

Project Manual  
Bid Set



Project: Bid No. 9848 Troy School District 2018  
Roof Program

Owner: Troy School District  
4400 Livernois  
Troy, MI 48098

Date: 11/10/17

Prepared by



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## **PROJECT DIRECTORY**

### **Troy School District:**

Troy School District  
4400 Livernois  
Troy, MI 48098

Contact: Rob Carson – Dir of Operations  
Phone: (248) 823-4067  
Email: RCarson@troy.k12.mi.us

Contact: Michelle Kerns – Bond Rep  
Phone: (248) 921-3929  
Email: MKerns@troy.k12.mi.us

### **ROOFING CONSULTANT:**

WeatherTech Consulting Group, Inc.  
7747 Auburn Road  
Utica, MI 48317

Contact: Geof Garabedian - Principal  
Phone: (586) 731-3095 x12  
Fax: (586) 731-6863  
Email: ggarabedian@wtcg.net

Contact: Ann Crippen – Project Administrator  
Phone: (586) 731-3095  
Email: acrippen@wtcg.net

**INVITATION TO BID  
BID NO. 9848  
TSD 2018 ROOF PROGRAM**

The Troy Board of Education will receive firm, sealed bids for all labor, materials, equipment and all other services to complete a 2018 Reroof Project (s) Districtwide for Troy School District.

Bid documents are available through WeatherTech Consulting Group, Inc., online by accessing their website at [www.wtcg.net](http://www.wtcg.net) and selecting online programs. Username: [tsdproject2018@wtcg.net](mailto:tsdproject2018@wtcg.net) and Password: TSD2018. If you have WTCG website questions, please contact Ann Crippen at [acrippen@wtcg.net](mailto:acrippen@wtcg.net). *Bid Documents will be posted on Monday, November 13, 2017.*

Your proposal, and two copies, marked “**BID 9848 – TSD 2018 ROOFING PROGRAM**” must be delivered no later than 10:00 A.M., Wednesday, November 29, 2017, Administrative Building Troy School District, 4400 Livernois Road, Troy, Michigan 48098, at which time all bids will be publicly opened and read aloud immediately thereafter. Bid proposals received after this time will not be considered or accepted.

*A **mandatory** pre-bid meeting has been scheduled for 10:00 A.M., Monday, November 20, 2017 at Troy School District Administration Building, 4400 Livernois, Troy, Michigan 48098. The roofing contractors will have access to walk the roofs on Wednesday, November 22, 2017 (8am – 4pm).*

All bidders must provide familial disclosure in compliance with MCL 380.1267 and attach this information to the bid proposal. The bid proposal will be accompanied by a sworn and notarized statement disclosing any familial relationship that exists between the owner or any employee of the bidder and any member of the Troy School Board or the Troy School Districts Superintendent. Also, a sworn and notarized Affidavit of compliance for the Iran Economic Sanctions Act certifying the vendor does and will comply with Public Act 517 of 2012 shall accompany all proposals. Both forms will be enclosed in the specification's booklet that shall be used for this purpose. The District will not accept a bid proposal that does not include these sworn and notarized disclosure statement.

In accordance with Michigan Compiled Laws Section 129.201, successful bidders whose proposals are \$50,000 or more, for any bid category, will be required to furnish a U.S. Treasury Listed Company Performance and Payment Bond in the amount of 100% of their bid. The cost of the Bond shall be identified within each proposal.

Prevailing wage rates are a requirement for this project and are attached; this is a qualified bond.

The Troy Board of Education reserves the right to accept or reject any or all bids, either in whole or in part; to award contract to other than the low bidder; to waive any irregularities and/or informalities; and in general to make awards in any manner deemed to be in the best interest of the owner.

Purchasing Department  
Troy School District  
Troy, MI 48083

**SECTION 00 01 13**  
**INSTRUCTIONS TO BIDDERS – Troy School District**

PREPARATION OF PROPOSALS

1. Firm, sealed proposals will be received by the Board of Education, Troy School District for all labor, equipment, materials, and all other necessary costs and expenses required to fully complete a roof restoration project for Troy Schools as per the attached specifications in conjunction with specifications on the blueprints.
2. Your proposal and two copies will be submitted only on the forms provided and will be enclosed in a sealed envelope marked with the name of the bidder, the title of the work, the time, place and date due and must be hand delivered or delivered by courier no later than 10:00 AM., Wednesday, November 29, 2017, Administrative Building, Troy School District, 4400 Livernois, Troy, Michigan 48098, at which time all bids will be publicly opened and read aloud immediately thereafter. Bid proposals received after this time will not be considered or accepted. Oral, telephone, fax or electronic mail bids are invalid and will not receive consideration.
3. *A **mandatory** pre-bid meeting has been scheduled Monday November 20, 2017 at 10:00 am at Troy School District, 4400 Livernois, Troy, Michigan 48098. The roofing contractors will have access to walk the roofs on November 22, 2017 (8am – 4pm).*
4. Proposals will be made in conformity with all the conditions set forth in the specifications. All items must conform to the specifications.
5. Any questions regarding bid specifications must be received noon, Monday, November 27, 2017. Questions must be submitted in writing the online RFI form at [www.wtcgproject.net](http://www.wtcgproject.net) any questions on how to use the RFI form contact Ann Crippen at (586) 731-3095 x10 or Geof Garabedian at (586) 731-3095 x12. No response will be made to oral questions.
6. Proposals must include a bid bond or certified check for not less than five percent of the contract and must be submitted with the bid proposal form furnished with the specifications. All proposals submitted are FIRM OFFERS and will remain firm for a period of 60 days following the date on which the bids are opened.
7. The Board of Education reserves the right to accept or reject any or all bids, either in whole or in part; to award contract to other than the low bidder; to waive any irregularities and/or informalities; and in general to make awards in any manner deemed to be in the best interests of the owner.
8. Any bidder may withdraw their bid at any time prior to the scheduled time for receipt of bids.
9. All contracts to be entered into by the Troy School District must and will comply with the minimum wage and equal opportunity laws of the State of Michigan.
10. References in the specifications to any article, product, material, fixture, form or type of construction, etc., by proprietary name, manufacturer, make or catalog number will be interpreted as establishing a standard quality of design and will not be construed as limiting proposals.
11. All blank portions of the Proposal Form must be filled in. Each submitted proposal must include the legal name of the bidder and will be signed by the person legally authorized to bind the bidder to a contract. If bids are submitted by an agent, satisfactory evidence of agency authority is required.
12. All bidders must provide familial disclosure in compliance with MCL 380.1267 and attach this information to the bid proposal. The bid proposal will be accompanied by a sworn and notarized statement disclosing any familial relationship that exists between the owner or any employee of the bidder and any member of the Troy School District or the Troy Schools Superintendent. Also, a completed certification form as attached, for compliance to the 'Iran Economic Sanctions Act' is required with the bid proposal. The District will not accept a bid proposal that does not include these sworn and notarized disclosure statements.

SCOPE

This bid includes reroof for several building districtwide for Troy Schools. Proposals will be on a lump sum basis, according to the schedule listed below, and where specified only the qualified products listed will be considered in this proposal.

School /Facility	Address	Roof Area
Troy High School	4777 Northfield Parkway, Troy, MI 48098	Reroof Roof Area (s) N1, P1
Transportation Building	120 Hart Dr, Troy, MI 48098	Reroof Roof Area C
Morse Elementary School	5666 Livernois Rd, Troy, MI 48098	Reroof Roof Area C, Sec. 1, 2, 3, 4
Athens High School	4333 John R Dr, Troy, MI 48085	Reroof Roof Area C & A Sec. 1, Sec.2, Sec. 6, Reroof Roof Area F Sec. 3, Sec. 4 and Reroof Area I
Niles School	201 W. Square Lake Rd, Troy, MI 48098	Reroof Roof Area G, H
Troy Union Elementary	1340 E. Square Lake Rd, Troy, MI 48085	Reroof Roof Area (s) A, B and Restoration Roof Area E
<b>ALT. 1</b>		
Athens High School	4333 John R Dr, Troy, MI 48085	Reroof Roof Area A Sec. 3, 4, 5, 6, 7, 8, 9, 10, 11

#### INSPECTION OF SITE

1. Inspection of sites will not be possible due to the multiple locations throughout the Troy School District.
2. Bidders will be held to have compared the premises with the specifications and to have satisfied themselves as to the conditions of the premises and any other conditions affecting the carrying out of the work. No price allowance or extra consideration on behalf of the contractor(s) will subsequently be allowed by reason of error, oversight, or failure to reasonably inspect on the part of the bidder(s) and/or contractor(s).

#### INSURANCE

Satisfactory Workers' Compensation coverage of at least \$1,000,000.00 and General Liability and Property Damage Insurance of at least \$1,000,000.00 per occurrence and \$2,000,000.00 in Aggregate must be carried and paid for by the contractor(s) who undertakes the work on this contract. Insurance coverage must also include automobile insurance of at least \$1,000,000.00. Bid job number, Troy Schools and WeatherTech Consulting Group, Inc. as additional insured must be noted on the insurance certificate. Certificate holder will be Troy School District.

#### GUARANTEE BONDS

Prior to the issuance of a purchase order authorizing commencement of this project, and in all cases before beginning work under the contract, the contractor(s) selected will qualify for, sign and deliver to the Business Office, an executed performance bond and executed labor and materials payment bond secured by the surety company. Each bond will be in the amount of 100 percent of the contract. Troy School District requires that the bonding companies be limited to those listed on the U.S. Department of Treasury Circular 570, and must be licensed in the State of Michigan. The U.S. Department of Treasury Circular 570 can be viewed at the following web site: <http://fms.treas.gov/c570/index.html>. Certificates of such insurance and bonds will be filed with the Business Office within five working days of notification of bid award and before any work begins.

#### PERMITS

All necessary permits, tests, inspections and approvals will be procured by the contractor(s) and will be included in the proposal.

#### GOVERNMENTAL REGULATIONS

Contractor(s) agrees to comply with all federal, state, and local laws, rules, regulations, executive orders and ordinances. In addition, contractor(s) warrants that the materials covered by this contract, when delivered to the Troy School District, will comply with all applicable federal, state, and local laws, rules, regulations, executive orders and ordinances.

#### TAXES

When state and local taxes are required on construction materials installed by the contractor(s), such taxes must be included in the bid proposal price.

#### BID GUARANTEE

Bidders must submit with their proposal a bid bond or certified check for not less than five percent of the bid. Failure to include a five percent bid guarantee will result in the rejection of your bid.

#### WARRANTY & INDEMNITY

1. **Warranty.** All work will be guaranteed in writing against defects in workmanship and materials for no less than one year from issuance by the Board of Education's architect of the Certificate of Substantial Completion, or approval, acceptance and final payment by the Board of Education, whichever occurs first.
2. **Indemnity.** Contractor(s) will indemnify, defend and hold the Troy School District harmless from any damages to property or personal injuries resulting from or reasonably attributable to any defects in supplies or services provided by contractor(s) hereunder.

#### BASIS OF AWARD

The bid award will be made by the Board of Education on a lump sum basis whichever is in the best interest of the owner. The

owner has the right to accept or reject any or all bids and alternate bids.

**CONTRACT AWARD**

It is the intent to award the contract at the December 19, 2017, meeting of the Board of Education. After proposals are opened, evaluated and approved by the Board of Education, a letter of award confirming its acceptance will be sent to the selected vendor(s). The contract in support of this award will be in the form of a **PURCHASE ORDER** mailed to the contractor(s) after receipt of insurance certificate, labor and material bonds and performance bond.

**COMMENCEMENT OF PROJECT**

Commencement of project may begin as soon as a purchase order has been issued to the successful bidder(s) and after December 19, 2017. Project arrangements must also first be made with Rob Carson, Director of Operations.

**SITE MANAGEMENT**

Contractor(s) will at all times keep the job clean of all debris and rubbish resulting from its operations, and upon completion of its work, will promptly remove all tools, equipment and excess material and any rubbish caused by its work and personnel. Contractor(s) will protect all materials and work from hazards and be fully responsible for any damage caused by it to the work or property of others, including, but not limited to, the property of the Owner. Contractor(s) will reimburse Owner for any expenses incurred, including but not limited to, the property of the Owner and any expenses incurred to keep the job site clean and clear of all debris and rubbish resulting from Contractor(s)'s failure to comply with this paragraph. Use of the District's dumpsters is prohibited.

**DELIVERY**

Proposals on equipment, materials and supplies must be F.O.B. point of delivery specified, including packing and crating charges. Any equipment delivered to the site will be the responsibility of the contractor(s). The District will not accept any storage or security responsibility for any contractor(s) equipment or materials.

**PAYMENTS**

All payments are to be based on as-built quantities using the individual unit prices contained within the proposal. All payments for contract work must be approved by the Director of Operation and the Owners Representative. Release of lien is required from all contractors and subcontractors commencing after the first pay application.

**WITHDRAWAL OF BIDS**

Any bidder(s) may withdraw his/her bid at any time prior to the scheduled time of receipt of bids. Proposals may not be withdrawn for at least 60 days after the scheduled closing time of the bid.

**VENDOR LIST**

Vendor(s) not responding with a sealed bid or notification of a "No Bid" will be removed from the vendor bid list.

**MSDS**

**COPIES OF MATERIAL SAFETY DATA SHEETS FOR ALL HAZARDOUS MATERIALS MUST BE INCLUDED WITH YOUR INVOICE.**

**MATERIAL SAFETY DATA SHEETS**

Troy Schools expects **MATERIAL SAFETY DATA SHEETS** for all appropriate materials **ATTACHED TO THE INVOICE** and to appropriately label all products delivered according to Section 14 of Act 154, of the Public Acts of 1974 as amended. Any appropriate products not labeled will be refused and the vendor(s) will be responsible for additional freight charges. Payment may be withheld until MSDSs are received by the school district.

**END OF SECTION 00 21 13\INSTRUCTIONS TO BIDDERS**

**SECTION 00 02 00**

**SUMMARY OF WORK**

**PART 1 - GENERAL**

**1.01 INTRODUCTION**

- A. This section summarizes the scope of roofing work to be performed for the Troy School District schools and facilities identified as Bid No. 9848 Troy School District 2018 Roof Restoration Project Districtwide.
- B. Information in this section is provided as a general overview of the project scope, and as such, does not grant authority for deviation from the specifications for product, executions, or quality assurance contained in other related sections. The Roofing Contractor shall remain solely responsible for comprehensive review of the entire contract documents to include the contract drawings in preparation of his bid.

**1.02 WORK COVERED BY CONTRACT DOCUMENTS**

- A. The Roofing Contractor shall be considered the prime contractor and include in his base bid, all cost relating to:
  - 1. Troy School District (TSD) 2018 Roof Program work for five (5) schools and one (1) District building covering approximately 145,375 sq. ft. Roofing work includes roof replacement and restoration required to remediate all defects identified in the restoration schedules and drawings inclusive of all Bid Documents requirements.
  - 2. Schedule:
    - a. **Reroofing Work:** Contractor(s) will have approximately 44 work days to substantially complete the project starting at the end of the academic on or about June 18, 2018 and substantial completion on or about August 17, 2018 ALL schools from the date of the Notice to Proceed.
    - b. **Restoration Work:** Work can begin prior to reroofing starts. Contractors are required to coordinate with Rob Carson prior to accessing any sites before the start of work.
  - 3. Multiple Contracts: TSD, the Owner, reserves the right to award contracts to multiple contractors in order to insure the work is completely on time to meet the Schedule.

**PROJECT WORK SCHEDULE**

School	Reroofing sq. ft.	Restoration sq. ft.	TSD 2018 Roof Work	Project Time Frame
Troy Athens HS	53,200		Roof Area C Roof Area A: Sec. 1, Sec.2, Sec. 6; Roof Area F: Sec. 3, Sec. 4; Roof Area I	6/18/18- 8/17/18
Morse Elementary School	15,325		Roof Area C: Sec 1, 2, 3, 4	6/18/18- 8/17/18
Niles Community HS	14,650		Roof Area G and H	6/18/18- 8/17/18
Transportation Bldg.	1,275		Roof Area C	6/18/18- 8/17/18
Troy High School	4,625		Roof Area (s) N2, P1	6/18/18- 8/17/18
Troy Union Elementary School	13,100	4,400	Reroof Roof Area (s) A, B; Restoration Roof Area E	6/18/18- 8/17/18
<b>Base Bid</b>	<b>102,175</b>	<b>4,400</b>		
<b>Alternate Bid No. 1</b> Troy Athens HS	43,750		ALT. Bid Reroof Roof Area A Sec. 3, 4, 5, 6, 7, 8, 9, 10, 11	6/18/18- 8/17/18
<b>Total Roof Area (sf)</b>	<b>145,925</b>	<b>4,400</b>		

**1.03 GENERAL PROJECT REQUIREMENTS**

- A. The following paragraphs are generally applicable requirements for performance of Work on this project.
- Construction details for the Work of these specifications are as noted on the contract drawings and as contained in other related sections and photographs. Installation shall conform to contract details. The specifications and details designed specifically for this project may supersede manufacturer's printed literature. Contract drawings shall be used mutually with requirements set forth in contract specifications and photographs. In the event, where provisions of codes, safety orders, contract documents, referenced manufacturers specifications or industry standards are in conflict, the more restrictive and higher quality shall govern. In instances where specific conditions exist that vary from the contract construction details or the manufacturer's details, the Contractor shall submit a Manufacturer approved shop drawing for consideration by the Owner. Installation shall not begin until approval by the Owner has been given in writing.
  - Unless otherwise shown or noted on the Contract Drawings, existing, functional and salvageable, sheet metal counterflashings or coping metals shall be carefully handled to allow reuse after the specified roofing work is complete. Damage done to otherwise salvageable metal flashings shall be repaired via replacement with new metal to match existing in the damaged area of section at no additional cost to owner.



3. As stated elsewhere in the contract documents, all safety, health, and environmental regulation of either local or national legislative bodies, as well as those of the product manufacturers, shall be complied with by the successful bidder for the project work. The cost of compliance with such regulations shall be included in the bidder's base bid without exception for compliance waiver or change order.
4. The Contractor shall exercise all due precaution to prevent disruption to the occupancy of the facility interior or grounds. Every effort must be employed to prevent causing additional damage to the existing roofing assembly while working in an adjacent area, point overloading of the roof deck, damage to roof areas not in this contract. In the event that new leaks or other such disruptive or damaging conditions are brought on as a result of the contractor's negligence, poor judgement, or failure to comply with the contract specification requirements, the Contractor shall repair such damage to the satisfaction of the Owner at no additional charge to the Owner.
5. During periods of precipitation, the Contractor shall be responsible for performing, at least daily, interior-building inspections for leaks in the area of his work. Contractor's representative shall report to the Owner's facility manager to inquire about known building roof leaks. Should there be any such leaks, the contractor shall repair them immediately to prevent interior building damage. All leak-related damage to the building under areas the contractor has worked on, or is working on, shall be repaired to the satisfaction of the Owner at no cost to the Owner.
6. The Contractor shall maintain a complete set of Contract Specifications, Contract Drawing, and other items identified in the contract documents on the rooftop during the course of work on this facility. Failure of proper installation by the contractor, due to unavailability of Contract Specifications or Drawings on the roof, constitutes negligence.
7. Protection of all operations, merchandise, inventory, equipment and personnel shall be provided by the contractor.

#### 1.03 CONTRACTOR USE OF SITE AND PREMISES

- A. Reference Section 01 14 19 Use of Site
- B. Reference Instructions to Bidders
- C. Reference Supplemental Conditions.

#### 1.04 FUTURE WORK

- A. None scheduled at this time.

#### 1.05 WORK HOURS AND SEQUENCE

- A. As agreed to between Owner and Contractor.

#### 1.06 OWNER OCCUPANCY

- A. The owner will occupy the site during the entire period of work for the conduct of normal operations.
  1. Reference General Conditions
  2. Cooperate with Owner to minimize conflict, and to facilitate Owner's operations.

3. Schedule the Work to accommodate owner occupancy.
4. Coordinate with Owner for any additional insurance and/or bond requirements regarding Owner Occupancy.

PART 2 – PRODUCTS: NOT USED

PART 3 – EXECUTION: NOT USED

**END OF SECTION 00 0200/SUMMARY OF WORK**

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Section 00 03 00  
Bid Form

**TO:** Troy School District  
4400 Livernois  
Troy, MI 48098

**PROJECT:** Bid No. 9848 Troy School District  
2018 Roof Program

**ATTN:** Todd Hensley  
Purchasing Supervisor

**PROFESSIONAL:** WeatherTech Consulting  
Group, Inc.

**Name of Bidding Co.:**

**Contact Name:**

**Email Address:**

**Business Address:**

**Phone No.**

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**Base Bid:** The undersigned proposes to furnish all labor and materials and provide all equipment and manpower necessary to perform all work for the various parts of the construction in accordance with the above referenced documents for the considerations of the following amount(s):

Bids for each individual school to include specified Restoration work plus Reroofing work plus specified Allowances.

All bids to include state and local taxes; licensing, allowances, bonds and permitting fees.

**BASE BIDS**

**1. Bid Athens High School Reroof Roof Area (s) Reroof Roof Area C & A Sec. 1, Sec.2, Sec. 6; Reroof Roof Area F Sec. 3, Sec. 4 and Reroof Area I.**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

**Work Days:** \_\_\_\_\_

**Reroof Sq. Ft.** \_\_\_\_\_

**2. Bid Morse Elementary School Reroof Roof Area C: Sec 1, 2, 3, 4**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

**Work Days:** \_\_\_\_\_

**Reroof Sq. Ft.** \_\_\_\_\_

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**3. Bid Niles School Reroof Roof Area G and H:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

Work Days: \_\_\_\_\_

Reroof Sq. Ft. \_\_\_\_\_

**4. Bid Transportation Bldg. Reroof Roof Area C:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

Work Days: \_\_\_\_\_

Reroof Sq. Ft. Roof Area B \_\_\_\_\_

**5. Bid Troy High School Reroof Roof Area N: Sec 2, P: Sect 1, 2**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

Work Days: \_\_\_\_\_

Reroof Sq. Ft. \_\_\_\_\_

**6. Bid Troy Union Elementary School Reroof Roof Area A, B & Restoration E**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

Work Days: \_\_\_\_\_

Restoration Sq. Ft. \_\_\_\_\_

**ALTERNATE BIDS****Alternate Bid No. 1 Athens High School Roof Area A Sec. 3, 4, 5, 6, 7, 8, 9, 10, 11:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

Work Days: \_\_\_\_\_

Reroof Sq. Ft. \_\_\_\_\_

**Alternate Bid No. 1a Athens High School Roof Area A Sec. 3:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

Work Days: \_\_\_\_\_

Reroof Sq. Ft. \_\_\_\_\_

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**Alternate Bid No. 1b Athens High School Roof Area A Sec. 4:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

Work Days: \_\_\_\_\_  
Reroof Sq. Ft. \_\_\_\_\_

**Alternate Bid No. 1c Athens High School Roof Area A Sec. 5:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

Work Days: \_\_\_\_\_  
Reroof Sq. Ft. \_\_\_\_\_

**Alternate Bid No. 1d Athens High School Roof Area A Sec. 6:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

Work Days: \_\_\_\_\_  
Reroof Sq. Ft. \_\_\_\_\_

**Alternate Bid No. 1e Athens High School Roof Area A Sec. 7:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

Work Days: \_\_\_\_\_  
Reroof Sq. Ft. \_\_\_\_\_

**Alternate Bid No. 1f Athens High School Roof Area A Sec. 8:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

Work Days: \_\_\_\_\_  
Reroof Sq. Ft. \_\_\_\_\_

**Alternate Bid No. 1g Athens High School Roof Area A Sec. 9:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

Work Days: \_\_\_\_\_  
Reroof Sq. Ft. \_\_\_\_\_

**Alternate Bid No. 1h Athens High School Roof Area A Sec. 10:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

Work Days: \_\_\_\_\_  
Reroof Sq. Ft. \_\_\_\_\_



further agrees that the owner that work will progress on a continuous basis Monday thru Friday (Saturday as weather make up day) maximum 10 hours per day during the execution of the contract unless delayed due to weather. Definition of weather delays will be agreed to between Troy School District and Contractor prior to start of work.

The undersigned agrees, if awarded the contract, work shall be substantially completed within \_\_\_\_\_ working days of the Owner's written Notice to Proceed. The Undersigned further agrees that the owner may retain, from the compensation otherwise due, the sum of \$800.00 for each calendar working day (Monday through Friday) expiring beyond the fixed time of substantial completion (substantial completion is defined in the Bid Documents), this sum not to be construed as a penalty, but as a fixed, agreed liquidated damages amount which the owner shall sustain in case of failure of the undersigned to substantially complete the work within the time stipulated.

The Contractor shall have five business days to deliver a Payment and Performance Bond in the format detailed.

Receipt of Pre-Bid and Addenda (List by number and date appearing on Addenda):

Pre-Bid Minutes Date: \_\_\_\_\_

Addendum # \_\_\_\_\_ Date: \_\_\_\_\_

Addendum # \_\_\_\_\_ Date: \_\_\_\_\_

Addendum # \_\_\_\_\_ Date: \_\_\_\_\_

#### **EXECUTION OF BID:**

NAME OF BIDDING COMPANY: \_\_\_\_\_

TYPE OF CORPORATE ENTITY: \_\_\_\_\_

EXECUTED BY: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_

**SECTION 00 03 01**  
**UNIT PRICES**

Date: \_\_\_\_\_

**To:** Troy School District  
4400 Livernois  
Troy, MI 48098

**Attn:** Todd Hensley  
Purchasing Supervisor

**Project:** Bid No. 9830  
Troy School District  
4400 Livernois  
Troy, MI 48098

2017 Roof Program Project Districtwide

In the event changes are made in the plans and specifications, we agree the total contract price will be adjusted on the basis of the unit prices (including overhead and profit) for those items listed below.

A Unit Price is an amount proposed by Bidders and stated on the Bid Form as a price per unit of measurement for materials or services that will be added to or deducted from the Contract Sum by Change Order in the event the estimated quantities of Work required by the Contract documents are increased or decreased.

Unit prices include necessary materials, overhead, profit, and applicable taxes.

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

All allowances calculated using unit pricing values.

In order for our bid to be acceptable, unit prices are given for each item shown:

1. Labor Rate:  
Unit cost per hour including labor, overhead, profit, insurance and transportation to address latent conditions.  
Add \$ \_\_\_\_\_ per hour



2. Roof Walkway: Unit cost per 30 in. X 30 in. pad for installation at other areas not specified.  
Add \$\_\_\_\_\_ per lf
3. Replacement Roof Drain Bowl: Unit price per drain (15 in. dia.) including, clamping ring, strainer all cast iron; all necessary piping and hook ups to match existing.  
Add \$\_\_\_\_\_ per drain
4. Replacement Roof Drain Clamping Ring: Unit price per universal cast iron clamping ring (15 in. dia. drain) and accessories including drilling and retapping as necessary.  
Add \$\_\_\_\_\_ per ring
5. Replacement Roof Drain Strainer: Unit price per cast iron strainer (15 in. dia. drain).  
Add \$\_\_\_\_\_ per strainer.
6. Replacement Wood Nailer: Unit cost per linear foot to replace deteriorated wood nailers with new wood nailers to match existing.  
Add \$\_\_\_\_\_ per ln. ft. 2x4  
Add \$\_\_\_\_\_ per ln. ft. 2x6  
Add \$\_\_\_\_\_ per ln. ft. 2x8  
Add \$\_\_\_\_\_ per ln. ft. 2x10
7. Interior Protection: Unit cost per square foot to install a minimum 7 mil reinforced polyethylene sheet covering contents of interior from any water or debris damage (applies to IP beyond requirements for deck repair areas).  
Add \$\_\_\_\_\_ per sq. ft.
8. Paint Rusted Steel Deck: Unit cost per square foot to prepare and prime paint (2 coats) surface rusted steel decking.  
Add \$\_\_\_\_\_ per sq. ft.
9. Repair Steel Deck with Sheet Metal: Unit cost per square foot to prepare and prime paint steel decking and install 20 gage galvanized steel sheet metal patch material.  
Add \$\_\_\_\_\_ per sq. ft
10. Replace Steel Deck: Unit cost **per square foot** to replace deteriorated steel deck with new deck to match existing.  
Add \$\_\_\_\_\_ per sq. ft for 22 ga. painted Type B deck.  
Add \$\_\_\_\_\_ per sq. ft for 22 ga. painted Type A deck.

11. Replace Steel Deck: Unit cost per panel (**use 3' wide by 20'-3" panel or approx.. 60 sf**) to replace deteriorated steel deck with new deck to match existing.  
Add \$\_\_\_\_\_ per 60 sq. ft. for 22 ga. painted Type B deck.  
Add \$\_\_\_\_\_ per 60 sq. ft. for 22 ga. painted Type A deck.
12. Drain Inserts: Unit price per 3 inch drain insert.  
Add \$\_\_\_\_\_ per drain insert.
13. Gypsum Deck Replacement: Unit cost per 10 sq. ft. to remove existing damaged or otherwise nonfunctional gypsum deck (and as applicable gypsum form board) and replace w/ 22 ga. gal. Type B metal deck fastened to purlins and install polyisocyanurate insulation fill approx.. 4.0 thick to match height of existing deck.  
Add \$\_\_\_\_\_ per 10 sf of gypsum deck replacement.
14. Tapered Insulation: Unit cost per 100 sq ft to furnish and install ½ in. sloped tapered insulation  
Add \$\_\_\_\_\_ per 100 sf of new tapered insulation.
15. New Roof Drain: Unit per per drain to install new 3" diameter roof drain, including tie-in to existing plumbing inside the building below.  
Add \$\_\_\_\_\_ per new drain.
16. New Drain Lines: Unit price per 10 linear foot to install new insulated 3" Schedule 40 PVC drain lines, including hangers and integral vapor retarder.  
Add \$\_\_\_\_\_ per 10 lf of drain pipe lines.
17. Polyisocyanurate Insulation: Unit price per 2in. x 4ft x 8 ft board to furnish and install.  
Add \$\_\_\_\_\_ per 2in. x 4ft x 8 ft board.
18. Cementitious Wood Fiber (CWF): Replacement: Unit cost per 24 in x 48 in x 2 in. panel to remove existing damaged or otherwise nonfunctional CWF panel match height of existing deck.  
  
