Park Hill School District

Project Manual

ROOF RESTORATION & REPLACEMENT
2026 Summer Projects

Alfred Renner Elementary School
&
Park Hill South High School

December 8, 2025

Jeremie Kahler
Director of Operations
9501 N. Seymour
Kansas City, Missouri 64153

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END OF SECTION 00010

NOTICE TO BIDDERS

NOTICE TO BIDDERS AND SPECIFICATIONS FOR ROOFING BIDDING REQUIREMENTS

The Board of Education, Park Hill School District of Platte County, Missouri, will receive sealed bids at the Park Hill School District Support Services offices at 9501 N. Seymour, Kansas City, Missouri, not later than 1:00 P.M. on January 7, 2026. Bids should be plainly marked "Roofing Bid." No bids will be received later than the time and date above specified. A pre-bid meeting will be held at Support Services Office at 9501 Seymour, Kansas City, Missouri, 64153 on December 17, 2025, at 10:30 A.M. for the purpose of reviewing the project specifications, bid documents, bidder qualifying requirements and a tour of all proposed roof areas. Each bidder must examine the roof area(s) hereafter described as Project(s) and be familiar with existing conditions. Bids received from bidders not present at the pre-bid meeting shall be considered Non-Responsive and their bid will not be opened or considered.

Bidder qualifying documents shall be submitted in a separate envelope clearly marked "Roof Bid Qualifying Documents" and must be submitted no later than 1:00 P.M. on January 7, 2026. Bids received from bidders not providing Qualifying Documents shall be considered Non-Responsive and their bid will not be opened or considered.

Roof bid shall be in a separate envelope clearly marked "Roofing Bid" with the specification/project number clearly indicated.

Bid shall be accompanied by a Roofing Material Quantity List and acceptable bid bond or certified cashier's check drawn on a local bank, payable to Treasurer, Board of Education, for an amount not less than five percent of the total amount of the bid. This bid security shall become the property of the Board of Education as liquidated damages in the event the successful bidder fails to execute and deliver a contract, along with specified surety and statutory bonds, within ten days after the received notice of the acceptance of his bid by the Board of Education.

Simultaneously with delivery of the executed contract, the contractor shall secure and pay for performance and labor/material payment bonds issued by a bonding company licensed to transact business in Kansas City, Missouri.

The contract or contracts will be awarded to the lowest responsible qualified bidder, but the Board of Education reserves the right to reject any or all bids. Bids not responsive to the specification and other requirements will be rejected.

Work under this contract may commence upon the following stipulated dates. Timely completion of the work specified is an essential condition of this contract. Progress meeting(s) between Owner, Contractor, and Manufacturer's Representative to view and discuss job progress will be scheduled. All work must be completed by August 2, 2026. All work not completed by defined timeline above shall result in a $1,500.00 per diem penalty to be deducted by Owner from final payment.

END OF SECTION 00011

ROOFING PROGRAM QUALIFICATION REQUIREMENTS

PARK HILL SCHOOL DISTRICT
ROOFING PROGRAM QUALIFICATION REQUIREMENTS

I. ROOF MAINTENANCE REQUIREMENTS:
- A. Provide local representative who:
  - 1. Has a minimum of 10 years' experience in:
    - a. Surveying metal roof systems, built-up membranes, modified roof systems, and single ply membranes.
    - b. Writing quality roofing condition reports.
    - c. Working with large multi-roof facilities on long term budgeting for repair and replacement programs.
  - 2. Can respond to leaks within 24 hours.
  - 3. Can assist maintenance staff in proper repair procedures.
  - 4. Can perform bi-annual roof inspections with maintenance staff.
- B. Provide local certified contractors for emergency repairs.
- C. Provide repair material available for in-house repairs.

II. ROOFING MANUFACTURER REQUIREMENTS:
- A. Been in business for a minimum of 20 years.
- B. Has not been in Chapter 11 during the last 20 years.
- C. Be Associate Member in good standing with National Roofing Contractors' Association (NRCA) for at least 10 years.
- D. Employ full-time Field Representative to:
  - 1. Visit site daily and report work quality and job progress during roofing project.
  - 2. Write detailed specifications for all roofing projects.
  - 3. Write annual recommendation and budget reports for upcoming year.
- E. Employ local full-time Field Technical Services Representative, who will monitor work in progress and provide final roof inspections.
- F. Provide list of at least 10 hot roof system projects, 10 cold roof projects, 10 built-up roof restoration projects, and 10 metal roof system projects available within a 25-mile radius of Park Hill School District.
- G. All roofing systems must meet the following minimum standards:
  - 1. International Building Codes
  - 2. UL 790 – Class A
  - 3. FM 4470 – Class I, I-60 Windstorm
- H. All products must be UL approved.
- I. Provide written application with explanation of why their system and products should be considered.
- J. Provide accredited testing laboratory certificate showing ASTM D 2523 physical/performance certificate and data of all roof system materials.

K. Provide a total quality assurance warranty that covers all specified components, which includes:
   1. Roofing membrane
   2. Insulation
   3. Flashing
   4. Metal termination details.

L. Provide a list of at least five (5) certified roofing contractors.

III. ROOFING CONTRACTOR REQUIREMENTS:

A. Have 10 years' experience in hot and cold built-up roofing, hot and cold modified roofing, built-up roofing restoration, and metal roof systems.

B. Be approved by the roofing manufacturer specified, with copies of their approval.

C. Has not been in Chapter 11 during the last 10 years.

D. Have EMR insurance rating of 1.1 or less.

E. Provide list of at least 10 projects available for inspection within a 25-mile radius of Park Hill School District.

INVITATION TO BID

DOCUMENT 00101 – INVITATION TO BID

PROJECT: 2026 Roofing Projects

LOCATION: Park Hill South High School, and Alfred Renner Elementary School.

OWNER: Park Hill School District

The Owner will receive sealed bids until the bid time and date at the location given below for the following Work: Roof Replacement on miscellaneous buildings as listed in Specification Documents.

BID SUBMITTAL AND BID SECURITY

The Owner will consider bids as listed above, prepared in compliance with the Instructions to Bidders issued by the Owner, and delivered as follows:

Bid Date: January 7, 2026

Bid Time: 1:00 P.M., local time.

Location: Bids to be mailed or hand delivered to the following address:
Attn: Mr. Jeremie Kahler, Director of Operations
9501 N. Seymour
Kansas City, Missouri 64153

Faxed bids are not acceptable.

The Owner (Park Hill School District) reserves the right to accept or reject any and all bids and reserves the right to final judgment as to awarding the bid.

PRE-BID CONFERENCE

A pre-bid conference for all bidders will be held at Facilities Office 9501 N. Seymour, Kansas City, Missouri 64153 on December 17, 2025, at 10:30 a.m., local time. All prospective bidders are required to attend.

DOCUMENTS

Bidding documents may be obtained during the pre-bid. Documents will be provided to prime bidders only; only complete sets of documents will be issued.

TIME OF COMPLETION

Bidders shall complete 100% of the work by August 2, 2026.

BIDDER'S QUALIFICATIONS

Bidders must be properly licensed under the state laws governing their respective trades and be able to obtain insurance and bonds required for the Work.

END OF SECTION 00101

INSTRUCTIONS TO BIDDERS

DOCUMENT 00201 – INSTRUCTIONS TO BIDDERS

1.1 ADVERTISEMENT FOR BIDS

A. An Invitation to Bid, published as a separate document, is part of these instructions.

1.2 DEFINITIONS

A. Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement for Bids, these Instructions to Bidders, Notice To Bidders, Bid Form, Roofing Material Quantity List, and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, Conditions of the Contract, Drawings, Specifications, and all Addenda issued prior to execution of the Contract.

B. Addenda are written, or graphic instruments issued by the Owner prior to the execution of the Contract that modify or interpret the Bidding Documents.

C. The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids. **Base and Alternate Bid pricing shall not include the cost for the roofing material listed on the Attachment A – Owner Purchased Material List.**

D. An Alternate Bid is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

E. A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services, or a portion of the Work as described in the Bidding Documents.

F. A Bidder is a person or entity who submits a Bid to the Owner and who meets the requirements set forth in the Bidding Documents.

1.3 BIDDING DOCUMENTS

A. Obtaining Bidding Documents: Bidders may obtain complete sets of the Bidding Documents from the issuing office designated in the Advertisement for Bids in the number and for the cost or deposit sum, if any, stated therein. Bidders shall use complete sets of Bidding Documents in preparing Bids. The Owner assumes no responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

B. Examination of Bidding Documents and Site: Before submitting a bid, the Bidder shall carefully examine the drawings, read the specifications and all other Contract Documents and visit the site of the Work. The Bidder shall fully inform himself prior to bidding as to all existing conditions and limitations under which the Work is to be performed and he/she shall include in the Bid a sum to cover the cost of all items necessary to perform the Work as set forth in the

Contract Documents. No allowance will be made to the Bidder because of lack of such examination or knowledge. The submission of a bid shall be construed as conclusive evidence that the Bidder has made such examination.

C. Interpretation or Correction of Bidding Documents: If the Bidder is in doubt as to the interpretation of any part of the Bidding Documents or finds discrepancies in or omissions from any part of the Contract Documents, he/she must submit a written Request for Interpretation thereof not later than 7 days prior to opening of bids. Address all communications to the Owner.

1.4 ADDENDA

A. Any interpretation, correction to, or addition to the Contract Documents will be made by written Addendum and will be delivered by mail or fax to each prime Bidder of record and the plan services indicated in the Advertisement for Bids. The written Addenda constitute the only interpretations of the Contract Documents; the Owner accepts no responsibility for any other claimed interpretations.

B. It is the responsibility of each Bidder to verify that he/she has received all Addenda prior to submitting a bid. It is also the responsibility of each Bidder to verify that all sub-Bidders and material suppliers whose prices are incorporated in the Bidder's bid are familiar with the Bidding Documents in their entirety, including all Addenda issued up to the time of bid opening.

C. In the event a conflict or omission is discovered in the Bidding Documents after the issuing of the last addendum such that an interpretation cannot be issued by the Owner prior to bidding, the Bidder is directed to estimate on and provide the quantity and quality of material and labor consistent with the overall represented work so as to provide all materials, equipment, labor, and services necessary for the completion of the Work.

1.5 SUBSTITUTIONS DURING BIDDING

A. Substitutions are not allowed during bidding. Bids shall be submitted based upon the materials, equipment, and services specified.

1.6 BIDDING PROCEDURES

A. Form Of Bid
   1. Bids must be submitted on the Bid Form provided, properly executed and with all items filled out in ink or typed. Do not change or add words to the Bid Form. Unauthorized conditions, limitations, or provisions on or attached to the Bid Form may be cause for rejection of the bid. Bidder's information on the Bid Form that is altered by erasure or by interlineation prior to submittal must be initialed and explained by notation on the Bid Form above the signature of the Bidder. All signatures must be witnessed.

B. Submission Of Bids
   1. Each bid shall be delivered to the location indicated on the Bid Form on or before the day and hour set for receipt and opening of bids. Each bid shall be submitted in an opaque, sealed envelope marked in the lower left-hand corner as follows:

Bid for (name of prime contract) _____
Name of Project _____
Bidder's Name _____
Bidder's Address _____
Contractor's License No. _____
Date and Time of Bid Opening _____

2. If not delivered in person, this envelope shall be enclosed in a second envelope for posting to the location indicated for receipt of bids. This envelope shall be addressed as follows:

Bid for (name of prime contract) _____
Owner name _____
Street address OR Post Office Box 0000 _____
City Name, State, Zip Code _____
Contractor's License No. _____
Date and Time of Bid Opening _____

3. It is the sole responsibility of the Bidder to see that his/her bid is received in proper time. No bids submitted after the time fixed for receiving bids will be considered; late bids will be returned to the Bidder unopened.

C. Acknowledgement Of Addenda
1. Bidder must acknowledge all Addenda received in the spaces provided on the Bid Form. By submitting a bid, Bidder indicates that all considerations issued by addendum are incorporated in the bid.

D. Bid Supplements
1. Following the Bid Form will be the Roofing Material Quantity Lists that are included in this Project Manual. Bidders shall complete all forms, entering "Not Applicable" where information does not apply to their portion of the Work. Absence of any of the Roofing Material Quantity List, included in the Project Manual, will be reason for possible rejection of bid.

E. Status Of Bidders
1. Proprietors submitting bids shall indicate their status as proprietors.
2. Bidders submitting bids for partnerships shall indicate their status as partners and shall submit, upon request of the Owner within 24 hours following receipt of bids, a certified copy of the power of attorney authorizing the executor of the bid to bind the partnership.
3. Bidders submitting bids for corporations shall indicate their status as corporations and shall submit, upon request of the Owner within 24 hours following receipt of bids, a certified copy of the board of directors' authorization for the Bidder to bind the corporation and shall affix the corporate seal on the bid.
4. Bidders shall provide, upon request of the Owner, within 24 hours following receipt of bids, the following:
   a. Names and addresses of proprietors, of all members of a partnership, or of the corporation's officers.

b. Name of county or state where the partnership is registered or where the corporation is incorporated. Corporations must be licensed to do business in the project state at the time of executing the contract.

1.7 MODIFICATION AND WITHDRAWAL OF BIDS

A. A bid may be withdrawn on personal requests received from Bidder prior to submission time. A withdrawn bid may be resubmitted up to submission time. Negligence or error on the part of the Bidder in preparing his/her bid confers no right for withdrawal of the bid after it has been opened.

B. Telegraphic and faxed bids will not be considered.

C. No Bidder may withdraw a bid within 60 days following the opening of bids.

1.8 AWARD OR REJECTION OF BIDS

A. The contract, if awarded, will be awarded to the lowest responsible Bidder, subject to the Owner's right to reject any or all bids and to waive any informality in the bids or in the bidding. Failure to complete all information required on the Bid Form and Bid Form Supplements, may result in rejection of bid. The Owner shall have the right to accept alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the low bidder on the basis of the sum of the Base Bid and Alternates accepted.

B. Bids may be rejected if the Bid Form shows any unexplained erasures, omissions, alterations of form, additions not called for, added restrictions or qualifying conditions or other irregularities of any kind.

C. The Owner may make such investigations as he/she deems necessary to determine the ability of the Bidder to perform the Work, and the Bidder shall furnish to the Owner all such information for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by or investigation of such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Contract and to complete the Work contemplated therein within the Contract Time.

1.9 ACCEPTANCE

A. The acceptance of a bid will be a Notice of Award, signed by a duly authorized representative of the Owner; no other act by the Owner or his/her agents shall constitute the acceptance of a bid. The acceptance of a bid by the Owner shall bind the successful Bidder to execute the contract. The Bidder to whom the contract is awarded by the Owner, shall sign and deliver to the Owner for execution by the Owner all required copies of the Agreement, along with all required insurance and bonding documents. The rights and obligations provided for in the Contract shall become effective upon the parties only with formal execution of the Agreement by the Owner.

1.10 BONDS AND CERTIFICATES

A. Bid shall be accompanied by an acceptable bid bond or certified cashier's check drawn on a local bank, payable to Treasurer, Board of Education, for an amount not less than five percent of the total amount of the bid. This bid security shall become the property of the Board of Education as liquidated damages in the event the successful bidder fails to execute and deliver a contract, along with specified surety and statutory bonds, within ten days after the received notice of the acceptance of his bid by the Board of Education.

B. Bidder shall deliver to the Owner, upon receipt of contract or purchase order, a Performance Bond, a Payment Bond, and a Labor and Material Bond, each in the amount of 100 percent of the Contract Sum, with a corporate surety authorized to transact business in the Project State, within 3 days following execution of the Contract, or prior to commencement of the Work, whichever occurs first. Attorneys-in-fact who sign bonds must file with each bond a certified and effective dated copy of their power of attorney.

C. Satisfactory certificates of insurance in the amounts specified in the Contract Documents shall be furnished prior to commencement of Work.

D. All bonds and policies or certificates of insurance must meet with the approval of the Owner before the Contractor will be allowed to commence the Work. Failure or refusal to furnish bonds or insurance policies or certificates in a form satisfactory to the Owner shall subject the Bidder(s) to forfeiture of bid bond.

E. The form of the Agreement that the successful Bidder, as Contractor, will be required to execute is the form of Agreement referenced in the Project Manual.

1.11 INVOICING AND OFFICE SUPPORT

A. All bidders must have the ability within their office to process all required paperwork for invoicing the District. This is to include, but not be limited to, timely issuance of invoices with proper backup to support the amount due, certified payrolls/reports, and all required closeout documents.

1.12 PREVAILING WAGE AND CERTIFIED PAYROLL REQUIREMENTS

A. This project shall be deemed as a **prevailing wage project** and all necessary documentation shall be included, but not limited to weekly certified payrolls which are to be addressed to Jeremie Kahler, Director of Operations, 9501 N. Seymour, Kansas City, Missouri 64153, for the entire length of the work under this contract.

B. This project shall abide to any/all prevailing wage rates for the State of Missouri. All requirements for latest published prevailing wage standards shall be the responsibility of the bidding firm.

END OF SECTION 00201

BID FORM

DOCUMENT 00411 – BID FORM

Park Hill School District
2026 Roofing – Park Hill South High School

Bidder: _____
(Bidder enter name here)

BASE BID, SINGLE-PRIME (ALL TRADES) CONTRACT
The undersigned Bidder, having carefully examined the Bidding and Contract Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, all as issued by the Owner, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment and services, and allowances as described in the specification documents, necessary to complete the construction with the following exceptions:

- Price includes labor and miscellaneous materials not supplied by the owner.
- Price does not include the attached "Owner Purchased Material List" to be purchased by owner directly.
- All material not listed as purchased by owner shall be the responsibility of this contractor (See Attachment A forms)

BASE BID

1. Park Hill South High School
   Roofs L, X, and Y – Roof Retrofit $_____

UNIT PRICES

1. Metal Deck Replacement $_____per sq. ft
2. Metal Deck Repair $_____per sq. ft
3. Wood Blocking Replacement $_____per board ft
4. Drain Bowl Replacement (Cast Iron 4") $_____per drain
5. Drain Clamping Ring Replacement $_____per ring

BONDING

The undersigned Bidder agrees to furnish a Payment & Performance Bond in the amount of 100% of total contract value.

TIME OF COMPLETION

The undersigned Bidder proposes and agrees hereby to commence the Work of the Contract Documents on a date specified and shall fully complete 100% of the Work no later than August 2, 2026. If work cannot be completed by August 2, 2026, contractor shall pay as Late Fees the sum of $1,500.00 for each consecutive day that the work is not completed thereafter.

ACKNOWLEDGEMENT OF ADDENDA

The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:

Addendum No. 1, dated _____
Addendum No. 2, dated _____

CONTRACTOR'S LICENSE

The undersigned further states that he is a duly licensed Contractor, for the type of work proposed, in the State of Missouri, and that all fees, permits, etc., pursuant to the submission of this proposal have been paid in full.

SUBMISSION OF BID

Respectfully submitted this ____ day of _____, 2026.

By: _____
(Name of bidding firm or corporation)

Witness:

By: _____
(Signature)

Attest: _____
(Signature)

_____
(Type or print name)

By: _____
(Type or print name)

Title: _____
(Owner/Partner/President/Vice Pres.)

Title: _____
(Corporate Secretary or Assistant Secretary Only)

Address: _____
_____

Phone: _____

License: _____

Federal ID No.: _____

(Affix Corporate Seal Here)

Attachment A

Owner Purchased Material List
Park Hill South High School – Roofs L, X, & Y - (Roof Retrofit)

The following material list is to be included with the bid form and signed/dated by the Contractor. Failure to provide this information will render your bid unresponsive. Only the materials below, in the quantities listed, will be supplied.

The Contractor is responsible for purchasing any additional material directly from the roofing material manufacturer at the contractor's cost. The contractor is also responsible for ALL other items not on this list necessary for the completion of the specified work. This includes, but not limited to, fasteners, wood components, insulation, cants and taper edge, gravel, sheet metal, warranty charges, inspections, maintenance agreements, and other consumable materials.

The unloading and storage of the material below shall be in a secure area and shall be the sole responsibility of the contractor. Any unused material will become the property of the contractor at the completion of the project.

Material	**Quantity**	**Container Size**
Alumanation 301	10 buckets	5-gallon bucket
Burmastic Adhesive	35 barrels	50-gallon lined barrel
Burmastic Composite Ply Premium	300 rolls	20 rolls per pallet - 2/sq./roll
Burmesh	5 rolls	6" x 300' rolls
ELS Mastic	36 buckets	5-gallon bucket
PowerPly Endure 300 FR	40 rolls	20 rolls per pallet
Premium IV Asphalt	456 cartons	100-lb/carton (24 cartons/pallet)
THERMglass Premium Type VI	200 rolls	5-sq/roll (25-rolls/pallet)
TremTred Roof Walkway Panels	Panels	3' x 4' x ½"

Bidding Contractor: _____

Contractor Signature: _____

Date: _____

END OF SECTION 00411

DOCUMENT 00411 – BID FORM

Park Hill School District Bidder: _____
2026 Roofing – Alfred Renner Elementary (Bidder enter name here)

BASE BID, SINGLE-PRIME (ALL TRADES) CONTRACT
The undersigned Bidder, having carefully examined the Bidding and Contract Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, all as issued by the Owner, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment and services, and allowances as described in the specification documents, necessary to complete the construction with the following exceptions:

- Price includes labor and miscellaneous materials not supplied by the owner.
- Price does not include the attached "Owner Purchased Material List" to be purchased by owner directly.
- All material not listed as purchased by owner shall be the responsibility of this contractor (See Attachment A forms)

BASE BID

1. Alfred Renner Elementary School
   A. Roof F – Roof Restoration $_____

ALTERNATE BID

1. Alfred Renner Elementary School
   A. Roof A - Roof Restoration $_____

UNIT PRICES

1. Tectum Deck Repair $_____per panel (3" x 5' x 3')
2. Wood Blocking Replacement $_____per board ft
3. Drain Bowl Replacement (Cast Iron 4") $_____per drain
4. Drain Clamping Ring Replacement $_____per ring

BONDING

The undersigned Bidder agrees to furnish a Payment & Performance Bond in the amount of 100% of total contract value.

TIME OF COMPLETION

The undersigned Bidder proposes and agrees hereby to commence the Work of the Contract Documents on a date specified and shall fully complete 100% of the Work no later than August 2, 2026. If work cannot be completed

by August 2, 2026, contractor shall pay as Late Fees the sum of $1,500.00 for each consecutive day that the work is not completed thereafter.

ACKNOWLEDGEMENT OF ADDENDA

The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:

Addendum No. 1, dated _____
Addendum No. 2, dated _____

CONTRACTOR'S LICENSE

The undersigned further states that he is a duly licensed Contractor, for the type of work proposed, in the State of Missouri, and that all fees, permits, etc., pursuant to the submission of this proposal have been paid in full.

SUBMISSION OF BID

Respectfully submitted this ____ day of _____, 2026.

By: _____
(Name of bidding firm or corporation)

Witness:

By: _____
(Signature)

Attest: _____
(Signature)

_____
(Type or print name)

By: _____
(Type or print name)

Title: _____
(Owner/Partner/President/Vice Pres.)

Title: _____
(Corporate Secretary or Assistant Secretary Only)

Address: _____
_____

Phone: _____

License: _____

Federal ID No.: _____

(Affix Corporate Seal Here)

Attachment A

Owner Purchased Material List
Alfred Renner Elementary School – Roof F - (Roof Restoration)

The following material list is to be included with the bid form and signed/dated by the Contractor. Failure to provide this information will render your bid unresponsive. The owner is purchasing the following list of material from EducationPlus through a pre-competed national cooperative purchasing organization. Only these materials, in the quantities listed, will be supplied.

The Contractor is responsible for purchasing any additional material directly from the roofing material manufacturer at the contractor's cost. The contractor is also responsible for ALL other items not on this list necessary for the completion of the specified work. This includes, but is not limited to, fasteners, wood components, insulation, cants and taper edge, gravel, sheet metal, warranty charges, inspections, maintenance agreements, and other consumable materials.

The unloading and storage of the material below shall be in a secure area and shall be the sole responsibility of the contractor. Any unused material will become the property of the contractor at the completion of the project.

Material	Quantity	Container Size
AlphaGuard Bio Top Coat	1 kits	3.1-gallon kits
AlphaGuard Bio Base Coat	2 kits	4-gallon kits
AlphaGuard M-Prime	3 buckets	1-gallon buckets
AlphaGuard WB Primer	1 buckets	5-gallon buckets
Burmastic Composite Ply Premium	5 rolls	2-sqs per roll
Burmesh	2 rolls	6" x 300' rolls
	1 roll	36" x 300' rolls
Ecolastic Adhesive	7 barrels	53-gallon barrels lined
ELS Mastic	18 buckets	5-gallon buckets
GeoGard Seam Sealer	18 buckets	2-gallon buckets
GeoGard Primer	1 bucket	5-gallon buckets
Permafab Reinforcement	1 roll	6" x 300' rolls
	1 roll	12" x 300' rolls
PowerPly Endure Bio Adhesive	3 sets	4 gallon set
TremSeal Pro – Aluminum Stone	1 case	30 tube cases
TremTred Roof Walkway Panels	5 panels	3' x 4' x ½"

Bidding Contractor: _____

Contractor Signature: _____

Date: _____

Attachment A

Owner Purchased Material List
Alfred Renner Elementary School – Roof A - (Roof Restoration)

The following material list is to be included with the bid form and signed/dated by the Contractor. Failure to provide this information will render your bid unresponsive. The owner is purchasing the following list of material from EducationPlus through a pre-competed national cooperative purchasing organization. Only these materials, in the quantities listed, will be supplied.

The Contractor is responsible for purchasing any additional material directly from the roofing material manufacturer at the contractor's cost. The contractor is also responsible for ALL other items not on this list necessary for the completion of the specified work. This includes, but is not limited to, fasteners, wood components, insulation, cants and taper edge, gravel, sheet metal, warranty charges, inspections, maintenance agreements, and other consumable materials.

The unloading and storage of the material below shall be in a secure area and shall be the sole responsibility of the contractor. Any unused material will become the property of the contractor at the completion of the project.

Material	Quantity	Container Size
AlphaGuard Bio Top Coat	8 kits	3.1-gallon kits
AlphaGuard Bio Base Coat	15 kits	4-gallon kits
AlphaGuard WB Primer	1 bucket	5-gallon buckets
Burmesh	2 roll 1 roll	6" x 300' rolls 36" x 300' rolls
Ecolastic Adhesive	7 barrels	53-gallon barrels lined
ELS Mastic	18 buckets	5-gallon buckets
GeoGard Seam Sealer	3 bucket	2-gallon buckets
Permafab Reinforcement	1 roll	4" x 300' rolls
TremSeal Pro – Aluminum Stone	1 case	30 tube cases
TremTred Roof Walkway Panels	5 panels	3' x 4' x ½"

Bidding Contractor: _____

Contractor Signature: _____

Date: _____

END OF SECTION 00411

BID FORM SUPPLEMENT

DOCUMENT 00439 – BID FORM SUPPLEMENT – BID BOND

1.1 BID BOND FORM

A. AIA Document A310 Bid Bond is the recommended form for a Bid Bond. A bid bond acceptable to the Owner, or other bid security as described in the Instructions to Bidders, is required to be attached to the Bid Form as a supplement.

B. Copies of AIA standard forms may be obtained from:
   1. American Institute of Architects: (800) 365-2724.

END OF SECTION 00439

SUMMARY

SECTION 01100 – SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Work covered by the Contract Documents.
   2. Type of Contract.
   3. Work phases.
   4. Use of premises.
   5. Owner's occupancy requirements.
   6. Work restrictions.
   7. Specification formats and conventions.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification:
   1. Park Hill South High School
      a. Roofs X, Y, and L – (Roof Overlay)
   2. Renner Elementary School
      a. Roofs A and F – (Roof Restoration)

B. Owner: Park Hill School District
   1. Owner's Representative: Jeremie Kahler – Director of Operations.

C. The Work consists of the following:
   1. General conditions and details for all roof areas:
      a. Contractor shall supply Site Specific Safety Plan and Sheet Metal Submittal drawings prior to start of work.
         1) Safety Plan shall show a site plan locating kettle, security fence, roof access points, cranes, dumpsters, ORIs, material storage, and any other equipment being supplied and used by contractor throughout the duration of the project.
      b. Contractor shall always keep complete roofing specification and approved submittal drawing on the roof during the work.
         1) If required paperwork is not present on the roof, the project may be immediately shut down at Districts discretion.
            a) All cost associate with such shut downs shall be the contractor's responsibility.
      c. It is always the responsibility of the Prime Contractor to provide 100% supervision of the kettle when hot adhesives are in use.

1) It is the districts requirements that:
   a) Kettle person has a minimum of 5 years' experience monitoring and regulating the temperature controls on a kettle.
   b) Project Foreman has a minimum of 5-years installing specified roof system.
   c) Documentation showing Foreman and Kettle Person work history shall be provided to owner and approved by owner prior to job start.

d. After receipt of all roofing materials listed on Attachment A Form, contractor shall provide the district a letter stating they have received all materials, which shall be secure and stored on their property.

e. It is the responsibility of the Prime Contractor to report, in writing to the District, any areas of cracks or deterioration to the masonry walls above the roofline.

f. It is the responsibility of the Prime Contractor for all underside clean up from drippage and debris coming through the roof deck.

g. It is the responsibility of the Prime Contractor to provide a licensed plumbing contractor to inspect and confirm to the owner that all drains are properly flowing and not leaking prior to start of work and after completion of work.
   1) Contractor shall water test all drains using a standard ¾" hose running full on for a minim of 10-minutes per drain.
   2) Contractor shall verify that the primary roof drains, overflow roof drains, and plumbing vents located within the project areas are free of debris and properly functioning. The contractor shall perform a flood test of existing roof drain bowls and connections to piping by temporarily plugging the drain pipe below the existing connection and flooding the drain bowl to its to edge. Notify the Owner immediately if defects are found in the roof drain bowl and/or roof drain assembly components, or if the roof drains and/or plumbing vents are found to be blocked, clogged, or otherwise not properly functioning. Any plumbing work necessary to correct identified defects, and clear existing roof drains and vents shall be performed by a licensed plumber at the direction of the Owner. Prior to start of work, the contractor shall provide a letter to the Owner indicating this work has been completed, detailing the results of this roof drain inspection and testing, and identifying any corrective action needed.
   3) After completion of roofing work, the Prime Contractor shall again obtain the services of a licensed plumbing contractor to verify that primary roof drains, overflow roof drains and plumbing vents located within the project area are free of debris and properly functioning. The plumber shall perform a second flood test of existing roof drains located in the project areas. The flood test shall include the same testing as completed prior to the roof work. Continue to flood the roof drain, up and over the installed roof drain flashing. Plumbing work necessary to correct identified defects, and clear existing roof drains and vents shall be performed by a licensed plumber at the direction of the Owner and paid for by the Prime Contractor. After construction completion, the contractor shall provide a second letter to the Owner indicating this work has been completed, detailing the results of this roof drain inspection and testing, and identifying any corrective action needed.

h. The Prime Contractor shall include in their bid the cost to remove and re-install all drain clamping rings at the end of each day's work.

i. It is the responsibility of the Prime Contractor to examine the job site and document any damages or issues with pictures and/or video. Any damages found after start of work will be the responsibility of the contractor.

j. It is the responsibility of the Prime Contractor to add or remove perimeter and projection wood blocking to accommodate new roof system.
   1) Metal edge details are only allowed at gutters. All existing metal edge details shall be changed to raised edge details and contractors are responsible for adding new wood blocking per attached detail drawing or approved equal by roofing material manufacturer and owner.

k. It is the responsibility of the Prime Contractor to clean roofs, drains, gutters, and scuppers of all debris and trash at the end of the project and prior to the expiration of their two-year warranty.
   1) Failure to provide this work may end the contractor's approval to bid future work with the owner.

l. It is the Prime Contractor's responsibility to keep all RTU's clean and free of any roofing material, personal items, or debris.
   1) RTU's shall not be used to store tools, lunchboxes, or any items related to the project.

m. It is the Prime Contractor's responsibility to disconnect and raise all electrical conduit and gas lines and extend plumbing pipes as needed to complete work per specifications and meet all local building codes.
   1) All lines shall be supported by new specified supports and hangers.
   2) No lines shall be supported directly on outside walls, expansion joints, or other equipment.
   3) During work, contractor shall properly support lines with wood blocking as needed to complete work and eliminate any damage to lines.
      a) Any damage found after project shall be the responsibility of the contractor to repair and/or replace as owner approves.

n. Contractor shall supply submittal sheet metal drawings on all project details prior to start of work.
   1) Owners representative and roofing material manufacturer shall review and approve all completed flashing work prior to the installation of sheet metal.

o. Drains:
   1) Sump all drains a minimum of 48" x 48".
   2) Replace all broken or missing drain strainers with new cast iron strainers that will properly fit drain ring.
   3) Install 30" x 30" four-pound lead flashing into drain and strip-in with 2-plies of trilaminate felt set in cold asphalt mastic, or as required by roofing material manufacturer.
      a) Adhere lead in a solid application of cold mastic.
   4) Replace any broken or missing drain clamping rings, clamps, and/or bolts.
   5) Drain plugs shall be installed in all drains prior to roof removal.
      a) All drain plugs shall be removed, and drains cleared, at the end of each day.
      b) Any drain or drain pipe joint leaks found after completion of project, and not documented as leaking prior to job start, shall be the responsibility of the contractor to repair and/or replace as approved by owner.

p. Remove obsolete equipment and projections as indicated by owner during pre-bid meeting.

