) Two-Ply Stripping:
 - c) Set flange in asphalt mastic. Seal flange with two (2) plies of trilaminate high strength roofing ply embedded between alternate applications of asphalt mastic. Extend first ply four (4) inches beyond flange; second ply two (2) inches beyond first ply.

3.08 ROOF RESTORATION REPAIRS (EISENHOWER INTERNATIONAL)

- A. Industrial Power Vacuum Roof Surface:
1. Remove all loose dirt, aggregate, sediment etc., from roof surface using an industrial power vacuum.
- B. At Wall and Curb Flashing:
1. Where applicable, remove loose and delaminated flashing membrane and repair utilizing matching material. Prime flashing surface with asphalt primer and allow to dry tack free.
 2. Remove aggregate a minimum of 18" beyond toe of cant. Ensure dirt, dust etc., is removed to promote bonding of mastic.
 3. Install elastomeric flashing sheeting in sheeting bond adhesive. Five (5) course vertical laps and toe of cant in asphalt mastic and membrane applied in alternate applications.
 4. Allow surface to cure, prior to the application of one (1) coat of the specified aluminum coating.
 5. Remove and replace all inappropriately fabricated and installed

metal counterflashing and replace with specified metal detail. Where applicable, where surface mounted counterflashing exists, sawcut masonry and install new counterflashing into Reglet joint. Seal appropriately.

- C. At blisters and/or delamination's:
 - 1. Cut away delaminated felts until firmly laminated felts exist along every area to be repaired.
 - 2. Remove embedded gravel, debris and dust from area extending a minimum of 18 inches beyond perimeter of depressed area. Square corners. Ensure area is dry.
 - 3. Fill depression with alternate layers of asphalt mastic in reinforcing membrane. Match number of plies removed.
 - 4. Cover layers of mastic/membrane with two (2) layers of reinforcing membrane (one (1) layer of 6 inch and one (1) layer of 12 inch) embedded between trowel applications of asphalt mastic.
 - 5. Extend repair area at least six (6) inches beyond filled depression. Overlap reinforcing mesh at least two (2) inches. Cover mesh completely with asphalt mastic.

- D. At plumbing vents:
 - 1. Remove embedded aggregate and bitumen from around periphery of plumbing stack.
 - 2. Trowel asphalt mastic to roof surface in alternate layers of (6" - 12") reinforcing membrane.
 - 3. Replace cracked lead jacs. Install integral lead cap, where required.
 - 4. Replace with 4lb. lead flashing, where required.

- E. At roof drains:
 - 1. Prepare roof surface with 36-inch radius of drain. Remove embedded aggregate and bitumen.
 - 2. Install tapered roof saddles between drains to divert water to drainage sumps. Two (2) ply saddles with composite ply HT and cold process adhesive.
 - 3. Remove drain flashing collar, where appropriate. Where drain collars, ladder clamps, bolts are found broken or missing, replace with matching component.
 - 4. Remove dust and dirt and prime surface with asphalt primer.
 - 5. Embed two (2) plies of reinforcing membrane (6"-12") in alternate applications of asphalt mastic.
 - 6. Reinstall collar and secure appropriately.
 - 7. Cut and remove excess membrane within drain opening.
 - 8. Remove and replace all drains screens with commercial grade screens installed and secured appropriately.

- F. At perimeter gravel stop assembly:
1. Remove embedded aggregate/asphalt bitumen surfacing a minimum of 18" onto roof surface. Cut back existing stripping plies from flange of metal edge a minimum of 3". Clean metal flange and follow flashing requirement below.
 3. Install new flashing, if defective, corroded or otherwise unable to be salvaged.
 4. Ensure flange is secured at 3" o.c., staggered with the appropriate roofing nail.
 5. Five (5) course flange of metal assembly with (6") reinforcing membrane set between layers of asphalt mastic. Ensure weave is embedded. Install 12" composite ply in asphalt mastic. Roll in composite ply into mastic for an immediate bond.
 6. Where gutters exist, clean gutter laps thoroughly of all existing sealants or coatings from surface. It may be necessary to grind surface clean to primer and then apply AG Puma to surface. Seal vertical and horizontal laps.
- G. At expansion joints:
1. Remove existing aggregate/bitumen from along flange of expansion joint a minimum of 18". Reattach metal flange where fasteners are found to be protruding through stripping plies.
 2. Remove all dirt and debris and prime surface with asphalt primer.
 3. Over prepared surface install TRA reinforced sheeting over existing expansion joint in the specified sheeting adhesive. Extend TRA sheeting a minimum of 8" beyond transition of existing expansion joint cover.
 4. Overlap end laps a minimum of eight (8) inches and seal with sheeting adhesive and 6" TRA sheeting membrane.
 5. Seal sheeting edges with two (2) plies of reinforcing membrane set in alternate applications of asphalt mastic. Embed weave completely.
- H. At pitch pans:
1. Remove all existing pitch pans and fabricate and install new pans with hoods and collars. Nail flange appropriately, where required.
 2. Seal flange of pitch pan with five (5) course method.
 3. Fill pitch pan with specified asphalt mastic to provide watershed.
 4. Fabricate and install sheet metal hood and secure appropriately.
- I. At pipe stands and equipment runners:
1. All gas lines greater than 3" shall be resting on 10" X 10" X 1/4" steel plating buffered by a protection pad. Install new 4" X 4" pressure treated wood blocking in asphalt mastic and space 5' o.c. Strap piping appropriately. Steel plating shall extend a minimum of 2" beyond the periphery of the wood blocking.

2. Remaining piping smaller than 3" shall be resting on 4" x 4" pressure treated wood blocking and set on new protection pad in asphalt mastic. Rest piping on wood blocking and strap appropriately.
 3. Clean existing mastics, asphalt etc., from piping and apply aluminum coating.
- J. Walkways:
1. Remove existing walkway landings and repair membrane appropriately to match existing ply configuration. Install new walkway landings along the working sides of mechanical equipment and at access ladders and hatches.
- K. At HVAC Units:
1. All existing HVAC condensate lines shall be piped with 3/4" galvanized steel piping with Tee overflow. Attach appropriately.

3.09 SURFACING TREATMENT ON FLASHING

EISENHOWER INTERNATIONAL SCHOOL

- A. Over prepared restoration surfacing, apply one (1) coat of the specified aluminum reflective coating to flashing surfaces, expansion joints, drain domes, plumbing vents, galvanized vent stacks, pitch pans and walk protection landings at an approximate rate of 120 sq. ft. per gallon.