Add \$\_\_\_\_\_ per panel of Cementitious Wood Fiber deck replacement.

\_\_\_\_\_  
Company

\_\_\_\_\_  
Contractor Signature

---

Contractor Name Print

---

Date

## PAYMENT BOND

**Know all men by these presents:** That

\_\_\_\_\_, the Contractor ("Principal") whose principal place of  
business is located at

\_\_\_\_\_ and

\_\_\_\_\_ ("Surety")

are held and firmly bound unto

\_\_\_\_\_, the Owner  
("Obligee") in the amount of

\_\_\_\_\_ dollars (\$\_\_\_\_\_) for the payment whereof Principal and  
Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and  
severally, firmly by these presents.

**Whereas,** Principal has by written agreement dated

\_\_\_\_\_ entered into a contract with Obligee for

\_\_\_\_\_ which contract (the "Contract") is by reference  
expressly made a part hereof.

**Now therefore, the condition of this obligation** is such that, if the Principal shall promptly make  
payment to all claimants as hereinafter defined, for labor performed and material furnished in the  
prosecution of the Work provided for in the Contract, then this obligation shall be void; otherwise it shall  
remain in full force and effect; subject, however, to the following conditions.

The Principal and Surety, jointly and severally, hereby agree with Obligee as follows:

1. A claimant is defined as one having a direct contract with the Principal or with a subcontractor of  
the Principal for labor, material, or both for use in the performance of the Contract. A  
"subcontractor" of the Principal, for the purposes of this bond only, includes not only those  
subcontractors having a direct contractual relationship with the Principal, but also any other  
contractor who undertakes to participate in the Work which the Principal is to perform under the  
aforesaid Contract, whether there are one or more intervening subcontractors contractually  
positioned between it and the Principal (for example, a subcontractor). "Labor" and "material"  
shall include, but not be limited to, public utility services and reasonable rentals of equipment, but  
only for periods when the equipment rented is actually used at the work site.
2. Subject to the provisions of paragraph 3, any claimant who has performed labor or furnished  
material in accordance with the Contract documents in the prosecution of the Work provided in  
the Contract, who has not been paid in full therefore before the expiration of ninety (90) days after  
the day on which such claimant performed the last of such labor or furnished the last of such  
materials for which he claims payment, may bring action on this bond to recover any amount due

him for such labor or material, and may prosecute such action to final judgment and have execution on the judgment. The Obligee need not be a party to such action and shall not be liable for the payment of any costs, fees, or expenses of any such suit.

3. Any claimant who has a direct contractual relationship with any subcontractor of the Principal from whom the Principal has not required a subcontractor payment bond, but who has no contractual relationship, express or implied, with the Principal, may bring an action on this bond only if he has performed the last of the labor or furnished the last of the materials for which he claims payment, stating with substantial accuracy the amount claimed and the name of the person for whom the Work was performed or to whom the material was furnished. Notice to the Principal shall be served by registered or certified mail, postage prepaid, in an envelope addressed to the Principal at any place where his office is regularly maintained for the transaction of business. Claims for sums withheld as retainages with respect to labor performed or materials furnished shall not be subject to the time limitations stated in this paragraph 3.
4. No suit or action shall be commenced hereunder by any claimant.
  - a. Unless brought within one year after the day on which the person bringing such action last performed labor or last furnished or supplied materials, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, the limitation embodied within this bond shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.
  - b. Other than in a state court of competent jurisdiction, with a venue as provided by statute, or in the United States District Court for the district in which the project, or any part thereof, is situated.
5. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder.

Signed and sealed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

_____ <i>Witness</i>	<div style="text-align: right;">(Seal)</div> <hr/> <b>Contractor/Principal</b>  By: _____ <div style="display: flex; justify-content: space-between;"><span><i>Signature in ink</i></span><span><i>Date</i></span></div> Title: _____
-------------------------	---

	<div style="text-align: right;">(Seal)</div> <hr/> <b>Surety</b>  By: _____
--	---

*Attorney-in-fact*

*Date*

Name: \_\_\_\_\_  
(Type)

My Power of Attorney is recorded in Office of the Register of Deeds/the Clerk's Office of the Circuit Court  
(select as appropriate for the local jurisdiction) of \_\_\_\_\_, state of

\_\_\_\_\_,  
and has not been revoked.

\_\_\_\_\_  
*Attorney-in-fact*

**Affidavit and acknowledgment of attorney-in-fact**

State of \_\_\_\_\_

City and/or county of \_\_\_\_\_ to wit:

I, the undersigned notary public, do certify that \_\_\_\_\_  
personally appeared before me in the jurisdiction aforesaid and made oath that he/she is the attorney-in-  
fact \_\_\_\_\_ of \_\_\_\_\_  
\_\_\_\_\_, the Surety, that he is duly authorized to execute on its  
behalf the foregoing Bond pursuant to the Power of Attorney noted above, and on behalf of said Surety,  
acknowledged the aforesaid Bond(s) as its act and deed.

Given under my hand this \_\_\_\_\_ day of \_\_\_\_\_,  
20\_\_\_\_\_. .

Notary Public: \_\_\_\_\_(Seal)

My Commission expires: \_\_\_\_\_

Approved:

\_\_\_\_\_  
*Owner/designee*

\_\_\_\_\_  
*Date*

## PERFORMANCE BOND

**Know all men by these presents:** That \_\_\_\_\_

\_\_\_\_\_, the Contractor ("Principal") whose principal place of business is located at

\_\_\_\_\_ and

\_\_\_\_\_ ("Surety") are held and firmly bound unto \_\_\_\_\_

\_\_\_\_\_, the Owner ("Obligee") in the amount of \_\_\_\_\_

\_\_\_\_\_ dollars (\$ \_\_\_\_\_)

for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

**Whereas,**

Principal has by written agreement dated \_\_\_\_\_ entered into

a contract with Obligee for \_\_\_\_\_

\_\_\_\_\_ which contract (the "Contract") is by reference expressly made a part hereof.

**Now therefore, the condition of this obligation** is such that, if the Principal shall promptly and faithfully perform said Contract in strict conformity with the plans, specifications, and conditions of the Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Provided that any alterations which may be made in the terms of the Contract, or in the Work to be done under it, or the giving by the Obligee of any extension of time for the Contract, or any other alterations, extensions, or forbearance on the part of either or both of the Obligee or the Principal to the other shall not in any way release the Principal and the Surety, or either of them, their heirs, executors, administrators, successors, or assigns from their liability hereunder, notice to the Surety of any such alterations, extension, or forbearance being hereby waived.

No action shall be brought on this bond unless brought within one year after: (a) completion of the Contract and all Work thereunder, including expiration of all warranties and guarantees, or (b) discovery of the defect or breach of warranty or guarantee if the action be for such.

The Surety represents to the Principal and to the Obligee that it is legally authorized to do business in the State in which the Work is being carried out.



Signed and sealed this day \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_

\_\_\_\_\_  
(Seal)

**Contractor/Principal**

\_\_\_\_\_  
Witness

By: \_\_\_\_\_  
Signature in ink Date

\_\_\_\_\_  
Title

\_\_\_\_\_  
(Seal)

**Surety**

By: \_\_\_\_\_  
Attorney-in-fact Date

Name: \_\_\_\_\_  
(type)

My Power of Attorney is recorded in Office of the Register of Deeds/the Clerk's Office of the Circuit Court (select as appropriate for the local jurisdiction) of \_\_\_\_\_, state of \_\_\_\_\_, and has not been revoked.

\_\_\_\_\_  
Attorney-in-fact

**Affidavit and acknowledgment of attorney-in-fact**

State of \_\_\_\_\_

City and/or county of \_\_\_\_\_ to wit:

I, the undersigned notary public, do certify that \_\_\_\_\_ personally appeared before me in the jurisdiction aforesaid and made oath that he/she is the attorney-in-fact of \_\_\_\_\_, the Surety, that he is duly authorized to execute on its behalf the foregoing Bond pursuant to the Power of Attorney Noted above, and on behalf of said Surety, acknowledged the aforesaid Bond(s) as its act and deed.

Given under my hand this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_.

Notary public: \_\_\_\_\_ (Seal)

My Commission expires: \_\_\_\_\_

Approved:

\_\_\_\_\_  
Owner/designee Date



**PARTIAL RELEASE OF LIEN AFFIDAVIT**

The state of \_\_\_\_\_)

County of \_\_\_\_\_)

Before me, the undersigned authority, on this day personally appeared \_\_\_\_\_,  
known to me to be a credible person and officer of \_\_\_\_\_  
("Contractor") and who, being duly sworn, upon his oath declares and acknowledges as follows:

1. I am the duly authorized agent for Contractor, which has authorized me to make this affidavit, to enter into the agreements and to grant the lien waivers herein set forth, on its behalf and as its acts and deeds, and all the recitations herein are true and correct.
2. Pursuant to an agreement dated \_\_\_\_\_, 20\_\_ between Contractor and \_\_\_\_\_ ("Owner"), Contractor has supplied materials and performed labor in connection with construction of improvements upon certain real property in \_\_\_\_\_ County, \_\_\_\_\_, described as \_\_\_\_\_  
\_\_\_\_\_. Said improvements are more particularly described as construction of \_\_\_\_\_  
\_\_\_\_\_.  
\_\_\_\_\_.
3. Contractor has received total payments to date in the amount of \_\_\_\_\_ dollars (\$\_\_\_\_\_) for all materials supplied and labor performed by Contractor in connection with the construction of the improvements during the period through \_\_\_\_\_, 20\_\_ *[Insert date of end of prior progress payment period.]*
4. In consideration of and conditioned upon receipt from Owner of \_\_\_\_\_ dollars (\$\_\_\_\_\_) *[insert amount requested in present application for payment]*, Contractor hereby waives and releases any and all liens, rights, and interests (whether choate or inchoate and including, without limitation, all mechanic's and materialman's liens under the constitution and statutes of the state/commonwealth of \_\_\_\_\_ owned, claimed, or held by Contractor in and to the land and improvements, whether or not affixed or severable from the land or from any other portion of the improvements.
5. Contractor warrants that all costs incurred and bills owed by Contractor to others for materials supplied or labor performed in connection with the improvements through \_\_\_\_\_, 20\_\_ *[insert date of end of prior progress payment period]* have been fully paid and satisfied.

Executed this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_.

Contractor

By: \_\_\_\_\_  
(Signature)

Title: \_\_\_\_\_

Subscribed and sworn to before me, the said \_\_\_\_\_ this \_\_\_\_\_ day of \_\_\_\_\_

\_\_\_\_\_, 20\_\_\_\_\_, to certify which witness my hand and seal of office

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Seal)

Notary public in and for \_\_\_\_\_ County, \_\_\_\_\_.

My commission expires on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

**FINAL RELEASE OF LIEN AFFIDAVIT**

The state of \_\_\_\_\_)

County of \_\_\_\_\_)

Before me, the undersigned authority, on this day personally appeared \_\_\_\_\_,  
known to me to be a credible person and officer of \_\_\_\_\_  
("Contractor") and who, being duly sworn, upon his oath declares and acknowledges as follows:

1. I am the duly authorized agent for Contractor, which has authorized me to make this affidavit, to enter into the agreements, and to grant the lien waivers herein set forth, on its behalf and as its acts and deeds, and all the recitations herein are true and correct.
2. Pursuant to an agreement dated \_\_\_\_\_, 20\_\_\_\_ between Contractor and \_\_\_\_\_ ("Owner"), Contractor has supplied materials and performed labor in connection with the construction of improvements upon certain real property in \_\_\_\_\_ County, \_\_\_\_\_, described as \_\_\_\_\_.  
Said improvements are more particularly described as construction of \_\_\_\_\_.
3. Contractor hereby certifies it has received \_\_\_\_\_ dollars (\$ \_\_\_\_\_), which constitutes payment in full for any and all materials supplied and labor performed by Contractor on the above-described Improvements. Contractor does hereby waive and release any and all liens, claims, rights, and interests (whether choate or inchoate and including, without limitation, all mechanic's and supplier's liens under the constitution and statutes of the state/commonwealth of \_\_\_\_\_) owned, claimed, or held by Contractor in and to the land and improvements or any part thereby for reason of materials supplied or labor performed on said project.
4. Contractor warrants that all costs incurred and bills owed by Contractor to others for materials supplied or labor performed in connection with the Improvements have been fully paid and satisfied, except for those bills set forth on Attachment A. Contractor certifies that within seven (7) days hereafter, Contractor shall pay all sums due for those bills set forth on Attachment A. Contractor further warrants that should any claim or lien be filed for material supplied or labor performed in connection with the Improvements, Contractor will immediately furnish a Bond for the release of such liens, obtain settlement of any such liens, and furnish Owner a written, full release of such liens. Should Contractor be unable to obtain such release, Contractor agrees to fully indemnify and hold harmless Owner from any and all costs it may incur by reason of such liens.

Executed this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_.

Contractor

By: \_\_\_\_\_  
(Signature)

Title: \_\_\_\_\_

Subscribed and sworn to before me, the said \_\_\_\_\_ this  
\_\_\_\_\_ day of

\_\_\_\_\_, 20\_\_\_\_, to certify which witness my hand and seal of office.

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Seal)

Notary public in and for \_\_\_\_\_ County, \_\_\_\_\_.

My commission expires on the \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_.

# State of Michigan

WHPWRequest@michigan.gov

**Official Request #:** 1236

**Requestor:** Troy School District

**Project Description:** Roofing Program 2018 Athens & Troy H.S, Morse & Troy Union Elem., the Niles and Transportation Bldgs

**Project Number:** 2013 Bond Program, Series 2, BID 9848

## Oakland County

### Official 2017 Prevailing Wage Rates for State Funded Projects

**Issue Date:** 10/23/2017

**Contract must be awarded by:** 1/21/2018

**Page 1 of 30**

<u>Classification</u>		<u>Last</u>	<u>Straight Time and</u>	<u>a Double</u>	<u>Overtime</u>	
<u>Name</u>	<u>Description</u>	<u>Updated</u>	<u>Hourly</u>	<u>Half</u>	<u>Time</u>	<u>Provision</u>

#### Asbestos & Lead Abatement Laborer

MLDC		9/7/2017				
Asbestos & Lead Abatement Laborer			\$41.30	\$55.23	\$69.16	H H H X X X D Y
<b>Apprentice Rates:</b>						
	Trainee 600 hours + 1 calendar year		\$30.22	\$33.28	\$41.73	

#### comment

4 ten hour days @ straight time allowed Monday-Saturday, must be consecutive calendar days

#### Asbestos, Lead and Mold Abatement, Hazardous Material Handler

AS207		3/27/2017				
Asbestos, Lead and Mold Abatement, Hazardous Material Handler			\$40.75	\$54.25	\$67.75	H H H X X X D Y

#### comment

Four ten hour days @ straight time allowed Monday-Saturday, must be consecutive calendar days

#### Boilermaker

BO169		2/17/2015				
Boilermaker			\$54.70	\$81.08	\$107.45	H H H H H H D Y
<b>Apprentice Rates:</b>						
	1st 6 months		\$40.31	\$59.49	\$78.67	
	2nd 6 months		\$41.45	\$61.21	\$80.95	
	3rd 6 months		\$42.57	\$62.88	\$83.19	
	4th 6 months		\$43.69	\$64.57	\$85.43	
	5th 6 months		\$44.81	\$66.24	\$87.67	
	6th 6 months		\$48.63	\$72.50	\$96.36	
	7th 6 months		\$49.32	\$73.01	\$96.69	
	8th 6 months		\$51.58	\$76.40	\$101.21	

Official Request #: 1236

Requestor: Troy School District

Project Description: Roofing Program 2018 Athens & Troy H.S, Morse & Troy

Project Number: 2013 Bond Program, Series 2, BID 9848

County: Oakland

#### Official Rate Schedule

Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing wage and fringe benefit rates prescribed in a contract.

# Official 2017 Prevailing Wage Rates for State Funded Projects

Issue Date: 10/23/2017

Contract must be awarded by: 1/21/2018

Page 2 of 30

Classification	Name	Description	Last Updated	Straight Time and Hourly	Time and Half	a Double Time	Overtime Provision
<b>Bricklayer</b>							
BR1			10/15/2014				
	Bricklayer, stone mason, pointer, cleaner, caulker			\$52.43	\$78.65	\$104.86	H H D H D D D D Y
	<b>Apprentice Rates:</b>						
	First 6 months			\$31.87	\$47.81	\$63.74	
	2nd 6 months			\$33.72	\$50.60	\$67.44	
	3rd 6 months			\$35.57	\$53.37	\$71.14	
	4th 6 months			\$37.42	\$56.14	\$74.84	
	5th 6 months			\$39.27	\$58.92	\$78.54	
	6th 6 months			\$41.12	\$61.70	\$82.24	
	7th 6 months			\$42.97	\$64.46	\$85.94	
	8th 6 months			\$44.82	\$67.24	\$89.64	
	<i>comment make up day allowed</i>						
	Saturday for 5 day 8 hour week						
	Friday for 4 day 10 hour week						
	Four 10 hour days allowed M-TH						

## Carpenter

CA 687 D			7/5/2017				
Diver				\$67.26	\$87.51	\$107.76	X X H X X H H D Y
	<i>comment make up day allowed</i>						
	Saturday, Four 10s allowed M-Sat; double time due when over 12 hours worked per day						
CA 687 DT			7/5/2017				
Diver Tender				\$57.74	\$73.67	\$89.60	X X H X X H H D Y
	<i>comment make up day allowed</i>						
	Saturday						

Official Request #: 1236

Requestor: Troy School District

Project Description: Roofing Program 2018 Athens & Troy H.S, Morse & Troy

Project Number: 2013 Bond Program, Series 2, BID 9848

County: Oakland

## Official Rate Schedule

Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing wage and fringe benefit rates prescribed in a contract.

# Official 2017 Prevailing Wage Rates for State Funded Projects

Issue Date: 10/23/2017

Contract must be awarded by: 1/21/2018

Page 3 of 30

Classification	Name	Description	Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
CA1045			7/5/2017				
		Carpet and Resilient Floor Layer, (does not include installation of prefabricated formica & parquet flooring which is to be paid carpenter rate)		\$51.94	\$73.28	\$94.62	X X H X X X D Y

## Apprentice Rates:

1st 6 months	\$25.87	\$34.92	\$43.98
2nd 6 months	\$29.86	\$40.92	\$51.96
3rd 6 months	\$32.07	\$44.23	\$56.38
4th 6 months	\$34.27	\$47.52	\$60.78
5th 6 months	\$36.47	\$50.83	\$65.18
6th 6 months	\$38.69	\$54.16	\$69.62
7th 6 months	\$40.90	\$57.48	\$74.04
8th 6 months	\$43.10	\$60.77	\$78.44

CA687Z1			7/5/2017				
		Carpenter		\$58.62	\$74.55	\$90.48	X X H X X H D Y

## Apprentice Rates:

1st year	\$35.89	\$44.65	\$53.41
3rd 6 months	\$38.43	\$47.99	\$57.55
4th 6 months	\$40.94	\$51.29	\$61.65
5th 6 months	\$43.47	\$54.62	\$65.77
6th 6 months	\$46.01	\$57.96	\$69.91
7th 6 months	\$48.52	\$61.27	\$74.01
8th 6 months	\$51.04	\$64.58	\$78.12

*comment make up day allowed*

Saturdays, four 10s allowed Mon-Sat; double time due when over 12 hours worked per day

CA687Z1P			7/5/2017				
		Piledriver		\$58.62	\$74.55	\$90.48	X X H X X H D Y

*comment make up day allowed*

Saturday, Four 10s allowed Monday-Saturday; double time due when over 12 hours worked per day .

Subdivision of county

## Official Rate Schedule

Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing wage and fringe benefit rates prescribed in a contract.

Official Request #: 1236

Requestor: Troy School District

Project Description: Roofing Program 2018 Athens & Troy H.S, Morse & Troy

Project Number: 2013 Bond Program, Series 2, BID 9848

County: Oakland

# Official 2017 Prevailing Wage Rates for State Funded Projects

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Classification Name	Description	Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
<b>Cement Mason</b>						
br1cm		10/15/2014				
Cement Mason			\$50.05	\$71.17	\$92.28	X X H H H H H D N
	<b>Apprentice Rates:</b>					
	1st 6 months		\$29.13	\$39.45	\$49.77	
	2nd 6 months		\$31.20	\$42.54	\$53.87	
	3rd 6 months		\$35.31	\$48.67	\$62.01	
	4th 6 months		\$39.46	\$54.85	\$70.23	
	5th 6 months		\$41.52	\$57.91	\$74.30	
	6th 6 months		\$45.67	\$64.10	\$82.52	
<b>CE514</b>						
		8/17/2016				
Cement Mason			\$48.55	\$68.40	\$88.24	H H D H H H H D N
	<b>Apprentice Rates:</b>					
	1st 6 months		\$28.17	\$38.03	\$47.88	
	2nd 6 months		\$30.14	\$40.98	\$51.82	
	3rd 6 months		\$34.09	\$46.91	\$59.72	
	4th 6 months		\$38.03	\$52.82	\$67.60	
	5th 6 months		\$39.99	\$55.75	\$71.52	
	6th 6 months		\$43.94	\$61.68	\$79.42	
<b>Drywall</b>						
PT-22-D		8/25/2016				
Drywall Taper			\$45.91	\$59.74	\$73.56	H H D H D D D D Y
	<b>Apprentice Rates:</b>					
	First 3 months		\$32.08	\$38.99	\$45.90	
	Second 3 months		\$34.85	\$43.14	\$51.44	
	Second 6 months		\$37.62	\$47.30	\$56.98	
	Third 6 months		\$40.38	\$51.44	\$62.50	
	4th 6 months		\$41.76	\$53.51	\$65.26	
<i>comment make up day allowed</i>						
Four 10s allowed Monday-Thursday, Friday make-up day for bad weather or holidays						

Official Request #: 1236

Requestor: Troy School District

Project Description: Roofing Program 2018 Athens & Troy H.S, Morse & Troy

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Classification	Name	Description	Last Updated	Straight Time and Hourly	Half	a Double Time	Overtime Provision
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## Electrician

EC-58-IW			7/5/2017				
	Journeyman Electrician - Inside Wireman			\$64.02	\$84.47	\$104.91	H H H H H H H D N
	<b>Apprentice Rates:</b>						
	0-1000 hours			\$42.08	\$51.55	\$61.03	
	1000-2000 hours			\$44.07	\$54.54	\$65.01	
	2000-3500 hours			\$46.07	\$57.54	\$69.01	
	3500-5000 hours			\$48.07	\$60.54	\$73.00	
	5000-6500 hours			\$50.06	\$63.52	\$76.98	
	6500-8000 hours			\$54.05	\$69.52	\$84.97	

EC-58-SC			7/5/2017				
	Sound and Communication Installer			\$40.35	\$54.45	\$68.55	H H H H H H H D N
	<b>Apprentice Rates:</b>						
	Period 1			\$26.75	\$34.05	\$41.35	
	Period 2			\$28.11	\$36.09	\$44.07	
	Period 3			\$29.47	\$38.13	\$46.79	
	Period 4			\$30.83	\$40.17	\$49.51	
	Period 5			\$32.19	\$42.21	\$52.23	
	Period 6			\$33.55	\$44.25	\$54.95	

## Elevator Constructor

EL 36			8/7/2007				
	Elevator Constructor Mechanic			\$56.46		\$94.99	D D D D D D D Y
	<b>Apprentice Rates:</b>						
	1st Year Apprentice			\$37.74		\$58.93	
	2nd Year Apprentice			\$41.90		\$66.94	
	3rd Year Apprentice			\$43.98		\$70.95	
	4th Year Apprentice			\$48.14		\$78.96	

make up day allowed

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<b>Glazier</b>						
GL-357	Glazier	8/24/2016	\$49.50	\$65.23	\$80.95	H H H H H H H D Y
<b>Apprentice Rates:</b>						
	1st 6 months		\$33.77	\$41.63	\$49.49	
	2nd 6 months		\$35.35	\$44.00	\$52.65	
	3rd 6 months		\$38.49	\$48.71	\$58.93	
	4th 6 months		\$40.06	\$51.07	\$62.07	
	5th 6 months		\$41.64	\$53.43	\$65.23	
	6th 6 months		\$43.21	\$55.79	\$68.37	
	7th 6 months		\$44.78	\$58.15	\$71.51	
	8th 6 months		\$47.93	\$62.87	\$77.81	

*comment*

If a four 10 hour day workweek is scheduled, four 10s must be consecutive, M-F.

## Heat and Frost Insulator

AS25S	Spray Insulation - Qualified Senior Sprayer, application of all products	3/31/2017	\$29.04	\$42.35		X X X H H H H H N
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## Heat and Frost Insulator and Asbestos Worker

AS25	Heat and Frost Insulators and Asbestos Workers	6/3/2016	\$62.65	\$78.41	\$94.16	H H H H H H H D Y
<b>Apprentice Rates:</b>						
	1st Year		\$46.90	\$54.78	\$62.66	
	2nd Year		\$50.05	\$59.50	\$68.96	
	3rd Year		\$53.20	\$64.23	\$75.26	
	4th Year		\$56.35	\$68.96	\$81.56	

*comment*

Four 10s must be worked for a minimum of 2 consecutive weeks. OVERTIME is different on a four 10 week. OT is 2x for hours beyond 10. All hours on fifth day, M-F require time and one half. Sat first 8 hours, 1.5, all hours after 8 require double time.

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Classification		Last Updated	Straight Time and Hourly	Time and Half	a Double Time	Overtime Provision
Name	Description					

## Ironworker

IR-25-F1		2/1/2017				
Fence, Sound Barrier & Guardrail erection/installation and Exterior Signage work			\$35.95	\$48.05	\$60.15	X X H X X X H D Y

### Apprentice Rates:

60% Level	\$25.39	\$32.65	\$39.91
65% Level	\$26.71	\$34.58	\$42.44
70% Level	\$28.03	\$36.51	\$44.98
75% Level	\$29.35	\$38.42	\$47.50
80% Level	\$30.67	\$40.35	\$50.03
85% Level	\$31.99	\$42.28	\$52.56

### comment

Four ten hour work days may be worked during Monday-Saturday.

IR-25-GZ2		7/5/2017				
Siding, Glazing, Curtain Wall			\$48.13	\$59.92	\$71.70	X X H H H H D D Y

### Apprentice Rates:

Level 1	\$31.20	\$37.93	\$44.65
Level 2	\$33.31	\$40.67	\$48.02
Level 3	\$35.42	\$43.41	\$51.39
Level 4	\$37.54	\$46.16	\$54.77
Level 5	\$39.66	\$48.92	\$58.17
Level 6	\$41.78	\$51.67	\$61.55

### comment make up day allowed

Friday, 4 tens may be worked Monday thru Thursday @ straight time.

IR-25-PE-Z1		3/31/2017				
Pre-engineered Metal Work			\$48.09	\$58.86	\$69.63	X X H X X X X D Y

### Apprentice Rates:

Probation 1st Year	\$26.83	\$32.03	\$37.23
1st Level	\$28.96	\$34.92	\$40.88
2nd Level	\$28.96	\$34.92	\$40.88
3rd Level	\$31.08	\$37.79	\$44.50
4th Level	\$33.21	\$40.68	\$48.15
5th Level	\$35.33	\$43.55	\$51.77
6th Level	\$37.46	\$46.43	\$55.41

### comment make up day allowed

4 tens allowed M-Th with Saturday make up day

Official Request #: 1236	Requestor: Troy School District	Project Description: Roofing Program 2018 Athens & Troy H.S, Morse & Troy	Project Number: 2013 Bond Program, Series 2, BID 9848	County: Oakland	Official Rate Schedule
					Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing wage and fringe benefit rates prescribed in a contract.

