



**SPECIFICATIONS
FOR REROOFING AND REPAIRS
AT
VARIOUS FACILITIES
FOR THE
MESQUITE INDEPENDENT SCHOOL DISTRICT**

PROJECT NUMBER: 19-1277-44

PRE-PROPOSAL MEETING: WEDNESDAY, NOVEMBER 6, 2019, AT 9:00 A.M.

PROPOSAL DATE: THURSDAY, NOVEMBER 21, 2019 AT 2:00 P.M.



11/05/2019
Armko Industries, Inc.
Texas Registered Engineering Firm
F-006498

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BOARD OF TRUSTEES

MESQUITE INDEPENDENT SCHOOL DISTRICT

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**CSP: REROOFING AT AUSTIN ELEMENTARY SCHOOL, GENTRY ELEMENTARY SCHOOL,
PIRRUNG ELEMENTARY SCHOOL, PORTER ELEMENTARY SCHOOL, RUGEL ELEMENTARY
SCHOOL, LEARNING CENTER
MESQUITE INDEPENDENT SCHOOL DISTRICT**

NAME OF CONTRACTOR:_____

DATE:_____

Mr. Lonnie Womack
Mesquite Independent School District
800 East Kearney
Mesquite, TX 75149

Dear Mr. Womack:

The undersigned, in compliance with your advertisement for competitive sealed proposals for reroofing on certain areas of the following buildings:

**AUSTIN ELEMENTARY SCHOOL, GENTRY ELEMENTARY SCHOOL, PIIRUNG ELEMENTARY
SCHOOL, PORTER ELEMENTARY SCHOOL, RUGEL ELEMENTARY SCHOOL, LEARNING
CENTER**

have examined the Drawings and Specifications, together with the related documents and all conditions surrounding the work, and having visited the sites of the proposed work, hereby, proposes to furnish all work in every detail in accordance with the Contract Documents within the time set forth herein and at the prices following. These prices shall cover all expenses incurred in performing the work under the Contract Documents, of which the Proposal is a part.

Attached herewith, please find (Cashier's Check) (Certified Check) (Bid Bond) in the amount of
\$_____ which is five percent (5%) of the proposal.

I (or we) acknowledge receipt of the following addenda:

ADDENDUM #1:_____(Initial)

ADDENDUM #2:_____(Initial)

ADDENDUM #3:_____(Initial)

**CSP: REROOFING AT AUSTIN ELEMENTARY SCHOOL, GENTRY ELEMENTARY SCHOOL, PIRRUNG ELEMENTARY SCHOOL, PORTER ELEMENTARY SCHOOL, RUGEL ELEMENTARY SCHOOL, LEARNING CENTER
MESQUITE INDEPENDENT SCHOOL DISTRICT**

Competitive sealed proposals addressed to Mr. Lonnie Womack, Mesquite Independent School District, for reroofing and mechanical at the Austin Elementary School, Gentry Elementary School, Pirrung Elementary School, Porter Elementary School, Rugel Elementary School, and The Learning Center located in Mesquite, TX, all in accordance with the Proposal, Contract Documents, General Instructions, Materials, Execution, and Drawings, will be received in the Purchasing Office, Suite 203, at the Mesquite ISD Administration Building, located at 3819 Towne Crossing Boulevard., Mesquite, TX 75150, no later than 2:00 P.M., on Thursday, November 21, 2019.

Proposals will be publicly opened and read aloud at the Mesquite Independent School District Purchasing Office same date and time.

Any proposal received AFTER the closing time WILL NOT BE CONSIDERED, AND WILL BE RETURNED UNOPENED. Contractor shall identify his proposal on the outside of the envelope by writing the words:

**"CSP-FOR REROOFING
AT THE
AUSTIN ELEMENTARY SCHOOL, GENTRY ELEMENTARY SCHOOL, PIRRUNG ELEMENTARY
SCHOOL, PORTER ELEMENTARY SCHOOL, RUGEL ELEMENTARY SCHOOL, THE LEARNING
CENTER
MESQUITE INDEPENDENT SCHOOL DISTRICT"**

No oral, telephone, or telegraphic proposals will be considered.

It is **highly recommended** that the contractor attend the Pre-Proposal Conference, which will be held at 9:00 A.M., on Wednesday November 6, 2019, at the Mesquite Independent School District Administration Building, Suite 203, located at 3819 Towne Crossing Boulevard, Mesquite, TX 75150. An inspection of each facility will be part of the pre-proposal conference. The Proposal, Contract Documents, General Instructions, Materials, Execution, and Drawings may be obtained at the Pre-Proposal Conference. To inspect the facility work for this project prior to submitting the proposal, Contractor shall contact Mr. Lonnie Womack, Mesquite Independent School District, 214 534 6391. Any questions concerning the specifications, specified work, and/or roof inspection should be directed to Mr. Doug Shearer, Armko Industries, Inc., 214.392.5413.

A Cashier's Check, Certified Check, or acceptable Surety Company Bid Proposal Bond in the amount of five percent (5%) of the largest possible total of proposal submitted will be required with each proposal if the total contract price exceeds \$25,000.00. Proposals will be received PER ATTACHED PROPOSAL FORM, to include all work shown and specified.

The Board of Trustees of the Mesquite Independent School District reserves the right to reject any one and/or all proposals, to waive any formalities or irregularities, and to award the Contract in the best interest of the District.

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CONTRACT DOCUMENTS: Having examined the Proposal, Contract, General Instructions, Materials, Execution, and Drawings for Project No. 19-1277-44 and conditions for reroofing work, and having examined the premises and circumstances affecting the work, the undersigned offer:

OFFER: To furnish all labor, material, tools, equipment, transportation, bonds, all applicable taxes, incidentals, and other facilities, and to perform all work for the said reroofing for the following proposals:

BASE PROPOSAL 1 – AUSTIN ELEMENTARY SCHOOL

Work shall include:

BASE SCOPE OF WORK

1. Remove all existing roofing materials down to existing deck.
2. Area A: Mechanically attach first layer of two inch (2") polyisocyanurate insulation over metal deck per ASCE-7 wind uplift requirements.
3. Areas A, B, C, D, E, F, and G: Mechanically attach base sheet to lightweight concrete deck per ASCE-7 wind uplift requirements.
4. Adhere first layer of two inch (2") polyisocyanurate insulation over the top surface of the base sheet in solid mopping of hot asphalt.
5. Adhere second layer of two and one-half inch (2-1/2") polyisocyanurate insulation over top surface of first layer of insulation in solid mopping of hot asphalt.
6. Adhere one layer of one-half inch (1/2") Securock cover board over polyisocyanurate insulation in solid mopping of hot asphalt,
7. Adhere one layer of 80mil SBS interply sheet over Securock cover board in solid mopping of hot asphalt,
8. Adhere specified white Elvaloy fleece back membrane over interply sheet in solid mopping of hot asphalt. Heat weld all laps and seams.
9. Provide all clad metal, pre-finished metal, and other accessories required by membrane manufacturer to achieve a 20 year NDL warranty with four inch (4") hail per manufacturer's guidelines.
10. Work shall also include the removal and replacement of all exiting drains with new drains, connections, and minimum eight feet (8') of piping from connection at drain bowl. Match existing size of drain and pipe.
11. Contractor shall provide licensed plumber for all plumbing work and confirm that all drain connections are tight and free from leaks after installation.

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ADD ALTERNATE PROPOSAL 1 METAL WALL PANELS OVER MASONRY RISE WALL

Work shall include:

1. Attach hat channel over masonry rise walls.
2. Attach three quarter inch (3/4") treated plywood over hat channels.
3. Apply self-adhering membrane over plywood as underlayment.
4. Attach metal wall panels over self-adhering underlayment.
5. Incorporate flashings at bottom and top of wall as detailed.

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BASE PROPOSAL 2 – GENTRY ELEMENTARY SCHOOL

Work shall include:

BASE SCOPE OF WORK

1. Remove all existing roofing materials down to existing deck,
2. Mechanically attach first layer of two inch (2") polyisocyanurate insulation over metal deck per ASCE-7 wind uplift criteria.
3. Adhere second layer of two and one-half inch (2-1/2") polyisocyanurate insulation over top surface of first layer of insulation in solid mopping of hot asphalt
4. Adhere one layer of one-half inch (1/2") Securock cover board over polyisocyanurate insulation in solid mopping of hot asphalt.
5. Adhere one layer of 80mil SBS interply sheet over Securock cover board in solid mopping of hot asphalt,
6. Adhere specified white Elvaloy fleece back membrane over interply sheet in solid mopping of hot asphalt, and heat weld all laps and seams.
7. Provide all clad metal, pre-finished metal, and other accessories required by membrane manufacturer to achieve a 20 year NDL warranty with four inch (4") hail per manufacturer's guidelines.
8. Work shall also include the removal and replacement of all exiting drains with new drains, connections, and minimum eight feet (8') of piping from connection at drain bowl. Match existing size of drain and pipe.
9. Contractor shall provide licensed plumber for all plumbing work and confirm that all drain connections are tight and free from leaks after installation.

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ADD ALTERNATE PROPOSAL 2-METAL WALL PANELS OVER MASONRY RISE WALL

Work shall include:

1. Attach hat channel over masonry rise walls.
2. Attach three quarter inch (3/4") treated plywood over hat channels.
3. Apply self-adhering membrane over plywood as underlayment.
4. Attach metal wall panels over self-adhering underlayment.
5. Incorporate flashings at bottom and top of wall as detailed.

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BASE PROPOSAL 3 – PIRRUNG ELEMENTARY SCHOOL

Work shall include:

BASE SCOPE OF WORK

1. Remove all existing roofing materials down to existing deck.
2. Mechanically attach base sheet to lightweight concrete deck per ASCE-7 wind uplift requirements.
3. Adhere first layer of two inch (2") polyisocyanurate insulation over the top surface of the base sheet in solid mopping of hot asphalt.
4. Adhere second layer of two and one-half inch (2-1/2") polyisocyanurate insulation over top surface of first layer of insulation in solid mopping of hot asphalt.
5. Adhere one layer of one-half inch (1/2") Securock cover board over polyisocyanurate insulation in solid mopping of hot asphalt,
6. Adhere one layer of 80mil SBS interply sheet over Securock cover board in solid mopping of hot asphalt,
7. Adhere specified white Elvaloy fleece back membrane over interply sheet in solid mopping of hot asphalt. Heat weld all laps and seams.
8. Provide all clad metal, pre-finished metal, and other accessories required by membrane manufacturer to achieve a 20 year NDL warranty with four inch (4") hail per manufacturer's guidelines.
9. Work shall also include the removal and replacement of all exiting drains with new drains, connections, and minimum eight feet (8') of piping from connection at drain bowl. Match existing size of drain and pipe.
10. Contractor shall provide licensed plumber for all plumbing work and confirm that all drain connections are tight and free from leaks after installation.

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ADD ALTERNATE 3 -METAL WALL PANELS OVER MASONRY RISE WALL

1. Attach hat channel over masonry rise walls.
2. Attach three-quarter inch (3/4") treated plywood over hat channels.
3. Apply self-adhering membrane over plywood as underlayment.
4. Attach metal wall panels over self-adhering underlayment.
5. Incorporate flashings at bottom and top of wall as detailed.

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MESQUITE INDEPENDENT SCHOOL DISTRICT**

BASE PROPOSAL 4 – PORTER ELEMENTARY SCHOOL

Work shall include:

BASE SCOPE OF WORK

1. Remove all existing roofing materials down to existing deck.
2. Mechanically attach base sheet to lightweight concrete deck per ASCE-7 wind uplift requirements.
3. Adhere first layer of two inch (2") polyisocyanurate insulation over the top surface of the base sheet in solid mopping of hot asphalt.
4. Adhere second layer of two and one-half inch (2-1/2") polyisocyanurate insulation over top surface of first layer of insulation in solid mopping of hot asphalt.
5. Adhere one layer of one-half inch (1/2") Securock cover board over polyisocyanurate insulation in solid mopping of hot asphalt,
6. Adhere one layer of 80mil SBS interply sheet over Securock cover board in solid mopping of hot asphalt,
7. Adhere specified white Elvaloy fleece back membrane over interply sheet in solid mopping of hot asphalt. Heat weld all laps and seams.
8. Provide all clad metal, pre-finished metal, and other accessories required by membrane manufacturer to achieve a 20year NDL warranty with four inch (4") hail per manufacturer's guidelines.
9. Work shall also include the removal and replacement of all exiting drains with new drains, connections, and minimum eight feet (8') of piping from connection at drain bowl. Match existing size of drain and pipe.
10. Contractor shall provide licensed plumber for all plumbing work and confirm that all drain connections are tight and free from leaks after installation.

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ADD ALTERNATE 4 SCOPE OF WORK-METAL WALL PANELS OVER MASONRY

Work shall include:

1. Attach hat channel over masonry rise walls.
2. Attach three quarter inch (3/4") treated plywood over hat channels.
3. Apply self-adhering membrane over plywood as underlayment.
4. Attach metal wall panels over self-adhering underlayment.
5. Incorporate flashings at bottom and top of wall as detailed.

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BASE PROPOSAL 5 – RUGEL ELEMENTARY SCHOOL

Work shall include:

BASE SCOPE OF WORK

1. Remove all existing roofing materials down to existing deck.
2. Mechanically attach base sheet to lightweight concrete deck per ASCE-7 wind uplift requirements.
3. Adhere first layer of two inch (2") polyisocyanurate insulation over the top surface of the base sheet in solid mopping of hot asphalt.
4. Adhere second layer of two and one-half inch (2-1/2") polyisocyanurate insulation over top surface of first layer of insulation in solid mopping of hot asphalt.
5. Adhere one layer of one-half inch (1/2") Securock cover board over polyisocyanurate insulation in solid mopping of hot asphalt,
6. Adhere one layer of 80mil SBS interply sheet over Securock cover board in solid mopping of hot asphalt,
7. Adhere specified white Elvaloy fleece back membrane over interply sheet in solid mopping of hot asphalt. Heat weld all laps and seams.
8. Provide all clad metal, pre-finished metal, and other accessories required by membrane manufacturer to achieve a 20 year NDL warranty with four inch (4") hail per manufacturer's guidelines.
9. Work shall also include the removal and replacement of all exiting drains with new drains, connections, and minimum eight feet (8') of piping from connection at drain bowl. Match existing size of drain and pipe.
10. Contractor shall provide licensed plumber for all plumbing work and confirm that all drain connections are tight and free from leaks after installation.

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ADD ALTERNATE 5 - METAL WALL PANELS OVER MASONRY RISE WALL

Work shall include:

1. Attach hat channel over masonry rise walls.
2. Attach three quarter inch (3/4") treated plywood over hat channels.
3. Apply self-adhering membrane over plywood as underlayment.
4. Attach metal wall panels over self-adhering underlayment.
5. Incorporate flashings at bottom and top of wall as detailed.

\$

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BASE PROPOSAL 6- LEARNING CENTER AREA A,B,C,D

Work shall include:

1. Remove all existing roofing materials down to existing deck,
2. Mechanically attach first layer of two inch (2") polyisocyanurate insulation over metal deck per ASCE-7 wind uplift criteria.
3. Adhere second layer of two and one-half inch (2-1/2") polyisocyanurate insulation over top surface of first layer of insulation in solid mopping of hot asphalt
4. Adhere one layer of one-half inch (1/2") Securock cover board over polyisocyanurate insulation in solid mopping of hot asphalt.
5. Adhere one layer of 80mil SBS interply sheet over Securock cover board in solid mopping of hot asphalt,
6. Adhere specified white Elvaloy fleece back membrane over interply sheet in solid mopping of hot asphalt, and heat weld all laps and seams.
7. Provide all clad metal, pre-finished metal, and other accessories required by membrane manufacturer to achieve a 20 year NDL warranty with four inch (4") hail per manufacturer's guidelines.
8. Work shall also include the removal and replacement of all exiting drains with new drains, connections, and minimum eight feet (8') of piping from connection at drain bowl. Match existing size of drain and pipe.
9. Contractor shall provide licensed plumber for all plumbing work and confirm that all drain connections are tight and free from leaks after installation.
10. Provide roof-to-roof access ladder on rise wall from area d to area a.

_____ \$ _____

ADD ALTERNATE 6 - METAL WALL PANELS OVER MASONRY RISE WALL

Work shall include:

1. Attach hat channel over masonry rise walls.
2. Attach three quarter inch 3/4") treated plywood over hat channels.
3. Apply self-adhering membrane over plywood as underlayment.
4. Attach metal wall panels over self-adhering underlayment.
5. Incorporate flashings at bottom and top of wall as detailed.

_____ \$ _____

LUMP SUM PROPOSAL 1

Lump sum proposal shall include amounts from Base Proposals 1, 2, 3, 4, 5, and 6.

_____ \$ _____

UNIT PRICE PROPOSAL:

1. Remove and replace damaged metal decking: \$_____ per square foot.
2. Remove and replace damaged lightweight concrete decking: \$_____ per square foot.
3. Remove and replace deteriorated nailers: \$_____ per board foot.

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4. Install four inch (4") roof drain: \$_____ each. (UNIT PRICE FOR DRAIN REPLACEMENT SHALL BE INCLUDED IN THE BASE PROPOSAL SCOPE OF WORK)
5. Install drain line to match existing complete with all connections, elbows, etc.: \$_____ per linear foot. (UNIT PRICE SHALL BE INCLUDED IN BASE PROPOSAL SCOPE OF WORK)

PREQUALIFICATION'S: Contractor shall submit and/or answer the following:

1. Contractor shall submit documentation with their proposal to indicate their specific qualifications to perform the specified work, including, but not limited to, all Municipalities in the State of Texas where said company has worked. Contractor Initial_____
2. Within the last five years, has legal action, including, but not limited to, deceptive trade practices suits, been taken against your company for failure to perform work properly or for not completing a project? Yes____ No____ If yes, attach a separate sheet of explanation.
3. Within the last five years, has your organization or any officer/partner of your organization ever been an officer/partner of an organization that failed to complete a construction contract? Yes____ No____. If so, attach a separate sheet of explanation.
4. Within the last five years, has your organization or any officer/partner of your organization filed for bankruptcy? Yes____ No____. If so, attach a separate sheet of explanation.
5. Attach an AIA Document No. A305 with a separate sheet with all references including all Municipalities. Include contact name and telephone numbers for each and every reference.
6. Include a current year end review statement.
7. Contractor shall indicate that they are aware of all current wage rates for the project(s) on which they will provide services as set forth by published wage rates. Contractor Initial_____

EXAMINATION OF SITE: By signing the Proposal Form, Contractor acknowledges he/she or an authorized representative has examined the roofs during a site visit to each campus along with all subcontractors performing work on the project, is aware of all field conditions pertaining to the scope of work for all trades. Viewing the facilities electronically does not qualify as a site visit. Information including but not limited to the following:

1. **Size of the work including cores and area square footage of roofs**
2. **Rooftop equipment work: disconnect/reconnect of mechanical, raise curbs, etc.**
3. **Removal of Abandoned equipment, curbs, piping, and other items as noted by the Owner**
4. **All other Penetrations.**
5. **Roof drains, crickets, slope.**
6. **Existing facility conditions including sidewalks, landscaping, pavement, etc.**

Upon receipt of Notice of Acceptance of this proposal, within thirty (30) calendar days of the date of this proposal, I (or we) agree to execute the formal contract within ten (10) calendar days thereafter, and to deliver an Insurance Certificate, a ONE HUNDRED PERCENT (100%) STATUTORY PAYMENT BOND and a SURETY BOND in the amount of ONE HUNDRED PERCENT (100%) of the contract price for the faithful performance of the contract, as required.

The undersigned agrees to complete all work shown on the drawings and in the specifications within the time limits set forth below subject to additional days that may be added due to inclement weather and/or other justified and reasonable extensions of time as may be approved by the Owner.

Contractors that are awarded contracts shall be prepared to immediately sit down with Mesquite ISD Representatives and present a plan that will illustrate how progression of work is to take place to ensure completion of all work within specified time limits. The time limits are as follows:

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Commence Work and Stockpile Date: Work may not commence at any school site prior to the last day of school unless otherwise discussed with the Owner after award of project to the successful Bidder.

Stockpiling of materials at site(s) will be determined during Preconstruction meeting with successful bidder(s).

Completion Date: Work shall be completed on or before **AUGUST 1, 2020 unless otherwise discussed by Owner with the successful Bidder.**

If a Contractor is awarded the project, project must be completed on or before the date set by the District of substantial completion. Contractor will be subject to liquidated damages as set forth below.

The undersigned agrees that the Owner may retain the sum of ONE THOUSAND DOLLARS (\$1,000.00) from the amount to be paid to the undersigned for each calendar day that the work contracted remains incomplete beyond the time set forth, Sundays and holidays INCLUDED. This amount is agreed upon as the proper measure of liquidated damages which the Owner will sustain per day by failure of the undersigned to complete the work at the stipulated time, and is not to be construed in any sense as a penalty.

A working day is defined as a calendar day, not including Saturdays, Sundays, or legal holidays, in which weather or other conditions not under the control of the company will permit the performance of the principal units of work underway for a continuous period of not less than seven (7) hours between 7:00 A.M. and 6:00 P.M. For every Saturday on which the company chooses to work, one day will be charged against the working time when weather conditions will permit seven (7) hours of work as delineated above. A principal unit of work shall be that unit which controls the completion time of the agreement. Nothing in this item shall be construed as prohibiting the company from working on Saturdays if it so desires. If Sunday work is permitted by the Owner, time will be charged on the same basis as weekdays.

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THE OFFICIAL WEATHER RECORD WILL BE KEPT IN THE MESQUITE ISD DIRECTOR OF MAINTENANCE'S OFFICE.

I (or we) agree to promptly furnish a correct and current financial statement of condition with list of owned equipment and an experience record of completed projects for examination by owner and architect, if same is required.

SEAL (If by Corporation)

RESPECTFULLY SUBMITTED BY

(Name)

(Title)

(Address)

Indicate if: ☐ Partnership ☐ Corporation ☐ Sole Owner

If a partnership, list names and addresses of partners:

If corporation, indicate state in which corporation was organized and is existing:_____

Principal Stockholders: (Name and Address)

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| CONFLICT OF INTEREST QUESTIONNAIRE For vendor doing business with local governmental entity | | FORM CIQ |
|---|---|-----------------|
| <p>This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.</p> <p>This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).</p> <p>By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. See Section 176.006(a-1), Local Government Code.</p> <p>A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.</p> | OFFICE USE ONLY <div style="border: 1px solid black; height: 100px; margin-top: 5px;"></div> | |
| <p>1 Name of vendor who has a business relationship with local governmental entity.</p> <div style="border: 1px solid black; height: 30px; margin-top: 5px;"></div> | <p>2 <input type="checkbox"/> Check this box if you are filing an update to a previously filed questionnaire. (The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)</p> | |
| <p>3 Name of local government officer about whom the information is being disclosed.</p> <div style="border: 1px solid black; height: 40px; margin-top: 5px; text-align: center; padding-top: 10px;"> Name of Officer </div> | | |
| <p>4 Describe each employment or other business relationship with the local government officer, or a family member of the officer, as described by Section 176.003(a)(2)(A). Also describe any family relationship with the local government officer. Complete subparts A and B for each employment or business relationship described. Attach additional pages to this Form CIQ as necessary.</p> <div style="margin-top: 20px;"> <p>A. Is the local government officer or a family member of the officer receiving or likely to receive taxable income, other than investment income, from the vendor?</p> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <input type="checkbox"/> Yes <input type="checkbox"/> No </div> <p>B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer or a family member of the officer AND the taxable income is not received from the local governmental entity?</p> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <input type="checkbox"/> Yes <input type="checkbox"/> No </div> </div> | | |
| <p>5 Describe each employment or business relationship that the vendor named in Section 1 maintains with a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more.</p> <div style="border: 1px solid black; height: 60px; margin-top: 10px;"></div> | | |
| <p>6 <input type="checkbox"/> Check this box if the vendor has given the local government officer or a family member of the officer one or more gifts as described in Section 176.003(a)(2)(B), excluding gifts described in Section 176.003(a-1).</p> | | |
| <p>7</p> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 60%;"> <p>Signature of vendor doing business with the governmental entity</p> <div style="border: 1px solid black; height: 20px; margin-top: 5px;"></div> </div> <div style="width: 35%; text-align: center;"> <p>Date</p> <div style="border: 1px solid black; height: 20px; margin-top: 5px;"></div> </div> </div> | | |

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**CONFLICT OF INTEREST QUESTIONNAIRE
For vendor doing business with local governmental entity**

A complete copy of Chapter 176 of the Local Government Code may be found at <http://www.statutes.legis.state.tx.us/Docs/LG/htm/LG.176.htm>. For easy reference, below are some of the sections cited on this form.

Local Government Code § 176.001(1-a): "Business relationship" means a connection between two or more parties based on commercial activity of one of the parties. The term does not include a connection based on:

- (A) a transaction that is subject to rate or fee regulation by a federal, state, or local governmental entity or an agency of a federal, state, or local governmental entity;
- (B) a transaction conducted at a price and subject to terms available to the public; or
- (C) a purchase or lease of goods or services from a person that is chartered by a state or federal agency and that is subject to regular examination by, and reporting to, that agency.

Local Government Code § 176.003(a)(2)(A) and (B):

(a) A local government officer shall file a conflicts disclosure statement with respect to a vendor if:

...
(2) the vendor:

(A) has an employment or other business relationship with the local government officer or a family member of the officer that results in the officer or family member receiving taxable income, other than investment income, that exceeds \$2,500 during the 12-month period preceding the date that the officer becomes aware that

- (i) a contract between the local governmental entity and vendor has been executed;
or
- (ii) the local governmental entity is considering entering into a contract with the vendor;

(B) has given to the local government officer or a family member of the officer one or more gifts that have an aggregate value of more than \$100 in the 12-month period preceding the date the officer becomes aware that:

- (i) a contract between the local governmental entity and vendor has been executed; or
- (ii) the local governmental entity is considering entering into a contract with the vendor.

Local Government Code § 176.006(a) and (a-1)

(a) A vendor shall file a completed conflict of interest questionnaire if the vendor has a business relationship with a local governmental entity and:

- (1) has an employment or other business relationship with a local government officer of that local governmental entity, or a family member of the officer, described by Section 176.003(a)(2)(A);
- (2) has given a local government officer of that local governmental entity, or a family member of the officer, one or more gifts with the aggregate value specified by Section 176.003(a)(2)(B), excluding any gift described by Section 176.003(a-1); or
- (3) has a family relationship with a local government officer of that local governmental entity.

(a-1) The completed conflict of interest questionnaire must be filed with the appropriate records administrator not later than the seventh business day after the later of:

(1) the date that the vendor:

- (A) begins discussions or negotiations to enter into a contract with the local governmental entity; or
- (B) submits to the local governmental entity an application, response to a request for proposals or bids, correspondence, or another writing related to a potential contract with the local governmental entity; or

(2) the date the vendor becomes aware:

- (A) of an employment or other business relationship with a local government officer, or a family member of the officer, described by Subsection (a);
- (B) that the vendor has given one or more gifts described by Subsection (a); or
- (C) of a family relationship with a local government officer.

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FELONY CONVICTION NOTIFICATION

I, the undersigned agent for the firm named below, certify that the information concerning notification of felony convictions has been reviewed by me and the following information furnished is true to the best of my knowledge:

Texas Education Code, Section 44.034, Notification of Criminal History, Subsection (a), states a person or business entity that enters into a contract with a school district must give advance notice to the district if the person or an owner or operator of the business entity has been convicted of a felony. The notice must include a general description of the conduct resulting in the conviction of a felony.

Subsection (b) states "a school district may terminate a contract with a person or business entity if the district determines that the person or business entity failed to give notice as required by Subsection (a) or misrepresented the conduct resulting in the conviction. The district must compensate the person or business entity for services performed before the termination of the contract".

THIS NOTICE IS NOT REQUIRED OF A PUBLICLY-HELD CORPORATION

**VENDOR'S
NAME:** _____

AUTHORIZED COMPANY OFFICIAL'S NAME (Printed): _____

1. My firm is a publicly-held corporation, therefore, this reporting requirement is not applicable.

Signature of Company Official: _____

OR

2. My firm is neither owned nor operated by anyone who has been convicted of a felony.

Signature of Company Official: _____

OR

3. My firm is owned or operated by the following individual(s) who has/have been convicted of a felony:

Name of Felon(s): _____

Details of Conviction(s): _____

Signature of Company Official: _____

Date: _____, 2019

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SECTION 01100

GENERAL REQUIREMENTS

1.01 QUALIFICATIONS FOR SUBMITTING COMPETITIVE SEALED PROPOSAL

- A. To qualify for submitting a proposal, each contractor is required to obtain a copy of the Proposal Documents. It is highly recommended that each contractor attend the Pre-Proposal Conference on Wednesday, November 6, 2019, at 9:00 A.M., at the Mesquite ISD Administration Building, Suite 203, located at 3819 Towne Crossing Boulevard., Mesquite, TX 75150.

1.02 DESCRIPTION OF WORK

- A. It is the intent of the specification that the new work will provide a watertight facility. These specifications describe the minimum acceptable standards of construction and finish.
- B. Multi-Ply White Elvaloy® based thermoplastic fleece backed sheet roof system on the facilities as indicated on the enclosed drawings. The roof shall be installed in accordance with the attached specifications and in strict accordance with the manufacturer's recommended procedures.

1.03 BID PROPOSAL BONDS

- A. AN ACCEPTABLE SURETY COMPANY BID PROPOSAL BOND or CERTIFIED CHECK for the amount not less than five percent (5%) of the proposal amount shall accompany each proposal. By "Acceptable Surety" is meant an Insurance Company licensed by the Texas State Board of Insurance to act as surety, rated "A" or better, listed in the Federal Register, and having an unblemished record. The check or bond of each unsuccessful Contractor will be returned within ten (10) days after the proposal is awarded. FAILURE OF AN ACCEPTED CONTRACTOR TO ENTER INTO A CONTRACT TO COMPLETE THE SPECIFIED WORK MAY CAUSE FORFEITURE OF HIS SEALED PROPOSAL SECURITY. FAILURE TO SUBMIT PROPER SEALED PROPOSAL SECURITY SHALL CAUSE REJECTION OF THE PROPOSAL.

1.04 BOND AND INSURANCE SUBMITTALS

- A. The successful Contractor shall be required to furnish the appropriate certificates of insurance, and the executed Payment and Performance Bonds, if required, prior to starting the project.
- B. Bonds: Prior to commencement of Work hereunder, Contractor will, if the Contract Price exceeds \$25,000.00, provide an Acceptable Surety Company Payment Bond, and if the Contract Price exceeds \$100,000.00, provide an Acceptable Surety Company Performance Bond, each in principal amount equal to one hundred percent (100%) of the Contract Price, conditioned that Contractor will faithfully perform all its undertakings in this Contract and will fully pay all persons furnishing labor and material in the prosecution of the Work provided for in this Contract. If any surety upon any bond becomes insolvent or otherwise ceases to do business in this State, the Contractor shall promptly furnish equivalent security to protect the interests of Mesquite ISD and of persons furnishing labor and materials in the prosecution of the Work.

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1.05 INSURANCE

- A. The Contractor shall maintain insurance of the kinds and in the amounts specified below and furnish Mesquite Independent School District with Certificates of Insurance as evidence thereof in the prescribed form. If any work provided for or to be performed under any Specifications is sub-let (as otherwise permitted by the terms of such Specifications), the Contractor shall require the Subcontractor to maintain and furnish him with satisfactory evidence of Workmen's Compensation, Employer's Liability and such other forms and amounts of insurance which the Contractor deems reasonably adequate.
- B. The Contractor will provide and maintain standard fire, extended coverage perils, vandalism and malicious mischief insurance to protect the interest of both the Contractor and the Owner for materials brought into the job or stored on the premises. Such insurance shall be for one hundred percent (100%) of the insurable value of the work to be performed including all items of labor and materials incorporated therein, materials stored at the job-site to be used in completing the work, and such other supplies and equipment incidental to the work as are not owned or rented by the Contractor, the costs of which are included in the direct cost of the work.
- C. This insurance shall not cover any tools, derricks, machinery, tar buckets, ladders, engines, workmen's quarters, boilers, pumps, wagons, scaffolds, forms, compressors, shanties, or other items owned or rented by the Contractor, the cost of which is not included in the direct cost of the work.

- D. In accordance with above items, the Contractor shall maintain the following insurance:

Contractor shall carry throughout the life of this Contract, at his expense, with insurers satisfactory to Mesquite ISD, insurance of not less than the following limits:

| <u>Coverage</u> | <u>Minimum Limit</u> |
|------------------------------------|--------------------------------------|
| Workmen's Compensation | Statutory |
| Employer's Liability | \$500,000 |
| Comprehensive General Liability | |
| Each Occurrence | \$1,000,000 |
| General Aggregate | \$2,000,000 |
| Comprehensive Automobile Liability | |
| Combined Single Limit | \$1,000,000 |
| Builder's Risk | Fully Insurable Value of the Work |
| "Umbrella" Liability | \$1,000,000 |
| Contract Value up to \$3,000,000 | |

- E. This Insurance shall:
- list Mesquite Independent School District as additional insured on all policies except Workmen's Compensation;
 - include Waiver of Subrogation on all policies in favor of Mesquite Independent School District;
 - include coverage for the liability assumed by the Contractor;

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4. include completed operation coverage which is to be kept in force by the Contractor for a period of not less than one year after completion of the work provided for or performed under these specifications;
5. not be subject to any of the special property damage liability exclusions commonly referred to as the XCU exclusions pertaining to blasting or explosion, collapse or structural damage and underground property;
6. not be subject to any exclusion of property used by the insured or property in the case, custody or control of the insured or property as to which the insured for any purpose is exercising physical control; and
7. the Certificates of Insurance furnished by the Contractor shall show by specific reference that each of the foregoing items have been provided for.

- F. The Certificates of Insurance furnished by the Contractor as evidence of the insurance maintained by him shall include a clause obligating the Insurer to give Mesquite Independent School District ten (10) days prior written notice of cancellation or any material change in the insurance.

1.06 CHANGES

- A. Changes to specifications and drawings will not be acceptable unless approved in writing by the manufacturer and the Owner through the RFI process.
- B. Oral conversations either in person or by phone regarding scope of work changes shall not be considered an approval of any changes.
- C. Contractor shall obtain written approval prior to proceeding with any work changes.
- D. Any work performed by the Contractor without written approval will be considered completed work at the Contractor's expense including any costs to correct work according to the plans and specs.

1.07 TAXES

- A. Except as otherwise provided in the Contract Documents the Contract Price includes all applicable federal, state and local taxes. The purchase, lease, rental, storage, use or other consumption of tangible personal property, for the performance of this Contract by the Contractor, is exempted from state and local sales tax pursuant to the provisions of Article 20.04 (Y) of the Texas Limited Sales Excise and Use Tax Act. To claim the benefit of this exemption, the Contractor must comply with such procedures as may be prescribed by the State Comptroller of Public Accounts.

1.08 WORKING TIME

- A. A working day is defined as a calendar day, not including Saturdays, Sundays, or legal holidays, in which weather or other conditions not under the control of the company will permit the performance of the principal units of work underway for a continuous period of not less than seven (7) hours between 7:00 A.M. and 6:00 P.M. For every Saturday on which the company chooses to work, one day will be charged against the working time when weather conditions will permit seven (7) hours of work as delineated above. A principal unit of work shall be that unit which controls the completion time of the agreement. Nothing in this item shall be construed as prohibiting the company from working on Saturdays if it so desires. If Sunday work is permitted by the Owner, working time will be charged on the same basis as weekdays.

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1.09 INSPECTION

- A. An inspection shall be made by a representative of the material manufacturer of the completed project to ensure that said project was installed in accordance with the manufacturer's specifications and illustrated details. Upon this approval of the project, the specified warranty or warranties shall be written.

1.10 BASE PROPOSAL and LUMP SUM PROPOSAL

- A. The Contractor will furnish all labor and materials, and all of the collective costs applicable will be shown as a total Base Proposal for each Base Proposal and a Lump Sum Proposal cost as requested in the Proposal.

1.11 QUALITY ASSURANCE

- A. All work and materials hereinafter specified shall be best of kind described and, unless specified otherwise, shall be new and of best quality. The specified roofing system shall have been used successfully in the United States for a minimum of ten (10) years.
- B. All materials will be securely fastened in place in a watertight, neat and workmanlike manner. All workmen shall be thoroughly experienced in the particular class of work upon which employed. All work shall be done in accordance with these specifications and shall meet the approval in the field of the Owner's representative. Contractor's representative and/or job supervisor shall have a complete copy of specifications and drawings on job site at all times.
- C. Contractor shall plan and conduct the operations of the work so that each section started on one day is complete, details installed and thoroughly protected before the close of work for that day.
- D. Where any material is specified by proprietary name, trade name, name of manufacturer, generic name, or catalog number with the addition of such expressions as "or equal"/"or approved equal", it is understood that the material named is intended and no substitution will be allowed without written approval by the Owner's representative three (3) calendar days prior to proposal due date.
- E. Should a specified material not be available, a substitution shall require approval (in writing) of the Owner's representative and the roof system manufacturer issuing the warranty before being utilized on this project.
- F. Unless otherwise indicated, the materials to be used in this specification are those specified and denote the type, quality, performance, etc. required. All proposals shall be based upon the use of specified material.
- G. A Contractor who proposes to quote on the basis of an "or equal"/"or approved equal" alternate material or system shall submit to the Owner's representative the following information, at least five (5) calendar days prior to scheduled proposal opening. Only one request for substitution will be considered for each material or system. When substitution is not accepted, specified product or system shall be used.
1. A five (5) gallon sample of any adhesive, coating, mastic, or sealant and a three foot by five foot (3' x 5') sample of any sheeting or rolled goods as may be specified.
 2. A certificate from an accredited testing laboratory comparing the physical and performance attributes of the proposed material with those of the specified materials.

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3. A list of at least three (3) local jobs where the proposed alternate material was used under similar conditions and written documentation showing successful installation in the United States of similar size and scope for a minimum of ten (10) years. These jobs must be available for inspection by the Owner's representative.
4. In the event a substitution is acceptable by the Owner, all contractors shall be notified of the acceptable alternate within three (3) calendar days prior to proposal opening.
5. During the course of work, the Owner's representative may secure from the containers at the job site, samples of the materials being used and submit the samples to an independent testing laboratory for comparison. If the results of the independent testing laboratory prove that the materials are not comparable and equal to the specified materials, the Contractor shall pay for the testing and the Owner reserves the right to reduce the amount of the proposal by twenty percent (20%) if all work has already been completed before the test results become known. If the contract work is not completed when the test results become known, the Owner shall impose a penalty in proportion to the amount of work already completed, and all remaining work shall be completed with the specified materials.

H. Application of materials shall be in strict accordance with the manufacturer's recommendations. In the instance of a conflict between these specifications and those of the manufacturer, the most stringent shall take precedence.

I. Roofing system manufacturer shall have approval for FM Global wind uplift requirements and shall meet Underwriter's Laboratory fire rating.

J. Roof system shall be installed in accordance with FM Global requirements.

1.12 PROCEDURE FOR USE OF SUBSTITUTION REQUEST FORM

A. Substitution request **including all required documentation** must be delivered to the Owner's Representative's office no later than the date indicated in the specifications. Requests submitted late will not be considered.

B. The Individual or Firm requesting a substitution must document that the requested substitution is equal or superior to the specified product. Failure to provide clear, accurate, and adequate documentation will be grounds for rejection.

C. Required documentation shall consist of applicable information which would aid the Architect in making an informed decision. Include **side by side product comparisons**, technical data, laboratory test results, product drawings, etc.

D. If use of the proposed product would result in changes to the design of the building, the submittal shall describe fully the changes required to the drawings or specifications. Any cost differences resulting from modifications to the drawings and specifications and the cost of making the changes shall be borne by the Product Supplier.

E. **No** product will be considered "as equal" to the product specified until it has been included as an allowable substitution, in a written Addendum to the project.

1.13 EXAMINATION OF PREMISES

A. Before submitting proposals for his work, each contractor shall be held to have examined the premises and satisfied himself as to the existing conditions under which he will be obliged to work.

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1.14 PROTECTION OF WORK AND PROPERTY

- A. Work: The contractor shall maintain adequate protection of all his work from damage and shall protect the Owner's and adjacent property from injury or loss arising from this contract. He shall provide and maintain at all times any OSHA required danger signs, guards, and/or obstructions necessary to protect the public and his workmen from any dangers inherent with or created by the work in progress. All federal, state, and city rules and requirements pertaining to safety and all EPA standards, OSHA standards, NESHAP regulations pertaining to asbestos as required shall be fulfilled by the contractor as part of his bid.
- B. Property: Protect existing planting and landscaping as necessary or required to provide and maintain clearance and access to the work of this contract. Examples of two categories or degrees of protection are generally as follows:
 - 1. Removal, protection, preservation, or replacement and replanting of plant materials.
 - 2. Protection of plant materials in place, and replacement of any damage resulting from the contractor's operations.
- C. Twenty-four Hour (24) Call: The contractor shall have personnel on call twenty-four (24) hours per day, seven (7) days per week for emergencies during the course of a job. The Owner's project manager is to have the twenty-four (24) hour numbers for the contact. Contractor must be able to respond to any emergency call and have personnel on-site within two (2) hours after contact. Numbers available to the Owner's project manager are to be home, mobile, and office numbers for:
 - 1. Job Foreman
 - 2. Job Superintendent
 - 3. Owner or Company Officer

1.15 PROTECTION OF PERSONS AND PROPERTY

- A. Safety Precautions and Programs: The contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.
- B. Safety of Persons and Property: The contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to:
 - 1. Employees on the work and other persons who may be affected thereby.
 - 2. The work, materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the contractor or the contractor's Subcontractors or Sub-subcontractors.
 - 3. Other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.
- C. The contractor shall give notices and comply with applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.
- D. The contractor shall erect and maintain, as required by existing conditions and performance of the contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

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- E. The contractor shall comply to all OSHA requirements and any other local, state or federal regulations pertaining to protection and safety of persons or property.
- F. The contractor and all Subcontractors shall take all necessary precautions to keep the premises free of fire and safety hazards. The contractor shall prevent all agents, employees, licensees and invitees of the contractor from smoking on the Owner's premises and from operating or using any flame, sparks or explosion hazard producing devices anywhere on or about the premises without the written approval of the Owner's representative.
- G. The contractor shall designate a responsible member of the contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the contractor's superintendent unless otherwise designated by the contractor in writing to the Owner's representative.
- H. The contractor shall not load or permit any part of the construction or site to be loaded so as to endanger its safety.