3.10 SURFACING APPLICATION

EISENHOWER INTERNATIONAL SCHOOL

- A. Restoration Final Flood Coat Surfacing:
1. Prior to the application of the surface treatment system, roof contractor shall inspect roof with manufacturer's representative. All deficiencies found during this inspection shall be repaired immediately prior to this roof area being accepted.
 2. Over the entire roof surface apply a uniform and continuous flood coat of Ecolastic cold process adhesive at a rate of 7.5 gallons per 100 sq. ft. **NOTE:** Roof sections designated to have wet insulation removed, scratched and three (3) plied shall have the Power Ply Cold Adhesive applied at 7.5 gallons per square and aggregate imbedded, as specified.
 3. Immediately broadcast minimum 400 lbs. of new, clean roofing aggregate per 100 sq. ft. Cover flood coat material completely. Provide additional pours of cold process adhesive and aggregate to provide for positive drainage.

3.11 WALKWAYS

- A. Install new walkway panels around access doors, ladders and working sides of mechanical equipment. Set landings in solid applications of cold process adhesive.

3.12 ROOF COATING RESTORATION – TULSA LEGACY – UPPER ACADEMY

- A. Power wash coated surface with high pressure water and remove all dirt, loose coating and any contaminates. Surface must be clean, dry, in sound condition, and free of all dirt, debris, and contaminates.
- B. Remove and replace all marked areas of wet insulation. Match existing type and thickness. Adhere insulation layers in ribbon applications of low rise insulation foam.
- C. Install Three (3) plies of composite ply HT in Burmastic Adhesive MC only. Apply MC adhesive at the rate of 2 gallons per 100 sq. ft., per ply. Do not apply MC adhesive unless ambient and surface temperatures are at least 45 degrees F. and rising.
- D. At raised flashings where they need to be removed, prime with asphalt WB primer and Install One (1) ply of composite ply Ht and One (1) ply of Standard FR MB set between alternate applications of Burmastic Flashing Adhesive MC. Coverage rate: 20 sq. ft., per gallon.
- E. Clean existing gutters of all debris and mastics from lap joints. The use of a wire brush may be required to clean surface of all materials. Apply AG Puma to all vertical and horizontal laps of gutter.
- F. Replace all copper and pvc condensate lines with new ¾" galvanized steel piping and secure with appropriate clamps. Direct condensate line into scupper and drain outlet.
- G. Over prepared surface, prime total roof and flashing surfacing with geogard primer applied at the rate of ¼ gallon per 100 sq. ft. Fully embed AG Permafab into wet AB Bio Base coat at the rate of 4 gallons per 100 sq. ft. Using a brush or roller, ensure reinforcement is fully saturated and is free of voids, wrinkles, air pockets, standing fibers, etc. Overlap sidelaps 3" and endlaps 6". NOTE: Use mil gauges to monitor coverage rates.
- H. AG Bio base and top coats should be top coated within 72 hours of application. If cured, base or top coat is exposed for longer than 72 hours, an application of geogard primer will be required to promote adhesion between coats.
- I. Over prepared and dry base coat, apply 3 gallons of AG Top coat with approved application method evenly. Use mil gauges to monitor coverage rates.
- J. It is recommended that roof contractor review Manufacturer's written application instructions to apply this roof coating system.

- K. See attached rooftop drawings for installation clarifications.

3.13 ADJUSTING AND CLEANING

- A. Repair of deficiencies:
1. Installations of details noted as deficient during Final inspection must be repaired and corrected by applicator, and made ready for re-inspection, within five (5) working days.
- B. Clean-up:
1. Immediately upon job completion, roof membrane and flashing surfaces shall be cleaned of debris.
 2. Clean drains, scuppers, downspouts etc., of all debris and ensure they are free flowing.
 3. Remove all loose trash and debris from surrounding building grounds. Correct grounds around staging area by filling with dirt, packing and spreading neatly.

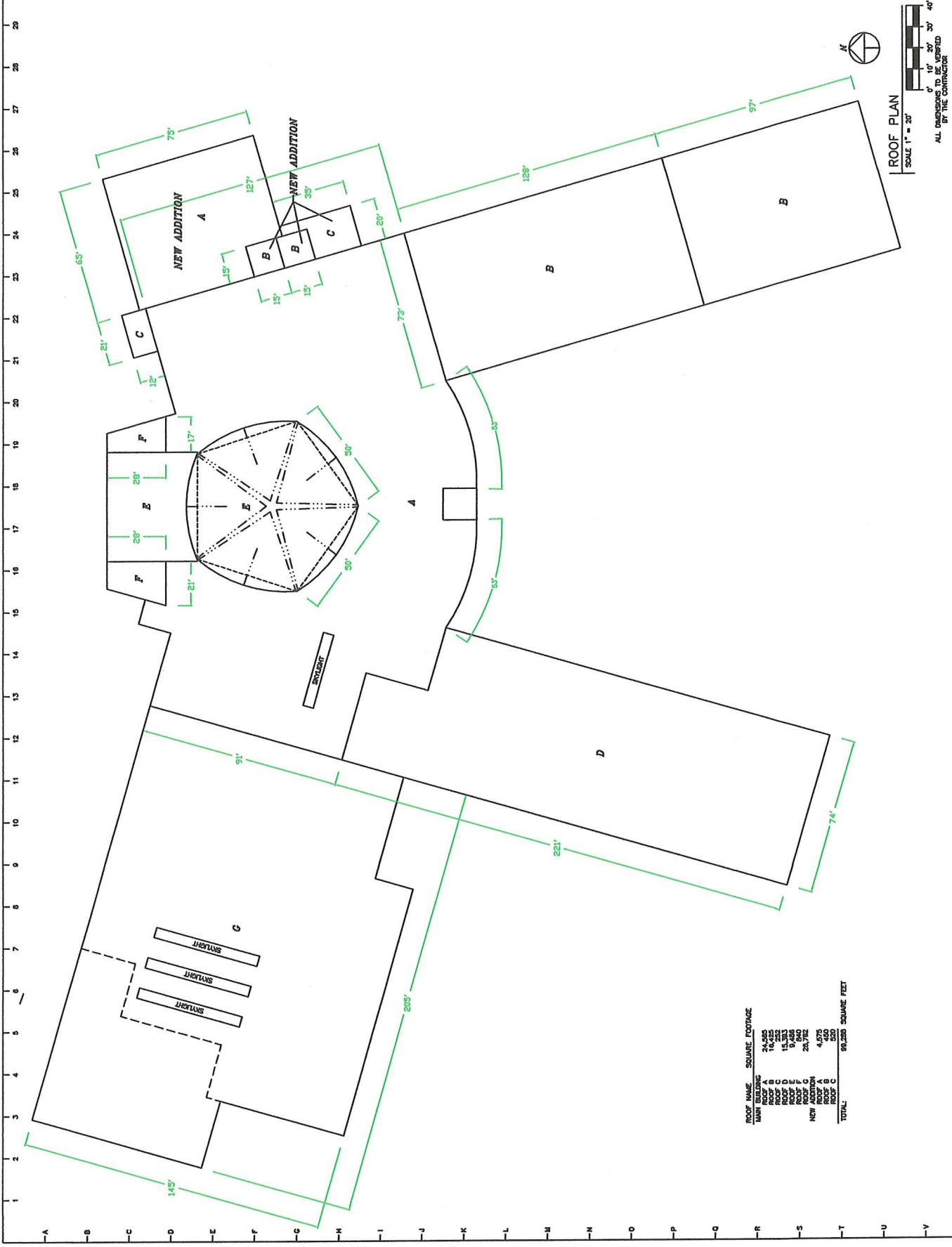
REVISIONS	No.	DATE	BY
NAME CHANGE	1	11/8/22	JTS