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Classification Name Description	Last Updated	Straight Time and Hourly	Half	a Double Time	Overtime Provision
IR-25-RF Reinforced Iron Work	7/5/2017	\$57.30	\$85.66	\$114.02	H H D H D D D D N
<b>Apprentice Rates:</b>					
Level 1		\$40.32	\$59.89	\$79.46	
Level 2		\$42.68	\$63.43	\$84.18	
Level 3		\$45.22	\$67.24	\$89.26	
Level 4		\$47.75	\$71.04	\$94.32	
Level 5		\$50.29	\$74.84	\$99.40	
Level 6		\$50.29	\$74.84	\$99.40	
<i>make up day allowed</i>					
IR-25-RIG Rigging Work	7/5/2017	\$63.51	\$95.00	\$126.49	H H H H H H H D N
<b>Apprentice Rates:</b>					
Level 1 & 2		\$38.22	\$56.16	\$74.85	
Level 3		\$41.05	\$61.54	\$82.01	
Level 4		\$43.87	\$65.76	\$87.65	
Level 5		\$46.70	\$70.01	\$93.31	
Level 6		\$49.53	\$74.25	\$98.97	
IR-25-SD Decking	7/5/2017	\$55.47	\$82.87	\$110.26	X X H H H H D D Y
<i>comment make up day allowed</i>					
4 tens may be worked Monday thru Thursday @ straight time. If bad weather, Friday may be a make up day. If holiday celebrated on a Monday, 4 10s may be worked Tuesday thru Friday. Work in excess of 12 hours per day must be paid @ double time.					
IR-25-STR Structural, ornamental, welder and pre-cast	7/5/2017	\$63.64	\$95.12	\$126.60	H H H H H H D D Y
<b>Apprentice Rates:</b>					
Levels 1 & 2		\$38.22	\$56.99	\$75.75	
Level 3		\$41.05	\$61.24	\$81.41	
Level 4		\$43.87	\$65.46	\$87.05	
Level 5		\$46.70	\$69.71	\$92.71	
Level 6		\$49.53	\$73.95	\$98.37	
Level 7		\$52.35	\$78.18	\$104.01	
Level 8		\$55.18	\$82.43	\$109.67	

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=====						
<i>comment</i>	<i>make up day allowed</i>					
	4 tens may be worked Monday thru Thursday @ straight time. If bad weather, Friday may be a make up day. If holiday celebrated on a Monday, 4 10s may be worked Tuesday thru Friday. Work in excess of 12 hours per day must be paid @ double time.					
-----						
IR-25-STR-D		7/5/2017				
Industrial Door erection & construction			\$43.74	\$65.27	\$86.80	H H H H H D D Y
<i>comment</i>	<i>make up day allowed</i>					
	Friday for bad weather when 4 tens scheduled for M-Th. If holiday celebrated on M, 4 tens may be worked T-F. Work in excess of 12 hours per day must be paid @ double time.					
-----						
<b>Laborer</b>						
-----						
L1076-A-A		5/31/2017				
Construction laborer, demolition laborer, mason tender, carpenter tender, drywall handler, concrete laborer, concrete chute and concrete bucket handler, and cement finisher tender, wall and ceiling material handler, plasterer tender, mortar mixer and plastering machine operator			\$44.76	\$63.69	\$82.61	H H H H H H H D Y
<b>Apprentice Rates:</b>						
	0-1,000 work hours		\$38.67	\$54.55	\$70.43	
	1,001-2,000 work hours		\$39.89	\$56.38	\$72.87	
	2,001-3,000 work hours		\$41.11	\$58.21	\$75.31	
	3,001-4,000 work hours		\$43.54	\$61.86	\$80.17	
<i>comment</i>	<i>make up day allowed</i>					
	If conditions beyond the employer/employee's control prevent one or more hours of working during Mon-Fri, the employer may choose to work up to 10 hour straight time weekdays. Work may be scheduled up to 10 hours per Mon-Fri for the purpose of reaching 40 hours @ straight time. Make up days may also include 8 hours of work on Saturdays @ straight time.					
-----						
L1076-A-B		5/31/2017				
Signal man (on sewer and caisson work); air, electric or gasoline tool operator (including concrete vibrator operator, acetylene torch and air hammer operator); Scaffold builder; Caisson worker			\$45.04	\$64.11	\$83.17	H H H H H H H D Y
<i>comment</i>	<i>make up day allowed</i>					
	If conditions beyond the employer/employee's control prevent one or more hours of working during Mon-Fri, the employer may choose to work up to 10 hour straight time weekdays. Work may be scheduled up to 10 hours per Mon-Fri for the purpose of reaching 40 hours @ straight time. Make up days may also include 8 hours of work on Saturdays @ straight time.					
-----						
L1076-A-C		5/31/2017				
Lansing burner, blaster and powder man; air, electric or gasoline tool operator (Blast Furnace work or Battery Work)			\$45.55	\$64.87	\$84.19	H H H H H H H D Y

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=====							
	comment	make up day allowed					
		If conditions beyond the employer/employee's control prevent one or more hours of working during Mon-Fri, the employer may choose to work up to 10 hour straight time weekdays. Work may be scheduled up to 10 hours per Mon-Fri for the purpose of reaching 40 hours @ straight time. Make up days may also include 8 hours of work on Saturdays @ straight time.					
-----							
L1076-A-D			5/31/2017				
		Furnace battery heater tenders, burning bar and oxy-acetylene gun		\$45.28	\$62.67	\$80.10	H H H H H H D Y
	comment	make up day allowed					
		If conditions beyond the employer/employee's control prevent one or more hours of working during Mon-Fri, the employer may choose to work up to 10 hour straight time weekdays. Work may be scheduled up to 10 hours per Mon-Fri for the purpose of reaching 40 hours @ straight time. Make up days may also include 8 hours of work on Saturdays @ straight time.					
-----							
L1076-A-E			6/2/2017				
		Cleaner/sweeper laborer, furniture laborer - unloading of furniture to the point of installation, the setting in place or relocation of furniture.		\$39.31	\$55.51	\$71.71	H H H H H H D Y
	comment	make up day allowed					
		If conditions beyond the employer/employee's control prevent one or more hours of working during Mon-Fri, the employer may choose to work up to 10 hour straight time weekdays. Work may be scheduled up to 10 hours per Mon-Fri for the purpose of reaching 40 hours @ straight time. Make up days may also include 8 hours of work on Saturdays @ straight time.					
-----							
L1076-A-F			6/2/2017				
		Expediter man, top and/or bottom man (Blast Furnace work or Battery Work)		\$46.07	\$65.65	\$85.23	H H H H H H D Y
	comment	make up day allowed					
		If conditions beyond the employer/employee's control prevent one or more hours of working during Mon-Fri, the employer may choose to work up to 10 hour straight time weekdays. Work may be scheduled up to 10 hours per Mon-Fri for the purpose of reaching 40 hours @ straight time. Make up days may also include 8 hours of work on Saturdays @ straight time.					
-----							
LPT-1			6/17/2016				
		Plasterer Tender, Plastering Machine Operator		\$44.35	\$63.10	\$81.85	H H H H H H D Y
		Apprentice Rates:					
		1,001 - 2,000 hours		\$39.53	\$55.87	\$72.21	
		2,001 - 3,000 hours		\$40.73	\$57.67	\$74.61	
		3,001 - 4,000 hours		\$43.15	\$61.30	\$79.45	
	comment	make up day allowed					
		f conditions beyond the employer/employee's control prevent one or more hours of working during Mon-Fri, the employer may choose to work up to 10 hour straight time weekdays. Work may be scheduled up to 10 hours per Mon-Fri for the purpose of reaching 40 hours @ straight time. Make up days may also include 8 hours of work on Saturdays @ straight time.					

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Classification		Last Updated	Straight Time and Hourly	a Double Time	Overtime Provision
Name	Description				

## Laborer - Hazardous

LHAZ-Z2-A 11/1/2013

Class A Laborer - performing work in conjunction with site preparation and other preliminary work prior to actual removal, handling, or containment of hazardous waste substances not requiring use of personal protective equipment required by state or federal regulations; or a laborer performing work in conjunction with the removal, handling, or containment of hazardous waste substances when used of personal protective equipment level "D" is required.

### Apprentice Rates:

0-1,000 work hours	\$37.60	\$53.03	\$68.45
1,001-2,000 work hours	\$38.79	\$54.81	\$70.83
2,001-3,000 work hours	\$39.98	\$56.60	\$73.21
3,001-4,000 work hours	\$42.35	\$60.15	\$77.95

comment make up day allowed

4 10s allowed M-Th or T-F; inclement weather makeup day Friday

LHAZ-Z2-B 11/7/2014

Class B Laborer - performing work in conjunction with the removal, handling, or containment of hazardous waste substances when the use of personal protective equipment levels "A", "B" or "C" is required.

### Apprentice Rates:

0-1,000 work hours	\$38.36	\$54.17	\$69.97
1,001-2,000 work hours	\$39.59	\$56.01	\$72.43
2,001-3,000 work hours	\$40.83	\$57.87	\$74.91
3,001-4,000 work hours	\$43.30	\$61.58	\$79.85

comment make up day allowed

4 10s allowed M-Th or T-F; inclement weather makeup day Friday

## Laborer Underground - Open Cut, Class I

LAUC-Z1-1 9/7/2017

Construction Laborer

### Apprentice Rates:

0-1,000 work hours	\$34.04	\$42.64	\$51.23
1,001-2,000 work hours	\$35.02	\$44.11	\$53.19
2,001-3,000 work hours	\$35.99	\$45.56	\$55.13
3,001-4,000 work hours	\$37.94	\$48.49	\$59.03

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<b>Laborer Underground - Open Cut, Class II</b>							
LAUC-Z1-2			9/7/2017				
		Mortar and material mixer, concrete form man, signal man, well point man, manhole, headwall and catch basin builder, guard rail builders, headwall, seawall, breakwall, dock builder and fence erector.		\$39.03	\$50.12	\$61.21	X X X X X X X D Y

## Apprentice Rates:

0-1,000 work hours	\$34.12	\$42.76	\$51.39
1,001-2,000 work hours	\$35.10	\$44.23	\$53.35
2,001-3,000 work hours	\$36.09	\$45.72	\$55.33
3,001-4,000 work hours	\$38.05	\$48.66	\$59.25

## Laborer Underground - Open Cut, Class III

LAUC-Z1-3			9/7/2017				
		Air, gasoline and electric tool operator, vibrator operator, drillers, pump man, tar kettle operator, bracers, rodder, reinforced steel or mesh man (e.g. wire mesh, steel mats, dowel bars, etc.), cement finisher, welder, pipe jacking and boring man, wagon drill and air track operator and concrete saw operator (under 40 h.p.), windlass and tugger man, and directional boring man.		\$39.08	\$50.20	\$61.31	X X X X X X X D Y

## Apprentice Rates:

0-1,000 work hours	\$34.16	\$42.82	\$51.47
1,001-2,000 work hours	\$35.14	\$44.29	\$53.43
2,001-3,000 work hours	\$36.13	\$45.78	\$55.41
3,001-4,000 work hours	\$38.10	\$48.73	\$59.35

## Laborer Underground - Open Cut, Class IV

LAUC-Z1-4			9/7/2017				
		Trench or excavating grade man.		\$39.16	\$50.32	\$61.47	X X X X X X X D Y

## Apprentice Rates:

0-1,000 work hours	\$34.22	\$42.91	\$51.59
1,001-2,000 work hours	\$35.21	\$44.40	\$53.57
2,001-3,000 work hours	\$36.20	\$45.88	\$55.55
3,001-4,000 work hours	\$38.17	\$48.84	\$59.49

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Name	Description					

## Laborer Underground - Open Cut, Class V

LAUC-Z1-5		9/7/2017				
Pipe Layer			\$39.22	\$50.41	\$61.59	X X X X X X D Y
<b>Apprentice Rates:</b>						
	0-1,000 work hours		\$34.26	\$42.97	\$51.67	
	1,001-2,000 work hours		\$35.26	\$44.47	\$53.67	
	2,001-3,000 work hours		\$36.25	\$45.96	\$55.65	
	3,001-4,000 work hours		\$38.23	\$48.92	\$59.61	

## Laborer Underground - Open Cut, Class VI

LAUC-Z1-6		9/7/2017				
Grouting man, top man assistant, audio visual television operations and all other operations in connection with closed circuit television inspection, pipe cleaning and pipe relining work and the installation and repair of water service pipe and appurtenances.			\$36.67	\$46.59	\$56.49	X X X X X X D Y
<b>Apprentice Rates:</b>						
	0-1,000 work hours		\$32.35	\$40.10	\$47.85	
	1,001-2,000 work hours		\$33.22	\$41.41	\$49.59	
	2,001-3,000 work hours		\$34.08	\$42.70	\$51.31	
	3,001-4,000 work hours		\$35.81	\$45.30	\$54.77	

## Laborer Underground - Open Cut, Class VII

LAUC-Z1-7		9/7/2017				
Restoration laborer, seeding, sodding, planting, cutting, mulching and topsoil grading and the restoration of property such as replacing mail boxes, wood chips, planter boxes, flagstones etc.			\$33.29	\$41.52	\$49.73	X X X X X X D Y
<b>Apprentice Rates:</b>						
	0-1,000 work hours		\$29.82	\$36.31	\$42.79	
	1,001-2,000 work hours		\$30.51	\$37.34	\$44.17	
	2,001-3,000 work hours		\$31.21	\$38.40	\$45.57	
	3,001-4,000 work hours		\$32.60	\$40.48	\$48.35	

Official Request #: 1236  
 Requestor: Troy School District  
 Project Description: Roofing Program 2018 Athens & Troy H.S, Morse & Troy  
 Project Number: 2013 Bond Program, Series 2, BID 9848  
 County: Oakland

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# Official 2017 Prevailing Wage Rates for State Funded Projects

Issue Date: 10/23/2017

Contract must be awarded by: 1/21/2018

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Classification	Name	Description	Last Updated	Straight Time and Hourly	Time and Half	a Double Time	Overtime Provision
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## Laborer Underground - Tunnel, Shaft & Caisson

LAUCT-Z1-1	9/7/2017	Class I - Tunnel, shaft and caisson laborer, dump man, shanty man, hog house tender, testing man (on gas), and watchman.	\$39.07	\$50.19	\$61.29	X X X X X X X D Y
<b>Apprentice Rates:</b>						
		0-1,000 work hours	\$34.15	\$42.80	\$51.45	
		1,001-2,000 work hours	\$35.14	\$44.29	\$53.43	
		2,001-3,000 work hours	\$36.12	\$45.76	\$55.39	
		3,001-4,000 work hours	\$38.09	\$48.72	\$59.33	

LAUCT-Z1-2	9/7/2017	Class II - Manhole, headwall, catch basin builder, bricklayer tender, mortar man, material mixer, fence erector, and guard rail builder.	\$39.18	\$50.35	\$61.51	X X X X X X X D Y
<b>Apprentice Rates:</b>						
		0-1,000 work hours	\$34.24	\$42.94	\$51.63	
		1,001-2,000 work hours	\$35.22	\$44.41	\$53.59	
		2,001-3,000 work hours	\$36.21	\$45.90	\$55.57	
		3,001-4,000 work hours	\$38.19	\$48.86	\$59.53	

LAUCT-Z1-3	9/7/2017	Class III - Air tool operator (jack hammer man, bush hammer man and grinding man), first bottom man, second bottom man, cage tender, car pusher, carrier man, concrete man, concrete form man, concrete repair man, cement invert laborer, cement finisher, concrete shoveler, conveyor man, floor man, gasoline and electric tool operator, gunnite man, grout operator, welder, heading dinky man, inside lock tender, pea gravel operator, pump man, outside lock tender, scaffold man, top signal man, switch man, track man, tugger man, utility man, vibrator man, winch operator, pipe jacking man, wagon drill and air track operator and concrete saw operator (under 40 h.p.).	\$39.24	\$50.44	\$61.63	X X X X X X X D Y
<b>Apprentice Rates:</b>						
		0-1,000 work hours	\$34.28	\$43.00	\$51.71	
		1,001-2,000 work hours	\$35.27	\$44.48	\$53.69	
		2,001-3,000 work hours	\$36.26	\$45.97	\$55.67	
		3,001-4,000 work hours	\$38.25	\$48.96	\$59.65	

Official Request #: 1236  
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# Official 2017 Prevailing Wage Rates for State Funded Projects

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Classification Name	Description	Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
LAUCT-Z1-4		9/7/2017				
	Class IV - Tunnel, shaft and caisson mucker, bracer man, liner plate man, long haul dinky driver and well point man.		\$39.42	\$50.71	\$61.99	X X X X X X X D Y
	<b>Apprentice Rates:</b>					
	0-1,000 work hours		\$34.42	\$43.21	\$51.99	
	1,001-2,000 work hours		\$35.42	\$44.71	\$53.99	
	2,001-3,000 work hours		\$36.42	\$46.21	\$55.99	
	3,001-4,000 work hours		\$38.42	\$49.21	\$59.99	
LAUCT-Z1-5		9/7/2017				
	Class V - Tunnel, shaft and caisson miner, drill runner, keyboard operator, power knife operator, reinforced steel or mesh man (e.g. wire mesh, steel mats, dowel bars)		\$39.67	\$51.08	\$62.49	X X X X X X X D Y
	<b>Apprentice Rates:</b>					
	0-1,000 work hours		\$34.60	\$43.48	\$52.35	
	1,001-2,000 work hours		\$35.62	\$45.01	\$54.39	
	2,001-3,000 work hours		\$36.63	\$46.52	\$56.41	
	3,001-4,000 work hours		\$38.66	\$49.57	\$60.47	
LAUCT-Z1-6		9/7/2017				
	Class VI - Dynamite man and powder man.		\$40.00	\$51.58	\$63.15	X X X X X X X D Y
	<b>Apprentice Rates:</b>					
	0-1,000 work hours		\$34.85	\$43.86	\$52.85	
	1,001-2,000 work hours		\$35.88	\$45.40	\$54.91	
	2,001-3,000 work hours		\$36.91	\$46.94	\$56.97	
	3,001-4,000 work hours		\$38.97	\$50.04	\$61.09	
LAUCT-Z1-7		9/7/2017				
	Class VII - Restoration laborer, seeding, sodding, planting, cutting, mulching and topsoil grading and the restoration of property such as replacing mail boxes, wood chips, planter boxes and flagstones.		\$33.28	\$41.50	\$49.71	X X X X X X X D Y
	<b>Apprentice Rates:</b>					
	0-1,000 work hours		\$29.81	\$36.30	\$42.77	
	1,001-2,000 work hours		\$30.50	\$37.33	\$44.15	
	2,001-3,000 work hours		\$31.20	\$38.38	\$45.55	
	3,001-4,000 work hours		\$32.59	\$40.46	\$48.33	

Official Request #: 1236

Requestor: Troy School District

Project Description: Roofing Program 2018 Athens & Troy H.S, Morse & Troy

Project Number: 2013 Bond Program, Series 2, BID 9848

County: Oakland

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# Official 2017 Prevailing Wage Rates for State Funded Projects

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Classification		Last Updated	Straight Time and Hourly	Time and Half	a Double Time	Overtime Provision
Name	Description					

## Landscape Laborer

LLAN-Z1-A		10/13/2015				
Landscape Specialist: includes air, gas, and diesel equipment operator, skidsteer (or equivalent), lawn sprinkler installer on landscaping work where seeding, sodding, planting, cutting, trimming, backfilling, rough grading or maintenance of landscape projects occurs.			\$28.98	\$40.04	\$51.09	X X H X X X H D Y

### comment

Sundays paid at time & one half. Holidays paid at double time.

LLAN-Z1-B		10/13/2015				
Skilled Landscape Laborer: small power tool operator, lawn sprinkler installers' tender, material mover, truck driver when seeding, sodding, planting, cutting, trimming, backfilling, rough grading or maintaining of landscape projects occurs			\$24.76	\$33.71	\$42.65	X X H X X X H D Y

### comment

Sundays paid at time & one half. Holidays paid at double time.

## Marble Finisher

BR1-MF		10/20/2014				
Marble Finisher			\$43.48	\$54.29	\$65.10	H H D H D D D D Y
<b>Apprentice Rates:</b>						
Level 1			\$19.04	\$25.12	\$31.20	
Level 2			\$20.24	\$26.92	\$33.60	
Level 3			\$27.01	\$33.96	\$40.90	
Level 4			\$28.47	\$36.14	\$43.82	
Level 5			\$29.99	\$37.84	\$45.70	
Level 6			\$31.61	\$39.86	\$48.10	
Level 7			\$33.30	\$41.59	\$49.87	
Level 8			\$34.79	\$43.48	\$52.17	

### comment

A four ten workweek may be worked Monday thru Thursday or Tuesday thru Friday.

Official Request #: 1236  
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# Official 2017 Prevailing Wage Rates for State Funded Projects

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Classification	Name	Description	Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
<b>Marble Mason</b>							
BR1-MM			10/17/2014				
	Marble Mason			\$50.29	\$64.51	\$78.72	H H D H D D D D Y
<b>Apprentice Rates:</b>							
	Level 1			\$25.14	\$32.65	\$40.15	
	Level 2			\$28.20	\$36.49	\$44.78	
	Level 3			\$33.41	\$41.97	\$50.53	
	Level 4			\$36.15	\$45.66	\$55.17	
	Level 5			\$38.42	\$48.17	\$57.92	
	Level 6			\$42.07	\$53.56	\$65.05	
	Level 7			\$42.74	\$54.38	\$66.02	
	Level 8			\$43.67	\$55.78	\$67.88	

*comment*

A four ten workweek may be worked Monday thru Thursday or Tuesday thru Friday.

## Operating Engineer

EN-324-A120			6/7/2017				
	Crane with boom & jib or leads 120' or longer			\$59.36	\$77.25	\$95.13	X X H H D D D D Y
<i>comment</i>							
Double time after 12 hours M-F							
EN-324-A140			6/7/2017				
	Crane with boom & jib or leads 140' or longer			\$60.18	\$78.48	\$96.77	X X H H D D D D Y
<i>comment</i>							
Work in excess of 12 hours per day M-F shall be paid at double time.							
EN-324-A220			6/7/2017				
	Crane with boom & jib or leads 220' or longer			\$60.48	\$78.93	\$97.37	X X H H D D D D Y
<i>comment</i>							
Work in excess of 12 hours per day M-F shall be paid at double time.							
EN-324-A300			6/7/2017				
	Crane with boom & jib or leads 300' or longer			\$61.98	\$81.18	\$100.37	X X H H D D D D Y
<i>comment</i>							
Work in excess of 12 hours per day M-F shall be paid at double time.							
EN-324-A400			6/7/2017				
	Crane with boom & jib or leads 400' or longer			\$63.48	\$83.43	\$103.37	X X H H D D D D Y

Official Request #: 1236

Requestor: Troy School District

Project Description: Roofing Program 2018 Athens & Troy H.S, Morse & Troy

Project Number: 2013 Bond Program, Series 2, BID 9848

County: Oakland

## Official Rate Schedule

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# Official 2017 Prevailing Wage Rates for State Funded Projects

Issue Date: 10/23/2017

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Classification Name	Description	Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
=====						
	<i>comment</i> Work in excess of 12 hours per day M-F shall be paid at double time.					
EN-324-CW		6/7/2017				
	Compressor or welding machine		\$48.51	\$60.97	\$73.43	X X H H D D D D Y
	<i>comment</i> Work in excess of 12 hours per day M-F shall be paid at double time.					
EN-324-FL		6/7/2017				
	Forklift, lull, extend-a-boom forklift		\$55.82	\$71.94	\$88.05	X X H H D D D D Y
	<i>comment</i> Work in excess of 12 hours per day M-F shall be paid at double time.					
EN-324-FO		6/7/2017				
	Fireman or oiler		\$47.48	\$59.43	\$71.37	X X H H D D D D Y
	<i>comment</i> Work in excess of 12 hours per day M-F shall be paid at double time.					
EN-324-RC		6/7/2017				
	Regular crane, job mechanic, concrete pump with boom		\$58.50	\$75.96	\$93.41	X X H H D D D D Y
	<i>comment</i> Work in excess of 12 hours per day M-F shall be paid at double time.					
EN-324-RE		6/7/2017				
	Regular engineer, hydro-excavator, remote controlled concrete breaker		\$57.53	\$74.50	\$91.47	X X H H D D D D Y
	<b>Apprentice Rates:</b>					
	0-999 hours		\$46.53	\$58.76	\$70.97	
	1,000-1,999 hours		\$48.28	\$61.38	\$74.47	
	2,000-2,999 hours		\$50.02	\$63.99	\$77.95	
	3,000-3,999 hours		\$51.77	\$66.62	\$81.45	
	4,000-4,999 hours		\$53.51	\$69.22	\$84.93	
	5,000-5,999 hours		\$55.26	\$71.85	\$88.43	
	<i>comment</i> Work in excess of 12 hours per day M-F shall be paid at double time.					

## Operating Engineer - Marine Construction

GLF D		4/2/2014				
	Diver/Wet Tender/Tender/Rov Pilot/Rov Tender		\$52.80	\$79.20	\$105.60	H H H H H H H D N

Official Request #: 1236  
Requestor: Troy School District  
Project Description: Roofing Program 2018 Athens & Troy H.S, Morse & Troy  
Project Number: 2013 Bond Program, Series 2, BID 9848  
County: Statewide

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Classification Name	Description	Last Updated	Straight Time and Hourly	Half	a Double Time	Overtime Provision
GLF-1		1/23/2017				
	Diver/Wet Tender, Engineer (hydraulic dredge)		\$72.32	\$93.82	\$115.32	X X H H H H H D Y
	<i>comment make up day allowed</i>					
	Holiday pay = 2.5 times the straight hourly rate					
	<u>Subdivision of county</u> all Great Lakes, islands therein, & connecting & tributary waters					
GLF-2		1/23/2017				
	Crane/Backhoe Operator, 70 ton or over Tug Operator, Mechanic/Welder, Assistant Engineer (hydraulic dredge), Leverman (hydraulic dredge), Diver Tender		\$70.82	\$91.57	\$112.32	X X H H H H H D Y
	<i>comment make up day allowed</i>					
	Holiday pay = 2.5 times the straight hourly rate					
	<u>Subdivision of county</u> All Great Lakes, islands therein, & connecting & tributary waters					
GLF-2B		1/23/2017				
	Friction, Lattice Boom or Crane License Certification		\$72.32	\$93.82	\$115.32	X X H H H H H D Y
	<i>comment make up day allowed</i>					
	Holiday pay = 2.5 times the straight hourly rate					
	<u>Subdivision of county</u> All Great Lakes, islands, therein, & connecting & tributary waters					
GLF-3		1/23/2017				
	Deck Equipment Operator, Machineryman, Maintenance of Crane (over 50 ton capacity) or Backhoe (115,000 lbs or more), Tug/Launch Operator, Loader, Dozer on Barge, Deck Machinery		\$66.27	\$84.75	\$103.22	X X H H H H H D Y
	<i>comment make up day allowed</i>					
	Holiday pay = 2.5 times the straight hourly rate					
	<u>Subdivision of county</u> All Great Lakes, islands therein, & connecting & tributary waters					
GLF-4		1/23/2017				
	Deck Equipment Operator, (Machineryman/Fireman), (4 equipment units or more), Off Road Trucks, Deck Hand, Tug Engineer, & Crane Maintenance 50 ton capacity and under or Backhoe 115,000 lbs or less, Assistant Tug Operator		\$60.07	\$75.45	\$90.82	X X H H H H H D Y
	<i>comment make up day allowed</i>					
	Holiday pay = 2.5 times the straight hourly rate					
	<u>Subdivision of county</u> All Great Lakes, islands therein, & connecting & tributary waters					

## Operating Engineer Steel Work

EN-324-ef		6/8/2017				
	Forklift, 1 Drum Hoist		\$60.41	\$79.00	\$97.58	H H D H H H D D Y
	<i>comment make up day allowed</i>					
	4 10s allowed M-Th with Friday makeup day because of bad weather					
EN-324-SW120		6/7/2017				
	Crane w/ 120' boom or longer		\$63.11	\$83.05	\$102.98	H H D H H H D D Y

Official Request #: 1236

Requestor: Troy School District

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County: Oakland

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Classification Name	Description	Last Updated	Straight Time and Hourly	Half	a Double Time	Overtime Provision
=====						
	<i>comment make up day allowed</i> 4 10s allowed M-Th with Friday makeup day because of bad weather					
EN-324-SW120-O		6/7/2017				
	Crane w/ 120' boom or longer w/ Oiler		\$64.11	\$84.55	\$104.98	H H D H H H D D Y
	<i>comment make up day allowed</i> 4 10s allowed M-Th with Friday makeup day because of bad weather					
EN-324-SW140		6/7/2017				
	Crane w/ 140' boom or longer		\$64.29	\$84.82	\$105.34	H H D H H H D D Y
	<i>comment make up day allowed</i> 4 10s allowed M-Th with Friday makeup day because of bad weather					
EN-324-SW140-O		6/7/2017				
	Crane w/ 140' boom or longer W/ Oiler		\$65.29	\$86.32	\$107.34	H H D H H H D D Y
	<i>comment make up day allowed</i> 4 10s allowed M-Th with Friday makeup day because of bad weather					
EN-324-SW220		6/7/2017				
	Boom & Jib 220' or longer		\$64.56	\$85.22	\$105.88	H H D H H H D D Y
	<i>comment make up day allowed</i> 4 10s allowed M-Th with Friday makeup day because of bad weather					
EN-324-SW220-O		6/7/2017				
	Crane w/ 220' boom or longer w/ Oiler		\$65.56	\$86.72	\$107.88	H H D H H H D D Y
	<i>comment make up day allowed</i> 4 10s allowed M-Th with Friday makeup day because of bad weather					
EN-324-SW300		6/7/2017				
	Boom & Jib 300' or longer		\$66.06	\$87.47	\$108.88	H H D H H H D D Y
	<i>comment make up day allowed</i> 4 10s allowed M-Th with Friday makeup day because of bad weather					
EN-324-SW300-O		6/7/2017				
	Crane w/ 300' boom or longer w/ Oiler		\$67.06	\$88.97	\$110.88	H H D H H H D D Y
	<i>comment make up day allowed</i> 4 10s allowed M-Th with Friday makeup day because of bad weather					
EN-324-SW400		6/7/2017				
	Boom & Jib 400' or longer		\$67.56	\$89.72	\$111.88	H H D H H H D D Y
	<i>comment make up day allowed</i> 4 10s allowed M-Th with Friday makeup day because of bad weather					
=====						

Official Request #: 1236

Requestor: Troy School District

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Classification Name	Description	Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
EN-324-SW400-O		6/7/2017				
	Crane w/ 400' boom or longer w/ Oiler		\$68.56	\$91.22	\$113.88	H H D H H H D D Y
	<i>comment make up day allowed</i>					
	4 10s allowed M-Th with Friday makeup day because of bad weather					
EN-324-SWCO		6/7/2017				
	Crane Operator, Job Mechanic, 3 Drum Hoist & Excavator		\$62.75	\$82.51	\$102.26	H H D H H H D D Y
	<b>Apprentice Rates:</b>					
	0-999 hours		\$49.40	\$63.26	\$77.11	
	1,000-1,999 hours		\$51.38	\$66.23	\$81.07	
	2,000-2,999 hours		\$53.35	\$69.19	\$85.01	
	3,000-3,999 hours		\$55.33	\$72.16	\$88.97	
	4,000-4,999 hours		\$57.30	\$75.11	\$92.91	
	5,000 hours		\$59.28	\$78.08	\$96.87	
	<i>comment make up day allowed</i>					
	4 10s allowed M-Th with Friday makeup day because of bad weather					
EN-324-SWCO-O		6/7/2017				
	Crane Operator w/ Oiler		\$63.75	\$84.01	\$104.26	H H D H H H D D Y
	<i>comment make up day allowed</i>					
	4 10s allowed M-Th with Friday makeup day because of bad weather					
EN-324-SWCW		6/7/2017				
	Compressor or Welder Operator		\$55.30	\$71.33	\$87.36	H H D H H H D D Y
	<i>comment make up day allowed</i>					
	4 10s allowed M-Th with Friday makeup day because of bad weather					
EN-324-SWHO		6/7/2017				
	Hoisting Operator, 2 Drum Hoist, & Rubber Tire Backhoe		\$62.11	\$81.55	\$100.98	H H D H H H D D Y
	<i>comment make up day allowed</i>					
	4 10s allowed M-Th with Friday makeup day because of bad weather					
EN-324-SWO		6/7/2017				
	Oiler		\$53.89	\$69.22	\$84.54	H H D H H H D D Y
	<i>comment make up day allowed</i>					
	4 10s allowed M-Th with Friday makeup day because of bad weather					
EN-324-SWTD50		6/7/2017				
	Tower Crane & Derrick where work is 50' or more		\$63.84	\$84.14	\$104.44	H H D H H H D D Y
	<i>comment make up day allowed</i>					
	4 10s allowed M-Th with Friday makeup day because of bad weather					

Official Request #: 1236

Requestor: Troy School District

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Classification	Name	Description	Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
EN-324-SWTD50-0			6/7/2017				
	Tower Crane & Derrick	50' or more w/ Oiler		\$64.84	\$85.64	\$106.44	H H D H H H D D Y
	comment	make up day allowed					
		4 10s allowed M-Th with Friday makeup day because of bad weather					

## Operating Engineer Underground

EN-324A1-UC1			9/7/2017				
	Class I Equipment			\$55.54	\$71.56	\$87.57	H H H H H H H D Y
		<b>Apprentice Rates:</b>					
		0-999 hours		\$44.09	\$55.30	\$66.52	
		1,000-1,999 hours		\$45.68	\$57.70	\$69.70	
		2,000-2,999 hours		\$47.28	\$60.09	\$72.90	
		3,000-3,999 hours		\$48.88	\$62.49	\$76.10	
		4,000-4,999 hours		\$50.49	\$64.91	\$79.32	
		5,000-5,999 hours		\$52.09	\$67.30	\$82.52	

EN-324A1-UC2			9/7/2017				
	Class II Equipment			\$50.81	\$64.46	\$78.11	H H H H H H H D Y

EN-324A1-UC3			9/7/2017				
	Class III Equipment			\$50.08	\$63.37	\$76.65	H H H H H H H D Y

EN-324A1-UC4			9/7/2017				
	Class IV Equipment			\$49.51	\$62.52	\$75.51	H H H H H H H D Y

EN-324A1-UMM			9/7/2017				
	Master Mechanic			\$55.79	\$71.93	\$88.07	H H H H H H H D Y

Official Request #: 1236  
 Requestor: Troy School District  
 Project Description: Roofing Program 2018 Athens & Troy H.S, Morse & Troy  
 Project Number: 2013 Bond Program, Series 2, BID 9848  
 County: Oakland

**Official Rate Schedule**  
 Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing wage and fringe benefit rates prescribed in a contract.