1.16 PRE-CONSTRUCTION CONFERENCE

- A. A conference shall be scheduled by the Owner's representative and conducted at the work site prior to start of work. The Contractor's project supervisor or foreman and the Owner's representative shall attend. Job schedule, submittals, existing conditions, and specifications shall be reviewed and any questions arising shall be resolved to the satisfaction of all parties prior to start of work. Contractor shall begin work within five (5) calendar days following Owner's signing of contract and/or issuance of the written notice to proceed with work, weather permitting.

1.17 SUBMITTALS

- A. Upon receipt of Notice of Acceptance of this proposal, the Contractor shall submit the following items. All submittals shall be submitted to the Owner/Owner's representative within ten (10) calendar days of the date on the Notice of Acceptance and prior to the award of contract.
 - 1. Contractor's executed insurance certificate.
 - 2. Material manufacturer's written approval/acceptance of the specifications and details as written or noted for this project, fastener pattern layout, insulation, fasteners and all related materials.
 - 3. Contractor's executed payment and performance bonds as required.
 - 4. Shop drawings of all perimeter and projection details, and sheet metal details approved by manufacturer, for Owner's approval if proposed details differ from those included with this proposal package. These drawings shall be approved by the membrane manufacturer and submitted at the preconstruction conference for Owner review and approval prior to work start.
 - 5. Approved applicator must submit a roof drawing which will be employed in the project if proposed drawing differs from that included with this proposal package.
 - 6. Shop Drawings and Product Data:
 - a) Manufacturer's Details: All termination details and other details normally required by the membrane manufacturer's Technical Specifications, including both standard details and special details, shall be furnished by the Contractor and shall be approved in writing by the manufacturer, the company project manager, and the Owner's representative prior to final installation.

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- b) As-built Drawings: Contractor shall supply the Owner with a full set of "as-built" drawings depicting location, size, nomenclature and manufacturer. One set of reproducible drawings, twenty-four inches by thirty-six inches (24" x 36"), shall be supplied along with one set of copies. Contractor shall also supply Owner with "as-built" roofing details as approved by the appropriate manufacturer with original manufacturer's seals and signatures thereon. Owner must have "as-built" drawings in hand prior to release of final payment to the Contractor.
 - c) Initially submit one reproducible sepia transparency and two prints of each drawing, including fabrication, erection, layout and setting drawings, and other such drawings as required under various sections of the specifications until final approval is obtained.
 - d) Date and mark shop drawings to show name of project, Owner, Contractor, origination Subcontractor, manufacturer or supplier, and separate details as pertinent.
 - e) Shop drawings shall completely identify specification sections and locations at which materials or equipment are to be installed.
 - f) Minimum drawing size shall be eight and one-half inches by eleven inches (8-1/2" x 11").
 - g) Submit sufficient copies of manufacturer's descriptive data including catalog sheets for materials, equipment and fixtures, showing dimensions, performance characteristics and capacities, diagrams and controls, schedules, and other pertinent information required.
 - h) Submit brochures and other submittal data that cannot be reproduced economically, in such quantities to allow the Owner to retain four copies of each after review. Mark product data to show the name of project, Owner, Contractor, originating Subcontractor, manufacturer or supplier, and separate details if pertinent.
 - i) Product data shall completely identify specification sections and locations at which materials or equipment are to be installed.
 - j) Accompany each submittal with a separate transmittal letter in duplicate, containing date, project title and number, Contractor's name and address, number of each shop drawing, product data and samples submitted, and notification of deviations from Contract Documents.
 - k) Three sets of prints from the final sepias will be returned to the Owner for record. The cost of printing all sepias and all prints is the responsibility of the Contractor.
- 7. Detailed project sequencing, staging, material loading, manpower plans, and detailed project construction schedule for approval.
 - 8. Sample of warranty that is to be issued upon project completion.
 - 9. Submit list of all mechanical, electrical, rigging, sheet metal, and other Subcontractors with evidence of Subcontractor's insurance coverage in compliance with contract requirements.
 - 10. Project superintendent's resume and project experience list for proposed system.
 - 11. Contractor shall submit written statement that their company or any Subcontractor they may use is not employing workers classified as undocumented workers on this project.
 - 12. Samples of all materials not supplied or prior approved by the roofing membrane manufacturer shall be submitted to the manufacturer for written approval prior to installation start.
 - 13. Submit product data, including detailed test results of material applied to surfaces similar to requirements of this Section. Submit manufacturer's instructions for methods and application procedures.

1.18 USE OF PREMISES

- A. The Contractor is advised that the Owner will occupy the building at all times, and the Contractor must provide all safeguards required to protect personnel and to keep noise levels as low as reasonably possible for each operation.

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B. The Contractor shall:

1. Coordinate work in such a manner as to not interfere with the normal operation of the building.
2. Assume full responsibility for protection and safekeeping of products stored on premises.
3. Agree to hold the Owner harmless in any and all liability of every nature and description that may be suffered through bodily injuries, including death of any persons by reason of negligence of the Contractor, agents, employees, or Subcontractors.
4. The Contractor and all Subcontractors shall take all necessary precautions to prevent the use of alcoholic beverages on the Owner's premises.
5. Temporary Sanitary Facilities: The contractor shall furnish and maintain temporary sanitary facilities for employees' use during this project. These will be removed in a timely manner after the completion of the project. All portable facilities shall comply with local laws, codes, and regulations.

1.19 SAFETY

- A. The contractor and all Subcontractors shall take all necessary precautions to keep the premises free of fire and safety hazards. The contractor shall prevent all agents, employees, licensees and invitees of the contractor from smoking on the Owner's premises and from operating or using any flame, spark or explosion hazard producing devices anywhere on or about the premises without the written approval of the Owner's representative.

1.20 INSPECTION OF WORK IN PROGRESS

- A. The Owner's representative will require the material manufacturer's representative to periodically examine the work in progress, as well as on completion, in order to assist in ascertaining the extent the materials and labor procedures conform to the requirements of the specifications.
- B. The authorized material manufacturer's field representative shall be responsible for:
1. Keeping the Owner's representative informed after periodic inspections as to the progress and quality of the work observed.
 2. Calling to the attention of the Contractor those matters observed which are considered to be in violation of the contract requirements.
 3. Reporting to the Owner's representative, in writing, any failure or refusal of the Contractor to correct unacceptable practices called to his attention.
 4. Confirming, after completion of the work and based on his observation and test, that he has observed no application procedures in conflict with these specifications. Final payment will not be released until all specified warranties have been received by the Owner.

1.21 FIELD INSPECTION AND CONTRACTOR RESPONSIBILITY

- A. The Owner's representative, Consultant, or Architect shall at all times have access to the job site and work areas to perform Site Observations of work performed for the duration of the project. The Contractor will provide proper and safe facilities for such access and inspection.
- B. Any time during the course of the project, an inspection by the manufacturer may be deemed necessary by the Owner/Owner's representative and have one or all of the following members of the Contractor's organization present in person to inspect the work along with the Owner/Owner's representative: Owner, a Majority Stockholder, President and/or Chief Executive Officer of the contracting firm.

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- 1 C. The Owner/Owner's representative, if deemed necessary, will notify in writing who in the Contractor's
2 organization they want present to inspect the work on the roof in addition to the Contractor's normal
3 inspection. If the designated person or persons requested by the Owner/Owner's representative fails
4 to respond within forty-eight (48) hours to the request, the work may be suspended, payment withheld
5 and/or liquidated damages outlined in the specifications assessed until such time the individual(s)
6 inspect(s) the work with the Owner/Owner's representative.
7
- 8 D. Neither the presence nor absence of the Owner's representative nor the manufacturer's representative,
9 nor an inspection by the manufacturer of the work or operation of the Contractor, nor any failure by
10 the manufacturer to detect, pinpoint, or object to any defect in the work completed, nor any deviation
11 from these specifications, nor the acceptance by the manufacturer of any such defect or the approval
12 of the manufacturer of any such deviation shall relieve the Contractor, or reduce, or in any way limit or
13 divide, his full responsibility for the full performance of the work required of him under these
14 specifications.
15
- 16 E. It shall be understood that such field inspection as the Owner's representative may cause to be
17 performed by the material manufacturer will be performed by the material manufacturer solely for the
18 benefit of the Owner and in an attempt to assist with the requirements of this specification. These
19 requirements bind the Contractor even without such inspection.
20
- 21 F. No inspection or any act or omission of either the Owner's representative or the manufacturer's
22 representative in connection with such inspection shall prejudice the Owner's right to strict
23 conformance, or under any circumstances be construed to excuse or mitigate any mistake or
24 non-conformance by the Contractor.
25

26 1.22 ON-SITE SUPERVISION
27

- 28 A. The Contractor is responsible for the management and control of the work. It shall be the contractor's
29 responsibility for any activity in connection with construction means, methods, techniques, sequences
30 or procedures, or actual construction, erection, or fabrication that is performed. He shall give his
31 personal superintendence of the work or have a competent resident manager or superintendent
32 satisfactory to the Owner on the job site at all times while work is in progress, with full authority to act
33 for the Contractor as his agent.
34
- 35 B. It shall be the contractor's responsibility to provide safety precautions or to execute safety programs or
36 procedures in connection with the project, or for the monitoring or oversight of same.
37

38 1.23 CHANGE ORDERS
39

- 40 A. No change or addition shall be made except upon receipt by the Contractor of a signed order from the
41 Owner authorizing such a change. No claims for an extra to the contract price shall be valid unless so
42 authorized in writing. Any work performed by the contractor without prior written approval as noted
43 above will be at the Contractor's expense. Any correction required to bring the work into compliance
44 to the project documents will also be at the Contractor's expense. No exceptions.

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1.24 ROOFTOP EQUIPMENT

- A. All air conditioning units and other rooftop equipment shall be moved by the roofing Contractor as required to install roofing materials complete and in accordance with the plans and specifications. When units or equipment are to be moved, they shall be disconnected and moved by the roofing Contractor/Subcontractor to a protected area so as not to damage any part or component thereof, and shall be reset by the roofing Contractor/Subcontractor and reconnected at the Contractor's expense, all according to local building codes. All disconnection and reconnection shall be performed by a mechanical, electrical, or plumbing company licensed to perform such work and approved by the Owner or Owner's representative.
- B. Contractor shall follow refrigerant recycling requirements as outlined in section 608 of the Clean Air Act, 1990, as amended (CAA), including final regulations published on May 14, 1993 (58 FR 28660), and the prohibition on venting that became effective on July 1, 1992.
- C. Where mechanical items, conduits, cables, raceways, piping or any other rooftop mounted item must be moved in any manner, or disconnected and reconnected as made necessary by the reroofing of the specified areas at the facility, all rooftop equipment, piping, insulation, wires, fiber optic cable, any information systems components, conduits, panels, motor starters, raceways, switches, antennas, satellite components, etc. shall be replaced or renewed to match existing if damaged by Contractor. NOTE: It is the responsibility of the Contractor to review the condition of any and all, of the above noted, or similar, items with authorized Owner personnel to determine condition of said items PRIOR TO START OF WORK. If this review is not completed as prescribed, any and all damage found at the end of the work will be repaired solely at the contractor's expense.
- D. Any action by roofing contractor personnel which causes interruption of the ongoing works of the Owner's facility will be repaired at the sole expense of the roofing contractor. Upon interruption of the Owner's ability to meet required tasks, Owner may immediately, and without the contractor's permission, take such action as necessary to repair said damage so that the Owner's work may be resumed. The Owner has the obligation to notify the contractor of such action as soon as possible, but in all cases must notify the contractor in writing within 48 hours of the occurrence of the incident.
- E. Roofing Contractor shall include all licensed mechanical, electrical, and plumbing contractors who have been hired as a subcontractor for the project to be present at the preconstruction conference. It is the responsibility of the Roofing Contractor and the Subcontractors to communicate all aspects of the scope of work to employees working on the project so they are familiar with the intent of the attached specifications and applicable requirements. Where information discrepancies occur, the Roofing Contractor and the Subcontractors shall share any financial burden that may arise to resolve the discrepancy.

1.25 FINAL INSPECTION

- A. Upon job completion, a final inspection will be made by Owner's representative. Final payment will not be authorized for the work done until such inspection has been made and all work is found to have been performed in accordance with the specifications and to the satisfaction of the building Owner, and the specified warranties are issued.

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- B. The Contractor shall promptly remove any work that does not meet the requirements of the plans and specifications or is incorrectly installed or otherwise disapproved by the Owner as failing to meet with the plans and specifications. The Contractor shall promptly replace any such work without expense to the Owner and shall bear the cost of making good all work of other contractors or the Owner, destroyed or damaged by such removal or replacement.

1.26 WAGES AND OVERTIME

- A. Overtime: Work that the Contractor performs on overtime for the Contractor's benefit is not billable to the Owner. The work that the Owner requests in writing to be performed during off hours is billable to Owner by the Contractor at the rate as proposed under unit cost.

- B. Wage Rates:

1. Requirements:

- a) Pay not less than the minimum wage scale and benefits indicated on the "Minimum Wage Schedule" provided herein.
- b) Wages listed are minimum rates only.
- c) No claims for additional compensation will be considered by the Owner because of payments of wage rates in excess of the applicable rate contained herein.

2. Applicable Statutes: Texas Government Code, Chapter 2258, Sec. 2258.023 Prevailing Wage Rates to be Paid by Contractor and Subcontractor; Penalty, which states as follows:

- "(a) The contractor who is awarded a contract by a public body or a subcontractor of the contractor shall pay not less than the rates determined under Section 2258.022 to a worker employed by it in the execution of the contract.
- (b) A contractor or subcontractor who violates this section shall pay to the state or a political subdivision of the state on whose behalf the contract is made, \$60 for each worker employed for each calendar day or part of the day that the worker is paid less than the wage rates stipulated in the contract. A public body awarding a contract shall specify this penalty in the contract."

3. Records: In compliance with Texas Government Code, Chapter 2258, Sec. 2258.024 Records, shall be kept as follows:

- "(a) A contractor and subcontractor shall keep a record showing:

- (1) the name and occupation of each worker employed by the contractor or subcontractor in the construction of the public work; and
- (2) the actual per diem wages paid to each worker.

- (b) The record shall be open at all reasonable hours to inspection by the officers and agents of the public body."

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4. Minimum Wage Rates:

- a) Pay prevailing basic wage listed, plus any applicable fringe benefits.

PREVAILING WAGE SCALE NOTICE

- i. Prevailing wages shall not be construed to prohibit the payment of more than the rates named. Under no condition shall any laborer, workman or mechanic employed on this job be paid less than the minimum wage scale.
 - ii. In execution of this contract, the Contractor must comply with all applicable state and federal laws, including, but not limited to, laws concerned with labor, equal employment opportunity, safety, and minimum wage.
 - iii. The following wage rates have been represented to the Owner as being relatively current and accurate. Anyone knowing these wage rates to be in error shall bring this to the attention of the Owner's representative so an Addendum can be issued, if the new rates can be substantiated. The Owner and Owner's representative shall not be held responsible for errors in these wage rates.
- b) Apprentice Pay - All Trades and Crafts: The minimum rate for apprentices shall be in accordance with the scale determined by an approved apprenticeship program or \$1.00 per hour less than journeyman's rates, whichever is lower. An approved apprenticeship program is one approved by the U.S. Department of Labor, Bureau of Apprenticeship Training, and only apprentices enrolled in an approved program may be paid apprenticeship rates.
- c) Base Per Diem Rate: Hours worked per day, times base hourly rate.
- d) Multipliers for Overtime Rates:
- i. Over 40 hours per week: Base hourly rate times 1.5.
 - ii. Holidays: Base hourly rate times 1.5.

1.27 PERMITS

- A. The Contractor shall obtain and pay for all permits required, give all legal notices and pay all fees required for the work. Contractor shall comply with all ordinances and laws. Any and all work done which does not meet requirements of any local authorities must be properly redone, and incidental work replaced by the Contractor, without cost to the Owner.

1.28 SUBCONTRACTING OF WORK

- A. The Owner shall have the right to accept or reject the use of any subcontractor. The Contractor shall submit a list of proposed Subcontractors with his proposal. No exceptions.

1.29 ADDENDA

- A. Any verbal statement or inference prior to the proposal opening regarding modification of specifications is invalid unless so stated on an officially issued addendum.

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1.30 DEMOLITION

- A. All abandoned pitch pans, equipment, vents, curbs, and other such debris shall be removed by the Contractor. Abandoned items that require deck placement shall be marked by the Owner prior to proposal due date and/or the commencement of work. Contractor shall install new decking of like dimensions to provide a suitable substrate in areas where penetrations through the deck are removed.

1.31 CREWS AND EQUIPMENT

- A. Contractor shall provide sufficient crews and equipment so that the project may progress without interruption or unnecessary delay.

1.32 PROTECTION OF MATERIALS

- A. Contractor shall provide sufficient protection of stored materials by tarps secured to protect all materials on all sides down to four inches (4") or less. Contractor to ensure that materials are protected from rain and other wet conditions such as mud during storage.

1.33 SELECTION CRITERIA FOR QUALIFYING ROOFING PROPOSALS

- A. The Owner reserves the right to reject any one or all proposals, to waive any formalities or irregularities, and to award the contract in the best interest of the School District. In evaluating proposals submitted, the District takes several items into consideration before entering into a contract. These considerations can include, but are not limited to:
1. Unit price.
 2. Total proposal price.
 3. Suitability for the intended use.
 4. Attendance at Pre-Proposal Conference.
 5. Probability of continuous availability and total long-term prices to acquire the vendor's goods and services.
 6. The reputation of the vendor and the vendor's goods and services.
 7. The quality of the vendor's goods and services.
 8. The extent to which the goods or services meet the District's needs.
 9. The vendor's past relationship and past performance with the District.
 10. Date of proposed delivery and placement.
 11. Safety record of vendor.
 12. Financial and technical resources of contractor adequate to service contract.
 13. Any relevant factor that a public entity would consider in selecting a vendor.
 14. Qualification of insurance and bonds.

1.34 FUTURE REPAIRS

- A. Contractor certifies by acceptance of this project that any future repairs or alterations he might be called upon to execute after the project is complete, will be performed in accordance with the manufacturer's recommended procedures so as to not void the warranty.

1.35 NAILERS AND ROOF DECK

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- 1 A. Contractor shall notify the Owner's representative of unforeseen areas of damaged decking, wet fill
2 material or deteriorated nailers. Where the damage is serious and extensive, it will be the Owner's
3 prerogative to authorize removal and replacement.
4
- 5 B. Any areas of unusual deck deflection noticed by the Contractor during the course of the job that will
6 cause an area of ponding water should be brought to the attention of the Owner's representative by the
7 Contractor.
8
- 9 C. The Contractor shall furnish the Owner with a unit price for removal and replacement of the damaged
10 decking, wet insulation, fill material or deteriorated nailers. All nailers required for the new roofing
11 application shall be provided by the roofing Contractor, and included in the proposal amount. Unit
12 cost for nailers applies only to existing deteriorated nailers. If lumber is required to make "flush"
13 interior parapet wall, cost shall be included in Base Proposal.
14

15 1.36 CONTRACT DOCUMENTS
16

- 17 A. In the event of a conflict between the roofing specifications and the Owner's contract documents, the
18 Owner's contract documents shall take precedence including manufacturer's minimum requirements.
19
- 20 B. In the case of an inconsistency between the drawings and specifications or within either document not
21 clarified by addendum, the better quality or greater quantity of work shall be provided in accordance
22 with the Specifier's/Architect's interpretation.
23
24
25
26
27

END OF SECTION 01100

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SECTION 07215

ROOF BOARD INSULATION

PART 1 – GENERAL

1.01 REFERENCES

- A. American Society of Testing Materials (ASTM)
 - 1. C 177-85 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
 - 2. C 209-84 Methods of Testing Insulating Board (Cellulosic Fiber), Structural and Decorative.
 - 3. C 728-89a Perlite Thermal Insulation Board
 - 4. D 41-85 Asphalt Primer Used in Roofing and Waterproofing.
 - 5. D 312-89 Asphalt Used in Roofing.
 - 6. D 1621-73 (1979) Test Method for Compressive Properties of Rigid Cellular Plastics.
 - 7. D 4601-86 Asphalt Coated Glass Fiber Base Sheet Used in Roofing.

B. National Roofing Contractors Association (NRCA)

(ANSI/SPRI)

ASCE 7 wind uplift criteria

1.02 QUALITY ASSURANCE

A. Regulatory Requirements

- 1. Classified by Underwriter's Laboratories (UL) as Class A roof covering.
- 2. Follow local, state, and federal regulations, safety standards, and codes.

B. Installation

- 1. Installation shall be in accordance with manufacturer's current published application procedures, NRCA general recommendations, and ASCE 7 wind uplift criteria.
- 2. Roof system manufacturer's technical specifications shall be considered part of this specification and shall be used as reference for specific application procedures.

1.03 SUBMITTALS

A. Product Data: Submit Manufacturer's product data sheets for each product.

B. Shop Drawings: Layout of roof plan showing tapered design, tapered insulation pattern, direction of slope, amount of slope, spot elevations indicating thicknesses at high and low points.

C. Certification: Submit roof manufacturer's certification in writing that insulation is acceptable as substrate for application of specified roof system.

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1.04 DELIVERY, STORAGE, AND HANDLING

- A. Store materials in accordance with manufacturer's recommendations.
- B. When stored outdoors:
 - 1. Tarp and shield insulation from moisture and ultraviolet rays.
 - 2. Elevate insulation above substrate four inches minimum.
 - 3. Secure insulation to resist high winds.
 - 4. Distribute insulation stored on roof deck to prevent concentrated loads that would impose excessive stress or stain on deck or structural members. Verify that structure can accommodate additional loading.
 - 5. Wet insulation, or insulation that has been wet but which has dried, may not be used and shall be removed completely and immediately from the job site.
 - 6. Do not double stack bundles of insulation on the rooftop.

1.05 SEQUENCING AND SCHEDULING

- A. Substrate Acceptance: Roof system manufacturer's representative shall inspect roof deck and associated substrates and provide written acceptance of conditions.
- B. Manufacturer's approved roofing contractor shall inspect and approve deck and substrates.
- C. Plan roof layout with respect to roof deck slope to prevent rainwater drainage into completed roofing.
- D. Do not install more insulation than can be covered with complete roof system in same day.

1.06 PRODUCT CONDITIONS

- A. Environmental Requirements:
 - 1. Apply roofing and insulation in dry weather.
 - 2. Do not proceed with roof construction during inclement weather or when precipitation is predicted 40% or more possibility.
 - 3. Do not apply insulation over wet or moist deck or in foggy conditions.
 - 4. Days with wind speeds of 30 mph or greater shall be considered "Bad Weather" days.
 - 5. Do not apply insulation when ambient temperature is below 40° F (4° C).
- B. Emergency Equipment: Maintain on-site equipment and material necessary to apply emergency temporary seals in the event of sudden storms or inclement weather.
- C. Costs for emergency roofing shall be borne by Contractor.

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PART 2 – PRODUCTS

2.01 INSULATION

- A. All insulation shall be approved in writing by the membrane manufacturer as to thickness, type, and manufacturer. All insulation must be approved for the specific application, Underwriters Laboratory approved, and be listed in the FM Global Approval Guide.
- B. Polyisocyanurate Roof Insulation: Insulation shall be two layers of rigid polyisocyanurate foam board; thickness and LTTR-value shall be one layer of 2" =R-11.4 and a second layer of 2.5" = R-14.4 for a total of R-25 or greater; meeting Federal Specification No. HH-I-1972/1 or 2 with 20 psi minimum compressive strength and 2.0 pcf minimum density. Board shall be surfaced on two (2) sides with non-asphalitic facer material.
- C. Factory Tapered Polyisocyanurate Crickets: Factory cut twenty-four inch by forty-eight inch (24" x 48") polyisocyanurate board cut to one-half inch (1/2") per foot slope used in conjunction with standard thickness of polyisocyanurate board to provide positive slope.
- D. Coverboard: Impact-resistant, nonstructural, specially engineered gypsum and cellulose fiber panels with 95% recycled content; uniform water-resistance throughout core and surface. Board size thickness 1/2"; conforming to ASTM C 1278, meeting FM 4470 Class 1 criteria, classified by Underwriters Laboratory, and listed in the FM Global Approval Guide. Board will meet the following physical properties, Securock™ Roof Board, as manufactured by USG Corporation, or approved equal.

| <u>Test</u> | <u>Typical Value</u> | <u>Test Method</u> |
|--------------------------|------------------------------------|--------------------|
| Fire Resistance | Class A | UL 790 |
| Permeance | ≤ 30 | ASTM C473 |
| Surface water absorption | ≤ 1.6 nominal grams | ASTM C473 |
| Water resistance | Maximum 10% weight percentage gain | |
| Mold Resistance | Minimum rating of "10" | ASTM D3273 |

2.02 BITUMEN

- A. Shall be ASTM D 312 Type IV extra steep asphalt.

| <u>Slope</u> | <u>Interply</u> | <u>Top Pour</u> | <u>Backnail</u> | <u>Strap</u> |
|-------------------|-----------------|-----------------|-----------------|-------------------|
| 0 - 1/2" per 12" | Type IV | Type IV | No | No |
| 1/2" - 2" per 12" | Type IV | Type IV | Yes | Strap if possible |
| 2" - 3" per 12" | Type IV | Type IV | Yes | Yes |

2.03 ASPHALT ROOF PRIMER

- A. Quick-dry asphalt-based primer for priming of asphalt roof surfaces, or approved equal.

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| | |
|----------------------------------|--------------|
| Applicable Federal Specification | SS-A-701B |
| ASTM | D 41 |
| Flash Point | 105° F |
| Viscosity at 80° F (ASTM D 217) | 50-60 K.U. |
| Weight per gallon | 7.4 pounds |
| Drying time (to touch) | Min. 4 hours |

2.04 FASTENERS

- A. Fasteners and fastening plates and/or termination bars shall be FM Approved and shall be listed in the FM Global Approval Guide, and as recommended by the insulation/ fastener manufacturer for the specific application to meet the minimal requirements for wind uplift as required by the local jurisdiction and/or FM Global.
- B. Standard Fastener for Steel Applications for 18-24 gauge Steel & Wood Substrates: Shall be a #14 fastener with a minimum .220 thread diameter and .125 buttress threads and a 30 degree spade point. Fasteners shall be fluorocarbon coated with CR-10 corrosion resistant coating when subjected to 30 Kesternich cycles (DIN 50018) shows less than 15% red rust which surpasses FM Global Approval Standard 4470, or approved equal. All fasteners shall be used in conjunction with the manufacturers approved round pressure plate. Fasteners, plates, and/or bars shall be FM approved and listed in the FM Global Approval Guide.
- C. Lightweight Concrete Fasteners: Refer to Section 07535 for fasteners.

2.05 LIGHTWEIGHT CONCRETE PATCH

- A. LIGHTWEIGHT Concrete Patch: Patch material shall be USG SECUROCK BRAND GYPSUM-CONCRETE PATCH (Formerly Pyrofill) as manufactured by USG, or approved equal.

PART 3 – EXECUTION

3.01 PROTECTION

- A. Provide special protection from traffic on yet to be removed roofing.
- B. Provide special protection from traffic on completed work.

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3.02 SUBSTRATE PREPARATION

- A. Tear off: Remove all existing roof assembly down to the roof deck or original substrate. Substrate shall be smooth, free of debris, sharp edges, and other surface irregularities prior to starting roofing application. Substrate repair shall be performed as required to minimum of NRCA standards.
- B. Lightweight Deck Repair: Remove all damaged or deteriorated deck and repair with specified patch material in strict accordance with manufacturer's published guidelines.
- C. Nailable Deck: Where lightweight concrete or gyp decks are present, mechanically attach one layer of base sheet over deck in strict accordance with ASCE 7 wind uplift criteria. Refer to section 07535 for base sheet and deck fasteners.

3.03 INSULATION

- A. Manufacturer's Instructions: In regard to attachment, the manufacturer's instructions or specifications shall determine the suitability for an application. Installation must meet ASCE 7 criteria and meet local governing building codes.
- B. Precautions: The surface of the insulation must not be ruptured due to overdriving of fasteners.
- C. Thermal insulation boards shall be laid on the substrate in parallel rows with end joints staggered and butted as close as possible. All joints shall be tight and at the roof perimeter and roof penetrations, insulation shall be cut neatly and fitted to reduce openings to a minimum. All openings one-fourth inch (1/4") or larger shall be filled with insulation.
- D. Insulation shall be tapered or feathered at drains and scuppers to provide proper drainage (if applicable).
- E. No more insulation shall be installed than can be covered by the completed roof system by the end of the day or the onset of inclement weather.
- F. Tapered insulation and crickets, when specified and shown on drawings, shall be placed in accordance with the drawings.

3.04 ADHERED INSULATION OVER BASE SHEET

- A. The first layer of insulation shall be adhered to the surface of the base sheet in solid mopping of hot asphalt.
- B. The top surface of the first layer of insulation shall be coated with hot asphalt using twenty-five pounds (25#) per one hundred (100) square feet of surface, and a second layer of polyisocyanurate insulation shall be applied using offset joints, so that each layer breaks joints to a minimum of six inches (6") both ways with the preceding layer, and immediately walked in place.

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3.05 MECHANICALLY FASTENED INSULATION OVER METAL DECK

- A. The first layer of specified insulation shall be mechanically fastened to conform to the ASCE 7 criteria for wind uplift as dictated by wind zone applicable to location of project. Fasteners and fastening patterns shall be determined by building height, location and geographical area of the United States. It is the contractor's responsibility to consult current publications, literature, and bulletins of IBC and the manufacturer that are in effect at the time of this project. Boards shall be staggered and butted as close as possible with voids over one-fourth inch (1/4") to be filled.
- B. The insulation shall be laid with edges parallel to flutes and bearing on deck surface/flats. The long dimension of base insulation layer must be fully supported by the top flange of the metal deck. The edges of insulation boards must not cantilever over the flutes of the metal deck.

3.06 SECOND LAYER OF INSULATION

- A. The top surface of the first layer of insulation shall be coated with hot asphalt using twenty-five pounds (25#) per one hundred (100) square feet of surface, and a second layer of 2.5" polyisocyanurate insulation shall be applied using offset joints, so that each layer breaks joints to a minimum of six inches (6") both ways with the preceding layer, and immediately walked in place.

3.07 COVERBOARD

- A. The top surface of the second layer of insulation shall be coated with hot asphalt using twenty-five pounds (25#) per one hundred (100) square feet of surface, and the specified cover board shall be applied using offset joints, so that each layer breaks joints to a minimum of six inches (6") both ways with the preceding layer, and immediately walked in place.

3.08 ADJUSTING

- A. Remove insulation which has been damaged (broken, cracked, punctured, wet, etc.) and install acceptable new units before installation of roof system.

3.09 CLEANING

- A. Remove debris and material wrappers from jobsite. Leave insulation clean and dry, ready to receive roofing membrane.

3.10 PROTECTION

- A. Provide special protection from traffic on completed work. Contractor shall replace any damaged or scuffed surface membrane.

END OF SECTION 07215

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SECTION 07535

ADHERED MULTI-PLY ELVALOY ROOF SYSTEM

PART 1 - GENERAL

1.01 DESCRIPTION

- A. To provide a multi-ply adhered roof system that shall include polyisocyanurate insulation, cementitious cover board, one (1) layer of SBS inter-ply membrane, and a white Elvaloy fleece back cap sheet with a four inch (4") hail warranty.

1.02 INSTALLER QUALIFICATIONS

- A. Roofing Installer must be:
1. Currently prequalified with the Owner in accordance with Owner's prequalification requirements.
 2. Currently in good standing with the manufacturer.
- B. It shall remain each Contractor's responsibility to determine his current status with the manufacturer's certification plan.

1.03 QUALITY ASSURANCE

- A. Applicator/Installer:
1. Acceptable to roof material manufacturer for the manufacturer's warranty requirements.
 2. Five (5) years successful experience on projects similar in size and scope.
 3. Experienced in the type of roofing work required.
 4. Successfully completed previous projects warranted by the manufacturer.
- B. Testing Laboratory Services: Test results shall meet or exceed established standards.
- C. Underwriters Laboratory (Roofing Covering): Class A fire hazard classification.
- D. Comply with governing local, state, and federal regulations, safety standards, and codes.

1.04 REFERENCES (INCLUDING LATEST REVISIONS)

- A. American Society for Testing and Materials:
1. ASTM B 209 - 90, Specification for Aluminum and Aluminum Alloy Sheet and Plate
 2. ASTM C 719 - 86, Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cycle Move
 3. ment (Hockman Cycle)
 4. ASTM C 794 - 80 (1986), Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants
 5. ASTM C 920 - 87, Specification for Elastomeric Joint Sealants
 6. ASTM D 312 - 89, Specification for Asphalt Used in Roofing
 7. ASTM D 1863 - 86, Specification for Mineral Aggregate Used on Built-up Roofs
 8. ASTM D 2178 - 89, Specification for Asphalt Glass Felt Used in Roofing and Waterproofing

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9. ASTM D 2824 - 85, Specification for Aluminum - Pigmented Asphalt Roof Coatings
 10. ASTM D 4586 - 86, Specification for Asphalt Roof Cement, Asbestos Free
 11. ASTM A 361 - 90, Sheet Steel, Zinc-Coated (Galv.) by the Hot-Dip Process for Roofing and Siding
 12. ASTM C 177, Test for Thermal Laboratory Services
 13. ASTM C 728, Perlite Thermal Insulation Board
- B. Federal Specifications:
1. LLL-I-535B
 2. SS-A-701B
 3. SS-C-153
 4. SS-C-153C
 5. SS-R-620B
 6. TT-C-498C
 7. TT-P-320D
 8. TT-S-00227E
 9. TT-S-00230C
 10. SS-S-001534 (GSA-FSS)
 11. L-P-375
- C. Industry Standards:
1. The National Roofing Contractors Association (NRCA) - Roofing and Waterproofing Manual
 2. Single-ply Roofing Institute (SPRI) - A Professional Guide to Specifications Manual
 3. Sheet Metal and Air Conditioning Contractors National Association (SMACNA) - Architectural Sheet Metal Manual
 4. American Society of Civil Engineers – ASCE 7
- 1.05 SUBMITTALS
- A. Samples and Manufacturer's Submittals: Submit prior to delivery or installation.
1. Samples of all roofing system components including all specified accessories.
 2. Submit samples of proposed warranty complete with any addenda necessary to meet the warranty requirements as specified.
 3. Submit latest edition of manufacturer's product data and MSDS sheets including all other materials included as part of the roof assembly. Submit only those items applicable to this project.
 4. A written statement from the roofing materials manufacturer approving the installer, specifications and drawings as described and/or shown for this project and stating the intent to guarantee the completed project.
 5. Manufacturer's Equiviscous Temperatures (EVT) for the specified bitumens.
- B. Shop Drawings: Provide manufacturer's approved details of all conditions, projection conditions, and any additional special job conditions which require details as indicated in the drawings.
- C. Maintenance Procedures: Within ten days of the date of Substantial Completion of the project, deliver to the Owner three copies of the manufacturer's printed instructions regarding care and maintenance of the roof.
- D. Written confirmation from manufacturer stating conformance to quality assurance.

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1
2 1.06 DELIVERY, STORAGE, AND HANDLING
3

- 4 A. Deliver materials in manufacturer's original, unopened containers and rolls with all labels intact and
5 legible including labels indicating appropriate warnings, storage conditions, lot numbers, and usage
6 instructions. Materials damaged in shipping or storage shall not be used.
7
- 8 B. Deliver materials requiring fire resistance classification to the job with labels attached and packaged as
9 required by labeling service.
10
- 11 C. Deliver materials in sufficient quantity to allow continuity of work.
12
- 13 D. Handle and store material and equipment in such a manner as to avoid damage. Liquid products shall
14 be delivered sealed, in original containers.
15
- 16 E. Handle rolled goods so as to prevent damage to edge or ends.
17
- 18 F. Select and operate material handling equipment so as not to damage existing construction or applied
19 roofing.
20
- 21 G. Moisture-sensitive products shall be maintained in dry storage areas and properly covered. Provide
22 continuous protection of materials against wetting and moisture absorption. Store roofing and flashing
23 materials on clean raised platforms with weather protective covering when stored outdoors.
24
- 25 H. Store rolled goods on end.
26
- 27 I. Protect materials against damage by construction traffic.
28
- 29 J. The proper storage of materials is the sole responsibility of the contractor and any wet or damaged
30 roofing materials shall be discarded, removed from the project site, and replaced prior to application.
31
- 32 K. Comply with fire and safety regulations, especially with materials which are extremely flammable
33 and/or toxic. Use safety precautions indicated on labels.
34
- 35 L. Products liable, such as emulsions, to degrade as a result of being frozen shall be maintained above
36 40° F in heated storage.
37
- 38 M. No storage of materials shall be permitted on roof areas other than those materials that are to be
39 installed the same day.
40

41 1.07 SITE CONDITIONS
42

- 43 A. Job Condition Requirements:
44 1. Apply roofing in dry weather.
45 2. Do not apply roofing when ambient temperature is below 40° F (4° C).

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3. Coordinate the work of the contractor with the work to be performed by the Owner's personnel, to ensure proper sequencing of the entire work. The Owner's personnel will be erecting interior protection for equipment, if required. The contractor is to schedule his work so that adequate time is allowed for the Owner's personnel to perform the work. No roof work shall be performed until the Owner's personnel have completed erection of the interior protection in that area.
4. Proceed with roofing work only when weather conditions are in compliance with manufacturer's recommended limitations, and when conditions will permit the work to proceed in accordance with specifications.
5. Schedule the work so the building will be left watertight at the end of each day. Do not remove more roofing material than can be reinstalled in any working day.
6. All surfaces to receive new roofing shall be smooth, dry, and free from dirt, debris, and foreign material before any of this work is installed. Competent operators shall be in attendance at all times equipment is in use. Materials shall be stored neatly in areas designated by the Owner. Load placed on the roof at any point shall not exceed the safe load for which the roof is designed.
7. The contractor shall take all necessary precautions to protect the roof mat and deck from damage. The contractor shall be responsible for repairing all new areas of damage caused by the negligence of the contractor, at the contractor's expense. The Owner's on-site representative shall determine damage caused by contractor negligence.
8. The contractor shall follow local, state, and federal regulations, safety standards, and codes for the removal, handling, and disposal of asbestos containing materials, if present. When a conflict exists, use the stricter document.
9. Follow insurance underwriter's requirements acceptable for use with specified products or systems.
10. Due caution should be exercised so as not to alter the structural integrity of the deck. When cutting through any deck, care should be taken so as not to damage the deck or any part of the deck, such as post tension cables, etc.
11. All kettles shall have an automatic thermostat control, and temperature gauge, all in working order.
12. The contractor is to verify the location of all interior ducts, electrical lines, piping, conduit, and/or similar obstructions. The contractor is to perform all work in such a manner as to avoid contact with the above mentioned items.
13. Surface and air temperatures should be a minimum 45° F during applications of cleaner and waterproof coating and remain above 45° F for a minimum of four (4) hours following applications. Verify compatibility of cleaner with coatings, paints, primers and joint sealers specified. Advise Owner's representative of any problems in this regard prior to commencing cleaning operations.
14. Temporary Sanitary Facilities: The contractor shall furnish and maintain temporary sanitary facilities for employees use during this project. These will be removed after the completion of the project. All portable facilities shall comply with local laws, codes, and regulations.

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B. Protection of Work and Property:

1. Work: The contractor shall maintain adequate protection of all his work from damage and shall protect the Owner's and adjacent property from injury or loss arising from this contract. He shall provide and maintain at all times any OSHA required danger signs, guards, and/or obstructions necessary to protect the public and his workmen from any dangers inherent with or created by the work in progress. All federal, state, and District rules and requirements pertaining to safety and all EPA standards, OSHA standards, NESHAP regulations pertaining to asbestos as required shall be fulfilled by the contractor as part of his proposal.
2. Property: Protect existing planting and landscaping as necessary or required to provide and maintain clearance and access to the work of this contract. Examples of two categories or degrees of protection are generally as follows: a) removal, protection, preservation, or replacement and replanting of plant materials; b) protection of plant materials in place, and replacement of any damage resulting from the contractor's operations.
3. Twenty-four Hour Call: The contractor shall have personnel on call 24 hours per day, seven (7) days per week for emergencies during the course of a job. The Owner's Project Manager is to have the 24 hour numbers for the contact. Contractor must be able to respond to any emergency call and have personnel on-site within two (2) hours after contact. Numbers available to the Owner's Project Manager are to be home, mobile, and office numbers for:
 - a) Job Foreman
 - b) Job Superintendent
 - c) Owner or Company Officer

C. Damage to Work of Others: The contractor shall repair, refinish, and make good any damage to the building or landscaping resulting from any of his operation. This shall include, but is not limited to, any damage to plaster, tile work, wall covering, paint, ceilings, floors, or any other finished work. Damage done to the building, equipment, or grounds must be repaired at the successful contractor's expense holding the Owner harmless from any other claims for property damage and/or personal injury.