NOTES:

LEGEND:

TREMCO
 Airtight Company

CUSTOMER:	TULSA PUBLIC SCHOOLS
BUILDING:	ESSINGER POWER INTERNATIONAL SCHOOL
LOCATION:	TULSA, OKLAHOMA
DRAWN BY:	JTS
CHECKED BY:	JTS
DATE DRAWN:	10/17/2020
DATE CHECKED:	11/17/2020
APPROVED:	JTS
DATE APPROVED:	9/25/2020

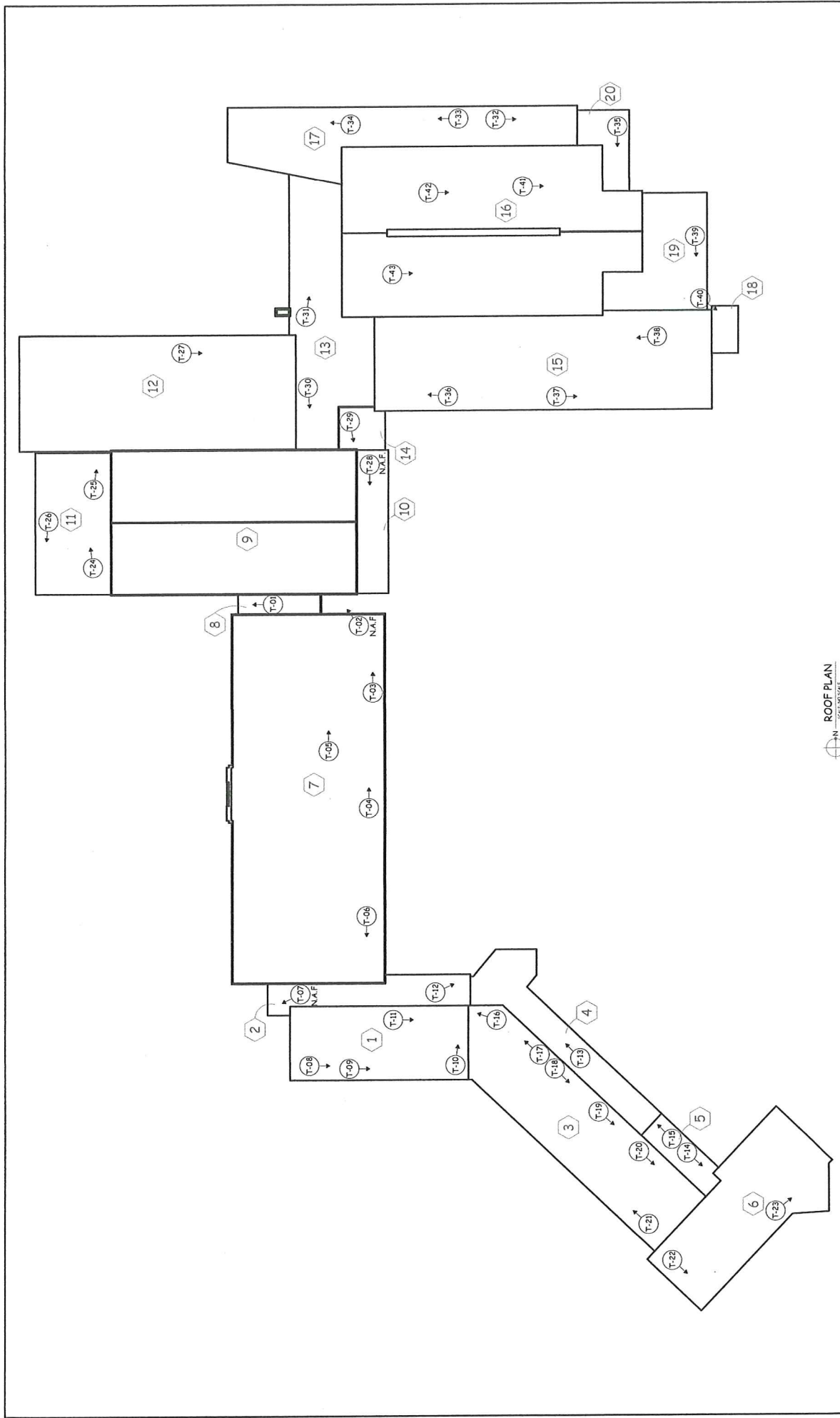




ROOF PLAN
SCALE: NO SCALE

		TULSA PUBLIC SCHOOL DISTRICT TULSA LEGACY CHARTER - UPPER 6001 NORTH PEORIA AVENUE TULSA, OKLAHOMA 74126		PROJECT NO. 973631
Roofing & Building Maintenance		CONTRACTOR B. DONALDSON		SHEET NO. B
STANDARD KEY OF SYMBOLS		DATE 10/5/2022		DRAWN BY SR
(H) ROOF SECTION (D) DRY CORE (W) WET CORE (A) NO ANOMALIES FOUND	(P) PHOTO (T) THERMOGRAM (N.A.F.) NO ANOMALIES FOUND	(W) WET INSULATION (R.I.M.) RANDOM INTERMITTENT MOISTURE	(N.I.C.) NO INSULATION (M.G.) MOISTURE GRID (T.C.) TRACE CORE (M.R.) MOISTURE READING	

© 2022 BY TREMCO INCORPORATED. ALL RIGHTS RESERVED. NO PART OF THIS DOCUMENT MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC, MECHANICAL, PHOTOCOPYING, RECORDING OR OTHERWISE WITHOUT THE EXPRESS WRITTEN CONSENT OF TREMCO INCORPORATED. THE INFORMATION PROVIDED IN THIS DRAWING IS CURRENT AS OF THE DATE OF INSPECTION BY TREMCO INCORPORATED. WEATHERPROOFING TECHNOLOGIES, INC. OR THEIR DESIGNATED CONTRACTOR. ROOFING SYSTEM AND/OR BUILDING CONDITIONS CAN CHANGE AT ANY TIME, INCLUDING BUT NOT LIMITED TO THE AMOUNT OF WET INSULATION IN THE ROOFING SYSTEM, AND CAUSE THE INFORMATION PROVIDED IN THIS DRAWING TO CHANGE OR BECOME OUT OF DATE.