# Official 2017 Prevailing Wage Rates for State Funded Projects

Issue Date: 10/23/2017

Contract must be awarded by: 1/21/2018

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Classification	Name	Description	Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
<b>Painter</b>							
	PT-22-P		10/3/2017				
	Painter			\$44.32	\$57.60	\$70.88	H H D H D D D D Y
		<b>Apprentice Rates:</b>					
		Year 1		\$31.04	\$37.68	\$44.32	
		Year 2		\$33.70	\$41.67	\$49.64	
		Year 3		\$36.35	\$45.64	\$54.94	
		Year 4		\$40.34	\$51.63	\$62.92	
		<i>comment make up day allowed</i>					
		Four 10s allowed Monday-Thursday with Friday makeup day if job down due to weather, holiday or other conditions beyond the control of the employer, 8 hours of repaint work performed on Sunday shall be paid time & one half rate					
<b>Pipe and Manhole Rehab</b>							
	TM247		4/17/2015				
	General Laborer for rehab work or normal cleaning and cctv work-top man, scaffold man, CCTV assistant, jetter-vac assistant			\$28.20	\$38.20		H H H H H H H H N
	TM247-2		4/17/2015				
	Tap cutter/CCTV Tech/Grout Equipment Operator: unit driver and operator of CCTV; grouting equipment and tap cutting equipment			\$32.70	\$44.95		H H H H H H H H N
	TM247-3		4/17/2015				
	CCTV Technician/Combo Unit Operator: unit driver and operator of cctv unit or combo unit in connection with normal cleaning and			\$31.45	\$43.07		H H H H H H H H N
	TM247-4		4/17/2015				
	Boiler Operator: unit driver and operator of steam/water heater units and all ancillary equipment associated			\$33.20	\$45.70		H H H H H H H H N
	TM247-5		4/17/2015				
	Combo Unit driver & Jetter-Vac Operator			\$33.20	\$45.70		H H H H H H H H N

Official Request #: 1236

Requestor: Troy School District

Project Description: Roofing Program 2018 Athens & Troy H.S, Morse & Troy

Project Number: 2013 Bond Program, Series 2, BID 9848

County: Statewide

## Official Rate Schedule

Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing wage and fringe benefit rates prescribed in a contract.

# Official 2017 Prevailing Wage Rates for State Funded Projects

Issue Date: 10/23/2017

Contract must be awarded by: 1/21/2018

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Classification	Name	Description	Last Updated	Straight Time and Hourly	Half	a Double Time	Overtime Provision
TM247-6			4/17/2015				
	Pipe Bursting & Slip-lining Equipment Operator			\$34.20	\$47.20		H H H H H H H N

## Pipefitter

PF-636			7/12/2016				
	Pipefitter, Steamfitter, Refrigeration & Air Conditioning Service			\$69.83	\$91.03	\$108.23	H H D H D D D D Y
	<b>Apprentice Rates:</b>						
	1st & 2nd periods			\$29.93	\$38.28	\$45.28	
	3rd period			\$31.93	\$41.28	\$49.28	
	4th period			\$33.18	\$43.16	\$51.78	
	5th period			\$34.43	\$45.03	\$54.28	
	6th period			\$35.68	\$46.90	\$56.78	
	7th period			\$36.93	\$48.78	\$59.28	
	8th period			\$37.93	\$50.28	\$61.28	
	9th period			\$38.93	\$51.78	\$63.28	
	10th period			\$40.36	\$53.92	\$66.14	

comment

Four 10s allowed during the week preceding, following and/or the week of a holiday.

## Plasterer

BR1P			11/1/2012				
	Plasterer			\$45.04	\$67.56	\$90.08	H H H H H H H D N
	<b>Apprentice Rates:</b>						
	1st 6 months			\$32.11	\$48.17	\$64.22	
	2nd 6 months			\$33.40	\$50.10	\$66.80	
	3rd 6 months			\$34.69	\$52.04	\$69.38	
	4th 6 months			\$37.28	\$55.92	\$74.56	
	5th 6 months			\$39.87	\$59.81	\$79.74	
	6th 6 months			\$42.45	\$63.68	\$84.90	

comment

make up day allowed

Saturday

Official Request #: 1236

Requestor: Troy School District

Project Description: Roofing Program 2018 Athens & Troy H.S, Morse & Troy

Project Number: 2013 Bond Program, Series 2, BID 9848

County: Oakland

## Official Rate Schedule

Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing wage and fringe benefit rates prescribed in a contract.

# Official 2017 Prevailing Wage Rates for State Funded Projects

Issue Date: 10/23/2017

Contract must be awarded by: 1/21/2018

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Classification Name	Description	Last Updated	Straight Hourly	Time and Half	a Double Time	Overtime Provision
PL67		9/8/2010				
Plasterer			\$44.72	\$60.11	\$75.50	H H H X D D D D N
	<b>Apprentice Rates:</b>					
	1st 6 months		\$29.33	\$37.02	\$44.72	
	2nd 6 months		\$30.87	\$39.34	\$47.80	
	3rd 6 months		\$32.41	\$41.64	\$50.88	
	4th 6 months		\$35.49	\$46.26	\$57.04	
	5th 6 months		\$38.56	\$51.16	\$63.76	
	6th 6 months		\$41.64	\$55.49	\$69.34	

## Plumber

PL-98		7/18/2013				
Plumber			\$64.45	\$84.87	\$101.29	H H D H D D D D Y
	<b>Apprentice Rates:</b>					
	Period 1		\$19.93	\$26.43	\$32.93	
	Period 2		\$23.90	\$31.40	\$38.90	
	Period 3		\$30.60	\$39.19	\$47.77	
	Period 4		\$31.23	\$40.13	\$49.03	
	Period 5		\$32.39	\$41.87	\$51.35	
	Period 6		\$33.54	\$43.59	\$53.65	
	Period 7		\$34.69	\$45.32	\$55.95	
	Period 8		\$35.86	\$47.07	\$58.29	
	Period 9		\$37.01	\$48.80	\$60.59	
	Period 10		\$38.16	\$50.53	\$62.89	

### comment

4 tens allowed M-Th or T-F; OT of time and one half required on 11th & 12th hour of any ten hour days

Official Request #: 1236

Requestor: Troy School District

Project Description: Roofing Program 2018 Athens & Troy H.S, Morse & Troy

Project Number: 2013 Bond Program, Series 2, BID 9848

County: Oakland

## Official Rate Schedule

Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing wage and fringe benefit rates prescribed in a contract.



# Official 2017 Prevailing Wage Rates for State Funded Projects

Issue Date: 10/23/2017

Contract must be awarded by: 1/21/2018

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Classification	Name	Description	Last Updated	Straight Time and Hourly	a Double Time	Overtime Provision
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comment

A 4 10 schedule may be worked, 4 consecutive days Monday thru Friday.

SHM-80-A			10/4/2017			
Architectural Sheet Metal Worker after 1,000 hours				\$44.98	\$57.56	\$70.13 H H D H D D D D Y
<b>Apprentice Rates:</b>						
1st 30 Working Days				\$26.67	\$38.88	\$51.08
>30 working days < 1000 hours				\$43.32	\$55.53	\$67.73

## Sprinkler Fitter

SP 704			7/31/2017			
Sprinkler Fitter				\$68.92	\$88.21	\$107.49 H H D H D D D D Y
<b>Apprentice Rates:</b>						
1st Period				\$29.47	\$38.22	\$46.97
2nd Period				\$44.86	\$54.71	\$64.55
3rd Period				\$47.05	\$57.99	\$68.93
4th Period				\$49.24	\$61.27	\$73.31
5th Period				\$51.42	\$64.55	\$77.67
6th Period				\$53.61	\$67.83	\$82.05
7th Period				\$55.80	\$71.11	\$86.43
8th Period				\$57.99	\$74.40	\$90.81
9th Period				\$60.17	\$77.67	\$95.17
10th Period				\$62.36	\$80.95	\$99.55

comment

4 ten hour days allowed Monday-Friday

Double time pay due after 12 hours worked M-F

Official Request #: 1236

Requestor: Troy School District

Project Description: Roofing Program 2018 Athens & Troy H.S, Morse & Troy

Project Number: 2013 Bond Program, Series 2, BID 9848

County: Oakland

## Official Rate Schedule

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# Official 2017 Prevailing Wage Rates for State Funded Projects

Issue Date: 10/23/2017

Contract must be awarded by: 1/21/2018

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<u>Classification</u>		Last	Straight	Time and	a Double	Overtime
Name	Description	Updated	Hourly	Half	Time	Provision
<hr/>						

## Terrazzo

BR1-TRF		10/17/2014				
Terrazzo Finisher			\$43.97	\$55.03	\$66.08	H H D H D D D D Y
<b>Apprentice Rates:</b>						
	Level 1		\$19.04	\$25.12	\$31.20	
	Level 2		\$20.24	\$26.92	\$33.60	
	Level 3		\$27.01	\$33.96	\$40.90	
	Level 4		\$28.47	\$36.14	\$43.82	
	Level 5		\$29.99	\$37.84	\$45.70	
	Level 6		\$31.61	\$39.86	\$48.10	
	Level 7		\$33.30	\$41.59	\$49.87	
	Level 8		\$34.79	\$43.48	\$52.17	

### comment

A four ten workweek may be worked Monday thru Thursday or Tuesday thru Friday.

BR1-TRW		10/17/2014				
Terrazzo Worker			\$49.73	\$63.67	\$77.60	H H D H D D D D Y
<b>Apprentice Rates:</b>						
	Level 1		\$25.14	\$32.65	\$40.15	
	Level 2		\$28.20	\$36.49	\$44.78	
	Level 3		\$33.41	\$41.97	\$50.53	
	Level 4		\$36.15	\$45.66	\$55.17	
	Level 5		\$38.42	\$48.17	\$57.92	
	Level 6		\$42.07	\$53.56	\$65.05	
	Level 7		\$42.74	\$54.38	\$66.02	
	Level 8		\$43.67	\$55.78	\$67.88	

### comment

A 4 ten workweek may be worked Monday thru Thursday or Tuesday thru Friday.

Official Request #: 1236  
 Requestor: Troy School District  
 Project Description: Roofing Program 2018 Athens & Troy H.S, Morse & Troy  
 Project Number: 2013 Bond Program, Series 2, BID 9848  
 County: Oakland

**Official Rate Schedule**  
 Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing wage and fringe benefit rates prescribed in a contract.

# Official 2017 Prevailing Wage Rates for State Funded Projects

Issue Date: 10/23/2017

Contract must be awarded by: 1/21/2018

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Classification	Name	Description	Last Updated	Straight Time and Hourly	Time and Half	a Double Time	Overtime Provision
=====							
~~~~~							
<b>Tile</b>							
~~~~~							
BR1-TF			10/17/2014				
Tile Finisher				\$43.50	\$54.32	\$65.14	H H D H D D D D Y
<b>Apprentice Rates:</b>							
	Level 1			\$19.04	\$25.12	\$31.20	
	Level 2			\$20.24	\$26.92	\$33.60	
	Level 3			\$27.01	\$33.96	\$40.90	
	Level 4			\$28.47	\$36.14	\$43.82	
	Level 5			\$29.99	\$37.84	\$45.70	
	Level 6			\$31.61	\$39.86	\$48.10	
	Level 7			\$33.30	\$41.59	\$49.87	
	Level 8			\$34.79	\$43.48	\$52.17	

*comment*

A four ten workweek may be worked Monday thru Thursday or Tuesday thru Friday.

BR1-TL			10/17/2014				
Tile Layer				\$49.68	\$63.59	\$77.50	H H D H D D D D Y
<b>Apprentice Rates:</b>							
	Level 1			\$25.14	\$32.65	\$40.15	
	Level 2			\$28.20	\$36.49	\$44.78	
	Level 3			\$33.41	\$41.97	\$50.53	
	Level 4			\$36.15	\$45.66	\$55.17	
	Level 5			\$38.42	\$48.17	\$57.92	
	Level 6			\$42.07	\$53.56	\$65.05	
	Level 7			\$42.74	\$54.38	\$66.02	
	Level 8			\$43.67	\$55.78	\$67.88	

*comment*

A four ten workweek may be worked Monday thru Thursday or Tuesday thru Friday.

## Truck Driver

TM-RB1			6/7/2016				
on all trucks of 8 cubic yard capacity or less (except dump trucks of 8 cubic yard capacity or over, tandem axle trucks, transit mix and semis, euclid type equipment, double bottoms and low boys)				\$44.10	\$48.81		H H H H H H H Y

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 County: Oakland

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# Official 2017 Prevailing Wage Rates for State Funded Projects

Issue Date: 10/23/2017

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Page 30 of 30

Classification		Last Updated	Straight Time and		a Double Time	Overtime Provision
Name	Description		Hourly	Half		
TM-RB1A		6/7/2016				
	of all trucks of 8 cubic yard capacity or over		\$44.20	\$48.96		H H H H H H H Y
.....						
TM-RB1B		6/7/2016				
	on euclid type equipment		\$44.35	\$49.19		H H H H H H H Y
	<i>make up day allowed</i>					
.....						

Official Request #: 1236

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County: Oakland

## Official Rate Schedule

Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing wage and fringe benefit rates prescribed in a contract.





## STATE OF MICHIGAN

### Wage and Hour Division

P.O. Box 30476 • Lansing, Michigan 48909-7976

Toll Free: 1-855-4MI-WAGE (1-855-464-9243)

[www.michigan.gov/wagehour](http://www.michigan.gov/wagehour)

## ***Informational Sheet: Prevailing Wages on State Projects***

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### **REQUIREMENTS OF THE PREVAILING WAGES ON STATE PROJECTS ACT, PUBLIC ACT 166 OF 1965**

The State of Michigan determines prevailing rates pursuant to the Prevailing Wages on State Projects Act, Public Act 166 of 1965, as amended. The purpose of establishing prevailing rates is to provide minimum rates of pay that must be paid to workers on construction projects for which the state or a school district is the contracting agent and which is financed or financially supported by the state. By law, prevailing rates are compiled from the rates contained in collectively bargained agreements which cover the locations of the state projects. The official prevailing rate schedule provides an hourly rate which includes *wage and fringe benefit totals* for designated construction mechanic classifications. The overtime rates also include *wage and fringe benefit totals*. Please pay special attention to the overtime and premium pay requirements. Prevailing wage is satisfied when wages plus fringe benefits paid to a worker are equal to or greater than the required rate.

#### **State of Michigan responsibilities under the law:**

- The department establishes the prevailing rate for each classification of construction mechanic ***requested by a contracting agent*** prior to contracts being let out for bid on a state project.

#### **Contracting agent responsibilities under the law:**

- If a contract is not awarded or construction does not start within 90 days of the date of the issuance of rates, a re- determination of rates must be requested by the contracting agent.
- Rates for classifications needed but not provided on the Prevailing Rate Schedule, ***must*** be obtained ***prior*** to contracts being let out for bid on a state project.
- The contracting agent, by written notice to the contractor and the sureties of the contractor known to the contracting agent, may terminate the contractor's right to proceed with that part of the contract, for which less than the prevailing rates have been or will be paid, and may proceed to complete the contract by separate agreement with another contractor or otherwise, and the original contractor and his sureties shall be liable to the contracting agent for any excess costs occasioned thereby.

#### **Contractor responsibilities under the law:**

- Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing rates prescribed in a contract.
- Every contractor and subcontractor shall keep an accurate record showing the name and occupation of and the actual wages and benefits paid to each construction mechanic. This record shall be available for reasonable inspection by the contracting agent or the department.
- Each contractor or subcontractor is separately liable for the payment of the prevailing rate to its employees.
- The prime contractor is responsible for advising all subcontractors of the requirement to pay the prevailing rate prior to commencement of work.
- A construction mechanic ***shall only*** be paid the apprentice rate if registered with the United States Department of Labor, Bureau of Apprenticeship and Training and the rate is included in the contract.

#### **Enforcement:**

A person who has information of an alleged prevailing wage violation on a state project may file a complaint with the State of Michigan. The department will investigate and attempt to resolve the complaint informally. During the course of an investigation, if the requested records and posting certification are not made available in compliance with Section 5 of Act 166, the investigation will be concluded and a referral may be made to the local prosecuting attorney.



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### ***Informational Sheet: Prevailing Wages on State Projects***

#### **General Information Regarding Fringe Benefits**

**Certain** fringe benefits **may** be credited toward the payment of the Prevailing Wage Rate:

- If a fringe benefit is paid directly to a construction mechanic
- If a fringe benefit contribution or payment is made on behalf of a construction mechanic
- If a fringe benefit, which may be provided to a construction mechanic, is pursuant to a written contract or policy
- If a fringe benefit is paid into a fund, for a construction mechanic

When a fringe benefit is not paid by an hourly rate, the hourly credit will be calculated based on the annual value of the fringe benefit divided by 2080 hours per year (52 weeks @ 40 hours per week).

The following is an example of the types of fringe benefits allowed and how an hourly credit is calculated:

Vacation	40 hours X \$14.00 per hour = \$560/2080 =	\$.27
Dental insurance	\$31.07 monthly premium X 12 mos. = \$372.84 /2080 =	\$.18
Vision insurance	\$5.38 monthly premium X 12 mos. = \$64.56/2080 =	\$.03
Health insurance	\$230.00 monthly premium X 12 mos. = \$2,760.00/2080 =	\$1.33
Life insurance	\$27.04 monthly premium X 12 mos. = \$324.48/2080 =	\$.16
Tuition	\$500.00 annual cost/2080 =	\$.24
Bonus	4 quarterly bonus/year x \$250 = \$1000.00/2080 =	\$.48
401k Employer Contribution	\$2000.00 total annual contribution/2080 =	\$.96
<b>Total Hourly Credit</b>		<b>\$3.65</b>

Other examples of the types of fringe benefits allowed:

- Sick pay
- Holiday pay
- Accidental Death & Dismemberment insurance premiums

The following are examples of items that **will not** be credited toward the payment of the Prevailing Wage Rate

- Legally required payments, such as:
  - Unemployment Insurance payments
  - Workers' Compensation Insurance payments
  - FICA (Social Security contributions, Medicare contributions)
- Reimbursable expenses, such as:
  - Clothing allowance or reimbursement
  - Uniform allowance or reimbursement
  - Gas allowance or reimbursement
  - Travel time or payment
  - Meals or lodging allowance or reimbursement
  - Per diem allowance or payment
- Other payments to or on behalf of a construction mechanic that are not wages or fringe benefits, such as:
  - Industry advancement funds
  - Financial or material loans



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### ***Informational Sheet: Prevailing Wages on State Projects***

#### **OVERTIME PROVISIONS for MICHIGAN PREVAILING WAGE RATE COMMERCIAL SCHEDULE**

- Overtime is represented as a nine character code. Each character represents a certain period of time after the first 8 hours Monday thru Friday.

	Monday thru Friday	Saturday	Sunday & Holidays	Four 10s
First 8 Hours		<b>4</b>	<b>8</b>	<b>9</b>
9th Hour	<b>1</b>	<b>5</b>		
10th Hour	<b>2</b>	<b>6</b>		
Over 10 hours	<b>3</b>	<b>7</b>		

Overtime for Monday thru Friday after 8 hours:

the 1st character is for time worked in the 9th hour (8.1 - 9 hours)

the 2nd character is for time worked in the 10th hour (9.1 - 10 hours)

the 3rd character is for time worked beyond the 10th hour (10.1 and beyond)

Overtime on Saturday:

the 4th character is for time worked in the first 8 hours on Saturday (0 - 8 hours)

the 5th character is for time worked in the 9th hour on Saturday (8.1 - 9 hours)

the 6th character is for time worked in the 10th hour (9.1 - 10 hours)

the 7th character is for time worked beyond the 10th hour (10.01 and beyond)

Overtime on Sundays & Holidays

The 8th character is for time worked on Sunday or on a holiday

Four Ten Hour Days

The 9th character indicates if an optional 4-day 10-hour per day workweek can be worked ***between Monday and Friday without paying overtime after 8 hours worked, unless otherwise noted in the rate schedule. To utilize a 4 ten workweek, notice is required from the employer to employee prior to the start of work on the project.***

- Overtime Indicators Used in the Overtime Provision:

H - means TIME AND ONE-HALF due

X - means TIME AND ONE-HALF due after 40 HOURS worked

D - means DOUBLE PAY due

Y - means YES an optional 4-day 10-hour per day workweek can be worked without paying overtime after 8 hours worked

N - means NO an optional 4-day 10-hour per day workweek *cannot* be worked without paying overtime after 8 hours worked

- EXAMPLES:

HHHHHHHDN - This example shows that the 1½ rate must be used for time worked after 8 hours Monday thru Friday (characters 1 - 3); for all hours worked on Saturday, 1½ rate is due (characters 4 - 7). Work done on Sundays or holidays must be paid double time (character 8). The N (character 9) indicates that 4 ten-hour days is not an acceptable workweek at regular pay.

XXXHHHHDY - This example shows that the 1½ rate must be used for time worked after 40 hours are worked Monday thru Friday (characters 1-3); for hours worked on Saturday, 1½ rate is due (characters 4 – 7). Work done on Sundays or holidays must be paid double time (character 8). The Y (character 9) indicates that 4 ten-hour days is an acceptable alternative workweek.



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### ***Informational Sheet: Prevailing Wages on State Projects***

## **ENGINEERS - CLASSES OF EQUIPMENT LIST**

### **UNDERGROUND ENGINEERS**

#### **CLASS I**

Backfiller Tamper, Backhoe, Batch Plant Operator, Clam-Shell, Concrete Paver (2 drums or larger), Conveyor Loader (Euclid type), Crane (crawler, truck type or pile driving), Dozer, Dragline, Elevating Grader, End Loader, Gradall (and similar type machine), Grader, Power Shovel, Roller (asphalt), Scraper (self propelled or tractor drawn), Side Broom Tractor (type D-4 or larger), Slope Paver, Trencher (over 8' digging capacity), Well Drilling Rig, Mechanic, Slip Form Paver, Hydro Excavator.

#### **CLASS II**

Boom Truck (power swing type boom), Crusher, Hoist, Pump (1 or more 6" discharge or larger gas or diesel powered by generator of 300 amps or more, inclusive of generator), Side Boom Tractor (smaller than type D-4 or equivalent), Tractor (pneu-tired, other than backhoe or front end loader), Trencher (8' digging capacity and smaller), Vac Truck.

#### **CLASS III**

Air Compressors (600 cfm or larger), Air Compressors (2 or more less than 600 cfm), Boom Truck (non-swinging, non-powered type boom), Concrete Breaker (self-propelled or truck mounted, includes compressor), Concrete Paver (1 drum, ½ yard or larger), Elevator (other than passenger), Maintenance Man, Mechanic Helper, Pump (2 or more 4" up to 6" discharge, gas or diesel powered, excluding submersible pump), Pumpcrete Machine (and similar equipment), Wagon Drill Machine, Welding Machine or Generator (2 or more 300 amp or larger, gas or diesel powered).

#### **CLASS IV**

Boiler, Concrete Saw (40HP or over), Curing Machine (self-propelled), Farm Tractor (w/attachment), Finishing Machine (concrete), Firemen, Hydraulic Pipe Pushing Machine, Mulching Equipment, Oiler (2 or more up to 4", exclude submersible), Pumps (2 or more up to 4" discharge if used 3 hrs or more a day-gas or diesel powered, excluding submersible pumps), Roller (other than asphalt), Stump Remover, Vibrating Compaction Equipment (6' wide or over), Trencher (service) Sweeper (Wayne type and similar equipment), Water Wagon, Extend-a-Boom Forklift.

### **HAZARDOUS WASTE ABATEMENT ENGINEERS**

#### **CLASS I**

Backhoe, Batch Plant Operator, Clamshell, Concrete Breaker when attached to hoe, Concrete Cleaning Decontamination Machine Operator, Concrete Pump, Concrete Paver, Crusher, Dozer, Elevating Grader, Endloader, Farm Tractor (90 h.p. and higher), Gradall, Grader, Heavy Equipment Robotics Operator, Hydro Excavator, Loader, Pug Mill, Pumpcrete Machines, Pump Trucks, Roller, Scraper (self-propelled or tractor drawn), Side Boom Tractor, Slip Form Paver, Slope Paver, Trencher, Ultra High Pressure Waterjet Cutting Tool System Operator, Vactors, Vacuum Blasting Machine Operator, Vertical Lifting Hoist, Vibrating Compaction Equipment (self-propelled), and Well Drilling Rig.

#### **CLASS II**

Air Compressor, Concrete Breaker when not attached to hoe, Elevator, End Dumps, Equipment Decontamination Operator, Farm Tractor (less than 90 h.p.), Forklift, Generator, Heater, Mulcher, Pigs (Portable Reagent Storage Tanks), Power Screens, Pumps (water), Stationary Compressed Air Plant, Sweeper, Water Wagon and Welding Machine.



## STATE OF MICHIGAN

### Wage and Hour Division

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## ***Informational Sheet: Prevailing Wages on State Projects***

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### **CARPENTER CRAFT JURISDICTION**

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Michigan recognizes the Carpenters for any and all work related to weatherization that has historically been the work of the Carpenter. This work shall include, but not be limited to: all work defined under the Federal Weatherization Assistance Program.

The jurisdiction of Carpenters, as to all work that has historically and traditionally been performed consisting of the milling, fashioning, joining, assembling, erecting, fastening or dismantling of all materials of wood, plastic, metal, fiber, cork, or composition and all other substitute materials, as well as the handling, cleaning, erecting, installing and dismantling of all machinery, equipment and all materials used by Carpenters.

The jurisdiction, therefore, extends over the following divisions and subdivisions of the trade: Carpenters and Joiners, Millwrights, Pile Drivers, Bridge, Dock and Wharf Carpenters, Underpinners, Timbermen, and Core-drillers, Shipwrights, Boat Builders, Ship-hand, Stair-Builders, Millmen, Wood and Resilient Floor Decorators, Floor Finishers, Carpet-layers, Shinglers, Siders, Insulators, Acoustic and Drywall Applicators, Sharers and House Movers, Loggers, Lumber and Sawmill Workers, Reed and Rattan Workers, Shingle Weavers, Casket and Coffin Makers, Railroad Carpenters and Car Builders, regardless of material used and all those engaged in the operation of woodworking or other machinery required in fashioning, milling or manufacturing of products used in the trade, and the handling, erecting and installing materials on any of the above divisions or sub-divisions, burning, welding and rigging incidental to the trade. When the term "Carpenter and Joiner" is used, it shall mean all the subdivisions of the trade. The trade autonomy of Carpenters therefore extends over the divisions and subdivisions of the trade, which are set forth as follows:

- (a) The framing, erecting and prefabrication of roofs, partitions, floors and other parts of buildings of wood, metal, plastic or other substitutes; application of all metal flashing used for hips, valleys and chimneys; the erection of Stran Steel section or its equal. The building and setting of all forms and centers for brick and masonry. The fabrication and erection of all forms for concrete and decking, the dismantling of same (as per International Agreement) when they are to be re-used on the job or stored for re-use. The cutting and handling of all falsework for fireproofing and slabs. Where power is used in the setting or dismantling of forms, all signaling and handling shall be done by carpenters. The setting of templates for anchor bolts for structural members and for machinery, and the placing, leveling and bracing of these bolts. All framing in connection with the setting or metal columns. The setting of all bulkheads, footing forms and the setting of and fabrication of, screeds and stakes for concrete and mastic floors where the screed is notched or fitted, or made up of more than one member. The making of forms for concrete block, bulkheads, figures, posts, rails, balusters and ornaments, etc.
- (b) The handling and erecting of rough material and drywall, the handling, assembly, setting and leveling of all fixtures, display cases, all furniture such as tables, chairs, desks, coat racks, etc., all de-mountable or moveable partitions such as Von wall, E Wall, Steel Case, Herman Miller, Haworth, American Seating, Westinghouse, Lazy Boy, rosewood, etc. All rebuilding, remodeling and setting up of all kinds of partitions, finished lumber, metal and plastic trim to be erected by Carpenters shall be handled from the truck or vehicle delivering same to the job by Carpenters.