D. Measurements: It will be the contractor's responsibility to obtain and/or verify any necessary dimensions by visiting the job site, and the contractor shall be responsible for the correctness of same. Any drawings supplied are for reference only.

E. Use of Premises:

1. The contractor is advised that the Owner will occupy the building at all times, and the contractor must provide all safeguards required to protect personnel and to keep noise levels as low as reasonably possible for each operation.
2. The contractor shall:
 - a) Coordinate work in such a manner as to not interfere with the normal operation of the building.
 - b) Assume full responsibility for protection and safekeeping of products stored on premises.
 - c) Agree to hold the Owner harmless in any and all liability of every nature and description which may be suffered through bodily injuries, including death of any persons by reason of negligence of the contractor, agents, employees, or subcontractors.

F. Cleaning and Disposal of Materials:

1. Contractor shall keep the job clean and free from all loose materials and foreign matter. Contractor shall take necessary precautions to keep outside walls clean and shall allow no roofing materials to remain on the outside walls.

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2. All waste materials, rubbish, etc., shall be removed from the Owner's premises as accumulated. Rubbish shall be carefully handled to reduce the spread of dust. A suitable scrap chute or hoist must be used to lower any debris. At completion, all work areas shall be left broom clean and all contractor's equipment and materials removed from the site.
3. All bituminous or roofing related materials shall be removed from ladders, stairs, railings, and similar parts of the building.
4. Debris shall be deposited at an approved disposal site.

1.08 WARRANTY

- A. Roofing - Manufacturer: Project shall be installed in such a manner that the roofing material manufacturer will furnish a written twenty (20) year NDL type warranty with no exclusion for hail events containing hail stones up to and including four inches (4") from the date of substantial completion of the completed project. Manufacturer issuing warranty shall provide historical data or testing supporting hail resistance.
- B. Roofing Contractor: The contractor, jointly with any subcontractors employed by him, shall guarantee the work required and performed under this contract will be free from defects in workmanship and materials, and that the building will be and remain waterproof for a two (2) year warranty period, after the Owner accepts the work as substantially complete. The warranty shall be in approved notarized written form, to obligate the contractor and his subcontractors, if any, to make good the requirements of the warranty.
- C. Warranty repairs shall be performed by a certified installer. The repairs shall be performed in accordance with the manufacturer's written instructions and recommended procedures so as to not void the warranty. Repair of the system, including materials and labor, shall be done at no cost to the Owner.
- D. During the proposal period each Bidder shall make arrangements with the material manufacturer to provide the required warranty. Refer to SUBMITTALS Paragraph in this section for requirements concerning submittals of warranty.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Compatibility: Provide materials that are recommended by manufacturers to be fully compatible with indicated substrates, or provide separation materials as required to eliminate contact between incompatible materials.
- B. Materials herein specified shall be supplied or approved in writing by Hyload, Inc. or approved equal.
- C. The white thermoplastic Elvaloy® fleece-backed adhered roofing system shall only be applied by manufacturer approved and trained roofing contractors.
- D. All roofing and roof accessories shall be installed in compliance with manufacturer's current specifications and details.

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1 E. All materials used on the project shall be asbestos free.

2
3 F. The roofing membrane manufacturer is defined as a company which makes the primary roofing
4 membrane and flashing membrane in its own factories from raw materials. No "Private Label"
5 material, in which one company's name goes on a product manufactured by others is acceptable for
6 this project.
7

8 2.02 FINISH MEMBRANE
9

10 A. The white Thermoplastic Elvaloy® Fleece Membrane shall be nominal 95 mils thick or greater. The
11 membrane shall be a high-performance thermoplastic, elastomeric membrane comprised of minimum
12 50% of total polymer content of DuPont™ Elvaloy® KEE (ketone ethylene ester), as manufactured by
13 Hyload, Inc., or pre-approved equal.
14

15 B. The Thermoplastic Elvaloy Membrane shall meet the following physical properties: Elongation 105%,
16 ASTM D 412; Tensile Strength 1300 lbs/in², ASTM D 412; Tear Strength 380 ppi, ASTM D 624;
17 Density @ 70° F, 80 lbs/ft³; Low Temperature Flexibility, Pass, 37-GP-56M; and Water Absorption
18 less than 0.1%, 37-GP-56M.
19

20 2.03 WALL AND BASE FLASHING MEMBRANE
21

22 A. The flashing membrane shall be nominal 60 mils thick or greater. The non-fleece back flashing
23 membrane shall be utilized for curbs, parapet walls, multi-angled intersections, stripping ply, trim strips,
24 and other conditions where molding/forming of the membrane is required.
25

26 B. The flashing membrane shall be a non-fleece high performance thermoplastic, elastomeric membrane
27 Elvaloy sheet, as manufactured by Hyload Inc., or pre-approved equal, with the following minimum
28 properties:

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| | | |
|-------------------------------|----------------|---------------------|
| Property | Test Procedure | Physical Properties |
| Color | White | |
| Thickness | ASTM D 751 | 60 mil |
| Breaking Strength | ASTM D 751 | 298 x 278 lbf |
| Seam Strength | ASTM D 751 | 286 lbf |
| Tear Strength | ASTM D751 | 89 x 109 lbf |
| Elongation | ASTM D 751 | 35% x 34% |
| Heat Aging | ASTM D 3045 | >90% |
| Static Puncture Resistance | ASTM D 5602 | Pass |
| Dynamic Puncture Resistance | ASTM D 5635 | Pass |
| Low Temperature Bend | ASTM D 2136 | Pass @ -40°F |
| Permeance | ASTM E 96 | 0.003 Perms |
| Dimensional Stability | ASTM D 1204 | 0.3% |
| Wt. Change after Immersion | ASTM D 570 | 1.20% |
| Accelerated Weathering | ASTM G 155 | Pass |
| Fungi Resistance | ASTM G 21 | Pass |
| Solar Reflectivity | ASTM C 1549 | 0.82 |
| Solar Emissivity | ASTM C 1371 | 0.91 |
| Solar Reflectance Index (SRI) | ASTM E 1980 | 109 |
| Underwriters Laboratory | Class A | |
| Factory Mutual | Class 1-120 | |

2.04 BITUMEN

- A. Shall be ASTM D 312 Type IV steep asphalt.

| <u>Slope</u> | <u>Interply</u> | <u>Top Pour</u> | <u>Backnail</u> | <u>Strap</u> |
|-------------------|-----------------|-----------------|-----------------|-------------------|
| 0 - 1/2" per 12" | Type IV | Type IV | No | No |
| 1/2" - 2" per 12" | Type IV | Type IV | Yes | Strap if Possible |
| 2" - 3" per 12" | Type IV | Type IV | Yes | Yes |

2.05 CAULKS

- A. Sealant for use at coping joints, reglet joints, etc., shall be an one-component urethane non-sag, gun grade sealant designed for use in active exterior joints, and shall meet or exceed Federal Specification No. 1 TT-S-00230C, Type II, Class A, ASTM C 920. Where joint surfaces are contained or are contaminated with bituminous materials, provide manufacturer's modified-type sealant, or approved equal.

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- B. To seal the leading edge of the membrane, to bond membrane at terminations with metal, and for open seam repair, sealant shall be a thermosetting, solvent free, non-slump, self-fixturing, multipurpose structural sealant which shall meet the following physical and performance properties, M-1 as manufactured by Chem Link Inc., or approved equal.

Properties

| | |
|---------------------------------|--|
| Specific Gravity | 1.62 (13.5 lbs./gallon) |
| Viscosity | 800,000 cps Brookfield RTV, TF spindle, 4 rpm 70° F. |
| Shear Strength (ASTM D-1002) | 300 psi+ (7 day ambient cure) |
| Elongation @ break (ASTM D-412) | 300% (7 day ambient cure) |
| Hardness Shore A (ASTM C-661) | 50 – 55 (14 day ambient cure) |
| Tack free time (ASTM C-679) | 35 minutes |
| Low temperature flex | Minus 20° F: PASS |
| Slump (sag) (ASTM C-639) | Zero slump |
| Shrinkage (ASTM D-2453) | No measurable shrinkage (14 day cure) |
| Service temperature | -40° F to 200° F |

2.06 INTERPLY SHEET OVER COVER BOARD

- A. Shall be Underwriters Laboratory approved and listed in the FM Global Approval Guide.
- B. Shall be SBS 80 mil SS base sheet, tested in accordance with ASTM D 5147, as approved by field membrane manufacturer, or approved equal.
- C. HAIL WARRANTY: SBS membrane shall be furnished by the membrane manufacturer issuing the warranty if hail coverage is part of desired warranty.

2.07 BASE SHEET OVER LIGHTWEIGHT CONCRETE

- A. Shall be twenty-eight-pound (28#) fiberglass base sheet, Underwriters Laboratory Type G-2, meeting Federal Specification No. SS-R-6208B, Type II, as manufactured by Schuller International, Inc., or approved equal.

2.08 FASTENERS

- A. Fasteners and fastening plates or bars shall be listed in the FM Global Approval Guide, and be as recommended by the fastener manufacturer for the specific application.
- B. Fastener for Brick: Shall be one-fourth inch by two inches (1/4" x 2"), zinc with plated steel or stainless steel nail, one-piece unit, flat head, as manufactured by Rawl Zamac Nailin, or approved equal.
- C. Fastener for Steel Deck: Shall be a #14 fastener, fluorocarbon coated, with CR-10 coating. A minimum .200 diameter shank and .250 diameter thread. To be used with round pressure plates or bar, and having a fluorocarbon CR-10 coating, when subjected to thirty (30) Kesternich cycles (DIN 50018) shows less than ten percent (10%) red rust which surpasses FM Global Approval Standard 4470, as manufactured by TRUFAST, or approved equal. Fasteners, plates, and/or bars shall be listed in the FM Global Approval Guide.

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- D. Fastener for Lightweight Concrete: Shall be a one point eight inch (1.8"), 45.7mm Twin Loc-Nail fastener suitable for lightweight concrete, tectum, and poured gyp decks, as manufactured by *TRUFAST*, or approved equal.

2.09 BONDING ADHESIVE FOR FLASHING

- A. Description: Adhesive is a bonding cement of synthetic rubber for adhering membranes to various substrates, produced by Ashland Chemical, or approved equal.

Typical Liquid Properties (Room Temperature)

| | |
|---------------------|--|
| Color | Amber/Yellow |
| Base Product | Neoprene |
| Solids | 25% |
| Specific Gravity | .87 |
| Pounds/Gallon | 7.25 |
| Viscosity (CPS) | 2500 |
| Solvents | Ketone, Toluene, Aliphatic Hydrocarbon, Zylene |
| Estimated Coverage | |
| 2 Sided Application | 55/70 sq. ft. (2/2.5 mils dry) |
| DOT Label Required | Flammable Liquid |
| Code - 584661 | |

- B. Handling: Contains ingredients which could be harmful if mishandled. Contact with skin and eyes should be avoided and necessary protective equipment and clothing should be worn.

2.10 CANT STRIP

- A. Shall be wood fiber where used for non-structural purposes. Shall be treated solid wood where used for structural purposes meeting NRCA, FM Global and Underwriters Laboratory guidelines. If solid wood cant is used where insulation exists, cant is to be toe nailed into treated solid wood nailer the same height as insulation.

2.11 WOOD

- A. All nailers, cants and wooden curbs shall be fire rated, treated lumber as required by NRCA, FM Global and Underwriters Laboratory guidelines.

2.12 SEAM SEALER

- A. Special caulk compatible with Elvaloy® and thermoplastic membrane to seal exposed cut edges.

2.13 TRIM STRIP

- A. The trim strip shall have the following minimum properties, as manufactured by Hyload Inc., or approved equal.
- Six inch (6") wide non-fleeced 45 mil thermoplastic used for capping end laps of rolls.
 - The trim strip is seamed with the use of hot-air welding.

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2.14 PIPE BANDS

A. Stainless steel bands with self-locking heads.

B. Tighten with hand tool for tension control and flush cut off.

2.15 PIPE SUPPORTS

A. Black, polycarbonate construction with stainless steel roller pin assembly suitable for gas lines and conduit set on finished roof assemblies, sized accordingly, with 5/8 neoprene pads as manufactured by MAPA Industries, Inc., or approved equal

2.16 PIPE AND CONDUIT HANGERS FOR PIPING 3" OR LARGER

A. Shall be pre-assembled portable pipe hangers constructed of high density polypropylene plastic and UV inhibitors, sized according to outside pipe dimension, as manufactured by Portable Pipe Hangers, Houston, TX, 800.797.6585.

2.17 ROOF DRAIN

A. Shall be all cast iron, minimum four inch (4"), as manufactured by Josam, or approved equal.

2.18 LIQUID FLASHING

A. Shall be a high performance fluid-applied SEBS liquid resin containing dispersed polyester fibers that does not require reinforced waterproofing membrane. The acceptable physical properties of the liquid flashing material shall meet or exceed those found in the *HyKote Labor Sav'R Mastic* as manufactured by Hyload, Inc., or approved equal.

2.19 LEAD FLASHING DRAINS

A. Shall be four pound (4#) lead, minimum thirty-six inches by thirty-six inches (36" x 36"), used for flashing of internal drains.

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2.20 WALKWAY PAD

- A. The walkway pad shall have the following minimum physical properties, and be applied with edges heat or solvent welded; size shall be 1/4" x 24" x 48", color shall be yellow, as manufactured by The Biltrite Corporation, or approved equal.

| | |
|--|------------------|
| Shore A Hardness (ASTM D2240) | 85 +/- 5 |
| Elongation (ASTM D412) | 100% min. |
| Tensile Strength (ASTM D412) | 500 psi min. |
| Dimensional Stability (ASTM D1204) | 0.2% max. change |
| 24 hours at 120° F | |
| Tear Resistance (ASTM D624) | 95 min |
| Tabor Abrasion, H-18 wheel/500 gr/1,000 rev. | |
| Weight Loss Grams | 2.0 max. |
| Gauge Loss Inches | 0.025 max |
| Heat Aging (ASTM D573), 70 hours at 158° F | |
| Tensile | ± 15% |
| Elongation | ± 15% |
| Shore A Hardness | ± 10% |

2.21 TERMINATION/PRESSURE BARS

- A. Aluminum strip shall be extruded channel bar with a mill finish, width one inch (1"), thickness 0.100" ± .008", leg height one-fourth inch (1/4") top and bottom, leg angle ninety degrees (90°), for perimeter and curb anchorage, having predrilled holes six inches (6") on center, as manufactured by Olympic Fasteners, or approved equal.

2.22 ROOF HATCH

- A. IF REPLACEMENT REQUIRED: Shall be premanufactured hatch of 11-gauge aluminum with spring latch handle, as manufactured by Bilco Company, or approved equal. Size to match existing opening.
- B. Contractor shall provide a sixteen inch by sixteen inch (16" x 16") metal plaque on the underside of each of the roof hatches that states the following:
1. Architect name, phone number, contact person,
 2. School district phone number, contact person,
 3. School district emergency phone number,
 4. Contractor name, phone number, contact person,
 5. Subcontractor name, phone number, contact person,
 6. Roof Consultant, name, phone number, contact person,
 7. Roof system, warranty information, and
 8. Roof Manufacturer, phone number, contact person.

2.23 VERTICAL WALL SHIMMING MATERIAL

- A. Shall be one of the following unless otherwise accepted by Owner's representative: OSB, exterior grade plywood, gypsum core board or concrete core board. Proper selection of material is required to achieve FM Global and UL guidelines.

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2.24 ICE AND WATER SHIELD

- A. Minimum 40 mil high temp, self-adhering underlayment, a premium heavyweight ice and water shield, as manufactured by Elk Premium Building Products, Tamko TW Metal and Tile Underlayment, as manufactured by Tamko Roofing Products, Inc., or Vycor, Ultra, as manufactured by Grace Construction Products, or approved equal.

2.25 OVERNIGHT SEAL

- A. Hot applied asphalt bitumen shall be provided for the purpose of night sealing the roof system.

2.26 DELIVERY AND STORAGE

- A. All materials shall be delivered with appropriate carton and can labels indicating appropriate warnings, storage conditions, lot numbers, and usage instructions. Materials damaged in shipping or storage shall not be used.

2.27 PRECAUTIONS

- A. Some of the indicated materials are extremely flammable and/or toxic. Use precautions indicated on can and carton labels.

2.28 MISCELLANEOUS MATERIALS

- A. Other materials shall be as specified or of the best grade for the proposed use as recommended by the manufacturer.

2.29 ASPHALT ROOF PRIMER

- A. Quick-dry asphalt-based primer for priming of asphalt roof surfaces, as manufactured by Hyload Inc., or approved equal.

| | |
|----------------------------------|--------------|
| Applicable Federal Specification | SS-A-701B |
| ASTM | D 41 |
| Flash Point | 105° F |
| Viscosity at 80° F (ASTM D 217) | 50-60 K.U. |
| Weight per gallon | 7.4 pounds |
| Drying time (to touch) | Min. 4 hours |

PART 3 - EXECUTION

3.01 REFERENCE

- A. The manufacturer's Technical Specifications shall be considered a part of this specification and should be referred to for more specific application procedures and recommendations.

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- B. Application of materials shall be in strict accordance with the manufacturer's recommendations except where more stringent requirements are shown or specified. In the instance of a conflict between these specifications and those of the manufacturer, the more stringent specifications shall take precedence.
- C. General Installation:
1. Protect adjacent areas with tarpaulin or other durable materials.
 2. Contractor shall prevent overspray, and be responsible for parking lot areas and/or adjoining areas not part of this contract.
 3. Contractor shall be responsible for sealing, as required, all openings that may allow bitumen migration or drippage, i.e. pitch dams, envelopes, and filler strips.
 4. Prepare surfaces according to manufacturer's or applicator's published instructions. All metal that is to receive bitumen, or come in contact with bitumen or adhesive, shall be first primed with appropriate primer. Any prefinished sheet steel that is to receive bitumen, or come in contact with bitumen or adhesive, shall be scored, scuffed or abraded prior to receiving primer.
 5. Use cleaning materials or primers necessary to render an acceptable surface/substrate.
 6. All surfaces/substrates shall be clean and dry prior to application of materials.
 7. Prior to application of felts and membrane, all foreign matter, gravel, etc., shall be removed from the insulation and/or substrate. Gravel or debris between the insulation/substrate and plies is not acceptable.
 8. Bitumen kettle shall have a visible thermometer and thermostatic control or some other means to provide positive monitoring of the bitumen temperature when it is heated in accordance with manufacturer's instructions.
 9. Ambient temperature shall be 45° F and rising.
 10. The maximum heating temperature of Type IV asphalt shall be 500° F.
 11. The temperature of Type IV asphalt shall be approximately 430° F \pm at the point of application or as recommended by the membrane manufacturer.
 12. Maintain kettle and/or tanker temperature at least 25° F below the actual flash point of the bituminous materials used.
 13. Never heat the bituminous materials at high temperatures for prolonged periods of time.
 14. Do not allow bituminous materials to stand in luggers for long periods.
 15. Circulate bituminous materials.
 16. Insulate hot transport lines if required.
 17. Wrinkles, buckles, kinks, and fishmouths are not acceptable when laying membrane.
 18. Where deteriorated base flashing is removed, primed cant strips shall be installed at the intersection of the deck and the vertical surfaces. All flashings shall be mechanically top-fastened with a termination bar a minimum of six inches (6") on center at the top leading edge, and be a minimum of eight inches (8") in height from finished membrane.
 19. Provide a water test of each roof section prior to substantial completion. The test should simulate rainfall of one inch (1") per hour minimum.
 20. On slopes greater than one inch (1") in twelve inches (12"), refer to NRCA and/or manufacturer's guidelines for backnailing procedures and follow the more stringent guidelines for all specified materials.

3.02 SUBSTRATE PREPARATION

- A. Metal Decks
1. All loose rust, bitumen, or other foreign material shall be removed from the deck before applying asphalt primer at the minimal rate of one and one-half (1-1/2) gallons per one hundred (100) square feet of area.

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2. The deck span shall not exceed that recommended by FM Global Bulletin 1-28.
3. Expansion/control joints shall be installed so that no one area exceeds two hundred feet by two hundred feet (200' x 200').

B. LIGHTWEIGHT Concrete Decks:

1. Surface irregularities shall be corrected with repair materials suitable for the application and made smooth prior to installation of new roofing materials.
2. Repairs to damaged lightweight shall be performed with approved patch material in strict accordance to manufacturer's guidelines.
3. Refer to Section 07215 for approved patch material.

3.03 CATEGORY II (NON-FRIABLE) ASBESTOS CONTAINING MATERIALS (ACM) REMOVAL

NOTE: Asbestos removal procedures are required (if asbestos is present) while removal of ACM roof materials takes place. The following procedures are to be followed as a minimum:

- A. Roofing contractors who perform asbestos roof tear-off shall use hand tools such as axes, picks, shovels or mechanical equipment such as a "roof warrior" that uses a reciprocating wedge to tear roofing materials. Breaking and/or slicing of material is permitted. Sanding, grinding or abrading during handling is not permitted.
- B. Wrap all rooftop ducts, vents or exhaust openings with 6 mil poly and tape.
- C. Provide an Asbestos Hazard Control Supervisor (competent person) to oversee demolition.
- D. Ensure employees have received OSHA required training in asbestos removal and health hazards associated with exposure to airborne asbestos fibers.
- E. Roof will be sufficiently wetted down before removal to prevent dust, using pump-up garden sprayer or water hose with spray nozzle.
- F. Perform personal and area air monitoring for at least the first three (3) days of the project in accordance with 29 CFR 1910.1001. Monitoring shall be done by either: 1) in-house certified abatement personnel; or 2) certified asbestos monitoring personnel from a certified outside source.
- G. Asbestos Warning signs and tape shall be posted in tear-off area.
- H. Based on air monitoring results, the contractor MUST execute a Written Negative Exposure Assessment Determination and keep on file at the project site along with air monitoring results.
- I. Use airtight chutes or mechanical means to lower ACM from the roof. The ACM must be wrapped in poly and removed daily. If ACM is NOT wrapped, the disposal container must be enclosed.
- J. Disposal: Can be disposed of as construction debris at any approved landfill.

3.04 NAILERS

- A. Wooden nailers shall be installed at gravel stops, drip edges, and expansion joints on outside perimeter of building according to NRCA, Underwriters Laboratory and IBC guidelines.

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- B. All Construction: Nailers shall be the same height as the new recovery board being installed where required. Nailers shall be raised if necessary by anchoring an additional nailer of appropriate height to the existing nailer if the existing nailer is not to be replaced. Nailers shall be anchored to resist a pull-out force of one hundred seventy-five pounds (175#) per foot. Fasteners shall be no less than two (2) per nailer, and be spaced at three feet (3') on center maximum. Expansion joint nailers shall extend upward a minimum of eight inches (8") above finish roof height.

3.05 WOOD CANTS

- A. Toe of cant shall be level with the surface to receive new roof membrane and in all cases anchored according to NRCA, Underwriters Laboratory and IBC guidelines.

3.06 APPLICATION OF INTERPLY SHEET

- A. Cover Board shall be covered with one layer of 80mil SBS membrane adhered as follows:

Interply layer shall be solid mopped at the nominal rate of thirty pounds (30#) \pm 20 percent per one hundred (100) square feet using hot asphalt properly heated. Specified membrane shall be applied in accordance with the manufacturer's recommendations and in accordance with general practices as set forth by the NRCA Roofing Manual.

- B. Extend interply sheet from field up cant strip to top of curbs and up and over the top of parapet walls to form a monolithic layer.

3.07 APPLICATION OF FLEECE BACKED MEMBRANE

- A. Adhere membrane to acceptable substrate with hot asphalt applied at the rate specified by the manufacturer.

1. The roof surface must be clean, dry and free of foreign material.
2. Position sheets as indicated on approved shop drawings.
3. Fold one end of the Elvaloy® sheet on top of itself until both ends meet. Apply hot asphalt to the prepared roof surface. The sheet can then be pulled and laid into the bonding material using care not to create any wrinkles.
4. Carefully push into place from fold line to overlap, avoiding wrinkles and air pockets. Roll or broom membrane flat. Using a minimum 200 lb water filled roller, roll membrane into the hot asphalt. NO EXCEPTIONS.
5. Repeat procedure for other sheet half.
6. Lap seams shall be done by lapping the two inch (2") selvage edge over the non-selvage edge of the previous roll. The selvage edge seam shall be made with the heat gun method.
7. Roll ends are butted and capped with a six inch (6") wide trim strip. The trim strip is then seamed with the heat gun.

- B. Lap Seaming Procedure: Overlap membrane for attachment method specified and hot-air welded with manufacturer's approved equipment.

1. ALL SEAMS SHALL BE WELDED DAILY. NO EXCEPTIONS.
2. All surfaces to be welded shall be clean, dry and free of foreign material.
3. All seams must then be checked with a needle probe and any voids repaired with the heat gun.
4. Caulk all exposed cut edges with seam sealer.

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3.08 WALL AND BASE FLASHING

- A. The non-fleece back flashing membrane shall be utilized for curbs, parapet walls, multi-angled intersections, stripping ply, trim strips, and other conditions where molding/forming of the membrane is required.
- B. Any lumber or shimming required for attachment or to make material flashing flush or level with offsets and/or transitions shall be incorporated in the flashing specifications.

3.09 BASE FLASHING

- A. Base flashings shall be installed with length of run not to exceed twenty linear feet (20').
- B. Wooden nailers or curbs shall be installed at all edges and openings in the roof, mechanically fastened to the deck.
- C. Cant strips shall be installed at the intersection of the deck and all vertical surfaces.
- D. The roofing field membrane shall extend up over and two inches (2") above the top of cant strips at all vertical intersections or out to the roof's edge.
- E. All existing substrates receiving flashing membrane shall be clean and primed with primer, prior to application as required.
- F. All flashings shall be mechanically fastened with a termination bar a maximum of six inches (6") on center, be a maximum of eight inches (8") above finished roof height, extend a minimum of four inches (4") onto the field of horizontal roof membrane, and not exceed twenty linear feet (20') of run in length.
- G. After proper termination of the base flashing at a minimum eight inch (8") height (or maximum eighteen inch (18") height), a saw cut reglet with counterflashing / surface mounted counterflashing with a secondary counterflashing above shall be installed according to NRCA and SMACNA guidelines.
- H. All vertical flashing butted seams of the flashing membrane shall be covered with a 6" trim strip and hot-air welded.
- I. All flashing membrane shall be adhered with flashing bonding adhesive to the vertical substrate and hot-air welded to the field of roof membrane; hot-air weld 6" trim strip over the butted vertical seams/laps.
- J. Flashing welds shall be a minimum two inch (2") width, no maximum.

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K. Hot-Air Welding of Flashing:

1. When using a hand-held hot-air welder, the seams should be pressed together using a hand-held roller. The speed and temperature settings of the welding equipment can be affected by the weather conditions at the site of application, therefore, these parameters should be set by trial and error using two (2) pieces of the flashing membrane. Minimum width of hot-air weld two inches (2"), no maximum.
2. Lay the membranes together and apply pressure to the welded seam to ensure full adhesion.
3. Allow the seams to set fully, and probe the entire length for voids. Reseam voids immediately with a hot-air gun and roller.

L. All hot-air welded seams/laps shall be tested daily with a probe for integrity, no variance.

3.10 VERTICAL WALL FLASHING

- A. PARAPETS UP TO 24" IN HEIGHT: Flashing membrane shall be installed over the interply membrane on the vertical beginning a minimum of eight inches (8") in the field of the roof and extend up and over the top of the parapet wall in strap method. Flashing shall be installed in strict accordance with the manufacturer's recommendations.
- B. PARAPETS HIGHER THAN 24": Install clad metal receiver above the termination bar used to terminate the minimum eight inch (8") high base flashing. Adhere the wall flashing membrane up and over top of parapet and heat weld flashing to receiver above termination bar. Install removable counterflashing to receiver.
- C. All existing substrates receiving flashing membrane shall be clean and primed with asphalt primer, prior to application.
- D. All substrates receiving welded-seam flashing membrane shall be clean and primed with primer, prior to application when applicable.
- E. The vertical wall flashing membrane shall be set in flashing bonding adhesive according to manufacturer's guidelines.
- F. All vertical flashing joints shall be butted together and covered with 6" trim strip and hot-air welded to the flashing membrane.
- G. Flashing welds shall be minimum two inch (2") width, no maximum.
- H. Immediately following the laying of the flashing membrane, it shall be pressed or rolled in the width direction of the membrane. This will prevent excessive entrapment of air beneath the membrane. The pressing or rolling shall be in the width direction and with the laps so as not to buck the laps.
- I. Any flashing extending further than eighteen inches (18") up onto a vertical surface shall be installed using a hidden termination bar. The termination bar used to terminate the first flashing shall be covered by the lower edge of the upper vertical flashing and the selvedge edge shall be hot air welded to the lower flashing. This will cause the termination bar to be hidden at the termination point. Care should be taken to ensure the top edge of the bottom flashing and bottom edge of the upper vertical flashing are both secured. The upper flashing shall be installed and extended up and over the parapet wall and fastened to the nailer on the outside of the wall.

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- 1 J. The flashing membrane shall be run up the wall in lengths not to exceed twenty (20') linear feet, run
2 under the coping cap and be terminated on the outside of the wall six inches (6") on center; then the
3 coping cap shall be reset. All vertical butt joints are to be stripped in with the 6" trim strip and hot-air
4 welded.
5
- 6 K. Hot-air Welding Laps/Joints/Seams:
7 1. When using a hand-held hot-air welder, the seams should be pressed together using a hand-held
8 roller. The speed and temperature settings of the welding equipment can be affected by the
9 weather conditions at the site of application, therefore, these parameters should be set by the
10 contractor by using two (2) pieces of flashing membrane. Minimum width of hot-air weld shall
11 be two inches (2").
12 2. Lay the laps together and apply pressure to the welded seam to ensure full adhesion.
13 3. Allow the seams to set fully, and probe the entire length for voids. Reseam voids immediately
14 with a hot-air gun and roller.
15
- 16 L. All hot-air welded seams/joints/laps shall be tested daily with a probe for integrity, no variance.
17
- 18 M. Any lumber or shimming required for attachment or to make material flashing flush or level with
19 offsets and/or transitions shall be incorporated in the flashing specifications.
20
- 21 3.11 LIQUID FLASHING
22
- 23 A. Apply liquid flashing to all pipe penetrations including soil stacks, electrical conduit, gas piping,
24 structural supports, and other penetrations that penetrate the roof deck in strict accordance with
25 manufacturer's published guidelines.
26
- 27 3.12 PERIMETER FASTENING
28
- 29 A. Wood nailers are required for perimeter gravel stops or drip edges. Field membrane and all plies shall
30 be mechanically fastened to nailer on twelve inch (12") centers maximum.
31
- 32 3.13 EDGING FLASHINGS
33
- 34 A. An NRCA-approved gravel stop/fascia system shall be installed in strict accordance with published
35 instructions.
36
- 37 3.14 ROOF DRAINS
38
- 39 A. Inspect and test drain and drain lines prior to start of work in contact area. Open if blocked or clogged
40 and repair/replace all broken, missing drain components and lines as required. Verify in writing that all
41 drains and lines are free flowing and watertight prior to substantial completion. Comply with local
42 plumbing codes.
43
- 44 B. Remove strainer and clamping ring. Repair (or replace if damaged) and reset.
45
- 46 C. Insert Drains (If Required): Install new drain inserts with permanent gaskets between insert and drain
47 wall to prevent backflow of water and leakage.
48

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- D. Replacement Drains (If Required): Sized to match existing drain system. Install watertight to existing lines. Follow drain manufacturer's installation requirements.

3.15 WALKWAY PADS

- A. Adhere and heat weld walkway pads where shown on drawings or where required to provide protected pathways from rooftop access points to mechanical or other equipment requiring rooftop maintenance.

3.16 CLEANING

- A. Clean exposed surfaces of excess cement, adhesive, sealants, mortar and paint associated with the new work.
- B. Clean work area of excess roofing materials and installation debris daily.
- C. Repair or replace defaced or disfigured finishes caused by the work.

3.17 MEMBRANE CLEANING

- A. After all membrane has been installed, it shall be cleaned with a cleaning agent compatible with the membrane to return the membrane to like new appearance.

3.18 PROTECTION

- A. Protect all building surfaces against damage from roofing work.
- B. Where traffic must continue over finished, installed roofing system, protect membrane, underlayment accessories and finishes from damage.

3.19 MEMBRANE PROTECTION

- A. Where equipment pads, wood sleepers, or walkway slabs are to be installed over the roofing membrane, an additional layer of the roofing membrane shall be installed between the roofing membrane and the pad, sleeper, or slab. Due caution shall be exercised to prevent roofing membrane damage during placement. Where required, membrane shall be welded to field membrane to prevent slippage.

3.20 PIPING/CONDUIT

- A. Piping/conduit shall be raised to NRCA recommended heights, and new supports furnished. Permanent supports shall be installed upon pads approved by membrane manufacturer. Coordinate work with Owner's representative.
- B. All gas piping shall be coated with industrial grade yellow paint.

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3.21 PIPE/EQUIPMENT SUPPORTS

- A. Pipe/equipment supports shall be removed and replaced with new specified pipe supports on neoprene pads. Neoprene pads shall be set in 2" pool of sealant to prevent slippage. Pipe supports shall be placed approximately ten feet (10') on center and two feet (2') on center from all corners and T's.
- B. Gas lines three inches (3") and over must be supported on wood block with pipe roll stands.

3.22 ROOF HATCH

- A. Install hatch per manufacturer's guidelines as needed.
- B. Install specified metal plaque on the underside of each hatch lid.

3.23 OVERNIGHT SEAL

- A. Shall be performed according to accepted roofing practice as outlined in the NRCA Roofing Manual, SPRI and membrane manufacturer's recommended procedure.
- B. The roofing membrane shall be sealed to the roof deck or existing roof at the end of the day or at the onset of inclement weather to prevent water from flowing into the completed roofing system. Temporary seals shall be removed upon resumption of work and the installed insulation shall be staggered with offset joints prior to continuation of the insulation.

3.24 COPING JOINTS, REGLET JOINTS, CAULK JOINTS, WALL JOINTS, AND WALL CRACKS ABOVE THE ROOF LINE

- A. All reglet and coping joints shall be raked clean of loose materials and debris, and sealed with caulk sealant. Sealant shall be properly installed and tooled in a workmanlike manner to ensure permanent seal.
- B. All open coping and masonry terminations and intersections shall be cleaned out and sealed with backer rod and caulk sealant. Backer rod shall be minimum one and one-half (1-1/2) times the width of the opening to be sealed. Caulk sealant thickness shall be minimum of one-half (1/2) of the width of the opening to be sealed.
- C. Clean joint surfaces immediately before installation of gaskets, sealant or caulking compound. Remove dirt, insecure coatings, existing sealant, moisture, and other substances which could interfere with seal of gasket or bond of sealant or caulking compound. Etch concrete and masonry joint surfaces as recommended by sealant manufacturer. Roughen vitreous and glazed joint surfaces as recommended by sealant manufacturer.
- D. Prime or seal joint surfaces where indicated, and where recommended by sealant manufacturer. Confine primer/sealer to areas of sealant bond; do not allow spillage or migration onto adjoining surfaces.
- E. Comply with manufacturer's printed instructions except where more stringent requirements are shown or specified, and except where manufacturer's technical representative directs otherwise.

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- 1 F. Install sealant backer rod for liquid-applied sealants, except where shown to be omitted or
2 recommended to be omitted by sealant manufacturer for application indicated.
3
- 4 G. Employ only proven installation techniques, which will ensure that sealants are deposited in uniform,
5 continuous ribbons without gaps or air pockets, with complete "wetting" of joint to bond surfaces
6 equally on opposite sides. Except as otherwise indicated, fill sealant rabbet to a slightly concave
7 surface, slightly below adjoining surfaces. Where horizontal joints are between a horizontal surface and
8 vertical surface, fill joint to form a slight cove, so that joint will not trap moisture and dirt.
9
- 10 H. For normal moving joints to be sealed with elastomeric sealants but not subject to traffic, fill joints to a
11 depth equal to fifty percent (50%) of joint width, but neither more than one-half inch (1/2") deep nor
12 less than one-fourth inch (1/4") deep.
13
14

15 END OF SECTION 07537
16

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SECTION 07600

**SHEET METAL AND MISCELLANEOUS ACCESSORIES
FOR ADHERED MULTI-PLY ROOF SYSTEM**

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Provide flashing and sheet metal components for moisture protection.
2. Related accessories.

1.02 SUBMITTALS

A. Product Data:

1. Submit shop drawings, product data and mockups of all sheet metal.

1.03 QUALITY ASSURANCE

- A.** Comply with governing codes and regulations. Provide products of acceptable manufacturers in satisfactory use in similar service for five (5) years. Use experienced installers. Deliver, handle and store materials in accordance with manufacturer's instructions.

- B.** Reference Standards: Applicable portions of ASCE, SMACNA, ASTM and NAAMM publications.

1.04 WARRANTIES

- A.** Manufacturer's Product Warranty: Submit manufacturer's standard limited product warranty signed by the manufacturer's authorized official, guaranteeing to correct failures in product which may occur during the warranty period, without reducing or otherwise limiting any other rights to correction which the Owner/Project Consultant may have under the contract documents. Failure is defined to include product failure which leads to interruption of a watertight installation. Correction may include repair or replacement of failed product.

- B.** Contractor's Warranty Period: For roofing flashing and sheet metal, provide a written warranty which shall warrant work to be free of leaks and defects in materials and workmanship for two (2) years, starting from date of substantial completion.

- C.** Defects of the sheet metal occurring during the warranty period shall be promptly corrected by the contractor, and defects of the roofing shall be promptly corrected by the manufacturer at no additional cost to the Owner. Upon notification from the Owner or the Owner's representative that evidence of a defect exists, the responsible party shall immediately inform the Owner's representative of the date on which corrective work will be scheduled, and shall notify the Owner's representative when the corrective work has been completed.

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PART 2 - PRODUCTS

2.01 SHEET METAL MATERIAL

- A. Hot-dipped Galvanized Steel for use as counterflashings (where not visible from the ground), pitch pans and expansion joints: Minimum 24-gauge, G-90, hot-dipped galvanized metal, commercial quality, ASTM A 525.
- B. Hot-dipped Galvanized Steel for use as continuous clips: Minimum 22-gauge, G-90, hot-dipped galvanized metal, commercial quality, ASTM A 525.
- C. Prefinished Galvanized Sheet Steel (where visible from the ground): Shall be 24-gauge flat stock, prefinished with Kynar finish meeting ASTM A 446, forty-five and one-half inches to forty-eight inches width by one hundred twenty inches in length (45-1/2" - 48" x 120") for use as new metal edge gravel guard, downspouts, gutters, coping and miscellaneous metal. Standard color to be selected by Owner/Project Consultant.
- D. Elvaloy® Cladded Metal: Shall be G-90 galvanized steel with 25 mil Elvaloy® membrane lamination; width shall be four feet, length shall be eight or ten feet. Standard color to be selected by Owner.
- E. Stainless Steel: QQ-S-766, Class 301, 302, 304, or 316; or ASTM A 167, Type 301, 302, 304, or 316; form and condition most suitable for the purpose.
- F. Aluminum and Aluminum Alloy Plate and Sheet: QQ-A-250; form, alloy, and temper shall be that most suitable for the purpose.
- G. Sheet Lead: QQ-L-201, Grade B.
- H. All existing sheet metal shall be replaced with new metal of like gauge and type, or as specified on drawings.

2.02 FASTENERS

- A. Fasteners shall be same metal as flashing/sheet metal, or other non-corrosive metal as recommended by sheet manufacturer for the specific application. Match finish of exposed heads with material being fastened.
- B. Fasteners and fastening plates or bars shall be listed in the FM Global Approval Guide.
- C. Fastener for Brick: Shall be one-fourth inch by two inches (1/4" x 2"), zinc with plated steel or stainless steel nail, one piece unit, flat head.
- D. Screws: Self-taping sheet metal type with neoprene washer, as appropriate.
- E. Pop Rivets: Full stainless steel Series 42 or 44, as appropriate.
- F. Continuous Clip: Concealed hold-down clip type; of same materials as coping, gravel guard, sized to suit application. Use a continuous clip, minimum 20-gauge G-90 galvanized.

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2.03 RELATED MATERIAL

- A. Bituminous Paint: Acid and alkali resistant, black color.
- B. Plastic Cement: FS SS-C-153, cutback asphalt type.
- C. Solder: For use with steel or copper, provide 50-50 tin/lead solder (ASTM B 32), with rosin flux.
- D. Copper, Sheet, and Strip: QQ-C-576, ASTM B 370, light cold-rolled temper.
- E. Lead-coated Copper: ASTM B 101, Type I or II, Class A.
- F. Sealant (for Sheet Metal): One-component polyurethane, conforming to requirements of FS TT-S-230C, non-staining and non-bleeding.
- G. Miscellaneous Materials:
 - 1. Splash Blocks: Concrete, 3000 psi, 28 days. Provide and install with protection pads at all downspouts. Dimensions shall be a minimum eighteen inches wide by thirty-six inches long (18" x 36").
 - 2. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of work, matching or compatible with material being installed, non-corrosive, size, and gauge required for performance.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify roof openings, curbs, pipes, sleeves, ducts or vents through roof are solidly set, cant strips and reglets in place, substrates are smooth and clean and nailing strips located.
- B. Verify membrane termination and base flashings are in place, sealed and secure.
- C. Beginning of installation means acceptance of conditions.