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

				TULSA PUBLIC SCHOOL DISTRICT TULSA LEGACY CHARTER - UPPER 6001 NORTH PEORIA AVENUE TULSA, OKLAHOMA 74126		DRAWING NUMBER 17-0324
PROJECT ROOFING & BUILDING MAINTENANCE		CLIENT TULSA		DATE 10/5/2022		SHEET NO. B

- STANDARD KEY OF SYMBOLS**
- PHOTO
 - ROOF SECTION
 - DRY CORE
 - WET CORE
 - INTERMITTENT MOISTURE
 - WET INSULATION
 - R.I.M. (RANDOM)
 - TR-ACE CORE
 - MOISTURE GRID
 - MOISTURE READING
 - N.I.C.

© 2022 BY TREMCO INCORPORATED. ALL RIGHTS RESERVED. NO PART OF THIS DOCUMENT MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC, MECHANICAL, PHOTOCOPYING, RECORDING OR OTHERWISE WITHOUT THE EXPRESS PRIOR WRITTEN CONSENT OF TREMCO INCORPORATED. THE INFORMATION PROVIDED IN THIS DRAWING IS CURRENT AS OF THE DATE OF INSPECTION BY TREMCO INCORPORATED. WEATHERPROOFING TECHNOLOGIES, INC. OR THEIR DESIGNATED CONTRACTOR. ROOFING SYSTEM AND/OR BUILDING CONDITIONS CAN CHANGE AT ANY TIME, INCLUDING BUT NOT LIMITED TO THE AMOUNT OF WET INSULATION IN THE ROOFING SYSTEM, AND CAUSE THE INFORMATION PROVIDED IN THIS DRAWING TO CHANGE OR BECOME OUT OF DATE.

DRAIN STRAINER

CLAMPING RING

TRIM EXISTING FLASHINGS TO WHERE BOWL TURNS DOWN. ENSURE NEW FLASHINGS FULLY ENCAPSULATES OLD FLASHINGS.

DECK CLAMP

EXTEND LIQUID APPLIED SYSTEM INTO DRAIN

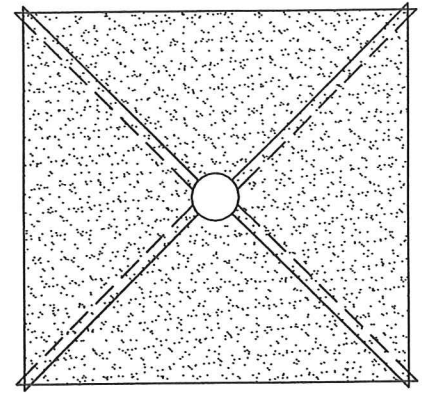
CAST-IRON DRAIN BOWL

CLEAN TO BRIGHT METAL AND PRIME

LIQUID APPLIED REINFORCED BASE COAT

EXISTING INSULATION SUMP

EXISTING ROOF MEMBRANE



CUT REINFORCEMENT INTO TRIANGLES AND OVERLAP INTO BOWL.

NOTES

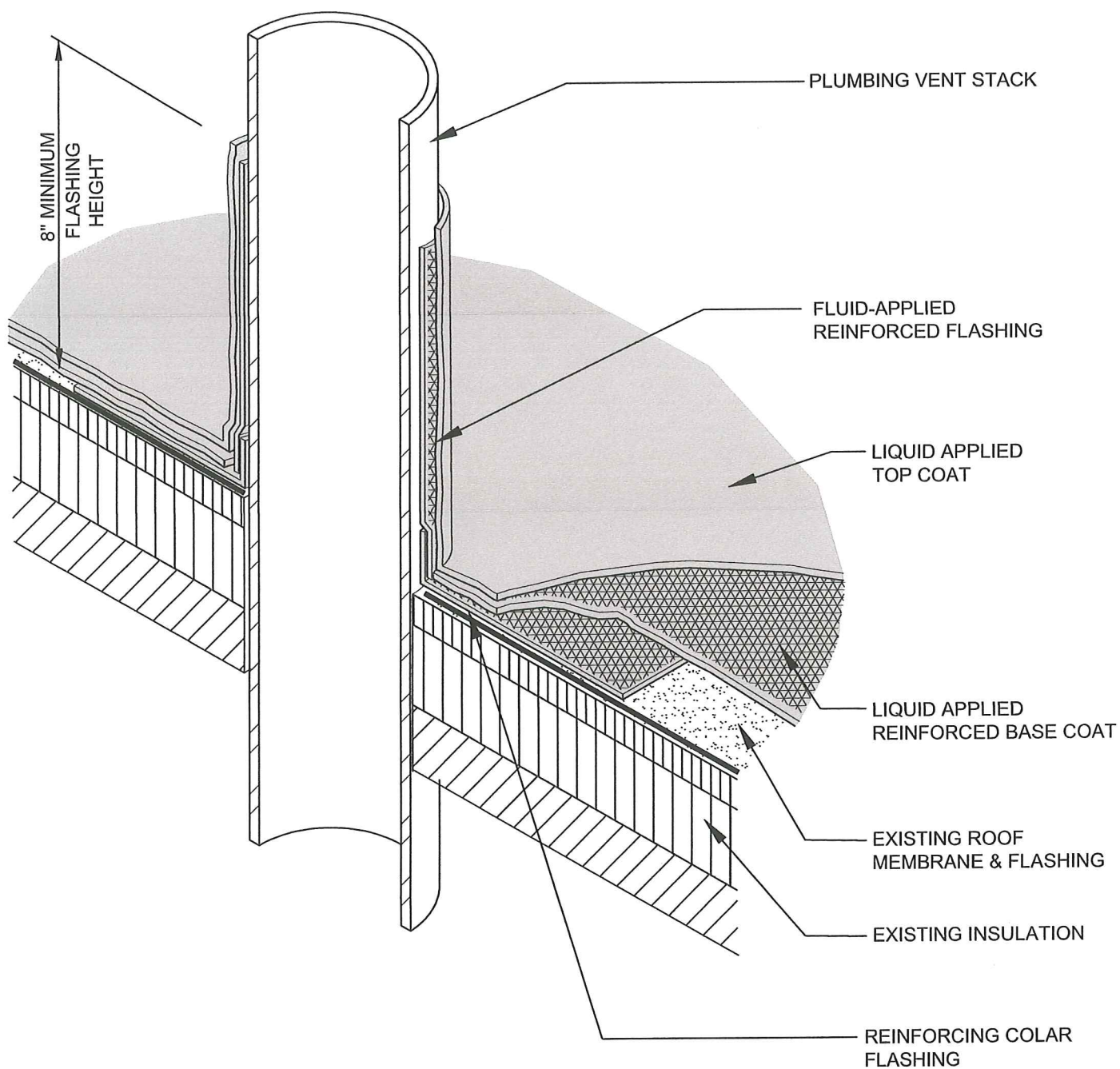
1. PRIMING OF THE SUBSTRATE MAY BE REQUIRED, FOLLOW SPECIFICATIONS AND MANUFACTURER RECOMMENDATIONS.
2. REINFORCEMENT MUST BE FULLY SATURATED OR ENCAPSULATED IN BASE COAT AS DESCRIBED IN SPECIFICATIONS.
3. REMOVE EXISTING FLASHINGS PRIOR TO INSTALLATION OF NEW FLUID APPLIED SYSTEMS.