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## **CARPENTER CRAFT JURISDICTION**

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- (c) The building and moving of all scaffolding runways and staging where carpenters' tools are used, the building from the ground up of all scaffolds over fourteen (14) feet in height including metal and specially designed scaffolding. The building and construction of all hoists and derricks made of wood; the making of mortar boards, boxes, trestles, all shoring, razing and moving of buildings. Lift type trucks are to be considered a tool of the trade. Metal siding and metal roofing fall within the scope of jurisdiction for the carpenters.
- (d) The cutting or framing and fireproofing of the openings for pipes, conduits, ducts, etc., where they pass through floors, partitions, walls, roofs or fixtures composed in whole or in part of wood. The laying out of making and installation of all inserts and sleeves for pipes, ducts, etc., where carpenters' tools and knowledge are required. The making and installing of all wooden meter boards, crippling and backing for fixtures. The welding of studs and other fastenings to receive material being applied by carpenters.
- (e) The installation of all grounds, furring or stripping, ceilings and sidewalks, application of all types of shingling and siding, etc.
- (f) The installation of all interior and exterior trim or finish of wood, aluminum, kalamein, hollow or extruded metal, plastic, doors, transoms, thresholds, mullions and windows. The setting of jambs, bucks, window frames of wood or metal where braces or wedges are used. The installation of all wood, metal or other substitutes of casing, molding, chair rail, wainscoting, china closets, base of mop boards, wardrobes, metal partitions as per National Decisions or specific agreements, etc. The complete laying out, fabrication and erection of stairs. The making and erecting of all fixtures, cabinets, shelving, racks, louvers, etc. The mortising and application of all hardware in connection with our work. The sanding and refinishing of all wood, cork or composition floors to be sanded or scraped, filled, sized and buffed, either by hand or power machines. The assembling and setting of all seats in theaters, halls, churches, schools, auditorium, grandstands and other buildings. All bowling alley work.
- (g) The manufacture, fabrication and installation of all screens, storm sash, storm doors and garage doors; the installation of wood, canvas, plastic or metal awnings or eye shades, door shelters, jalousies, etc. The laying of wood, wood block and wood composition in floors.
- (h) The installation of all materials used in drywall construction, such as plasterboard, all types of asbestos boards, transite and other composition board. The application of all material which serves as base for acoustic tile, except plaster. All acoustical applications as per National Agreement or specific agreement.
- (i) The building and dismantling of all barricades, hand rails, guard rails, partitions and temporary partitions. The erection and dismantling of all temporary housing on construction projects.
- (j) The installation of rock wool, cork and other insulation material used for sound or weatherproofing. The removal of caulking and placing of staff bead and brick mold and all Oakum caulking, substitutes, etc., and all caulking in connection with carpentry work.
- (k) The installation of all chalk boards/marker boards.





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#### **CARPENTER CRAFT JURISDICTION**

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- (l) The operation of all hand operated winches used to raise wooden structures.
- (m) The erection of porcelain enameled panels and siding.
- (n) The unloading and distribution of all furnished, prefabricated and built-up sections such as door bucks, window frames, cupboards, cabinets, store fixtures, counters and show cases or comparably finished or prefabricated materials, to the job sites or points of installation as used in the construction, alteration and remodeling industry.
- (o) The handling of doors, metal, wood or composite, partitions and other finished bulk materials used for trim from the point of delivery.
- (p) All processing of these materials and handling after processing.
- (q) The making up of panels and fitting them into walls, all bracing and securing, all removal of panels from the casting including all braces, whalers, hairpins, etc.
- (r) The handling and setting of all metal pans and sections from the stock piles of reasonable distance as required by job needs shall be performed by carpenters. The stripping of such metal pans, panels or sections is to be performed by carpenters.
- (s) The sharpening of all carpenter hand or power tools, or those used by carpenters.
- (t) The layout, fabrication, assembling of and erection and dismantling of all displays made of wood, metal, plastic, composition board or any substitute material; the covering of same with any type of material, the crating and un-crating, the handling from the point of unloading and back to the point of loading of all displays and other materials or components.
- (u) The same shall apply to all other necessary component parts used for display purposes such as turntables, platforms, identification towers and fixtures, regardless of how constructed, assembled or erected or dismantled.
- (v) The make-up, handling, cutting and sewing of all materials used in buntings, flags, banners, decorative paper, fabrics and similar materials used in the display decorative industry for draperies and back drops. The decorative framing of trucks, trailers and autos used as floats or moving displays. The slatting of walls to hand fabrics and other decorative materials, drilling of all holes to accommodate such installations. Setting up and removal of booths constructed of steel or aluminum tubing as stanchions, railings, etc., handling and placing of furniture, appliances, etc., which are being used to complete the booth at the request of the exhibitor. Fabricating and application of leather, plastic and other like materials used for covering of booths. The handling of all materials, fabricating of same. The loading and unloading, erecting and assembling at the exhibit of show area, also in or out of storage when used in booth decorations.



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### **CARPENTER CRAFT JURISDICTION**

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- (w) A display shall be construed as any exhibit or medium of advertising, open to private or public showing, which is constructed of wood, metal, plastic or any other substitute to accomplish the objectives of advertising or displaying.
- (x) Handling, fitting, draping, measuring and installation of fixtures and other hardware for draperies, all manner of making, measuring, repairing, sizing, hanging and installation of necessary fixtures and hardware for shades and Venetian blinds.
- (y) Work consisting of cutting and/or forming of all materials in preparation for installing of floors, walls and ceilings; the installation of all resilient floor and base; wall and ceiling materials to include cork, linoleum, prefabricated, laminated, rubber, asphalt, vinyl, metal, plastic, seamless floors and all other similar materials in sheet, interlocking liquid or tile form; the installation of all artificial turf, the installation, cutting and/or fitting of carpets; installation of padding, matting, linen crash and all preformed resilient floor coverings; the fitting of all devices for the attachment of carpet and other floor, wall and ceiling coverings; track sewing of carpets, drilling of holes for sockets and pins, putting in dowels and slats; and all metal trimmings used; the installation of all underlayments, sealants in preparation of floors, walls and ceilings, the unloading and handling of all materials to be installed and the removal of all materials in preparing floors when contracted for by the employer, shall be done only by employees covered under this Agreement.
- (z) The installation of all sink-tops and cabinets, to include all metal trim and covering for same. All cork, linoleum, congo-wall, linewall, veos tile, plexiglass, vinawall tile, composition tile, plastic tile, aluminum tile and rubber in sheets or tile form and the application thereof. All bolta-wall and bolta-wall tile and similar products.
- (aa) The handling and placing of all pictures and frames and the assembly of bed frames and accessories. The hanging and placing of all signage.
- (bb) The installation of all framework partitions and trim materials for toilets and bathrooms made of wood, metal, plastics or composition materials; fastening of all wooden, plastic or composition cleats to iron or any other material for accessories.
- (cc) The erection of cooling towers and tanks.
- (dd) The setting, lining, leveling and bracing of all embedded plates, rails and angles. The setting of all stay in place forms.
- (ee) Environmental: Clean room, any type of environmental chamber, walk in refrigerated coolers and all refrigerated rooms or buildings.





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## ***Informational Sheet: Prevailing Wages on State Projects***

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### **CARPENTER CRAFT JURISDICTION**

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#### **PILE DRIVING AND CAISSON DRILLING**

(ff) All unloading, handling, signaling and driving of piles, whether wood, steel, pipe, beam pile, composite, concrete or molded in place, wood and steel sheeting, cofferdam work, trestle work, dock work, floating derricks, caisson work, foundation work, bridge work, whether old or new, crib work, pipe line work and submarine work. Cutting of all wood, steel or concrete pile, whether by machine or hand; welding and cutting, peeling, and heading of all wood pile, steel sheeting and wood sheeting. The erecting and dismantling of all pile driving rigs, also derricks whether on land or water; also the moving, shoring and underpinning of all buildings. The loading and unloading of all derricks, cranes and pile driving materials. The tending, maintenance and operation of all valves pertaining to the operation of driving of pile. All diving and tending essential to the completion of jurisdictional claims.

All work done in the established yards of the Company and all work not enumerated above, shall be handled and manned as the Employer decides.

The pile driver will unload all material shipped in by rail from the point that the rail car is spotted.

All cleaning and preparation of all piling prior to driving.

The welding and attachment of all boot plates, pile points, splice plates, connectors, rock crosses, driving crosses, driving rigs, point reinforcements and overboots.

The construction, reconstruction, repair, alteration, demolition and partial or complete removal of all marine work including, but not limited to, docks, piers, wharves, quays, jetties, cribs, causeways, breakwaters, lighthouses and permanent buoys, etc. (mixing and placing of concrete excepted).

The driving and pulling of all wood, steel and concrete foundation piles and sheet piling.

The heading, pointing, splicing, cutting and welding of all piles.

The placing of all wales, bolts, studs, lagging, rods and washers including the cutting, drilling, boring or breaking of all holes or openings thereof.

The removal of all materials and/or obstructions of any nature (rip-rap included) that retard or interfere with the driving of piles or with the placing of wales, bolts and rods.



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## **CARPENTER CRAFT JURISDICTION**

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This is to be subject to the discretion of the contractor who may choose to use blasting specialists or other demolition specialists.

The handling on the job of all materials used in the work.

The manning of all floating equipment (towing equipment excepted) engaged in the work enumerated, including deck engines, except machinery manned by Operating Engineers.

The placing of all rip-rap, fill stone, bedding stone, cover stone and concrete blocks in connection with marine construction. Work normally performed by Employers, such as soil tests, shoring, underpinning of buildings, cribbing, driving of sheet piling, marine divers, tenders, underwater construction workers and similar operations shall continue to be included in the jurisdiction of this Agreement.

All burning, cutting, welding and fabrication of pipe, H-beams, sheet pile (metal or wood), done on the job site or in the yard of the Employer shall be done by pile drivers. The driving of bearing piles, sheet piling with heavy equipment, caissons, pile caps, auger drilling and boring, the setting up for load testing for any type of piling, all layout and spotting for piling, caisson and boring work, all earth retention, ditch boarding, installing tiebacks.

### **ASBESTOS ABATEMENT CARPENTERS**

- (gg) All erection and maintenance of barriers and partitions used in the removing of asbestos or any abatement work. The abatement of any materials previously installed by the carpenter such as transite, ceiling and floor tiles. All operating and maintaining of current equipment used in any abatement work.

**SWORN AND NOTARIZED FAMILIAL DISCLOSURE STATEMENT**

**FAMILIAR DISCLOSURE AFFIDAVIT**

The undersigned, the owner or authorized office of the below-named contractor (the 'Contractor'), pursuant to the familial disclosure requirement provided in this proposals, hereby represents and warrants that, excepts as provided below, no familial relationship exists between the owner or key employee of the Contractor, and any member of the Troy School Board or the Troy School Superintendent. A list of the School District's Board of Education Members and its Superintendent may found at <http://www.troy.k12.mi.us>.

List any Familial Relationships:

**Contractor:**

\_\_\_\_\_  
Print Name of Contractor

By: \_\_\_\_\_

Its: \_\_\_\_\_

Subscribed and sworn before me, this \_\_\_\_\_

Seal:

day of \_\_\_\_\_, 20 \_\_\_\_, a Notary Public

in and for \_\_\_\_\_ County, \_\_\_\_\_

\_\_\_\_\_  
(Signature)  
NOTARY PUBLIC

My Commission expires \_\_\_\_\_

## **CERTIFICATION OF COMPLIANCE – IRAN ECONOMIC SANCTIONS ACT**

### **Michigan Public Act No. 517 of 2012**

The undersigned, the owner, or authorized officer of the below-named Company, pursuant to the compliance certification requirement provided in this proposal, hereby certifies, represents, and warrants that the Company and its officers, directors and employees, is not an "Iran Linked Business" within the meaning of the Iran Economic Sanctions Act, Michigan Public Act No. 517 of 2012 (the "Act"), and that in the event the Company is awarded a contract by Troy School District as a result of the aforementioned proposal, the Company is not and will not become an "Iran Linked Business" at any time during the course of performing any services under the contract.

The Company further acknowledges that any person who is found to have submitted a false certification is responsible for a civil penalty of not more than \$250,000.00 or two (2) times the amount of the contract or proposed contract for which the false certification was made, whichever is greater, the cost of Troy School District's investigation, and reasonable attorney fees, in addition to the fine. Moreover, any person who submitted a false certification shall be ineligible to bid on a request for proposal for three (3) years from the date the it is determined that the person has submitted the false certification.

#### **Contractor:**

\_\_\_\_\_  
Print Name of Contractor

By: \_\_\_\_\_

Its: \_\_\_\_\_

Subscribed and sworn before me, this \_\_\_\_\_

Seal:

day of \_\_\_\_\_, 20 \_\_\_\_\_, a Notary Public

in and for \_\_\_\_\_ County, \_\_\_\_\_

\_\_\_\_\_  
(Signature)  
NOTARY PUBLIC

My Commission expires \_\_\_\_\_

## UNIT PRICES

In the event changes are made in the plans and specifications the total contract price will be adjusted on the basis of the unit prices for those items as submitted at the WeatherTech Project Website.

A Unit Price is an amount proposed by Bidders and stated on the Bid Form as a price per unit of measurement for materials or services that will be added to or deducted from the Contract Sum by Change Order in the event the estimated quantities of Work required by the Contract documents are increased or decreased.

Unit prices include necessary shipping, materials, labor, permit or licensing fees, overhead, profit, and applicable taxes.

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

Unit prices not listed on the bid form shall conform to the pricing for the region. Owner shall have the option to verify any unit pricing requested during the performance of work that was not previously provided on the bid form.

### END OF SECTION 00 43 22/ UNIT PRICES

## SECTION 00 43 36

### LIST OF SUBCONTRACTORS

#### PART 1 - GENERAL

##### 1.01 SUMMARY

- A. A list of all intended subcontractors must be submitted and approved prior to the issuance of the contract, reference ***Instructions to Bidders***.
- B. Submittals: Contractor shall submit ***List of Subcontractors Form*** (see FORM below) shall be submitted online at [www.wtcg.net](http://www.wtcg.net).

#### PART 2 - MATERIALS - NOT USED

#### PART 3 – EXECUTION – NOT USED

### END OF SECTION 00 43 36/ LIST OF SUBCONTRACTORS

## LIST OF SUBCONTRACTORS

**This form must be submitted online and received and approved before a contract can be issued.**

To: Troy School District

Date: \_\_\_\_\_

Project: Troy School District Building/Facility #. \_\_\_\_\_

\_\_\_\_\_  
Street Address

\_\_\_\_\_  
City, State and Zip

Gentlemen:

The subcontractors we propose to use are as follows:

1. Plumbing \_\_\_\_\_
2. Electrical \_\_\_\_\_
3. Heating, Ventilating, Air Conditioning (HVAC) \_\_\_\_\_  
\_\_\_\_\_
4. Deck Repairs \_\_\_\_\_
5. Sheet Metal \_\_\_\_\_
6. Asbestos Removal \_\_\_\_\_
7. Existing Roof System Removal \_\_\_\_\_
8. Others: Description \_\_\_\_\_

\_\_\_\_\_  
Roofing Contractor

\_\_\_\_\_  
Date

## **SECTION 00 05 00**

### **CONSTRUCTION CONTRACT**

#### **PART 1 – GENERAL**

##### **1.01 SUMMARY**

- A. This section contains sample contracts used by TSD when contracting roofing work:
  - 1. Contracts UNDER \$250,000.00 will be generated using TSD's version of the American Institute of Architects of AIA Document A101 Standard Form of Agreements between Owner and Contractor where basis of payment is a Stipulated Sum.
  - 2. Contracts OVER \$250,000.00 will be generated using TSD's version of the American Institute of Architects of AIA Document A101 Standard Form of Agreements between Owner and Contractor where basis of payment is a Stipulated Sum.
- B. All required contractor's submittals must be provided and approved prior to the issuance of any contract.
- C. Do not start any work or order materials until contractor has received a signed contract from TSD to start work.

#### **PART 2 - MATERIALS - NOT USED**

#### **PART 3 – EXECUTION – NOT USED**

**END OF SECTION**



**SECTION 00 07 30**  
**SUPPLEMENTAL CONDITIONS**

**PART 1 – GENERAL**

**1.01 FACILITY RULES GOVERNING CONTRACTOR EMPLOYEES**

- A. Motor vehicles will be permitted at the designated areas to load or unload materials, equipment, tools, trash, etc. All motor vehicles while on Owner's and adjacent property shall be driven slowly with extreme caution obeying all posted traffic signs.
- B. Contractor has the responsibility to protect all his personal property, materials, equipment, etc. from theft.
- C. Contractors shall not leave materials, tools, etc. lying in an unsafe manner while working on the Owner's property. Do not store tools or materials that block an exit or path to exit.
- D. Do not in any way block, hinder, or obstruct fire escape and/or other emergency egress routes of the structures (interior and exterior). Comply with regulations and requirements of local fire prevention codes.
- E. Provide barricades and warning signs at all operations of the Work which are deemed hazardous by the Consultant to the movement of both Contractor's/Owner's personnel and pedestrians/passersby.
- F. Maintain good housekeeping. Do not allow accumulation of rubbish or scrap materials. Remove rubbish and scrap daily.
- G. No gambling, drugs, weapons or alcoholic beverages will be permitted on the site at any time. No individual under the influence of drugs or alcohol will be permitted on site.
- H. Contact Owner or Consultant prior to placing or using any rigging, hoists, cranes, temporary stairs, towers, etc.
- I. Provide the Owner with sufficient advance notice when planning to work outside of normal hours so that Owner's consultant, personnel, security forces, and other interested parties may be advised.
- J. Live loads on the roof during the Work shall not exceed the designed live load at anytime. If there is any question or concern about the structural integrity of the roof deck or other component related to the Work the contractor shall immediately stop work and have a structural engineer evaluate the conditions prior to proceeding. Notify both the Owner and Consultant immediately of the condition.

- K. Provide barricades and warning signs at outside excavations or at holes cut through walls, floors, or roofs in buildings, also as required about any working, lifting, or staging areas.
- L. No smoking on school site.
- M. Contractor is required to provide generators and all other sources of power, water, etc.
- N. All emergency egress from the facility must be kept clear at all times.

#### 1.02 SCAFFOLDING, LADDERS and RUNWAYS

- A. The Contractor shall provide all necessary scaffolding, ladders and runways as required by current legislation/codes (national, state, city) and maintain them properly for the safe use of his employees and protection of tenants/public.

#### 1.03 PROTECTION OF WORK AND BUILDING

- A. The Contractor shall be responsible for the protection of the building interior and its contents from moisture, debris, and/or fume/odor penetration during all phases/operations of the Work.
- B. Contractor shall also be responsible for the protection of Owner's merchandise, furnishings and equipment by covering all items that may be affected during the Work with suitable protection such as but not limited to plastic tarp or other protection as specified in other sections of the contract documents.
- C. Provide protection of merchandise, equipment and personnel during operations creating dust/debris from roof tear-off and new roof installation, etc.

### PART 2 - SCOPE AND CONTROL OF THE WORK

#### 2.01 VERIFICATION OF EXISTING CONDITIONS

- A. Before submitting their Bid, the Contractor will visit the project site and verify conditions, locations and dimensions of all existing equipment, structures and site conditions that pertain to this installation.

- B. The Details shown and the information provided are not represented or guaranteed by Owner or Consultant as being accurate as to the actual "as built" and present conditions. Bidding Contractor will verify all conditions at the site and perform all Work to complete the project under this Contract, regardless of the variations that may be found, without additional cost.
- C. Bidders visiting the site for estimating purposes while site is occupied will abide by Owner's rules and regulations. Any and all job site conditions will be determined by Owner and/or its Consultant.
- D. Failure to examine the project buildings and the sites and to become familiar with the existing conditions will not constitute cause for complaint or claim for extra payment or change order. Contractor agrees to accept project sites as they exist.

## 2.02 MEETINGS

- A. Pre-Construction Conference:
  - 1. Prior to installation of the roofing system, representatives of the following entities will meet at each project site:
    - a. Owner
    - b. Consultant
    - c. Roofing Contractor
    - d. All Subcontractors
    - e. Material Manufacturer
    - f. Representatives of other entities directly concerned with installation or performance of the roofing system.
  - 2. Attendees will review all pertinent Details and Specification, noting any potential problems and making any changes, deletions or additions as deemed necessary. Included in the discussion will be the following:
    - a. Nature and availability of roofing materials, guarantee and submittal requirements
    - b. Scheduling
    - c. Forecast weather conditions
    - d. Regulatory requirements
    - e. Protection of building, building components and completed roofing system
    - f. Proposed installation procedures and any additional items related to the total roofing system.
  - 3. Attendees will tour roofing areas and discuss existing construction and general condition including roof slope, flashing details, drain locations and material compatibility.
  - 4. Discussions will be documented by the Consultant, including agreement or disagreement on matters of significance.

5. If the meeting ends with substantial disagreements, it will be determined how disagreements will be resolved and a date will be set for a reconvened meeting at the Owner's direction.
  6. A copy of the recorded discussion will be furnished to all attendees.
- B. Final Inspection:
1. Upon notification by the contractor that the work is complete, the Consultant will conduct a final inspection to review all Work to have been completed under the Contract Documents.
  2. Contractor shall accompany Consultant on the final inspection and shall have workers and materials available to complete any remedial work items identified during the inspection, weather permitting.
  3. If remaining remedial work items cannot be completed at the time of the final inspection the Contractor will address and complete all remaining work items within five (5) working days
  4. Upon final completion of all work items contractor shall forward written notification to the Consultant that the project is finally complete and ready for close-out.

## 2.03 DRAWINGS AND SPECIFICATIONS

- A. The Contractor will keep a complete and up to date copy of the project record documents at the job site, including, but not limited to; drawings and specifications, addenda, submittals, change orders, shop drawings, etc. The Consultant/Observer will have access to the site copy of documents at all times.
- B. The Drawings, Specification and other Contract Documents are intended to be complementary and cooperative and to describe and provide for a complete project. Anything contained in the Specifications but not shown on the Drawings, or shown on the Drawings and not enumerated in the Specifications, will be construed to be as though shown or referenced in both documents.
- C. Upon discovering any error or omission in the Drawings or Specifications, the contractor shall immediately bring the item to the attention of the Consultant.
- D. The division of the Drawings into separate depictions, views, sections or sheets and the division of the Specifications into paragraphs, divisions and sections are for the ease of reference only and does not imply a division of the work between trades or subcontractors or priority of work.

- E. Titles or names given to, or accompanying, the various divisions, sections and paragraphs of the specifications are provided for the reader's convenience and/or ease of reference only and are not intended to limit or restrict by inference the content of the accompanying division, section, or paragraph.
- F. No prime Contractor, whose Bid is accepted, will substitute any person as a subcontractor in place of the subcontractor listed in the original Bid other than for cause, and when justified without the prior written authorization from the consultant and/or the Owner.
- G. Where a specialty Contractor's license is required by local code or regulation, or is specifically required by the specifications in order to meet a particular performance or technical requirement that is part of the Work, the work may be undertaken by the Contractor using their own forces if the contractor holds the proper license(s) or certifications required. Otherwise, Contractor shall retain a properly licensed or certified subcontractor to perform that portion of the Work.

## 2.04 CONTRACTOR'S PERFORMANCE OF WORK

- A. The Contractor will perform all Work necessary to complete the Contract in a manner that is consistent with the highest standards of the trade or industry.
- B. Unless otherwise stipulated in the specifications or contract agreement with the Owner, the Contractor shall directly furnish or provide all materials, equipment, tools, labor and incidentals necessary to complete the Work.
- C. Workmanship
  - 1. All Work under the Contract will be performed in accordance with the highest standards prevailing in each trade or as otherwise specified within the Contract Documents. When more than one standard or performance criteria is given for a particular work item, the more stringent standard or criteria shall apply.
  - 2. Unless otherwise specified, it is the intent of these specifications that completion of the Work shall result in a complete facility ready for the Owner's intended use.
  - 3. If inclement weather is anticipated during the Work period the Contractor shall take all precautions necessary to insure that all materials, previously installed roofing, building components not intended to be exposed to the weather, building interiors, furnishings, products/materials and equipment are protected from water intrusion, moisture damage or contamination.

4. Costs related to property damage caused by moisture contamination related to the contractor's roofing operations will be the sole financial responsibility of the Contractor.
5. The Contractor will be currently approved and/or licensed by the manufacturer of the roofing materials to be used.
6. The Contractor will use only skilled tradesmen completely familiar with the products and the manufacturer's current recommended methods of installation.
7. Except as modified and supplemented herein, Contractor will follow the published requirements and written recommendations of the manufacturer of the roofing system and other materials manufacturers related to the Work.
8. Where no other guidance or specification is given regarding the performance of the roofing work to be completed, the standards and methods promulgated by the latest edition of the National Roofing Contractor Association's *Roofing and Waterproofing Manual* shall provide the minimum requirements for the roofing work and the latest edition of the Sheet Metal and Air Conditioning Contractor National Association *Architectural Sheet Metal Manual* shall provide the minimum requirements for the roof related sheet metal work performed. All roofing and sheet metal work shall be performed in accordance with Factory Mutual Global (FMG) 1-60 wind uplift requirements and the applicable requirements stipulated for 1-60 wind uplift in FMG *Loss Prevention Data Sheets* 1-28 (roof deck), 1-29 (above roof deck components) and 1-49 (flashing and trim).
9. If, in the opinion of the Contractor, any Work is indicated on drawings or specified in such a manner that cannot be reproduced on the roof being worked on, or should discrepancies or conflicts arise from one drawing to another, between sections of the specifications, or between the Drawings and the Specifications regarding a particular work item, the Contractor will notify the Consultant and/or the Owner before proceeding that portion of the work.
10. The Contractor will furnish and maintain in good condition, all equipment and facilities as required for the proper execution and inspection of the Work. Such equipment and facilities will meet all requirements of the applicable ordinances and laws.

C. Contractor's Authorized Representative

1. Before starting the Work, the Contractor will designate, in writing, a representative who will have complete authority to act for the firm. An alternate representative may be designated as well.
2. The representative or alternate will be present at the Work site whenever the Work is in progress or whenever weather conditions necessitate their presence in order to protect the Work, persons, public or private property at the site related to the roof.

3. Any order or communication given to this representative will be deemed delivered to the Contractor.
- D. Contractor's Responsibilities Related to Existing Facilities and Operations
1. Unless otherwise noted in these documents the Owner's existing facilities and/or operations not specifically related to the Work shall be off-limits to all contractor personnel during the course of the project.
  2. The work site will be available to Contractor upon receipt of a written notice to proceed, unless otherwise indicated in this Specification. Care, custody and control of the site Work area, equipment area and material storage area are vested in the Contractor during the term of operations under the Contract.
  3. Means of ingress or egress to the Owner's buildings and operations will not be blocked for any reason nor will the normal operation of the buildings be hampered in any way unless authorization is obtained in advance from the Owner.
  4. Fire protection and immediate access for fire fighting equipment must be maintained at all times.
  5. It is Owner's intention that the existing buildings and normal operations will be maintained in the usual manner in accordance with the normal schedule. The Contractor executing this Contract Work must schedule his/her Work so as to cause the least amount of interfere with the Owner's normal activities at the site. The Contractor will also closely coordinate roofing activities with the Owner when working over interior spaces having critical occupancy requirements.
  6. Work that might interfere with the use of the facilities by Owner will be accomplished at a time approved beforehand by Owner.
  7. Use of Owner's utilities or site resources of any kind will be at the discretion of Owner. At no time will utilities or site resources be wasted.
  8. Water needed for the execution of this Contract will be furnished by Owner from available sources located near the building(s).
  9. Maintaining proper material temperatures shall not require use of the Owner's facilities or storage spaces and shall be the sole responsibility of the the Contractor.
  10. The utility services for the buildings will not be interrupted in any way by the Contractor unless agreed upon by Owner.
  11. Disturbing the building's occupants or the Owner's employees during the course of the work, or work causing disruptive noise that interferes with the normal building occupancy, will not be permitted. Operations creating disruption or noise of this type must be coordinated with, and scheduled in advance with, the Owner through the Consultant.
  12. Radios or other musical devices will not be allowed on any project.

- E. Contractor's Liability and Responsibility
  - 1. Owner and the Consultant connected with the Work shall not be liable for:
    - a. Any losses of, or damages to, the Work or a part thereof
    - b. Any losses of, or damages to, any of the materials or other items used or employed in the performing of the Work
    - c. Injury to or death of any person either workman or the public
    - d. Damage to property from any cause which might have been prevented by the Contractor, or his/her workman or other workmen, or anyone employed by him/her or any subcontractor.
  - 2. The Owner and Consultant shall neither have control over, charge of, nor shall be responsible for, the means, methods, techniques, sequences or procedures used in the performance of the work, or for safety programs in connection with the Work.

## 2.05 PERMITS AND LICENSES

- A. The Contractor will secure and pay for all permits relating to their Work, including governmental fees and licenses necessary for the proper execution and completion of the Work, which are applicable at the time the Bids are received.
  - 1. All required and approved sign-off permits shall be submitted to Owner as part of the conditions for final payment.
- B. The Bidder to whom award is made must possess a Roofing Contractor's license valid in the state the Work is being performed, as is applicable for the locality of the project.
- C. The Work shall be performed in accordance with all governing codes, ordinances, laws, regulations, safety orders and directives pertaining to construction work of this type, including specific local, county or state regulations or requirements. This includes handling and disposal of any hazardous or potentially hazardous materials encountered during the normal course of construction work of this type.
- D. Cooperation and Collateral Work
  - 1. The Contractor will absorb in his/her Bid all costs involved in his/her part as a result of coordinating his/her Work with others. The Contractor will not be entitled to additional compensation from Owner for damages resulting from such simultaneous, collateral and essential Work. If necessary to avoid or minimize such damage, or delay, the Contractor will redeploy his/her Work force to other parts of the Work.