1) Cover voids in decks with minimum 16-gauge flat metal panels or matching metal deck.
   a) Provide additional structural support on underside as required by local codes.

q. As needed, raise and extend projection curbs and pipes, expansion/control joints, and perimeters to accommodate new insulation height and provide a minimum eight-inch flashing height.
   1) Add or remove wood blocking as needed to accommodate new tapered insulation at perimeter and projection details.

r. Replace deteriorated wood blocking at perimeters and projections as needed.
   1) Provide unit cost per board foot.
   2) New wood blocking shall not be installed on ends.
   3) All blocking shall be securely fastened and approved by owner and roofing material manufacturer.

s. Repair deck as needed. (Provide unit cost)
   1) Owner and/or roofing manufacturer representative shall be notified and allowed to verify deck repair and/or replacement.

t. Adhere fiberboard cants at all projection base flashing locations as required by roofing material manufacture.

u. Adhere fiberboard cricket on high side of projections to eliminate any ponding water.
   1) Adhere as required by roofing material manufacturer.

v. At all perimeter and projection base flashing:
   1) Prime masonry walls prior to installing any base flashing.
   2) Adhere 2-ply flashing in Type IV asphalt for Hot BUR systems.
      a) Trilaminate base ply.
      b) Adhere TRA flashing in hot or cold elastomeric adhesive.

w. Base Flashing:
   1) Install bar termination at the top edge of all base flashing where the flashing is not wrapped over a curb, wall, or expansion joint.
      a) Install 3-course reinforcement over all termination bars with asphalt mastic, reinforcement, and asphalt mastic.
   2) Base flashing height shall be a minimum of eight inches and shall not exceed twelve inches.
   3) Flashing over twelve inches shall be bar terminated and another flashing membrane wrapped over the above wall or projection and extended down past the bar termination a minimum of four inches or install metal wall panels above base flashing.
   4) Adhere fiberboard cant at all base flashing with hot Type IV asphalt.
   5) Provide a 3-course strip-in at all vertical flashing laps, horizontal edges, and corners of flashing with elastomeric asphalt mastic unless otherwise specified.
   6) Install specified counterflashing over termination bar. Termination bar shall always be covered with metal counterflashing a minimum of four inches.
   7) All brick walls require new 24-gauge pre-finished reglet joint counterflashing.
      a) Width shall be sufficient to extend down over bar termination a minimum of four inches.
   8) New 24-gauge metal end covers, and 90-degree corners shall be installed to properly terminate ends of all sheet metal details.

x. Install fiberboard tapered edge strips as needed along perimeters and around projections to provide positive drainage.
   1) Adhere tapered edge strips with hot Type IV asphalt.

y. Install new 24-gauge pre-finished metal counterflashing skirt to all mechanical equipment curbs and vents.
   1) The new skirt can be mechanically fastened or riveted to the existing curb flange with no back-water laps, and shall extend down over the bar termination a minimum of four inches.

z. All new coping shall be 24-gauge pre-finished and approved by owner and roofing manufacturer. (District to select color)
   1) Outside and inside fascia width shall exceed and extend down past the existing fascia width unless otherwise specified.
   2) Install proper end closures and trims, approved by the roofing manufacturer, where terminating into concrete, brick, stucco, and/or metal walls.
   3) Provide a new 22-gauge continuous cleat on all copings.
   4) Slope the new coping to the inside by installing treated wood at the outside edge and covering top with treated 5/8” or thicker plywood.
   5) Any fascia over 6” shall have horizontal stiffening ribs every 6” o.c.
   6) Walls shall be completely wrapped (inside and outside) with new flashing or trilaminate base sheet prior to installing new coping.
      a) Flashing or base sheet shall be back nailed on the outside face of wood nailer to completely encapsulate and cover all wood.

aa. Install new 24-gauge pre-finished gutters and downspouts as specified.
   1) Gutter and downspout size shall be based on drainage area and shall follow local code requirements.
      a) Minimum 6” wide gutters and 4” x 5” downspouts.
   2) Inside upper flange of gutter shall extend up over membrane covering perimeter felt and wood blocking.
   3) Downspouts draining into underground lines shall be solid and provide appropriate metal transition connections at tie-in.
   4) Provide new concrete splash blocks under each downspout.
      a) If downspout is located on another roof, splash blocks shall have protection treads installed under them.
   5) Any substrate behind gutter shall be wrapped with new 24-gauge pre-finished metal prior to installing new gutters.
      a) Fascia wrap shall be approved by owner and roofing material manufacture and detail drawings shall be included in submittal package.
      b) Any fascia over 6” shall have horizontal stiffening ribs every 6” on center.

bb. Install new 24-gauge pre-finished metal edge with gravel stop at all gutter edges.
   1) Set primed metal edge in solid bed of asphalt mastic over wood nailer.
   2) Mechanically fasten flange into wood blocking with approved fasteners every four inches on-center, two rows staggered.
   3) Strip in flange with two ply flashing system.
   4) Outside fascia shall extend down into gutter a minimum of four inches.

cc. Install new 24-gauge pre-finished raised edge caps at all outside perimeters unless otherwise specified. (Metal-edge/gravel-stop details are only allowed at gutters unless otherwise specified)
   1) Outside fascia width shall extend down past the existing fascia width a minimum of one inch unless otherwise specified.

2) Install proper end closures and trims, approved by the roofing manufacturer, where terminating into concrete, brick, stucco, and/or metal walls.
3) Provide a new 20-gauge continuous cleat on all copings.
4) Fasten on inside slope of new metal with approved grommeted screws.

dd. Install new 24-gauge pre-finished surface-mount counterflashing to all specified walls.
1) Fasten to substrate 8” o.c. minimum with approved fasteners.
2) Top edge shall provide a caulking lip.
a) Prime metal and wall prior to installing sealant
b) Install sealant compatible to roof system and components.
c) Sealant shall be tooled to eliminate any voids and shed water.

ee. Any metal exterior fascia over 6” wide shall require a horizontal stiffening rib every 6” on center.

ff. Install new four-pound lead flashing sleeves over plumbing pipes and strip-in with two plies of trilaminate felt set in cold asphalt mastic.
1) Adhere lead in solid application of asphalt mastic.
2) Plumbing pipe shall extend above finished roof a minimum of eight inches or more as required by local building codes.

gg. Install new 24-gauge pitch pans and hoods around all electrical conduits, cooling pipes, equipment supports, and miscellaneous projections.
1) Strip-in with two-plies of trilaminate felt set in cold asphalt mastic or as required by roofing material manufacturer.
2) Fill pans with dual component, solvent free, roofing sealant.
3) Install 24-gauge sloped hoods over pans with sealant around projection.
4) Install gooseneck hoods over pitch pans with multiple pipes.

hh. Install new jacks and storm collars at all round vent stacks.
1) Secure storm collar and seal with approved sealant.
2) Strip-in with two plies of trilaminate felt set in cold asphalt mastic.

ii. At all scuppers, install new 24-gauge stainless steel scupper sleeves.
1) Insulation around all scuppers shall be sumped 48” x 48”.
2) Scupper sleeves shall be primed and set in a bed of elastomeric mastic.
3) Secure interior flanges at top, bottom, and sides.
4) Strip-in with two plies of trilaminate felt set in cold elastomeric mastic.
5) Install new 24-gauge pre-finished scupper heads and downspouts.
a) Match size and shape of exiting scupper heads and downspouts unless otherwise specified or required larger by local building codes.
i) All scupper heads shall have a half-moon overflow opening in the outside face.
b) Install new scupper heads and downspouts at all drain line pipes extending out vertical walls.
c) New downspouts shall be 4” x 5” or match existing, whichever is bigger.
d) Size of heads and downspouts shall meet building codes and owner’s requirements.
6) Provide new concrete splash blocks under each downspout.

jj. At metal edge and gravel stop perimeters not changed to raised metal edge details, remove existing and install new 24-gauge pre-finished metal.
1) Install 22-gauge continuous cleat.
2) Outside fascia shall exceed the existing width and/or extend down over current termination point by a minimum of one inch.
3) Inside horizontal flange shall be primed, set in a bed of asphalt mastic,

fastened 8” staggered o.c., and striped in with 2-plies of trilaminate felt and cold asphalt mastic or as required by roofing material manufacturer.

kk. Install metal gravel dams around all roof drains, scuppers, gutters, and overflows, on roof replacement and/or roof restoration projects.
   1) Minimum gravel dam size 4’ x 4’ at drains, overflows, and scuppers.
   2) At gutters install approximately 12” from gutter edge.
   3) Adhere flange of dams in asphalt mastic.
   4) Do not attach or strip in flange of dams.
   5) V-cuts in metal dams shall extend to roof level.
   6) Cover sump areas with specified flood coat and white granular surfacing.

ll. Install hanger supports under gas and conduit lines that are 4” or wider. (Provide Owner with the hanger design prior to installation)
   1) Install protection treads under wood blocking supports, rubber blocks, and hanger support legs.
   2) Hanger supports shall meet or exceed PS-1-2 by PHP Systems & Design.
   3) All wood blocking supports for gas and electrical conduit shall be replaced with new rubber pipe blocks, Dura-Blok, or hangers.
      a) Install treated wood blocking to adjust height.
   4) Spacing for all new supports shall be eight foot on-center.

mm. Repair and replace all PVC condensate lines on RTU’s.
   1) Any broken or missing PVC components, including pee-traps, shall be replaced.
   2) Extend all PVC drain lines out past RTU’s a minimum of four feet towards the closest drainage points.
      a) Attach PVC lines to 2” x 6” minimum wood blocking with u-clamps every 6’ o.c.

nn. All wood supports shall be replaced with new treated wood with protection treads underneath, unless being replaced by other supports mentioned in specification.
   1) New wood shall not be installed on ends unless approved by owner and roofing material manufacture.

oo. Install protection treads outside the access panels to all RTU’s, mechanical equipment, roof hatches, roof ladders, and roof access doors.

pp. Paint all base flashing, soil stacks, gas lines, drain strainers, drain sumps, and rusted equipment or sheet metal with two coats of aluminum reflective coating unless otherwise specified.
   1) Do not paint the unit or equipment registration plate.
      a) If plate is painted, Contractor shall be responsible for hiring mechanical contractor to replace registration plate.

qq. All built-up roof restoration projects will require the contractor to remove all walkway/protection treads.
   1) If membrane is damaged during remove, repair with same number of damaged roofing felts using trilaminate base sheet and cold asphalt adhesive as recommended by roofing material manufacturer.
   2) After restoration work is complete, reinstall new walkway/protection treads in original locations.

rr. All restoration projects will require 5-course full reinforcement of all drainage points, including drains, gutters, and scuppers.
   1) Drains and scuppers shall require a 36” x 36” 5-course reinforcement around these drainage points.
   2) Gutter reinforcement shall extend 12” out from gutter edge.

ss. All restoration projects with coated flashing shall require installation of a manufacturers approved primer prior to installing restoration fluid-applied coating.

tt. All gas line drip legs shall be a minimum of 1" above the finished roof surface.
  1) Contractor shall hire a licensed mechanical contractor to cut and raise all drip legs as needed to provide appropriate clearance above roof.

uu. Contractor shall provide Owner's Representative and roofing material manufacturer a completed Pre-Final Inspection Form prior to installing, flood coat and gravel, modified bitumen cap sheet, and/or any restoration coating material.
  1) After receipt of the Form, a meeting shall be scheduled to walk completed roof work.
  2) Only after the roof walk and approval by the Owner and roofing material manufacturer shall the contractor install the appropriate surfacing's and/or membranes.
  3) If the Form is not received and roof walk is not completed, the project will be rejected.
    a) The contractor shall be responsible for all cost to remove surfacing's and/or membranes as needed for inspection of the underlying roof system.

2. **Park Hill South High School**
4500 NW River Park Drive
Riverside, MO 64150
<u>Roofs L, X, and Y – (Roof Overlay)</u>

a. An infrared scan was completed, and one wet area was found on Roof L and one wet area on Roof Y. (See attached report). At wet insulation areas, remove all roofing down to the metal decks.
  1) Remove metal terminations and base flashings as needed to install new flashing and meet roofing material manufactures warranty standards.
  2) Mechanically fasten gypsum board and polyisocyanurate insulation over metal deck.
    a) Match slope and thickness of existing polyisocyanurate with new insulation.
    b) If new polyisocyanurate is thicker than 4", must mechanically fasten base layer of 4" and adhere all remaining layers with hot Type IV asphalt.
  3) Adhere ½" high-density fiberboard with hot Type IV asphalt.
    a) New fiberboard shall be flush with the top of the existing roof membrane.
  4) Fully adhere a 3-ply Built-Up-Roof (BUR) membrane and overlap onto existing roof membrane a minimum of 18-inches.
    a) Adhere 3-plies of trilaminate base ply cold asphalt adhesive.
    b) Feather plies onto existing roof membrane.
  5) Install new TRA flashing at all projections and perimeter base flashing and adhere with elastomeric asphalt mastic.
    a) Install new metal terminations to match existing metal details.

b. Remove all perimeter and projection base flashing.
  1) Leave perimeter copings in place unless otherwise noted.
    a) Roof L - Remove east three foot section of coping on the north parapet wall.
      i) Replace with matching aluminum coping.

2) Remove and replace all skirt counterflashing with like material that will meet roofing manufacturers requirements.
3) Cut and remove existing base flashing membrane down to bottom edge of cant strip.
   a) Remove cant-strip along with flashing.
4) Prime walls, projection curbs, and metal with asphalt primer prior to installing new flashing.
5) Remove all loose strip-in flashing around pitch pans, vent stacks, plumbing pipes, or any projection with a flange strip-in.
   a) Remove and replace all lead flashing around plumbing stacks and metal cone jacks and rain collars around vent stacks.
      i) Replace with 4-lbs leads and matching metal cone jacks.

c. Remove sump area around drains, minimum 48” x 48”.
   1) Remove all roofing material down to existing insulation.
d. Shave any ridges in the existing MB membrane, as needed to allow the new gypsum coverboard to lay flat.
e. Remove all loose or wet modified bitumen (MB) membrane.
f. Disconnect and raise any equipment, gas lines, and/or electrical conduit as needed to complete work.
   1) Roofing contractor shall be responsible for providing a licensed electrical or mechanical contractor as needed.
g. Sweep existing membrane clean of all dirt, dust, and debris.
h. Roof L - East Half:
   1) Install tapered insulation on the east half of the roof which is currently sloping to the east.
      i) Install a reversed engineered slope to bring the existing east roof area to a flat condition.
      ii) Install tapered system that will provide a ¼” slope to the existing drain.
i. Mechanically fasten 1/2” Dens-Deck Primed coverboard over the existing membrane per FM 1-60 requirements.
j. Adhere 1/4” Dens-Deck Primed, over base layer with hot Type IV asphalt.
k. Adhere new tapered cant strip along all projection and perimeter base flashing with hot Type IV asphalt.
l. Adhere one ply of trilaminate base sheet over insulation with hot Type IV asphalt.
m. Adhere three plies of Type VI fiberglass felt over adhered base sheet with hot Type IV asphalt.
n. Adhere 2-ply MB flashing at all perimeter and projection base flashing with hot Type IV asphalt.
   1) Install trilaminate base sheet as flashing backer sheet.
   2) Install granular fire-rated modified bitumen over backer sheet.
   3) Install bar termination and three course seal over top edge of new flashing.
o. Install new 22-gauge gravel dams around all drains. Dams must be outside of sumps.
   1) Coat membrane between gravel dams and drains with cold flood coat and cover by buckshoting gravel over flood coat.
p. Over new roof membrane, install cold modified asphalt flood coat and Kunshek gravel surface.
q. Install new metal or aluminum counterflashing skirts at all perimeter and projection base flashing. (Match existing metal and/or aluminum color and thickness)

1) New skirt flashing shall be a minimum of 24-guage pre-finished metal or .040 aluminum.
2) New skirts wider than 6” shall have a horizontal stiffening rib every 6” o.c.
3) New skirts shall extend down over new flashing bar termination a minimum of four inches.
4) New skirts shall extend up behind existing metal flashing a minimum of four inches.

r. Install new 24-gauge pitch pans around existing pitch pans and strip-in with 2-plies of trilaminate felt.
1) Fill new pan with pourable pitch pan sealer.
2) Install sloped metal cover/hood.

s. Install new four-pound lead flashing around all drains, drain overflow pipes, and plumbing pipes.
1) Strip-in with 2-plies of trilaminate felt and cold asphalt mastic.

t. Replace any loose or missing caulking at existing perimeter and projection metal flashing details.
1) Clean and prime metal prior to installing new sealant.

u. Resecure any loose metal details with new screws and/or rivets.

v. Install two coats of aluminum reflective coating to all base flashing, plumbing pipes, drain strainers, gas lines, and rusting equipment.

w. Install protection treads at RTU access points, roof ladder access points, and under supports for gas lines.

x. Replace all wood blocking supports with Haydon, Dura-Blok, or approved equal pipe supports.

3. **Renner Elementary School**
7401 NW Barry Road
Kansas City, MO 64152
<u>Roofs A and F – (Roof Restoration)</u>

a. An infrared scan was completed, and one wet insulation area was found, approximately 50 square feet on Roof F. (See attached report).
1) Remove metal terminations and base flashings as needed to install new flashing and meet roofing material manufactures warranty standards.
2) Mechanically fasten trilaminate base sheet over gypsum/tectum deck.
3) Adhere polyisocyanurate insulation over mechanically fastened base sheet with low rise foam insulation adhesive.
a) Match slope and thickness of polyisocyanurate with new insulation.
4) Adhere ½” high-density fiberboard with low-rise foam insulation adhesive.
a) New fiberboard shall be flush with the top of the existing roof membrane.
5) Fully adhere a 3-ply Built-Up-Roof (BUR) membrane and overlap onto existing roof membrane a minimum of 18-inches.
a) Adhere 3-plies of trilaminate base ply cold asphalt adhesive.
b) Feather plies onto existing roof membrane.
6) Install new TRA flashing at all projections and perimeter base flashing and adhere with elastomeric asphalt mastic.
a) Install new metal terminations to match existing metal details.

b. Remove and replace aluminum coping around outside parapet wall of Roof A.
1) Replace with .040 pre-finished aluminum.
2) Match existing coping profile.
3) Follow roofing material manufacturers requirements.

c. Roof F – around all four perimeters:
   1) Spud back gravel approximately eight inches back from rake edges and twelve inches back from gutter edges.
   2) Remove approximately four inches of edge flashing down to metal edge.
   3) Clean and grind metal down to shinny finish.
   4) Prime metal with metal primer.
   5) Prime roof membrane with urethane primer.
   6) Install 5-course reinforcement of elastomeric mastic and polyester reinforcement.
      a) Six and twelve inch reinforcement at gutter edge and four and six inch reinforcement at rake edge.

d. Wet vacuum roof areas clean of all dirt, dust, debris, and loose gravel.
   1) Roofing material manufacturer shall inspect and approve the cleanliness of the roof surface prior to installing new flood coat and aggregate.
      a) Contractor shall not proceed with flood coat until preparation work has been approved.
   2) Power brooms shall not be allowed.
   3) Remove all protection/walkway treads from the existing roofs. If the existing membrane is damaged during the removal, replace same number of damaged plies with trilaminate felts adhered in cold asphalt mastic.
   4) Remove and replace loose flashing with new 2-ply membrane consisting of a trilaminate ply sheet and TRA membrane adhered with elastomeric asphalt mastic.
      a) New flashing shall be properly terminated up behind existing metal termination as approved by roofing material manufacturer.
      b) New flashing shall overlap onto existing flashing and roof membrane a minimum of six inches and be stripped in at outside edges with five course reinforcement of solvent-free elastomeric asphalt mastic and specified membrane.

e. Remove and replace wrinkled wall flashing as designated during the pre-bid roof.

f. Repair all open flashing laps, splits, and holes with 3-course restoration mastic and reinforcing mesh.

g. Spud gravel, and strip-in/reinforce all vent stacks, plumbing pipes, overflow scupper, scuppers, and drains with 5-course repair of asphalt mastic and reinforcing mesh.
   1) Remove drain clamping ring and extend strip-in/reinforcement into drain then reinstall clamping ring.

h. At drains within two-foot of perimeter wall, spud gravel back from drain four-feet.
   1) Install gravel dam detail at three sides away from parapet wall.
   2) Extend flashing restoration process, with reinforcement, into drain sump areas to fully reinforce and coat sumps.

i. Install new 22-gauge gravel dams around all drains and along gutter edges.
   1) Dams must be outside of drain sumps.
   2) Dams must be approximately twelve inches back from gutter edge.
   3) Coat membrane between gravel dams and drains and/or gutters with cold flood coat and cover by buckshoting gravel over flood coat.

j. Install 3-plies of trilaminate felt in cold adhesive over areas where large and small cores were removed.

k. Shave-off all blisters and ridges and repair with three plies of trilaminate felt adhered with cold adhesive.
   1) **Include 5 blisters, each 2’ x 2’, and 2 ridges each 10’ x 1’, in base bid.**

l. Replace any loose or missing caulking at perimeter and projection flashing details, including all copings and interior wall panels.
m. Resecure any loose or missing metal details.
n. Fill all pitch pans and install pitch pan covers where missing.
o. Replace any broken, missing, or plastic drain strainers with new cast iron strainers.
p. Replace all wood blocking supports with new treated wood blocking and protection treads unless otherwise specified.
q. Reinforce all flashing laps and corners with a 3-course reinforcement of modified urethane base coat and polyester.
   1) Prime flashing as recommended by roofing material manufacturer.
   2) Apply restoration base coat to all vertical and horizontal laps and corners at 3 to 4 gal/100 sq. ft.. Weathered surfaces may require additional base coat material.
   3) Embed the polyester reinforcement and extend down past the bottom edge of the cant or roof transition. Brush for proper adhesion and removal of all voids.
   4) Apply a second coat of restoration base coat, at 2 gal/100 sq. ft., over the reinforcement and a minimum of 2" beyond edges in each direction, feather out edges.
r. Coat all flashing with a two-coat polyurethane elastomeric restoration coating system.
   1) Apply base coat at a rate of 3 to 4 gal/100 sq. ft. including previously coated flashings. Weathered surfaces may take additional base coat material.
   2) Allow base coat to cure (min. 24 hours). Apply finish coat at a rate of 2 gal/100 sq. ft. minimum. If base coat has been installed for longer than 72 hours prior to the application of finish coat, prime the base coat with specified primer.
s. Paint all soil stacks, gas lines, drain strainers, gooseneck pitch pan hoods, rusted equipment, and rusted metal terminations with two coats of white polyurethane elastomeric coating system.
   1) **Do not paint registration plates on roof top equipment.**
t. Install cold process adhesive flood coat and Kunshek or owner approved gravel.
   1) Protect/wrap all conduit lines as needed to keep new flood coat adhesive off lines.
u. Reinstall existing gas line supports with protection treads, and install new supports as needed to provide spacing supports every eight feet on center.
v. Install new concrete splash blocks under each downspout from upper roofs.
   1) Install protection treads under each splash block.

1.4 TYPE OF CONTRACT

A. Project will be constructed under a single prime contract.

1.5 USE OF PREMISES

A. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of project site beyond areas in which the Work is indicated.

1. Driveways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
   a. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

B. Use of Existing Building: Maintain existing building in a watertight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

C. Security: Comply with Owner's requirements related to security.

D. Safety: Comply with all OSHA regulations and guidelines that apply to project.

E. No smoking on Owner's property.

F. No changing into or from work clothes on site.

G. Use of adjacent roofs not related to the project is prohibited unless provided written approval by Owner.

1.6 OWNER'S OCCUPANCY REQUIREMENTS

A. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits, unless otherwise indicated.
   1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
   2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

B. Owner Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed areas of building, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.
   1. Before partial Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of building.

1.7 WORK RESTRICTIONS

A. On-Site Work Hours: Work shall be generally performed inside the existing building during normal business working hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, except otherwise indicated.
   1. Weekend Hours: As approved by Owner.
   2. Early Morning Hours: As approved by Owner.

3. Hours for Utility Shutdowns: Coordinated with and approved by Owner.

B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
   1. Notify Owner not less than two days in advance of proposed utility interruptions.
   2. Do not proceed with utility interruptions without Owner's written permission.

1.8 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "Master Format" numbering system.

B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
   1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred, as the sense requires. Singular words shall be interpreted as plural and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
   2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
      a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01100

UNIT PRICES

SECTION 01270 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for unit prices.

1.3 DEFINITIONS

A. Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.

B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

D. List of Unit Prices: A list of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

A. Tectum Deck replacement:

1. Description: Remove existing deck panel and replace with matching tectum panel.

B. Metal Deck replacement:
1. Description: Remove existing deck material and replace according to Division 5 – 05310 Steel Deck.

C. Metal Deck repair:
1. Description: Remove existing deck as needed and repair according to Division 5 – 05310 Steel Deck.

D. Wood blocking replacement:
1. Description: Provide new wood blocking according to Division 6 Section Miscellaneous Carpentry.

E. Drain Bowl Replacement:
1. Description: Remove existing drain bowl and replace it with new four-inch cast iron drain bowl, strainer, and connections according to local building codes.

F. Drain Clamping Ring Replacement:
1. Description: Remove existing drain clamping ring and replace it with new cast iron drain clamping ring per local building codes.

END OF SECTION 01270

SUBMITTAL PROCEDURES

SECTION 01330 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Owner's responsive action.

B. Informational Submittals: Written information that does not require Owner's responsive action. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

A. General: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Owner for Contractor's use in preparing submittals.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Submit complete submittal package.

C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Owner's receipt of submittal.
   1. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
   2. Initial Review: Allow 10 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Owner will advise Contractor when a submittal being processed must be delayed for coordination.
   3. Resubmittal Review: Allow 10 days for review of each resubmittal.
   4. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Owner and to Owner's consultants, allow 10 days for review of each submittal. Submittal will be returned to Owner before being returned to Contractor.

D. Identification: Place a permanent label or title block on each submittal for identification.

   1. Indicate name of firm or entity that prepared each submittal on label or title block.

2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Owner.
3. Include the following information on label for processing and recording action taken:

    a. Project name.
    b. Date.
    c. Name and address of Owner.
    d. Name and address of Contractor.
    e. Name and address of subcontractor.
    f. Name and address of supplier.
    g. Name of manufacturer.
    h. Submittal number or other unique identifier, including revision identifier.

        1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 06100.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06100.01.A).

    i. Number and title of appropriate Specification Section.
    j. Drawing number and detail references, as appropriate.
    k. Location(s) where product is to be installed, as appropriate.
    l. Other necessary identification.

E. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

F. Additional Copies: Unless additional copies are required for final submittal, and unless Owner observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Owner.
2. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.

G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Owner will discard submittals received from sources other than Contractor.

1. Transmittal Form: Use AIA Document G810, CSI Form 12.1A, or similar form acceptable to Owner.
2. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Owner on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.

3. Resubmit submittals until they are marked "Approved" or "Approved as Noted."

I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Use only final submittals with mark indicating ""Approved" or "Approved as Noted."

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

a. Manufacturer's written recommendations.
b. Manufacturer's product specifications.
c. Manufacturer's installation instructions.
d. Standard color charts.
e. Standard product operation and maintenance manuals.
f. Compliance with specified referenced standards.
g. Testing by recognized testing agency.
h. Notation of coordination requirements.

4. Submit Product Data before or concurrent with Samples.
5. Number of Copies: Submit three copies of Product Data, unless otherwise indicated. Owner will return one copy. Mark up and retain one returned copy as a Project Record Document.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

a. Dimensions.
b. Identification of products.
c. Fabrication and installation drawings.
d. Schedules.
e. Compliance with specified standards.
f. Notation of coordination requirements.

g. Notation of dimensions established by field measurement.
h. Relationship to adjoining construction clearly indicated.
i. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
3. Number of Copies: Submit two opaque (bond) copies of each submittal. Owner will return one copy.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:

a. Generic description of Sample.
b. Product name and name of manufacturer.
c. Sample source.
d. Number and title of appropriate Specification Section.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
a. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Owner will return submittal with options selected.

E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product.
2. Location.
3. Number of Copies: Submit three copies of product schedule or list, unless otherwise indicated. Owner will return one copy.

a. Mark up and retain one returned copy as a Project Record Document.

F. Application for Payment: Comply with requirements specified in Division 1 Section "Payment Procedures."

G. Schedule of Values: Comply with requirements specified in Division 1 Section "Payment Procedures."

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit three copies of each submittal, unless otherwise indicated. Owner will not return copies.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: Comply with requirements specified in Division 1 Section "Quality Requirements."

B. Coordination Drawings: Comply with requirements specified in Division 1 Section "Project Management and Coordination."

C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of Owners and owners, and other information specified.

D. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

E. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

F. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

G. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

H. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

I. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

J. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

K. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

1. Name of evaluation organization.
2. Date of evaluation.
3. Time period when report is in effect.
4. Product and manufacturers' names.
5. Description of product.
6. Test procedures and results.
7. Limitations of use.

L. Schedule of Tests and Inspections: Comply with requirements specified in Division 1 Section "Quality Requirements."

M. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

N. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

O. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

P. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 1 Section "Operation and Maintenance Data."

Q. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:

1. Preparation of substrates.
2. Required substrate tolerances.
3. Sequence of installation or erection.
4. Required installation tolerances.
5. Required adjustments.
6. Recommendations for cleaning and protection.

R. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1. Name, address, and telephone number of factory-authorized service representative making report.

2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

S. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

T. Construction Photographs: Comply with requirements specified in Division 1 Section "Photographic Documentation."

U. Material Safety Data Sheets (MSDSs): Submit information directly to Owner.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Owner.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 OWNER'S ACTION

A. General: Owner will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Owner will review each submittal, make marks to indicate corrections or modifications required, and return it. Owner will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken.

C. Informational Submittals: Owner will review each submittal and will not return it, or will return it if it does not comply with requirements. Owner will forward each submittal to appropriate party.

D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 01330

EXECUTION REQUIREMENTS

SECTION 01700 - EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
   1. General installation of products.
   2. Progress cleaning.
   3. Protection of installed construction.
   4. Correction of the Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produces harmful noise levels.

F. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
   1. Allow for building movement, including thermal expansion and contraction.

G. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.2 PROGRESS CLEANING

A. General: Clean Project site and work areas daily. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.

D. Concealed Work: Remove debris from concealed work prior to concealing with subsequent construction.

E. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

F. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

G. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period.

H. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.3 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

3.4 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 1 Section "Cutting and Patching."

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

END OF SECTION 01700

CUTTING AND PATCHING

SECTION 01731 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes procedural requirements for cutting and patching.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that result in increased maintenance or decreased operational life or safety.

C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity that results in reducing their capacity to perform as intended, or that result in increased maintenance or decreased operational life or safety.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1.5 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

3.3 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

    a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    b. Restore damaged pipe covering to its original condition.
    c. Provide an even surface of uniform finish, color, texture, and appearance.
    d. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
3. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 01731

SELECTIVE DEMOLITION

SECTION 01732 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Demolition and removal of selected portions of building or structure.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Detach items from existing construction and deliver them to Owner.

C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 SUBMITTALS

A. Predemolition Photographs: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by selective demolition operations. Comply with Division 1 Section "Photographic Documentation." Submit before Work begins.

B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1. Comply with submittal requirements in Division 1 Section "Construction Waste Management."

1.5 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

C. Standards: Comply with ANSI A10.6 and NFPA 241.

D. Predemolition Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.6 PROJECT CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

1. Comply with requirements specified in Division 1 Section "Summary."

B. Notify Owner of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Owner.

C. Storage or sale of removed items or materials on-site is not permitted.

D. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities affected by the Work have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Owner.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.

1. Comply with requirements for existing services/systems interruptions specified in Division 1 Section "Summary."

B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Contractor shall arrange to shut off indicated services/systems when requested by Contractor.
2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

    a. Where entire wall is to be removed, existing services/systems may be removed with removal of the wall.

3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Comply with requirements for access and protection specified in Division 1 Section "Temporary Facilities and Controls."

B. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.

2. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
3. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
5. Dispose of demolished items and materials promptly.

B. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
2. Protect items from damage during transport and storage.
3. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. .

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Roofing: Refer to Division 7 Section “Membrane Reroofing Preparation.”

B. Air-Conditioning Equipment: Remove equipment without releasing refrigerants.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.8 SELECTIVE DEMOLITION SCHEDULE

A. Existing Items to Be Removed and Reinstalled as needed:
   1. Rooftop- mounted A/C units.
   2. Rooftop-mounted equipment supports.
   3. Rooftop-mounted power vents.
   4. Gas and conduit lines.

END OF SECTION 01732

CLOSEOUT PROCEDURES

SECTION 01770 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Final completion procedures.
2. Final cleaning.

1.3 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
1. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
2. Prepare and submit Project Record Documents, operation and maintenance manuals, and similar final record information.
3. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
4. Complete final cleaning requirements.
5. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
6. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
7. Instruct Owner's personnel in maintenance of products and systems.
8. Inspection: Submit a written report of final inspection as specified in Division 7 roofing section(s).

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

1. Complete the following cleaning operations before Final Completion:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Clean exposed exterior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
g. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
h. Leave Project clean and ready for occupancy.

B. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 01770

CEMENTITIOUS WOOD-FIBER DECK

SECTION 03511 - CEMENTITIOUS WOOD-FIBER DECK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Monolithic cementitious wood-fiber units.
2. Subpurlin tees.

B. Related Sections include the following:
1. Division 7 Section "Hot and Cold Applied Built-up Asphalt Roofing".

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Show fabrication and installation details for cementitious wood-fiber deck. Include details at supports, reinforcement at openings, and attachment to other work.

C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency for cementitious wood-fiber units.

1.4 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Fire-Test-Response Characteristics: Provide cementitious wood-fiber units that comply with the following requirements:

1. Fire-response testing performed by UL, ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction and that performs testing and follow-up services.
2. Surface-Burning Characteristics: Maximum flame-spread and smoke-developed indices of 25 and 50, respectively, as determined by testing identical products per ASTM E 84.
3. Fire-resistance-rated assemblies indicated by design designations from UL's "Fire Resistance Directory," ITS's "Directory of Listed Products," or the listings of another testing and inspecting agency are identical in materials and construction to those tested per ASTM E 119.

4. Products are identified with appropriate markings of applicable testing and inspecting agency.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect cementitious wood-fiber units from moisture.

B. Store units on elevated platforms at the Project site in a dry, well-ventilated, covered space and stack according to manufacturer's written recommendations.

C. Handle units to prevent chipping, breaking, cracking, staining, soiling, warping, or other physical damage. Discard damaged units at time of installation.

1.6 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit work to be performed according to manufacturers' written instructions and warranty requirements.

B. Protect cementitious wood-fiber deck from moisture during installation and while exposed to the weather until permanently covered with subsequent construction.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cementitious Wood-Fiber Units, General: Manufacturer's standard factory-cast structural units complying with the following requirements:

1. Composition: Chemically processed long wood fibers mixed with Portland cement, ASTM C 150, Type III or magnesium oxysulfate hydraulic cement, pressure bonded to produce units of thicknesses and sizes indicated:
2. Properties: As follows, determined according to test method indicated:

a. Noise Reduction Coefficient: NRC 0.70 ASTM C 423.
b. Light Reflectance: 60 percent; ASTM E 1349.

3. Finish: Manufacturer's standard natural finish.

B. Oriented-Strand-Board Sheathing: APA-rated sheathing, Exposure 1 complying with DOC PS 2.

2.2 MONOLITHIC CEMENTITIOUS WOOD-FIBER UNITS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

B. Products: Subject to compliance with requirements, provide one of the following:

1. Martin Corporation; Fibroplank.
2. Tectum Inc.; Tectum I.
3. Tectum Inc.; Tectum I-CTD

C. Tile: Manufacturer's standard rabbet-edged, cementitious wood-fiber units; and as follows:

1. Thickness: Match existing.
2. Size: Match existing.
3. End Configuration: Match existing.

2.3 SUBPURLINS

A. Bulb-Tee Subpurlins: Hot-rolled steel bulb tees complying with ASTM A 499 of length required to span three support spacing's; shop painted with metal primer.

2.4 ACCESSORIES

A. Gypsum Concrete Grout: Factory-packaged, gypsum concrete grout formulation recommended by cementitious wood-fiber unit manufacturer with a minimum compressive strength of 500 psi (3.45 MPa).

B. Anchor Clips: Manufacturer's standard formed anchor clips of 0.0478-inch- (1.21-mm-) thick minimum, galvanized steel sheet, of type and configuration required for deck system indicated.

C. Screws: Manufacturer's recommended corrosion-resistant screw fasteners and washers, self-drilling, self-tapping, of length required for deck and structural framing indicated.

D. Nails: Manufacturer's recommended corrosion-resistant nails of size and length required for deck and structural framing indicated.

E. Adhesive: Manufacturer's recommended construction adhesive complying with APA AFG-01.

F. Filler Strips: Insulation strips, same as used in manufacture of insulated composite cementitious wood-fiber units.

G. Polyethylene Film: 0.004 inch (0.10 mm) thick, complying with ASTM D 4397.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine structural support framing for compliance with requirements, installation tolerances, and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's written instructions for installing cementitious wood-fiber deck.

1. Install fastenings according to manufacturer's written instructions, unless otherwise indicated.

B. Deck Interruptions: Provide barrier seals or blocking at overhangs to form wind seals and at partitions and walls to form sound seals, unless otherwise indicated.

3.3 ROOF DECK INSTALLATION

A. Tile and Subpurlin Roof Deck: Space subpurlin members as indicated. Attach subpurlins to each support with 3/4-inch- (19-mm-) long minimum, fillet welds on both sides of flanges at ends of members and on alternate sides at intermediate structural supports.

1. Lay tile with rabbeted edges supported on subpurlins.
2. Lay tile with square-cut ends concealed over supporting purlins or beams.
3. Lay tile with tongue-and-groove ends exposed in pattern indicated.
4. Fill void with gypsum concrete grout where edge joints meet subpurlins. Strike grout flush with top of tile and feather uneven top surfaces to a plane.
5. Fill void with gypsum concrete grout where edge joints meet subpurlins. Strike grout flush with top surface of cementitious wood-fiber base. Fill remainder of joint with filler strips of insulation.

3.4 CLEANING AND PROTECTION

A. Protect top surfaces of deck from damage caused by construction operations.

B. Protect exposed bottom surfaces of deck from soiling and damage during handling and construction.

C. Clean exposed bottom surfaces of completed deck and touch up minor damage to surfaces as approved by Architect.

D. Provide final protection and maintain conditions in a manner acceptable to manufacturer and Installer that ensures that cementitious wood-fiber deck is without damage or deterioration at time of Substantial Completion.

E. Remove and replace deteriorated and damaged deck units.

END OF SECTION 03511

STEEL DECK

SECTION 05310 - STEEL DECK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Roof deck.

B. Unit Prices: Work of this section is related to provisions of Division 1 Section “Unit Prices.”

1.3 SUBMITTALS

A. Product Data: For each type of deck, accessory, and product indicated.

B. Product Certificates: For each type of steel deck, signed by product manufacturer.

C. Welding certificates.

D. Field quality-control test and inspection reports.

1.4 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to AWS D1.3, "Structural Welding Code - Sheet Steel."

B. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.

B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.

1.6 COORDINATION

A. Comply with owners ongoing operations.

PART 2 - PRODUCTS

2.1 ROOF DECK

A. Steel Roof Deck: Fabricate panels, without top-flange stiffening grooves, to comply with "SDI Specifications and Commentary for Steel Roof Deck," in SDI Publication No. 30, and with the following:

1. Prime-Painted Steel Sheet: ASTM A 1008/A 1008M, Structural Steel (SS), Grade 33 (230) minimum, shop primed with manufacturer's standard baked-on, rust-inhibitive primer.
2. Deck Profile: Match existing deck profile.
3. Profile Depth: Match existing deck profile depth.
4. Design Uncoated-Steel Thickness: Match existing deck steel thickness.
5. Span Condition: Existing.
6. Side Laps: Match existing condition.

2.2 ACCESSORIES

A. General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.

B. Mechanical Fasteners: Corrosion-resistant, self-drilling, self-threading screws.

C. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 (4.8-mm) minimum diameter.

D. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.

E. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 33,000 psi (230 MPa), not less than 0.0359-inch (0.91-mm) design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.

F. Weld Washers: Uncoated steel sheet, shaped to fit deck rib, 0.0598 inch (1.52 mm) thick, with factory-punched hole of 3/8-inch (9.5-mm) minimum diameter.

G. Flat Sump Plate: Single-piece steel sheet, 0.0747 inch (1.90 mm) thick, of same material and finish as deck. For drains, cut holes in the field.

H. Galvanizing Repair Paint: ASTM A 780.

I. Repair Paint: Manufacturer's standard rust-inhibitive primer of same color as primer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine supporting frame and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance.

3.2 INSTALLATION, GENERAL

A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 30, manufacturer's written instructions, and requirements in this Section.

B. Install temporary shoring before placing deck panels, if required to meet deflection limitations.

C. Locate deck bundles to prevent overloading of supporting members.

D. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.

E. Place deck panels flat and square and fasten to supporting frame without warp or deflection.

F. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.

G. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.

H. Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install according to deck manufacturer's written instructions.

3.3 ROOF-DECK INSTALLATION

A. Fasten roof-deck panels to steel supporting members by arc spot (puddle) welds of the surface diameter indicated or arc seam welds with an equal perimeter that is not less than 1-1/2 inches (38 mm) long, and as follows:

1. Weld Diameter: Match welds of existing deck to remain, but not less than 5/8 inch (16 mm), nominal.
2. Weld Spacing: Weld edge and interior ribs of deck units with a minimum of two welds per deck unit at each support. Space welds to match spacing of welds on existing deck units, but not less than 18 inches (450 mm) apart, maximum.
3. Weld Washers: Install weld washers at each weld location.

B. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports, at intervals not exceeding the lesser of 1/2 of the span or 18 inches (450 mm), and as selected from following to match existing deck unit installation:

1. Mechanically fasten with self-drilling, No. 10 (4.8-mm-) diameter or larger, carbon-steel screws.

C. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 1-1/2 inches (38 mm), with end joints as follows:

1. End Joints: Lapped 2 inches (51 mm) minimum.

D. Miscellaneous Roof-Deck Accessories: Install ridge and valley plates, finish strips, end closures, and reinforcing channels according to deck manufacturer's written instructions. mechanically fasten to substrate to provide a complete deck installation.

1. Weld cover plates at changes in direction of roof-deck panels, unless otherwise indicated.

E. Flexible Closure Strips: Install flexible closure strips over partitions, walls, and where indicated. Install with adhesive according to manufacturer's written instructions to ensure complete closure.

3.4 REPAIRS AND PROTECTION

A. Repair Painting: Wire brush and clean rust spots, welds, and abraded areas on top surface of prime-painted deck immediately after installation, and apply repair paint.

B. Provide final protection and maintain conditions to ensure that steel deck is without damage or deterioration at time of Substantial Completion.

END OF SECTION 05310

MISCELLANEOUS CARPENTRY

SECTION 06105 - MISCELLANEOUS CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Rooftop equipment bases and support curbs.
   2. Wood blocking, cants, and nailers.
   3. Sheathing.

1.3 DEFINITIONS

A. Lumber grading agencies, and the abbreviations used to reference them, include the following:
   1. NELMA - Northeastern Lumber Manufacturers Association.
   2. NLGA - National Lumber Grades Authority.
   3. SPIB - Southern Pine Inspection Bureau.
   4. WCLIB - West Coast Lumber Inspection Bureau.
   5. WWPA - Western Wood Products Association.

1.4 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
   1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used, net amount of preservative retained, and chemical treatment manufacturer's written instructions for handling, storing, installing, and finishing treated material.
   2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
   3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber, plywood, and other panels; place spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review.
   1. Factory mark each piece of lumber with grade stamp of grading agency.
   2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece.
   3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
   4. Provide dressed lumber, S4S, unless otherwise indicated.
   5. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise indicated.

B. Wood Structural Panels:
   1. Plywood: Either DOC PS 1 or DOC PS 2, unless otherwise indicated.
   2. Thickness: As needed to comply with requirements specified but not less than thickness indicated.
   3. Factory mark panels according to indicated standard.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

A. Preservative Treatment by Pressure Process: AWPA C2 (lumber) and AWPA C9 (plywood), except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).
   1. Preservative Chemicals: Acceptable to authorities having jurisdiction and one of the following:
      a. Chromated copper arsenate (CCA).
      b. Ammoniacal copper zinc arsenate (ACZA).
      c. Ammoniacal, or amine, copper quat (ACQ).
      d. Copper bis (dimethyldithiocarbamate) (CDDC).
      e. Ammoniacal copper citrate (CC).
      f. Copper azole, Type A (CBA-A).
      g. Oxine copper (copper-8-quinolinolate) in a light petroleum solvent.

B. Kiln-dry material after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood. Do not use material that is warped or does not comply with requirements for untreated material.

C. Mark each treated item with the treatment quality mark of an inspection agency approved by the American Lumber Standards Committee Board of Review.
   1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece.

D. Application: Treat items indicated on Drawings, and the following:
   1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.

2. Wood sills, blocking, and similar concealed members in contact with masonry or concrete.
3. Wood framing members less than 18 inches above grade.

2.3 MISCELLANEOUS LUMBER

A. General: Provide lumber for support or attachment of other construction, including the following:
1. Rooftop equipment bases and support curbs.
2. Blocking.
3. Nailers.
4. Furring.
5. Grounds.

B. For concealed boards, provide lumber with 15 percent maximum moisture content and any of the following species and grades:
1. Mixed southern pine, No. 2 grade; SPIB.
2. Eastern softwoods, No. 2 Common grade; NELMA.
3. Northern species, No. 2 Common grade; NLGA.
4. Western woods, Construction or No. 2 Common grade; WCLIB or WWPA.

2.4 PANEL PRODUCTS

A. Miscellaneous Concealed Plywood: Exterior sheathing, span rating to suit framing in each location, and thickness as indicated but not less than 1/2 inch.

2.5 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
1. Where carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M or of Type 304 stainless steel.

B. Nails, Wire, Brads, and Staples: FS FF-N-105.

C. Power-Driven Fasteners: CABO NER-272.

D. Wood Screws: ASME B18.6.1.

E. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.

F. Lag Bolts: ASME B18.2.1.

G. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

H. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
   1. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

2.6 METAL FRAMING ANCHORS

A. General: Provide galvanized steel framing anchors of structural capacity, type, and size indicated and acceptable to authorities having jurisdiction.

B. Galvanized Steel Sheet: Hot-dip galvanized after fabrication (ASTM A 153/A 153M) or stainless steel (ASTM A 666, Type 304)

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Discard units of material with defects that impair quality of carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.

B. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

C. Apply field treatment complying with AWPA M4 to cut surfaces of preservative-treated lumber and plywood.

D. Securely attach carpentry work as indicated and according to applicable codes and recognized standards.

E. Countersink fastener heads on exposed carpentry work and fill holes with wood filler.

F. Use fasteners of appropriate type and length. Predrill members when necessary to avoid splitting wood.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

3.3 PANEL PRODUCT INSTALLATION

A. Wood Structural Panels: Comply with applicable recommendations contained in APA Form No. E30K, "APA Design/Construction Guide: Residential & Commercial," for types of structural-use panels and applications indicated.

END OF SECTION 06105

Roof Recoating for Built Up Roofing and Modified Bitumen

SECTION 07156 – ROOF RE-COATING FOR BUILT-UP ROOFING AND MODIFIED BITUMEN

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Protection of existing roofing system that is not re-coated.
   2. Roof re-coating preparation including roof patching.
   3. Low-odor, cold process roof re-coating of built-up membrane roofing.

B. Related Sections include the following:
   1. Division 01 Section "Cutting and Patching" for cutting and patching procedures for re-coating preparation.

1.3 MATERIALS OWNERSHIP

A. Demolished materials shall become Contractor's property and shall be removed from Project site.

1.4 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

B. Existing Roofing System: Built-up asphalt roofing, and components and accessories between deck and roofing membrane.

C. Roofing Re-Coating Preparation: Existing roofing that is to remain and be prepared to accept restorative coating application.

D. Patching: Removal of a portion of existing membrane roofing system from deck or removal of selected components and accessories from existing membrane roofing system and replacement with similar materials.

E. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled.

F. Existing to Remain: Existing items of construction that are not indicated to be removed.

1.5 PERFORMANCE REQUIREMENTS

A. General: Provide recoated roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.

B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.

1.6 SUBMITTALS

A. Product Data: For each type of product specified.

B. Landfill Records: Indicate receipt and acceptance of hazardous wastes, such as asbestos-containing material, by a landfill facility licensed to accept hazardous wastes.

1.7 QUALITY ASSURANCE

A. Roofing Inspector Qualifications: A technical representative of manufacturer not engaged in the sale of products 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.

B. Re-coating Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to roofing system including, but not limited to, the following:
1. Meet with Owner; roofing re-coating materials manufacturer's representative; roofing re-coating Installer including project manager and foreman; and installers whose work interfaces with or affects re-coating including installers of roof accessories and roof-mounted equipment requiring removal and replacement as part of the Work.
2. Review methods and procedures related to re-coating preparation, including membrane roofing system manufacturer's written instructions.
3. Review temporary protection requirements for existing roofing system that is to remain, during and after installation.
4. Review roof drainage during each stage of re-coating and review roof drain plugging and plug removal procedures.
5. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
6. Review base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that will affect re-coating.
7. Review HVAC shutdown and sealing of air intakes.
8. Review shutdown of fire-suppression, -protection, and -alarm and -detection systems.
9. Review procedures for asbestos removal or unexpected discovery of asbestos-containing materials.
10. Review governing regulations and requirements for insurance and certificates if applicable.
11. Review existing conditions that may require notification of Owner before proceeding.

1.8 PROJECT CONDITIONS

A. Owner assumes no responsibility for condition of areas to be re-roofed.

B. Owner will occupy portions of building immediately below re-coating area. Conduct re-coating so Owner's operations will not be disrupted. Provide Owner with not less than 72 hours' notice of activities that may affect Owner's operations.

C. Protect building to be re-coated, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from re-coating operations.

D. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

E. Weather Limitations: Proceed with re-coating preparation only when existing and forecasted weather conditions permit Work to proceed without water entering into existing roofing system or building.

F. Hazardous Materials: It is not expected that hazardous materials such as asbestos-containing materials will be encountered in the Work.
   1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

1.9 WARRANTY

A. Roofing Recoating Warranty, General: Warranties specified shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

B. Roof Recoating Warranty, General: Warranties specified in this Section include work of this Section and the following components and systems specified other Sections when supplied by the roof recoating manufacturer:
   1. Low slope-roofing system as accessory to roofing recoating.

C. Special Warranty for Roof Recoating: Written warranty in which Manufacturer agrees to repair roof recoating installations that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Leaks
   2. Qualified Installer Requirement: Installer must meet requirements of Quality Assurance Article.
   3. Installation Inspection Requirement: By Roofing Inspector in accordance with requirements of Part 3 Field Quality Control Article.
   4. Annual Manufacturer Inspection and Preventive Maintenance Requirement: By manufacturer's technical representative, to report maintenance responsibilities to Owner necessary for preservation of Owner's warranty rights. The cost of manufacturer's annual inspections and preventive maintenance is included in the Contract Sum.
   5. Warranty Period: 10 years from date of completion of recoating work.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers/Products: Subject to compliance with requirements, provide products from:
   1. Any roofing material manufacture that meets or exceeds all specification requirements.

2.2 MATERIALS, GENERAL

A. General: Re-coating materials recommended by roofing system manufacturer for intended use and compatible with components of existing membrane roofing system.

B. Materials as listed and specified under specification Section 07591 "Membrane Reroofing Preparation & Restoration"

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect existing roofing system that is indicated not to be re-coated, and adjacent portions of building and building equipment.
   1. Comply with warranty requirements of existing roof membrane manufacturer.
   2. Limit traffic and material storage to areas of existing roofing membrane that have been protected.
   3. Maintain temporary protection and leave in place until replacement roofing has been completed.

B. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof-drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.
   1. Do not permit water to enter into or under existing membrane roofing system components that are to remain.

3.2 ROOFING RE-COATING PREPARATION

A. Roof Patching: Notify Owner each day of extent of roof tear-off proposed and obtain authorization to proceed.
   1. Build-up isolated low spots on existing roofing membrane with recoating manufacturer's recommended products to alleviate ponding.
   2. Limited Roof Tear-Off: Where indicated, remove existing roofing membrane and other membrane roofing system components down to the deck. Fill in the tear-off areas to match existing membrane roofing system construction.
   3. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.

B. Membrane Surface Preparation:
   1. Remove aggregate ballast from roofing membrane. Remove loose aggregate from aggregate-surfaced built-up bituminous roofing with a wet vacuum. No Power Brooms allowed.
   2. Remove blisters, ridges, buckles and other substrate irregularities from existing roofing membrane that would inhibit application of uniform, waterproof coating.
   3. Repair membrane at locations where irregularities have been removed.
   4. Broom clean existing substrate.
   5. Clean substrate of contaminants such as dirt, debris, oil, and grease that can affect adhesion of coating by power washing at maximum 800 psi. Allow to dry thoroughly.
   6. Verify that existing substrate is dry before proceeding with application of coating. Spot check substrates with an electrical capacitance moisture-detection meter.

3.3 FLASHING REPAIR

A. Do not damage metal counterflashings that are to remain. Replace metal counterflashings damaged during removal with counterflashings of same metal, weight or thickness, and finish.

B. Repair flashings, gravel stops, copings, and other roof-related sheet metal and trim elements. Reseal joints, replace loose or missing fasteners, and replace components where required to leave in a watertight condition.
   1. Install 3-course reinforcement on all vertical laps and corners as specified under Section 01100 “Summary”.
   2. Install 5-course reinforcement on all drains, plumbing pipes, stacks, and pitch pans.

3.4 FLASHING RE-COATING

A. Reinforcement: Apply one layer of base coat to all flashing laps, vertical and horizontal, in accordance with manufacturer’s written instructions. Immediately imbed one layer of polyester reinforcement and back roll to fully embed. Apply base coat over reinforcement in accordance with manufacturer’s written instructions, including installation of approved prior to any existing coated flashing.

B. Base Coat: Apply base coat to all flashing surfaces in accordance with manufacturer’s written instructions. Back roll to achieve minimum wet mil coating thickness of 3 gallons per 100 square feet unless otherwise recommended by manufacturer, verify thickness of base coat as work progresses.
   1. Apply base coat on prepared and primed surfaces and spread coating evenly.
   2. Allow base coat to cure prior to application of top coat.

C. Top Coat: Apply top coat to all flashing surfaces uniformly in a complete installation to flashing surfaces.
   1. Prime base coat prior to application of top coat if top coat is not applied within 72 hours of the base coat application, using manufacturer’s recommended primer.
   2. Apply top coat to flashings extending coating up vertical surfaces and out onto horizontal surfaces.
   3. Back roll to achieve wet mil thickness of 2 gallon per 100 square feet unless otherwise recommended by manufacturer.

3.5 ROOF RE-COATING

A. Restorative Flood Coat: Promptly after preparing membrane substrate and base flashings and stripping, flood-coat roof surface with 7 gal./100 sq. ft. of restorative coating.

B. Kunshek Aggregate Surfacing: While flood coat is fluid, cast the following average weight of aggregate in a uniform course:
   1. Aggregate Weight: 550 lb./100 sq. ft.
   2. Install more gravel as needed to completely cover the new flood coat adhesive.

3.6 WALKWAY INSTALLATION

A. Reinstall walkways following application of coating. Locate as indicated, or as directed by Owner.

B. Walkway Pads: Install walkway pads using units of size indicated or, if not indicated, of manufacturer's standard size according to walkway pad manufacturer's written instructions.
   1. Set walkway pads in cold-applied adhesive.

3.7 PROTECTING AND CLEANING

A. Protect roofing system from damage and wear during remainder of construction period.

B. Correct deficiencies in or remove coating that does not comply with requirements, repair substrates, and reapply coating.

C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 07156

HOT APPLIED BUILT-UP-ROOFING

SECTION 07511 - HOT-APPLIED BUILT-UP ASPHALT ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Hot-applied built-up asphalt roofing systems.
2. Roof insulation, membrane, and flashing.
3. Roof surfacing consisting of cold process adhesive and aggregate surfacing.

B. Related Sections include the following:
1. Division 6 Section “Miscellaneous Carpentry" for wood nailers, curbs, and blocking.
2. Division 7 Section "Sheet Metal Flashing and Trim" for custom metal roof penetration flashings, flashings, and counterflashings.

1.3 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

B. Hot Roofing Asphalt: Roofing asphalt heated to its equiviscous temperature, the temperature at which its viscosity is 125 centipoise for mopping application and 75 centipoise for mechanical application, within a range of plus or minus 25 deg F, measured at the mop cart or mechanical spreader immediately before application.

1.4 PERFORMANCE REQUIREMENTS

A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.

B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.

C. Flashings: Comply with requirements of Division 7 Sections “Sheet Metal Flashing and Trim”. Provide base flashings, perimeter flashings, detail flashings and component materials that comply with requirements and recommendations of the following:

1. NRCA Roofing and Waterproofing Manual (Fifth Edition) for construction details and recommendations.
2. SMACNA Architectural Sheet Metal Manual (Fifth Edition) for construction details.

1.5 SUBMITTALS

A. Product Certificate: Submit notarized certificate, indicating complete list of products intended for use under 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. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work.
1. Base, perimeter, and detail flashings, cants, and membrane terminations.
2. Tapered insulation, including slopes.
3. Crickets, saddles, and tapered edge strips, including slopes.
4. Insulation fastening patterns.

C. Samples for Verification: For the following products:
1. 8-by-10-inch square of base sheet, ply sheet, and flashing backer sheet.
2. 8-by-10-inch square of mineral-granule-surfaced cap sheet and flashing sheet.

D. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
1. Submit evidence of meeting performance requirements.

E. Manufacturer Certificates: Indicating compliance of proposed products with requirements, including:
1. Product Compatibility: Indicate manufacturer has verified compatibility of roofing system components, including but not limited to: Roofing base and ply sheets, membrane backer and flashing sheets, reinforcement fabric felts and mats, adhesives, mastics, coatings, and sealants.

F. The Material Suppliers Representative will be required by the Owner to observe the work under this section periodically. The Material Suppliers Representative shall provide a written repot to the owner of the progress. Reports shall be submitted at the completion of the project. The presence of this representative is for the Owners interest and any information or assistance furnished by the representative shall not relieve the Contractor of his responsibilities for the Work. The Contractor shall provide reasonable notification to the representative whenever work is being done in sufficient time to arrange observations.

G. The Owner reserves the right to provide independent inspectors at the districts expense. The inspector will report to the Project Manager any deviations in materials or workmanship, which the Owner has specified.

H. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of roofing system.

I. Maintenance Data and Training Materials: For roofing system to include in maintenance manuals and Owner's training library.

J. Warranties: Special warranties and service agreements specified in this Section.

K. Inspection Reports: Copy of daily and final technical inspection reports of roofing installation.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.

B. Manufacturer's Technical Representative Qualifications:
   1. An authorized full-time employee of the manufacturer.
   2. Experienced in the installation and maintenance of the specified roofing system
   3. Qualified to determine Installer's compliance with the requirements of this Project.
   4. Shall be a registered engineer in the State of Missouri or certified as a Registered Roof Observer.

C. Source Limitations: Obtain components for roofing system from or approved in writing by roofing system manufacturer.

D. Preliminary Roofing Conference: Before starting reroofing preparation, conduct conference at Project site. Comply with requirements for preinstallation conferences in Division 1 Section "Project Management and Coordination." Review methods and procedures related to reroofing preparation, and roofing system including, but not limited to, the following:
   1. Meet with Owner, 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 methods and procedures related to roofing installation, including manufacturer's written instructions.
   3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
   4. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
   5. Review governing regulations and requirements for insurance and certificates if applicable.
   6. Review temporary protection requirements for roofing system during and after installation.
   7. Review roof observation and repair procedures after roofing installation.