3.02 PREPARATION

- A. Field measure site conditions prior to fabricating work. Provide all shop drawings and mock-ups one month prior to installation to the Owner/Project Consultant for approval.
- B. Install starter and edge strips and cleats before starting installation.

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3.03 FABRICATION - GENERAL

- A. Shop-fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather-resistant performance; with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of the work. Form work to fit substrates. Comply with material manufacturer's instructions and recommendations. Form exposed sheet metal work without excessive oil-canning, buckling, and tool marks, true to line and levels as indicated, with exposed edges folded back to form hems.
- B. Fabricate gravel stops/fascia, gutters/downspouts, counterflashings, pitch pans, expansion joints, and copings with new galvanized sheet metal as specified. Fabricate gravel guard and fascia to size and dimensions as indicated on the drawings. Fabricate light metal coping, gutters and downspouts as indicated.
- C. Form sheet metal on bending brake.
- D. Shape, trim and hand seam metal on bench insofar as practicable.
- E. Form materials with straight lines, sharp angles and smooth curves.
- F. Fold back edges on concealed side of exposed edge to form hem (1/2" minimum).
- G. Weld or solder joints on parts that are to be permanently and rigidly assembled.
- H. Submit sheet metal models for approval by the Owner/Project Consultant.
- I. Limit single-piece lengths to ten feet (10').
- J. Fabricate corner pieces with eighteen inch (18") extensions, metered and sealed by forming as one piece.
- K. Surface sand flange prior to applying any primers on Kynar metal.
- L. Backpaint flashing in contact with masonry or dissimilar materials with bituminous paint.
- M. All sheet metal shall be sealed and watertight.
- N. Metal work should be secured so as to prevent damage from buckling or wind. Where clips are shown, these are to be continuous.
- O. All metal to receive bitumen or adhesive shall be first primed with asphalt primer.
- P. Seams: Fabricate non-moving seams in sheet metal with flat-lock seams. For metal other than aluminum, tin edges are to be seamed, form seams, and solder.
- Q. Expansion Provisions: Form expansion joints of intermeshing hooked flanges, not less than one inch (1") deep, filled with mastic sealant (concealed within joints).

**CSP: REROOFING AT AUSTIN ELEMENTARY SCHOOL, GENTRY ELEMENTARY SCHOOL,
PIRRUNG ELEMENTARY SCHOOL, PORTER ELEMENTARY SCHOOL, RUGEL ELEMENTARY
SCHOOL, LEARNING CENTER
MESQUITE INDEPENDENT SCHOOL DISTRICT**

- R. Sealant Joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with industry standards.
- S. Separations: Provide for separation of metal from non-compatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.
- T. Bed flanges of work in a thick coat of bituminous roofing cement where required for waterproof performance.

3.04 INSTALLATION

- A. General: All sheet metal termination to vertical wall shall have a through-wall with receiver installed on masonry walls or prefabricated "Z" bar flashing pre-installed to fluid applied wall finished prior to installation of sheet metal termination. This applies to edge metal, base flashing closures and all vertical surface intersections. Refer to NRCA, SMACNA, and metal manufacturer's guidelines.
- B. Elvaloy® clad metal shall be fabricated for pitch pans and other metal accessories where Elvaloy membrane meets metal as needed; follow these specifications and standard sheet metal practice for attachment to roof details.
- C. Gravel Guard/Fascia:
1. Shall be installed with expansion joints, ten feet (10') on center, one-fourth inch (1/4") expansion leeway, with a cover plate.
 2. Secure metal flashings per specifications.
 3. Lock seams and end joints.
 4. Form sections identical to profiles as shown or approved similar, to match existing building.
 5. Fabricate corner pieces with minimum eighteen inch (18"), maximum forty-eight inch (48") extensions, formed and sealed with rivets and sealant, as one piece.
 6. Hem exposed edges three-fourths inch (3/4") minimum.
 7. Backpaint flashing in contact with masonry or dissimilar materials with bituminous paint. Surface sand before applying primers.
 8. Integrate flashing in a manner consistent with detailing.
 9. Provide and install continuous clip around perimeter.
 10. Shall be fabricated in accordance with all SMACNA provisions.
 11. Color as selected from manufacturer's full range of colors including metallics.
- D. Coping:
1. Install new metal coping as required for a permanent watertight installation.
 2. All coping shall be manufactured with low profile standing seam metal.
 3. Shall be minimum 24-gauge prefinished Kynar installed in ten foot (10') sections maximum.
 4. Vertical fascia shall extend minimum two and one-half inches (2-1/2") or be minimum one and one-half inches (1-1/2") below bottom of nailer, whichever is greater.
 5. Secure metal flashings per specifications.
 6. Lock seams and end joints.
 7. Form sections identical to profiles as shown or approved similar, to match existing building.
 8. Fabricate corner pieces with minimum eighteen inch (18"), maximum forty-eight inch (48") extensions, formed and sealed with rivets and sealant, as one piece.

**CSP: REROOFING AT AUSTIN ELEMENTARY SCHOOL, GENTRY ELEMENTARY SCHOOL,
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SCHOOL, LEARNING CENTER
MESQUITE INDEPENDENT SCHOOL DISTRICT**

9. Hem exposed edges three-fourths inch (3/4") minimum.
10. Backpaint flashing in contact with masonry or dissimilar materials with bituminous paint. Surface sand before applying primers.
11. Integrate flashing in a manner consistent with detailing.
12. Provide and install continuous clip, minimum 22-gauge.
13. Shall be fabricated in accordance with all SMACNA provisions.
14. Color as selected from manufacturer's full range of colors including metallics.

E. Expansion Joint Field and at Wall:

1. Shall be as outlined by details, and be in full compliance with all provisions of SMACNA and FM Global requirements for attachment, installation and recommendations.
2. Secure metal flashings per specifications.
3. Lock seams and end joints.
4. Form sections identical to profiles as shown or approved similar, to match existing building.
5. Fabricate corner pieces with minimum eighteen inch (18"), maximum forty-eight inch (48") extensions, formed and sealed with rivets and sealant, as one piece.
6. Hem exposed edges three-fourths inch (3/4") minimum.
7. Backpaint flashing in contact with masonry or dissimilar materials with bituminous paint. Surface sand before applying primers.
8. Integrate flashing in a manner consistent with detailing.
9. Provide and install continuous clip around perimeter.
10. Shall be fabricated in accordance with all SMACNA provisions.

F. Counterflashing:

1. Install new metal counterflashing as required for a permanent watertight installation.
2. Saw cut brick mortar joint to receive friction fit reglet and removable counterflashing as detailed in SMACNA Figure 4-3E.

G. Gutter and Downspout:

1. Fabrication:
 - a) Fabricate gutter and downspout of profile and size indicated.
 - b) Field measure site conditions prior to fabricating work.
 - c) Fabricate with required connection pieces.
 - d) Fabricate section square, true, and accurate in size, in maximum possible lengths and free of distortion or defects detrimental to appearance or performance.
 - e) Hem exposed edges of metal.
 - f) Form and seal all metal joints; provide for expansion joints per SMACNA.
2. Installation:
 - a) Install collector head, downspout, and accessories.
 - b) Join lengths with seams pop riveted and sealed watertight. Flash and seal collector head to downspouts and accessories.
 - c) Seal all metal joints watertight for full metal surface contact.
 - d) Collector Head: SMACNA style profile; submit detail for approval.
 - e) Downspouts: Rectangular profile. Seal all joints, size to match existing downspouts.
 - f) Support Brackets, Joint Fasteners: Profiled to suit gutters and downspouts.
 - g) Anchorage Devices: SMACNA requirements. Type recommended by fabricator.
 - h) Collector Head Support: Kynar. Color and Finish to match, as recommended by SMACNA.
 - i) Downspout Supports: Straps, Kynar. Color and Finish to match.

**CSP: REROOFING AT AUSTIN ELEMENTARY SCHOOL, GENTRY ELEMENTARY SCHOOL,
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H. Overflow Scupper, Collector Head and Downspout:

1. Fabrication:

- a) Fabricate overflow scupper with clad metal, collector head and downspout of profile and size indicated, taking care that the roof drain leader fits properly into the back of the collector head. Seal the pipe to the collector head for watertightness.
- b) Field measure site conditions prior to fabricating work.
- c) Fabricate with required connection pieces.
- d) Fabricate section square, true, and accurate in size, in maximum possible lengths and free of distortion or defects detrimental to appearance or performance.
- e) Hem exposed edges of metal.
- f) Form and seal all metal joints; provide for expansion joints per SMACNA.

2. Installation:

- a) Install collector head, downspout, and accessories.
- b) Join lengths with seams pop riveted and sealed watertight. Flash and seal collector head to downspouts and accessories.
- c) Seal all metal joints watertight for full metal surface contact.
- d) Collector Head: SMACNA style profile; submit detail for approval.
- e) Downspouts: Rectangular profile. Seal all joints, size to match existing downspouts.
- f) Support Brackets, Joint Fasteners: Profiled to suit gutters and downspouts.
- g) Anchorage Devices: SMACNA requirements. Type recommended by fabricator.
- h) Collector Head Support: Kynar. Color and Finish to match, as recommended by SMACNA.
- i) Downspout Supports: Straps, Kynar. Color and Finish to match.
- j). Color as selected from manufacturer's full range of colors including metallics.

I. Wall Panels:

1. Wall panels shall have Kynar factory finish suitable for application as wall system assembly over brick rise wall.
2. Color and profile to be determined by the Owner.
3. Metal panels shall be a minimum 22 gauge if flush-panel wall panels are selected.

J. Bonnets/Hoods:

1. Fabricate and install above all pitch pans, where necessary, or reinstall as applicable, metal bonnets over all pitch pans, NO EXCEPTIONS.
2. Bonnets/Hoods shall be manufactured with metal compatible with metal to which bonnet is to be attached.
3. On beams and other steel, weld in place bonnets fabricated from one-fourth inch (1/4") steel plate.
4. Draw band bonnets fabricated from 22-gauge galvanized steel may be used on circular projections.

3.05 FINISH

- A. Backpaint concealed metal surfaces with bituminous paint where expected to be in contact with cementitious materials or dissimilar metals. Exposed surfaces to be provided with a factory applied fluorocarbon Kynar finish meeting ASTM A 446 and AAMA specification 605.2 for high performance coating.

END OF SECTION 07600

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MESQUITE INDEPENDENT SCHOOL DISTRICT**

SECTION 07999

ROOF PLANS/DETAIL DRAWINGS

1.01 ROOF PLANS

- A. Any drawings supplied are for reference purposes only. Dimensions, penetrations, curbs, etc. must be field verified. Those shown are typical but may not be all inclusive, and contractor shall be responsible for the correctness of same. Any existing insulation thickness, deck type or other details shown on the drawings shall be subject to contractor confirmation.

1.02 DETAIL DRAWINGS

- A. The enclosed details for this project are intended primarily to present the proper installation of the membranes used for waterproofing at flashings, perimeter closures, roof projections, etc. Specific underlying construction configurations, such as walls, nailers, wood backing, structural steel, etc., which may currently be in place may or may not be accurately depicted on the attached details. Unless specifically called out in the accompanying written specifications, or where a detail is noted "AS DRAWN", and/or proper roofing and construction practices are not being followed, underlying construction configurations are to remain unchanged from those in place on the building prior to this reroofing.

END OF SECTION 07999



MESQUITE ISD
RE-ROOF & A/C PROJECT
AUSTIN ELEMENTARY
GENTRY ELEMENTARY
PIRRUNG ELEMENTARY
PORTER ELEMENTARY
RUGEL ELEMENTARY
LEARNING CENTER

- GENERAL ROOF NOTES**
- A. PROVIDE ALL REQUIRED UTILITY / STRUCTURAL COMPONENTS AND/OR CONNECTIONS FOR THE FUNCTIONAL USE OF ALL CONTRACTOR SUPPLIED EQUIPMENT OR APPLIANCES, REGARDLESS OF ANY OMISSIONS OR INCONSISTENCIES ENCOUNTERED IN THE CONSTRUCTION DOCUMENTS.
 - B. THE WORD 'PROVIDE' SHALL MEAN 'FURNISH AND INSTALL COMPLETE AND READY TO USE.'
 - C. IF DISCREPANCIES APPEAR BETWEEN THE DRAWINGS AND THE SPECIFICATIONS, THE HIGHER QUALITY, QUANTITY, AND PRICE SHALL SUPERSEDE.
 - D. THE GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL BECOME FAMILIAR WITH THE PROJECT AND THE ON-SITE / OFF-SITE CONDITIONS PRIOR TO BIDDING OR COMMENCING WORK.
 - E. PROVIDE METAL END CLOSURE ON EXPANSION JOINTS WHERE THEY OCCUR AT THE EDGE OF THE ROOF.
 - F. ROOF SLOPES SHOWN ON DRAWING ARE GENERAL AND CONCEPTUAL ONLY. PROVIDE POSITIVE DRAINAGE TO ALL ROOF DRAINS. VERIFY TAPER IN SHOP DRAWINGS. REFER TO STRUCTURAL DOCUMENTS FOR EXACT TOS/BOD ELEVATIONS.
 - G. PROVIDE TAPERED INSULATION CRICKETS (1/2"/FT. MIN. SLOPE) AT HIGH SIDE OF ALL MECHANICAL UNITS SMOKE VENTS, ROOF HATCHES & OTHER MISC. ROOF PENETRATIONS, TO SHED WATER AROUND & TO ENSURE POSITIVE ROOF DRAINAGE.
 - H. PROVIDE ADDITIONAL FULLY ADHERED MEMBRANES AS PROTECTION AT "SERVICE SIDE" OF ALL MECH. EQUIPMENT - FIELD VERIFY LOCATIONS. AS WELL AS PROTECTION AT "ACCESS SIDE" OF ALL ROOF HATCHES AND ROOF ACCESS LADDERS FIELD VERIFY LOCATIONS AND AT DOWNSPOUT LOCATIONS.
 - I. ALL WOOD BLOCKING AT ROOF EDGES ARE TO BE FABRICATED FROM CONT. 2X6 FR-WD BOARDS. PROVIDE LARGER 2X FR-WD AS REQUIRED PER DIMENSIONED DETAILED OR AS FIELD CONDITIONS DICTATE. ALL COPING TO BE SLOPED TOWARD THE INTERIOR.
 - J. ALL EXPOSED FLASHING, COPING (IF APPLICABLE) AND THEIR ACCESSORIES SHALL BE AS SPECIFIED.
 - K. HEIGHT OF ALL NAILERS SHALL BE FLUSH WITH NEW INSULATION THICKNESS.
 - L. ALL THROUGH WALL FLASHING SYSTEMS TO ACCOMMODATE 8" MINIMUM FLASHING HEIGHT FROM FINISHED ROOF SURFACE. PROVIDE END DAMS AS CONDITIONS ALLOW. ALL FLASHING TO HAVE 4" LAP MINIMUM AND OR STEP.
 - M. ALL INFELD EXPANSION JOINTS SHALL HAVE LOW SLOPED STANDING SEAM JOINTS AND SHALL BE CHAMFERED AT TERMINATION AT ROOF EDGE TO MEET PROFILE OF PERIMETER.
 - N. ANY CRACKS OR VOIDS IN RISE WALLS ABOVE COUNTER FLASHING SHALL BE REPAIRED WITH COMPATIBLE SEALANT.
 - O. PROVIDE NEW CONCRETE SPLASH BLOCKS ON ROOF ELEVATION SUPPORTED BY A WALK PAD WHERE DOWNSPOUTS OCCUR.
 - P. PIPE AND CONDUIT SHALL RECEIVE PIPE SUPPORTS AND PADS AS DETAILED.
 - Q. ALL METAL FLASHING SHALL EXTEND BEYOND ROOF EDGE MIN. 8" WHERE FLASHING ABUTS VERTICAL WALL SURFACE AS DETAILED. ALL FLASHING SHALL BE INSTALLED IN SHINGLE FASHION.
 - R. AT ALL LOCATIONS WHERE CONVERGENCE OF MULTIPLE PLANES OF ROOFING TO WALL OCCUR, FIELD FABRICATE THERMOPLASTIC BOOT TO BE INSTALLED OVER NEW ROOFING, COMPLETELY OVERLAYING THE TRANSITIONS OF ALL ROOF TO WALL, ELEVATIONS, INSIDE / OUTSIDE 90'S, ETC. PRIOR TO METAL INSTALLATION.
 - S. ALL EQUIPMENT CURBS TO BE RAISED AS NECESSARY TO MAINTAIN 8" MINIMUM HEIGHT ABOVE FINISHED ROOF SURFACE.
 - T. MECHANICAL, ELECTRICAL, AND PLUMBING ROOF EQUIPMENT SHOWN ON THIS PLAN IS FOR GENERAL INFORMATION ONLY. REFER TO GENERAL REQUIREMENTS AND SPECIFICATION NOTES FOR ADDITIONAL REQUIREMENTS AND COORDINATION.
 - U. FLASHING AND STRIPPING MATERIALS, BASE PLY SHEETS, MEMBRANES, INSULATION, AND ACCESSORIES SHALL BE AS RECOMMENDED BY THE ROOFING SYSTEM MANUFACTURER FOR INTENDED USE AND COMPATIBILITY WITH THE MEMBRANE ROOFING SYSTEM.
 - V. WHERE WOOD BLOCKING EXCEEDS 6" IN VERTICAL THICKNESS AT TAPERED INSULATION, PROVIDE STEM WALL CONSTRUCTED OF 6" GALVANIZED COLD FORMED METAL FRAMING AT 16" O.C. WITH CONTINUOUS TRACK AT TOP AND BOTTOM AND WITH 3/4" FR-EXT GRADE PLYWOOD AT EACH SIDE, TOP TO SLOPE WITH TAPERED INSULATION.
 - W. ALL VERTICAL MEMBRANE FLASHING SHALL BE MECHANICALLY FASTENED AND INSTALLED WITH NEW METAL COUNTER FLASHING UTILIZING A CONTINUOUS CLIP. SLIDE METAL COVER PLATE DOWN OVER VERTICAL CLIP AND SEAL.
 - X. PROVIDE STEP FLASHING AND COVER PLATE AT SLOPED ROOF HI/LOW CONDITIONS.
 - Y. GUTTERS SHALL BE PREFINISHED GALVANIZED STEEL, SIZE PER ROOF PLAN, UNO, PROVIDE PREFINISHED 1/4"x1 1/2" GALVANIZED STEEL BENT PLATE BRACKETS AND PREFINISHED 1" GALVANIZED STEEL SPACERS AT 36" O.C. MAX. STAGGER WITH EACH OTHER AT 18" O.C.
 - Z. PROVIDE PREFINISHED GUTTER E/J'S 30'-0" O.C. MAX. AS REQUIRED.
 - AA. DOWNSPOUTS SHALL BE PREFINISHED GALVANIZED STEEL UNO AS INDICATED ON ROOF PLAN. MAINTAIN EXISTING DIMENSIONS PROVIDE PREFINISHED 2" GALVANIZED STEEL HANGERS AT 36" O.C. PROVIDE VANDAL PROOF STAINLESS STEEL STRAINERS AT EACH OUTLET. COORDINATE LOCATION WITH ARCHITECT / CONSULTANTS PRIOR TO INSTALLATION.
 - AB. PROVIDE CAST IRON BOOT PER TYP AT ALL DOWNSPOUTS THAT ARE TO GRADE. CONNECT TO STORM SEWER.
 - AC. PROVIDE SPLASH BLOCKS AT ALL ROOF LEADER NOZZLES THAT SPILL ONTO GROUND.
 - AD. ROOF PLAN SHOWS TAPERED INSULATION CONCEPTUALLY AND FOR INTENT ONLY. TAPERED INSULATION IS NOT SHOWN TO SCALE AND IS SHOWN AS GRAPHIC REPRESENTATION ONLY IN ORDER TO SHOW SLOPE AND APPROXIMATE LOCATIONS OF MATERIAL. VERIFY INSULATION REQUIRED TO MAINTAIN SLOPE PRIOR TO INSTALLATION. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
 - AE. CONTRACTOR SHALL REMOVE ALL ABANDONED RTU'S , PIPING AND SUPPORTS AS NOTED BY THE OWNER.
 - AF. ALL ABANDONED ITEMS TO BE CLEARLY MARKED BY OWNER PRIOR TO COMMENCEMENT OF WORK.



ARMKO
INDUSTRIES, INC.

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11/05/19

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PROJECT FOR:
MESQUITE ISD
MULTIPLE FACILITIES
RE-ROOF PROJECT
MESQUITE, TEXAS

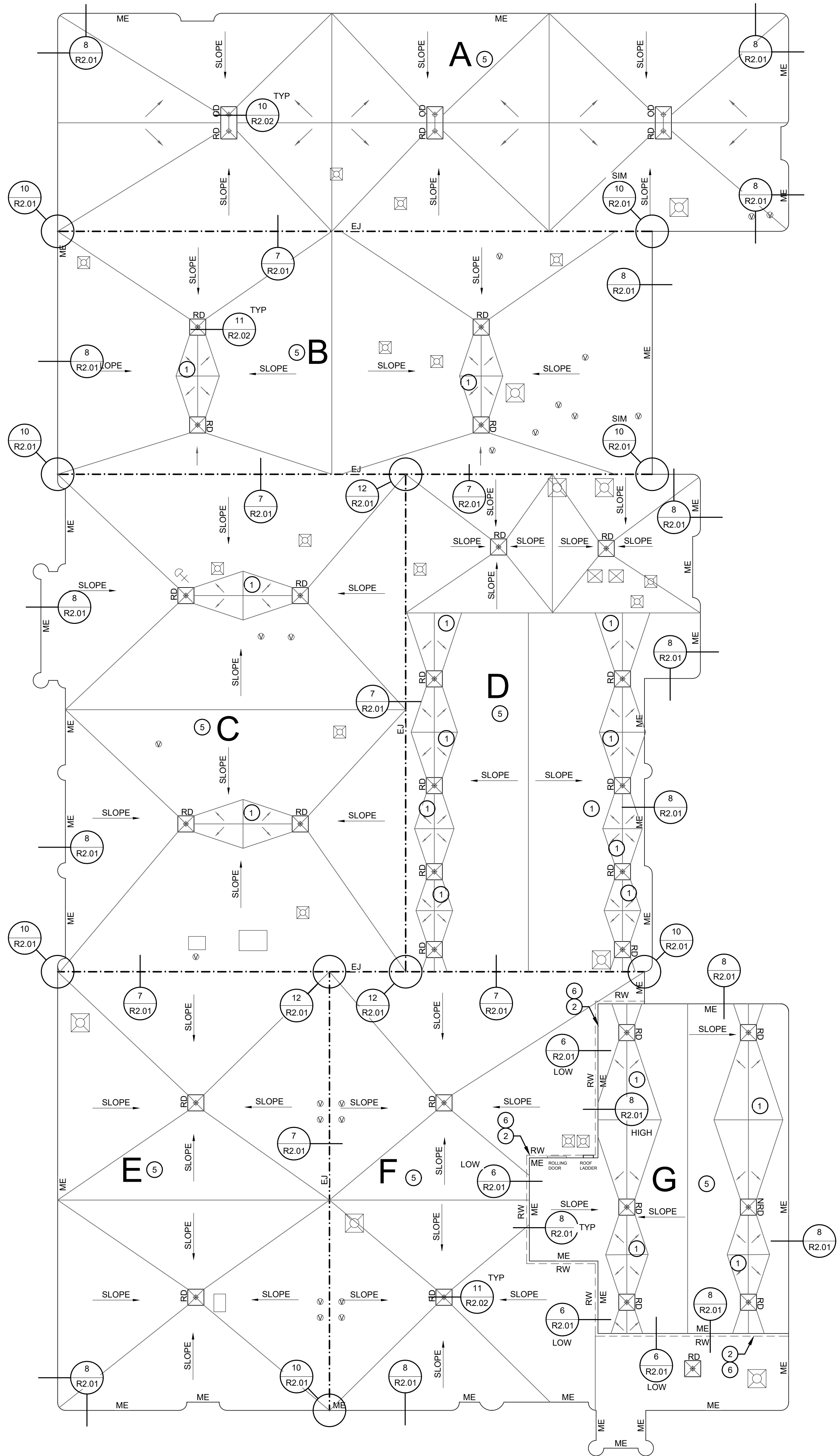
COVER SHEET

JOB 19-1277-44
DATE 11/05/19
DRAWN BY: CB
CHECKED BY: AL
SHEET

R1.00

ROOF SYMBOLS

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- AUSTIN ELEMENTARY SCHOOL
- BASE SCOPE OF WORK
- REMOVE ALL EXISTING ROOFING MATERIALS DOWN TO EXISTING DECK.
 - AREA A: MECHANICALLY ATTACH FIRST LAYER OF TWO INCH (2") POLYISOCYANURATE INSULATION OVER METAL DECK PER ASCE-7 WIND UPLIFT REQUIREMENTS.
 - AREAS B,C,D,E,F,G: MECHANICALLY ATTACH BASE SHEET TO LTWT CONCRETE DECK PER ASCE-7 WIND UPLIFT REQUIREMENTS.
 - ADHERE FIRST LAYER OF TWO INCH (2") POLYISOCYANURATE INSULATION OVER THE TOP SURFACE OF THE BASE SHEET IN SOLID MOPPING OF HOT ASPHALT.
 - ADHERE SECOND LAYER OF TWO AND ONE-HALF INCH (2-1/2") POLYISOCYANURATE INSULATION OVER TOP SURFACE OF FIRST LAYER OF INSULATION IN SOLID MOPPING OF HOT ASPHALT.
 - ADHERE ONE LAYER OF ONE-HALF INCH (1/2") SECUROCK COVER BOARD OVER POLYISOCYANURATE INSULATION IN SOLID MOPPING OF HOT ASPHALT.
 - ADHERE ONE LAYER OF 80MIL SBS INTERPLY SHEET OVER SECUROCK COVER BOARD IN SOLID MOPPING OF HOT ASPHALT.
 - ADHERE SPECIFIED WHITE ELVALOY FLEECE BACK MEMBRANE OVER INTERPLY SHEET IN SOLID MOPPING OF HOT ASPHALT. HEAT WELD ALL LAPS AND SEAMS.
 - PROVIDE ALL CLAD METAL, PRE-FINISHED METAL, AND OTHER ACCESSORIES REQUIRED BY MEMBRANE MANUFACTURER TO ACHIEVE A 20 YEAR NDL WARRANTY WITH FOUR INCH (4") HAIL PER MANUFACTURER'S GUIDELINES.
 - WORK SHALL ALSO INCLUDE THE REMOVAL AND REPLACEMENT OF ALL EXISTING DRAINS WITH NEW DRAINS, CONNECTIONS, AND MINIMUM EIGHT FEET (8') OF PIPING FROM CONNECTION AT DRAIN BOWL. MATCH EXISTING SIZE OF DRAIN AND PIPE.
 - CONTRACTOR SHALL PROVIDE LICENSED PLUMBER FOR ALL PLUMBING WORK AND CONFIRM THAT ALL DRAIN CONNECTIONS ARE TIGHT AND FREE FROM LEAKS AFTER INSTALLATION.

- ALTERNATE SCOPE OF WORK-METAL WALL PANELS OVER MASONRY
- ATTACH HAT CHANNEL OVER MASONRY RISE WALLS.
 - ATTACH 3/4 INCH TREATED PLYWOOD OVER HAT CHANNELS.
 - APPLY SELF-ADHERING MEMBRANE OVER PLYWOOD AS UNDERLAYMENT.
 - ATTACH METAL WALL PANELS OVER SELF-ADHERING UNDERLAYMENT.
 - INCORPORATE FLASHINGS AT BOTTOM AND TOP OF WALL AS DETAILED.

- SPECIFIC NOTES:
1. PROVIDE CRICKETS FOR PROPER DRAINAGE BETWEEN DRAINS IN FIELD OF ROOF.
 2. RAISE THROUGH WALL FLASHING IN THE MASONRY RISE WALL INCLUDING THREE-COURSE BRICK REMOVAL TO ACHIEVE MINIMUM BASE FLASHING HEIGHT.
 3. PROVIDE METAL WALL PANEL SYSTEM OVER MASONRY.
 4. MATCH EXISTING DRAIN SIZE AND DRAIN LINE.
 5. REMOVE EXISTING ROOFING DOWN TO EXISTING DECK.
 6. ALTERNATE SCOPE OF WORK FOR METAL WALL PANELS.

1 **OVERALL ROOF PLAN - AUSTIN ES**
NOT TO SCALE

ROOF LEGEND

| | |
|-----------------------|-----------------|
| | |
| LOW SLOPE ROOF SYSTEM | NOT IN CONTRACT |

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PROJECT FOR:
MESQUITE ISD
AUSTIN ELEMENTARY SCHOOL
3020 POTEET DRIVE
MESQUITE, TEXAS 75150

OVERALL ROOF PLAN AND GENERAL NOTES

R1.01

BASE SCOPE OF WORK

- REMOVE ALL EXISTING ROOFING MATERIALS DOWN TO EXISTING DECK.
- MECHANICALLY ATTACH FIRST LAYER OF TWO INCH (2") POLYISOCYANURATE INSULATION OVER METAL DECK PER ASCE-7 WIND UPLIFT CRITERIA.
- ADHERE SECOND LAYER OF TWO AND ONE-HALF INCH (2-1/2") POLYISOCYANURATE INSULATION OVER TOP SURFACE OF FIRST LAYER OF INSULATION IN SOLID MOPPING OF HOT ASPHALT
- ADHERE ONE LAYER OF ONE-HALF INCH (1/2") SECUROCK COVER BOARD OVER POLYISOCYANURATE INSULATION IN SOLID MOPPING OF HOT ASPHALT.
- ADHERE ONE LAYER OF 80MIL SBS INTERPLY SHEET OVER SECUROCK COVER BOARD IN SOLID MOPPING OF HOT ASPHALT.
- ADHERE SPECIFIED WHITE ELVALOY FLEECE BACK MEMBRANE OVER INTERPLY SHEET IN SOLID MOPPING OF HOT ASPHALT, AND HEAT WELD ALL LAPS AND SEAMS.
- PROVIDE ALL CLAD METAL, PRE-FINISHED METAL, AND OTHER ACCESSORIES REQUIRED BY MEMBRANE MANUFACTURER TO ACHIEVE A 20 YEAR NDL WARRANTY WITH FOUR INCH (4") HAIL PER MANUFACTURER'S GUIDELINES.
- WORK SHALL ALSO INCLUDE THE REMOVAL AND REPLACEMENT OF ALL EXISTING DRAINS WITH NEW DRAINS, CONNECTIONS, AND MINIMUM EIGHT FEET (8') OF PIPING FROM CONNECTION AT DRAIN BOWL. MATCH EXISTING SIZE OF DRAIN AND PIPE.
- CONTRACTOR SHALL PROVIDE LICENSED PLUMBER FOR ALL PLUMBING WORK AND CONFIRM THAT ALL DRAIN CONNECTIONS ARE TIGHT AND FREE FROM LEAKS AFTER INSTALLATION.

ALTERNATE SCOPE OF WORK-METAL WALL PANELS OVER MASONRY

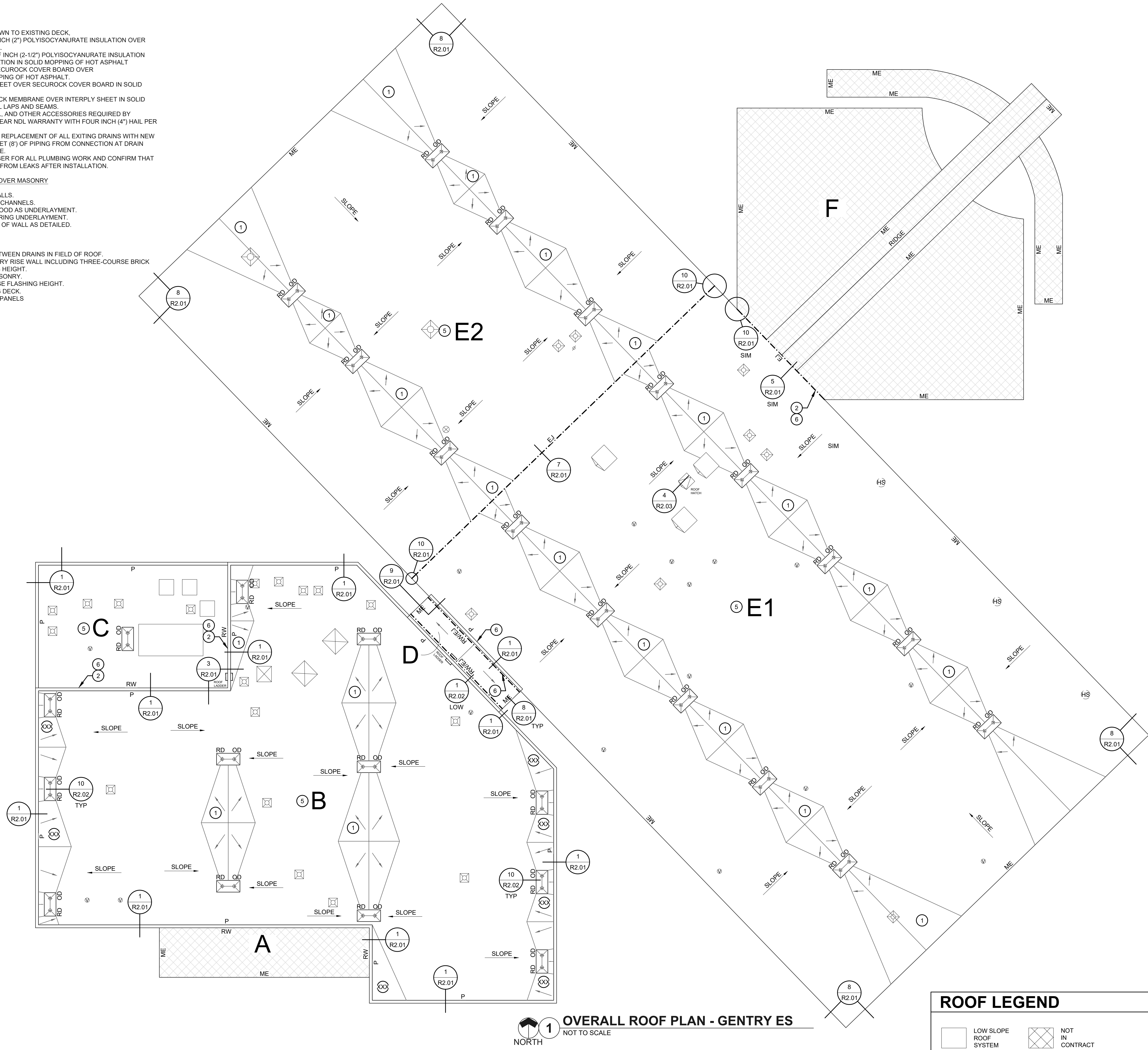
- ATTACH HAT CHANNEL OVER MASONRY RISE WALLS.
- ATTACH 3/4INCH TREATED PLYWOOD OVER HAT CHANNELS.
- APPLY SELF-ADHERING MEMBRANE OVER PLYWOOD AS UNDERLAYMENT.
- ATTACH METAL WALL PANELS OVER SELF-ADHERING UNDERLAYMENT.
- INCORPORATE FLASHINGS AT BOTTOM AND TOP OF WALL AS DETAILED.

SPECIFIC NOTES:

1. PROVIDE CRICKETS FOR PROPER DRAINAGE BETWEEN DRAINS IN FIELD OF ROOF.
2. RAISE THROUGH WALL FLASHING IN THE MASONRY RISE WALL INCLUDING THREE-COURSE BRICK REMOVAL TO ACHIEVE MINIMUM BASE FLASHING HEIGHT.
3. PROVIDE METAL WALL PANEL SYSTEM OVER MASONRY.
4. RAISE RTU CURBS AS NEEDED FOR PROPER BASE FLASHING HEIGHT.
5. REMOVE EXISTING ROOFING DOWN TO EXISTING DECK.
6. ALTERNATE SCOPE OF WORK FOR METAL WALL PANELS

ROOF SYMBOLS

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ROOF LEGEND

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| LOW SLOPE ROOF SYSTEM | NOT IN CONTRACT |

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STATE OF TEXAS
DEAN D. BROWN
117508
LICENSED PROFESSIONAL ENGINEER
11/05/19

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| ISSUES |
| 100% CONSTRUCTION DOCUMENTS 11/05/19 |
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PROJECT FOR:
MESQUITE ISD
GENTRY ELEMENTARY SCHOOL
1901 TWIN OAKS DRIVE
MESQUITE, TEXAS 75181

OVERALL ROOF PLAN AND SCOPE OF WORK
JOB 19-1277-44
DATE 11/05/19
DRAWN BY: CB
CHECKED BY: AL
SHEET
R1.02

PIRRUNG ELEMENTARY SCHOOL

BASE SCOPE OF WORK

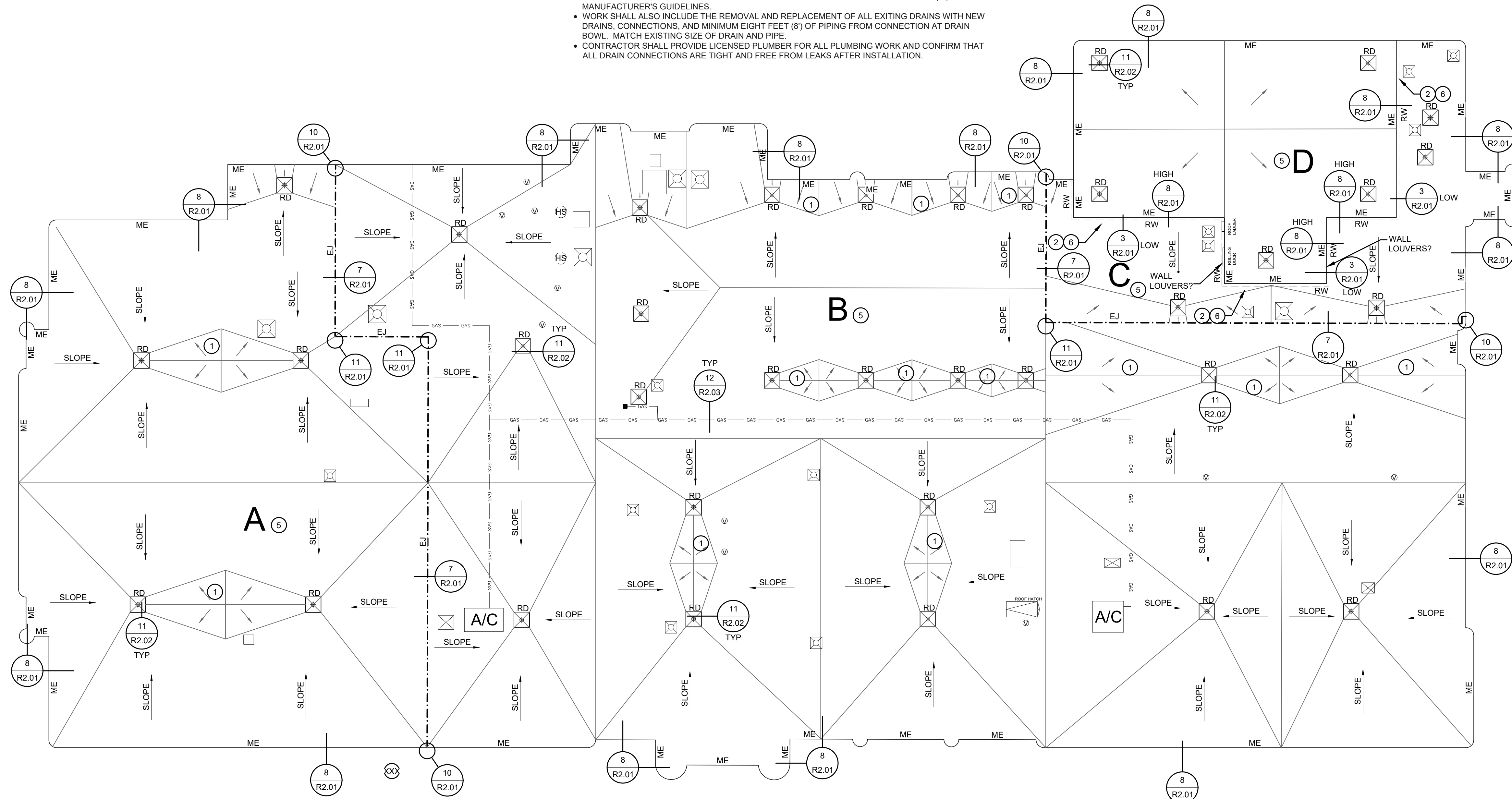
- REMOVE ALL EXISTING ROOFING MATERIALS DOWN TO EXISTING DECK.
- MECHANICALLY ATTACH BASE SHEET TO LTWT CONCRETE DECK PER ASCE-7 WIND UPLIFT REQUIREMENTS.
- ADHERE FIRST LAYER OF TWO INCH (2") POLYISOCYANURATE INSULATION OVER THE TOP SURFACE OF THE BASE SHEET IN SOLID MOPPING OF HOT ASPHALT.
- ADHERE SECOND LAYER OF TWO AND ONE-HALF INCH (2-1/2") POLYISOCYANURATE INSULATION OVER TOP SURFACE OF FIRST LAYER OF INSULATION IN SOLID MOPPING OF HOT ASPHALT.
- ADHERE ONE LAYER OF ONE-HALF INCH (1/2") SECUROCK COVER BOARD OVER POLYISOCYANURATE INSULATION IN SOLID MOPPING OF HOT ASPHALT.
- ADHERE ONE LAYER OF 80MIL SBS INTERPLY SHEET OVER SECUROCK COVER BOARD IN SOLID MOPPING OF HOT ASPHALT.
- ADHERE SPECIFIED WHITE ELVALOY FLEECE BACK MEMBRANE OVER INTERPLY SHEET IN SOLID MOPPING OF HOT ASPHALT. HEAT WELD ALL LAPS AND SEAMS.
- PROVIDE ALL CLAD METAL, PRE-FINISHED METAL, AND OTHER ACCESSORIES REQUIRED BY MEMBRANE MANUFACTURER TO ACHIEVE A 20 YEAR NDL WARRANTY WITH FOUR INCH (4") HAIL PER MANUFACTURER'S GUIDELINES.
- WORK SHALL ALSO INCLUDE THE REMOVAL AND REPLACEMENT OF ALL EXISTING DRAINS WITH NEW DRAINS, CONNECTIONS, AND MINIMUM EIGHT FEET (8') OF PIPING FROM CONNECTION AT DRAIN BOWL. MATCH EXISTING SIZE OF DRAIN AND PIPE.
- CONTRACTOR SHALL PROVIDE LICENSED PLUMBER FOR ALL PLUMBING WORK AND CONFIRM THAT ALL DRAIN CONNECTIONS ARE TIGHT AND FREE FROM LEAKS AFTER INSTALLATION.