2. Should the Contractor be delayed by Owner and such delay could not reasonably have been foreseen and prevented by the Contractor, the Consultant will determine the extent of the delay, the effect of the delay on the project as a whole and any commensurate extension of time.
3. The Contractor submitting the Bid to Owner has the responsibility for coordinating the Work of subcontractors and for scheduling all Work so a watertight condition is maintained and all Work required by the Contract Documents is completed as scheduled.
4. The Contractor must coordinate Work of various trades employed by his/her firm so stated completion date is met.

## 2.06 PROTECTION AND RESTORATION OF EXISTING BUILDING AND SITE

- A. Prior to start of Work, Contractor will perform a thorough inspection of each building's interior and exterior noting all existing damage, including past or current moisture related damage.
  1. Documentation of this inspection will be submitted to Owner's representative, through the Consultant, prior to beginning Work.
  2. The Contractor will be responsible for correction of any subsequent, undocumented moisture damages
- B. Contractor will check all perimeter drains (where they exist) prior to start of Work in each roof area to determine if the drain assembly/drain line is plugged or if the drain body or any of its components are damaged or missing.
  1. Any of these items are to be brought to the attention of Owner, through the Consultant, prior to starting Work and will be Owner's responsibility for correction.
  2. Any previously undocumented plugged or damaged drains brought to the attention of Owner after Work has started will be the responsibility of the Contractor to correct.
- C. The Contractor will be responsible for the protection of public and private property adjacent to the Work and will exercise due caution to avoid damage to such property.
- D. The Contractor will repair or replace all existing building and landscaping components which are damaged or removed as a result of his/her operations and were not previously designated for removal (e.g. curbs, sidewalks, driveways, fences, walls, sign, utility installations, pavements, structures, etc.).
  1. The corrective work to damages, or the replacement of severely damaged items, will be performed so that the quality and condition of the repaired or replaced item is equal to the original item's condition and matches the original finish and dimensions of the repaired item.

- E. Contractor will provide all necessary equipment, storage, etc. to temporarily remove any existing landscape material during the roofing project.
  - 1. Trees, lawns and shrubbery that are damaged or removed because of the Contractor's operation, will be restored or replaced in as nearly the original condition and location as is reasonably possible.
- G. The Contractor will notify the Consultant if any seriously deteriorated hidden structural member is uncovered, prior to placement of new roofing materials. Replacement of any deficient structural member, not specifically designated for replacement, will be at the decision and expense of Owner.
- H. Existing materials designated to remain, which are damaged or defaced as a result of the Work and are unsuitable for the use intended, will be replaced at the Contractor's expense to the satisfaction of Owner.
- I. Where necessary to remove or alter existing construction, all construction affected will be properly patched and filled out to match existing, or new Work.
- J. Patch defective or incomplete surfaces caused or exposed by Work at the project using approved procedures and materials.
- K. Contractor will remove markings from finished surfaces. In areas where finished surfaces are soiled by any source, caused by Work of this section, consult manufacturer of surfaces for cleaning advice and conform to instructions.
- L. Contractor is to keep the Work area and premises clean and free from accumulations of waste materials and rubbish at all times. Remove all debris, scrap and rubbish from the Work area daily.
- M. Surplus materials and all equipment will be promptly removed from the site upon completion of the Work. In case of undue delay or dispute, Owner may remove rubbish, materials and equipment and charge cost to Contractor, with such action permissible by Owner forty-eight (48) hours after a written notice has been transmitted to Contractor.
- N. Prior to final acceptance, Contractor will restore all areas affected by Owner Work to Owner original state of cleanliness and repair all damage done to the premises, including the grounds, by his/her workmen and equipment.

- O. The Contractor will not discharge smoke, dust, or any other air contaminant into the atmosphere in such quantity as will violate the regulations of any legally constituted authority.
- P. The Contractor will provide and maintain enclosed toilets for the use of employees engaged in the Work.
  - 1. These accommodations will be maintained in a neat and sanitary condition and placed in an area selected by the Owner. All sanitary facilities will comply with all applicable laws, ordinances and regulations pertaining to public health and sanitation of dwellings and camps.
- Q. The Contractor will at his/her own expense, furnish, install, maintain and remove all temporary light, power, and water, including piping, wiring, lamps and other equipment, necessary for the Work.
  - 1. The Contractor will not draw water from any fire hydrant, except to extinguish a fire, without first obtaining permission from the water agency concerned.

## 2.07 SAFETY AND HEALTH PROCEDURES

- A. Public Safety
  - 1. Safety Orders
    - a. The Contractor will have at the Work site, copies or suitable extracts of: Construction Safety Orders and general Industrial Safety Orders issued by the federal, state or municipality. Contractor will comply with the provisions of these and all other applicable laws, ordinances and regulations.
    - b. Payment for performing all Work necessary to provide safety measures will be included in the prices Bid for other items of Work.
  - 2. Special Hazardous Substances and Processes
    - a. Materials that contain hazardous substances or mixtures may be required on the Work. A Material Safety Data Sheet (MSDS) as described in the federal, state and municipal codes will be requested by the Contractor from the manufacturer of any hazardous material used and provided to Consultant per submittals.
    - b. Material usage will be accomplished with strict adherence to federal, state municipal including and/or project requirements and all manufacturer's warnings and application instructions listed on the Material Safety Data Sheet and on the product container label.
    - c. The Contractor will notify the Consultant if a specified product cannot be used under safe conditions.

3. The Contractor will restrict public access by installing opaque fencing, such as a green screen, around the setup or staging areas.
- B. General
1. These Construction Documents are to be governed, at all times, by applicable provisions of the State and Federal Law(s) including but not limited to the latest amendments of the following:
    - a. William-Steiger Occupational Safety and Health Act of 1970, Public Law 91-596.
    - b. Part 1910-Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations.
    - c. Part 1518-Safety and Health Regulations for Constructions, Chapter XIII of Title 29, Code of Federal Regulations.
    - d. OSHA.
  2. This program will become a part of the Contract Documents and the Contract between Owner's Representative and Contractor and the Contractor and all Subcontractors, as though fully written herein.
  3. For the purposes of this Contract, neither Owner's Representative nor their Consultant and Consultants' Observers are to be considered experts in safety. All construction safety issues are the sole responsibility of the Contractor.
- C. Safety Provisions
1. Precaution will be exercised at all times for the protection of persons, including employees and property. The safety provisions of applicable laws and building and construction codes will be guarded or implemented in accordance with the safety provisions of the federal, state, municipal published requirements.
  2. All equipment used in construction or to be installed will meet the requirements of all applicable codes, particularly the regulations of the state of jurisdiction, Division of Industrial Safety and the Occupational Safety and Health Act of 1970. Equipment will have all required protection devices such as belt and shaft guards, heat protection, insulation, clearances warnings, etc. For equipment, which is to be installed, such devices will be indicated on shop drawings and reviewed by the Consultant.
- D. Necessary controls will be provided to prevent pollution of the air by odors or particulate matter. The location and operation of heating equipment will be such that no hazard is created and objectionable odors do not enter the building.

- E. Reasonable precautions must be exercised to prevent vandalism and to safeguard the public at the existing buildings. Equipment will not be left unprotected and materials will be carefully stacked. The set-up or staging area must be controlled at all times so that no unauthorized person can access the Contractor's equipment or materials, day or night.

## PART 3 - CHANGES IN WORK

### 3.01 CHANGES REQUESTED BY THE CONTRACTOR

- A. Refer to Section 012003 Changes to Work which supersedes any conflicts between Part 3 of this Section.
- B. Any potential change in the contract shall be submitted using a *Request for Change Order* and submitted to the Owner and Consultant. Requests for changes submitted in the *Request for Change Order* shall cover all costs and charges including costs for material, labor, fabrication, delivery and hauling, handling, installation or application, supervision, taxes, employer's contributions, insurance, bonds, rentals, utility costs, overhead and profit.
  - 1. Changes in specified methods of construction may be made at the Contractor's request when the *Request for Change Order* is approved in writing by the Consultant as a *Field Order Directive*.
  - 2. Changes in the Drawings and Specifications, requested in a *Request for Change Order* by the Contractor, which do not materially affect the Work, schedule or contract and which are not detrimental to the Work or interest of Owner, may be granted in writing through a *Field Order Directive* by the Consultant to facilitate the Work.
- B. Requests for changes deemed by the Owner as affecting the contract, contract amount or the schedule will require a written *Change Order* to be issued by the Owner to the Contractor and be executed by both prior to the commencement of any changes in the Work.

### 3.02 CHANGES REQUESTED BY THE OWNER

- A. Owner requests for changes to the Work will be issued through a *Request for Change Order Proposal* issued to the Contractor through the Consultant.
- B. The Contractor shall provide the costs to perform the changes to the Work covering all costs and charges including costs for material, labor, fabrication, delivery and hauling, handling, installation or application, supervision, taxes, employer's contributions, insurance, bonds, rentals, utility costs, overhead and profit.

- C. Upon receipt of an acceptable proposal from the Contractor to perform the changes in the Work requested by the Owner, the Owner shall issue a written *Change Order* to be executed by both the Owner and Contractor prior to the commencement of any changes in the Work.

#### PART 4 - INSURANCE

##### 4.01 CONTRACTOR'S INSURANCE COVERAGES

- A. Contractor shall maintain insurance coverages as required in section 00 01 13 Instruction to Bidders.
- B. Certificates of insurance shall be provided by each party showing their respective coverages prior to commencement of the Work.

#### END OF SECTION 00 73 00/ SUPPLEMENTAL CONDITIONS

**SECTION 01 06 00**  
**REGULATORY REQUIREMENTS**

**PART 1 – GENERAL**

**1.01 SCOPE**

- A. The Work shall be performed in accordance with all governing codes, ordinances, laws, regulations, safety orders and directives pertaining to construction work of this type, including specific local, county or state regulations or requirements of the governing bodies having jurisdiction. This includes handling and disposal of any hazardous or potentially hazardous materials encountered during the normal course of construction work of this type.

**1.02 REGULATORY REQUIREMENTS**

- A. Occupational Safety and Health (OSHA) regulations for construction, workplace safety, and other codes, rules and ordinances governing Work are as fully a part of this Specification as if herein repeated.
- B. All products shall comply with State V.O.C. (Volatile Organic Content) Legislation.
- C. Building Codes:
  - 1. All work to be conducted according to the applicable model building code(s) as amended and promulgated by the state and municipal authorities in the state and municipality in which the facility is located in accordance with authorities having jurisdiction (AHJ).
  - 2. All work to be conducted according regulatory agencies governing safety, hazardous materials, environmental protection, transportation, and insurance.
  - 3. This Project is under but not limited to the jurisdiction of the
    - a. MICHIGAN DEPARTMENT OF LABOR FOR MECHANICAL AND ELECTRICAL
    - b. STATE OF MICHIGAN FIRE MARSHAL DIVISION
    - c. MICHIGAN DEPARTMENT OF PUBLIC AND (COUNTY) PARTMENT OF PUBLIC HEALTH

**1.03 ASBESTOS**

- A. As necessary comply with provisions of local, state and national regulatory requirements for the identification, removal and disposal of Asbestos Containing Building Materials (ACBM) and Asbestos Containing Roofing Materials (ACRM) including but not limited to:
  - 1. Environmental Protection Agency (EPA):
    - a. EPA National Emission Standard for Hazardous Air Pollutants (NESHAP) 40 CFR, Part 61, Subpart M.
    - b. Where removal of existing roofing is required, compliance with EPA "Guidance for Controlling Asbestos-Containing Materials (ACM) in Buildings" (EPA 560/5-85-024) is mandatory.
  - 2. Occupational Safety and Health Administration (OSHA)
    - a. OSHA Standard for Occupational Exposure to Asbestos in construction work, 29CFR1926.1101.
  - 3. Department of Transportation (DOT).
    - a. Hazardous Material Rules.
- B. Refer to Appendix 1 for any applicable ACM test results.

1.04 ROOF SYSTEM: FIRE AND WIND

- A. Refer to roofing section(s) under Division 7 Thermal and Moisture Protection and Cover Page – CP Drawing for fire and wind performance requirements.
- B. Underwriters Laboratories, Inc. (UL.):
  - 1. Fire Classification Rating: UL 790 Standard;
- C. Factory Mutual Global (FMG):
  - 1. FM Standard 4470: Class 1 Roof Covers

1.05 EXISTING CONDITIONS AND DEMOLITION

- A. Refer to Section 02 41 19 Selective Demolition.
- B. Conform to applicable Codes for demolition of roofing, safety of adjacent structures, dust control and disposal.
- C. Conform to applicable regulatory procedures when hazardous or contaminated materials are present.

1.06 INSURANCE

- A. Owner insurance requirements applicable to the site, facility and work during the course of the project shall be strictly adhered to by Contractor.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

**END OF SECTION 01 06 00/ REGULATORY REQUIREMENTS**



## SECTION 01 14 19

### RESTRICTIONS AND USE OF SITE

#### PART 1 – GENERAL

##### 1.01 TROY SCHOOL DISTRICT

- A. All schools and facilities will be in full operation during restoration work and partial operation during roof replacement work. Contractor shall not disrupt or obstruct any operations without prior scheduling and written consent by TSD.
- B. Other than interior protection work, contractor shall access roof from the exterior of the building only. Projects where interior roof access will be beneficial to be determined on an individual project basis during Pre-Bid conference.
- C. Owner will designate building and access points and dumpster placement at for restoration work. No driving on sidewalks.
- D. Contractor responsible for not damaging existing roof areas and will deploy and necessary to protect roofs including, as necessary, during the performance of work that crosses other roof areas are required to be protected from all traffic and roof top staging areas w/ min. 3/4 in. plywood over 1 in. EPS insulation. Contractor responsible to repair all damaged roofing and repair leaks in traffic areas.
- E. Contractor responsible for security and safety of all Contractor equipment, materials and dumpsters while working at the site.
- F. Contractor to wear readily identifiable apparel identifying the Contractor's company.

##### 1.02 CONTRACTOR FACILITY RULES

- A. Motor vehicles will be permitted at the designated areas to load or unload materials, equipment, tools, trash, etc. All motor vehicles while on Owner's and adjacent property shall be driven slowly with extreme caution obeying all posted traffic signs.
- B. Contractor has the responsibility to protect all his personal property, materials, equipment, etc. from theft.
- C. Contractors shall not leave materials, tools, etc. lying in an unsafe manner while working on the Owner's property. Do not store tools or materials
- D. No gambling, drugs or alcoholic beverages will be permitted on the site at any time. No individual under the influence of drugs or alcohol will be permitted on site.
- E. Contact Owner or Consultant prior to placing or using any rigging, hoists, cranes, temporary stairs, and towers, etc.
- F. No smoking on school site.
- H. Contact Owner or Consultant prior to placing or using any rigging, hoists, cranes, temporary stairs, and towers, etc.
- I. Radios or other musical devices will not be allowed on any project.

1.03 UTILITIES

- A. Refer to Section 00 73 00 Supplemental Conditions for Owner supplied utilities.
- B. The utility services for the facility will not be interrupted in any way by the Contractor unless agreed upon in writing and coordinated with the Owner.

1.04 STRUCTURAL

- A. Live loads on the roof during the Work shall not exceed the designed live load at anytime. If there is any question or concern about the structural integrity of the roof deck or other component related to the Work the contractor shall immediately stop work and have a structural engineer evaluate the conditions prior to proceeding. Notify both the Owner and Consultant immediately of the condition.
- B. The Contractor will notify the Consultant if any seriously deteriorated hidden structural member is uncovered, prior to placement of new roofing materials. Replacement of any deficient structural member, not specifically designated for replacement, will be at the decision and expense of Owner.

1.05 BARRICADES

- A. Provide barricades and warning signs at all operations of the Work which are deemed hazardous by the Consultant to the movement of both Contractor's/Owner's personnel and pedestrians/passersby.
- B. Provide barricades and warning signs at outside excavations or at holes cut through walls, floors, or roofs in buildings, also as required about any working, lifting, or staging areas.

1.06 EGRESS/ INGRESS

- A. Do not in any way block, hinder, or obstruct fire escape and/or other emergency egress routes of the structures (interior and exterior). Comply with regulations and requirements of local fire prevention codes.
- B. Means of ingress or egress to the Owner's buildings and operations will not be blocked for any reason nor will the normal operation of the buildings be hampered in any way unless authorization is obtained in advance from the Owner in writing.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

**END OF SECTION 01 14 19/ RESTRICTIONS AND USE OF SITE**

## SECTION 012003 CHANGES TO WORK

### PART 1 - GENERAL

- 1.01 Submitting Change Orders: Requests for change orders shall be submitted using the Project Website at [www.wtcg.net](http://www.wtcg.net) and selecting *List of Projects (Construction Phase)*, selecting the appropriate TSD School or facility and then select the *Change Order* tab to fill out the form.
- 1.02 Change Order Requests shall conform to the pricing for the region. Owner shall have the option to verify and negotiate any Change Order Request submissions during the performance of work.
- 1.03 CHANGES REQUESTED BY THE CONTRACTOR
- A. Any potential change in the contract shall be submitted using the Project Website tab *Change Orders* at [www.wtcg.net](http://www.wtcg.net) and filling out the online form *Request for Change Order* and submitted to the Owner and Consultant. Requests for changes submitted in the *Request for Change Order* shall cover all costs and charges including costs for material, labor, fabrication, delivery and hauling, handling, installation or application, supervision, taxes, employer's contributions, insurance, bonds, rentals, utility costs, overhead and profit.
1. Changes in specified methods of construction may be made at the Contractor's request when the *Request for Change Order* do not materially affect the Work, schedule, contract amount or contract and which are not detrimental to the Work or interest of Owner, may be granted in writing through a *Field Order Directive* by the Consultant to facilitate the Work.
  2. Changes in the Drawings and Specifications, requested in a *Request for Change Order* by the Contractor, which do not materially affect the Work, schedule, contract amount or contract and which are not detrimental to the Work or interest of Owner, may be granted in writing through a *Field Order Directive* by the Consultant to facilitate the Work.
- B. Requests for changes deemed by the Owner as affecting the contract, contract amount or the schedule will require a written *Change Order* to be issued by the Owner to the Contractor and be executed by both prior to the commencement of any changes in the Work.
- 1.04 CHANGES REQUESTED BY THE OWNER
- A. Owner requests for changes to the Work will be issued through a Request for Change Order Proposal issued to the Contractor through the

Consultant.

- B. The Contractor shall provide the costs to perform the changes to the Work covering all costs and charges including costs for material, labor, fabrication, delivery and hauling, handling, installation or application, supervision, taxes, employer's contributions, insurance, bonds, rentals, utility costs, overhead and profit.
- C. Upon receipt of an acceptable proposal from the Contractor to perform the changes in the Work requested by the Owner, the Owner shall issue a written Change Order to be executed by both the Owner and Contractor prior to the commencement of any changes in the Work.

#### 1.05 COMPENSATION OF OVERHEAD & PROFIT FOR CHANGES IN THE WORK

- A. CONTRACTOR'S OVERHEAD AND PROFIT
  - 1. For changes resulting in increase of cost:
    - a. Overhead and profit for the Contractor shall not exceed the following when change Work is performed by:
      - 1) Contractor itself: fifteen percent (15%).
      - 2) Contractor subcontractor party: five percent (5%).
    - b. Overhead and profit for the subcontractor shall not exceed the following when change Work is performed by
      - 1) Subcontractors: fifteen percent (15%)
      - 2) Subcontractor to the secondary subcontractor: five percent (5%)
  - 2. For changes resulting in reduction of cost
    - a. Deductive costs shall include commensurate deductive credits for overhead and profit based on the percentages stated above.
  - 3. Contractor's and Subordinate Party's overhead and profit shall include cost (at the Project Site, home office and otherwise) of supervision, telephone, travel, copying, administrative services, office, power, light, tools, jobsite vehicles, and all other general expenses including bond premiums. In no event shall these items be charged as cost of the Changed Work.

#### 1.06 ITEMIZATION OF COST OF CHANGED WORK

- A. Change Order Documents
  - 1. If extra work is to be completed above and beyond the terms of the contract, as determined by (and approved in advance by) the Owner and Consultant, the Contractor.
    - a. Contractor to retain a copy of the executed Change Order.
- B. Preparing Request for Proposal for Change Orders

1. The submitted Proposal for Request for Proposal for a Change Order shall be approved by Consultant and shall mean the costs necessarily incurred by the Contractor in the proper performance of the Changed Order. Such rates shall not be higher than those customarily paid at the place of the Project. The Cost of the Changed Work shall only include those items set forth below.
  - a. Wages of Labor: Wages of construction workers directly employed by Contractor to perform the construction of the changed Work at the site
  - b. Payroll Markup: The amount approved by Consultant and Owner which covers the costs paid by the Contractor for taxes, insurance, contributions, assessments, and benefits required by law or collective bargaining agreements and for personnel not covered by such agreements, customary benefits such as sick leave, medical and health benefits, holidays vacations and pensions, provided that such costs are based on the wages and salaries of labor performing the changed Work.
  - c. Cost of Equipment, Materials, and Supplies: Costs of materials, equipment and supplies to be incorporated into the changed Work less all savings, discounts, rebates and credits accruing to the Contractor.
  - d. Rental Charges for Equipment Not Owned by Contractor: Rental charges for equipment not owned by Contractor that is necessary for completion of the Changed Work. Rates and quantities rented must be approved in advance by Owner and Consultant.
  - e. Taxes: Sales or use taxes imposed by a governmental authority which are directly attributable to the changed Work and for which the Contractor is liable.
  - f. Subcontractor Costs: Payments made to the Contractors for proper execution of Changed Work, subject to the limits set forth above for overhead and profit.
2. In no event shall the cost for the Request for Change Order include:
  - a. Salaries or wages of persons other than those directly performing the changed Work, including Contractor's personnel stationed at the principal office;
  - b. Expenses of the Contractor's principal office and offices other than the site office, except as provided above;
  - c. Overhead and general expenses of any nature, except as set forth above;
  - d. Capital expenses of Contractor, including interest on the Contractor's capital employed for the Changed Work;
  - e. Rental costs for machinery or equipment, except as allowed above, or tools of any kind, unless specifically identified and approved in advance in writing by Owner and Consultant;

- f. Costs due to the negligence or failure to perform of the Contractor or its Subcontractors Parties;
- g. Costs designated above as being included in Overhead and Profit;
- h. Any cost not specifically described above, or otherwise approved in advance and in writing by Consultant and Owner;
- i. Any bond premiums of portion of increased bond costs directly attributable to the changed Work.

#### 1.07 REQUEST FOR CHANGE ORDER PROPOSAL

Based on the above, the following formula will be utilized by all of the Contractors.

Number of RCO \_\_\_\_\_  
 Date of RCO \_\_\_\_\_  
 Description of Change \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

#### Cost of Changed Work

##### Labor:

Labor A (No. of Hrs. x Rate)	xxx.xx
Labor B (No. of Hrs. x Rate)	xxx.xx
Labor C (No. of Hrs. x Rate)	<u>xxx.xx</u>

Subtotal	xxx.xx
OH&P @ 15%	xxx.xx

##### Equipment, Materials, Supplies:

Equipment A	xxx.xx
Materials A	xxx.xx
Supplier A	<u>xxx.xx</u>

Subtotal	xxx.xx
OH&P @ 15 %	xxx.xx

**Subtotal (1) xxx.xx**

##### Subcontractor Costs

ABC Plumbing	xxx.xx
XYZ HVAC	<u>xxx.xx</u>

Subtotal	xxx.xx
OH&P @ 5 %	xxx.xx

**Subtotal (2) xxx.xx**

TOTAL QUOTATION AMOUNT

**Total Quotation (Subtotal 1 plus Subtotal 2) xxx.xx**

**END OF SECTION 012003/CHANGES TO WORK**

**SECTION 01 21 00**

**ALLOWANCES**

**PART 1 - GENERAL**

- 1.01 The Contractor shall include in the Contract Sum all allowances (i.e. "Unit Price Work") stated in the Contract Documents.
- 1.02 **Allowances are listed under Schedule on each individual Roof Plan for each project.**
- 1.03 Items covered by allowances shall be supplied and installed on a unit price basis, as required to meet the Contract Document.
- 1.04 Unless otherwise provided in the Contract Documents:
- A. Allowances shall cover the cost to the Contractor of labor, materials and equipment delivered at the site and all required taxes, less applicable trade discounts, freight charges, applicable taxes, cost for unloading and handling at the Site and all costs of installation. ;
  - B. Overhead and profit is not included in the allowance. However, the Contractor expressly acknowledges and agrees that overhead and profit with regard to the allowance item is included in the Contract Price.
  - C. Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order.
    - 1. The amount of the Change Order shall reflect:
      - a. The difference between actual amount of the allowance item used versus the amount of that item included in the base bid or base contract amount, whichever is applicable. The allowance adjustment will cause the Contract price to be changed to reflect the new amount.

**PART 2 – PRODUCTS:**

**NOT USED**

**PART 3 – EXECUTION:**

- 3.01 Contractor shall supply schedule of values for each allowance item.
- 3.02 Allowances are to be tracked, documented and submitted to the Owner and Consultant by the Contractor.
- 1. If the Owner employs Quality Control Inspectors it does relieve the Contractor from providing exact documentation of Allowances used during the Work.
  - 2. The Contractor shall document all Allowances with photographs; retained materials demoed executing the Allowances, and, marking locations on the Roof Plan.
  - 3. Any materials retained to show execution of Allowances shall be disposed of by the Contractor in a licensed disposal site and not used for any construction project.
- 3.03 Upon project completion a Change Order Request will be submitted online at [www.wtcg.net](http://www.wtcg.net) for the difference in Contractors allowance cost and the actual allowance used for the project.

**END OF SECTION 01 21 00/ALLOWANCES**



## SECTION 01 23 00

### ALTERNATES

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

A. Work Included:

1. Materials and methods to be used in the base bid and the alternate have been described on the drawings and in pertinent sections of these specifications.
2. Method for stating the proposed alternate as described in the bid form.

**B. Alternates are listed on each Roof Plan Schedule.**

##### 1.02 BID SUBMISSION

- A. Alternate bids shall be submitted according to the Bid Documents and the Alternate bid shall include all terms and requirements of the Bid Documents.
1. Acceptance of an Alternate by Owner does not relieve the Contractor from complying with the Bid Documents.
- B. Submit all Alternates listed on the Bid Form located at [www.wtcg.net](http://www.wtcg.net).
- C. Those Alternates described in the Schedule on the Roof Plan for each project or have individual Plan Sheet detailing the Alternate drawings are to be reflected on the bid form as submitted by bidders. Do not submit alternates other than as described in the Schedule.
- D. Alternates shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- E. Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the alternate bid;
- F. Alternate bids are to be submitted as either an "ADD" or "DEDUCT" to/from the "Base Bid" amount submitted on the Bid Form.

##### 1.03 PRODUCT HANDLING

- A. If the owner elects to proceed on the basis of one or more of the described alternatives, make all modifications to the work required in furnishing and installing the selected alternate or alternates to the approval of the consultant and at no additional cost to the owner other than as proposed on the bid form.

#### PART 2 - PRODUCTS

##### 2.01 ALTERNATE

- A. In lieu of the base bid, furnish and install an alternate per the drawings and other pertinent sections of the specifications.
- B. When an alternate is offered all other project requirements are to remain essentially the same.
- C. Approved alternates are enumerated on the drawings. No other alternatives will be considered.

PART 3 - EXECUTION

3.01 ADVANCE COORDINATION

- A. Immediately after award of the contract, or as soon thereafter as the owner has made a decision on which, if any, alternates will be selected, thoroughly and clearly advise all necessary personnel and suppliers as to the nature and extent of alternatives selected by the owner. Alert those personnel and suppliers involved as to all changes in the work caused by the Owner's selection or rejection of alternates

**END OF SECTION 01 23 00/ALTERNATES**

**WeatherTech Consulting Group, Inc.**

**43670 Utica Road**

**Sterling Heights, MI 48314**

**Phone 586-731-3095 Fax 586-731-6863**

**SUBSTITUTION  
REQUEST**

Project: \_\_\_\_\_ Substitution Request Number: \_\_\_\_\_  
From: \_\_\_\_\_  
To: \_\_\_\_\_ Date: \_\_\_\_\_  
A/E Project Number: \_\_\_\_\_  
RE: \_\_\_\_\_ Contract For: \_\_\_\_\_

Specification Title: \_\_\_\_\_  
Section: \_\_\_\_\_ Page: \_\_\_\_\_ Article/Paragraph: \_\_\_\_\_

Proposed Substitution: \_\_\_\_\_  
Manufacturer \_\_\_\_\_ Address: \_\_\_\_\_ Phone #: \_\_\_\_\_  
Trade Name: \_\_\_\_\_ Model #: \_\_\_\_\_  
Installer: \_\_\_\_\_ Address: \_\_\_\_\_ Phone #: \_\_\_\_\_  
History: ☐ New product ☐ 2-5 years old ☐ 5-10 years old ☐ More than 10 years old  
Differences between proposed substitution and specified product: \_\_\_\_\_

☐ Point –by-point comparative data attached – REQUIRED BY Consultant

Reason for not providing specified item: \_\_\_\_\_

Similar Installation:

Project: \_\_\_\_\_ Architect: \_\_\_\_\_  
Address: \_\_\_\_\_ Owner: \_\_\_\_\_  
Date Installed: \_\_\_\_\_

Proposed substitution affects other parts of Work: ☐ No ☐ Yes; explain \_\_\_\_\_

Savings to Owner for accepting substitution: \_\_\_\_\_ (\$ \_\_\_\_\_ )

Proposed substitution changes Contract Time: ☐ No ☐ Yes; Add/Deduct \_\_\_\_\_ days.