1.7 PRIOR APPROVALS

A. Submit the following 7 days prior to bid date, including all items requested in specification Sections 1.4, 1.5, and 1.6:
   1. Roofing System Manufacturer's Warranty and Maintenance Service Agreement:
   2. Copy of warranty and maintenance service agreement to be issued upon successful completion of roofing project and final inspection.
   3. List of at least five (5) customers who have the same program in place.
   4. Product compatibility:

a. Written verification from roofing material manufacturer that major roofing components, including (but not limited to) coatings, cold process adhesives; roofing ply sheets; reinforcement fabric felts and mats; mastics; and sealants are all compatible with each other.

5. Test reports:
   a. Written verification from roofing material manufacturer that roofing system meets or exceeds ASTM D 2523.
6. Red label products:
   a. Written verification from roofing material manufacturer that cold process coatings are not flammable (red label).
7. Product data sheets.
8. Material safety data sheets.

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, and directions for storage.

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 manufacturers 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 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.

1.10 WARRANTY

A. Warranty, General: Warranties specified shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

B. Special Manufacturer’s Warranty: Submit roofing system Manufacturer's standard form, in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.

1. Special warranty includes roofing membrane, base flashings, roofing membrane accessories, roof insulation, fasteners, cover boards, sheet metal flashings and trim, copings, roof edge flashings, roof edge drainage systems, copings counterflashings and reglets, all sheet metal specified in other Division 7 Sections, and other components of roofing system. Covers wind speeds up to 74 mph.
2. Warranty Period: 20 years from date of Substantial Completion.

C. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering Work of this Section, including all components of roofing system such as roofing membrane, base flashing, roof insulation, fasteners, cover boards for the following warranty period:
1. Warranty Period: Two years from date of Substantial Completion.

D. Continuing Maintenance Program: Provide a continuing maintenance program from Installer to Owner with terms, conditions, and obligations as set forth in, and in the same form as, "Roof Maintenance Agreement" at end of this Section, starting on date established for Substantial Completion.

PART 2 - PRODUCTS

2.1 BASE-SHEET MATERIALS

A. Adhered Base Sheet: Nonperforated, asphalt-coated, polyester/fiberglass/polyester reinforced sheet dusted with fine mineral surfacing on both sides which meets the requirements of ASTM D 4601, Type II, and the following properties:
1. Tensile Strength, minimum, ASTM D 5147: machine direction, 165 lbf; cross direction, 150 lbf.
2. Tear Strength, minimum, ASTM D 5147: machine direction, 260 lbf; cross direction, 230 lbf.
3. Thickness, minimum, ASTM D 146: 60 mils
4. Weight, minimum, ASTM D 5147: 38 lb./100 sq. ft.
5. Surfacing stabilizer, max., ASTM D 4601: 65%
6. Asphalt, minimum, ASTM D 228: 10 lb./100 sq. ft.

2.2 ROOFING MEMBRANE PLIES

A. Ply Sheet: ASTM D 2178, Type VI, asphalt-impregnated, glass-fiber felt.
1. Breaking Strength, ASTM D 146-97: 70 lbf/in MD and 60 lbf/in XD
2. Net dry mass of asphalt impregnated glass felt, ASTM D 146-97: 8 lbs/100 sq. ft.
3. Mass of desaturated glass felt, ASTM D 146-97: 1.9 lbs/100 sq. ft.
4. Bituminous saturant (asphalt), ASTM D 146-97: 3 lbs/100 sq. ft.
5. Pliability, ½ in. radius bend, ASTM D 146-97: No failures

2.3 BASE FLASHING MATERIALS

A. Flashing Sheet: PowerPly Endure 300 FR

2.4 ASPHALT MATERIALS

A. Water-Based Asphalt Primer: Water-based, polymer modified, asphalt primer with the following physical properties:
   1. Asbestos Content, EPA 600/R13/116: None.
   2. Non-Volatile Content, minimum, ASTM D 2823: 32 percent.
   3. Volatile Organic Compounds (VOC), maximum, ASTM D 3960: 65 g/L.

B. Roofing Asphalt Adhesive for insulation, cover board, base sheet, and interply adhesive: ASTM D 312, Type IV, hot-melt asphalt, with the following physical properties:
   1. Softening Point, min/max, ASTM D 36: 215-225 deg F.
   2. Penetration at 77 deg. F, min/max, ASTM D 5: 15-25 dmm.
   3. Flash point, minimum, ASTM D 92: 525 deg F.
   4. Ductility at 77 deg. F, minimum, ASTM D 113: 1.5 cm.
   5. Equiviscous Temperature Range, ASTM D 4402: 425 – 475 deg F.

C. Cold-Applied Adhesive for Flood Coat: One-part, asbestos-free, cold-applied adhesive specially formulated for compatibility and use with specified roofing membranes and flashings, with the following physical properties:
   1. Asbestos Content, EPA 600 R-93/116: None.
   2. Volatile Organic Compounds (VOC), maximum, ASTM D 6511: 250 g/L.
   3. Nonvolatile Content, minimum, ASTM D 6511: 72 percent.
   4. Flash Point, minimum, ASTM D 93: >100 deg F.
   5. Density at 77 deg F ASTM D 6511: 8.6 lb/gal.
   6. Uniformity and Consistency, ASTM D 6511: Pass.
   7. Asphalt Content, minimum, ASTM D 6511: 50 percent.

D. Asphalt Roofing Mastic: ASTM D 4586, Type II, Class 1, one-part, asbestos-free, cold-applied mastic specially formulated for compatibility and use with specified roofing membranes and flashings, with the following properties:
   1. Asbestos Content, EPA 600/R13/116: None.
   2. Nonvolatile Matter, minimum, ASTM D 4586: 80 percent.
   3. Density at 77 deg F, ASTM D 1475: 9.3 lb/gal.

2.5 AUXILIARY ROOFING MEMBRANE MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with built-up roofing.

B. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FM 4470; designed for fastening roofing membrane components to substrate; tested by manufacturer for required pullout strength; and acceptable to roofing system manufacturer.

C. Aggregate Surfacing: ASTM D 1863, No. 6 or No. 67, clean, dry, opaque, Kunshek water-worn gravel or crushed stone, free of sharp edges.

D. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.

2.6 INSULATION ACCESSORIES

A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.

B. Insulation Cant Strips: ASTM C 208, Type II, Grade 1, cellulosic-fiber insulation board.

2.7 COATING MATERIALS

A. Aluminum Coating: Non-fibered, aluminum pigmented roof coating with the following physical properties:
   1. Low Temperature Flexibility, ASTM D 1737: Pass ¼" mandrel @ 32 deg F.
   2. Reflectance, ASTM C 1549: Initial – 0.66, 3-Yr. Aged – 0.49.
   3. Metallic Content, minimum, ASTM D 2824: 15 percent.
   4. Volatile Organic Compounds (VOC), maximum, ASTM D 3960: 321 g/L.
   5. Solids Content – Volume, ASTM D 6511: 47%
   6. Solids Content – Weight, ASTM D 6511: 61%

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 wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
   2. 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.

3.3 INSTALLATION, GENERAL

A. Install roofing system in accordance with manufacturer's recommendations.

B. Install roofing system in accordance with the following NRCA Manual Plates and NRCA recommendations:
   1. Perimeter Edge, Gravel-stop: Plates BUR-3 and BUR-3S.
   2. Gutter at Draining Edge: Plates BUR-22 and BUR-22S.
   3. Penetration, Sheet Metal Enclosure: Plates 15 and 15S
   4. Penetration, Stack Flashing: Plates BUR-17 and BUR-17S.

5. Penetration, Pocket: Plates BUR-19 and BUR-19S.

3.4 ROOFING MEMBRANE INSTALLATION, GENERAL

A. Install built-up roofing membrane system according to roofing system manufacturer's written instructions and applicable recommendations of ARMA/NRCA's "Quality Control Guidelines for the Application of Built-up Roofing."

B. Start installation of built-up roofing membrane in presence of roofing system manufacturer's technical personnel.

C. Cooperate with testing and inspecting agencies engaged or required to perform services for installing built-up roofing system.

D. Coordinate installing roofing system components, so insulation and roofing membrane sheets are not exposed to precipitation or left exposed 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 membrane sheets and insulation with a course of coated felt set in roofing cement or hot roofing asphalt with joints and edges sealed.
   2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
   3. Remove and discard temporary seals before beginning work on adjoining roofing.

E. Asphalt Heating for insulation, coverboard, base sheet, ply sheets and flood coat:

F. Heat roofing asphalt and apply within plus or minus 25 deg F of equiviscous temperature unless otherwise required by roofing system manufacturer. Do not raise roofing asphalt temperature above Equiviscous temperature range more than one hour before time of application. Do not exceed roofing asphalt manufacturer's recommended temperature limits during roofing asphalt heating. Do not heat roofing asphalt within 25 deg F of flash point. Discard roofing asphalt maintained at a temperature exceeding finished blowing temperature for more than 4 hours.

G. Substrate-Joint Penetrations: Prevent roofing asphalt from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

3.5 ROOFING MEMBRANE INSTALLATION

A. Remove all wet insulation as shown on the infrared scan report.
   1. Mechanically fasten ½” Dens Deck Prime over existing roof system.
   2. Adhere 1/4” Dens Deck Prime over gypsum board with hot asphalt.

B. Install one lapped course of base sheet, extending sheet over and terminating beyond cants. Attach base sheet as follows:
   1. Embed in a solid mopping of hot roofing asphalt to insulation substrate.

C. Install three-ply sheets starting at low point of roofing system. Align ply sheets without stretching. Shingle side laps of ply sheets uniformly to achieve required number of plies throughout thickness of roofing membrane. Shingle in direction to shed water. Extend ply sheets over and terminate beyond cants.

1. Embed each ply sheet in a solid mopping of hot roofing asphalt applied at rate required by roofing system manufacturer, to form a uniform membrane without ply sheets touching.

D. Aggregate Surfacing: Promptly after installing and testing roofing membrane and base flashing, flood-coat roof surface with 60-lbs/100 sq. ft. of hot modified asphalt adhesive. Immediately after installing flood coat, cast the following average weight of aggregate in a uniform course:
   1. Aggregate Weight: 450 to 500-lb/100 sq. ft.
   2. Cover flood coat adhesive completely.

3.6 FLASHING AND STRIPPING INSTALLATION

A. Install base flashing over cant strips and other sloping and vertical surfaces, at roof edges, and at penetrations through roof, and secure to substrates according to roofing system manufacturer's written instructions and as follows:
   1. Prime substrates with asphalt primer if required by roofing system manufacturer.
   2. Flashing Sheet Application: Adhere flashing sheet to substrate in a solid application of hot asphalt adhesive applied at rate required by roofing system manufacturer.

B. Extend base flashing up walls, parapets, or projection curbs a minimum of 8 inches above roofing membrane and 6 inches onto field of roofing membrane.

C. Mechanically fasten top of base flashing securely at terminations and perimeter of roofing with termination bar.

D. Roof Drains: Set 30-by-30-inch 4-lb lead flashing in bed of asphalt roofing cement on completed roofing membrane. Cover lead flashing with 2-plies of base sheet stripping and extend a minimum of 4 inches beyond edge of lead flashing onto field of roofing membrane. Clamp roofing membrane, lead flashing, and 2-ply stripping into roof-drain clamping ring.

3.7 COATING INSTALLATION

A. Apply coatings to base flashings, soil stacks, gas lines, drain strainers, and rusted equipment according to manufacturer's written instructions, by roller or other suitable application method.

3.8 FIELD QUALITY CONTROL

A. Manufacturer’s Technical Representative: Contractor will engage a qualified manufacturer’s technical representative acceptable to Owner for on site roof tests and inspections.

B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Owner.
   1. Notify Owner 48 hours in advance of date and time of inspection.

C. Repair or remove and replace components of roofing system where test results or inspections indicate that they do not comply with specified requirements.

D. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.9 PROTECTING AND CLEANING

A. Protect 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.

B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall 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.

3.10 SCHEDULE OF SPECIAL WARRANTIES AND SERVICE AGREEMENTS

A. The following documents are referenced in this Section and are attached following this Section; complete and submit similar documents in accordance with requirements:
   1. Roofing Installer's Warranty
   2. Roofing System Manufacturer's Continuing Maintenance Program

3.11 ROOFING INSTALLER'S WARRANTY

A. WHEREAS _____ of _____, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
   1. Owner: _____
   2. Address: _____
   3. Building Name/Type: _____
   4. Address: _____
   5. Area of Work: _____
   6. Acceptance Date: _____
   7. Warranty Period: Two years from the date of substantial completion
   8. Expiration Date: _____

B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,

C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.

D. This Warranty is made subject to the following terms and conditions:

1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:

    a. Lightning;
    b. Peak gust wind speed exceeding 74 mph;
    c. Fire;
    d. Failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
    e. Faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
    f. Vapor condensation on bottom of roofing; and
    g. Activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.

2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this _____day of _____, 2026.

1. Authorized Signature: _____
2. Name: _____

3.12 ROOFING SYSTEM MANUFACTURER'S CONTINUING MAINTENANCE PROGRAM

A. WHEREAS _____ of _____, herein called the "Manufacturer," has supplied roofing membrane and associated materials and approved all other related materials ("materials") on the following project:

1. Owner: _____
2. Address: _____
3. Building Name/Type: _____
4. Address: _____
5. Area of Work: _____
6. Acceptance Date: _____
7. Warranty Period: 20 years from date of Substantial Completion
8. Expiration Date: _____
9. Roofing Installer: _____
10. Contractor: _____

B. MANUFACTURER WILL provide Roofing System Continuing Management and Maintenance services to the Owner, on a annual basis, for a period of 20 years, performed under direction of Manufacturer's Authorized Service Representative, as described below:

1. Roof Inspection Report: Provide roof inspection and report of roof conditions based upon roof inspections. Report shall be provided through and on-line database system specifically addressing the designated roof areas.
2. Special Post-Storm Roof Inspection Report: Roof inspection at Owner request following major storm activity.
3. Roof Housekeeping: Inspect roof membrane, drains, gutters, and scuppers. Remove, bag and properly dispose of all debris.
4. Roof Membrane Preventive Maintenance and Repair: Repair tears, splits and breaks in the roof membrane with appropriate repair mastic and membranes in accordance with Membrane Manufacturer's written repair and maintenance guidelines. Dress up reflective coatings on flashings. Coat all exposed reinforcing membranes with approved mastics.
5. Roof Flashing Preventive Maintenance:
   a. Metal Edge and Flashing Components: Repair tears, splits, and breaks in membrane flashings and open flashing strip-ins with appropriate repair mastics and membranes. Secure loose metal edge cleats and clips. Tighten and reseal exposed fasteners.
   b. Parapet, Wall, and Counterflashing Systems: Repair tears, splits, and breaks in metal flashings and open flashing strip-ins with appropriate repair mastics and membranes. Coat all exposed reinforcing membranes with approved mastics. Tighten and reseal exposed fasteners. Clean and seal voids in termination bars, counterflashings and parapet caps. Secure loose termination bars and counterflashings. Check and re-secure loose metal coping caps.
   c. Equipment/Projection Flashing Components: Repair tears, splits, and breaks in metal flashings and open flashing strip-ins with appropriate repair mastics and membranes. Secure unsecured roof top equipment. Tighten and reseal exposed fasteners. Clean and seal voids in termination bars. Refill pitch pans. Check and reseal metal projections (hoods and clamps).

6. Drainage Systems Preventive Maintenance: Check and re-secure drain bolts and clamping rings. Advise owner of missing drain dome strainers. Check strip-ins around drain leads and coat with approved mastic. Check gutter straps, joints and strip-ins. Check inside and exterior of scuppers for open solder or caulking seals.
7. Roof Systems Leak Response:
   a. In the event of a roof system leak, Manufacturer shall provide to Owner:
      1) Toll free 800 number for Owner for leak report, monitored twenty-four hours per day, 365 days a year.
      2) Response to Owner on all leak calls within twenty-four hours.
      3) Qualified repair crew at the building site within two business days of call.
      4) Follow-up inspection by Manufacturer's Authorized Service Representative with written report to Owner.
      5) Written summary of leak events, repairs, and inspections to Owner at end of each quarter in which leaks have occurred.

8. Roofing System Continuing Management and Maintenance Services repair coverage exclude such damage to the roof system excluded from the Manufacturer's Warranty as a result of negligence, vandalism, or other excluded cause as described in manufacturer's published terms and conditions at the original date of this Contract.

C. SUBMITTED this _____day of _____, 2026.
   1. Authorized Signature: _____
   2. Name: _____
   3. Title: _____
   4. Manufacturer: _____
   5. Address: _____
   6. Telephone Number: _____

END OF SECTION 07511

MEMBRANE REROOFING PREPARATION AND RESTORATION

SECTION 07591 - MEMBRANE REROOFING PREPARATION AND RESTORATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Repair of base flashings.
   2. Protection of existing roofing system that is not reroofed.
   3. Restoration as specified in Section 01100 Summary:

1.3 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site and disposed of legally.

1.4 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

B. Existing Membrane Roofing System: Cold process BUR with gravel surfacing, and components and accessories between deck and roofing membrane.

C. Partial Roof Tear-Off: Removal of a portion of existing membrane roofing system from deck or removal of selected components and accessories from existing membrane roofing system. Areas indicated as wet by thermal scan.

D. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and reinstalled.

E. Existing to Remain: Existing items of construction that are not indicated to be removed.

1.5 SUBMITTALS

A. Product Data: For each type of product indicated.

1.6 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning membrane-roofing removal. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Reroofing Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to roofing system including, but not limited to, the following:
   1. Meet with Owner; Owner's insurer if applicable; testing and inspecting agency representative; roofing system manufacturer's representative; roofing Installer including project manager, superintendent, and foreman; and installers whose work interfaces with or affects reroofing including installers of roof accessories and roof-mounted equipment.
   2. Review methods and procedures related to reroofing preparation, including membrane roofing system manufacturer's written instructions.
   3. Review temporary protection requirements for existing roofing system that is to remain, during and after installation.
   4. Review roof drainage during each stage of reroofing and review roof drain plugging and plug removal procedures.
   5. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
   6. Review existing deck removal procedures and Owner notifications.
   7. Review procedures to determine condition and acceptance of existing deck for reuse.
   8. Review structural loading limitations of deck during reroofing.
   9. Review base flashings, special roofing details, drainage, penetrations, equipment curbs, and condition of other construction that will affect reroofing.
   10. Review HVAC shutdown and sealing of air intakes.
   11. Review shutdown of fire-suppression, -protection, and -alarm and -detection systems.
   12. Review procedures for asbestos removal or unexpected discovery of asbestos-containing materials.
   13. Review governing regulations and requirements for insurance and certificates if applicable.
   14. Review existing conditions that may require notification of Owner before proceeding.

1.7 PROJECT CONDITIONS

A. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from reroofing operations.

B. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not block required exits or path from required exit to public right-of-way. Coordinate with requirements of authorities having jurisdiction.

C. Owner assumes no responsibility for condition of areas to be reroofed.

D. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit Work to proceed without water entering into existing roofing system or building.
   1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Owner.

1.8 WARRANTY

A. Roofing Recoating Warranty, General: Warranties specified shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

B. Roof Recoating Warranty, General: Warranties specified in this Section include work of this Section and the following components and systems specified other Sections when supplied by the roof recoating manufacturer:
   1. Low slope-roofing system as accessory to roofing recoating.

C. Special Warranty for Roof Recoating: Written warranty in which Manufacturer agrees to repair roof recoating installations that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Leaks
   2. Qualified Installer Requirement: Installer must meet requirements of Quality Assurance Article.
   3. Installation Inspection Requirement: By Roofing Inspector in accordance with requirements of Part 3 Field Quality Control Article.
   4. Annual Manufacturer Inspection and Preventive Maintenance Requirement: By manufacturer's technical representative, to report maintenance responsibilities to Owner necessary for preservation of Owner's warranty rights. The cost of manufacturer's annual inspections and preventive maintenance is included in the Contract Sum.
   5. Warranty Period: 10 years from date of completion of recoating work.

PART 2 - PRODUCTS

2.1 ROOF MEMBRANE ADHESIVE
   1. Cold-Applied Adhesive: One-part, solvent-free, asbestos-free, cold-applied adhesive specially formulated for compatibility and use with specified roofing membranes and flashings, with the following physical properties:
      a. Asbestos Content, EPA 600 R-93/116: None.
      b. Volatile Organic Compounds (VOC), maximum, ASTM D 6511: 40 g/L.
      c. Nonvolatile Content, minimum, ASTM D 6511: 96.4 percent.
      d. Density at 77 deg F ASTM D 6511: 8.8 lb/gal.

2.2 ROOFING REPAIR MATERIALS

A. ROOFING MASTIC FOR REINFORCEMENT
   1. Solvent-Free Elastomeric Roofing Mastic: One-part, solvent-free, asbestos-free, low-odor elastomeric roof mastic specially formulated for compatibility and use with specified roofing membranes and flashings, with the following properties:
      a. Asbestos Content, EPA 600/R13/116: None.
      b. Volatile Organic Compounds (VOC), maximum, ASTM D 3960: 300 g/L.
      c. Nonvolatile Matter, minimum, ASTM D 4586: 70 percent.
      d. Elongation at 77 deg. F, minimum, ASTM D 412: 1000 percent.

e. Recovery from 500% Elongation, minimum, ASTM D 412: 500 percent.
f. Flexibility at -40 deg. F, ASTM D 3111: No Cracking.

2.3 RESTORATION MATERIALS

A. PRIMER
1. Water-Based Asphalt Primer: Water-based, polymer modified, asphalt primer with the following physical properties:
   a. Asbestos Content, EPA 600/R13/116: None.
   b. Non-Volatile Content, minimum, ASTM D 2823: 32 percent.
   c. Volatile Organic Compounds (VOC), maximum, ASTM D 3960: 65 g/L.

B. SURFACING ADHESIVE
1. Asphalt Emulsion: One-part, asbestos-free, cold-applied, emulsified blend of special aromatic oils and additives formulated to be compatible with both tar and asphalt built-up roof membranes.
   a. Asbestos Content, ASTM D 276: None.
   b. Density at 77 deg. F, minimum, ASTM D 1475: 8.6 lb/gal.
   c. Water content, minimum, ASTM D 3792: 40%
   d. Volatile Organic Compounds (VOC), maximum, ASTM D 3960: 29 g/L.

C. REFLECTIVE COATING
1. Aluminum Coating: Non-fibered, aluminum pigmented roof coating with the following physical properties:
   a. Weight per gallon, ASTM D 1475: 8.8 lbs
   b. Solids % by Weight: 61%
   c. Solids % by Volume: 47%
   d. Metallic Content, ASTM D 2824: 15% min.
   e. Reflectance, ASTM D 1549-02: >60

D. FLASHING COATING: Two-coat polyurethane elastomeric coating system consisting of a two-part, bio-based base coat and top coat with the following properties:
1. Base Coat:
   a. Tensile Strength, ASTM D412: 1,400 lb/in/sq
   b. Tear Strength, ASTM D5147: 309 lbf
   c. Volatile Organic Content, ASTM D 3960: 1 g/L (A+B mix)
   d. Volume Solids, ASTM D 2697: 100%
   e. Weight Solids, ASTM D 1644: 100%
   f. Indentation Hardness, ASTM D2240: 88 Shore A
   g. Water Absorption, ASTM D471: 0.008
2. Top Coat:
   a. Tensile Strength, ASTM D412: 1,400 lb/in/sq
   b. Tear Strength, ASTM D5147: 309 lbf
   c. Volatile Organic Content, ASTM D 3960: < 6 g/L (A+B mix)
   d. Volume Solids, ASTM D 2697: 100%
   e. Weight Solids, ASTM D 1644: 100%
   f. Indentation Hardness, ASTM D2240: 81 Shore A
   g. Water Absorption, ASTM D471: 0.008
   h. Reflectivity, ASTM C1549: 84%
   i. Emissivity, ASTM C1371: 87%

E. SURFACING
1. Aggregate Surfacing: ASTM D 1863, No. 6 or No. 67, clean, dry, opaque, Kunshek water-worn gravel or crushed stone, free of sharp edges.

2.4 AUXILIARY REROOFING MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with built-up roofing.

B. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance; designed for fastening roofing membrane components to substrate; tested by manufacturer for required pullout strength; and acceptable to roofing system manufacturer.

C. Protection Treads: As recommended by roofing material manufacturer.
1. Granule Color: White.

D. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect existing membrane roofing system that is indicated not to be reroofed.
1. Limit traffic and material storage to areas of existing roofing membrane that have been protected.
2. Maintain temporary protection and leave in place until replacement roofing has been completed.

B. During removal operations, have sufficient and suitable materials on-site to facilitate rapid installation of temporary protection in the event of unexpected rain.

C. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof-drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.
1. If roof drains will be temporarily blocked or unserviceable due to roofing system removal or partial installation of new membrane roofing system, provide alternative drainage method to remove water and eliminate ponding. Do not permit water to enter into or under existing membrane roofing system components that are to remain.

D. Verify that rooftop utilities and service piping have been shut off before commencing Work.

3.2 ROOF REPAIRS

A. Make repairs with materials specified as per section 07156 “Roof Recoating for BUR’s”

3.3 ROOF RESTORATIONS

A. Apply material listed above per section 07156 “Roof Recoating for BUR’s”.
   1. Surfacing coverage rate is: 7 gallons per 100 sq. ft. minimum

3.4 EXISTING BASE FLASHINGS

A. Repair or replace existing base flashings around parapets, curbs, walls, and penetrations with materials specified and per section 01100 “Summary”.

3.5 DISPOSAL

A. Collect and place demolished materials in containers. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
   1. Storage or sale of demolished items or materials on-site will not be permitted.

B. Transport demolished materials off Owner's property and legally dispose of them.

3.6 SCHEDULE OF SPECIAL WARRANTIES AND SERVICE AGREEMENTS

A. The following documents are referenced in this Section and are attached following this Section; complete and submit similar documents in accordance with requirements:
   1. Roofing Installer's Warranty
   2. Roofing System Manufacturer’s Continuing Maintenance Program

3.7 ROOFING INSTALLER'S WARRANTY

A. WHEREAS _____ of _____, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
   1. Owner: _____
   2. Address: _____
   3. Building Name/Type: _____
   4. Address: _____
   5. Area of Work: _____
   6. Acceptance Date: _____
   7. Warranty Period: Two years from the date of substantial completion
   8. Expiration Date: _____

B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,

C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.

D. This Warranty is made subject to the following terms and conditions:

1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:

   a. Lightning;
   b. Peak gust wind speed exceeding 74 mph;
   c. Fire;
   d. Failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
   e. Faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
   f. Vapor condensation on bottom of roofing; and
   g. Activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.

2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this _____day of _____, 2026.

1. Authorized Signature: _____
2. Name: _____

3.8 ROOFING SYSTEM MANUFACTURER'S CONTINUING MAINTENANCE PROPOSAL

A. WHEREAS _____ of _____, herein called the "Manufacturer," has supplied roofing membrane and associated materials and approved all other related materials ("materials") on the following project:

1. Owner: _____
2. Address: _____
3. Building Name/Type: _____
4. Address: _____
5. Area of Work: _____
6. Acceptance Date: _____
7. Warranty Period: Ten years from date of Substantial Completion.
8. Expiration Date: _____
9. Roofing Installer: _____
10. Contractor: _____

B. MANUFACTURER proposes to provide Roofing System Continuing Management and Maintenance services to the Owner, on an bi-annual basis for a period of 10 years, performed under direction of Manufacturer's Authorized Service Representative, as described below:

1. Roof Inspection Report: Provide roof inspection and report of roof conditions based upon roof inspections.
2. Roof Housekeeping: Inspect roof membrane, drains, gutters, and scuppers. Remove, bag and properly dispose of all debris.
3. Roof Membrane Preventive Maintenance and Repair: Repair tears, splits and breaks in the roof membrane with appropriate repair mastic and membranes in accordance with Membrane Manufacturer's written repair and maintenance guidelines. Dress up reflective coatings on flashings. Coat all exposed reinforcing membranes with approved mastics.
4. Roof Flashing Preventive Maintenance:
   a. Metal Edge and Flashing Components: Repair tears, splits, and breaks in membrane flashings and open flashing strip-ins with appropriate repair mastics and membranes. Secure loose metal edge cleats and clips. Tighten and reseal exposed fasteners.
   b. Parapet, Wall, and Counterflashing Systems: Repair tears, splits, and breaks in metal flashings and open flashing strip-ins with appropriate repair mastics and membranes. Coat all exposed reinforcing membranes with approved mastics. Tighten and reseal exposed fasteners. Clean and seal voids in termination bars, counterflashings and parapet caps. Secure loose termination bars and counterflashings. Check and re-secure loose metal coping caps.

c. Equipment/Projection Flashing Components: Repair tears, splits, and breaks in metal flashings and open flashing strip-ins with appropriate repair mastics and membranes. Secure unsecured roof top equipment. Tighten and reseal exposed fasteners. Clean and seal voids in termination bars. Refill pitch pans. Check and reseal metal projections (hoods and clamps).

5. Drainage Systems Preventive Maintenance: Check and re-secure drain bolts and clamping rings. Advise owner of missing drain dome strainers. Check strip-ins around drain leads and coat with approved mastic. Check gutter straps, joints and strip-ins. Check inside and exterior of scuppers for open solder or caulking seals.
6. Roof Systems Leak Response:
   a. In the event of a roof system leak, Manufacturer shall provide to Owner:
      1) Toll free 800 number for Owner for leak report, monitored twenty-four hours per day, 365 days a year.
      2) Response to Owner on all leak calls within twenty-four hours.
      3) Qualified repair crew at the building site within two business days of call.
      4) Follow-up inspection by Manufacturer's Authorized Service Representative with written report to Owner.
      5) Written summary of leak events, repairs, and inspections to Owner at end of each quarter in which leaks have occurred.
7. Roofing System Continuing Management and Maintenance Services repair coverage exclude such damage to the roof system excluded from the Manufacturer's Warranty as a result of negligence, vandalism, or other excluded cause as described in manufacturer's published terms and conditions at the original date of this Contract.

C. SUBMITTED this _____day of _____, 2026.

1. Authorized Signature: _____
2. Name: _____
3. Title: _____
4. Manufacturer: _____
5. Address: _____
6. Telephone number: _____

END OF SECTION 07591

SHEET METAL FLASHING & TRIM

SECTION 07620 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following sheet metal flashing and trim:
   1. Manufactured reglets.
   2. Formed low-slope roof flashing and trim.
   3. Formed wall flashing and trim.
   4. Formed equipment support flashing.

B. Related Sections include the following:
   1. Division 1 Section “Summary”
   2. Division 6 Section “Miscellaneous Carpentry" for wood nailers, curbs, and blocking.
   3. Division 7 Section "Hot Applied Built-up Asphalt Roofing” for installing sheet metal flashing and trim integral with roofing membrane.