ALTERNATE SCOPE OF WORK-METAL WALL PANELS OVER MASONRY

- ATTACH HAT CHANNEL OVER MASONRY RISE WALLS.
- ATTACH 3/4INCH TREATED PLYWOOD OVER HAT CHANNELS.
- APPLY SELF-ADHERING MEMBRANE OVER PLYWOOD AS UNDERLAYMENT.
- ATTACH METAL WALL PANELS OVER SELF-ADHERING UNDERLAYMENT.
- INCORPORATE FLASHINGS AT BOTTOM AND TOP OF WALL AS DETAILED.

SPECIFIC NOTES:

1. PROVIDE CRICKETS FOR PROPER DRAINAGE BETWEEN DRAINS IN FIELD OF ROOF.
2. RAISE THROUGH WALL FLASHING IN THE MASONRY RISE WALL INCLUDING THREE-COURSE BRICK REMOVAL TO ACHIEVE MINIMUM BASE FLASHING HEIGHT.
3. PROVIDE METAL WALL PANEL SYSTEM OVER MASONRY.
4. MATCH EXISTING DRAIN SIZE AND DRAIN LINE.
5. REMOVE EXISTING ROOFING DOWN TO EXISTING DECK.
6. ALTERNATE SCOPE OF WORK FOR METAL WALL PANELS



1 OVERALL ROOF PLAN - PIRRUNG ES

NOT TO SCALE

| | | | | | | | | | | | | | | | | | | |
|-----------------------|-----------------|-----------|--------------------|------------|---------------------|--------------------------|-------------------------|------------|----------------------|------------------|--------------|---------------------------|-----------|--------------------|---------|----------------------------|-----------------|----------|
| | | | | | | | | | | | | | | | | | | |
| METAL PANEL RISE WALL | SECURITY CAMERA | PITCH PAN | PROCESS VENT STACK | VENT STACK | FLANGE MOUNTED VENT | PLENUM RTU ON PITCH PANS | MISCELLANEOUS EQUIPMENT | ROOF HATCH | THROUGH WALL SCUPPER | OVERFLOW SCUPPER | EDGE SCUPPER | DOWNSPOUT/ COLLECTOR HEAD | DOWNSPOUT | ROOF ACCESS LADDER | PARAPET | EXPANSION JOINT AT PARAPET | SLOPE DIRECTION | SKYLIGHT |

ROOF LEGEND

| | |
|-----------------------|-----------------|
| | |
| LOW SLOPE ROOF SYSTEM | NOT IN CONTRACT |

ARMKO INDUSTRIES, INC.
Texas Registered
Engineering Firm F-6498
1320 Spinks Road
Flower Mound, TX 75028
(972)874-1388



11/05/19

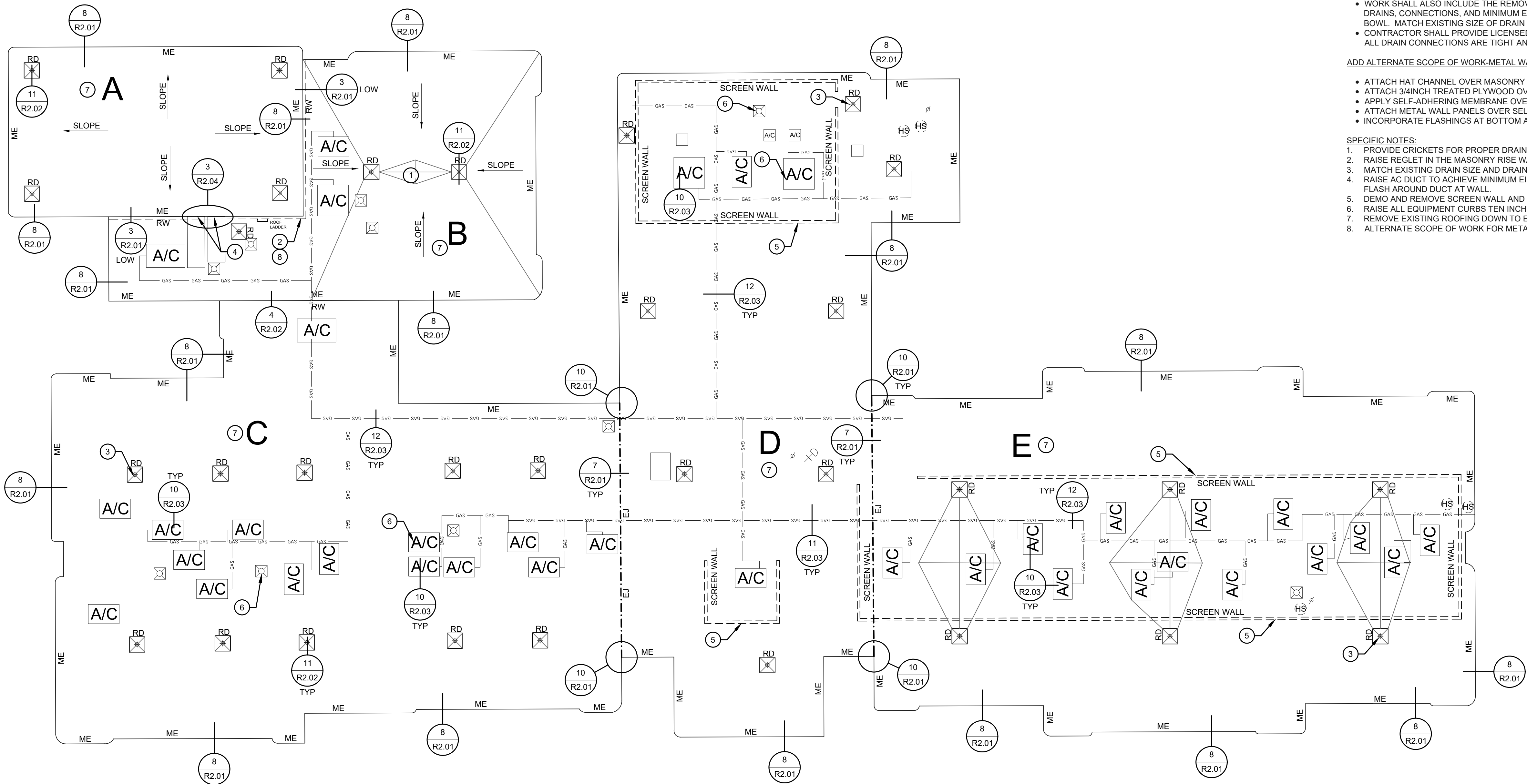
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ISSUES
100% CONSTRUCTION DOCUMENTS 11/05/19

PROJECT FOR:
MESQUITE ISD
PIRRUNG ELEMENTARY SCHOOL
1500 CREEK VALLEY ROAD
MESQUITE, TEXAS 75181

OVERALL ROOF PLAN AND SCOPE OF WORK
JOB 19-1277-44
DATE 11/05/19
DRAWN BY: CB
CHECKED BY: AL
SHEET

R1.03



1 OVERALL ROOF PLAN - PORTER ES
NOT TO SCALE

PORTER ELEMENTARY SCHOOL

BASE SCOPE OF WORK

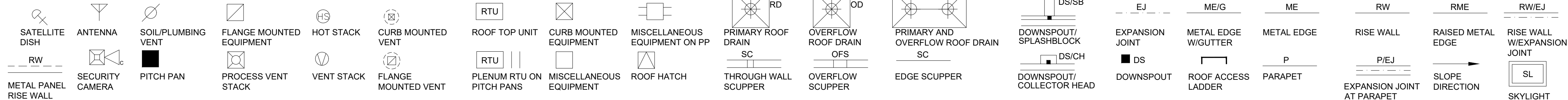
- REMOVE ALL EXISTING ROOFING MATERIALS DOWN TO EXISTING DECK.
- MECHANICALLY ATTACH BASE SHEET TO LTWT CONCRETE DECK PER ASCE-7 WIND UPLIFT REQUIREMENTS.
- ADHERE FIRST LAYER OF TWO INCH (2") POLYISOCYANURATE INSULATION OVER THE TOP SURFACE OF THE BASE SHEET IN SOLID MOPPING OF HOT ASPHALT.
- ADHERE SECOND LAYER OF TWO AND ONE-HALF INCH (2-1/2") POLYISOCYANURATE INSULATION OVER TOP SURFACE OF FIRST LAYER OF INSULATION IN SOLID MOPPING OF HOT ASPHALT.
- ADHERE ONE LAYER OF ONE-HALF INCH (1/2") SECURUCK COVER BOARD OVER POLYISOCYANURATE INSULATION IN SOLID MOPPING OF HOT ASPHALT.
- ADHERE ONE LAYER OF 80MIL SBS INTERPLY SHEET OVER SECURUCK COVER BOARD IN SOLID MOPPING OF HOT ASPHALT.
- ADHERE SPECIFIED WHITE ELVALOY FLEECE BACK MEMBRANE OVER INTERPLY SHEET IN SOLID MOPPING OF HOT ASPHALT. HEAT WELD ALL LAPS AND SEAMS.
- PROVIDE ALL CLAD METAL, PRE-FINISHED METAL, AND OTHER ACCESSORIES REQUIRED BY MEMBRANE MANUFACTURER TO ACHIEVE A 20 YEAR NDL WARRANTY WITH FOUR INCH (4") HAIL PER MANUFACTURER'S GUIDELINES.
- WORK SHALL ALSO INCLUDE THE REMOVAL AND REPLACEMENT OF ALL EXITING DRAINS WITH NEW DRAINS, CONNECTIONS, AND MINIMUM EIGHT FEET (8') OF PIPING FROM CONNECTION AT DRAIN BOWL. MATCH EXISTING SIZE OF DRAIN AND PIPE.
- CONTRACTOR SHALL PROVIDE LICENSED PLUMBER FOR ALL PLUMBING WORK AND CONFIRM THAT ALL DRAIN CONNECTIONS ARE TIGHT AND FREE FROM LEAKS AFTER INSTALLATION.

ADD ALTERNATE SCOPE OF WORK-METAL WALL PANELS OVER MASONRY

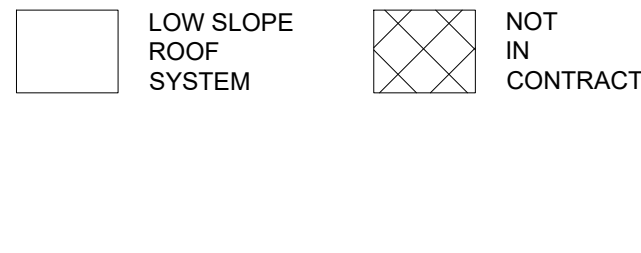
- ATTACH HAT CHANNEL OVER MASONRY RISE WALLS.
- ATTACH 3/4INCH TREATED PLYWOOD OVER HAT CHANNELS.
- APPLY SELF-ADHERING MEMBRANE OVER PLYWOOD AS UNDERLAYMENT.
- ATTACH METAL WALL PANELS OVER SELF-ADHERING UNDERLAYMENT.
- INCORPORATE FLASHINGS AT BOTTOM AND TOP OF WALL AS DETAILED.

SPECIFIC NOTES:

1. PROVIDE CRICKETS FOR PROPER DRAINAGE BETWEEN DRAINS IN FIELD OF ROOF.
2. RAISE REGLET IN THE MASONRY RISE WALL TO ACHIEVE MINIMUM BASE FLASHING HEIGHT.
3. MATCH EXISTING DRAIN SIZE AND DRAIN LINE.
4. RAISE AC DUCT TO ACHIEVE MINIMUM EIGHT INCH BASE FLASHING HEIGHT AT RISE WALL AND FLASH AROUND DUCT AT WALL.
5. DEMO AND REMOVE SCREEN WALL AND SUPPORTS.
6. RAISE ALL EQUIPMENT CURBS TEN INCHES (10") AS NEEDED.
7. REMOVE EXISTING ROOFING DOWN TO EXISTING DECK.
8. ALTERNATE SCOPE OF WORK FOR METAL WALL PANELS



ROOF LEGEND



ARMKO INDUSTRIES, INC.
Texas Registered
Engineering Firm F-6498
1320 Spinks Road
Flower Mound, TX 75028
(972)874-1388

STATE OF TEXAS
DEAN D. BROWN
117508
LICENSED PROFESSIONAL ENGINEER
11/05/19

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| ISSUES |
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| 100% CONSTRUCTION DOCUMENTS 11/05/19 |
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PROJECT FOR:
MESQUITE ISD
PORTER ELEMENTARY SCHOOL
517 VIA AVENIDA
MESQUITE, TEXAS 75150

OVERALL ROOF
PLAN AND SCOPE
OF WORK
JOB 19-1277-44
DATE 11/05/19
DRAWN BY: CB
CHECKED BY: AL
SHEET

R1.04

ROOF SYMBOLS

SOIL/PLUMBING VENT

PITCH PAN

HOT STACK

VENT STACK

RTU

RTU

PLENUM RTU ON PITCH PANS

MISCELLANEOUS EQUIPMENT ON PP

NRD

RD

RD

RD

SC

THROUGH WALL SCUPPER

DS

EJ

P

ME

SLOPE DIRECTION

SL

SECURITY CAMERA

FLANGE MOUNTED EQUIPMENT

PROCESS VENT STACK

CURB MOUNTED VENT

FLANGE MOUNTED VENT

CURB MOUNTED EQUIPMENT

MISCELLANEOUS EQUIPMENT

ROOF HATCH

RW

RISE WALL METAL PANEL

OD

OVERFLOW ROOF DRAIN

SC

EDGE SCUPPER

OFS

OVERFLOW SCUPPER

ME/G

METAL EDGE W/GUTTER

RW

RISE WALL

RME

RAISED METAL EDGE

RW/EJ

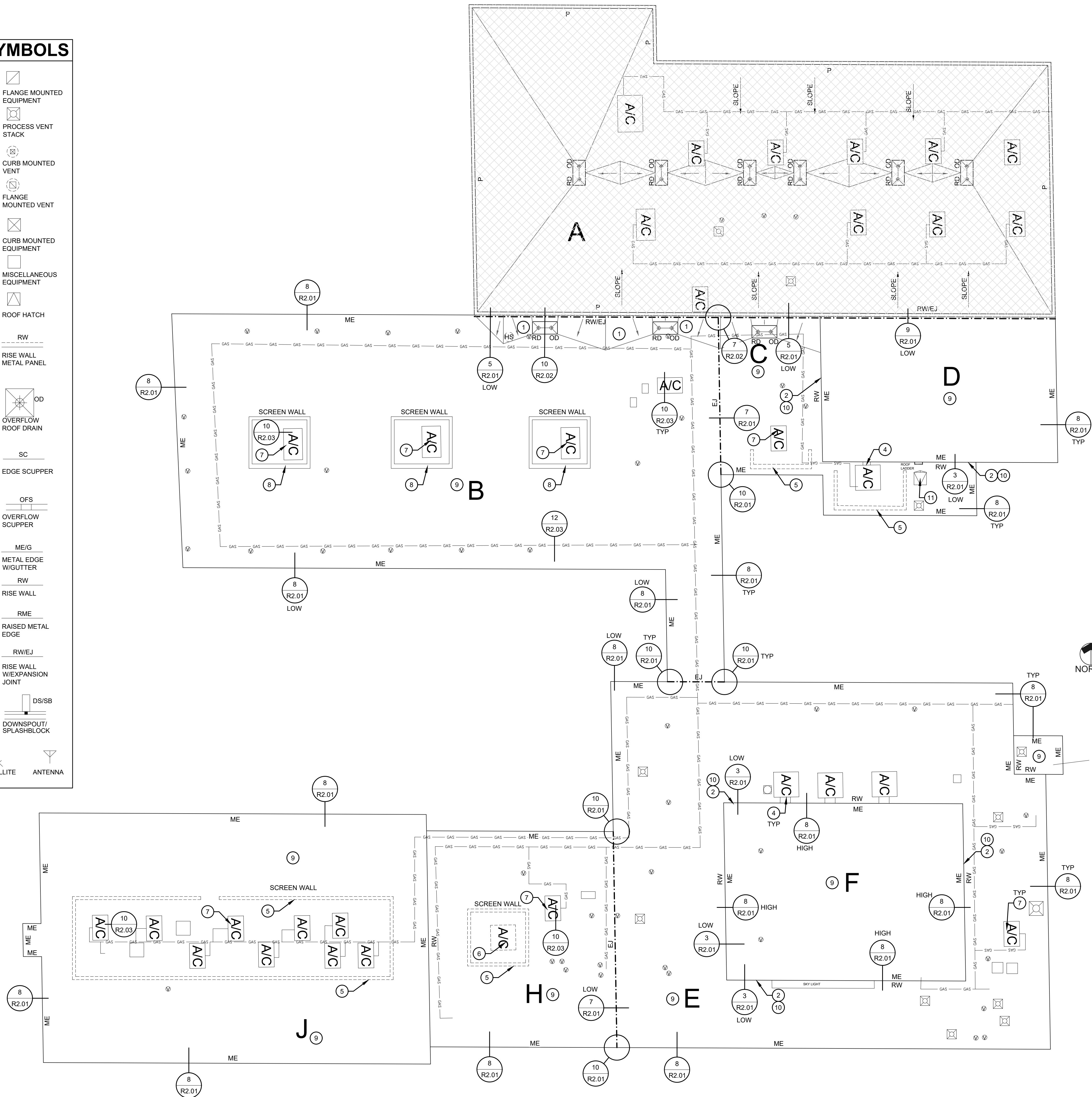
RISE WALL W/EXPANSION JOINT

DS/SB

DOWNSPOUT/ SPLASHBLOCK

SATELLITE DISH

ANTENNA



RUGEL ELEMENTARY SCHOOL

BASE SCOPE OF WORK

- REMOVE ALL EXISTING ROOFING MATERIALS DOWN TO EXISTING DECK.
- MECHANICALLY ATTACH BASE SHEET TO LWT CONCRETE DECK PER ASCE-7 WIND UPLIFT REQUIREMENTS.
- ADHERE FIRST LAYER OF TWO INCH (2") POLYISOCYANURATE INSULATION OVER THE TOP SURFACE OF THE BASE SHEET IN SOLID MOPPING OF HOT ASPHALT.
- ADHERE SECOND LAYER OF TWO AND ONE-HALF INCH (2-1/2") POLYISOCYANURATE INSULATION OVER TOP SURFACE OF FIRST LAYER OF INSULATION IN SOLID MOPPING OF HOT ASPHALT.
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ADD ALTERNATE SCOPE OF WORK-METAL WALL PANELS OVER MASONRY

- ATTACH HAT CHANNEL OVER MASONRY RISE WALLS.
- ATTACH 3/4INCH TREATED PLYWOOD OVER HAT CHANNELS.
- APPLY SELF-ADHERING MEMBRANE OVER PLYWOOD AS UNDERLAYMENT.
- ATTACH METAL WALL PANELS OVER SELF-ADHERING UNDERLAYMENT.
- INCORPORATE FLASHINGS AT BOTTOM AND TOP OF WALL AS DETAILED.

SPECIFIC NOTES:

1. PROVIDE CRICKETS FOR PROPER DRAINAGE BETWEEN DRAINS IN FIELD OF ROOF.
2. RAISE REGLET AND FLASHINGS IN THE MASONRY RISE WALL TO ACHIEVE MINIMUM EIGHT INCH (8") BASE FLASHING HEIGHT.
3. MATCH EXISTING DRAIN SIZE AND DRAIN LINE.
4. RAISE AC DUCT IN WALL TO ACHIEVE MINIMUM EIGHT INCH (8") BASE FLASHING HEIGHT AT RISE WALL AND FLASH AROUND DUCT AT WALL.
5. DEMO AND REMOVE SCREEN WALL, FRAMING, AND SUPPORTS.
6. DEMO ABANDONED EQUIPMENT AND SUPPORTS. COORDINATE WITH OWNER.
7. RAISE ALL EQUIPMENT CURBS TEN INCHES (10") AS NEEDED.
8. SCREEN WALL TO REMAIN.
9. REMOVE EXISTING ROOFING DOWN TO EXISTING DECK.
10. ALTERNATE SCOPE OF WORK FOR METAL WALL PANELS.
11. REMOVE ROOF HATCH, RAISE CURB TEN INCHES (10"), AND RE-ATTACH ROOF HATCH.

1 OVERALL ROOF PLAN - RUGEL ES
NOT TO SCALE

ROOF LEGEND

- LOW SLOPE ROOF SYSTEM
- NOT IN CONTRACT

ARMKO INDUSTRIES, INC.

Texas Registered Engineering Firm F-6498

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Flower Mound, TX 75028

(972)874-1388

STATE OF TEXAS

DEAN D. BROWN

117508

PROFESSIONAL ENGINEER

11/05/19

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ISSUES

100% CONSTRUCTION DOCUMENTS 11/05/19

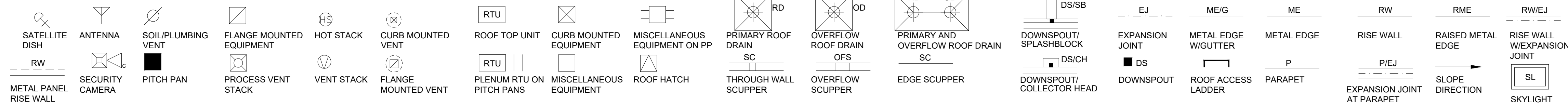
PROJECT FOR:
MESQUITE ISD
RUGEL ELEMENTARY SCHOOL
2701 SYBIL DRIVE
MESQUITE, TEXAS 75149

OVERALL ROOF PLAN AND SCOPE OF WORK
JOB 19-1277-44
DATE 11/05/19
DRAWN BY: CB
CHECKED BY: AL
SHEET

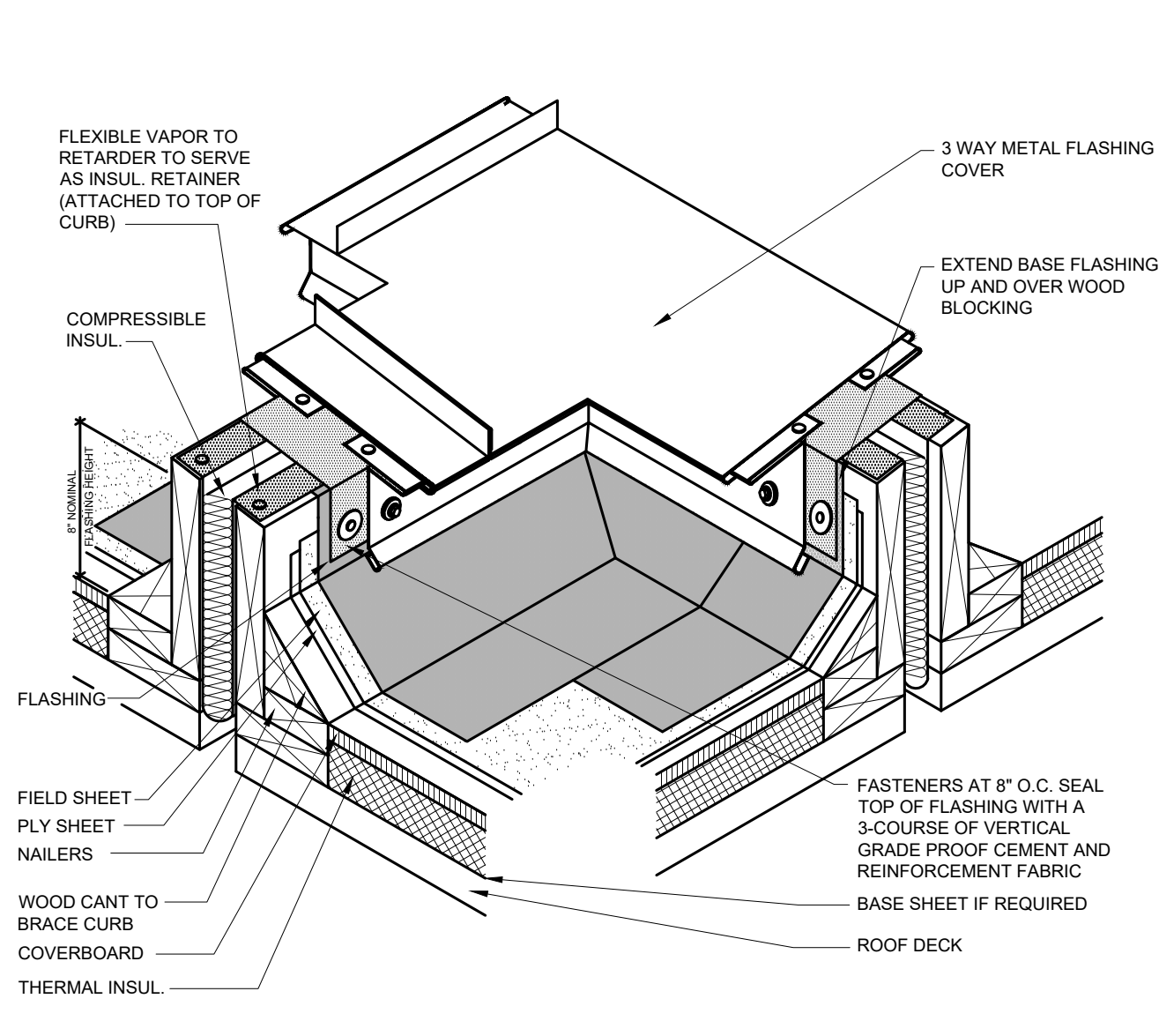
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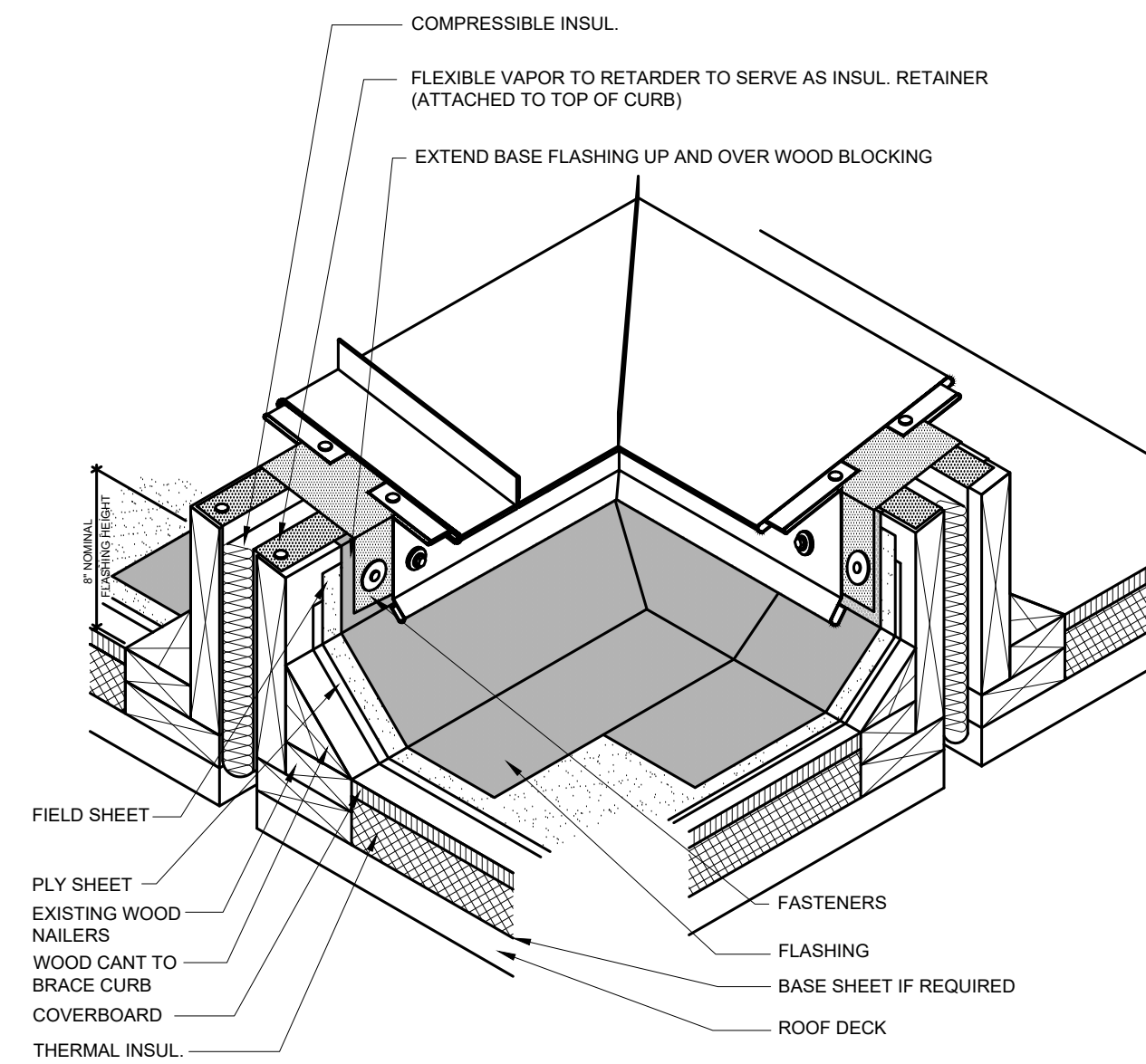
1. PROVIDE CRICKETS FOR PROPER DRAINAGE BEHIND CURB MOUNTED EQUIPMENT.
2. RAISE REGLET IN THE MASONRY RISE WALL TO ACHIEVE MINIMUM BASE FLASHING HEIGHT.
3. PROVIDE MEMBERS ON RISEWALL WITH SLIP METAL FLASHING AT TOP OF WALL BEHIND LEG OF EXISTING METAL COPING.
4. REMOVE EIFS AT TOP OF WALL TO PROVIDE WOOD NAILERS AND COPING METAL.
5. PROVIDE NEW ROOF-TO-ROOF ACCESS LADDER
6. REMOVE ALL ABANDONED CURBS AND EQUIPMENT AS CLEARLY MARKED BY THE OWNER PRIOR TO COMMENCEMENT OF WORK
7. REMOVE EXISTING ROOFING DOWN TO EXISTING DECK.
8. ALTERNATE SCOPE OF WORK FOR METAL WALL PANELS