Supporting Data Attached:

☐ Product Data ☐ Drawings ☐ Tests ☐ Reports ☐ Samples ☐ \_\_\_\_\_

---

Undersigned certifies:

- ◆ Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- ◆ Same warranty will be furnished for proposed substitution as for specified product.
- ◆ Same maintenance service and source of replacement parts, as applicable is available.
- ◆ Proposed substitution will not affect or delay Progress Schedule.
- ◆ Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- ◆ Proposed substitution does not affect dimensions and functional clearances.
- ◆ Payment will be made for changes to building design, including architectural or engineering design, detailing, and construction costs caused by the requested substitution.
- ◆ Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

---

Submitted by: \_\_\_\_\_

Signature: \_\_\_\_\_

Firm: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

Attachments: \_\_\_\_\_

---

WEATHERTECH'S REVIEW AND ACTION

- ☐ Substitution approved – Make submittals in accordance with Specification Section 01300.
- ☐ Substitution approved as noted – Make submittals in accordance with Specification Section 01300.
- ☐ Substitution rejected – Use specified materials.
- ☐ Substitution Request received too late – Use specified materials.

Signed by: \_\_\_\_\_

Date: \_\_\_\_\_

---

Additional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:	Contractor	Subcontractor	Supplier	Manufacturer	A/E	

## **SECTION 012001 PAYMENT PROCEDURES**

### **PART 1 - GENERAL**

#### **1.01 SUMMARY**

- A. This Section describes the following requirements including:
  - 1. Schedule of Values
  - 2. Application for Payment Process
  - 3. Reduction of Retention
  - 4. Payment for Materials Stored Off-site
  - 5. Waivers of Lien and Sworn Statements

#### **1.02 PAYMENT PROCEDURES**

- A. Schedule of Values
  - 1. Once the Agreement is awarded, each Contractor must submit a Schedule of Values for its entire Work to Consultant for approval. This Schedule of Values must be submitted either within fifteen (15) days of award or fifteen (15) days prior to the first payment application deadline (per the Application for Payment Schedule), whichever comes first. The Schedule of Values must include labor and material line items for each portion of the Work, the Contractor shall separate bond costs, and general conditions line items as appropriate.
  - 2. The Schedule of Values will be submitted in a format as prescribed by, and to the level of detail specified by, Consultant.
    - a. The sum of the parts of the Schedule of Values shall equal the contract price.
    - b. The minimum level of breakdown and order on the application for payment will be:
      - 1) Bond costs, if applicable;
      - 2) General conditions line item(s);
      - 3) Major portions of the Work shall be broken down into labor and material line items for specific areas of the facility;
      - 4) A listing of approved and executed Change Orders to the Contract, if any, in sequential order.
    - c. Schedule of Values items shall have a direct and understandable relation to the Project construction schedule.
  - 3. The Schedule of Values, unless objected to by Consultant, Owner or Architect, shall be the basis for the Contractor's application for payments.
  - 4. Consultant shall have the right to require the Contractor to alter the value or add/delete categories listed on the Schedule of Values at any time for the following reasons:

- a. The Schedule of Values appears to be incorrect or unbalanced.
  - b. A revision of the Schedule of Values is required due to the Contractor revising the sequence of construction or assembly of building components that in turn invalidates the Schedule of Values.
  - c. Change Orders are issued to the Contractor and shall be incorporated into the Schedule of Values as a separate line item at the bottom of the Schedule of Values.
5. The Contractor is required to correlate the documentation for payment of stored materials requested in the application for payment against the agreed upon breakdown of the Schedule of Values as described in Payment for Stored Materials. Consultant reserves the right to not process the application for payment if this correlation has not been submitted in conjunction with the application.

B. Application for Payment Process

1. Step 1: JOB-SITE INSPECTION - DRAFT PAYMENT REQUEST

- a. The Contractor shall:
  - 1) Have a representative walk the Project site with Consultant's representative on or before the date agreed to by Owner and Contractor of the month;
  - 2) invoice for Work from the date agreed to of last month to the same date of the present month;
  - 3) submit during the review, the itemized rough draft of the Application and Certificate for Payment (AIA Documents G702 and G703 Continuation Sheet) identifying the Work completed, if any, during the current calendar month; shall review same with Consultant and obtain a preliminary approved copy of the draft for official submission;
  - 4) Contractor's pay application shall only reflect Work completed through the date of submission. In no event will payments be authorized for forecasted Work.

NOTE: No payment shall be issued to a Contractor for materials stored off-site unless supported by proper documentation as required by Consultant (upon advance notification of such requests only) as described in 1.03 Payment for Stored Materials Off-Site.

2. Step 2: PAYMENT REQUEST PREPARATION/SUBMISSION

- a. With the information agreed upon in Step 1, the Contractor will prepare a formal application for payment request;
- b. Three (3) originals of the request and three (3) originals of the sworn statements must be submitted to Consultant's office on

or before the date of the month agreed to by Owner and Contractor of the month.

- c. **Late or incomplete application packets will not be accepted.**
- d. The payment request will be made on an Application and Certificate for Payment form (AIA documents G702 and G703).
- e. Before submitting these documents to Consultant, each request for payment must be signed by a duly authorized agent of the Contractor and notarized.
- f. The Contractor must include with each request for progress payment a waiver of lien for all previous payments, Contractor's sworn statement and any necessary backup data as described in 1.04 Waivers of Lien and Sworn Statements.
- g. In addition, at submission of the final pay application Contractor shall provide unconditional final waivers of lien for all Subordinate Parties, as well as all close out documentation and all additional back up data described in 1.04 Waivers of Lien and Sworn Statements.
- h. In requests for payment which follow the execution of a Change Order in excess of twenty-five percent (25%) of the Agreement price, Contractor must present a bond rider evidencing that the penal sum of any required payment and performance bonds have been increased to one hundred percent (100%) of the adjusted Agreement price, or such other percentage as set forth in Section 00200 of the Project Manual, Instructions to Bidders. Submission of the required back-up data is a condition precedent to payment.

3. Check Distribution

- a. Owner will issue individual checks to each Contractor. The Contractor will receive the waiver of lien with the check and will be required to sign three (3) originals of the waiver upon receipt of the check each month (see 1.04).
- b. The Contractor shall provide all supporting documentation substantiating the Contractor's right to payment as the Owner, and Consultant may require.

C. Reduction of Retention

- 1. Owner shall be entitled to withhold ten (10%) percent of each payment due to a Contractor until Substantial Completion of the Contractor's Work.
- 2. The Contractor, when requesting a reduction of retention, shall submit to Consultant, an AIA G707, Consent of Surety to Reduction In or Partial Release of Retention form.
- 3. Within thirty (30) days after Certificate of Substantial Completion has been issued for all portions of its Work, the Contractor's retention may be reduced to a sum as Owner/the Consultant may determine is

suitable to protect Owner and Consultant for all incomplete Work and any unsettled claims.

4. Notwithstanding the foregoing, payment of retention shall be subject to all other conditions precedent that applies to payment as set forth in the Contract Documents.

### 1.03 PAYMENT FOR MATERIALS STORED OFF-SITE

- A. The Contractor, if intending to use an off-site storage area or facility for stored materials, shall submit a written request to the Consultant and obtain approval prior to submitting the first application for payment as described in 1.02 Applications for Payment.
- B. Payments will be made for materials properly stored off site.
  1. "Properly stored" shall mean in an insured warehouse with the Owner and Consultant being named as insureds, and all material identified as property of the Owner.
  2. The Contractor is responsible for all associated off site storage costs, transportation, insurance, including insurance coverage for stored material, while in transit, unless Contractor obtains written documentation that the material is covered during transit under a Builder's Risk Policy applicable to the Project.
  3. Contractor shall provide Consultant and the Owner verification in writing for all material so stored. Such materials shall be protected from diversion, destruction, theft, and damage to the satisfaction of Consultant, Owner and the Lender (if any), specifically marked for use on the Project, and segregated from other materials at the storage facility.
  4. The Contractor bears all risk of loss to materials and equipment stored off site.
- C. Contractor is to provide supporting documentation in the form of invoices, insurance policies, and any other pertinent documentation as requested by Consultant or Owner for items the items stored offsite. Documentation shall include the following:
  1. Detailed description of the material including quantities that will serve as a material description for the billing and as information to file a claim with an insurance company.
    - a. Stored Materials - Each item must be identified as to manufacturer, model number, and serial number, if applicable, or other identifiers should be listed for each item. Each listing must be accompanied by invoices, shipping tickets, consent of surety, and any other applicable supporting documentation.
    - b. Stored Manufactured Building Materials - Each item must be identified as to type, manufacturer's number or designation, and should also list the number of cartons and the contents therein storage. Each listing must also be accompanied by



- supporting documents including all invoices, shipping tickets and consent of surety.
- c. Stored Fabricated Materials - A listing specifying the number of pieces, items, and marks as may be applicable to the particular type of items. Photographs should accompany the request.
  2. Individual itemized costs of materials and the total cost value, which shall not exceed the Contractor's subcontractor or material supplier cost. The total cost value shall be supported by the Contractor's subcontractor or material supplier invoices for the stored material.
  3. Estimated cost value for those materials that are fabricated by the Contractor's subcontractor or material supplier.
  4. The location where the material is physically stored, including the warehouse address and storage location within the warehouse, such as bin number, aisle number or other designation. All material shall be segregated and marked.
  5. Copies of the insurance policies that cover the stored materials and that name Consultant and the Owner as insureds. The limit of the insurance policy shall be equal to or greater than the replacement value of the stored materials.
- D. When Applications for Payment include products stored off the Project Site or stored on the Project Site but not incorporated in the Project, for which no previous payment has been requested, a complete description of such product shall be attached to the application.
- E. Contractor shall submit a certificate of title listing the Owner's ownership in the off-site stored materials equal to the amount paid effective at the time funds are delivered.
- F. If the size, quantity, and/or type of material or product is such that a bonded warehouse is deemed unsuitable, then, with Owner's and Consultant's approval, the Contractor may elect to prepay its subcontractor or supplier for certain material and products which are to remain on and be stored on that subcontractor/supplier's premises until needed by the Project. In such event, the Contractor shall enter into a security agreement with the subcontractor/supplier under which the Contractor shall be granted a security interest in and to all such material and products fabricated and/or to be supplied by the subcontractor/supplier for this Project and stored on the subcontractor/supplier's premises. This Security Agreement shall be a part of the financing statement, which shall be presented to a filing officer for filing pursuant to the Uniform Commercial Code. All expenses incurred in obtaining this security agreement shall be at Contractor's sole cost and expenses, and shall not accrue to the Owner, Consultant, Architect, nor the Project. A copy of each and every security agreement shall be filed with Consultant with the first Application for Payment which requests payment for such material or products.

- G. All payment requests for off-site stored materials must be accompanied using the "Payment Request for Stored Materials" and a "Subcontractor Affidavit for Stored Materials." Payment requests for stored materials not complying with the foregoing requirements will not be approved. Contractors are to notify the Consultant in ample time to conduct verification procedures.
- H. Contractors may not apply the cost of materials stored off-site towards a reduction in the retention amount.
- I. Representatives of Consultant and Owner shall have the right to make inspections of the storage areas at any time.

#### 1.04 WAIVERS OF LIEN AND SWORN STATEMENTS

- A. Waivers of Lien
  - 1. The Contractor's first Application for Payment will be based upon 100 percent of the value of Work installed. The first payment, amounting up to 80 percent of application, will be made to the Contractor without supporting documentation. Subsequent Applications for Payment must be accompanied by lien waivers from the Contractor, its Subordinate Parties or receipted invoices covering payment to the Contractor for previous calendar month period. Lien waivers must be unconditional and must show the amount paid.
  - 2. The Waiver of Lien is to be signed by an authorized representative of the Contractor. Under no circumstances will payment be released until the completed "Acknowledgment of Payment and Partial Unconditional Release" has been submitted and signed by the Contractor from the previous month.
  - 3. Final payment will not be made until a "Final Release of Lien" has been submitted. The Final Release must be signed by an authorized representative of the Contractor and must be notarized.
- B. Sworn Statements
  - 1. The appropriate number of original "Sworn Statements" must be completed to the satisfaction of Consultant, signed and notarized by an authorized representative of the Contractor and submitted with the Contractor's Application for Payment, monthly to the Consultant.
  - 2. The Contractor's Subcontractor's sworn statements, waivers and other supporting documentation will be required with each pay application.

#### **END OF SECTION 012001/PAYMENT PROCEDURES**

**SECTION 01 32 00**

**CONSTRUCTION SCHEDULE**

**PART 1 – GENERAL**

**1.01 GENERAL**

- A. This Section provides for the planning and execution of Work in order to assure completion of the Work within the number of calendar days provided in the Contract. The Construction Schedule is utilized by the Owner to evaluate the proposed schedule and progress of the Work. Contractor shall prepare and maintain schedules described in this Section.
- B. The construction schedule shall be submitted and approved by the Owner and Consultant. The schedule is subject to revision by the Owner or Consultant as necessary to accommodate other trades, construction projects and Owner operations.
- C. WeatherTech and Contractor will maintain online "Schedule" at [www.wtcg.net](http://www.wtcg.net) for primary tasks and milestone events for the project to communicate the schedule on a daily basis:
  - 1. Contractor is required to monitor, update and comply with the schedule.
  - 2. Contractor to inform Owner and Consultant of any delays or anticipated delays immediately.

**1.02 QUALITY CONTROL**

- A. Standard Reference: Data preparation, analysis, charting, and updating shall be approved by Owner or Consultant.
- B. Approved Schedule:
  - 1. The Construction Schedule as approved by the Owner or Consultant shall become part of the Contract, thereby establishing interim Contract completion dates for the phases of the Work.
  - 2. Should any portion of the Work not be completed within ten (10) working days after the date stated in the Construction Schedule, the Owner or Consultant shall have the right to order the Contractor to complete the portion of Work by whatever means the Owner or Consultant deems necessary and appropriate, without further compensation to the Contractor.
  - 3. Should any portion of the Work be ten (10) working days or more behind schedule, the Owner or Consultant shall have the right to perform the Work or have the Work performed by whatever method the Owner or Consultant deems appropriate.
  - 4. Costs incurred by the Owner for expediting work as described in this item shall be reimbursed by the Contractor or deducted from his contract.
  - 5. Should the Owner or Consultant waive the right to order the Contractor to expedite any portion of the Work, this shall not be construed as the Owner or Consultant waiving this right for any other portion of the Work.
- C. Changes to Schedule:
  - 1. If the Contractor desires to make a major change in his/her method of operation after commencing construction, or if the schedule fails to reflect the actual progress, the Contractor will submit to the Consultant a revised construction schedule in advance of beginning revised operations.
  - 2. If the proposed percent Work complete is less than the percent time elapsed, the Contractor will provide sufficient information and backup to show that the Work can be completed on time.

3. An updated construction schedule will be submitted prior to the next progress payment closure date whenever the actual percent of Work complete is less than the percent time elapsed.
4. When required by the Supplemental Conditions, a revised schedule will be submitted prior to each progress payment closure date. Processing of the progress payment will be delayed until such revised schedule complying with this section is received.
5. Revised and updated schedules will show actual completion to the date of the revision in the lower segmented bar for each item. All schedule information will be consistent with that reported on payment request forms, AIA G702/703.

#### 1.03 SUBMITTALS

- A. General: Comply with the provisions of Section 01 33 00-Submittals.
- B. Construction Schedule: The Schedule shall be presented in a Gantt Chart format and contractor shall submit one (1) reproducible copy and Microsoft Excel spreadsheet electronic version of the Construction Schedule and Material Status Report within five (5) days of award of the Contract. Material Status Report shall be prepared in accordance with the requirements of Part 2 of Section. Contract to provide the Schedule and Materials Status Report in an electronic format to Consultant.
- C. Periodic Reports: An updated Construction Schedule and Material Status Report shall be submitted on the first working day of each week.

#### 1.04 TIME OF COMPLETION

- A. General: The Contractor will complete the Work within the time set forth in the Contract. Unless otherwise specified, the time of completion of the Contract will be expressed in Working days.
- B. Working Day: A Workday is any day within the period between the start of the Contract time and the date provided in the Contract for completion, other than:
  1. Saturday, Sunday or any day designated as a National Holiday.
  2. Any day the Contractor is prevented by Owner from working.
  3. Weather delays due to wet conditions excluded.
- C. Contract Time Accounting: The Consultant will make a daily determination of each Working day to be charged against the Contract time.
- D. Starting of Contract Time: The Contract starting time will be the date the Notice to Proceed is issued.
- E. Non-Complying Work: Neither the final certificate of payment nor any provision in the Contract Document, nor partial or entire occupancy of the premises by Owner, will constitute approval of Work not done in accordance with the Contract Documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship.

### PART 2 - PRODUCTS

#### 2.01 CONSTRUCTION SCHEDULE

- A. The Construction Schedule shall graphically depict the order of all portions of the Work necessary to complete the project, along with the sequence in which each portion of the Work shall be performed. The Construction Schedule shall include, but is not limited to:

1. General Conditions
  - a. Submittals and approvals of Show Drawings and Samples;
  - b. Procurements of material and equipment
2. Project mobilization.
3. Interior Protection;
4. Membrane Installation: Demolition and installation of new materials to watertight condition daily;
5. Flashing installation;
6. Sheet metal installation
7. Final clean up;
8. Final inspection and testing.
9. All activities deemed necessary by the Owner or Consultant that affect progress, required dates for completion, or both, for all or each portion of the Work.

## 2.02 MATERIAL STATUS REPORT

- A. Format: Contractor's Standard Materials Status Report shall be acceptable if the Owner or Consultant determines the report provides sufficient data to determine that material procurement flow is acceptable for the Work.
- B. Contents: The following information, as a minimum, shall be provided.
  1. Description of item listed in accordance with Section number containing the item.
  2. Purchase order number and date of issue.
  3. Vender name.
  4. Date shipped and shipping mean utilized.
  5. Estimated date of arrival at the job site.
  6. Actual date of arrival at job site and receiving report number.

## PART 3 – EXECUTION

### 3.01 GENERAL

- A. Schedule and supervise work crews so that the area of roofing begun one day is completely finished before leaving the job site that day. The definition of daily-completed roofing will be as agreed to in the Pre-Construction Conference and all flashings within and adjoining the membrane.
- B. Schedule work to coincide with new roofing work. All existing roofing removed shall be replaced with new roofing in watertight condition each day. All decking or building components exposed by demolition shall be put in a watertight condition each day.
- C. Provide a schedule describing demolition removal procedures, staging and schedule.
- D. Provide the Owner with sufficient advance notice when planning to work outside of normal hours so that Owner's consultant, personnel, security forces, and other interested parties may be advised.

### 3.02 HOURS OF WORK

- A. Hours of Work will be stated in the Supplemental Conditions or as clarified during Pre-Bid Conferences. In general, hours of Work will coincide with store operations to the extent that no disruption of store operations or the surrounding neighborhood will be allowed.
- B. To permit proper coordination of access for Contractor Work, required inspections and store operations, the Contractor's regular Work schedule will be specific for start and end times of various job phases each day (removal, reroofing, crew change, hauling, etc.). Any

changes will be coordinated in advance with the Consultant, Troy School District Project Manager and Store Management.

### 3.02 SEQUENCE OF WORK

- A. Beginning of Work: The contractor will not mobilize for the job, deliver any materials or start any Work on the project site prior to receipt of a written Notice to Proceed.
  - 1. A Notice to Proceed will be issued only following receipt and approval of all Submittals as required in Section 01 33 00 Submittals.
  - 2. The issuance of Notice to Proceed will constitute the Contractor's authority to enter upon site of the Work and begin operations provided he/she has also notified the Consultant at least forty-eight (48) hours in advance.
- B. Starting Work:
  - 1. The Contractor may start Work at any time after the Notice to Proceed is issued or at such other time as may be indicated in the Special Project Conditions. The actual date on which the Contractor starts Work will not affect the required time for completion.
- C. Work Sequence:
  - 1. If required by the Supplemental Conditions, the Contractor will start construction operations on that part of the project designated by the Consultant.
- D. Resources Required:
  - 1. The Work will be conducted in such a manner and with sufficient materials, equipment and labor to ensure its completion in accordance with the Plans and Specification within the time set forth in the Contract.
- E. It is expressly understood and agreed that failure by Owner to exercise the option to either order the Contractor to expedite an activity or to expedite the activity by other means will not be considered precedent setting for any other activities.

### 3.03 DELAYS AND EXTENSION OF TIME

- A. General:
  - 1. If delays are caused by unforeseen events beyond the control of the Contractor, such delays will entitle the Contractor to an extension of time as provided herein, but the Contractor will not be entitled to damages or additional payment due to such delays. Such unforeseen events may include war, government regulations, labor disputes, strikes, fire, floods, adverse weather necessitating cessation of Work, other similar actions of the elements, inability to obtain materials, equipment or labor, required extra Work, or other specific events as may be further described in the Specification.
  - 2. No extensions of time will be granted for a delay caused by the Contractor's inability to obtain materials unless the Contractor furnishes to Owner documentary proof of the inability to obtain such materials in a timely manner in accordance with the sequence of the Contractor's operations and the approved construction schedule.
  - 3. If delays beyond the Contractor's control are caused by events other than those mentioned above, but substantially equal in gravity to those enumerated and an extension in time is deemed by the Consultant to be in the best interests of Owner, an extension of time may be granted, but the Contractor will not be entitled to damages or additional payment due to such delays.
  - 4. If delays beyond the Contractor's control are caused solely by action or inaction by Owner, such delays will entitle the Contractor to an extension of time as provided in the contract documents.
- B. Extension of Time

1. Extensions of time, when granted, will be based upon the effects of delays to the project as a whole and will not be granted for non-controlling delays to minor included portions of Work unless it can be shown that such delays did, in fact, delay the progress of the project as a whole.
- C. Written Notice and Report
1. If the Contractor desires an extension of time, he/she will provide Owner, through the Consultant, a written request and report as to the cause and extent of the delay. The request for extension must be made at least fifteen (15) days before the specified completion date. Failure by the Contractor to file these items within the time specified will be considered grounds for refusal by Owner to consider such request.
- D. Documentation of Delays
1. When the Contractor requests an extension of time for delay due to inability to obtain materials or equipment, his/her report will include the following:
    - a. Date Owner was notified of potential delay.
    - b. Date requested to start the delay.
    - c. Exact description of material or equipment causing delay.
    - d. Documentation showing when and from whom ordered.
    - e. Documentation of promise to deliver.
    - f. Documentation of actual delivery date.
    - g. Description of how late delivery will cause delay.
    - h. Documentation of measures taken to obtain prompt delivery.
    - i. Documentation of attempts to obtain delivery from other sources.
    - j. Description of steps taken in project scheduling to minimize effects of late delivery.
    - k. Description of steps to be taken to get project back on schedule after actual delivery.
    - l. Statement of actual time lost as a result of late delivery.

**END OF SECTION 01 32 00/ CONSTRUCTION SCHEDULE**

**SECTION 01 32 13**  
**WEBSITE & DOCUMENTS**

**PART 1 – GENERAL**

**1.01 SUMMARY**

- A. **Contract Documents:** Including, but not limited to; the Contract, Addenda (which pertains to the Contract Document), invitation to Bids, instruction to the Bidders; Bid (including documentation submitted prior to the Notice of Award), when attached as an exhibit to the Contract, the bonds, the General Conditions, permits from other agencies, the Supplemental Conditions, Drawings, General and Technical Specifications, and all Project Website information and documentation; and, all Contract Modifications (Change Orders, Unit Pricing) issued after the execution of the Contract.
- B. Contractor shall maintain one full copy of Contract Documents on the Job Site at all times during performance of any work.
  - 1. Failure of proper installation by the contractor, due to unavailability of Contract Specifications or Drawings on the roof, constitutes negligence.
  - 2. The Consultant/Observer will have access to the site copy of documents at all times.
- C. Contractor shall maintain a minimum of one worker who can read and interpret all contract documents on site at all times.
- D. Contractor shall maintain a minimum of one worker who can access and use the WeatherTech project website location dedicated to the Project at all times during the performance of the Contract.
- E. Contractor shall maintain an accurate record of all quantities, locations, progress and changes in the Contract Work as described in Part 3 of this Section.
- F. Contractor shall maintain all required Website documentation daily during performance of the Contract.
- G. Contractor shall transfer the recorded changes to a set of Project Contract Documents and Project Website location upon Work completion, as described in Part 3 of this Section.
- H. Contractor shall provide and maintain a color photographic record of all conditions of work specified for reroofing, repair, unit pricing and all probe openings.

**1.02 USE**

- A. The Drawings, Specification and other Contract Documents in Project Website are intended to be complementary and cooperative and to describe and provide for a complete project. Anything contained in the Specifications but not shown on the Drawings, or shown on the Drawings and not enumerated in the Specifications, will be construed to be as though shown or referenced in both documents and website. Anything contained on the website but not shown in the Specifications and Drawing will be construed to be as though shown on all three Contract Documents.
- B. The division of the Drawings into separate depictions, views, sections or sheets and the division of the Specifications into paragraphs, divisions and sections are for the ease of reference only and does not imply a division of the work between trades or subcontractors.



- C. The presentation of information and use of the Project Website are intended to be complementary to the written Drawing and Specifications and completion of the Work.
- D. Titles or names given to, or accompanying, the various divisions, sections, tabs and paragraphs of the specifications and website are provided for the reader's convenience and/or ease of reference only and are not intended to limit or restrict by inference the content of the accompanying division, section, or paragraph in writing or on the website.

#### 1.03 QUALITY CONTROL

- A. The roofing contractor's appointed Quality Controller shall be responsible for maintenance of Project Contract Documents and Website.
- B. Accuracy: All inspections and work within Project Contract Documents shall be entered on each Drawing and/or other documents including the Project Website required to properly show the Project Contract Documents may reasonably rely on information obtained from the approved project Contract Documents.
- C. Timing: All entries shall be recorded within twenty-four (24) hours of receipt of information, inclusive of recording of all locations, quantities, and other pertinent information. All entries on Project Contract Documents shall be initialed and dated. The Project Website tracks entries when Contractor personnel log on to the website.

#### 1.04 SUBMITTALS

- A. General: Owner or Consultant's approval of Project Contract Documents will be necessary prior to the Owner's approval of Payment Applications and final payment under the Contract.
- B. Progress Submittals: Each request for progress payment shall contain Owner or Consultant's approval of Project Contract Documents including Website documentation.
- C. Final Submittal: The final Project Contract Documents and Website content shall be submitted according to Section 01 77 00 prior to submittal of final payment request.

#### 1.05 PROJECT DOCUMENT HANDLING

- A. Project Contract Documents shall be maintained from deterioration and/or loss and damage until completion of the Work and transfer to Final Project Contract Documents. In the event of loss, Contractor shall use all necessary means to secure the data in the satisfaction of Owner or Consultant, inclusive of removal and replacement of materials. In such cases, replacement shall be in accordance with specific requirement.

#### 1.06 PROJECT WEBSITE

- A. Project Website at [www.wtcg.net](http://www.wtcg.net) shall be maintained to avoid damage from viruses and other forms electronic vandalism. In the event of loss, Contractor shall use all necessary means to secure the data in the satisfaction of Owner or Consultant, inclusive of removal and replacement of materials. In such cases, replacement shall be in accordance with specific requirement.

### PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

3.01 PROJECT DOCUMENTS AND WEBSITE

- A. Identification: Each set of Project Contract Documents shall be titled "Project Documents – Job Set."
- B. Maintenance
  - 1. Contractor shall provide Owner or Consultant with written method for protection of Project Contract Documents.
  - 2. Job Set Project Contract Documents shall not be used for any purpose other than recording new data and review by Owner or Consultant prior to transfer of data to Final Project Contract Documents.
  - 3. Job Set Project Documents and Project Website shall be maintained during the progress of the Work until transfer of data to Final Project Contract Documents.
  - 4. Project Website shall be updated every day with required information according to the Contract Documents.
- C. Entries on Drawings: All entries on Drawings shall be made by use of erasable colored pencil (ink or indelible pencil shall not be permitted). All entries shall clearly indicate location and quantities as required and shall be dated. In the event of overlapping changes, different colors may be used for each of the entries.
- D. Entries on Other Documents
  - 1. Clearly indicate all changes in the Work requested by Owner or Consultant.
  - 2. All changes in the Work caused by Contractor-originated proposal, approved by the Owner or Consultant (including Contractor errors approved by Owner or Consultant), shall be clearly indicated in erasable colored pencil.
  - 3. All entries as approved by Owner or Consultant shall be made in the pertinent Document or on the Project Website.
- E. Accuracy: Installed items shall be located by use of all means necessary, including the use of proper tools for measurements.

3.02 FINAL PROJECT CONTRACT DOCUMENTS

- A. The Final Project Documents shall be submitted according to Section 01 77 00.
- B. The Project Website shall have full and complete entries and ready for electronic database archiving.

**END OF SECTION 01 32 13/ WEBSITE & DOCUMENTS**

## SECTION 01 33 00

### SUBMITTALS

#### PART 1 – GENERAL

##### 1.01 SECTION INCLUDES

- A. Troy School District submittal requirements for contractor bid submission and qualification.
- B. Submittal procedures requirements using the Project Website [www.wtcgproject.net](http://www.wtcgproject.net).
- C. Submittal Schedule:
  - 1. Pre-Bid
  - 2. Bidding
  - 3. Preconstruction
  - 4. Job Start
  - 5. Daily Construction
  - 6. Construction
  - 7. Post Construction

##### 1.02 SUBMITTAL PROCEDURES

- A. The roofing contractor is responsible for processing, submitting and confirming approval of all specified submittals.
- B. **No work requiring a submittal shall be started without written approval by Owner or Consultant or specific waiver from Owner.**
- C. All submittals shall be electronically uploaded onto the Project Website by the Contractor at [www.wtcgproject.net](http://www.wtcgproject.net).
  - 1. NO PAPER OR PRODUCT SUBMITTALS WILL BE ACCEPTED UNLESS SPECIFICALLY REQUESTED IN THE CONTRACT DOCUMENTS.
  - 2. SAMPLES FOR ALL COLOR SELECTIONS ARE REQUIRED.
- D. Transmittal: Upload submittals in accordance with Project Website schedule and in such sequence to avoid delay in the work or work of other contracts or sections.
- E. Number of Submittals Required: USE ONLY WHEN HARD COPY INFORMATION IS REQUESTED.
  - 1. Shop Drawings: Upload one drawing for approval. Upload one CAD file and one drawings when approved.
  - 2. Product Data: Upload the number information required in each section of the Specifications.
  - 3. Samples: Submit the number required in each section of Specifications but in no instance less than three (3). Submit applicable Product Data with Samples.
- F. Submittals Schedule (Part 4 of this Section): List of submittals and time requirements for scheduled performance of related construction activities.
- G. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
  - a. Consultant reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- H. Processing Time: Allow enough time for submittal review, including time for re-submittals, as follows. Time for review shall commence on Consultant's receipt of submittal.
  1. Initial Review: Allow seven (7) days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Consultant will advise Contractor when submittal being processed must be delayed for coordination.
  2. Allowing procedure in subparagraph below may cause tracking problems for Consultant and Construction Manager, if any. Delete if not allowed. See Evaluations.
  3. If intermediate submittal is necessary, process it in same manner as initial submittal.
  4. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- I. Distribution: Furnish copies of final approved submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- J. Use for Construction: Use only final submittals with mark indicating action taken by Consultant in connection with construction.