ROOF DRAIN FULLY REINFORCED RESTORATION

LA-FR-24

N.T.S.

TREMCO
ROOFING & BUILDING MAINTENANCE



NOTES

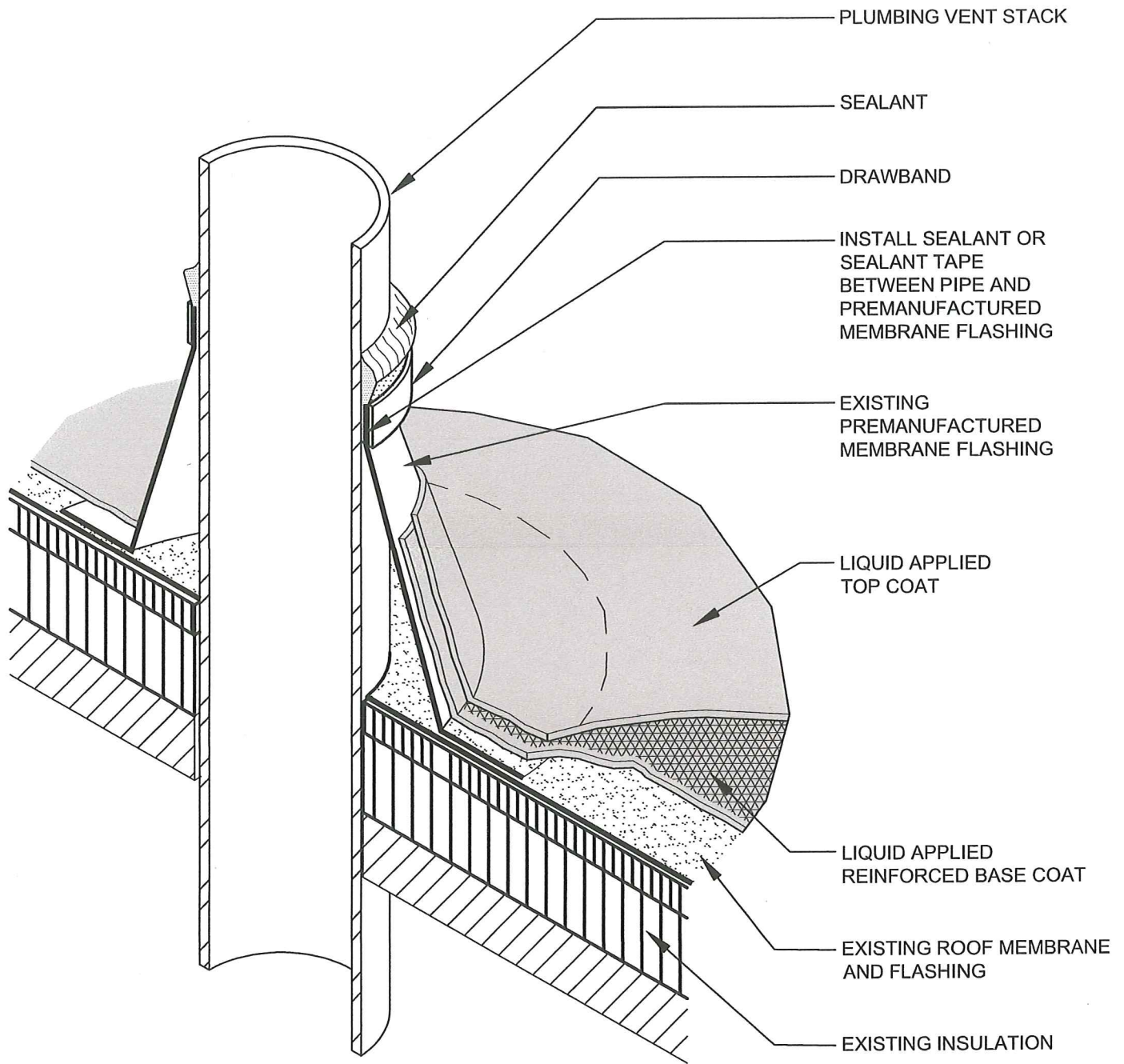
1. PRIMING OF THE SUBSTRATE MAY BE REQUIRED, FOLLOW SPECIFICATIONS AND MANUFACTURER RECOMMENDATIONS.
2. REINFORCEMENT MUST BE FULLY SATURATED OR ENCAPSULATED IN BASE COAT AS DESCRIBED IN SPECIFICATIONS.

**PLUMBING VENT OR PIPE PENETRATION
FULLY REINFORCED RESTORATION**

LA-FR-19

N.T.S.