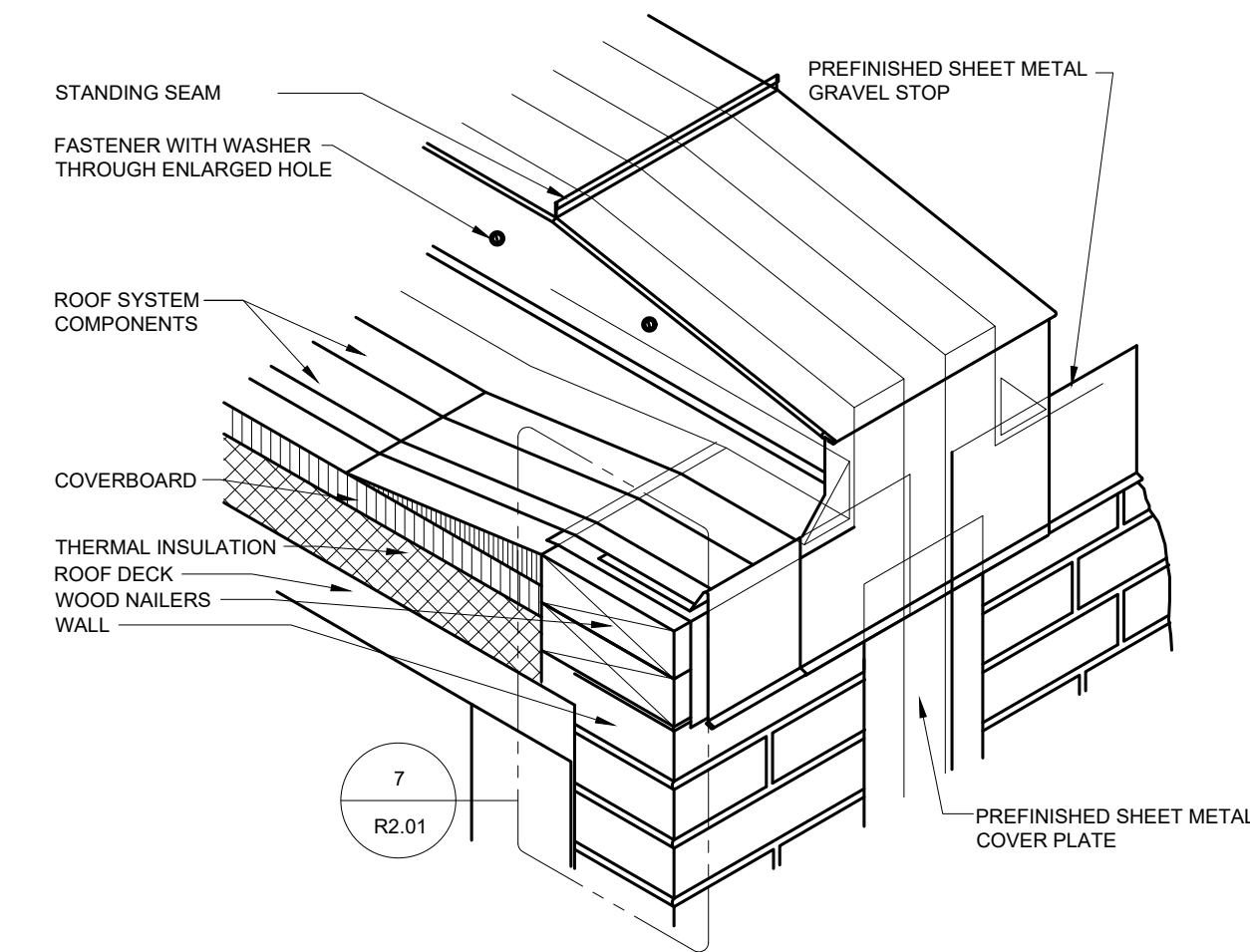
12 3 WAY EXPANSION JOINT
NOT TO SCALE



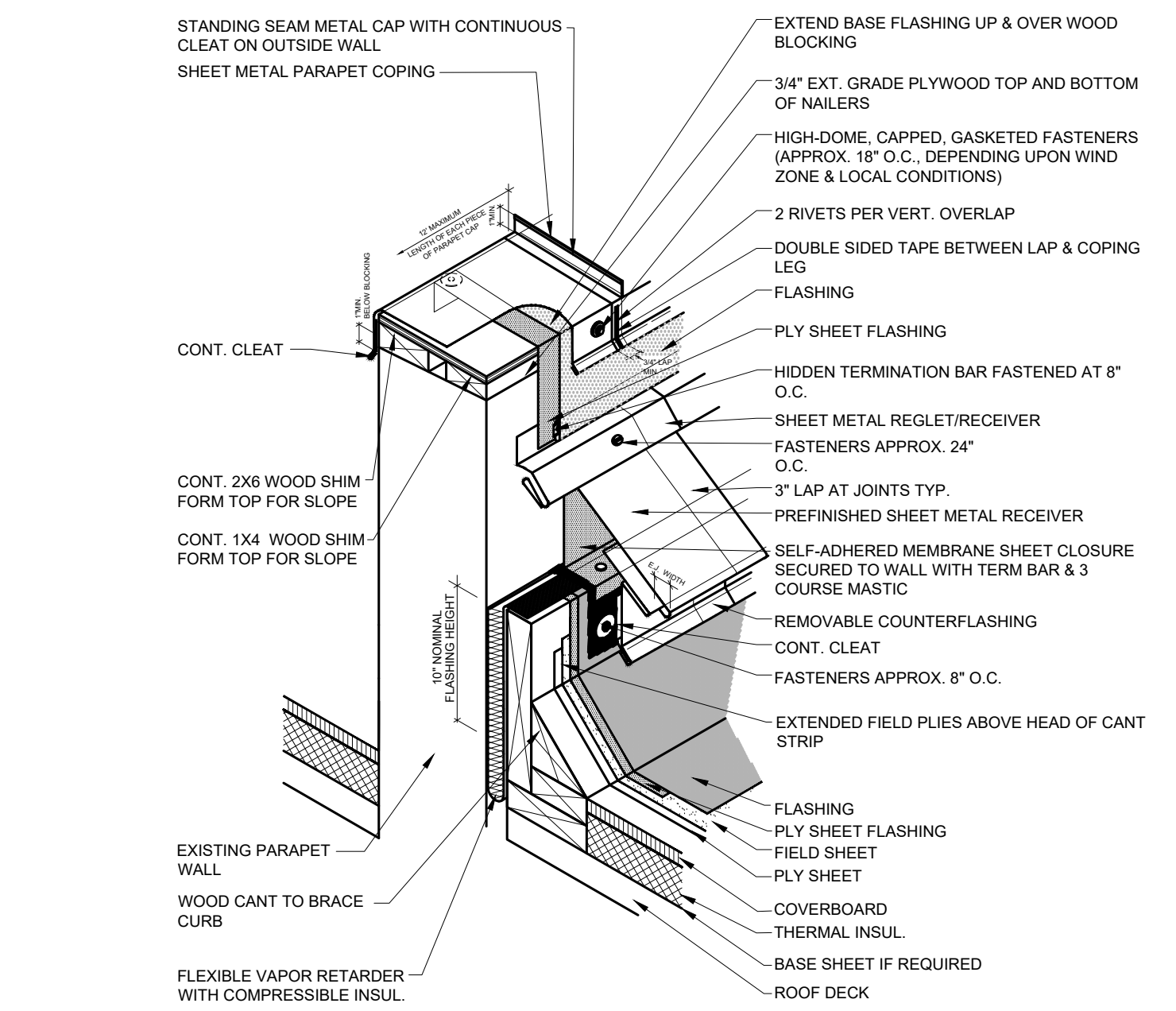
11 2 WAY EXPANSION JOINT
NOT TO SCALE



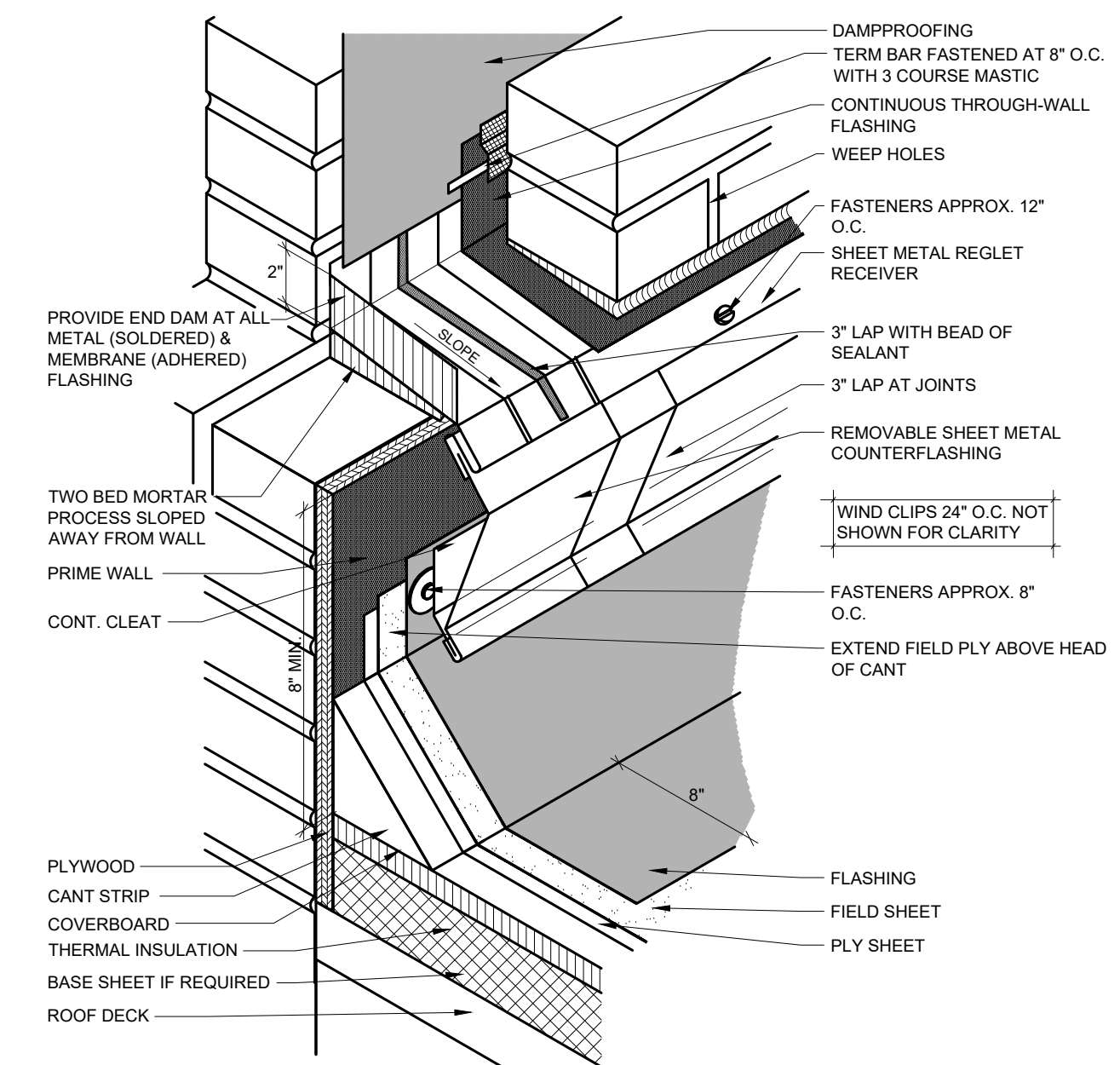
10 TAPERED EXPANSION JOINT
NOT TO SCALE



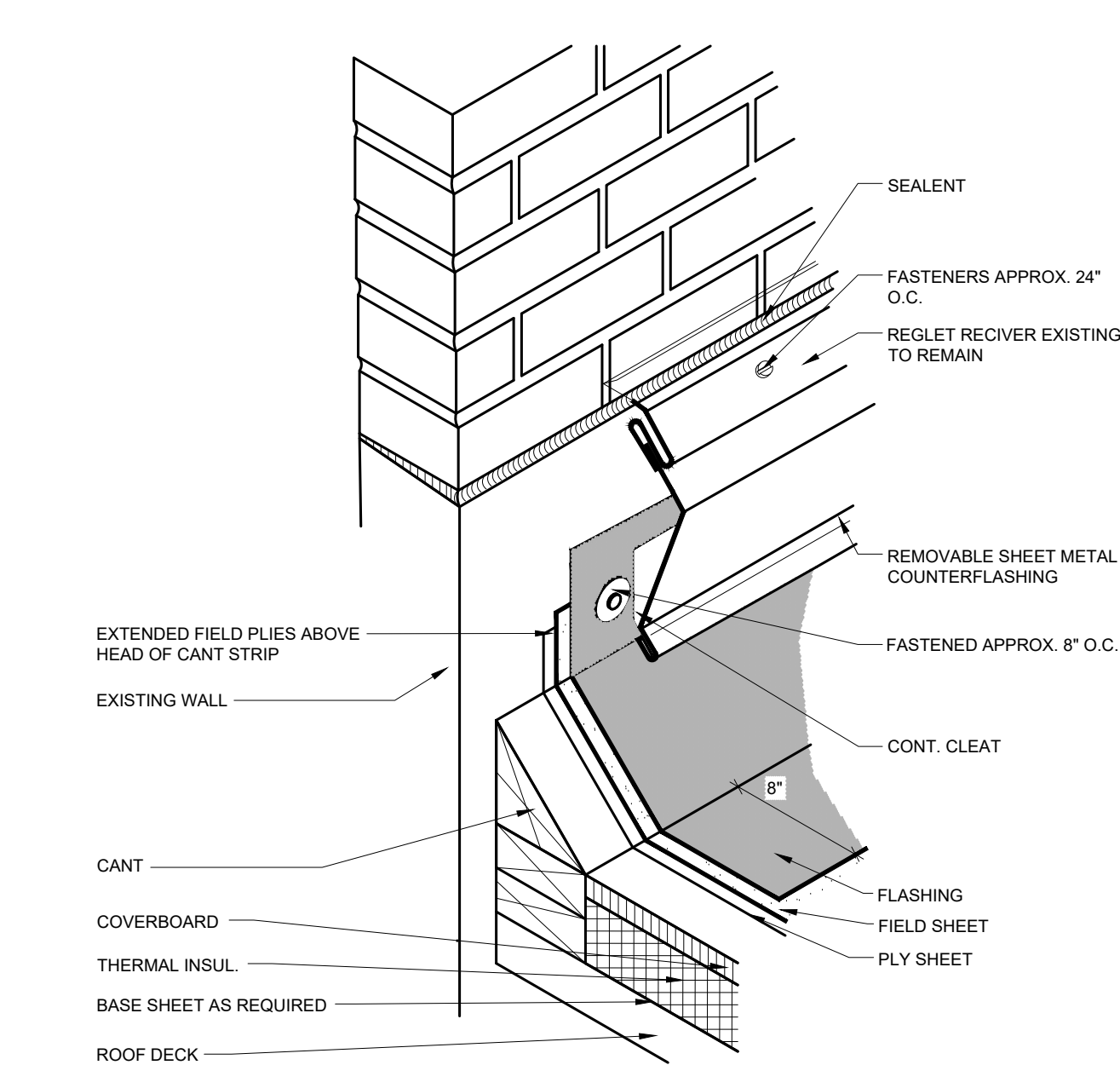
9 PARAPET EXPANSION JOINT
NOT TO SCALE



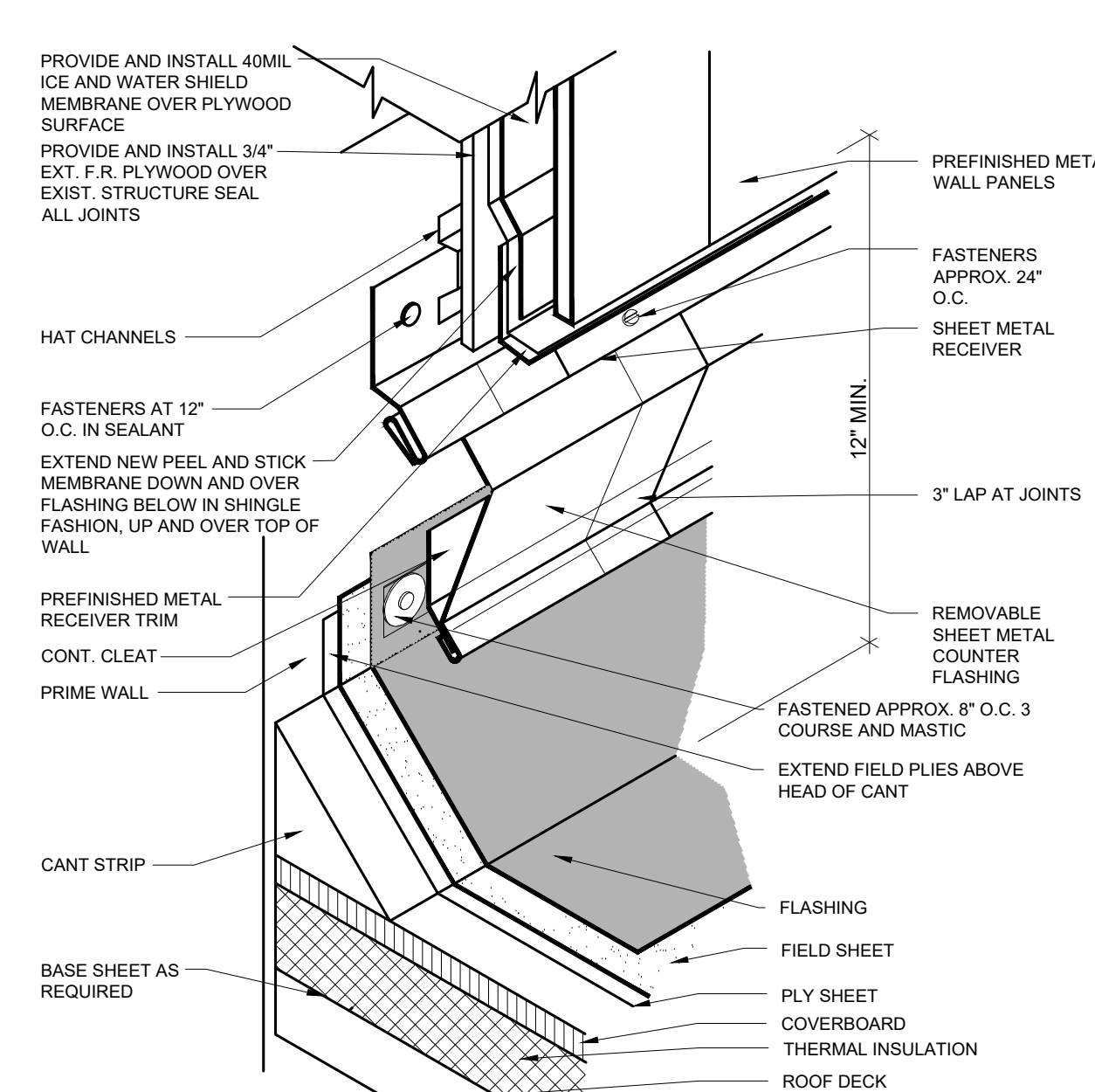
8 METAL EDGE
NOT TO SCALE



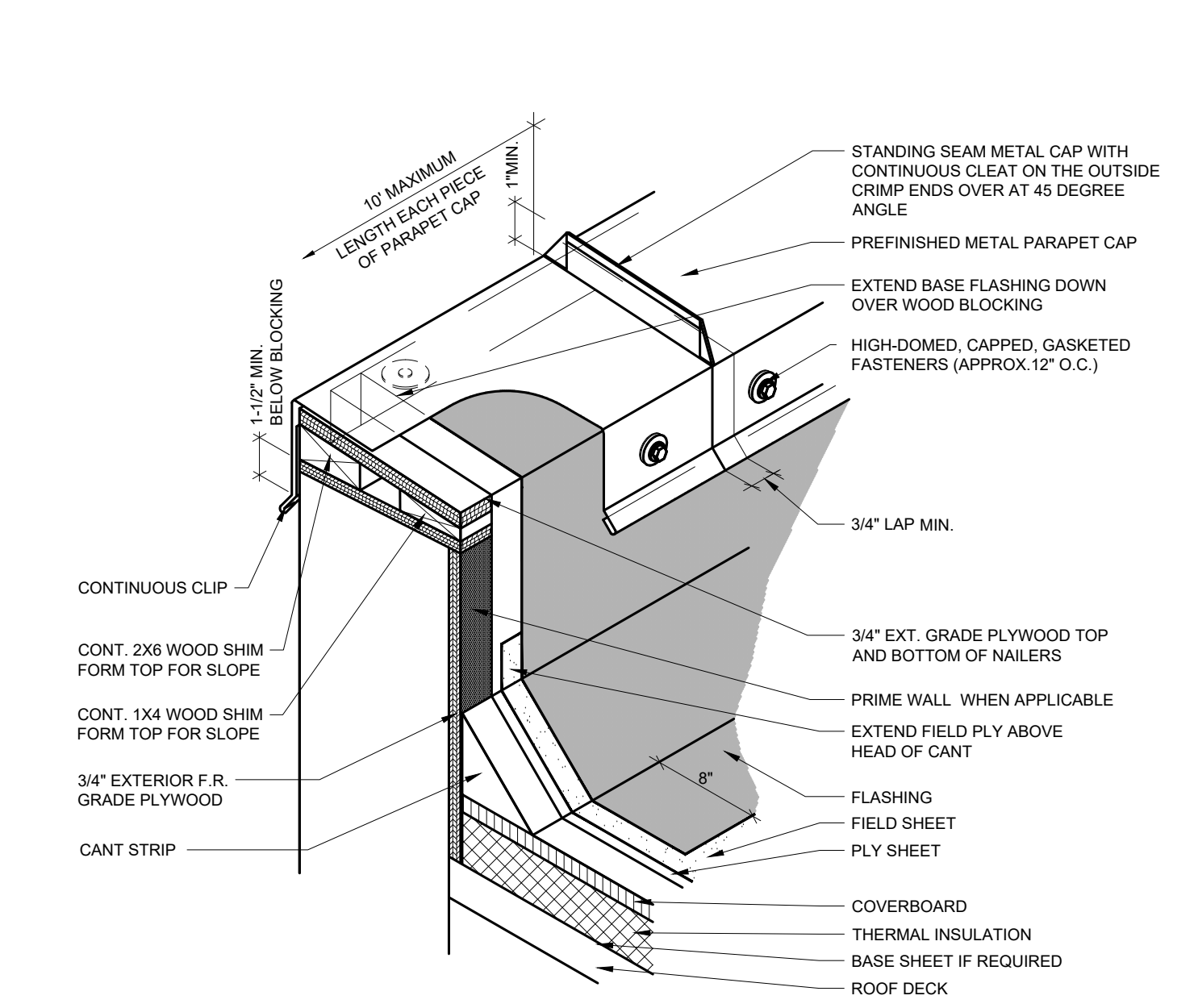
7 FIELD EXPANSION JOINT
NOT TO SCALE



6 RISEWALL EXPANSION JOINT - REGLET RECEIVER
NOT TO SCALE



5 RISEWALL EXPANSION JOINT
NOT TO SCALE

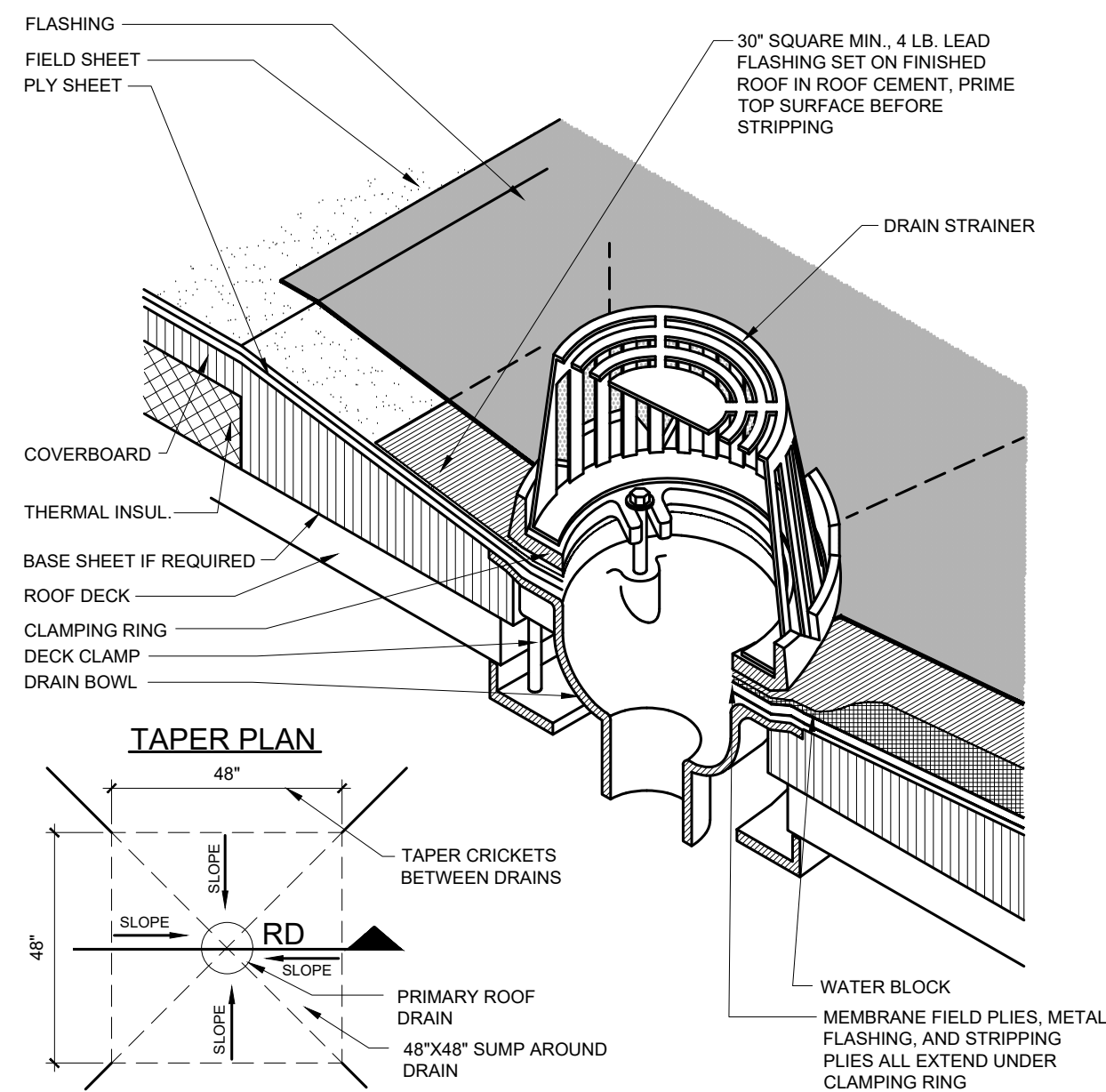


4 MASONRY RISEWALL
NOT TO SCALE

3 MASONRY RISEWALL WITH REGLET
NOT TO SCALE

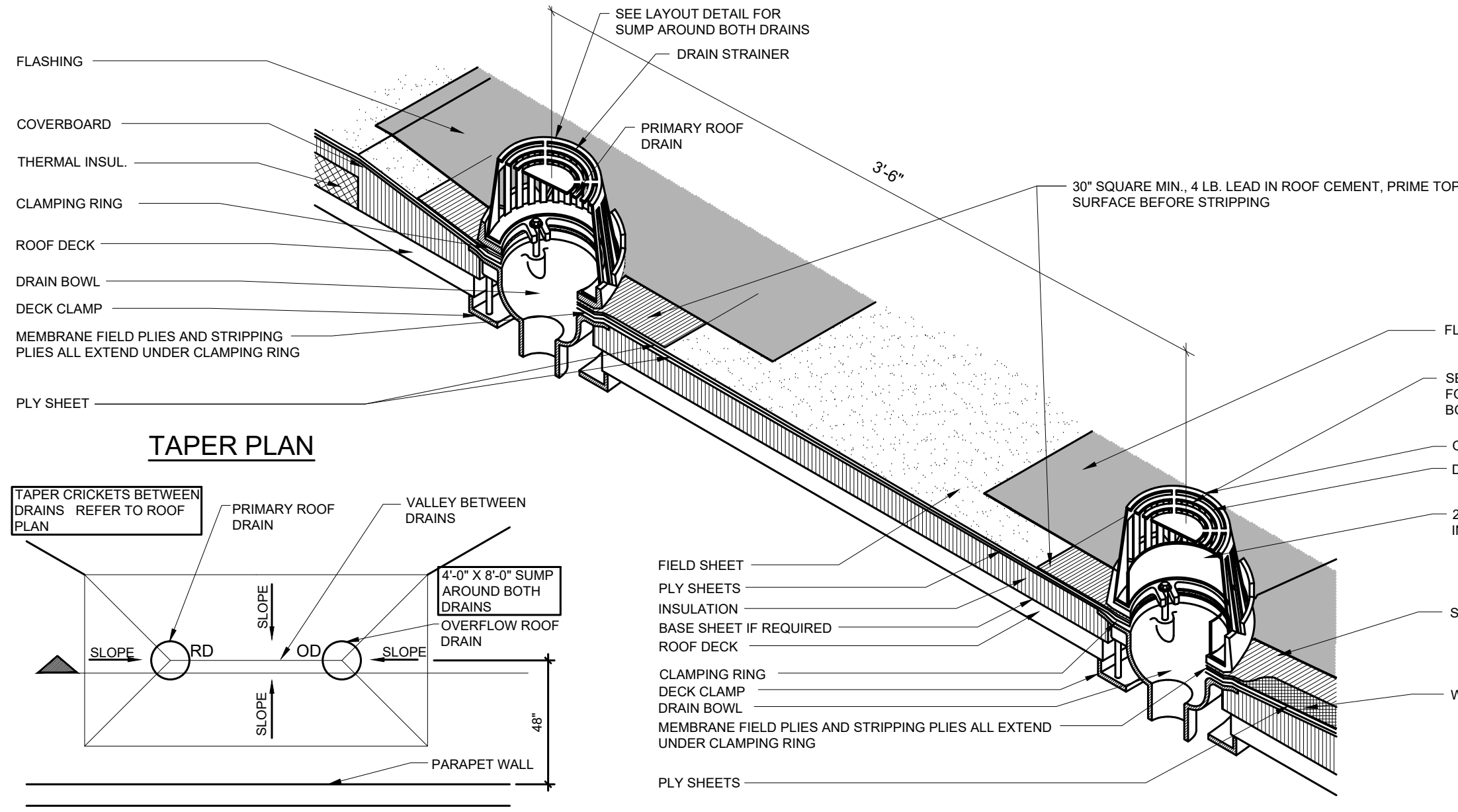
2 METAL PANEL RISEWALL
NOT TO SCALE

1 LOW PARAPET
NOT TO SCALE

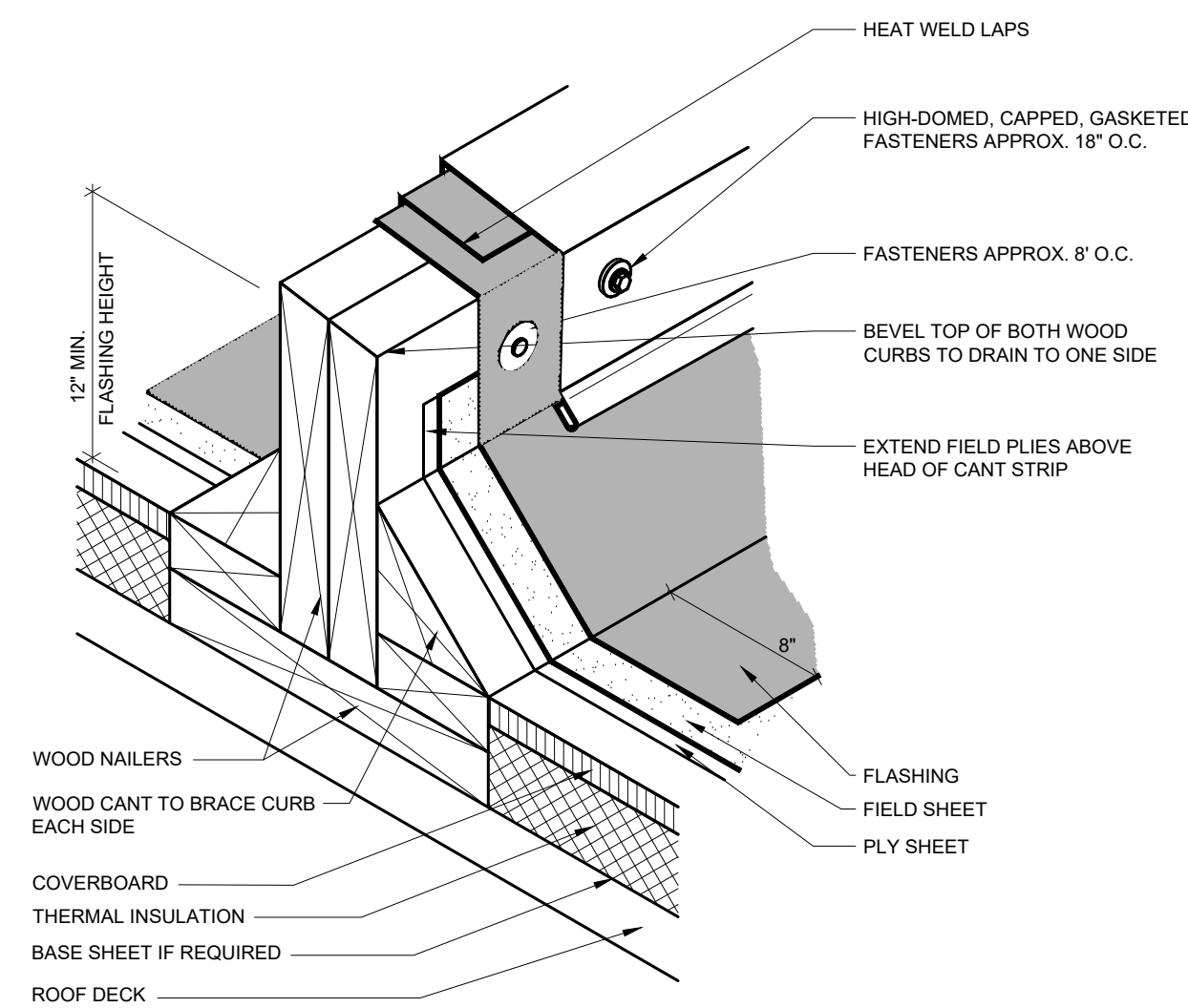


11 MAIN ROOF DRAIN AND TAPER PLAN
NOT TO SCALE

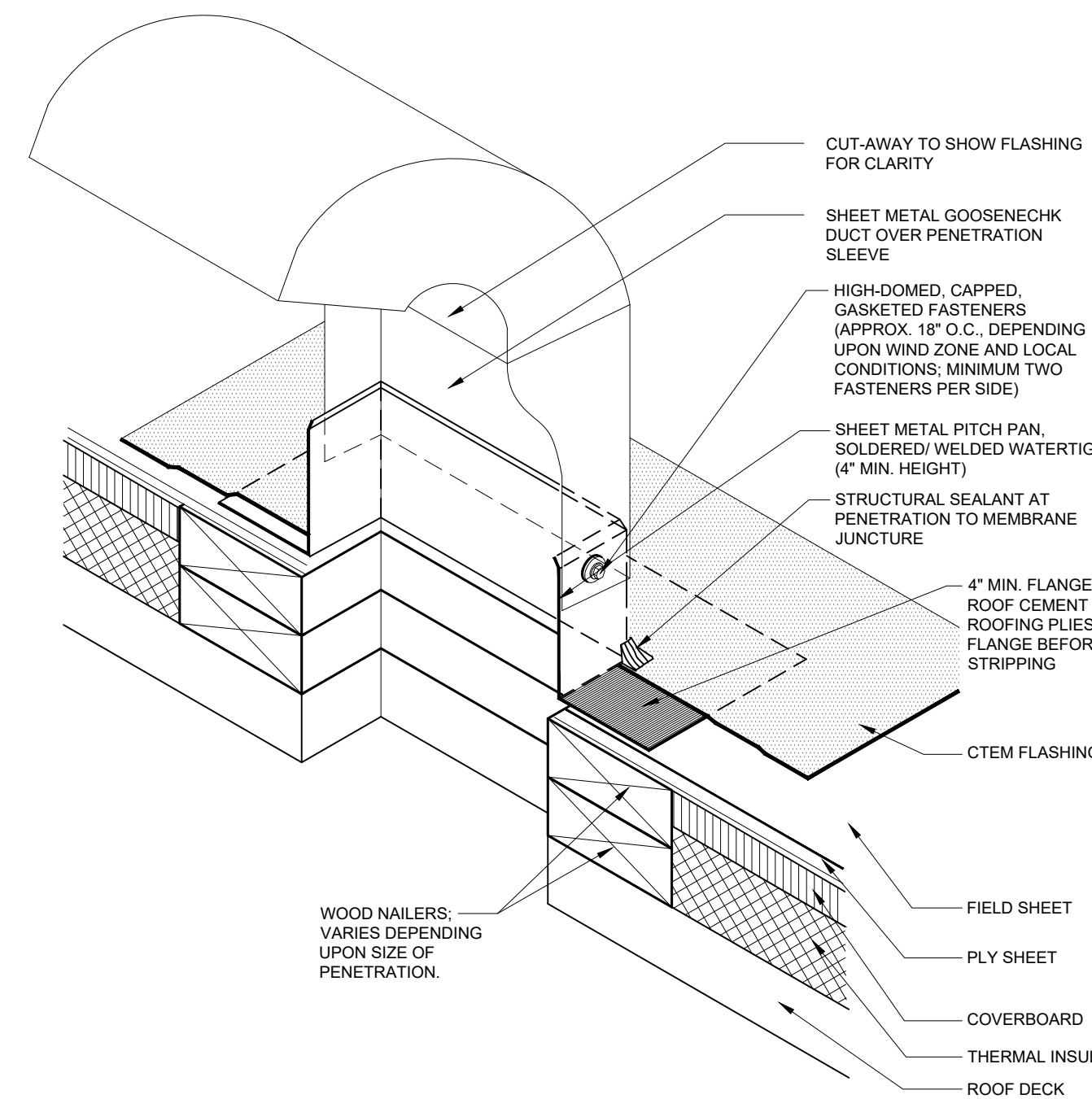
REMOVE AND REPLACE
ALL EXISTING DRAIN
BOWLS AND STRAINERS



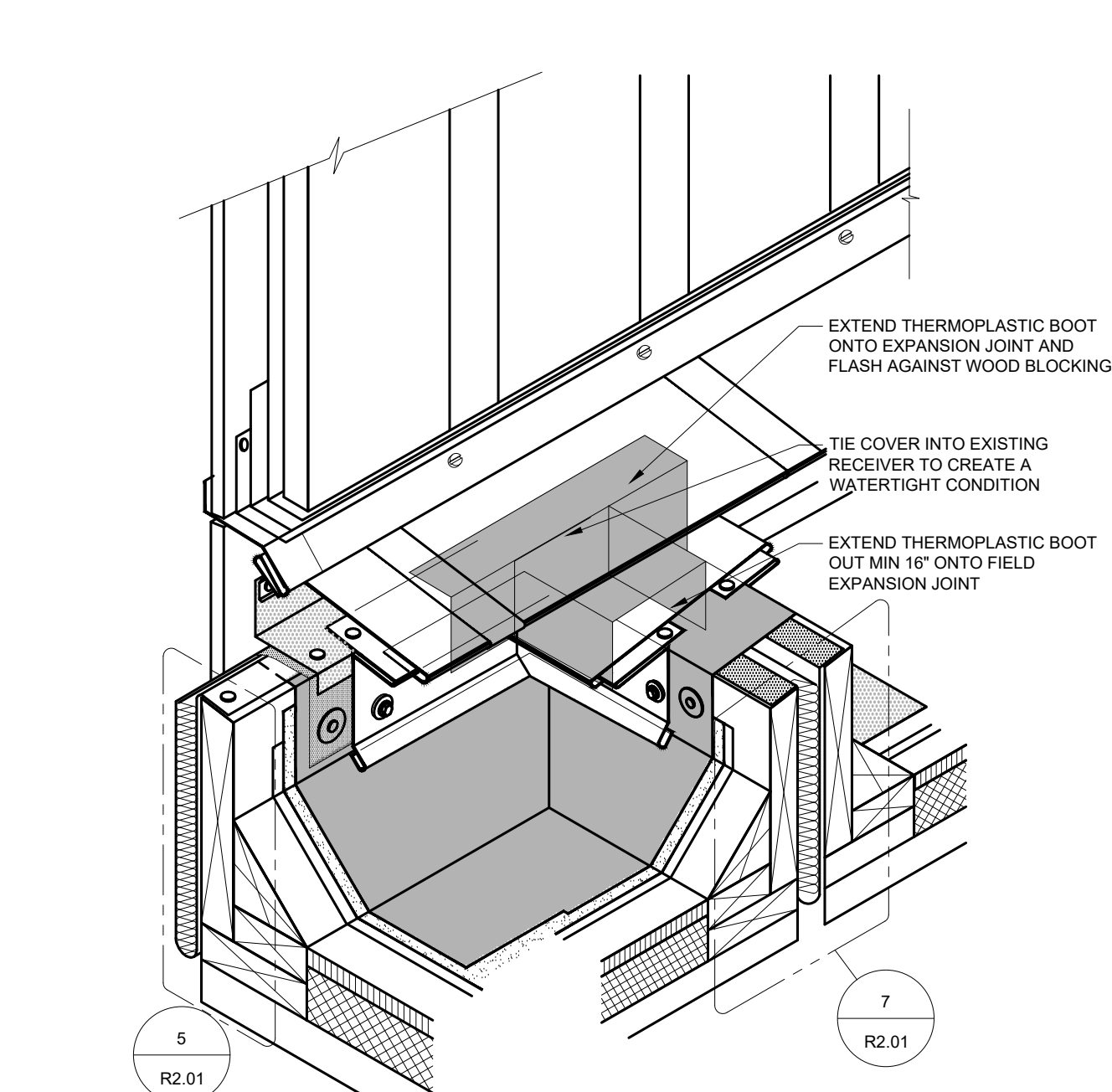
10 MAIN AND OVERFLOW ROOF DRAINS AND TAPER PLAN
NOT TO SCALE



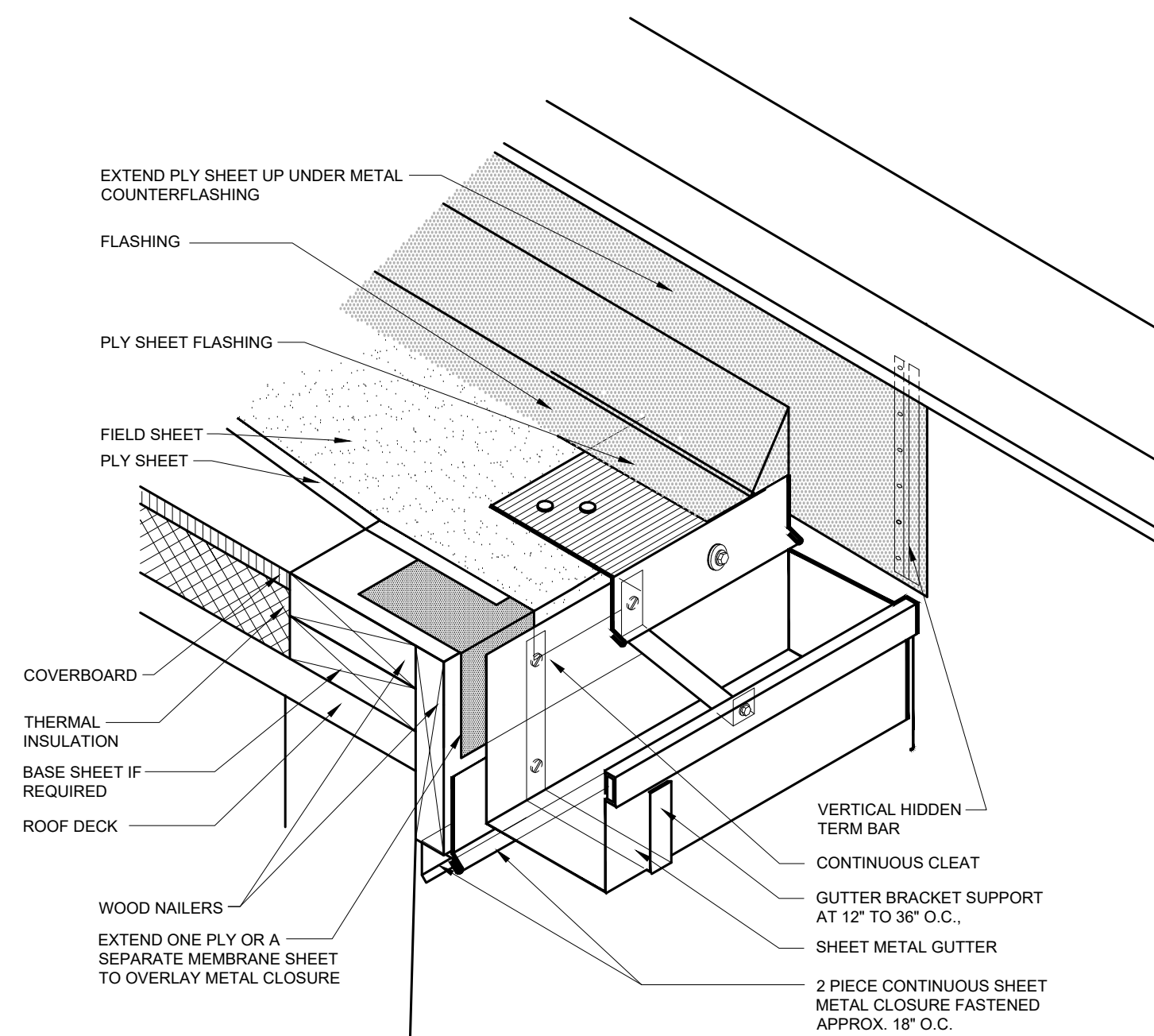
9 EQUIPMENT CURB
NOT TO SCALE



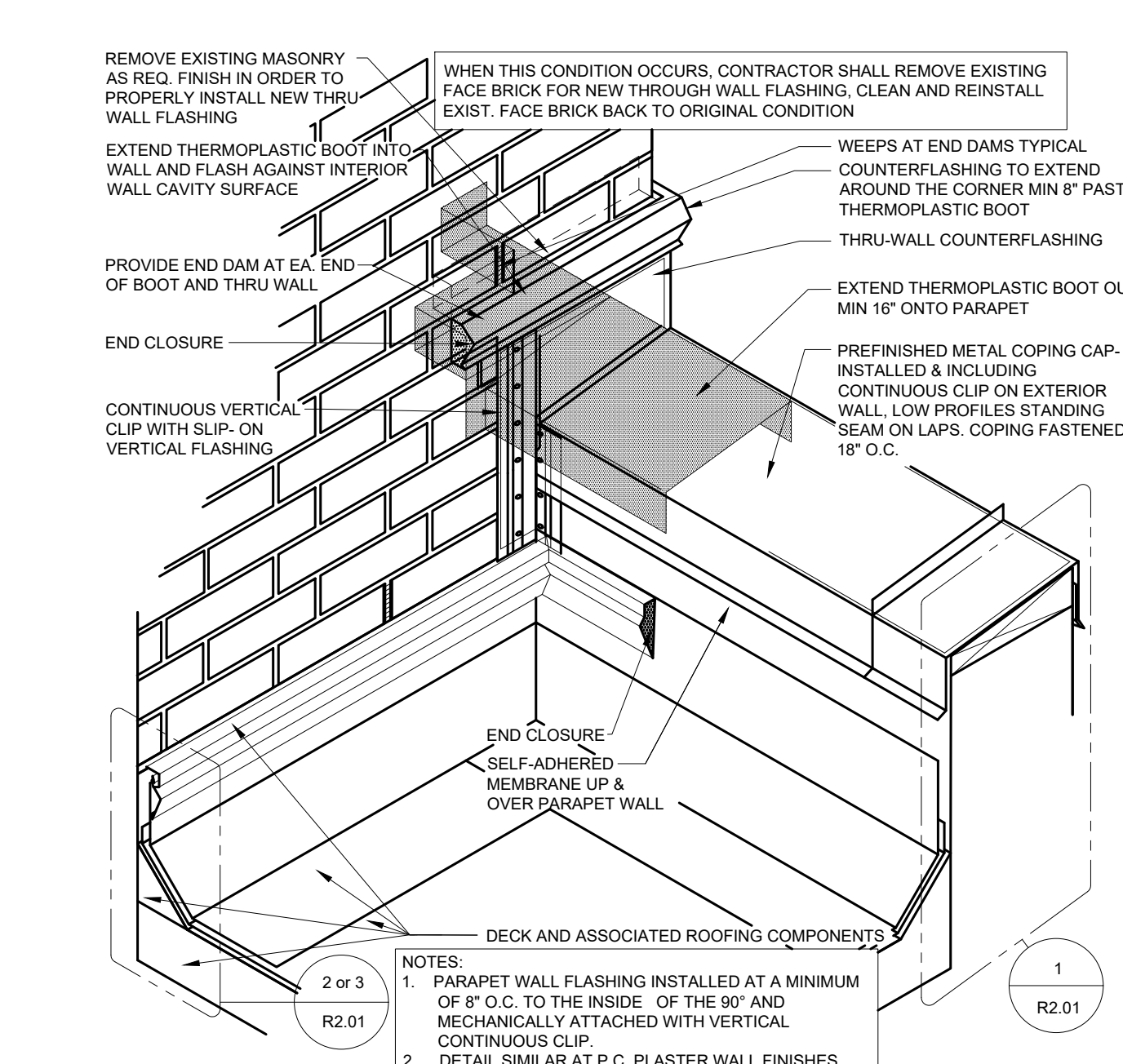
8 ROOF DUCT - GOOSENECK
NOT TO SCALE



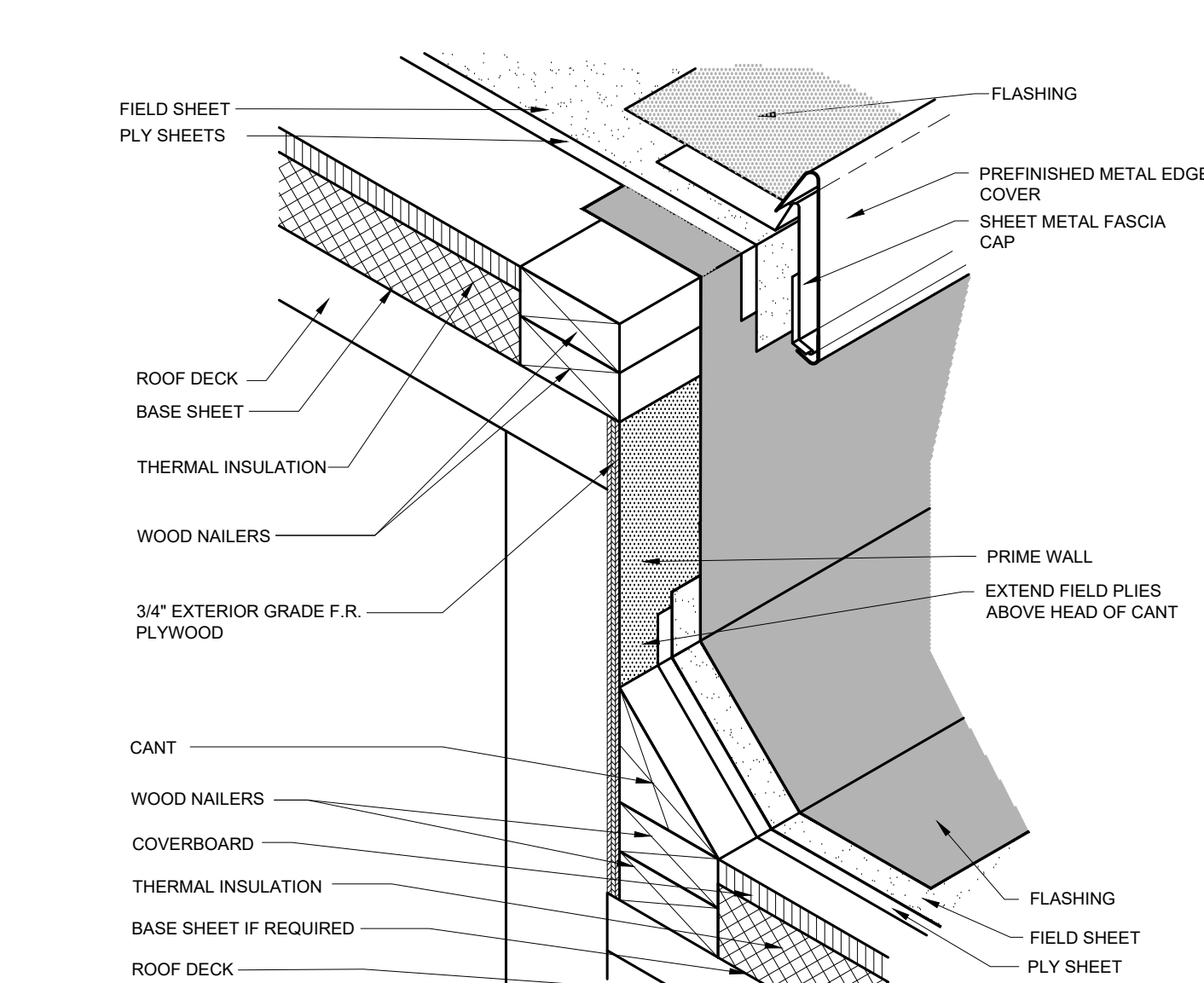
7 FIELD EJ TO RISEWALL EJ AT METAL PANELS
NOT TO SCALE