1.3 PERFORMANCE REQUIREMENTS

A. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration to building interior.

1.4 SUBMITTALS

A. Shop Drawings: Show layouts of sheet metal flashing and trim, including plans and elevations. Distinguish between shop- and field-assembled work. Include the following:
   1. Identify material, thickness, weight, and finish for each item and location in Project.
   2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
   3. Details for fastening, joining, supporting, and anchoring sheet metal flashing and trim, including fasteners, clips, cleats, and attachments to adjoining work.
   4. Details of expansion-joint covers, including showing direction of expansion and contraction.

B. Samples for Initial Selection: For each type of sheet metal flashing and trim indicated with factory-applied color finishes.
   1. Include similar Samples of trim and accessories involving color selection.

1.5 QUALITY ASSURANCE

A. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are indicated.

B. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."
   1. Meet with Owner, Manufacturer, Owner's insurer if applicable, Installer, and installers whose work interfaces with or affects sheet metal flashing and trim including installers of roofing materials, roof accessories, unit skylights, and roof-mounted equipment.
   2. Review methods and procedures related to sheet metal flashing and trim.
   3. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
   4. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing and trim materials and fabrications during transportation and handling.

B. Unload, store, and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack materials on platforms or pallets, covered with suitable weathertight and ventilated covering. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

1.7 COORDINATION

A. Coordinate installation of sheet metal flashing and trim with interfacing and adjoining construction to provide a leakproof, secure, and noncorrosive installation.

B. Coordinate all sheet metal flashing and trim with roofing material manufacturer who will be warranting roof system, which will include sheet metal flashing and trim.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
   1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
   2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 SHEET METALS

1. Fluoropolymer 2-Coat System: Manufacturer's standard 2-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 2604.
   a. Color: As indicated by Districts designations.

2.3 UNDERLAYMENT MATERIALS

A. Felts: ASTM D 6163, Type I, Grade S, 2.0 mm thick, polyolephin surfaced, fiberglass reinforced SBS modified underlayment.

2.4 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads.
   1. Exposed Fasteners: Heads matching color of sheet metal by means of plastic caps or factory-applied coating.
   2. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws, gasketed, with hex washer head.
   3. Blind Fasteners: High-strength aluminum or stainless-steel rivets.

C. Solder for Lead: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead.

D. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant, polyisobutylene plasticized, heavy bodied for hooked-type expansion joints with limited movement.

E. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

2.5 MANUFACTURED SHEET METAL FLASHING AND TRIM

A. Reglets: Units of type, material, and profile indicated, formed to provide secure interlocking of separate reglet and counterflashing pieces, and approved by roofing material manufacturer.
   1. Masonry Type: Provide with offset top flange for embedment in masonry mortar joint.

2.6 FABRICATION, GENERAL

A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated. Shop fabricate items where practicable. Obtain field measurements for accurate fit before shop fabrication.

B. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.

C. Fabricate sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
   1. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.

D. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA recommendations.

E. Expansion Provisions: Where lapped or bayonet-type expansion provisions in the Work cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with elastomeric sealant concealed within joints.

F. Conceal fasteners and expansion provisions where possible on exposed-to-view sheet metal flashing and trim, unless otherwise indicated.

G. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
   1. Thickness: As recommended by SMACNA's "Architectural Sheet Metal Manual" for application but not less than thickness of metal being secured.

2.7 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

A. Roof Edge Flashing, Gravel Stop, and Fascia Caps: Fabricate in minimum 96-inch long, but not exceeding 10-foot long, sections. Furnish with 6-inch wide joint cover plates.
   1. Joint Style: Lap, 4 inches (100 mm) wide.
      a. Prepainted, Metallic-Coated Steel: 0.0276 inch (0.7 mm) thick.

B. Copings: Fabricate in minimum 96-inch long, but not exceeding 10-foot long, sections. Fabricate joint plates of same thickness as copings. Furnish with continuous cleats to support edge of external leg and drill elongated holes for fasteners on interior leg. Miter corners, seal, and solder or weld watertight.
   1. Joint Style: Butt, with 12-inch- (300-mm-) wide concealed backup plate and 6-inch- (150-mm-) wide exposed cover plates.
   2. Fabricate copings from the following material:
      a. Prepainted, Metallic-Coated Steel: 0.0276 inch (0.70 mm) thick.

C. Roof to Wall Transition, Roof to Sheet Metal, Roof Edging Transition, Expansion-Joint Cover: Fabricate from the following material:
   1. Prepainted, Metallic-Coated Steel: 0.0276 inch (0.70 mm) thick.

D. Counterflashing: Fabricate from the following material:
   1. Prepainted, Metallic-Coated Steel: 0.0276 inch (0.70 mm) thick.

E. Flashing Receivers: Fabricate from the following material:
   1. Prepainted, Metallic-Coated Steel: 0.0276 inch (0.70 mm) thick.

F. Roof-Penetration Flashing: Fabricate from the following material:

1. Galvanized Steel: 0.0276 inch (0.70 mm) thick.

G. Roof-Drain Flashing: Fabricate from the following material:
1. Lead: 4.0-lb/sq. ft. (1.6 mm thick), hard tempered.

2.8 MISCELLANEOUS SHEET METAL FABRICATIONS

A. Equipment Support Flashing: Fabricate from the following material:
1. Prepainted, Metallic-Coated Steel: 0.0276 inch (0.70 mm) thick.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of work.
1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
1. Torch cutting of sheet metal flashing and trim is not permitted.

B. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.

C. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and butyl sealant.

D. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
1. Space cleats not more than 12 inches (300 mm) apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.

E. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints.

F. Fasteners: Use fasteners of sizes that will penetrate substrate not less than 1-1/4 inches (32 mm) for nails and not less than 3/4 inch (19 mm) for wood screws.
1. Galvanized or Prepainted, Metallic-Coated Steel: Use stainless-steel fasteners.

2. Aluminum: Use aluminum or stainless-steel fasteners.
3. Copper Use copper or stainless-steel fasteners.
4. Stainless Steel: Use stainless-steel fasteners.

G. Seal joints with butyl sealant as required for watertight construction.
1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch (25 mm) into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between 40 and 70 deg F (4 and 21 deg C), set joint members for 50 percent movement either way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F (4 deg C).
2. Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants."

H. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pretin edges of sheets to be soldered to a width of 1-1/2 inches (38 mm) except where pretinned surface would show in finished Work.
1. Do not solder prepainted and metallic-coated steel sheet.
2. Where surfaces to be soldered are lead coated, do not tin edges, but wire brush lead coating before soldering.
3. Lead-Coated Copper Soldering: Wire brush edges of sheets before soldering.
4. Do not use open-flame torches for soldering. Heat surfaces to receive solder and flow solder into joints. Fill joints completely. Completely remove flux and spatter from exposed surfaces.

3.3 ROOF DRAINAGE SYSTEM INSTALLATION

A. General: Install sheet metal roof drainage items to produce complete roof drainage system according to SMACNA recommendations and as indicated. Coordinate installation of roof perimeter flashing with installation of roof drainage system.

3.4 ROOF FLASHING INSTALLATION

A. General: Install sheet metal roof flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight.

B. Copings: Anchor to resist uplift and outward forces according to recommendations in FMG Loss Prevention Data Sheet 1-49 for specified wind zone and as indicated.
1. Interlock exterior bottom edge of coping with continuous cleats anchored to substrate at 8-inch centers.
2. Anchor interior leg of coping with screw fasteners and washers at 18-inch (450-mm) centers.

C. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for butyl sealant, extending a minimum of 4 inches (100 mm) over base flashing. Install stainless-steel draw band and tighten.

D. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing 4 inches (100 mm) over base flashing. Lap counterflashing joints a minimum of 4 inches (100 mm) and bed with butyl sealant.
   1. Secure in a waterproof manner by means of snap-in installation and sealant or lead wedges and sealant.

E. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Install flashing as follows:
   1. Turn lead flashing down inside vent piping, being careful not to block vent piping with flashing.
   2. Seal with butyl sealant and clamp flashing to pipes penetrating roof except for lead flashing on vent piping.

3.5 WALL FLASHING INSTALLATION

A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to SMACNA recommendations and as indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.

B. Reglets: Installation of reglets into masonry joints as specified and approved by roofing material manufacturer.

3.6 MISCELLANEOUS FLASHING INSTALLATION

A. Equipment Support Flashing: Coordinate installation of equipment support flashing with installation of roofing and equipment. Weld or seal flashing with butyl sealant to equipment support member.

3.7 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder and sealants.

C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed. On completion of installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain in a clean condition during construction.

D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

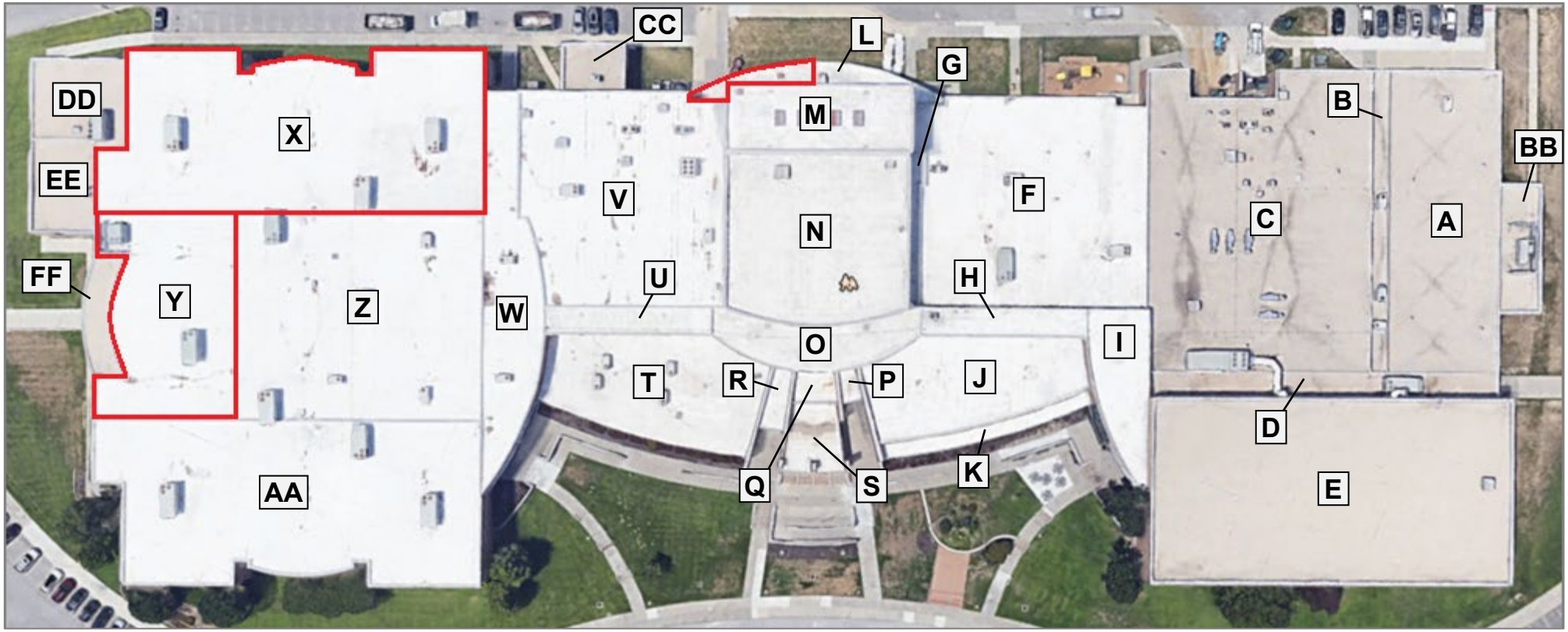
END OF SECTION 07620

ROOF PLANS, DETAILS & Infrared Report

Park Hill South High School

4500 NW River Park Drive, Riverside, MO 64150

Park Hill School District



Overlay

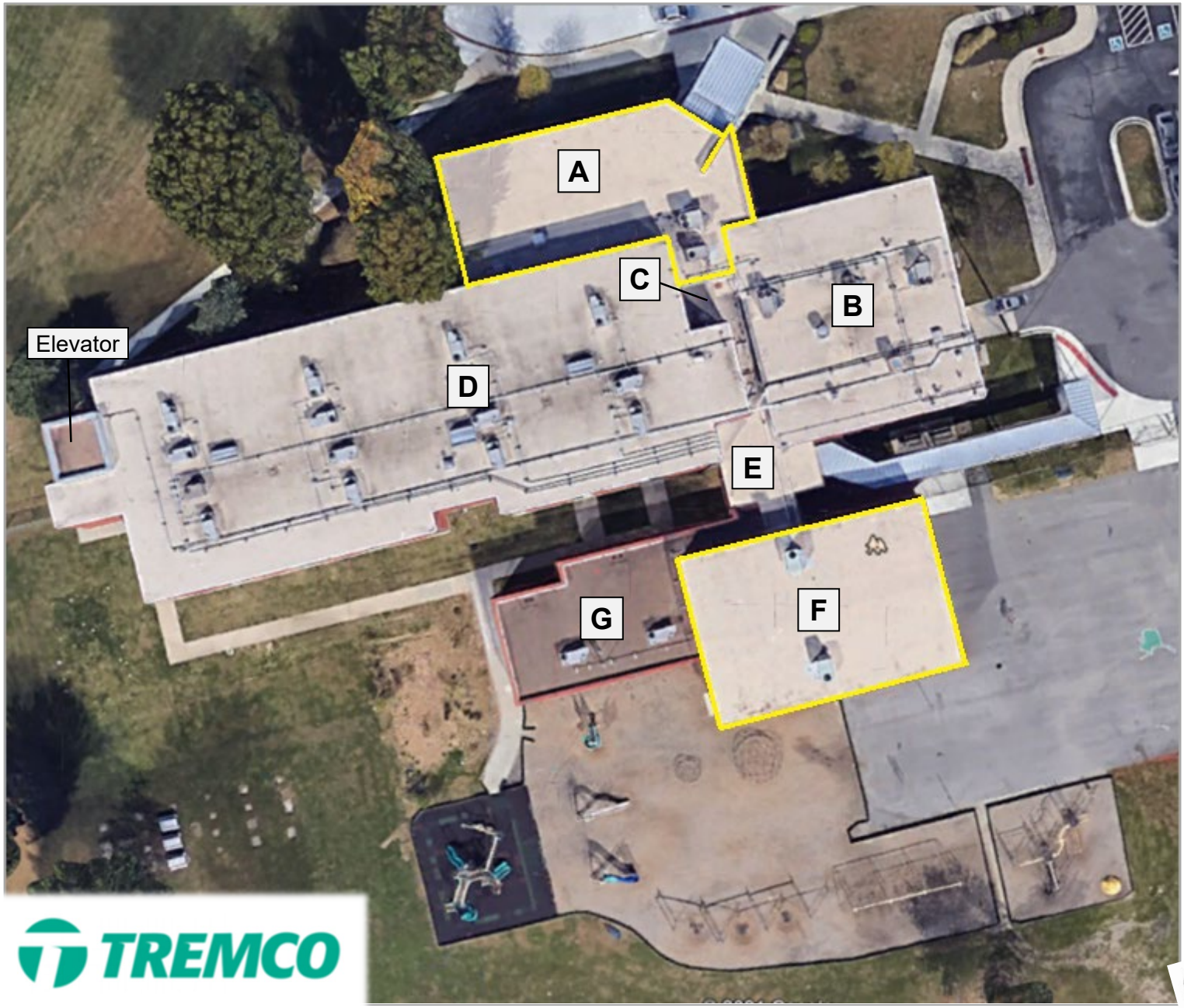
TREMCO

3/4/21

Renner Elementary

7401 NW Barry Street, Kansas City, MO 64152

Park Hill School District



Restoration

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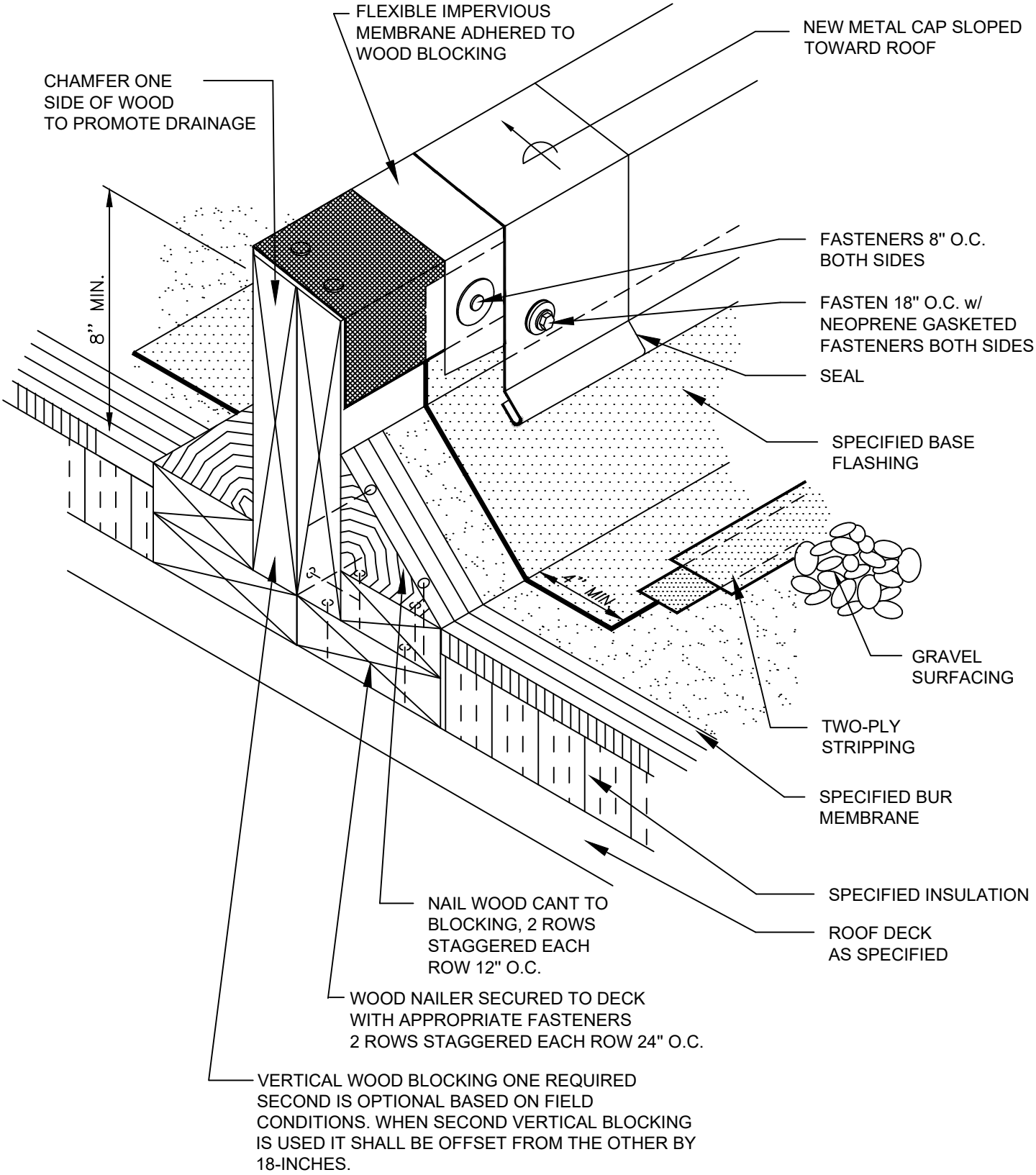

BUILT-UP ROOFING
HOT/COLD BASE FLASHING AREA DIVIDER

DWG NO. 01 N.T.S.

TREMCO
ROOFING & BUILDING MAINTENANCE

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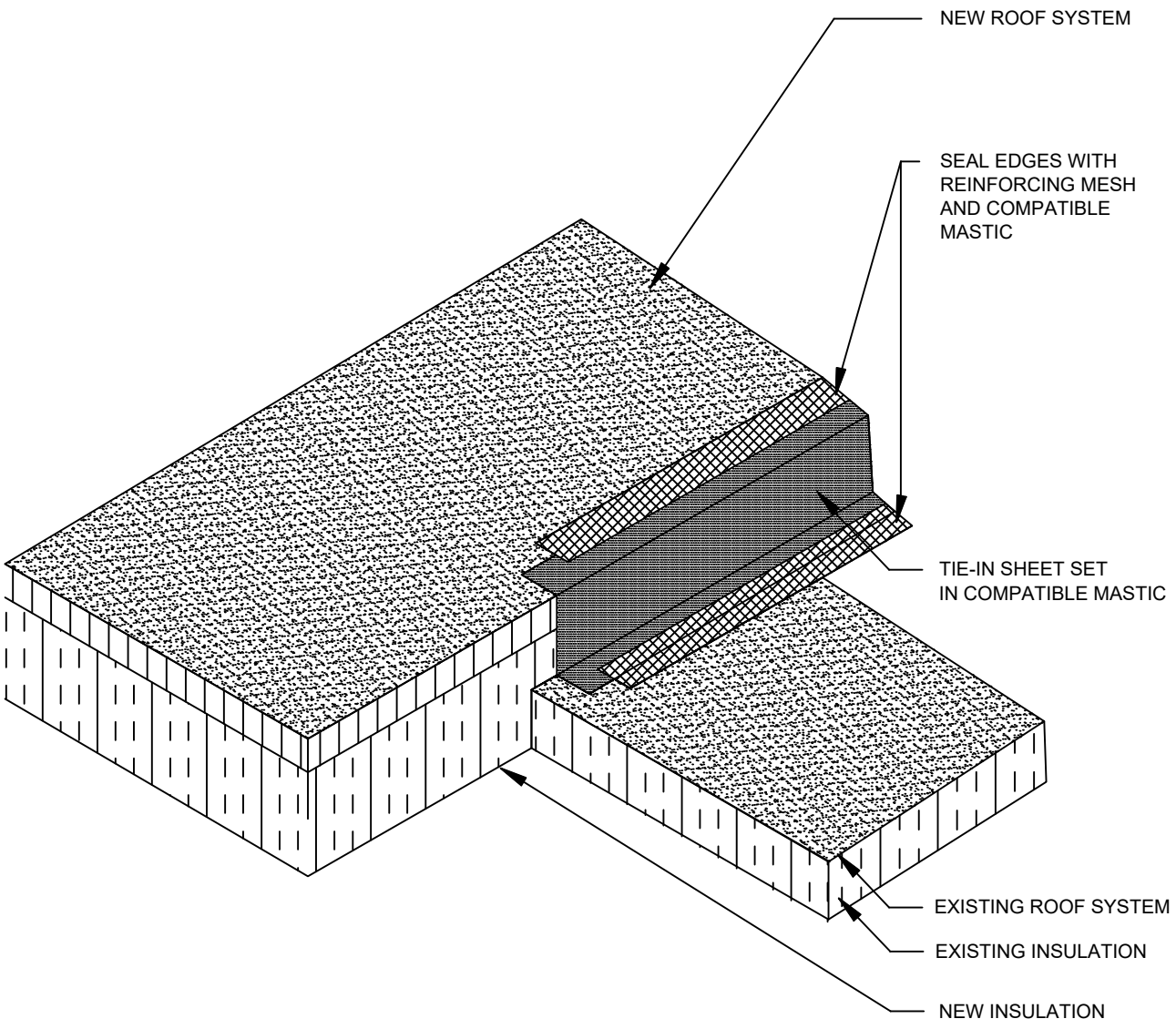

NOTES

1. BEFORE NEXT DAY'S WORK, REMOVE TEMPORARY TIE-IN AND INSULATION FILLERS
2. EXTEND TIE-IN SHEET MINIMUM OF 6-INCHES ONTO BOTH SURFACES

ASPHALTIC ROOFING SYSTEMS
DAILY WATERSTOP / TIE-IN
DWG NO. 30A N.T.S.

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Roofing & Building Maintenance

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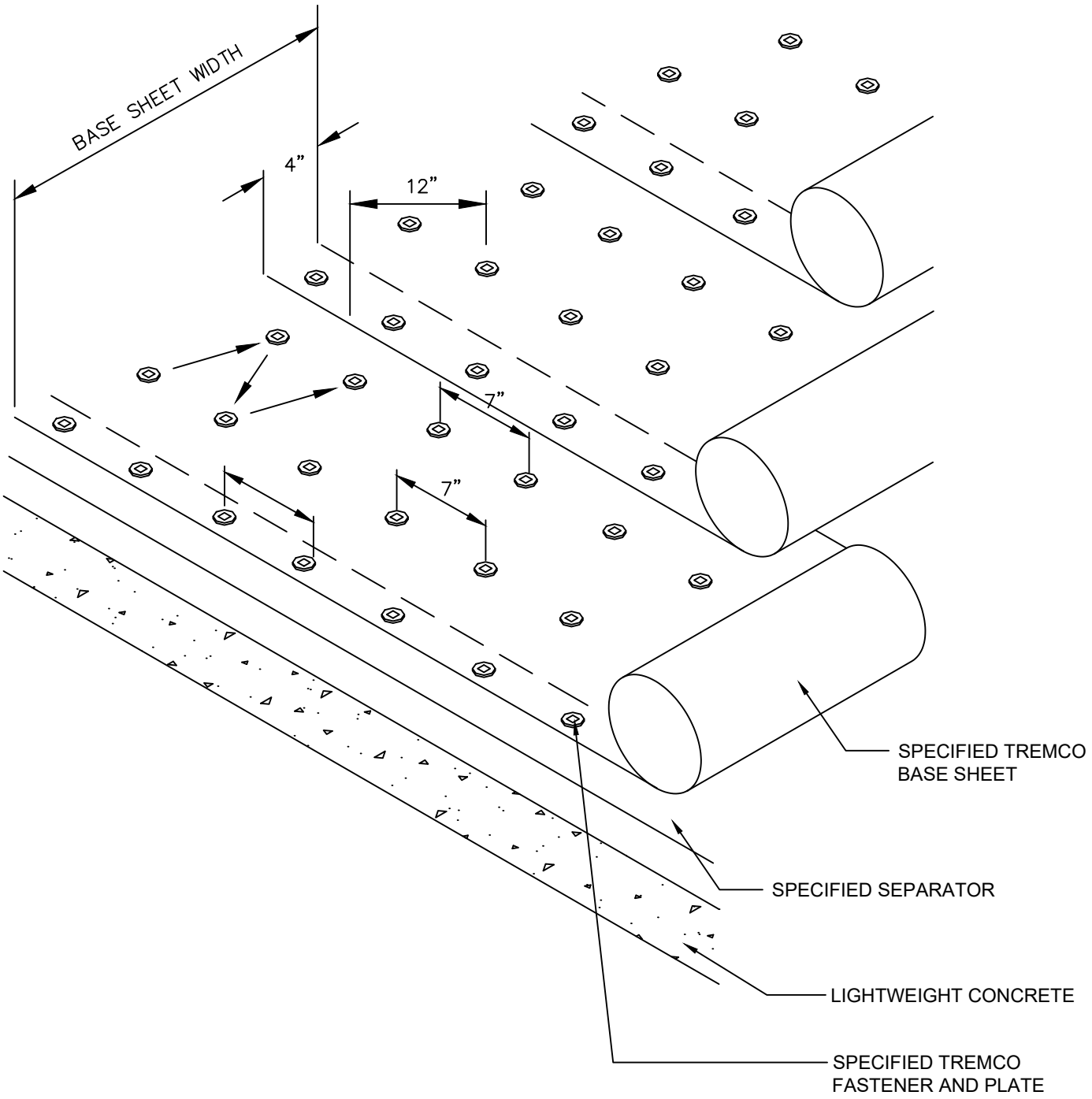

NOTES

1. ATTACH BASE SHEET TO THE ROOF DECKING WITH APPROVED FASTENERS AND DISCS.
2. SPACE FASTENERS 7 INCHES ON CENTER ALONG SIDELAP AND 7 INCHES ON CENTER IN TWO ROWS EQUALLY STAGGERED DOWN THE LONGITUDINAL CENTER OF THE SHEET (12 INCHES FROM EACH EDGE).
3. INCREASE PERIMETER EDGE FASTENING BY 70% AND CORNER FASTENING BY 160% PER FM GLOBAL LOSS PREVENTION DATA SHEETS 1-28 AND 1-29.
4. DETERMINE FASTENER DENSITY ON A UNIT AREA PER FASTENER BASIS. ADD ADDITIONAL ROWS AND INCREASE FASTENERS PER ROW. DO NOT SPACE FASTENERS CLOSER THAN 4 INCHES ON CENTER.