TREMCO
ROOFING & BUILDING MAINTENANCE



NOTES

1. PRIMING OF THE SUBSTRATE MAY BE REQUIRED, FOLLOW SPECIFICATIONS AND MANUFACTURER RECOMMENDATIONS.
2. REINFORCEMENT MUST BE FULLY SATURATED OR ENCAPSULATED IN BASE COAT AS DESCRIBED IN SPECIFICATIONS.

**PLUMBING VENT [PREMANUFACTURED BOOT]
FULLY REINFORCED RESTORATION**

LA-FR-19A

N.T.S.

TREMCO
ROOFING & BUILDING MAINTENANCE

MEMBRANE PROTECTION PLY
FLEECE BACKED WHITE SINGLE
PLY (LOOSE LAID ON ROOF)

PIPE SUPPORT
SET IN SEALANT—SEE NOTE 2

NOTES

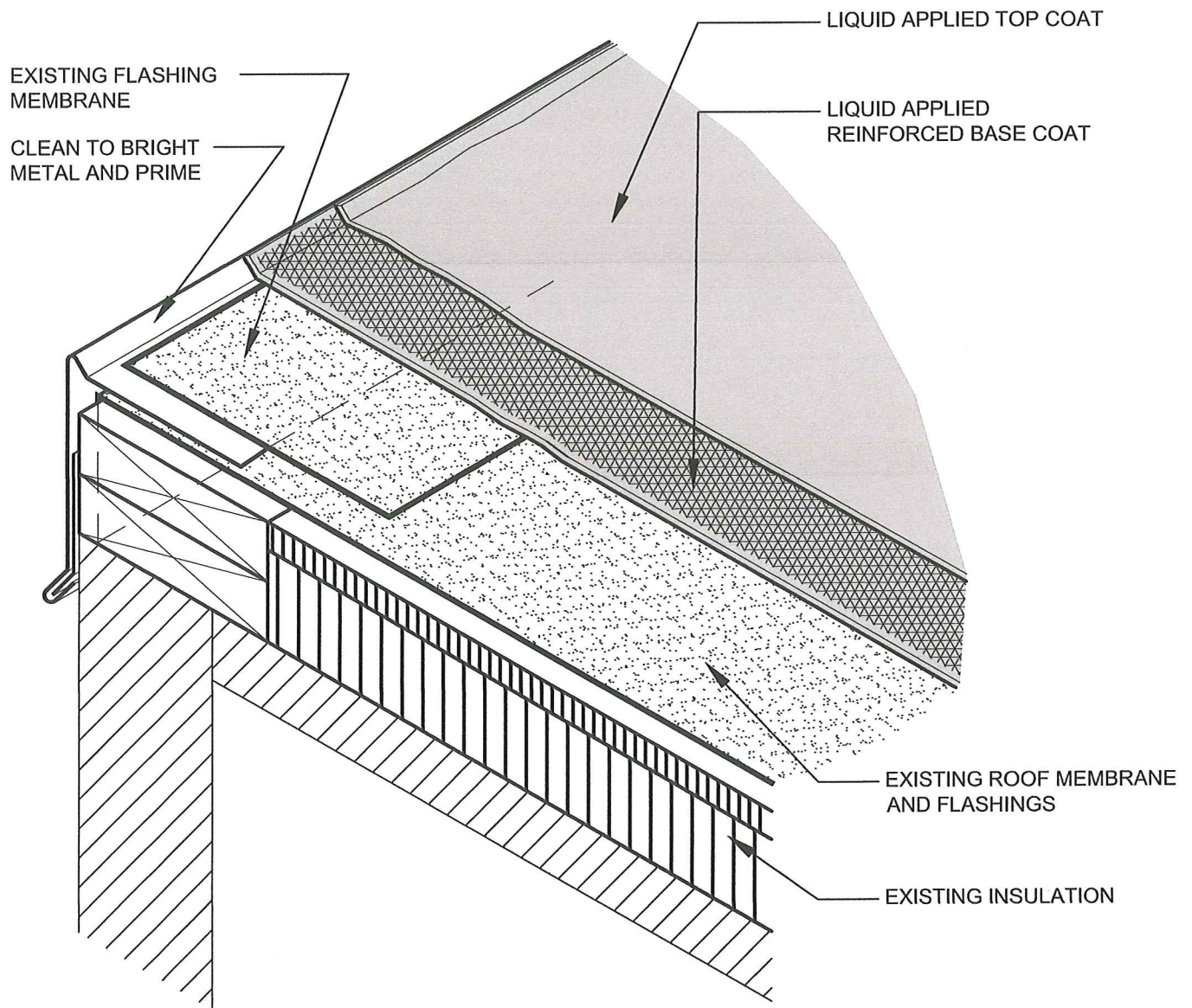
1. THIS DETAIL IS DESIGNED TO ELIMINATE ROOF DAMAGE DUE TO EXPANSION AND CONTRACTION OF PIPES.
2. PIPE SUPPORT PROFILES VARY. REFER TO THE MANUFACTURER FOR LOAD CAPACITY AND RECOMMENDED SPACING OF SUPPORTS.
3. PRIMING OF THE SUBSTRATE MAY BE REQUIRED, FOLLOW SPECIFICATIONS AND MANUFACTURER RECOMMENDATIONS.
4. REINFORCEMENT MUST BE FULLY SATURATED OR ENCAPSULATED IN BASE COAT AS DESCRIBED IN SPECIFICATIONS.

**PIPE SUPPORT
FULLY REINFORCED RESTORATION**

LA-FR-21A

N.T.S.