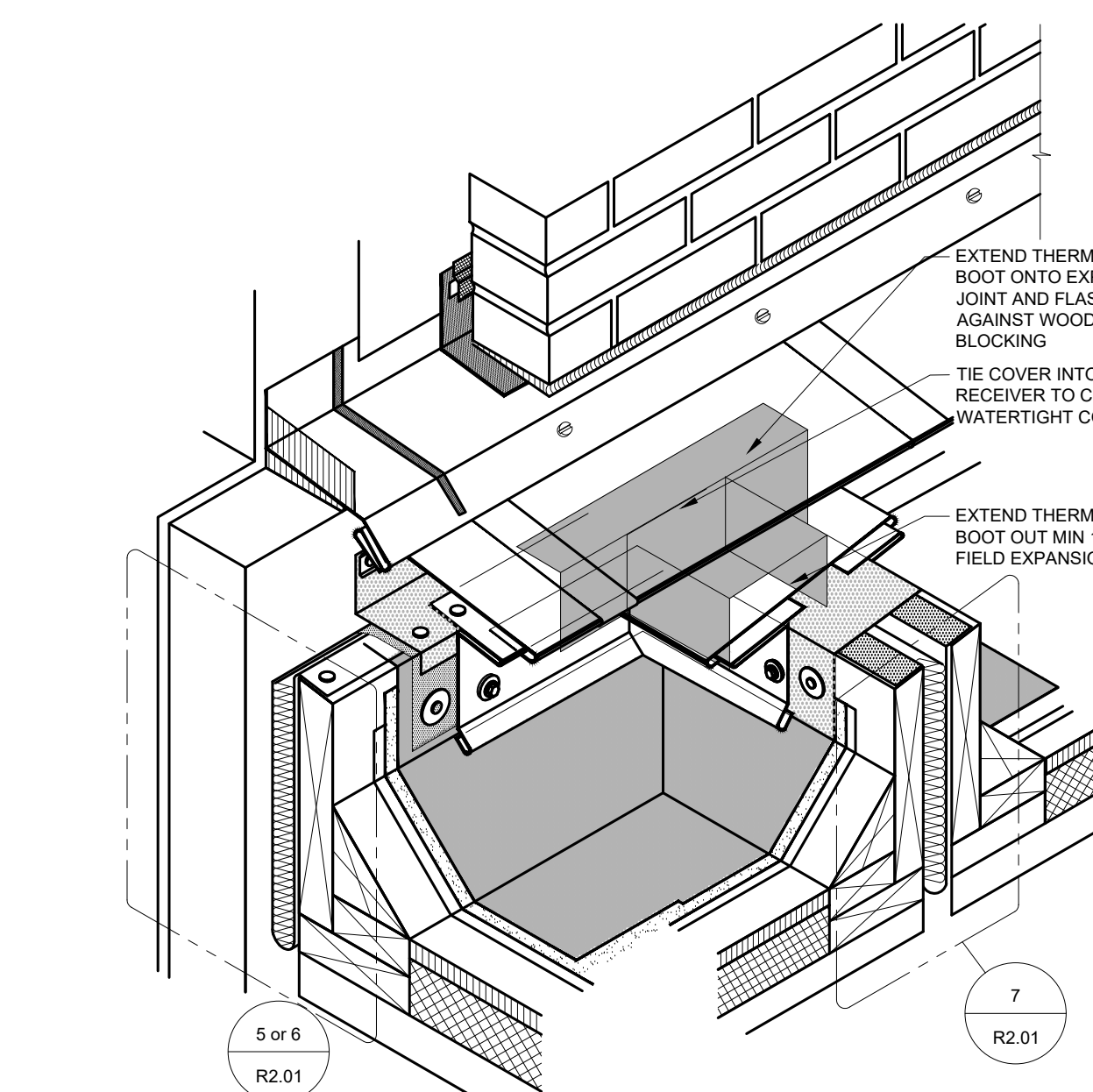
6 METAL EDGE GUTTER TO RISEWALL BYPASS
NOT TO SCALE



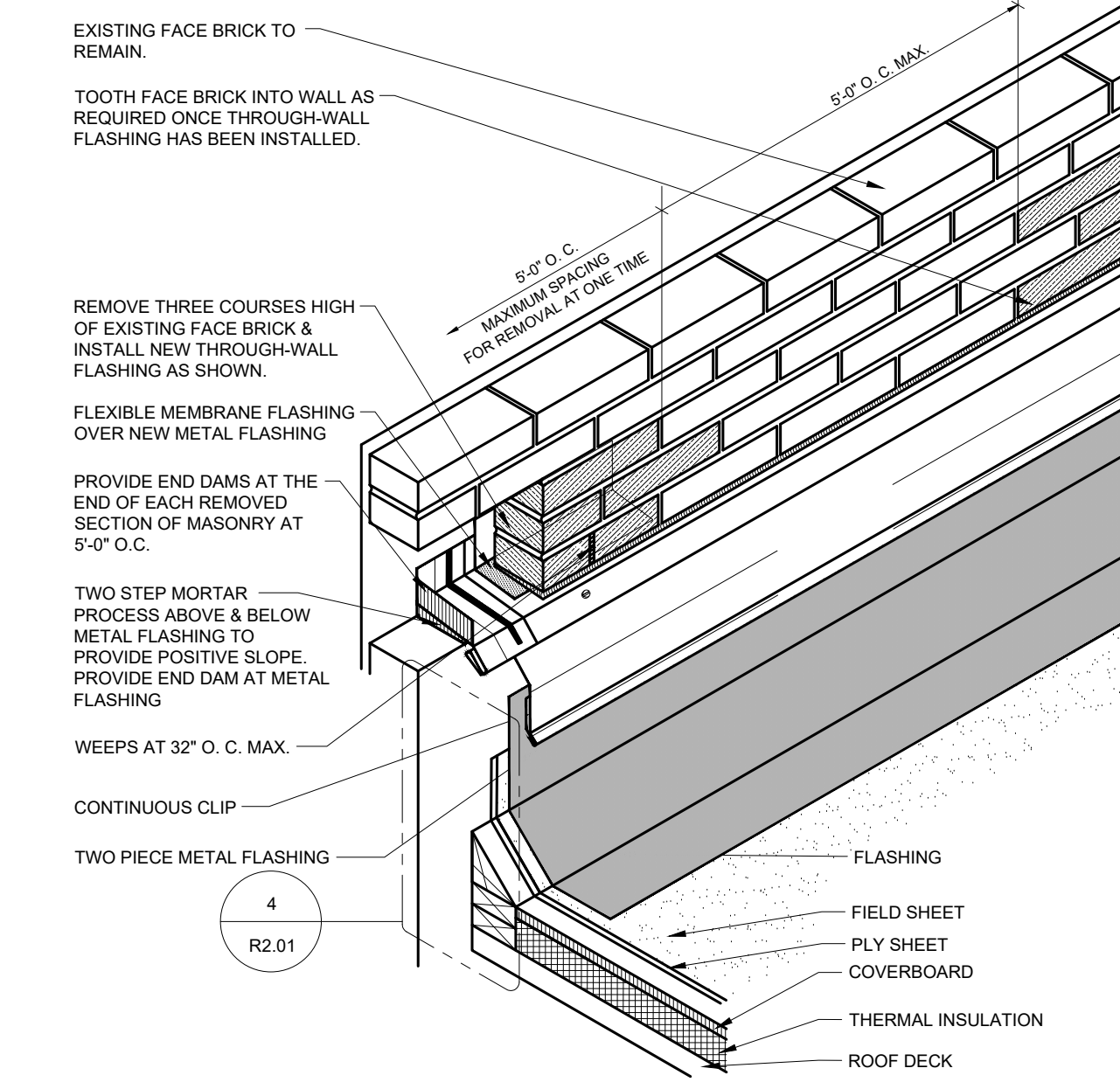
5 3 COURSE BRICK REMOVAL AT RISEWALL EJ
NOT TO SCALE



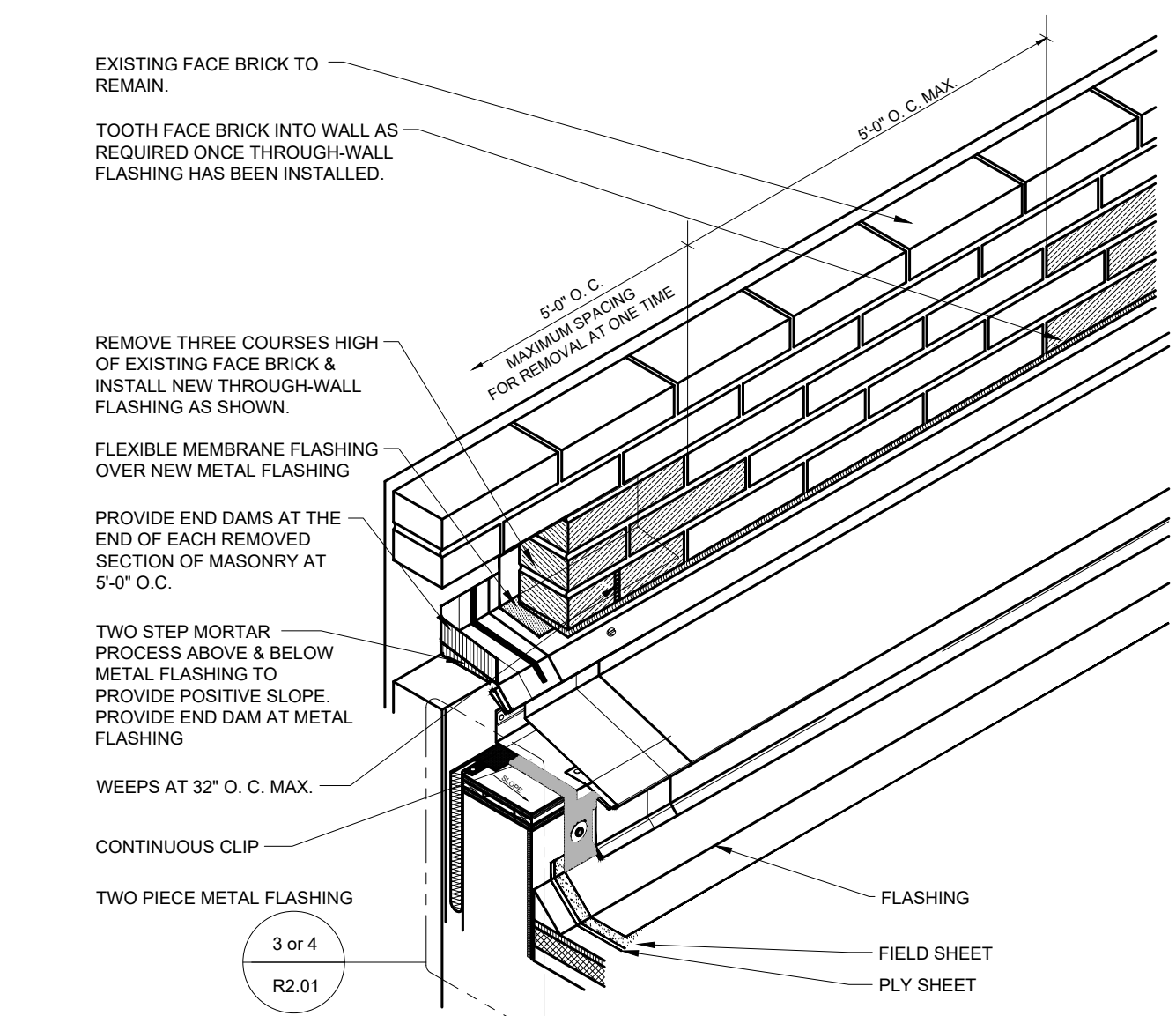
4 CHANGE IN ELEVATION
NOT TO SCALE



3 FIELD EXPANSION JOINT TO RISEWALL EJ
NOT TO SCALE



2 3 COURSE BRICK REMOVAL
NOT TO SCALE



1 3 COURSE BRICK REMOVAL AT RISEWALL EJ
NOT TO SCALE



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Engineering Firm F-6498
1320 Spinks Road
Flower Mound, TX 75028
(972)874-1388



11/05/19

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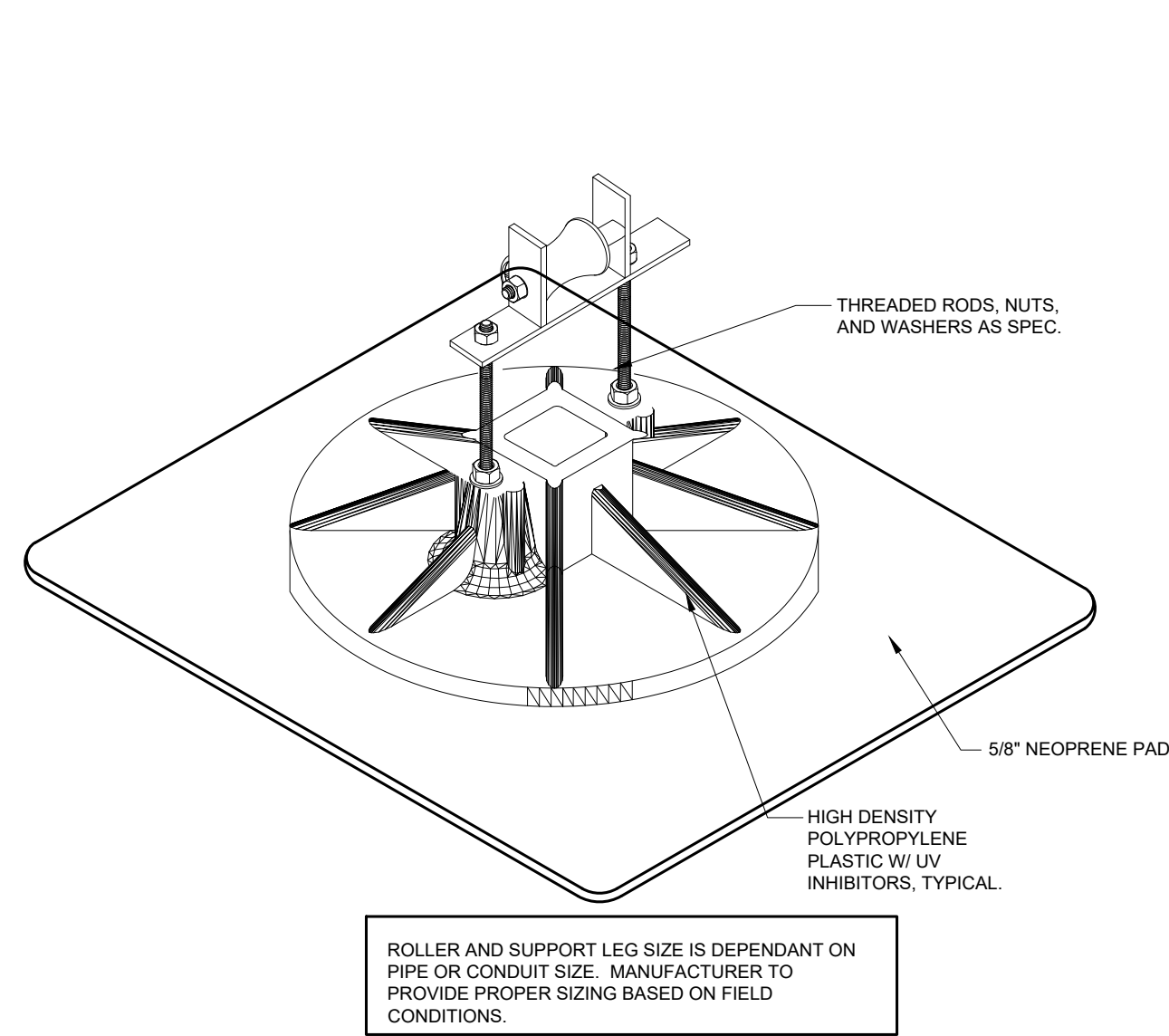
ISSUES
100% CONSTRUCTION
DOCUMENTS 11/05/19

PROJECT FOR:
MESQUITE ISD
MULTIPLE FACILITIES
RE-ROOF PROJECT
MESQUITE, TEXAS

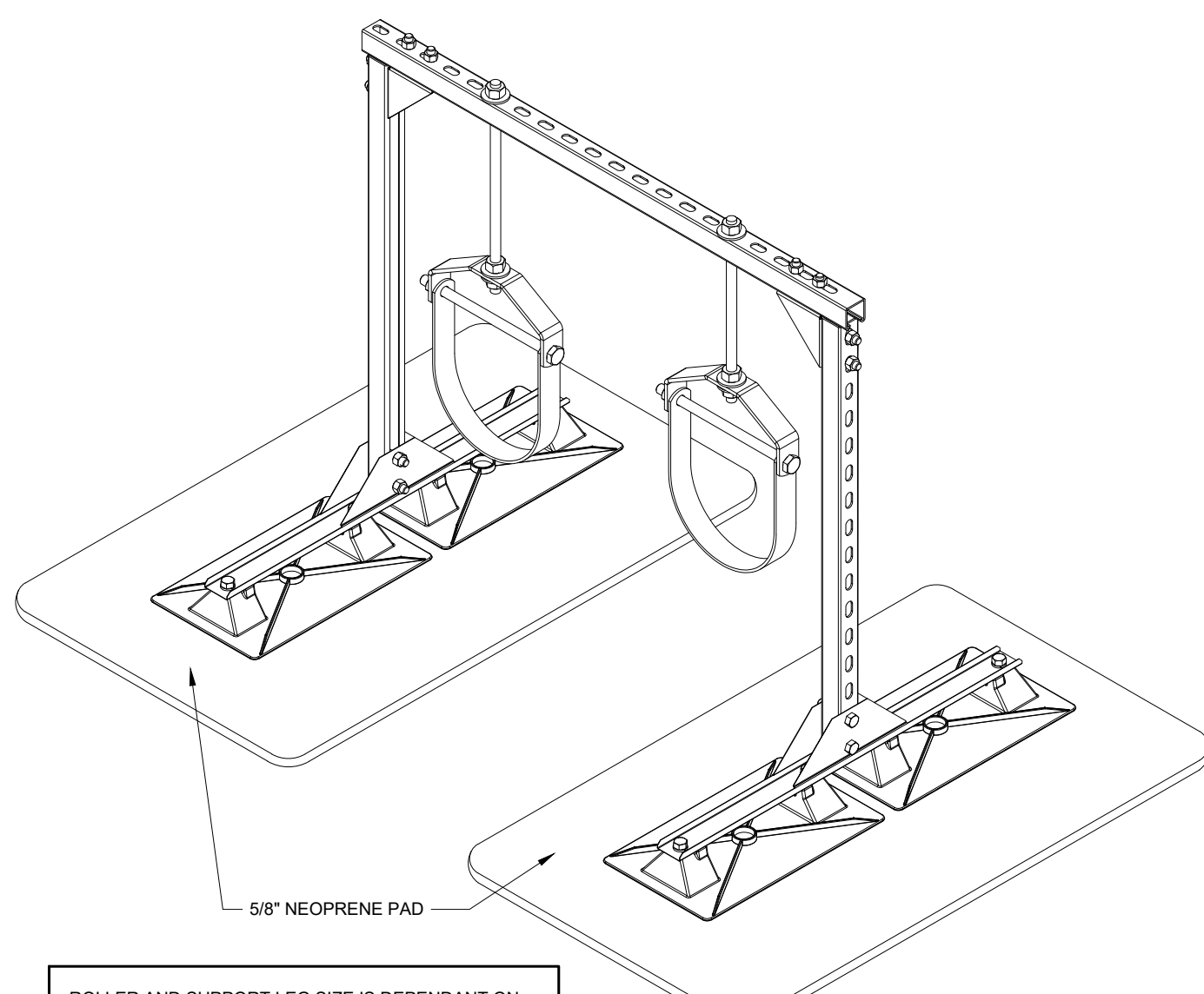
ROOF DETAILS

JOB 19-1277-44
DATE 11/05/19
DRAWN BY: CB
CHECKED BY: AL
SHEET

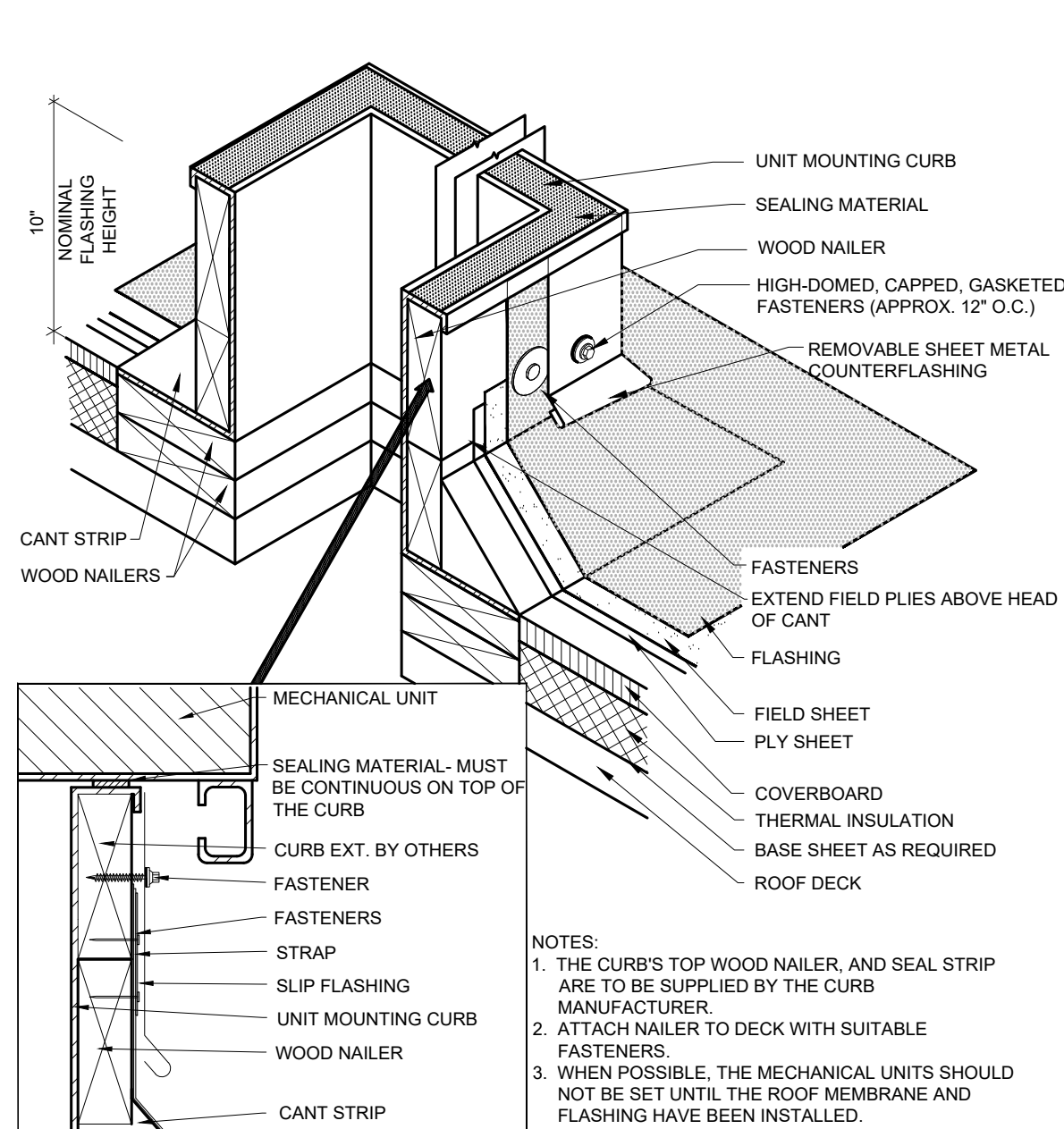
R2.02



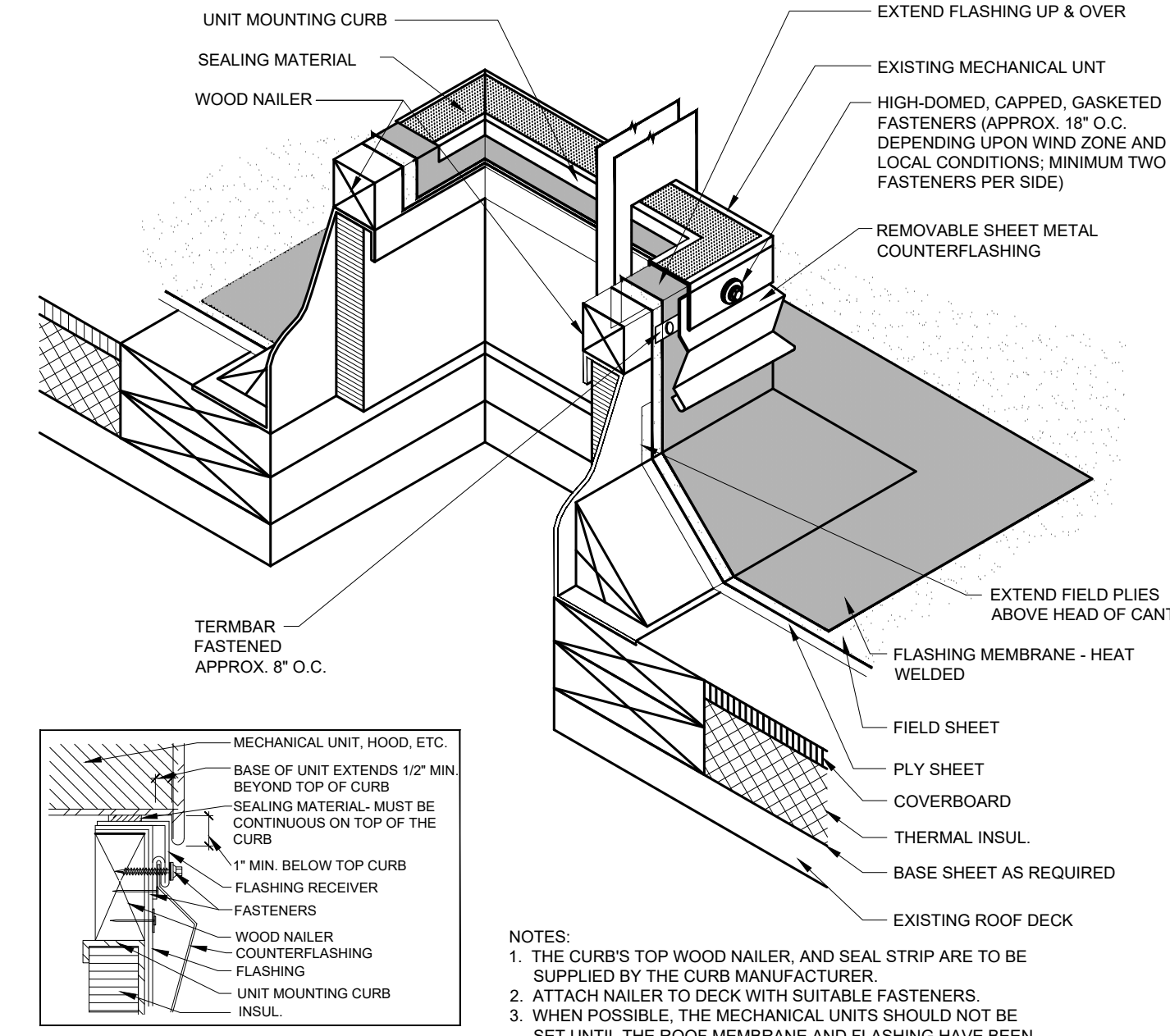
12 PIPE SUPPORT
NOT TO SCALE



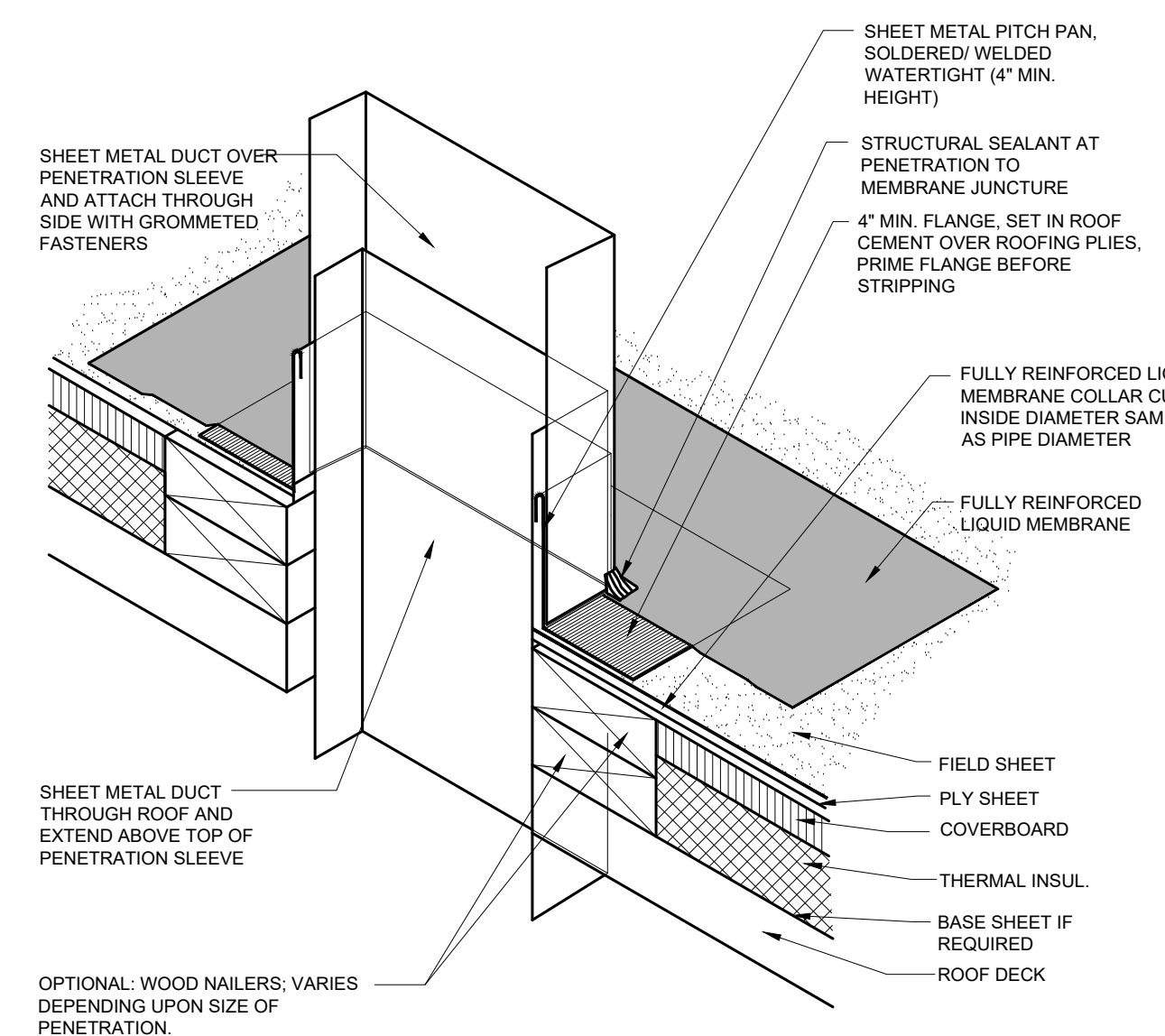
11 LARGE PIPE SUPPORT
NOT TO SCALE



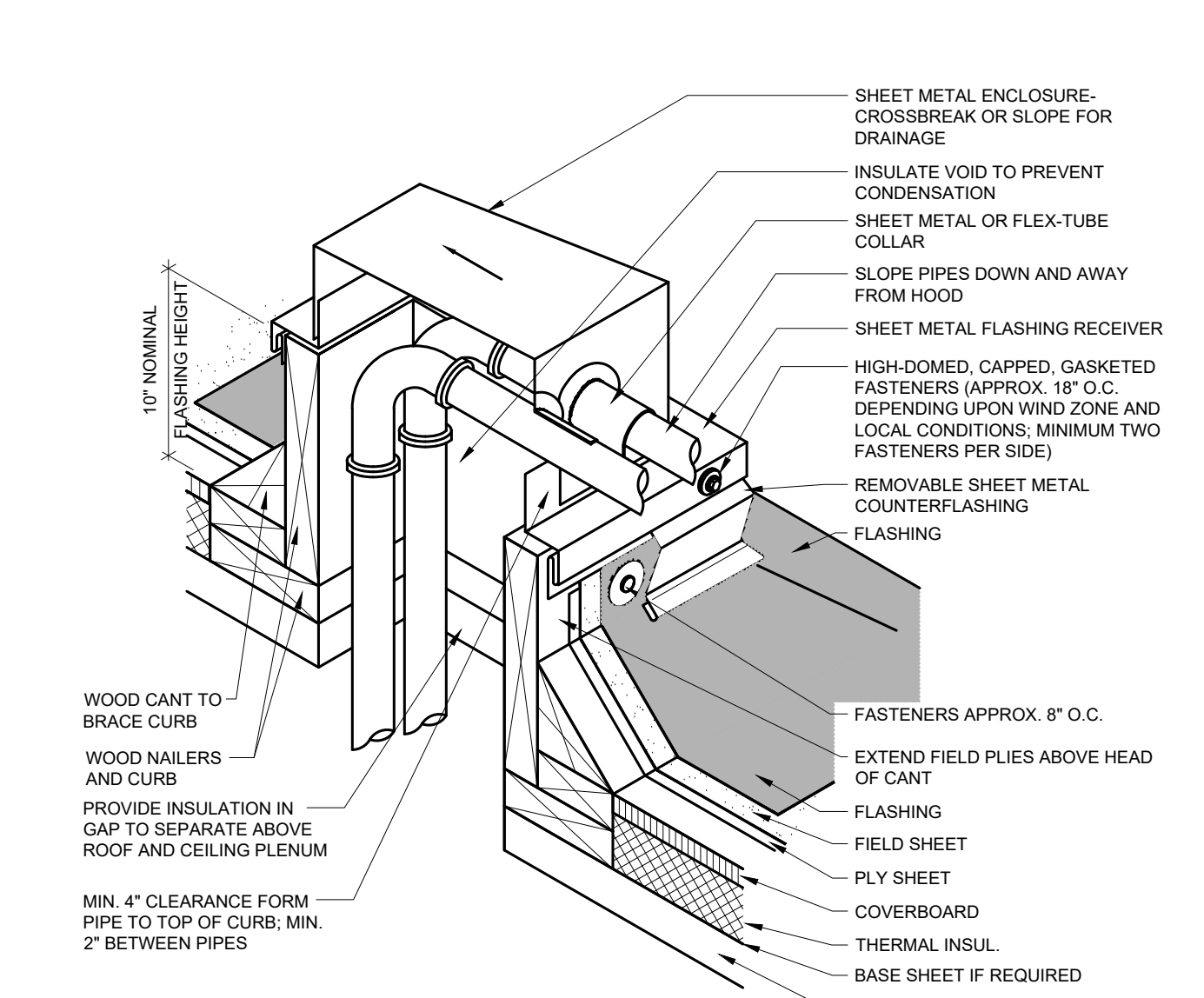
10 MECHANICAL CURB - RAISED
NOT TO SCALE



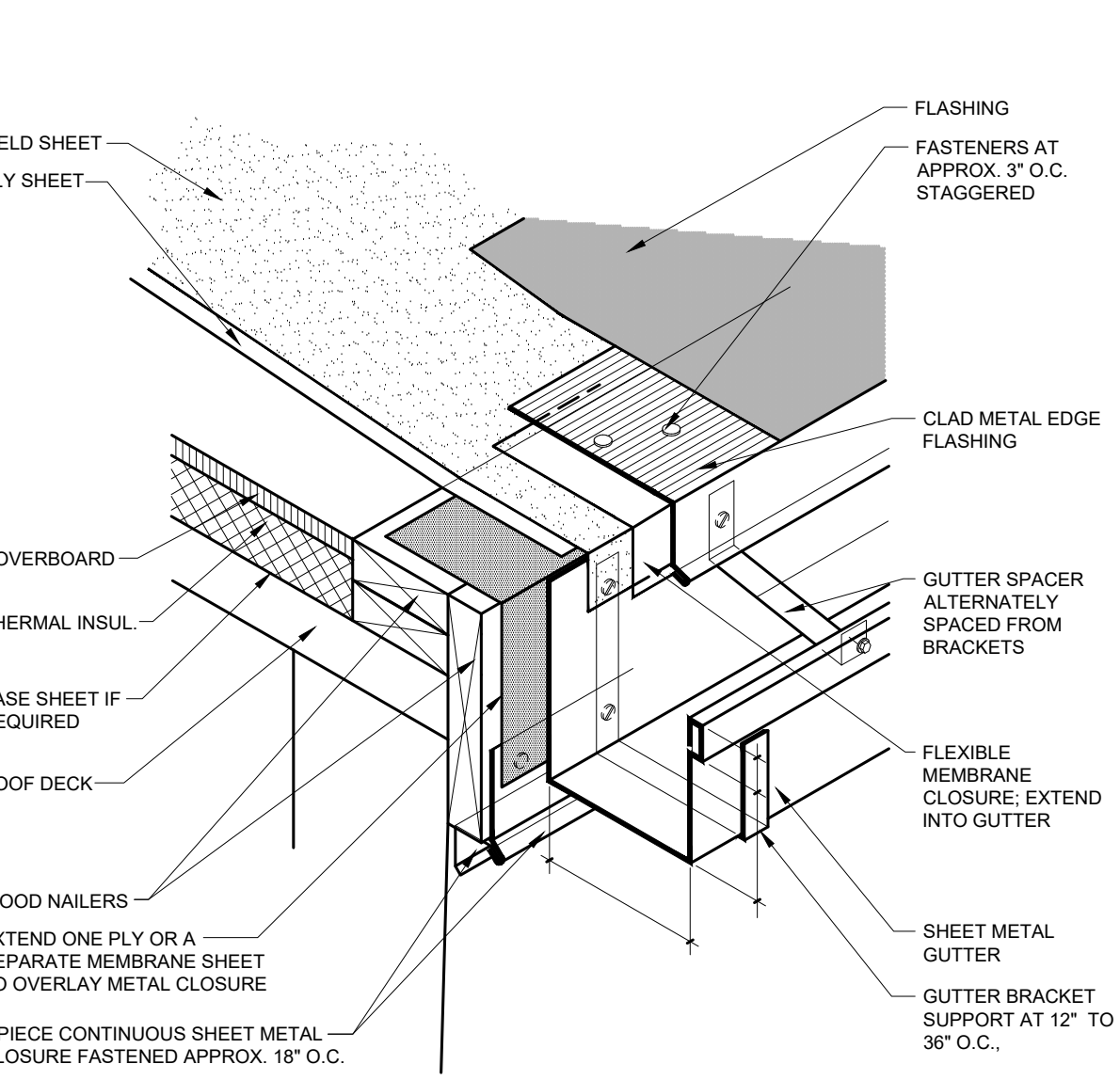
9 PREFABRICATED MECHANICAL CURB
NOT TO SCALE