BUILT-UP ROOFING
HOT/COLD BASE SHEET FASTENER
PLACEMENT FOR LIGHTWEIGHT CONCRETE

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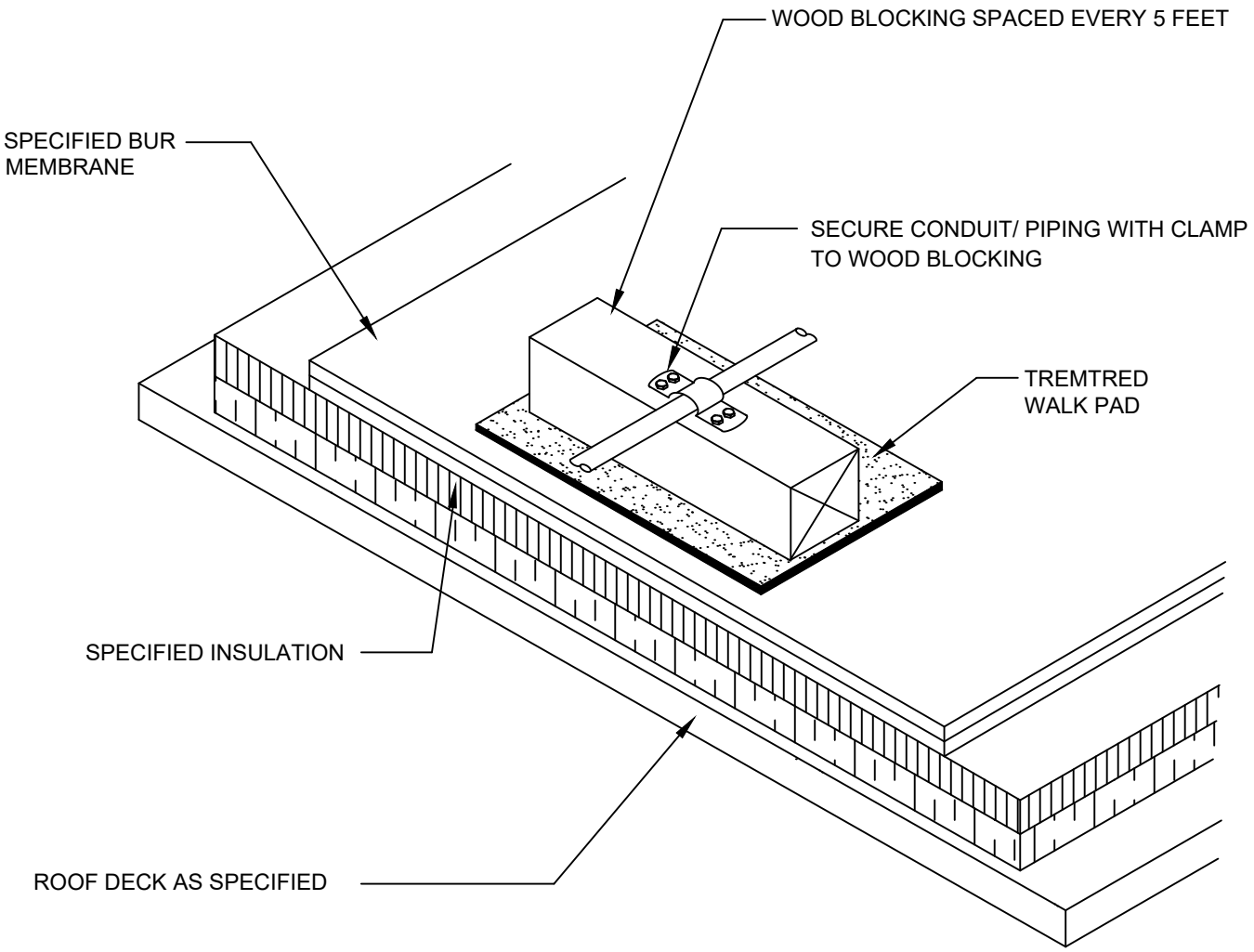

BUILT UP ROOFING
HOT/COLD CONDUIT OR PIPING SUPPORT

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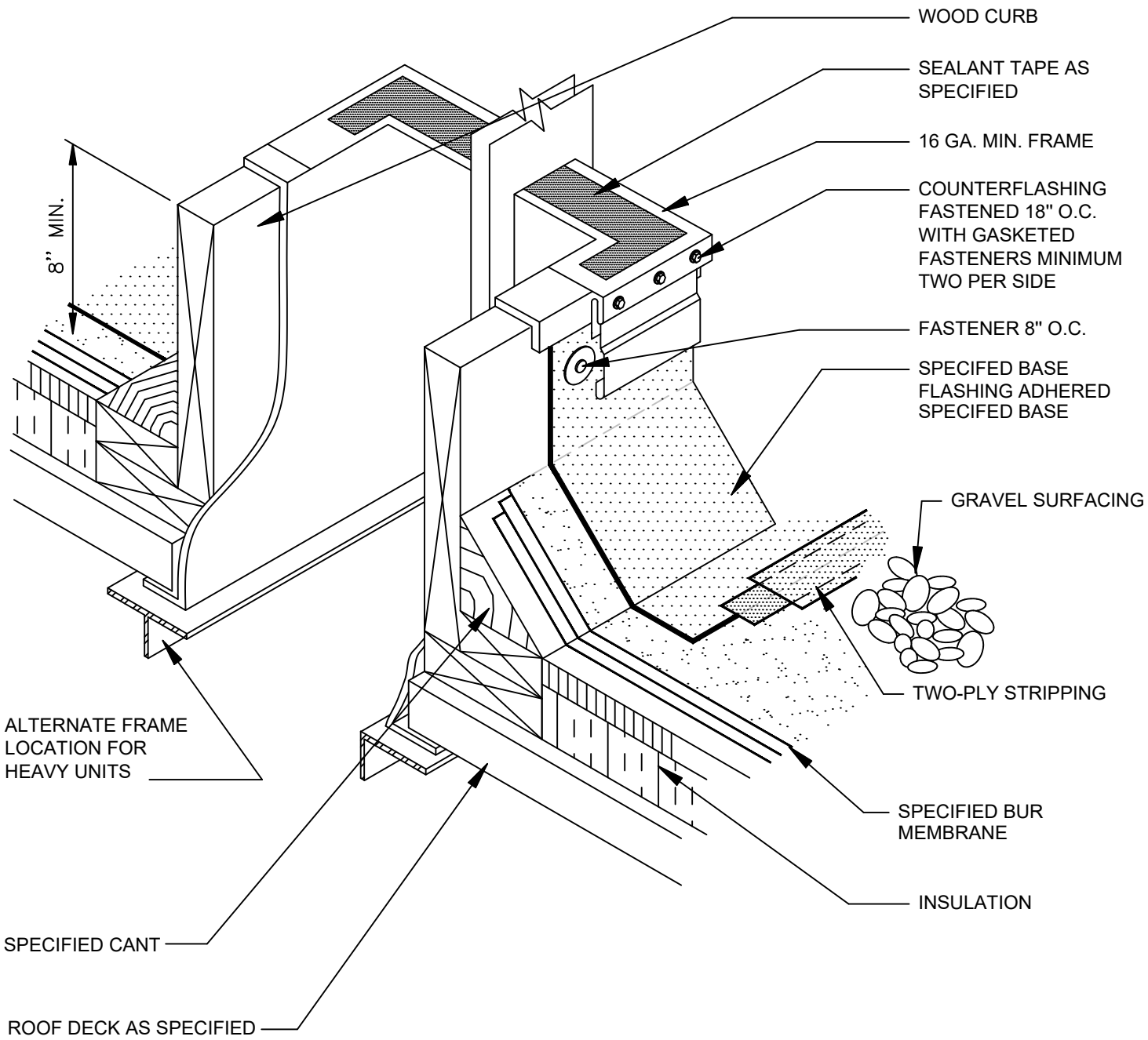

BUILT-UP ROOFING
HOT/COLD BASE FLASHING
CURB FOR AIR HANDLING UNIT

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MULTI-PLY STRIP-IN. TOP PLY SHALL BE GRANULE SUFACE MB COATED WITH FIBRATED ALUM. COATING

24 GA PREFIN. GALV. FLASHING. PRIME METAL FLANGE AND SET IN BED OF MASTIC. FASTEN 3" O.C. STAGGERED. PRIME FLANGE AND STRIP-IN. KICK AND HEM EDGE

12"

20 GA SHT STL GRAVEL GUARD, PRIMED AND SET IN A BED OF MASTIC

FLOOD COAT AND GRAVEL SURFACING

4" FLANGE

3" STRIPPING

3" STRIPPING

1/4"

4"

1 1/2"

CONTINUOUS TREATED WOOD BLOCKING

EXTEND DRY SHEET

FINISHED ROOF

24 GA PREFIN., GALV. GUTTER. LAP JOINTS 1" IN DIRECTION OF FLOW. RIVET 2" O.C. AND SEAL JOINT

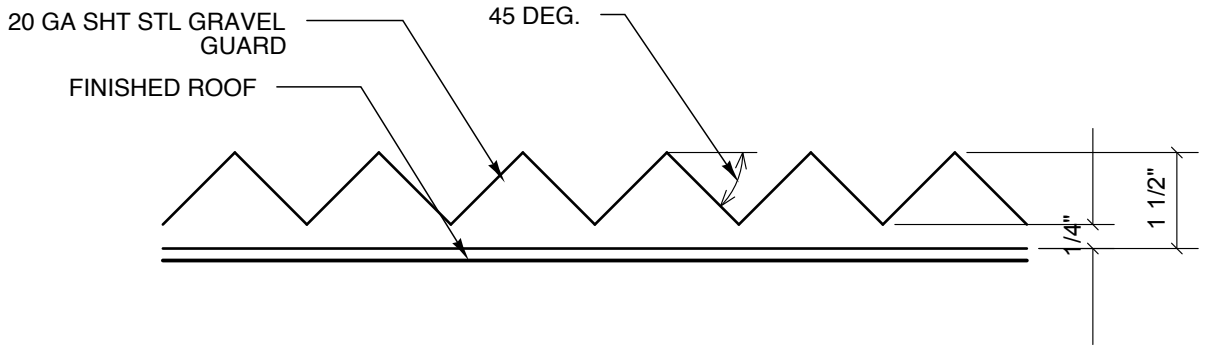
NOTES:

PROVIDE 1/8" X 1" SPACERS AND BRACKETS 36" O.C. PLACE SPACERS AND BRACKETS ALTERNATELY

SEE ROOF PLAN FOR DOWNSPOUT AND EXPANSION JOINT LOCATIONS

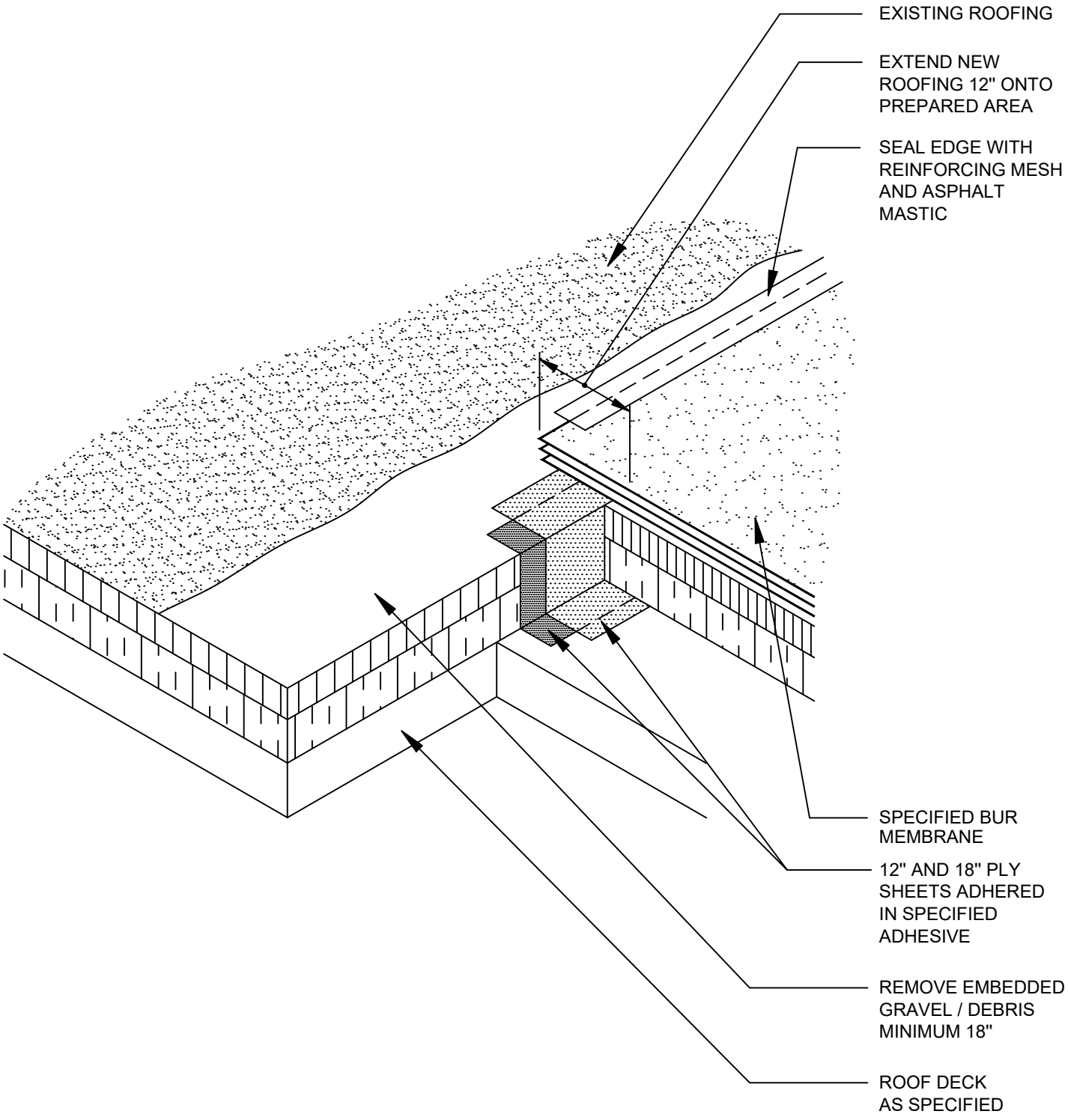
A Gutter Detail

Scale: 3" = 1'-0"



B Drain Gravel Guard Partial Elev.

Scale: 6" = 1'-0"



NOTES

1. BEFORE NEXT DAY'S WORK, REMOVE TEMPORARY TIE-IN AND INSULATION FILLERS

BUILT UP ROOFING
HOT/COLD DAILY WATERSTOP / TIE IN
DWG NO. 30 N.T.S.

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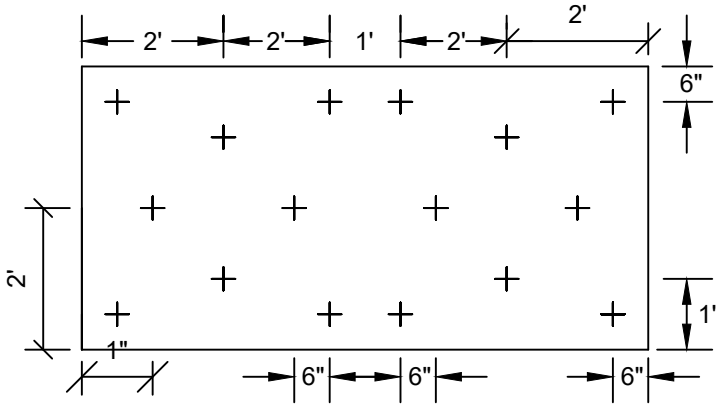
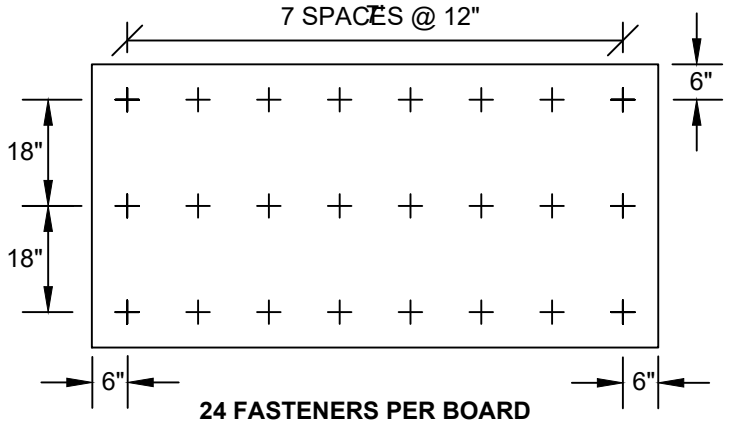
FIELD FASTENER PLACEMENT



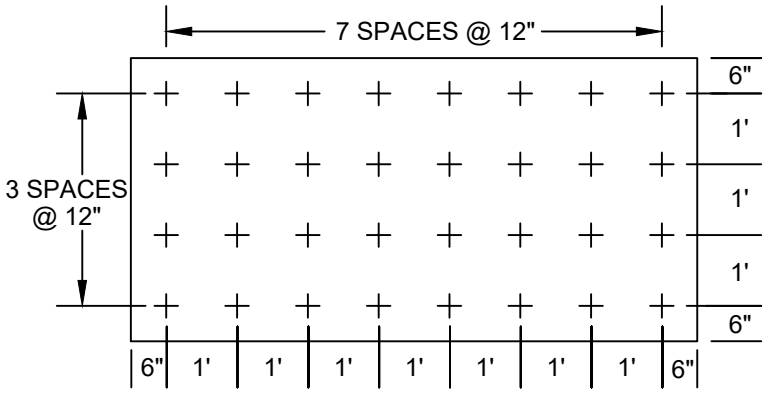
16 FASTENERS PER BOARD

PERIMETER FASTENER PLACEMENT



24 FASTENERS PER BOARD

CORNER FASTENER PLACEMENT



32 FASTENERS PER BOARD

THE FOLLOWING GUIDELINES APPLY FOR FASTENER DENSITIES NOT SHOWN:

1. ENSURE EDGE FASTENERS ARE 6 INCHES FROM THE BOARD EDGES, WITH TOLERANCE AS ABOVE.
2. ENSURE FASTENERS ARE EVENLY DISTRIBUTED OVER THE BOARD AREA.
3. ENSURE ALL FASTENERS ENGAGE THE TOP FLANGE OF STEEL DECKING.
4. REFER TO FM GLOBAL PROPERTY LOSS PREVENTION DATA SHEETS 1-29 FOR FASTENER PLACEMENT RECOMMENDATIONS.

BUILT-UP ROOFING
HOT/COLD INSULATION FASTENER
PLACEMENT FOR 4 FT. X 8 FT. BOARDS

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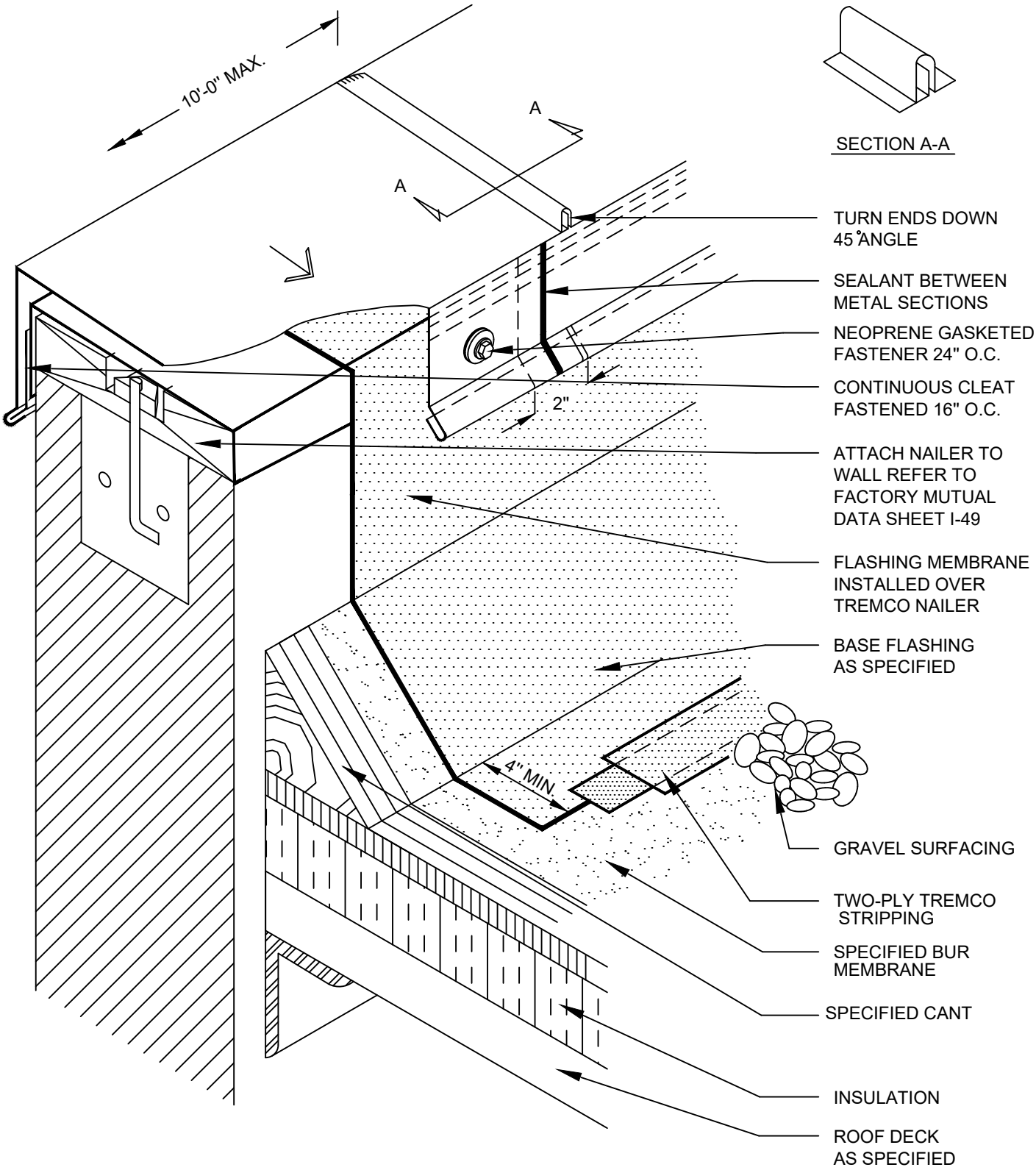

BUILT UP ROOFING
HOT/COLD LIGHT METAL PARAPET CAP

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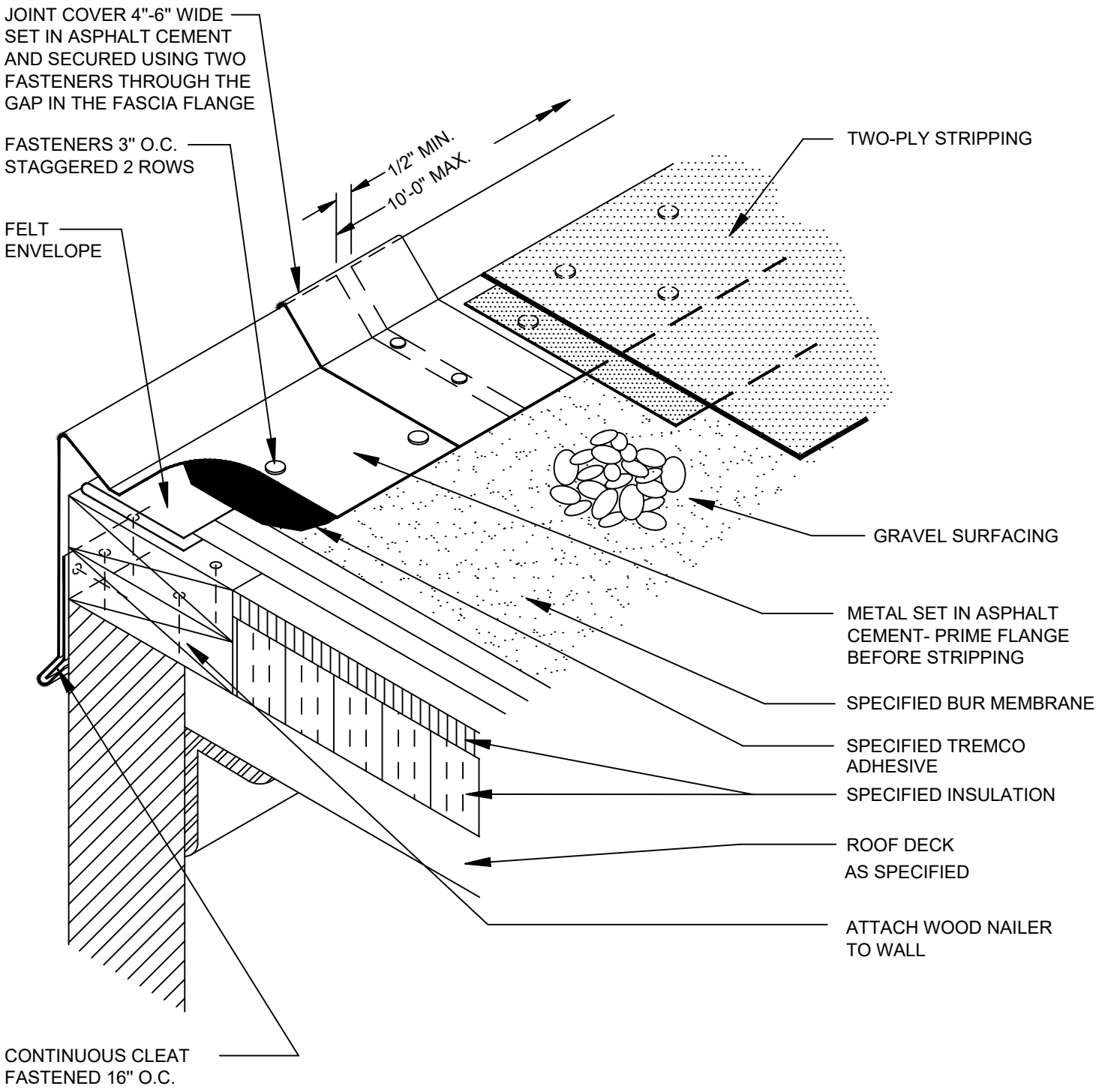

NOTES

1. ALL METAL SURFACES SHALL BE PRIMED BEFORE CONTACT WITH TREMCO PRIMERS

BUILT UP ROOFING
HOT/COLD LIGHT-METAL ROOF EDGE
DWG NO. 34 N.T.S.

TREMCO ROOFING & BUILDING MAINTENANCE

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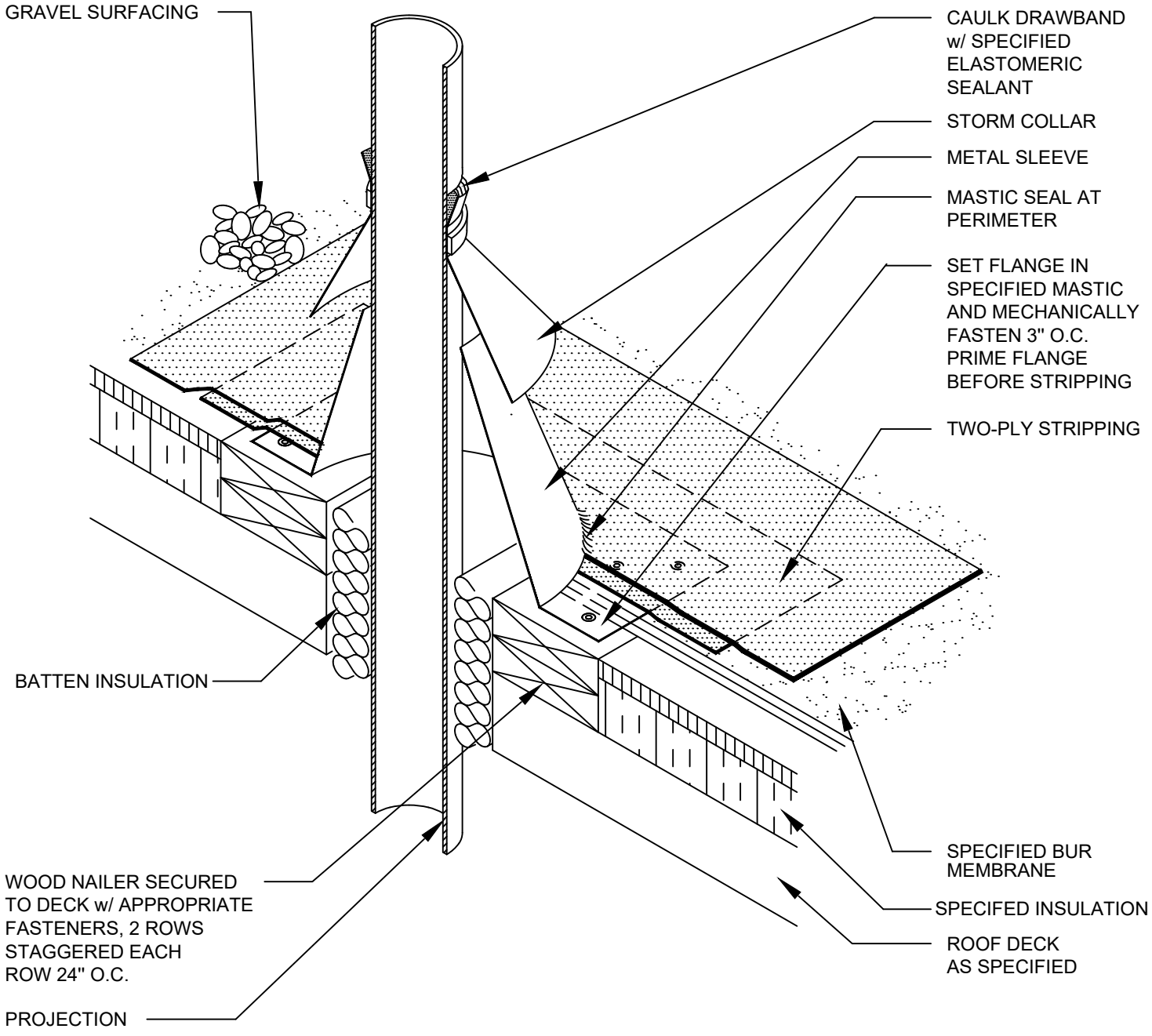

BUILT-UP ROOFING HOT/COLD
METAL SLEEVE AND STORM COLLAR

DWG NO. 06 N.T.S.