TREMCO.
ROOFING & BUILDING MAINTENANCE



NOTES

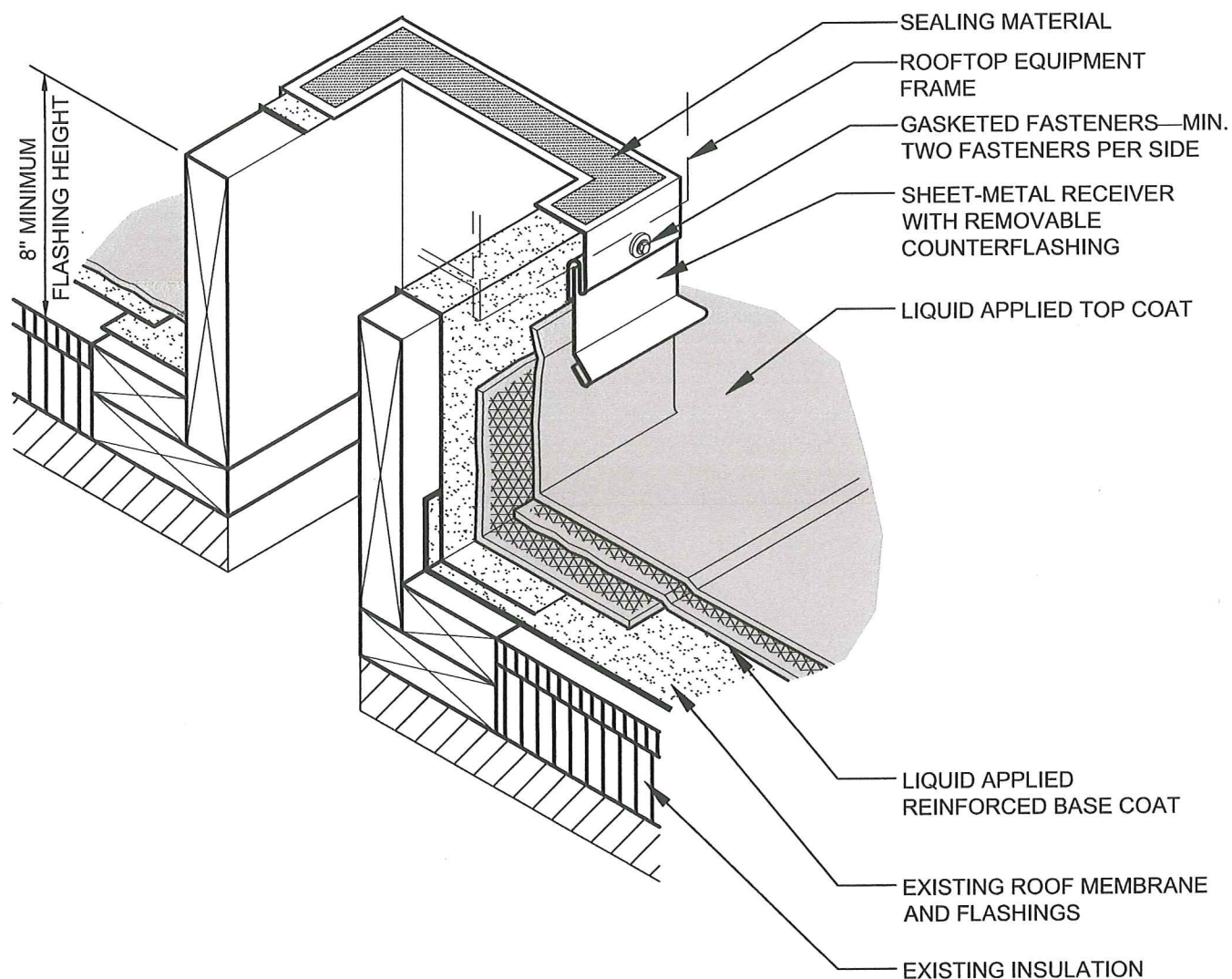
1. PRIMING OF THE SUBSTRATE MAY BE REQUIRED, FOLLOW SPECIFICATIONS AND MANUFACTURER RECOMMENDATIONS.
2. REINFORCEMENT MUST BE FULLY SATURATED OR ENCAPSULATED IN BASE COAT AS DESCRIBED IN SPECIFICATIONS.

**EMBEDDED EDGE-METAL
FLASHING [GRAVEL STOP]
FULLY REINFORCED RESTORATION**

LA-FR-3

N.T.S.

TREMCO.
ROOFING & BUILDING MAINTENANCE



NOTES

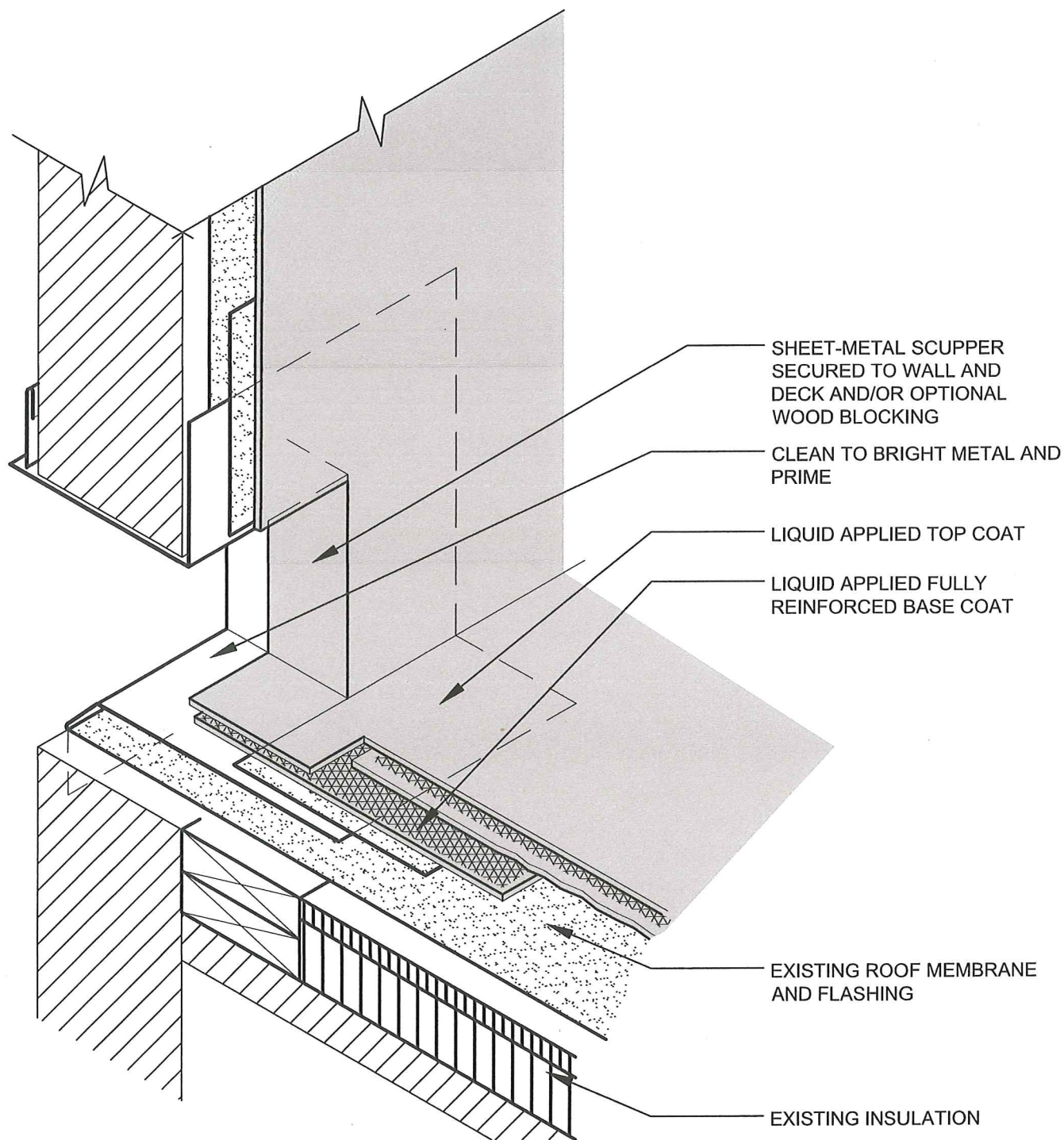
1. PRIMING OF THE SUBSTRATE MAY BE REQUIRED, FOLLOW SPECIFICATIONS AND MANUFACTURER RECOMMENDATIONS.
2. REINFORCEMENT MUST BE FULLY SATURATED OR ENCAPSULATED IN BASE COAT AS DESCRIBED IN SPECIFICATIONS.