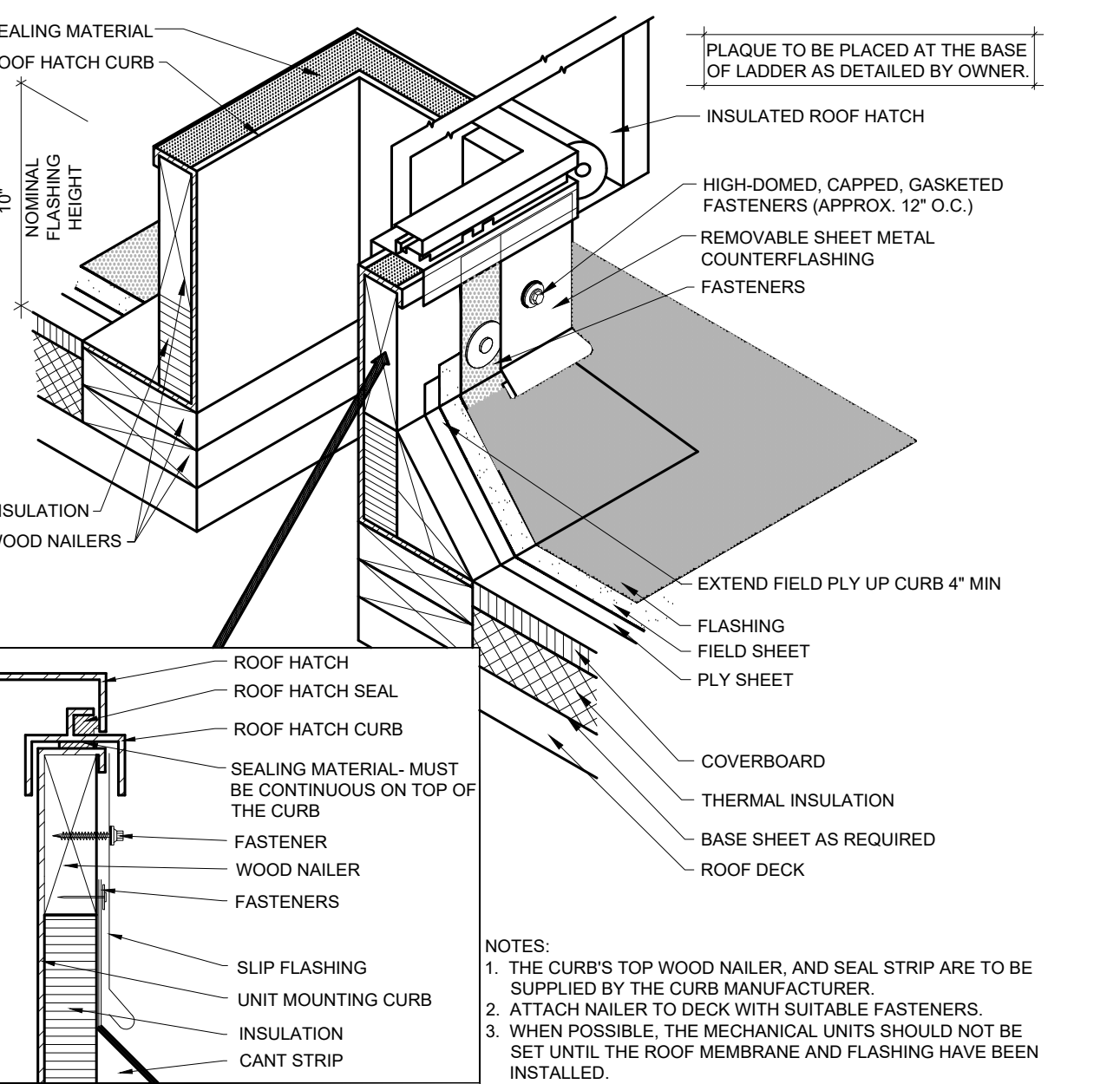
8 DUCT
NOT TO SCALE



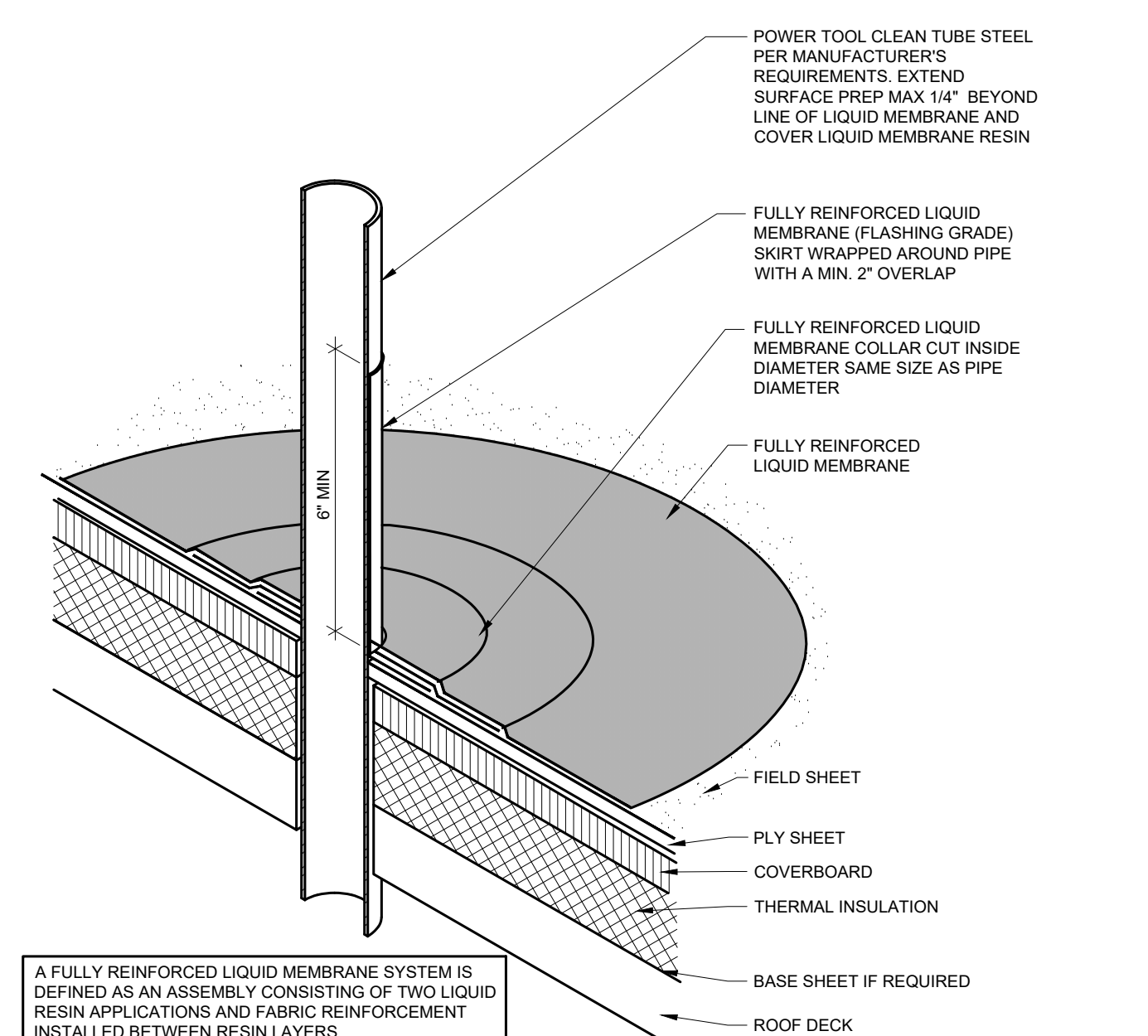
7 PIPE BOX
NOT TO SCALE



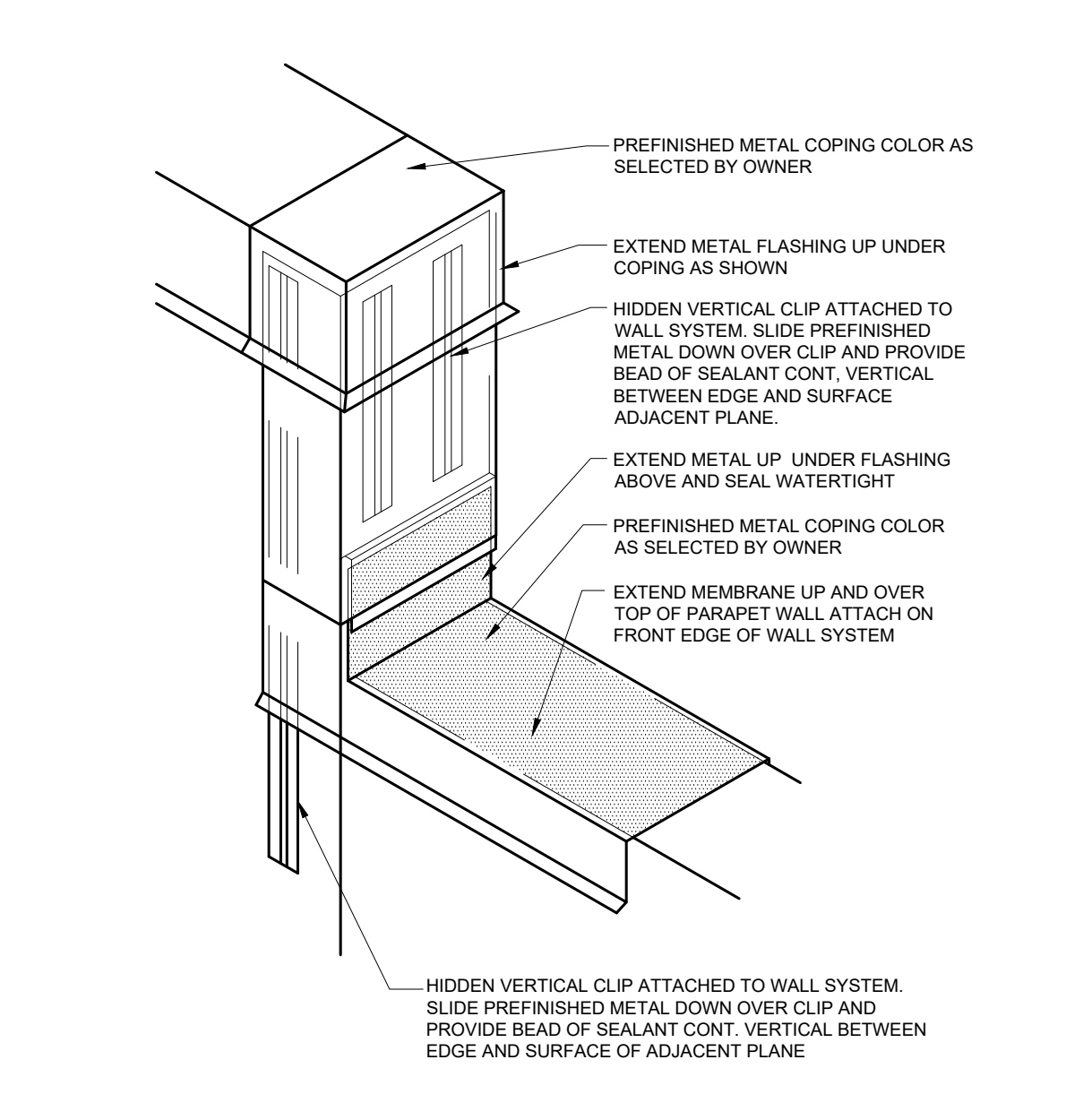
6 METAL EDGE GUTTER
NOT TO SCALE



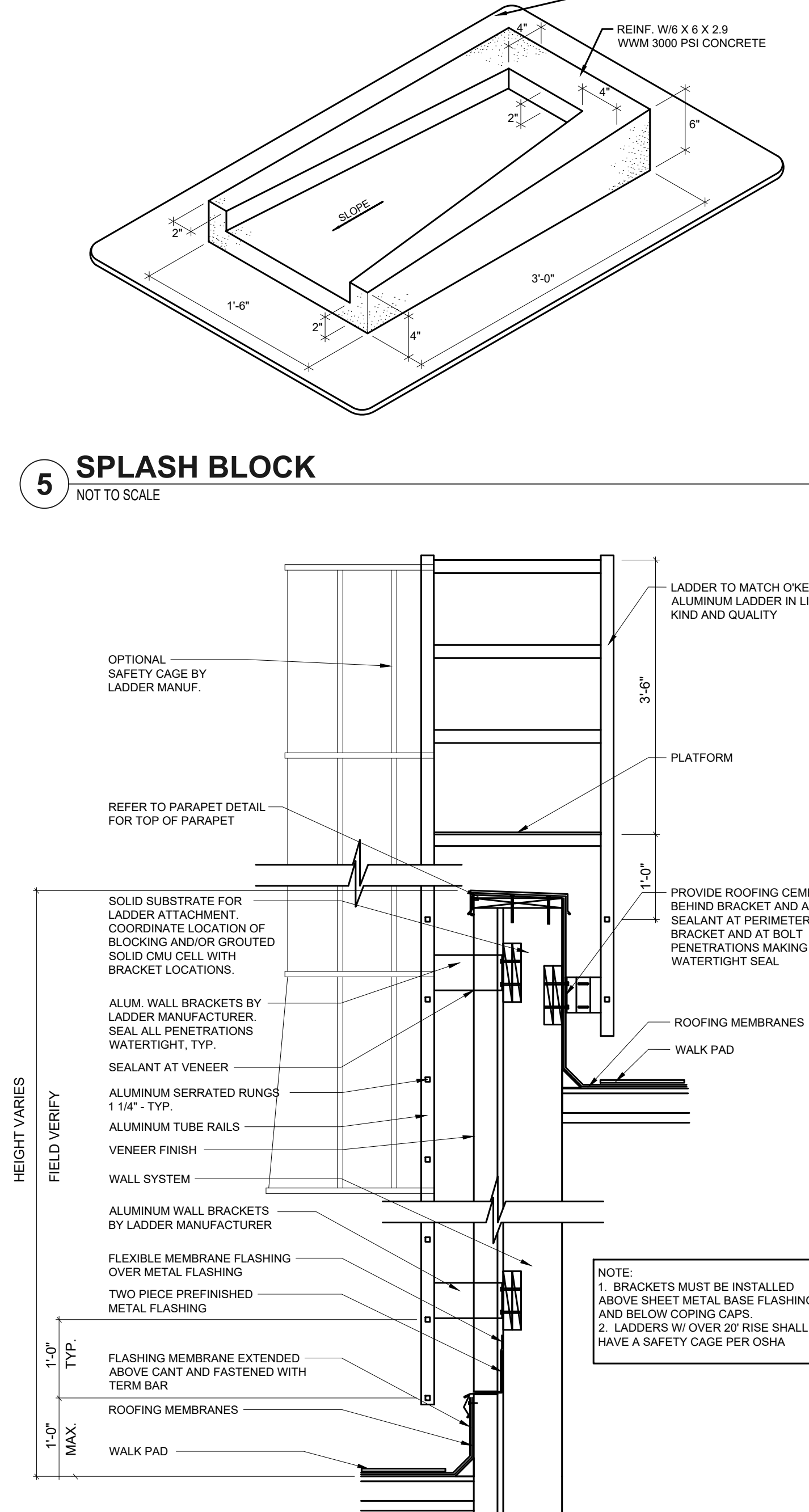
4 ROOF HATCH
NOT TO SCALE



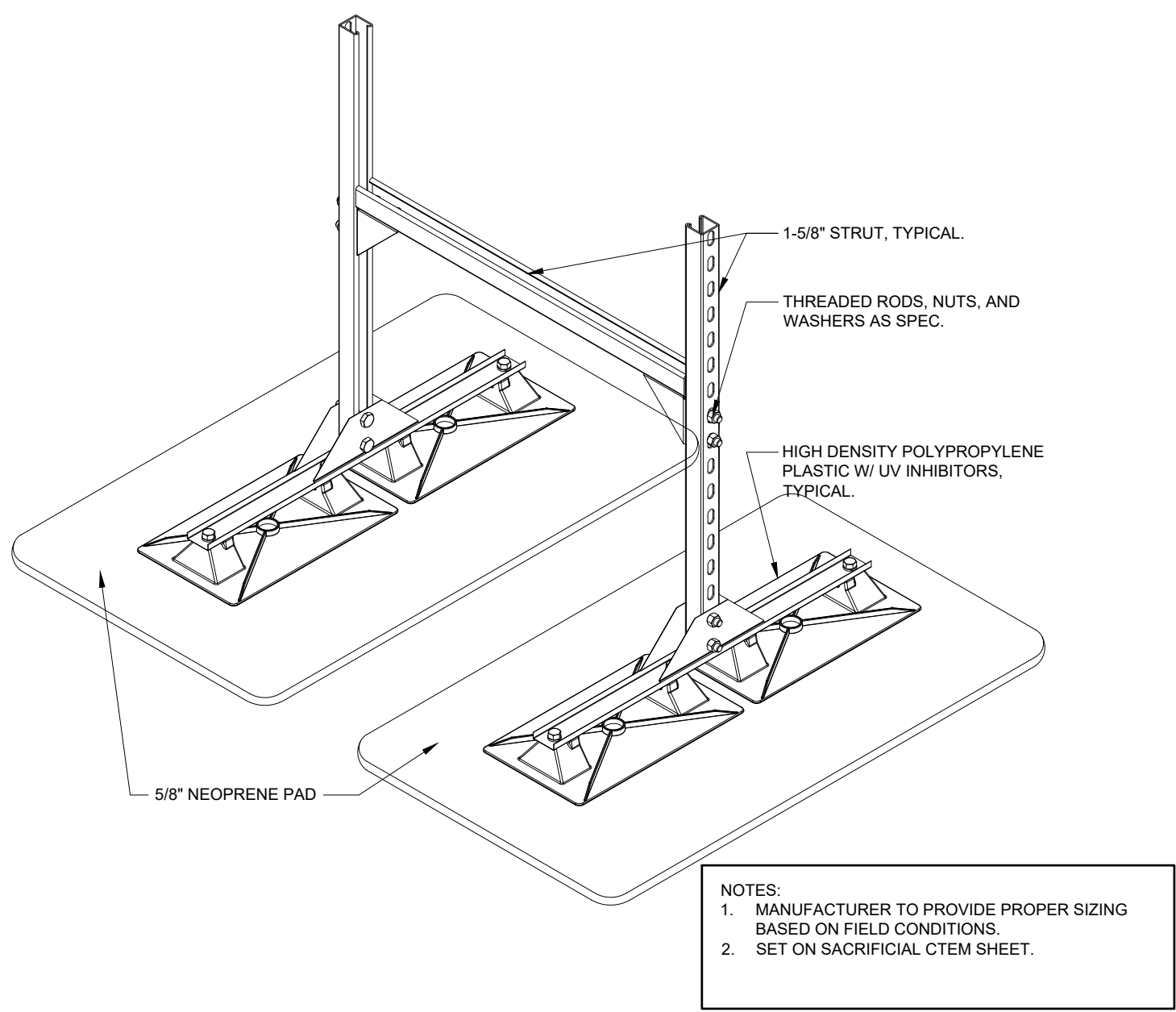
3 VENT STACK
NOT TO SCALE



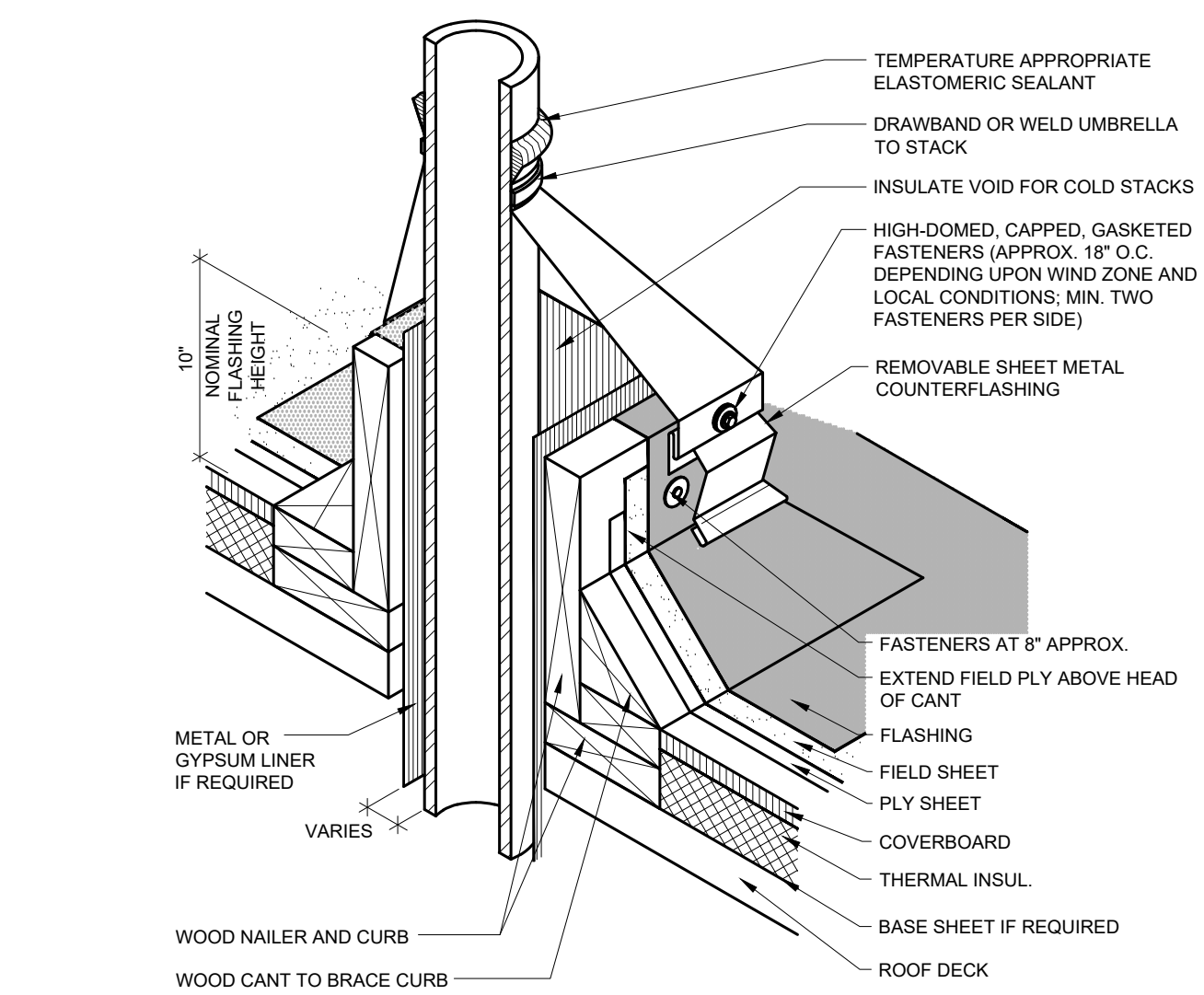
2 COPING CAP TERMINATION
NOT TO SCALE



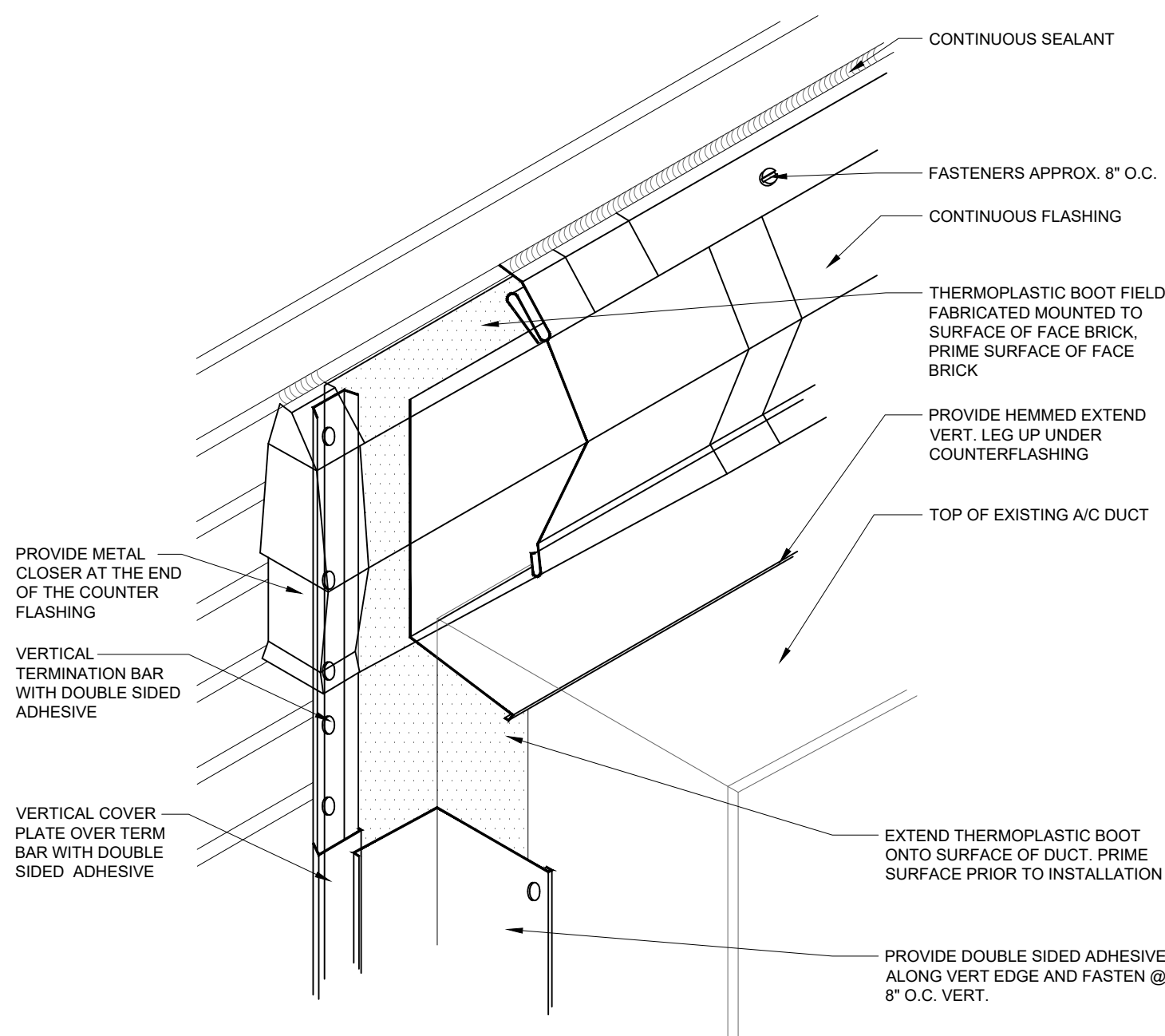
1 ROOF LADDER
NOT TO SCALE



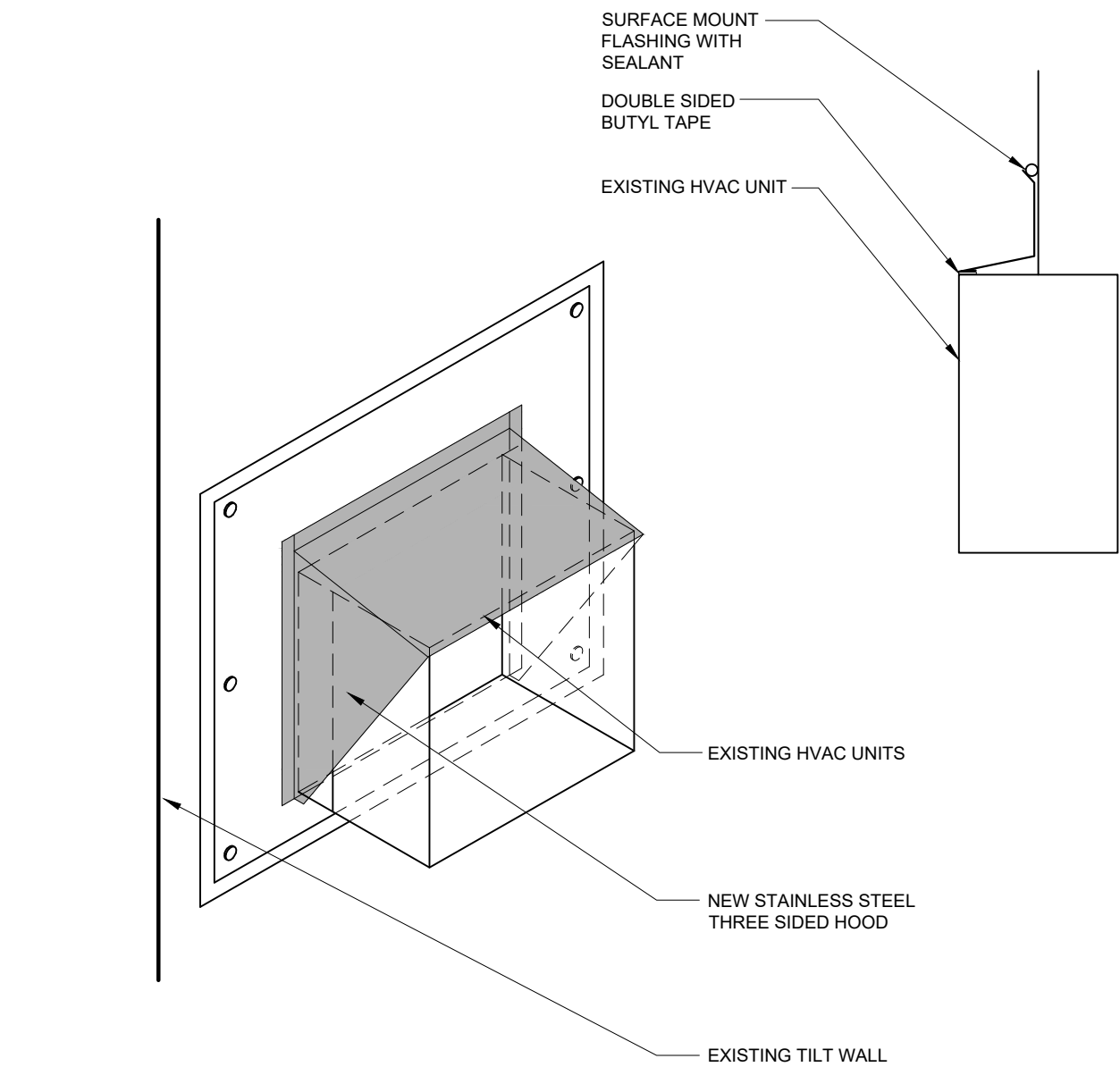
4 DUCT SUPPORT STAND
NOT TO SCALE



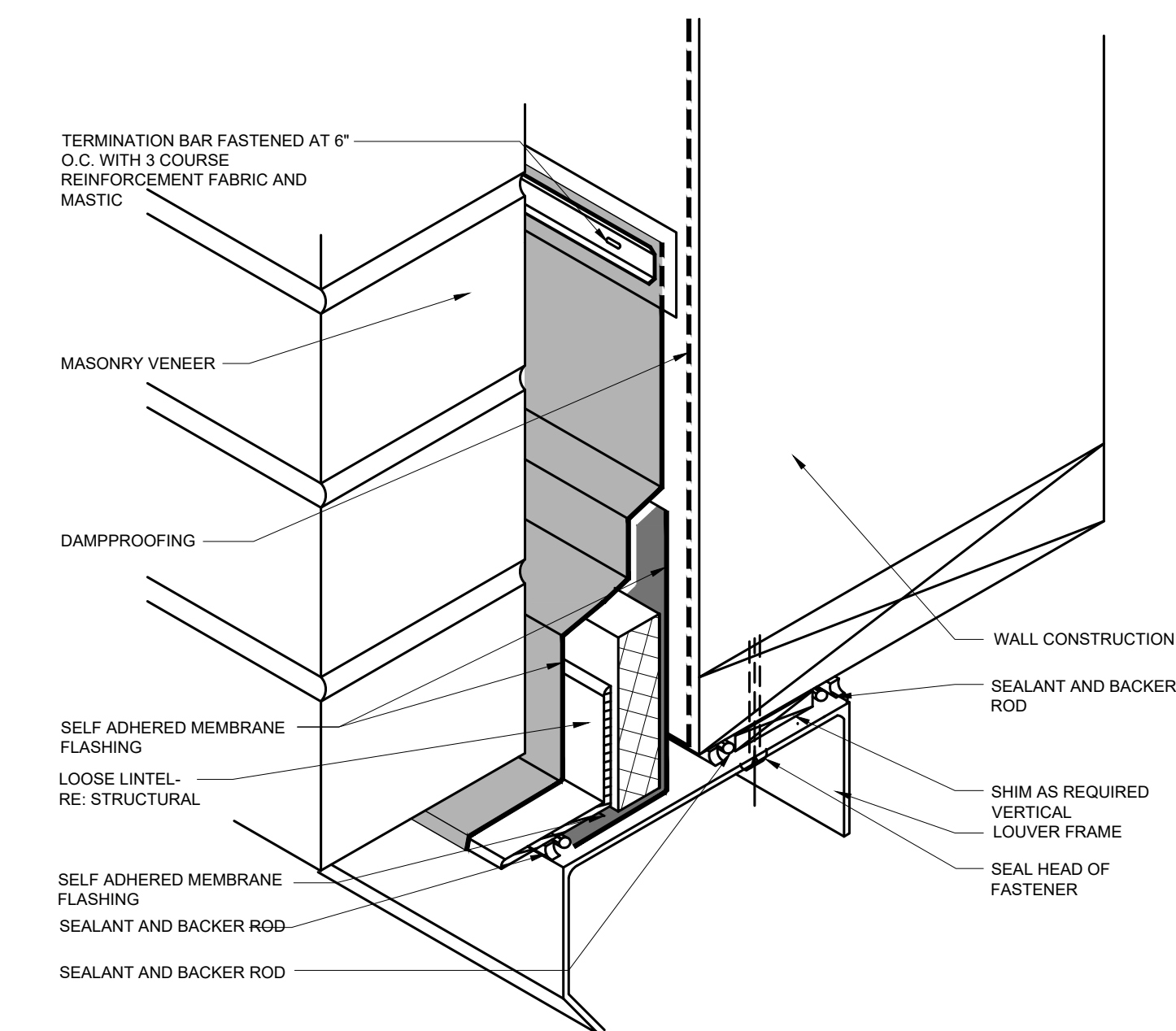
3 HOT STACK
NOT TO SCALE



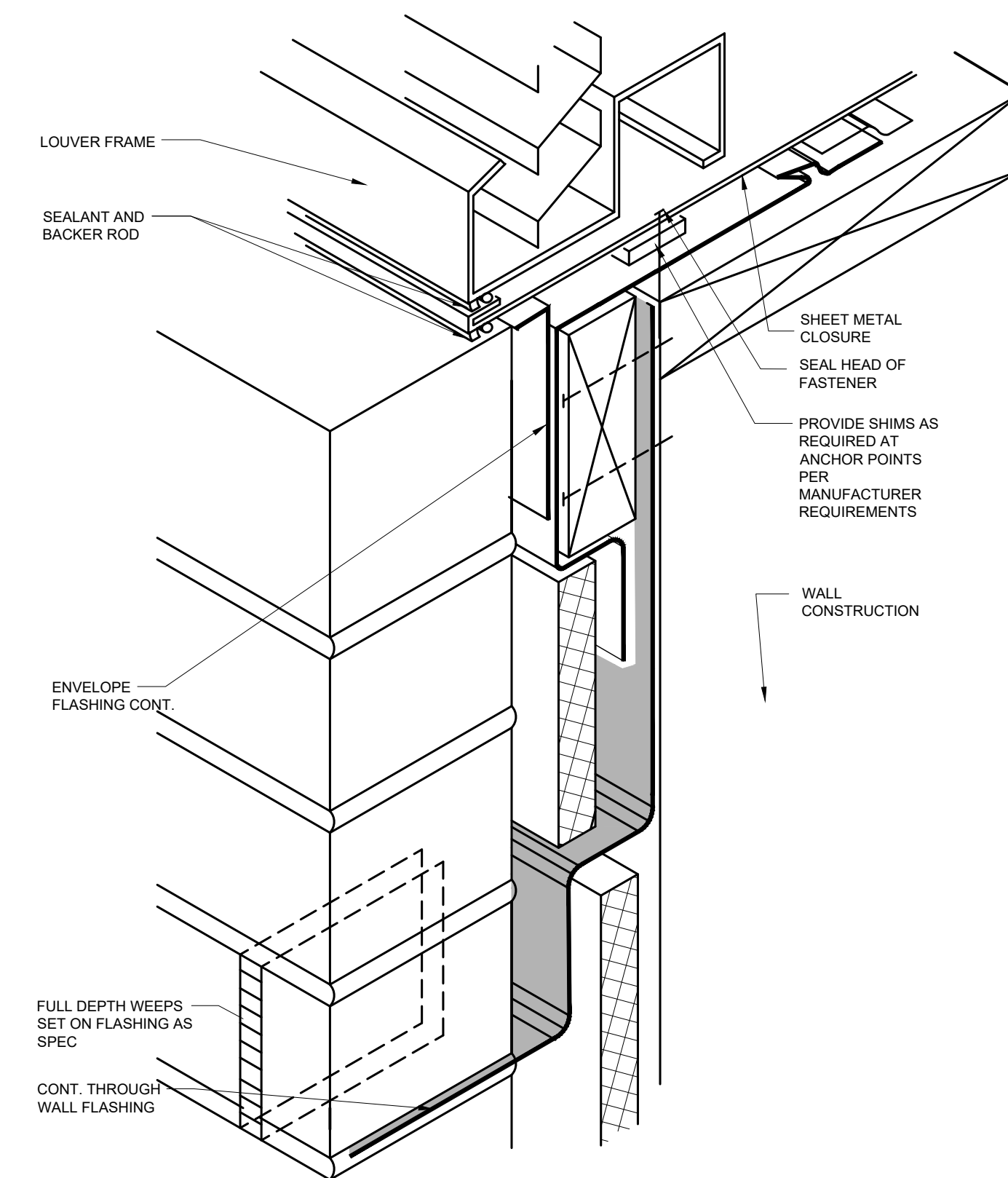
3 WALL PENETRATION DUCT FLASHING
NOT TO SCALE



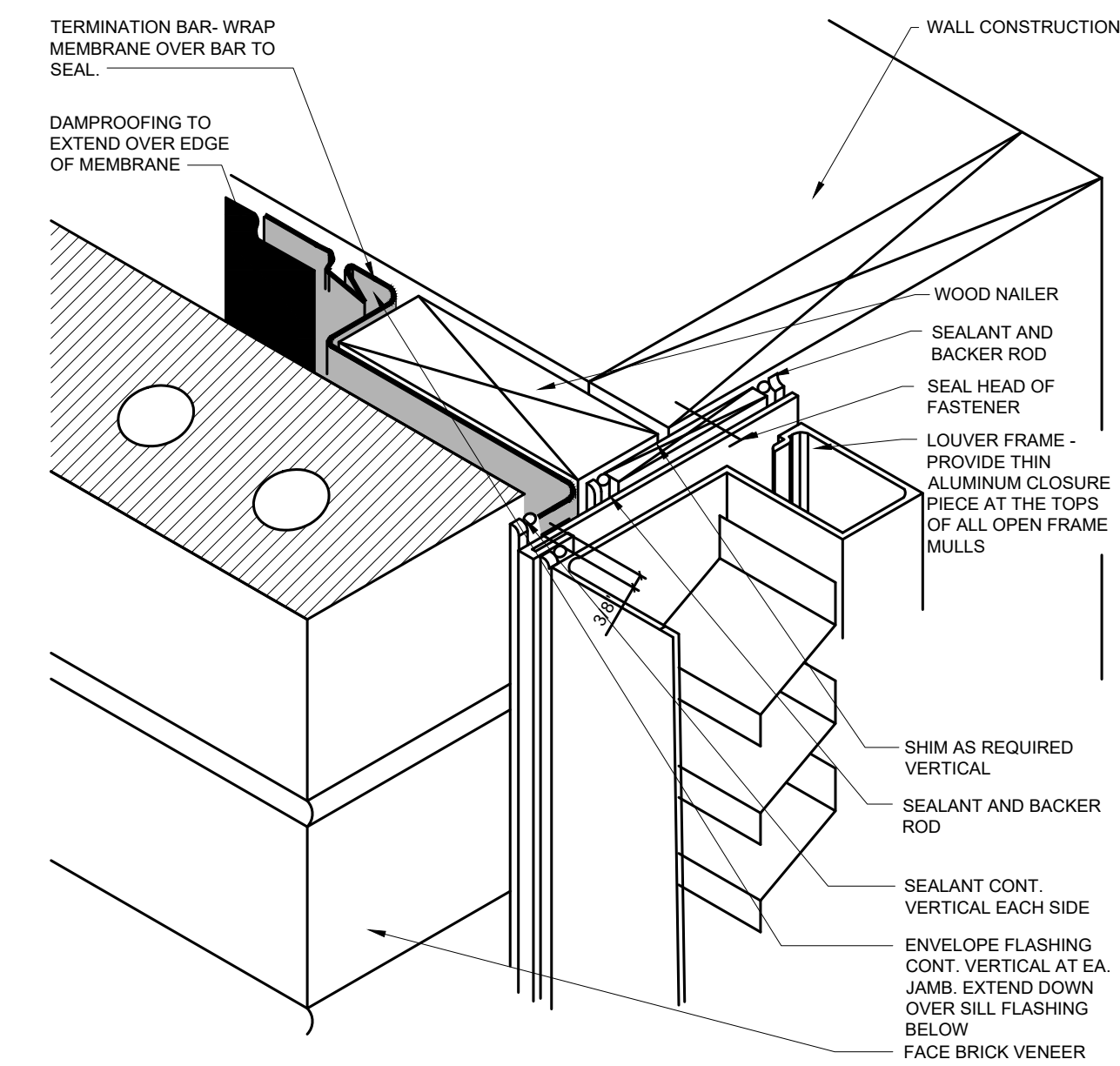
1 WALL DUCT HOOD
NOT TO SCALE



7 WALL LOUVER HEAD
NOT TO SCALE



6 WALL LOUVER SILL
NOT TO SCALE



5 WALL LOUVER JAMB
NOT TO SCALE



Texas Registered
Engineering Firm F-6498
1320 Spinks Road
Flower Mound, TX 75028
(972)874-1388



11/05/19

Contractor shall verify all substrates, dimensions, penetrations, curbs, etc. Those shown are typical but may not be all inclusive. Copyright 2019 by Armko Industries

| ISSUES |
|--------------------------------------|
| 100% CONSTRUCTION DOCUMENTS 11/05/19 |
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PROJECT FOR:
MESQUITE ISD
MULTIPLE FACILITIES
RE-ROOF PROJECT
MESQUITE, TEXAS

ROOF DETAILS

JOB 19-1277-44
DATE 11/05/19
DRAWN BY: CB
CHECKED BY: AL
SHEET

R2.04