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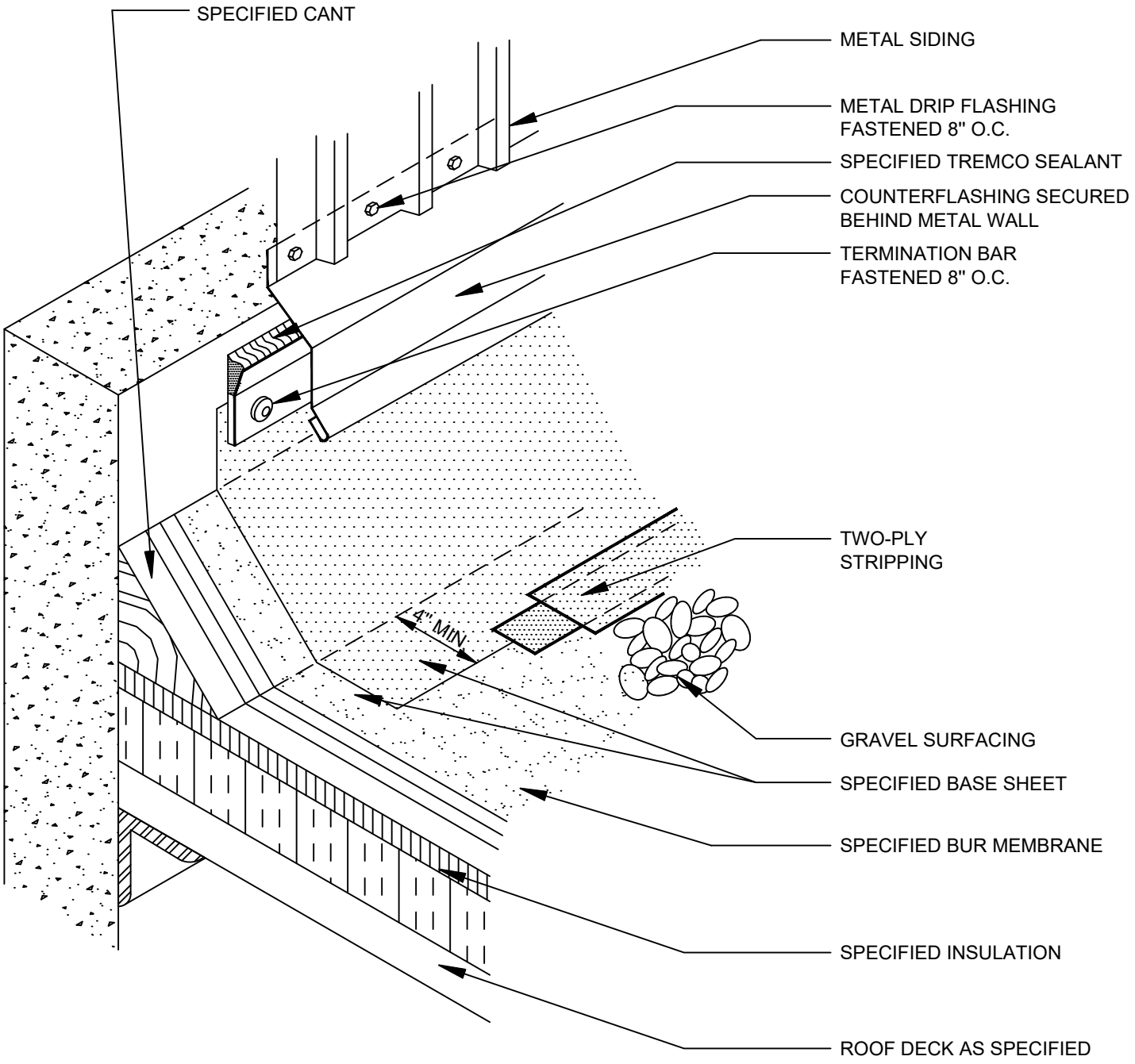

BUILT UP ROOFING
HOT/COLD METAL WALL FLASHING

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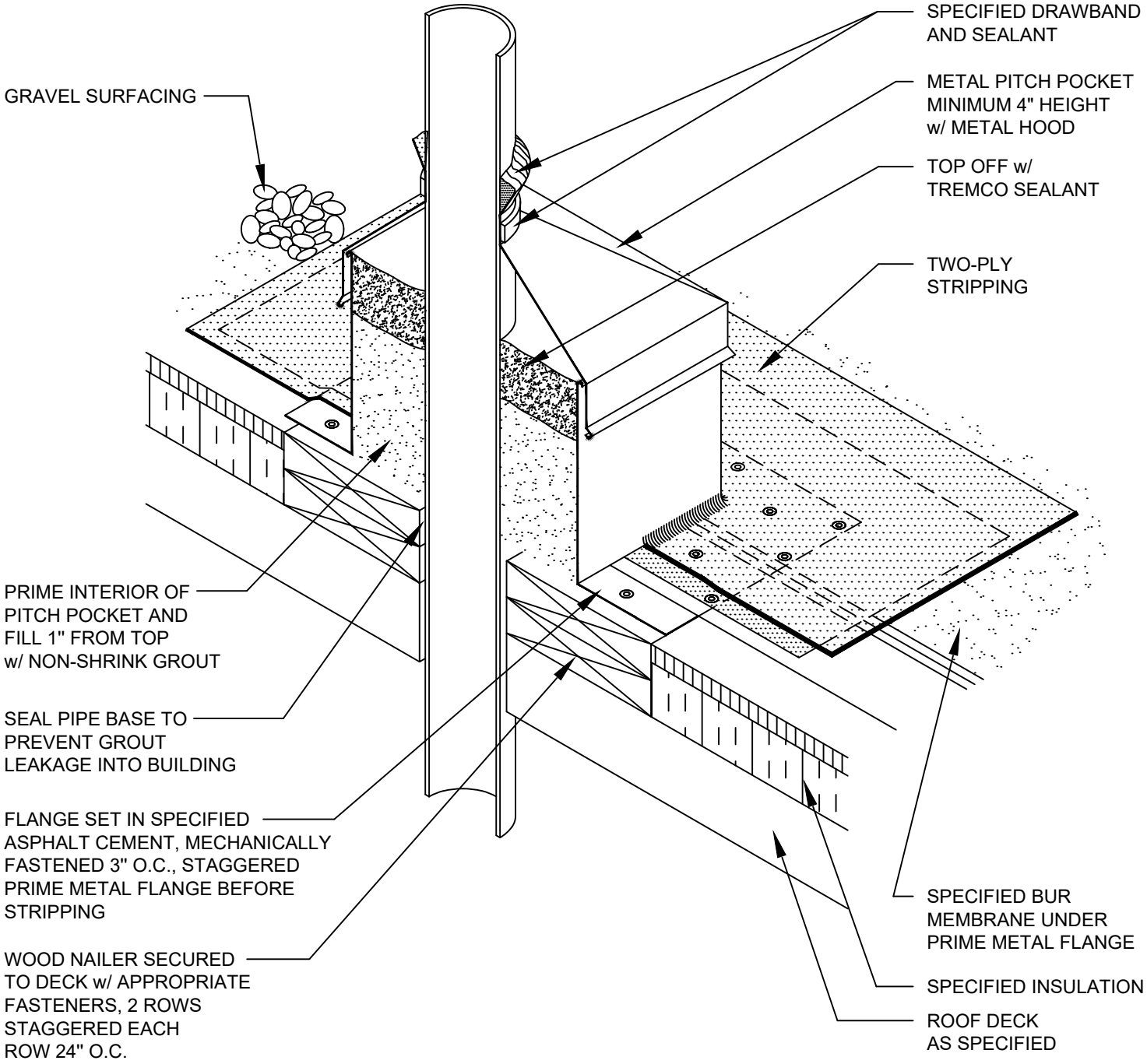

BUILT UP ROOFING
HOT/COLD PITCH POCKET WITH GROUT

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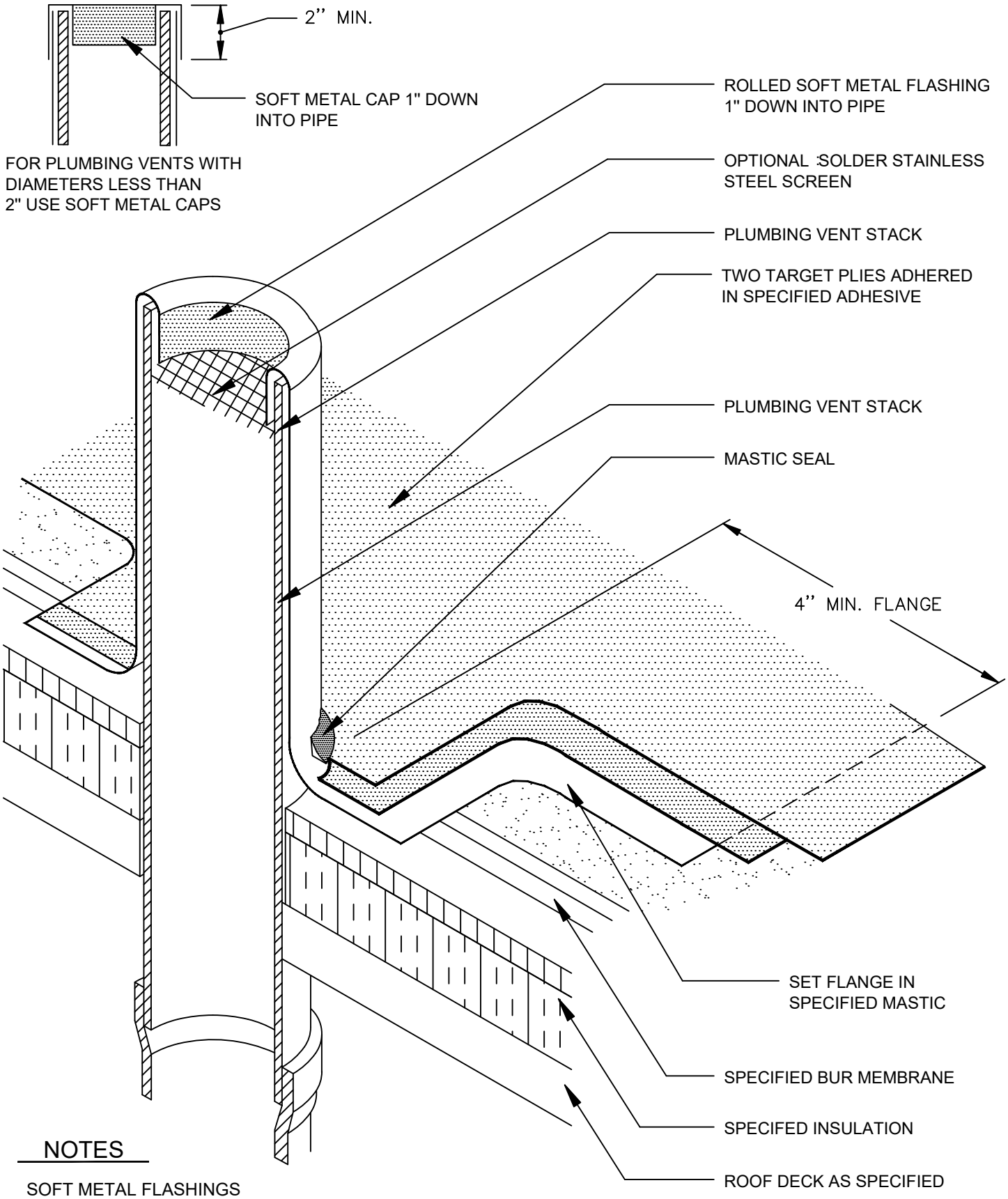

NOTES

SOFT METAL FLASHINGS

1. SHEET LEAD: MINIMUM 4 LB. ($20kg^2/m$) PER SQ.FT.
2. SHEET COPPER: MINIMUM 16 OZ. IF COPPER FLASHING IS INSTALLED OVER AN IRON OR STEEL PIPE, WRAP AN ASPHALT COATED ROOFING FELT TO PREVENT DIRECT CONTACT BETWEEN TWO DISSIMILAR METALS.

BUILT-UP ROOFING HOT/COLD
PLUMBING VENT FLASHING

DWG NO. 08 N.T.S.

TREMCO
ROOFING & BUILDING MAINTENANCE

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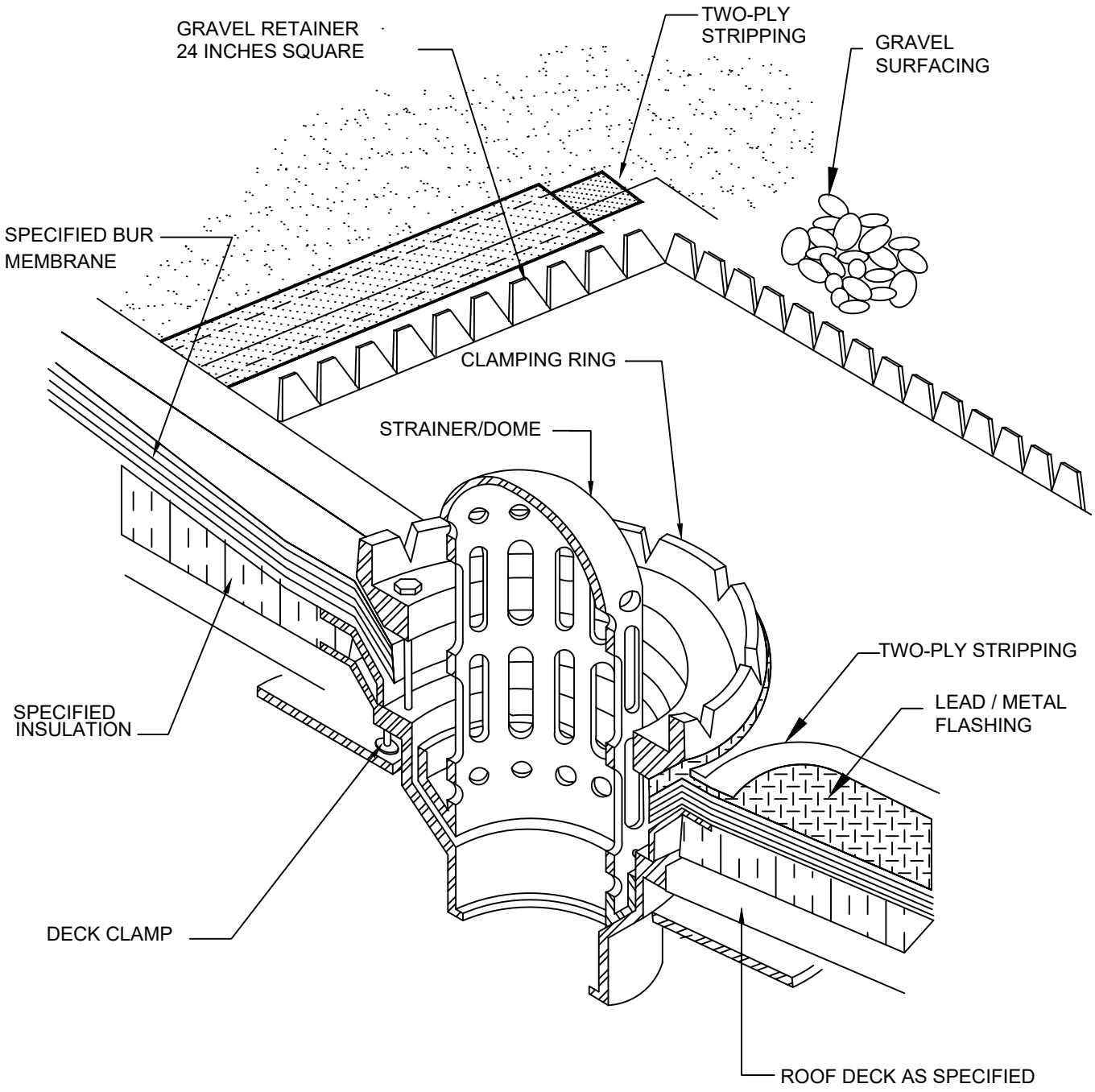

NOTES

1. PRIME ALL METAL SURFACES THAT WILL COME INTO CONTACT WITH ADHESIVES

BUILT UP ROOFING
HOT/COLD ROOF DRAIN WITH GRAVEL GUARD
DWG NO. 37 N.T.S.

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ROOFING & BUILDING MAINTENANCE

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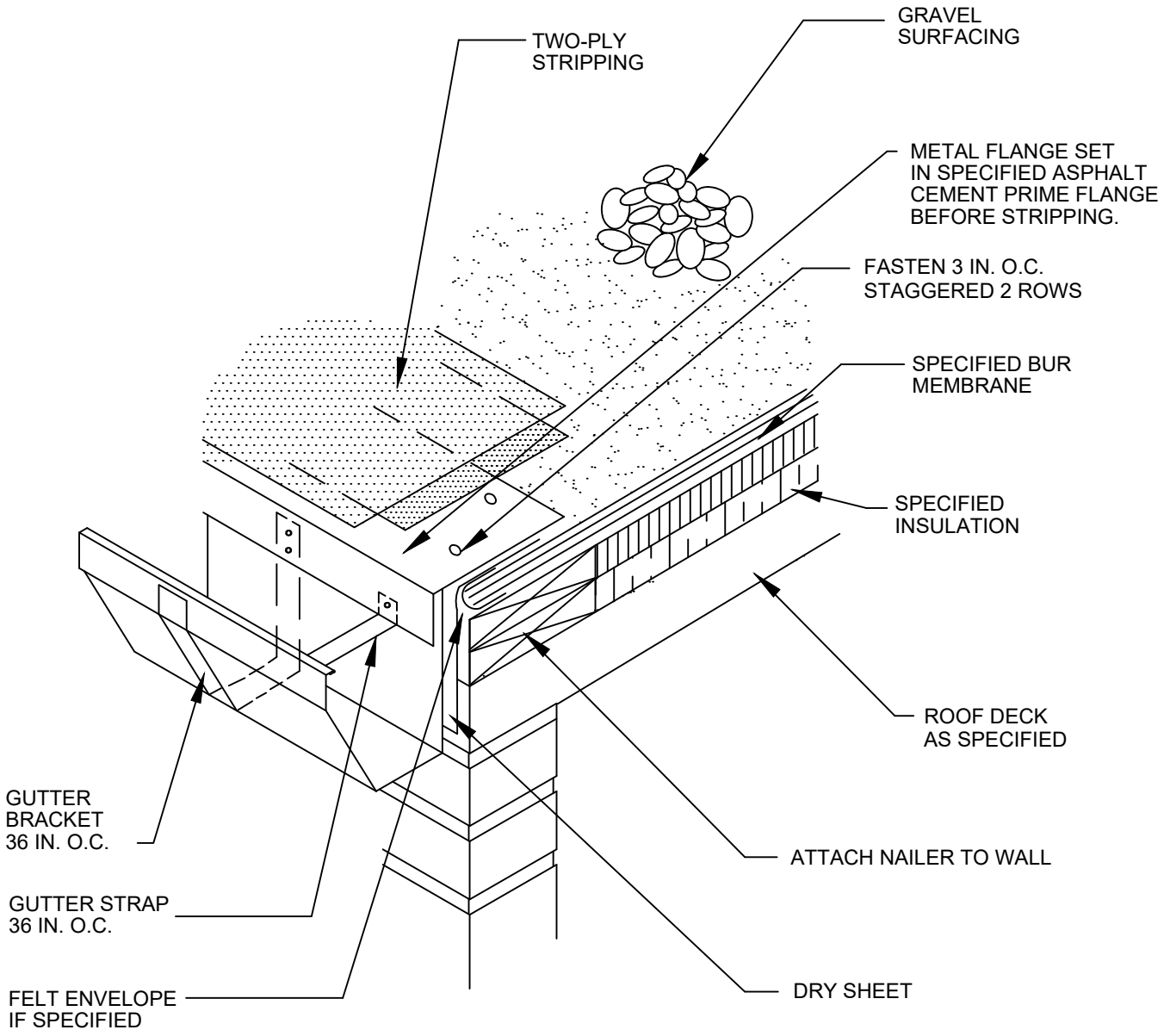

NOTES

1. SLOPE GUTTER TO DOWNSPOUTS
   1/4 IN./FT. MINIMUM

BUILT-UP ROOFING
HOT/COLD ROOF EDGE WITH GUTTER
DWG NO. 21 N.T.S.

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ROOFING & BUILDING MAINTENANCE

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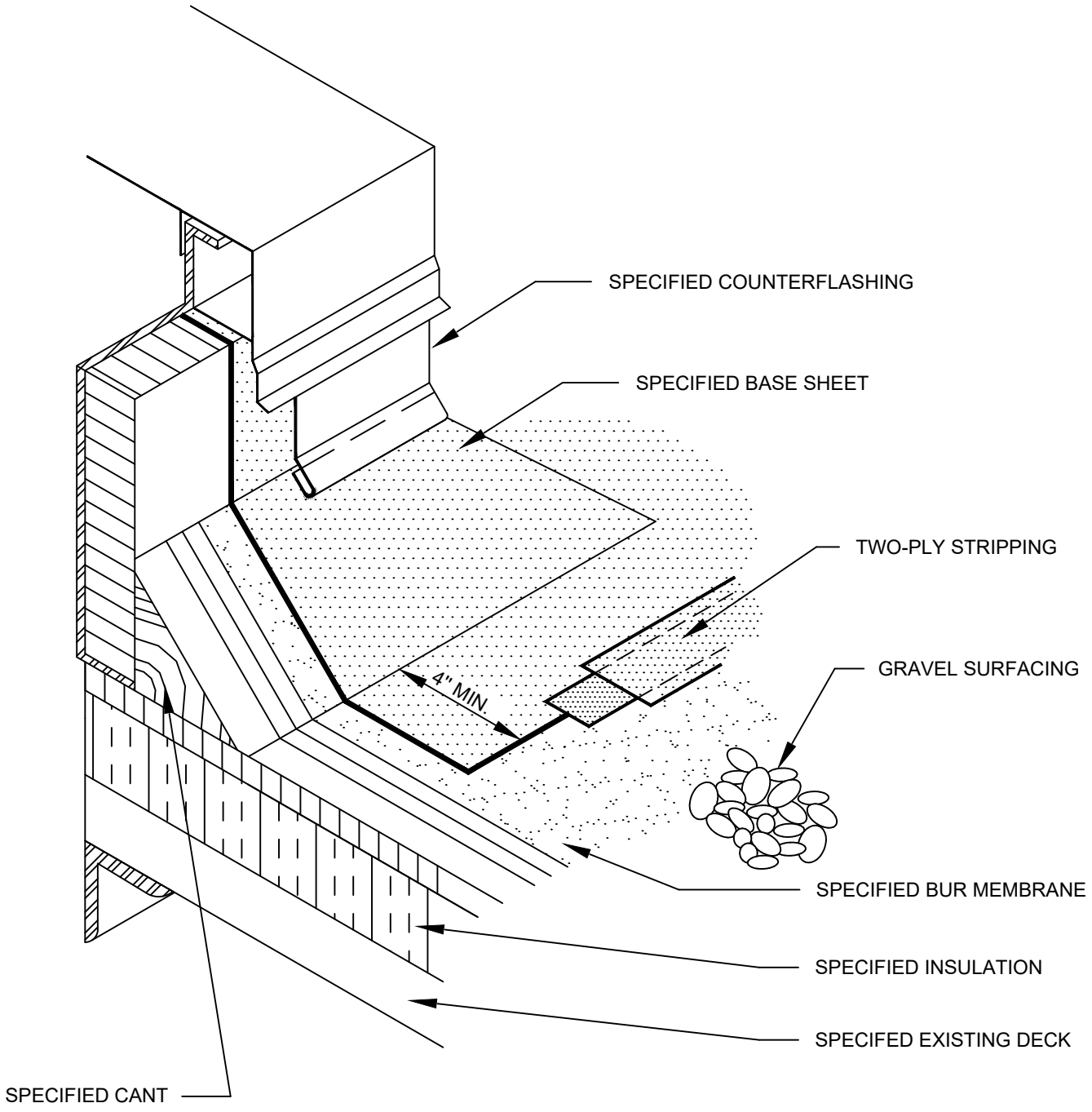

BUILT UP ROOFING
HOT/COLD ROOF HATCH

DWG NO. 25 N.T.S.

TREMCO
ROOFING & BUILDING MAINTENANCE

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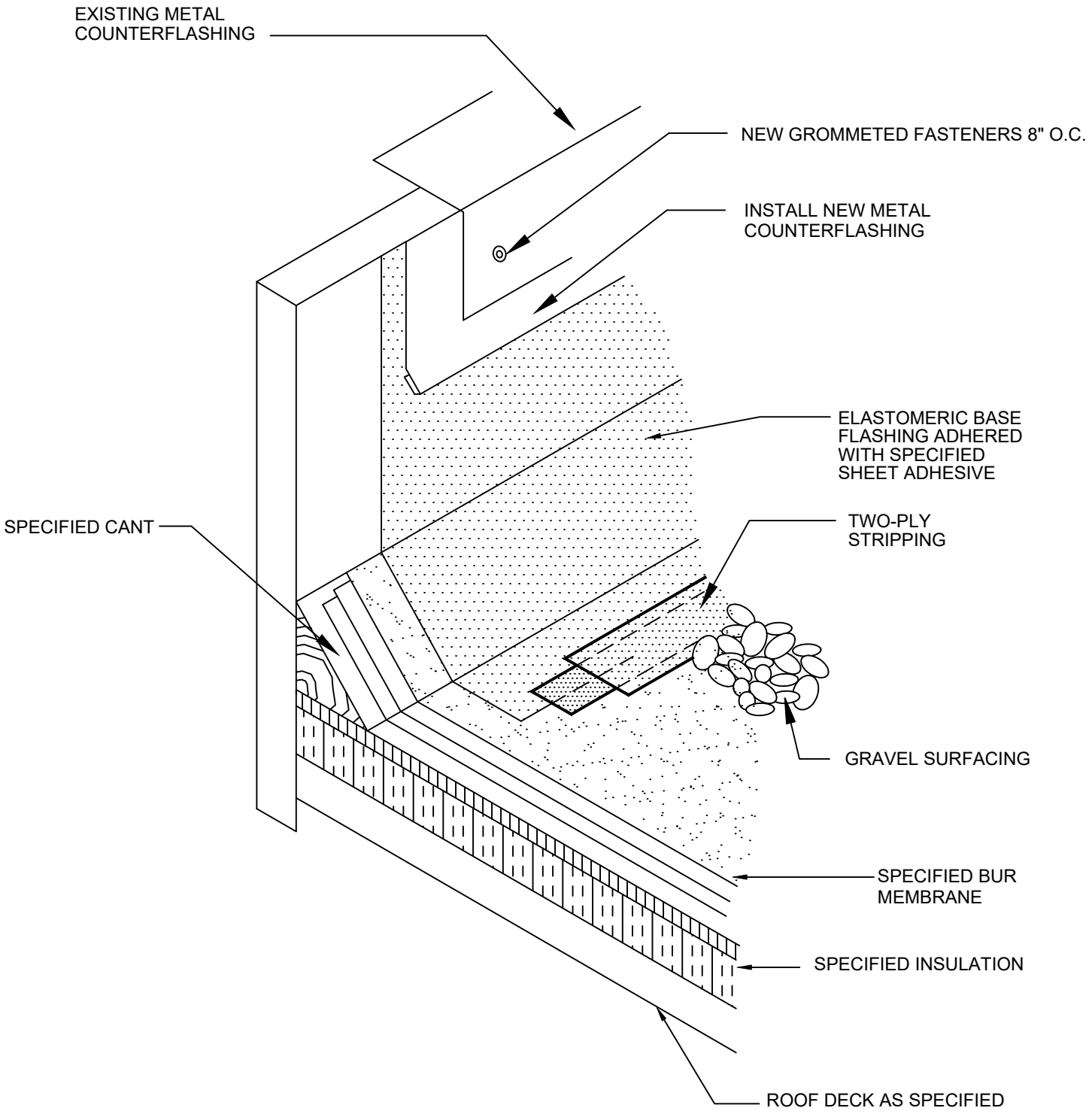

BUILT UP ROOFING
HOT/COLD SLIP METAL SKIRT FLASHING

DWG NO. 27 N.T.S.

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ROOFING & BUILDING MAINTENANCE

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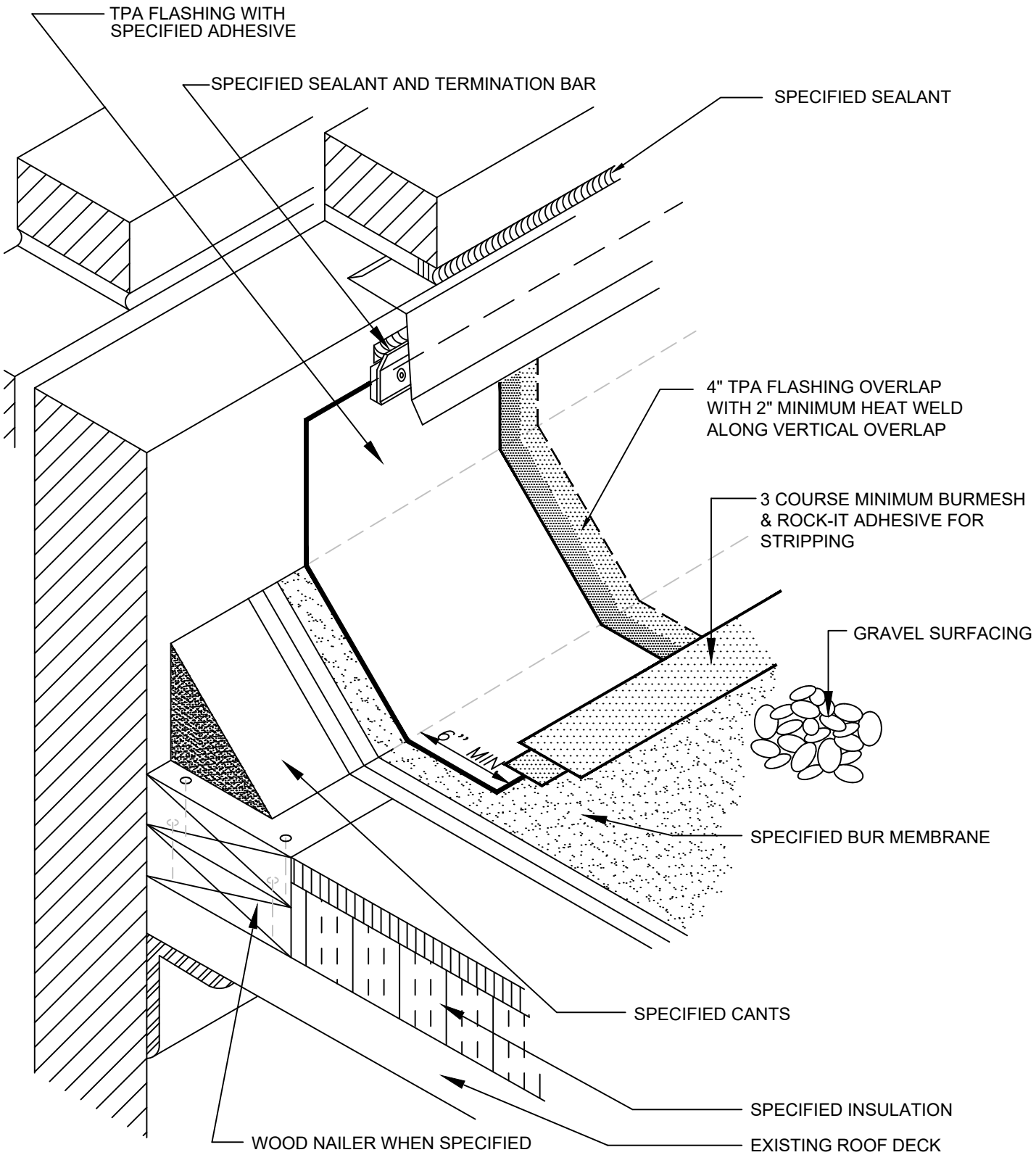

BUILT-UP ROOFING
HOT/COLD TPA WALL FLASHING
WALL-SUPPORTED DECK

DWG NO. 14 N.T.S.

TREMCO
ROOFING & BUILDING MAINTENANCE

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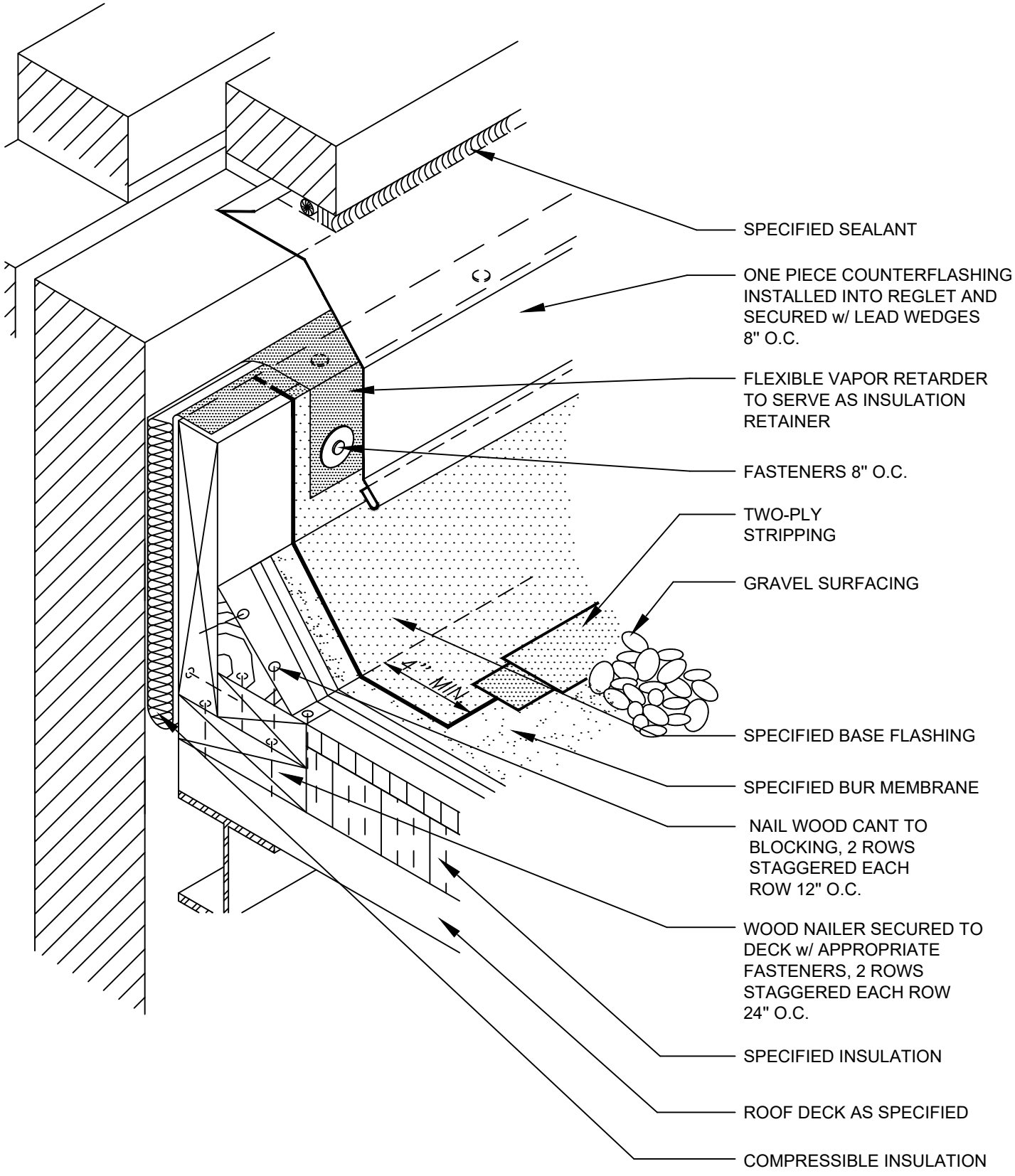

BUILT-UP ROOF
HOT/COLD WALL FLASHING FOR
NON-WALL-SUPPORTED DECK

DWG NO. 11 N.T.S.