**BASE FLASHING AT WOOD CURB
FULLY REINFORCED RESTORATION**

LA-FR-13

N.T.S.

TREMCO.
ROOFING & BUILDING MAINTENANCE



NOTES

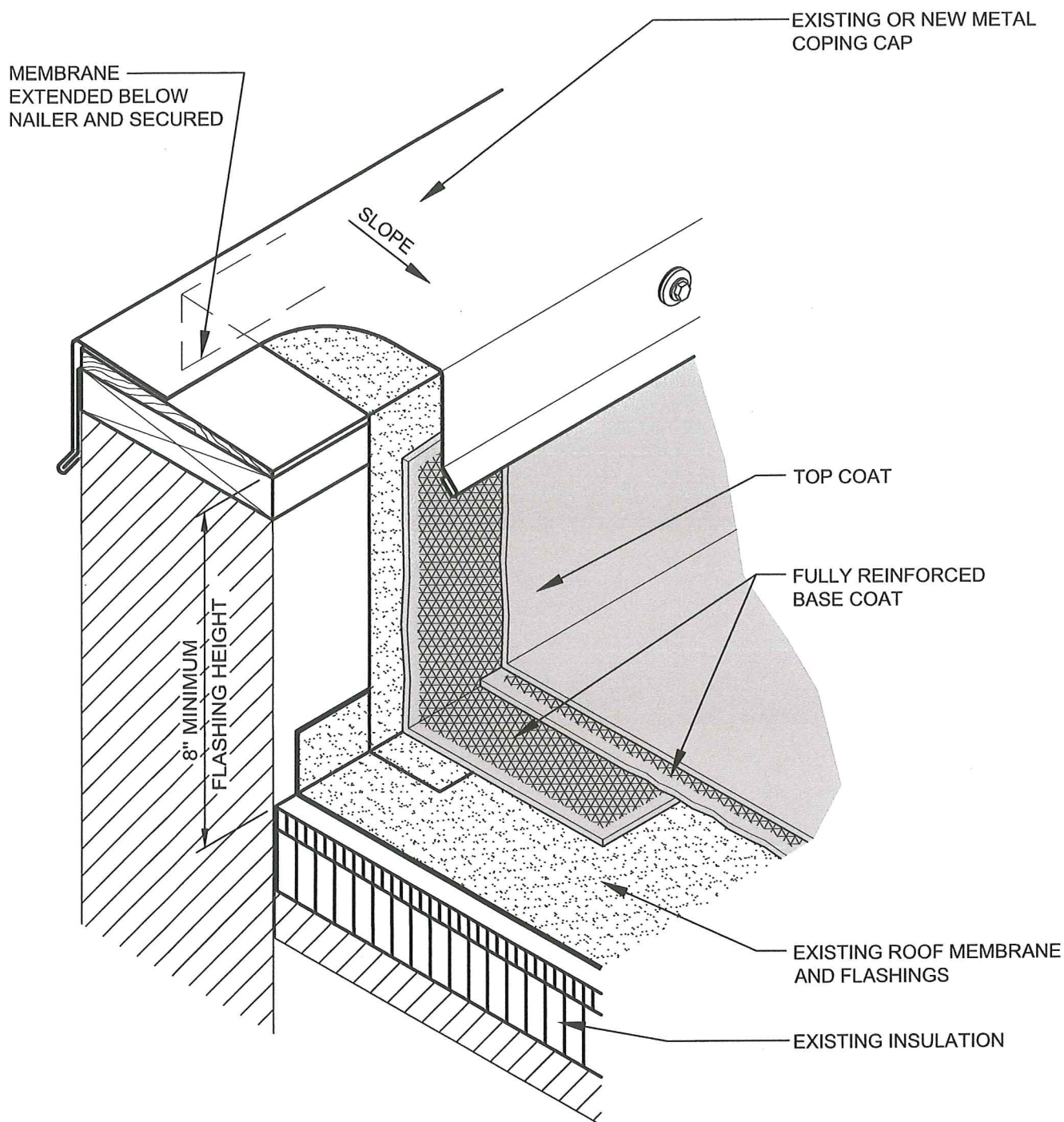
1. CONDUCTOR HEAD TO BE 1 INCH MINIMUM BELOW BOTTOM OF THROUGH-WALL SCUPPER.
2. PRIMING OF THE SUBSTRATE MAY BE REQUIRED, FOLLOW SPECIFICATIONS AND MANUFACTURER RECOMMENDATIONS.
3. REINFORCEMENT MUST BE FULLY SATURATED OR ENCAPSULATED IN BASE COAT AS DESCRIBED IN SPECIFICATIONS.

BASE FLASHING AT THROUGH-WALL SCUPPER FULLY REINFORCED RESTORATION

LA-FR-25

N.T.S.

TREMCO
ROOFING & BUILDING MAINTENANCE



NOTES

1. PRIMING OF THE SUBSTRATE MAY BE REQUIRED, FOLLOW SPECIFICATIONS AND MANUFACTURER RECOMMENDATIONS.
2. REINFORCEMENT MUST BE FULLY SATURATED OR ENCAPSULATED IN BASE COAT AS DESCRIBED IN SPECIFICATIONS.

**BASE FLASHING AT PARAPET WALL
WITH METAL COPING
FULLY REINFORCED RESTORATION**

LA-FR-1

N.T.S.

TREMCO
ROOFING & BUILDING MAINTENANCE