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ROOFING & BUILDING MAINTENANCE

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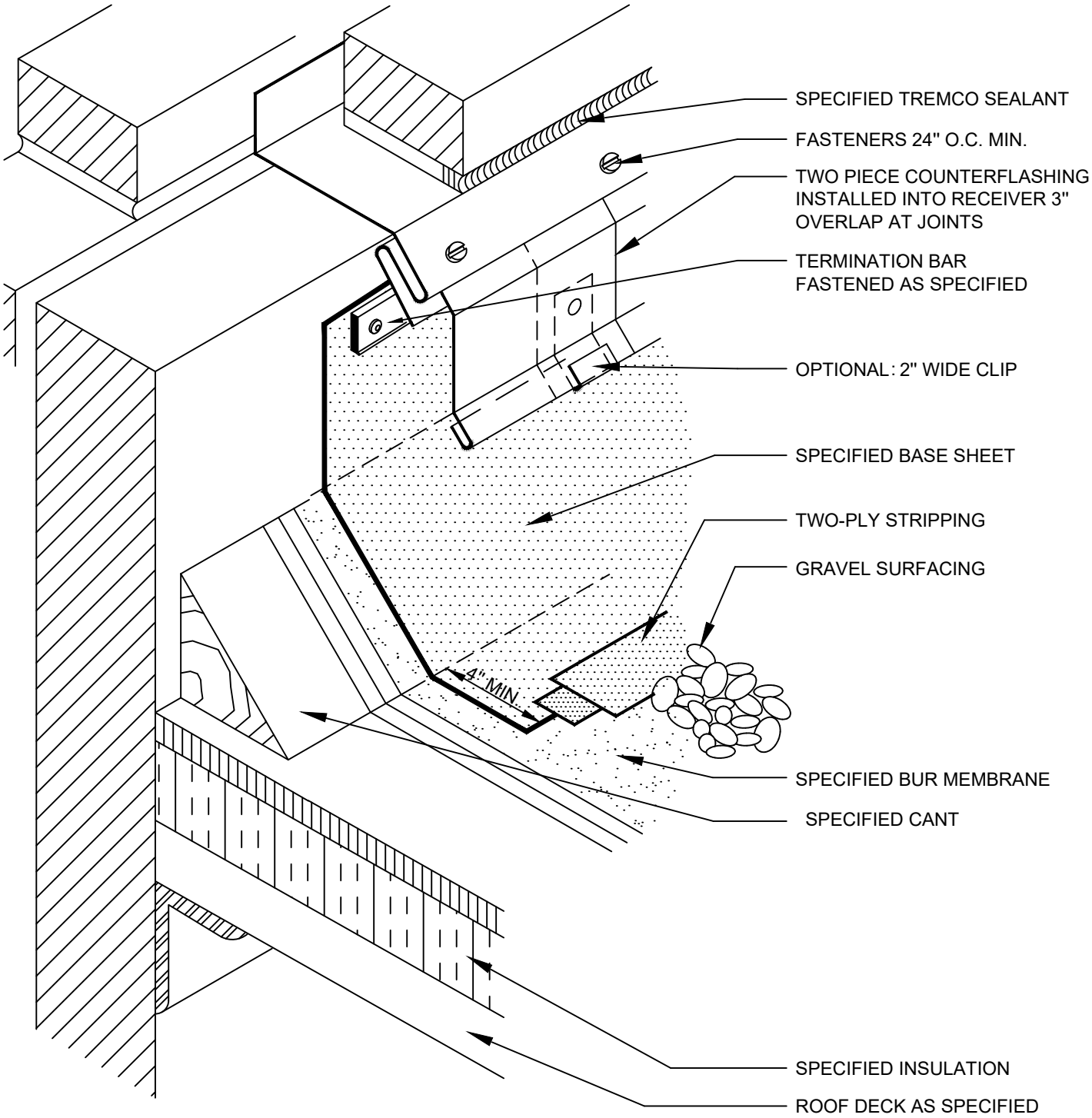

BUILT UP ROOFING HOT/COLD
WALL FLASHING WALL SUPPORTED DECK

DWG NO. 38 N.T.S.

TREMCO
ROOFING & BUILDING MAINTENANCE

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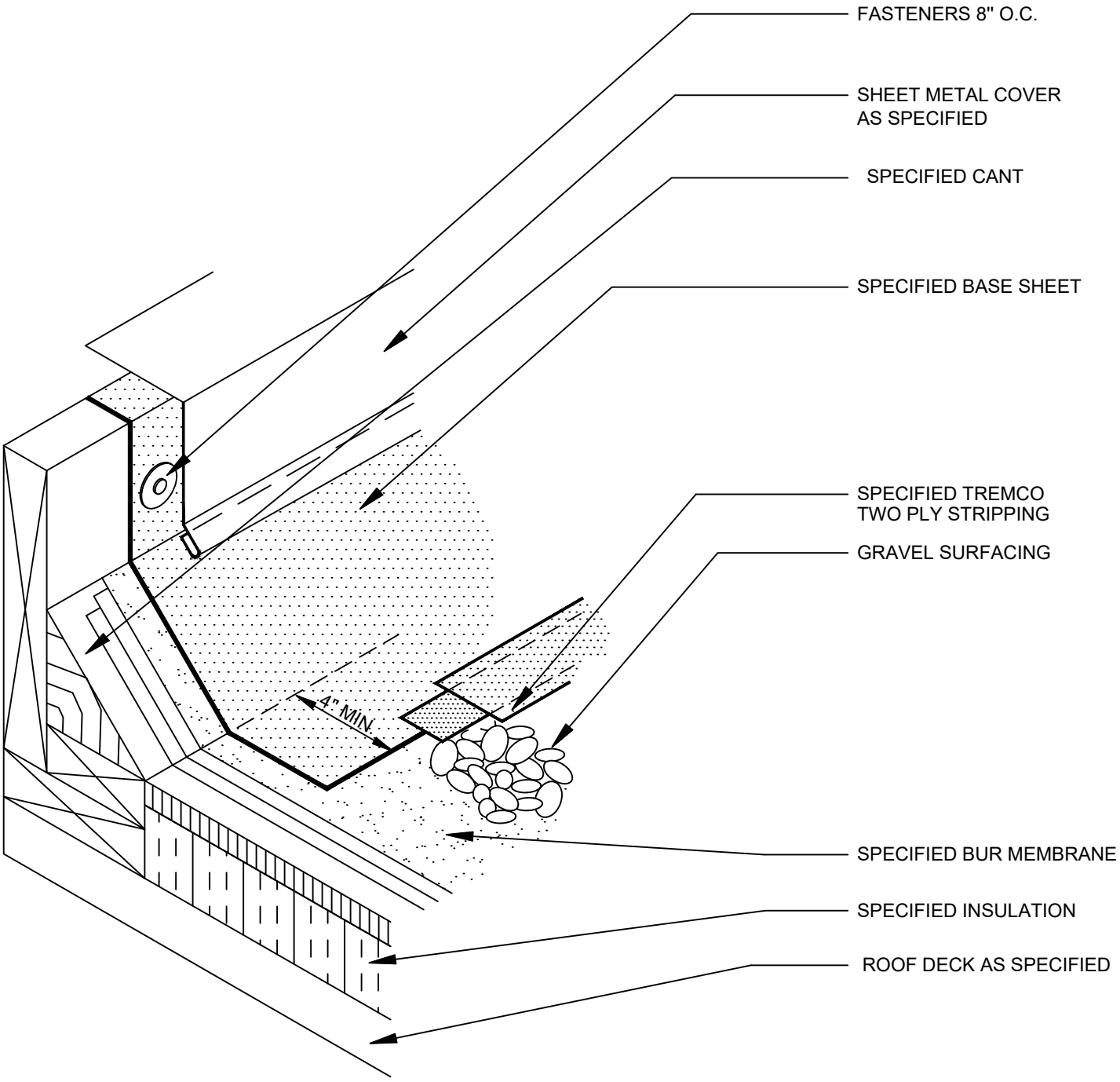

BUILT-UP ROOFING
HOT/COLD WOOD CURB

DWG NO. 17 N.T.S.

TREMCO
ROOFING & BUILDING MAINTENANCE

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ROOF DIAGNOSTIC SURVEY FOR PARK HILL SCHOOL DISTRICT :

LAKEVIEW M.S, PARK HILL SOUTH H.S, RENNER E.S, AND SOUTHEAST E.S.

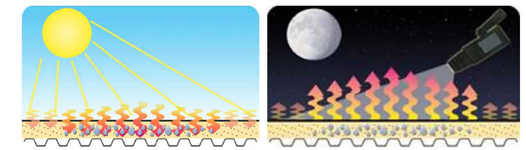
KANSAS CITY. MO

DRAWINGS

TITLE PAGE

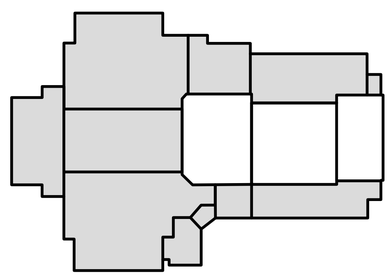
SHEET A LAKEVIEW M.S. - MOISTURE SURVEY
SHEET B PARK HILL SOUTH H.S. - MOISTURE SURVEY
SHEET C RENNER E.S. - MOISTURE SURVEY
SHEET D SOUTHEAST E.S. - MOISTURE SURVEY

How An Infrared Survey Works:

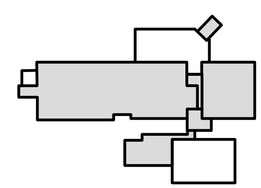


During the daytime, wet roof insulation absorbs more solar energy from the sun than dry roof insulation. During the nighttime, after the roof surface cools, the wet roof insulation will retain more solar energy than dry insulation and these temperature differences are detected by the infrared camera.

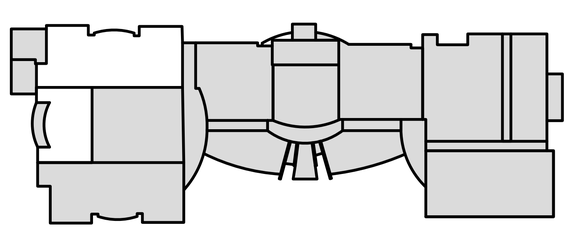
The wet roof areas are marked on the roof surface with visible paint markings. The wet roof areas are verified through core cuts and/or a Roof Moisture Meter.



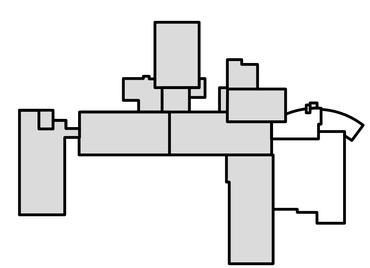
ROOF PLAN - LAKEVIEW M.S.
SCALE: NO SCALE



ROOF PLAN - RENNER E.S.
SCALE: NO SCALE



ROOF PLAN - PARK HILL SOUTH H.S.
SCALE: NO SCALE



ROOF PLAN -SOUTHEAST E.S.
SCALE: NO SCALE

A Division of RPM Building Solutions

TREMCO®
ROOFING & BUILDING MAINTENANCE

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Thermogram T-01

Thermogram T-02

Thermogram T-03

Thermogram T-04

ROOF SECTION DATA			
ROOF SECT.	SIZE (S.F.)	WET (S.F.)	% WET
F	10,270	0	0.00%
J	11,856	0	0.00%
M	6,328	0	0.00%
TOTALS	**28,454**	**0**	**0.00%**

STANDARD KEY OF SYMBOLS

- A — AREA DESIGNATION
- DRY CUT
- WET CUT
- T-01 — THERMOGRAM
- TRACE CORE
- P-01 — PHOTOGRAPH
- WET INSULATION
- R.I.M. (RANDOM INTERMITTANT MOISTURE)
- N.I.C.
- MOISTURE GRID
- # — MOISTURE READING

TREMCO ROOFING & BUILDING MAINTENANCE

wti

PARK HILL SCHOOL DISTRICT
LAKEVIEW MIDDLE SCHOOL
6720 NW 64th ST.
KANSAS CITY, MO

PROJECT NO.: -
DRAWN BY: C.R.C. / T.T.
DATE: 10/07/25
SHEET NO.: A

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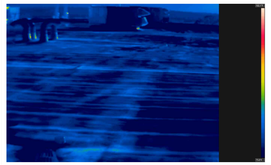
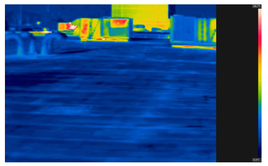
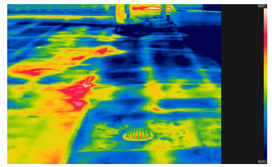


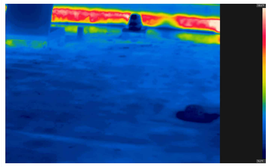
Thermogram T-01



Thermogram T-02



Thermogram T-03



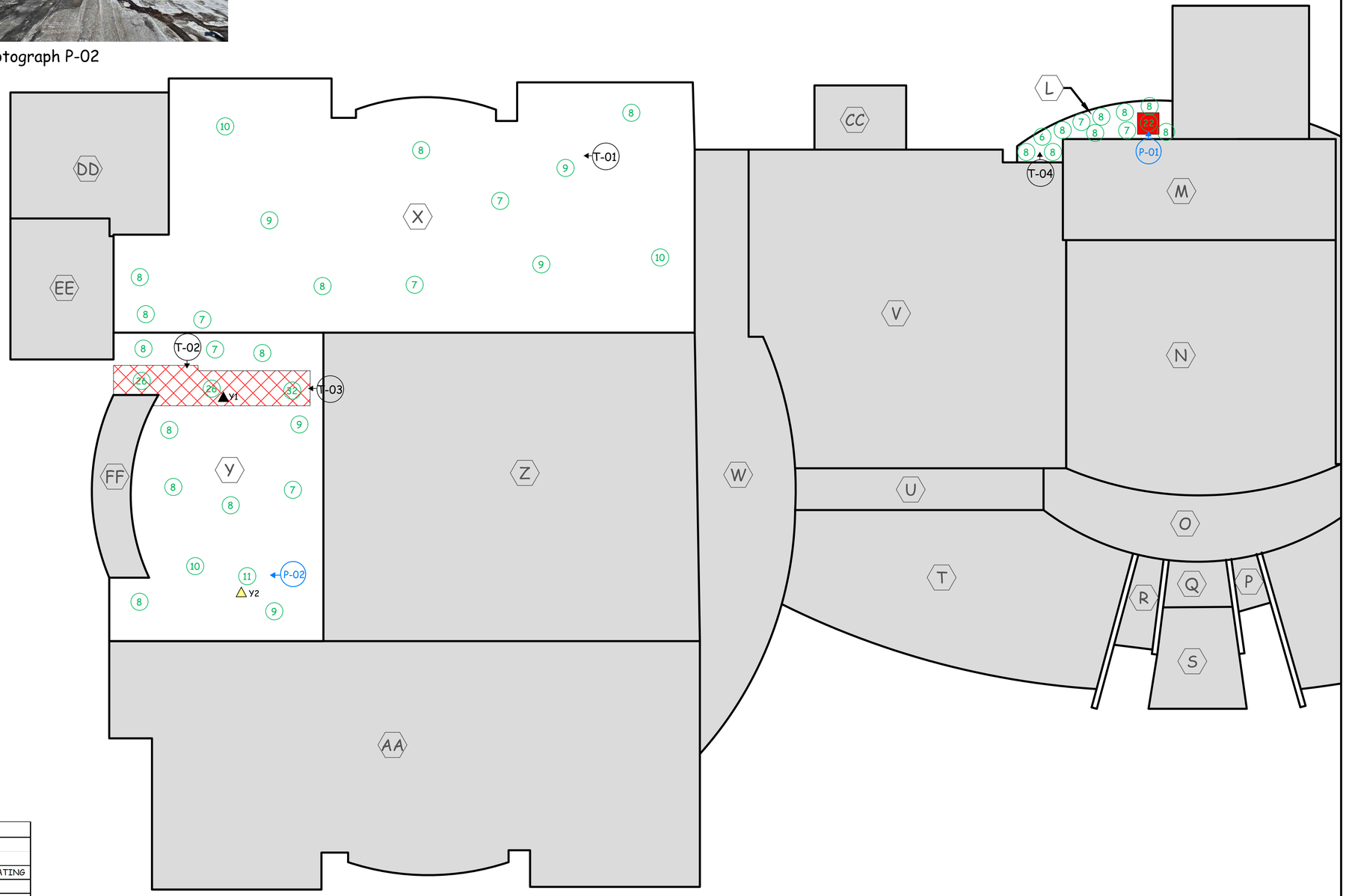
Thermogram T-04

Photograph P-02

Photograph P-01

ROOF SECTION DATA			
ROOF SECT.	SIZE (S.F.)	WET (S.F.)	% WET
L	840	50	5.95%
X	17,470	0	0.00%
Y	7,960	178	2.24%
TOTALS	**26,270**	**228**	**0.87%**

CONSTRUCTION DATA					
ROOF SECTION	CORE CUT NUMBER	MOISTURE READING	MOISTURE PERCENTAGE	ROOF CONSTRUCTION	
Y	Y1	26	N/A		SMOOTH SURFACED MODIFIED ROOF SYSTEM with COATING
			80%	1/2"	WOODFIBER INSULATION
			20%	2-1/2"	POLYISOCYANURATE INSULATION
			0%	1/2"	GYPSUM BOARD
			N/A		METAL DECK
Y	Y2	11	N/A		SMOOTH SURFACED MODIFIED ROOF SYSTEM with COATING
			0%	1/2"	WOODFIBER INSULATION
			0%	2-1/2"	POLYISOCYANURATE INSULATION
			0%	1/2"	GYPSUM BOARD
			N/A		METAL DECK



ROOF PLAN
SCALE: NO SCALE

STANDARD KEY OF SYMBOLS

- (A) AREA DESIGNATION
- △ DRY CUT
- ▲ WET CUT
- (T-01) THERMOGRAM
- ⊠ TRACE CORE
- (P-01) PHOTOGRAPH
- WET INSULATION
- R.I.M. (RANDOM INTERMITTANT MOISTURE)
- N.I.C.
- MOISTURE GRID
- (#) MOISTURE READING

TREMCO ROOFING & BUILDING MAINTENANCE

wti

PARK HILL SCHOOL DISTRICT
PARK HILL SOUTH HIGH SCHOOL
4500 RIVER PK DR
RIVERSIDE, MO

PROJECT NO.: -
DRAWN BY: C.R.C. / T.T.
DATE: 10/07/25
SHEET NO.: B

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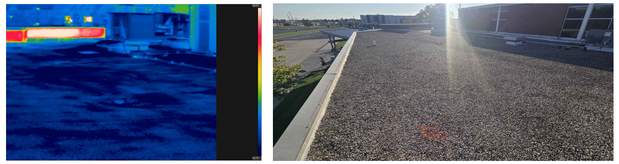
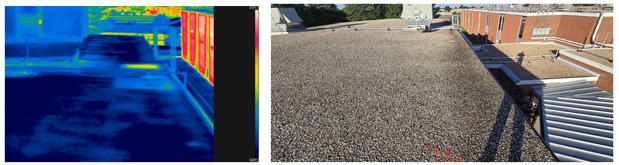
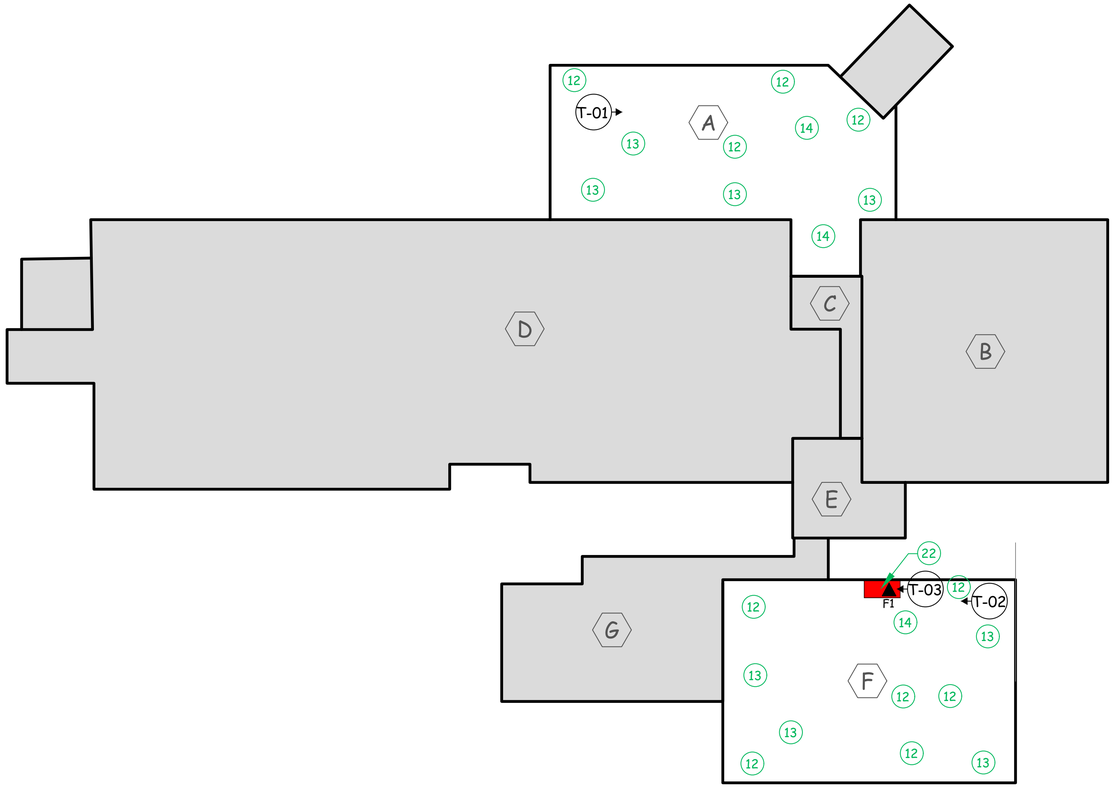


Thermogram T-01



Thermogram T-02

Thermogram T-03



N

ROOF PLAN

SCALE: NO SCALE

ROOF SECTION DATA			
ROOF SECT.	SIZE (S.F.)	WET (S.F.)	% WET
A	4,530	0	0.00%
F	5,166	50	0.97%
TOTALS	**9,696**	**50**	**0.52%**

CONSTRUCTION DATA					
ROOF SECTION	CORE CUT NUMBER	MOISTURE READING	MOISTURE PERCENTAGE	ROOF CONSTRUCTION	
F	F1	22	N/A		BUILT-UP-ROOF with GRAVEL
			100%	1/2"	PERLITE INSULATION
			50%	2"	POLYISOCYANURATE INSULATION
			0%	1/2"	GYPSUM BOARD
			N/A		METAL DECK

STANDARD KEY OF SYMBOLS

- A — AREA DESIGNATION
- DRY CUT
- WET CUT
- T-01 — THERMOGRAM
- TRACE CORE
- P-01 — PHOTOGRAPH
- WET INSULATION
- R.I.M. (RANDOM INTERMITTANT MOISTURE)
- N.I.C.
- MOISTURE GRID
- # — MOISTURE READING

TREMCO ROOFING & BUILDING MAINTENANCE

wti

PARK HILL SCHOOL DISTRICT
RENNER ELEMENTARY SCHOOL
7401 NW BARRY STREET
KANSAS CITY, MO

PROJECT NO.: -

DRAWN BY: C.R.C. / T.T.

DATE: 10/07/25

SHEET NO.: C

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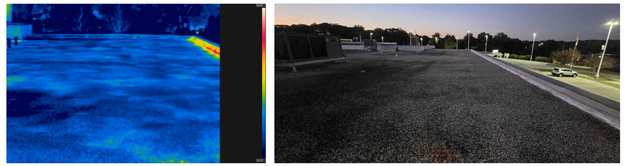
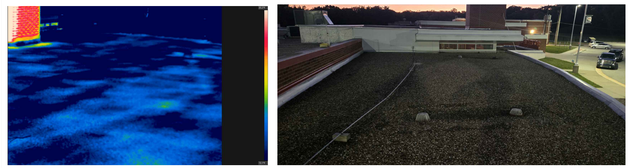
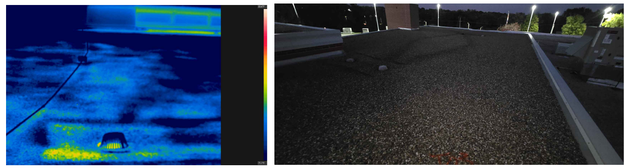


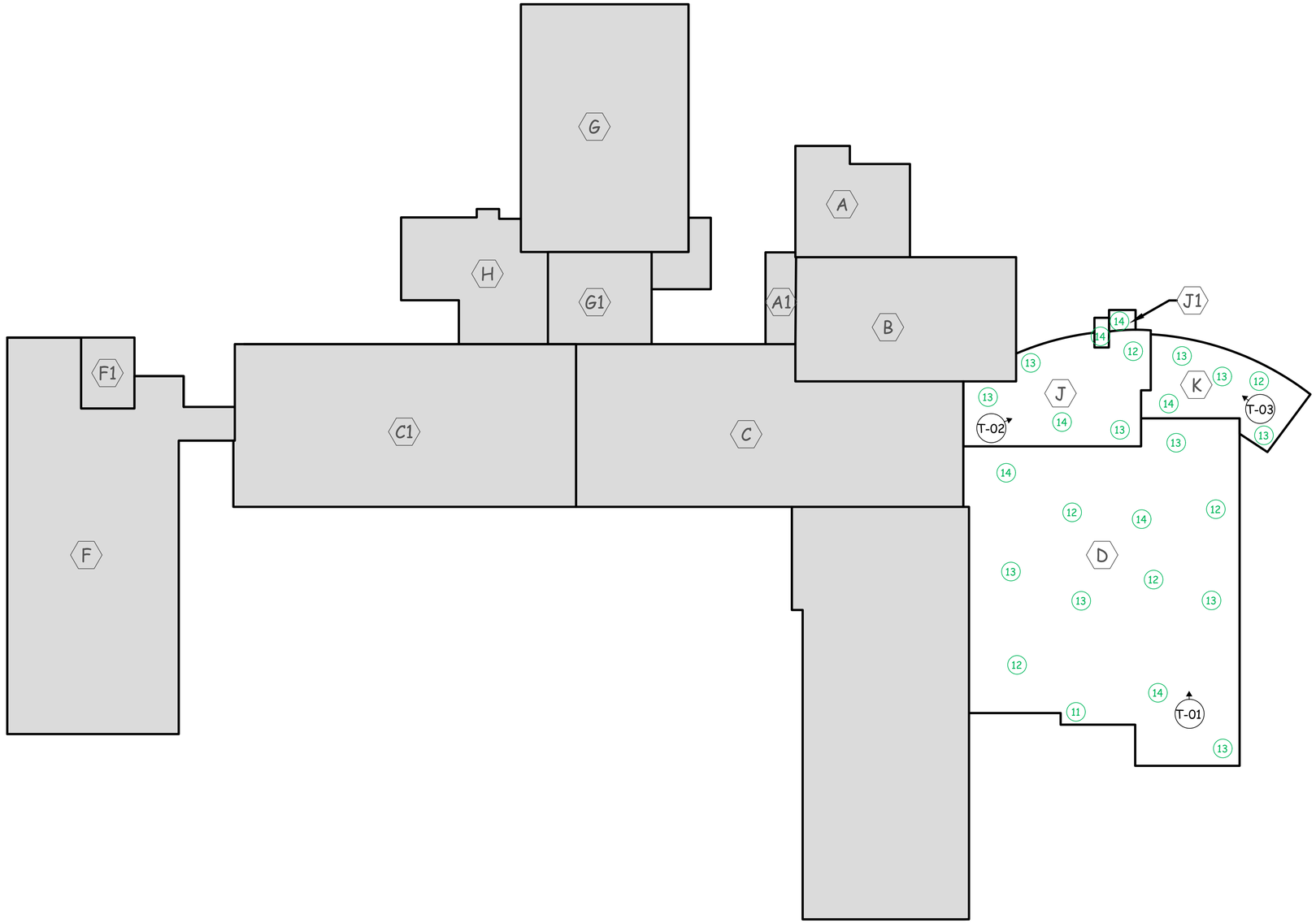
Thermogram T-01



Thermogram T-02



Thermogram T-03



N

ROOF PLAN

SCALE: NO SCALE

ROOF SECTION DATA			
ROOF SECT.	SIZE (S.F.)	WET (S.F.)	% WET
D	9,538	0	0.00%
J	2,040	0	0.00%
J1	180	0	0.00%
K	1,302	0	0.00%
TOTALS	**13,060**	**0**	**0.00%**

STANDARD KEY OF SYMBOLS

- A — AREA DESIGNATION
- DRY CUT
- WET CUT
- T-01 — THERMOGRAM
- TRACE CORE
- P-01 — PHOTOGRAPH
- WET INSULATION
- R.I.M. (RANDOM INTERMITTANT MOISTURE)
- N.I.C.
- MOISTURE GRID
- # — MOISTURE READING

TREMCO ROOFING & BUILDING MAINTENANCE

wti

PARK HILL SCHOOL DISTRICT
SOUTHEAST ELEMENTARY SCHOOL
5704 NW NORTHWOOD
KANSAS CITY, MO

PROJECT NO.: -

DRAWN BY: C.R.C. / T.T.

DATE: 10/07/25

SHEET NO.: D

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