#### 1.03 RESUBMITTALS

- A. Make resubmittals under procedures specified for initial submittals; identify changes made since previous submittal.
- B. Shop Drawings, Product Data:
  1. Revise initial drawing or data and resubmit as specified for the initial submittal.
  2. Clearly, indicate any changes which have been made.
  3. When approved "as noted", correct and resubmit as specified for the initial Shop Drawings and Product Data.
- C. Samples: (ONLY REQUIRED AS STATED IN 1.03 B. 2) Submit new samples as specified for the initial submittal.
- D. Processing Time: Allow seven (7) days for processing each re-submittal.

### PART 2 - PRODUCTS

#### 2.01 ACTION SUBMITTALS

- A. General: Prepare and upload Action Submittals required by individual Specification Sections.
  1. Upload submittal online, unless otherwise indicated. Consultant will post response online. Mark up and retain one returned copy as a Project Record Document.
  2. Upload each submittal, as follows, unless otherwise indicated:
  3. Hard Copy Submittals and Samples: (only where requested) all other submittals shall be uploaded to website.
    - a. Initial Submittal: Submit a preliminary single copy of each submittal where selection of options, color, pattern, texture, or similar characteristics is required. Consultant will return submittal with options selected.
    - b. Final Submittal: Submit three copies, unless copies are required for operation and maintenance manuals. Consultant will retain two copies; remainder will be

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

## 2.02 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit online Informational Submittals required by other Specification Sections.
  - 1. Upload each submittal, unless otherwise indicated. Consultant will not return copies.
  - 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

## PART 3 - EXECUTION

### 3.01 GENERAL:

- A. Submittals at all phases of the Contract shall be uploaded to the Project Website [www.wtcgproject.net](http://www.wtcgproject.net).
- B. All submittals will be evaluated and stamped electronically.
  - 1. Contractor will be notified electronically of approval status as "Approved, Approved as noted, Not subject to review, No action required, Revise / Resubmit, Rejected / Resubmit or Approved as noted / Resubmit".

### 3.02 CONTRACTOR'S REVIEW

- A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions.
  - 1. Submitting a submittal indicated the contractor has approved submittals with any noted corrections and qualifications.
- B. Approval Stamp: When uploading information not taken from the website. Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

### 3.03 CONSULTANT'S ACTION

- A. General: Consultant will not review uploaded submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Consultant will review each submittal, and note on Project Website approval status and may make marks to indicate corrections or modifications required, and return it.
- C. Informational Submittals: Consultant will review each submittal and will not return it, or will reject and note on Project Website approval and may return it if it does not comply with requirements.
  - 1. Consultant will forward each submittal to appropriate party.
- D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

PART 4 – SUBMITTAL SCHEDULE

4.01. PRE-BID SUBMITTALS

- A. **Request for Qualifications (RFQ):** Contractor information. **NOTE:** Four lowest bidders will be contacted to provide RFQ information.
1. Submit: Online form Website/ Bidder Home Page/ Submit/Edit Request for Qualification
  2. Requirements: Must be submitted by all new contractors not previously approved and all contractors receiving contracts for current year. *Section 00 01 13 Instructions to Bidders TSD version.*
  3. Type: Informational
  4. Approval: Owner
    - a. Review: Consultant
  5. Notification: Post Bid
  6. Location: Website/ Bidder Home Page/ Submit/Edit Request for Qualification.

4.02. BID SUBMITTALS

- A. **Refer to SECTION 00 01 13 Instructions to Bidders**

4.03 CONTRACT SUBMITTALS

- A. **Insurance Certificate:**
1. Submit: To TSD
  2. Type: Informational
  3. Requirements: Meets Insurance Requirements *Section 00 01 13 Instructions to Bidders.*
  4. Approval: Owner;
  5. Notification: Pre-Contract
  6. Location: Contractor provided from Insurance supplier;
  7. Location: Website/ Bidder Home Page/ Project Bid Portfolio/ Documents Tab/ Bid Documents
- B. **Subcontractors List:**
1. Submit: Online form under Project Construction Portfolio/ Submittals Tab
  2. Type: Action
  3. Approval: Owner
    - a. Review: Consultant
  4. Notification: Post Bid
  5. Location: Website/ Bidder Home Page/ Project Bid Portfolio/ Documents Tab/ Bid Documents/ *Section 00 43 36 Subcontractors List*

4.04 PRE-CONSTRUCTION SUBMITTALS

- A. **Roofing Manufacturers Certification Attachment A Section 075400**
1. Submit: Upload to WT/SW website
  2. Type: Informational
  3. Requirements: 20 year roof system performance. Signed off by membrane materials supplier.
  4. Approval: Consultant;
  5. Notification: Prior to Notice to Proceed
  6. Location: Website/ Bidder Home Page/ Project Bid Portfolio/ Documents Tab/ Bid Documents/ *Roofing Section from selected roof system*

**B. Schedules of Values:**

1. Submit: Online form under Bidder Home page/Project Construction Portfolio/ Submittals Tab
2. Type: Informational;
3. Requirement: Completion of online form;
3. Approval: Owner
  - a. Review: Consultant
4. Notification: Prior to Notice to Proceed.
5. Location: Website/ Bidder Home Page/ Project Construction Portfolio/Submittals tab

**C. Materials List:**

1. Submit: Online form under Bidder Home page/Project Construction Portfolio/ Submittals Tab
2. Type: Informational
3. Requirement: Meets requirements of applicable roofing section.
4. Approval: Owner
  - a. Review: Consultant
5. Notification: Prior to Notice to Proceed.
6. Location: Website/ Bidder Home Page/ Project Construction Portfolio/ Documents Tab/ Bid Documents/ *Roofing Section from selected roof system*

**D. Insulation Fastening Pattern:**

1. Submit: Upload under Bidder Home page/Project Construction Portfolio/ Submittals Tab
2. Type: Informational
3. Requirement: Roof Plan Perimeter, Corner and Field Attachment per Sections 07 22 50 and 07 53 00
4. Approval: Consultant
5. Notification: Prior to Notice to Proceed.
6. Location: Website/ Bidder Home Page/ Project Bid Portfolio/ Documents Tab/ Bid Documents/ *Roofing Section from selected roof system*

**E. Tapered Insulation Fastening Pattern:**

1. Submit: Upload under Bidder Home page/Project Construction Portfolio/ Submittals Tab
2. Type: Informational
3. Requirement: Roof Plan layout tapered insulation per Sections 07 22 00 and 07 22 50
4. Approval: Consultant
5. Notification: Prior to Notice to Proceed.
6. Location: Website/ Bidder Home Page/ Project Bid Portfolio/ Documents Tab/ Bid Documents/ *Section 07 22 00 or 07 22 50 Roof Insulation for BUR or Single-ply*

**F. Membrane Fastening Pattern:**

1. Submit: Upload under Bidder Home page/Project Construction Portfolio/ Submittals Tab
2. Type: Informational
3. Requirement: Roof Plan Perimeter, Corner and Field Attachment per roofing *Sections 07 53 00 Thermoplastic Single-ply Roofing.*
4. Approval: Consultant
5. Notification: Prior to Notice to Proceed.
6. Location: Website/ Bidder Home Page/ Project Bid Portfolio/ Documents Tab/ Bid Documents/ *Roofing Section from selected roof system*

**G. Building Permits:**

1. Submit: Upload under Bidder Home page/Project Construction Portfolio/ Submittals Tab
  2. Type: Informational
  3. Requirement: Statutory permits and mandatory authorizations. Post on site.
  4. Approval: Consultant
  5. Notification: Prior to Notice to Proceed.
- H. **Construction Schedule:**
1. Submit: Online form under Bidder Home page/Project Construction Portfolio/ Submittals Tab
  2. Type: Informational
  3. Requirement: Input all phases of time related activities on form as required by Section 01 32 00 Construction Schedule
  4. Approval: Owner
    - a. Review: Consultant
  5. Notification: Prior to Notice to Proceed.
  6. Location: Website/ Bidder Home Page/ Project Bid Portfolio/ Documents Tab/ Bid Documents/ *Section 01 32 00 Construction Schedule*
- I. **Safety Manual:**
1. Submit: Copy of contractor Safety Manual noted on record by Consultant and Owner at Pre-Construction Conference maintain on site. Upload electronic version of manual. Bidder Home page/Project Construction Portfolio/ Submittals Tab.
  2. Type: Informational
  3. Requirement: Section 01 35 00 Safety
  4. Notification: Prior to Notice to Proceed.
- J. **Material Safety Data Sheets:**
1. Submit: Copies of contractor MSDS documents noted on record by Consultant and Owner at Pre-Construction Conference maintain on site.
  2. Type: Informational
  3. Notification: Prior to Notice to Proceed.
- K. **Shop Drawings:**
1. Submit: Upload under Bidder Home page/Project Construction Portfolio/ Submittals Tab.
  2. Type: Informational
  3. Requirement: Required details from contractor as requested.
  4. Approval: Consultant
  5. Notification: Prior to Notice to Proceed.
  6. Location: Website/ Bidder Home Page/ Project Bid Portfolio/ Documents Tab/ Bid Documents/ *Roofing Section from selected roof system and Sheet Metal Section 07 62 00*
- L. **Color Samples: All materials with specified colors or matching existing colors must have samples submitted for approval by Consultant and Owner**
1. Submit: Number of required in each section of Specifications but in no instance less than three (3).
  2. Type: Action: Written approval by Owner
  3. Approval: Owner
    - a. Review: Consultant
  4. Notification: Prior to Notice to Proceed.
  5. Location: Website/ Bidder Home Page/ Project Bid Portfolio/ Documents Tab/ Bid Documents/ *Roofing Section from selected roof system and Sheet Metal Section 07 62 00*
- M. **Interior Protection Plan:**



1. Submit: Upload under Bidder Home page/Project Construction Portfolio/ Submittals Tab.
2. Type: Informational
3. Requirement: As detailed in Section 01 50 00 Temporary Protection, Facilities and Controls. Plan indicating how and where agreed upon protection will take place.
4. Approval: Owner.
  - a. Review: Consultant;
5. Notification: Prior to Notice to Proceed.

N. ***Logistics Plan:***

1. Submit: Upload under Bidder Home page/Project Construction Portfolio/ Submittals Tab.
2. Type: Informational
3. Requirement: As detailed in Section 01 50 00 Temporary Protection, Facilities and Controls. Plan indicating how and where agreed upon protection will take place.
4. Approval: Owner.
  - a. Review: Consultant;
5. Notification: Prior to Notice to Proceed.

4.05 JOB START SUBMITTALS:

A. ***Quality Control Check List No 1:***

1. Submit: Online form under Bidder Home page/Project Construction Portfolio/ Submittals Tab.
2. Type: Informational
3. Requirement: Section 01 33 26 Quality Control including confirmation of drainage.
4. Approval: Consultant
5. Notification: Prior to start of construction.
6. Location: Website/ Bidder Home Page/ Project Bid Portfolio/ Documents Tab/ Bid Documents/ *Section 01 33 26 Quality Control.*

B. ***Existing Conditions:***

1. Submit: Online form under Bidder Home page/Project Construction Portfolio/ Submittals Tab.
2. Type: Informational
3. Requirement: As detailed in Section 01 33 26 Quality Control. Contractor to document all pre-existing conditions and damage impacting Work.
4. Approval: Owner
  - a. Review: Consultant
5. Notification: Prior to start of Construction.
6. Location: Website/ Bidder Home Page/ Project Bid Portfolio/ Documents Tab/ Bid Documents/ *Section 01 33 26 Quality Control.*

4.06 DAILY CONSTRUCTION SUBMITTALS:

A. ***Roof Construction Diagram:***

1. Submit: Upload under Bidder Home page/Project Construction Portfolio/ Submittals Tab.
2. Type: Informational
3. Requirement: Upload roof plan with work completed daily.
4. Location: Website/ Bidder Home Page/ Project Bid Portfolio/ Documents Tab/ Bid Documents/ *Section 01 33 26 Quality Control.*

B. ***Roof Contractor Daily Report***

1. Submit: Online form under Bidder Home page/Project Construction Portfolio/ Submittals Tab.
2. Type: Informational

3. Requirement: Daily form of work completed.
4. Location: Website/ Bidder Home Page/ Project Bid Portfolio/ Documents Tab/ Bid Documents/ *Section 01 33 26 Quality Control.*

C. **Quality Control Checklist No 2:**

1. Submit: Online form under Bidder Home page/Project Construction Portfolio/ Submittals Tab.
2. Type: Informational
3. Requirement: Each event when samples of the roof membrane are taken during the
4. Notification: Prior to start of construction.
5. Location: Website/ Bidder Home Page/ Project Bid Portfolio/ Documents Tab/ Bid Documents/ *Section 01 33 26 Quality Control.*

4.07 UNIT PRICING

A. **Unit Pricing Report:**

1. Submit: Use online Change Order Request form and photo uploads under Bidder Home page/Project Construction Portfolio/ Submittals Tab.
2. Type: Informational
3. Requirement: As detailed in Section 01040 Changes to Work for unit work completed as detailed in Contract Documents.
4. Notification: Issuance of an approved Change Order
5. Location: Website/ Bidder Home Page/ Project Bid Portfolio/ Documents Tab/ Bid Documents/ *Section 01 14 16 Coordination.*

4.08 CHANGE ORDERS

A. **Change Order Request:**

1. Submit: Online form and photo uploads under Bidder Home page/Project Construction Portfolio/ Change Order.
2. Type: Action
3. Requirement: As detailed in Section 00 90 00 Modifications prior to completing any work outside the scope of the Contract Documents, beyond agreed to allowances for Unit Pricing items Contractor required to submit.
4. Approval: Owner
  - a. Review: Consultant
5. Notification: Prior to starting any additional work or unit work beyond allowances.
6. Location: Website/ Bidder Home Page/ Project Bid Portfolio/ Documents Tab/ Bid Documents/ *Section 00 90 00 Modifications.*

4.09 SUBSTANTIAL COMPLETION

A. **Certificate of Substantial Completion**

1. Submit: Use online Change Order Request form and photo uploads under Bidder Home page/Project Construction Portfolio/ Submittals Tab.
2. Type: Action; Consultant to schedule Punch List Inspection.
3. Requirement: As detailed in Section 01 77 00 Closeout. Complete all punch list correction items and contractor sign off.
4. Approval: Consultant
5. Notification: Prior to Punch List Inspection.
6. Location: Website/ Bidder Home Page/ Project Bid Portfolio/ Documents Tab/ Bid Documents/ *Section 01 77 00 Closeout.*

B. **Punch List:**

1. Submit: Upload form and photo uploads under Bidder Home page/Project Construction Portfolio/ Punch List.
2. Type: Action; Consultant to approve in writing.

3. Requirement: As detailed in Section 01 33 26 Quality Control. Complete all punch list correction items and contractor sign off.
4. Approval: Consultant
5. Notification: Prior to final Pay Application submittal and demobilizing from site.
6. Location: Website/ Bidder Home Page/ Project Bid Portfolio/ Documents Tab/ Bid Documents/ *Section 01 33 26 Quality Control.*

C. ***Flood Test***

1. Submit: Upload form under Bidder Home page/Project Construction Portfolio/ Submittals Tab.
2. Type: Action; Scheduled during Punch List Inspection.
3. Requirement: As detailed in Section 01 77 00 Closeout.
4. Approval: Consultant
5. Notification: Prior to Punch List Inspection.
6. Location: Website/ Bidder Home Page/ Project Bid Portfolio/ Documents Tab/ Bid Documents/ *Section 01 77 00 Closeout.*

D. ***Performance Agreement/Conformance Statement:***

1. Submit: Upload form under Bidder Home page/Project Construction Portfolio/ Submittals.
2. Type: Informational.
3. Requirement: As detailed in Section 01 33 26 Quality Control. Complete Performance/Conformance Statement and sign.
4. Approval: Owner
  - a. Review: Consultant
5. Notification: Prior for final payment.
6. Location: Website/ Bidder Home Page/ Project Bid Portfolio/ Documents Tab/ Bid Documents/ *Section 01 33 26 Quality Control.*

4.10 PAY APPLICATIONS

A. ***Pay Applications:***

1. Submit: To WT
2. Type: Action: Consultant to review and recommend to TSD.
3. Requirement: Complete AIA 702 and 703 Forms, *Section 01 29 00 Payment Procedures.*
4. Approval: WT
  - a. Review: Consultant
5. Notification: For payment of work.
6. Location: Download form under Bidder Home page/Project Construction Portfolio/ Submittals Tab/ *Section 01 29 00 Payment Procedures*

B. ***Lien Waiver Forms:***

1. Submit: To WT
2. Type: Informational
3. Requirement: Complete TSD Lien Waiver Forms, *Section 00 04 01 Lien Waiver Forms*
4. Approval: TSD/WT
5. Notification: For payment of work.
6. Location: Download form under Bidder Home page/Project Construction Portfolio/ Submittals Tab/ *00 04 01 Lien Waiver Forms.*

4.11 CLOSE OUT – Documentation to be submitted to TSD

A. ***Final Payment:***

1. Submit: To WT
2. Type: Action: Consultant to review and recommend to TSD.

3. Requirement: Compete AIA 702 and 703 Forms, *Section 01 29 00 Payment Procedures*
4. Approval: TSD/WT
  - a. Review: Consultant
5. Notification: For final payment of work and close of contract.
6. Location: Download form under Bidder Home page/Project Construction Portfolio/ Submittals Tab/ *Section 01 29 00 Payment Procedures*

**B. *Unconditional Lien Waiver Forms:***

1. Submit: To WT
2. Type: Informational
3. Requirement: Compete TSD Unconditional Lien Waiver Forms, *Section 00 04 01 Sworn Statement Form*
4. Approval: TSD/WT
5. Notification: For final payment of work and close of contract.
6. Location: Download form under Bidder Home page/Project Construction Portfolio/ Submittals Tab/ *Section 00 0401 Sworn Statement Form*

**C. *Consultant and Owner Signed Punch List***

1. Submit: To WT
2. Type: Informational
3. Requirement: Signed punch list acknowledging receipt and contractor has indicated all punch list items are complete.
4. Approval: WT/TSD
5. Notification: For final payment of work and close of contract.
6. Location: Download form under Bidder Home page/Project Construction Portfolio/ Submittals Tab/ *Section 01 33 26 Quality Control.*

**D. *Signed Off Building Permit***

1. Submit: To WT
2. Type: Informational
3. Requirement: Signed building permit from local building code authority.
4. Approval: TSD/WT
5. Notification: For final payment of work and close of contract.
6. Location: Local building department.

**E. *Roofing Manufacturer's Warranty***

1. Submit: To. WT
2. Type: Informational
3. Requirements: 20 year NDL materials and installation roof system warranty/guarantee. Signed off by membrane materials supplier.
4. Approval: WT/TSD;
5. Notification: For final payment of work and close of contract
6. Location: Previously executed Certification for Preconstruction Conference with original signature.

**END OF SECTION**

## **SECTION 01 33 26**

### **QUALITY CONTROL**

#### **PART 1 – GENERAL**

##### **1.01 GENERAL REQUIREMENTS**

- A. Contractor shall maintain on site quality control over products, services, site conditions, safety and workmanship to produce work of specified quality.
- B. Contractor shall arrange with Material Manufacturer(s) to provide qualified personnel to instruct the Contractor's Crew, Project Manager, Consultant(s), and any other parties designated by the Owner on the proper handling, installation, and maintenance of materials. Instruction shall be performed prior to beginning installation of roofing/waterproofing system or at immediate start of installation.

This item will be strictly enforced and is the responsibility of the Contractor.

- C. Contractor shall arrange with Material Manufacturer(s) to provide qualified personnel to observe field conditions and material installation when field work is in progress. The site visits by the Representative of the Materials Manufacturer shall be of sufficient length and/or frequency to assure that completed work qualifies for specific certifications. Manufacturer's representative shall submit written reports to the Owner or Consultant listing observations and recommendations.
- D. Contractor shall provide a complete set of Drawings, Shop Drawings, and Specifications at a designated location of the project at all time for the use of all parties.
- E. Owner reserves the right to retain the services of an independent representative to provide full-time or part-time monitoring of the work. Testing may be performed by the representative to determine any deficiencies in the work and/or confirm requirements of the Contract Documents.
- F. Cost of the Owner's Consultant will be borne by the Owner until the date stated in the Construction Contract for completion of work or as stipulated in the Contract documents. The cost of any monitoring/testing services required after this period of time due to Contractor-controlled non-performance shall be borne by the Contractor. Items such as weather, strike, material production delays, work of other trades, change in scope of work, etc. are not considered within control of the Contractor. Insufficient

crew size, inexperienced crew, delays in material ordering, application of materials/systems in violation of specified requirements, priority of other work, etc. are considered within the control of the Contractor.

- G. If full-time monitoring is selected, all of the work shall be performed in the presence of the Owners Consultant. Any work performed without said presence may be rendered unacceptable.
- H. Contractor shall be required to notify the Owner or Consultant a minimum twenty-four (24) hours prior to cancellation of any operations, weather conditions permitting.
- I. Work found to be in violation of the Contract Documents or Manufacturer's specifications, or not in conformance with acceptable work/performance standards, shall be subject to rejection including complete removal and replacement with new material at the Contractor's expense.
- J. If employed full-time the Owner's Consultant shall document installed quantities of those materials bid on a unit basis, as well as other materials. These quantities in consort with the Contractor's records will be used as a basis of payment.
- K. The Owner's Consultant, if independent, is not an agent of the Owner and, therefore cannot enter the Owner into any contractual arrangement with the Contractor.
- L. Maintain at least one (1) foreman/supervisor on the project site with full knowledge, expertise and authority to direct on site operations. An English speaking representative must be on site at all times.

#### 1.02. Submittals

- A. Submit Quality Control Checklist #1 as required in paragraph 1.03 of this section.
- B. Submit Quality Control Checklist #2 as required in paragraph 1.03 of this section.
- C. Submit roof plan with completed work each day as required in paragraph 1.03 of this Section.

#### 1.03. CONTRACTOR

- A. Roofing Contractor: Contractors are only those who have pre-qualified with Owner previously on the WeatherTech website.
- B. Roofing contractor shall designate a Quality Controller for the project to perform the following duties on behalf of the roof contracting firm:
  - 1. Use adequate number of skilled workmen who are thoroughly trained

and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section.

2. Attending pre-construction roofing conference.
3. Prior to starting any roofing work submit *Quality Control Inspection Check List # 1 Pre-Construction Activities*, Attachment A and submit to WeatherTech.
4. Daily: Submit to WeatherTech.
  - a. When requested remove a roof sample (as requested by WeatherTech), complete *Quality Inspection Check List # 2 Attachment B – Single-ply Roof Systems* and forward sample to WeatherTech Consulting offices.
  - b. Supply roof plan with work completed and roof sample location.
5. Each day, inspecting the work in progress and performing tests as necessary to provide assurance that the work for each day is done as required by the Contract.

C. Variances:

1. Should Owner, Owner's representative, WeatherTech personnel, contractor (General Contractor if applicable), building code official indicate variances in contractor's work:
  - a. Immediately stopping work practices that might damage the roof system or that oppose the intent of the Contract.
  - b. Solicit direction for correction of defects and violations of Contract requirements. Owner, WeatherTech and/ or building code official must accept in writing the arrangements and corrections before they are carried out.
  - c. Delay the application of any surfacing materials in the affected area of work.
  - d. Do not build upon or tie into work that varies from the specification. Any such work is subject to rejection.
  - e. Immediately notify the primary membrane manufacturer of the variance and request his opinion concerning the roof system's acceptability and any required corrective action.
  - f. Notify the Owner, WeatherTech and building code official (if building code variance) of the primary membrane manufacturer's recommendation.
  - g. If the recommended corrective action is approved in writing by the Owner, WeatherTech and/or building official in writing then the contractor can proceed with the primary membrane manufacturer's corrective action.
  - h. If the primary membrane manufacturer does not recommend a corrective action, act upon the written decision of the Owner and WeatherTech.
  - i. Install water cut-offs and tie-ins to insure watertight roof and flashing systems.
  - j. Non-conforming work is subject to Owner's rejection.

- k. Remove and replace rejected work.
- D. Work may be audited at any time. Provide the Owner, WeatherTech, building code official and contractor (General Contractor if applicable), safe entry to all work areas and all the records and information requested during the audit.
- E. Pre-Construction Roofing Conference
  - 1. Upon receipt of submittals indicated as approved pursuant to Section 01 33 00 Section Submittals and applicable roofing section the Quality Controller for the roofing contractor (or General Contractor's representative) is required to coordinate with the Owner and WeatherTech the attendance of
    - a. Roofing Contractor
    - b. Owner
    - c. WeatherTech Consulting Group, Inc.
    - d. Roofing Manufacturer
    - e. Others as designated
  - 2. Quality Controller for the roofing contractor (or General Contractor's representative) is required to coordinate with Owner and WeatherTech the scheduling of a Pre-construction Roofing Conference with the designated participants a minimum two weeks prior to start of work.
  - 3. The WeatherTech Representative conducting the conference will:
    - a. Review Contract requirements, procedures, and coordination to obtain an understanding of requirements and responsibilities.
    - b. Discuss procedures and Drawings to execute the work, logistics, scheduling, and equipment to be used, on-site material handling, assignments, and storage procedures.
    - c. Walk participants through areas where work is to be performed.
- F. Notification to Start Work: Quality Controller for the roofing contractor (or General Contractor's representative) is required to notify the Owner Representative and WeatherTech Consulting Group, Inc. two weeks in advance of work start date. Confirm in writing.
- G. Meetings: Schedule meetings as requested by the Owner or WeatherTech according to contract Documents. Coordinate the attendance of requested participants.
- H. Punch List Inspection: Once all work is completed, schedule punch list inspection with the WeatherTech representative to review the completed work and determine all corrective actions necessary to meet the intent of the Contract.
- I. Close-out Audit Inspection
  - 1. Once all punch list items have been completed by the contractor, coordinate the attendance of:
    - a. Roofing Contractor.



- b. The Owner.
  - c. WeatherTech Consulting Group, Inc.
  - d. Roofing Manufacturer.
  - e. Others as designated.
- J. Contract Close-out
  - 1. Contract closeout procedures shall be conducted in accordance with Section 01 78 00.

#### 1.04 OWNER, CONSULTANT AND SITE MANAGER

- A. Owner has the final authority in all matters affecting the Work. Within the Scope of the Contract, the Consultant has the authority to enforce compliance with Drawings and Specifications. The Contractor will promptly comply with all instructions from the Consultant or his/her authorized representative.
- B. On all questions relating to quantities, the acceptability of material, equipment, or Work, the execution, progress or sequence of Work and the interpretation of Specification or drawings, the decision of the Consultant is final and binding and will be precedent to any payment under the Contract, unless otherwise ordered by Owner.
- C. Decision in Writing

Any and all decisions of the Consultant interpreting Specification or drawings will be in writing. Any purported "interpretation", which is not in writing will not be binding upon Owner and should not be relied upon by the Contractor.

  - 1. Contractor is required to submit all questions or requests for interpretation on a *RFI Form* (Request for Information/ Interpretation). Consultant and/or Owner will supply the written response on submitted RFI Form within 48 hours unless the contractor is notified otherwise.
- D. The Work is subject to inspection and approval of the Consultant.
  - 1. The Contractor will notify the Consultant forty-eight (48) hours before any special inspection is required. Unless otherwise authorized, Work will be done only in the presence of the Consultant or his/her authorized representative. Any Work done without proper inspection will be subject to rejection.
  - 2. The Consultant and any authorized representative will at all times have access to the Work during its construction, as well as the project site.
  - 3. The Contractor will provide every reasonable facility for ascertaining that the materials and workmanship are in accordance with this Specification.
  - 4. Inspection of the Work will not relieve the Contractor of the obligation to fulfill all conditions of the Contract.

5. Acceptance of Work by material manufacturer representatives will be for warranty purposes only. Acceptance of the Work by the Consultant will constitute grounds for contractual payments.
- E. Permit Inspection
1. The Contractor will arrange for code compliance inspections by all agencies issuing permits for the Work. The Work will not continue beyond mandatory inspection points without clearance from controlling agencies. Each agency involved will be notified in accordance with the codes they enforce or in accordance with their standard operating procedures. No extensions of time will be granted for delays occasioned by such inspections except where, through no fault of the Contractor, the inspection is delayed more than one (1) day beyond normal response time after proper notification has been given.
  2. It will be the Contractor's responsibility to see that any required inspection record card is signed off before proceeding with the next phase of the Work and completely signed off on completion of the Work
- F. The Consultant has the following authority:
1. To interpret the Bid and Contract Documents.
  2. To make changes in the location of features of the Work where no change in cost is involved.
  3. To approve substitutes for material and equipment specified by proprietary names when such material and equipment meet the Contract Documents.
  4. To approve shop drawings and submittals.
  5. To issue stop Work orders when necessary to enforce the provisions of the Contract.
  6. To make determinations of each Working day to be charged against the Contract time.
  7. To receive all correspondence and other Documents from the Contractor.
  8. To approve progress and final payments under the Contract, including the provisions for withholding funds.

## 1.05 SUBSTITUTIONS

- A. Description
1. Whenever possible throughout the Contract Documents, the minimum acceptable quality workmanship and materials has been defined by manufacturer's name and catalog number, referenced to recognize industry and government standards, or description of required attributes and performance
  2. To ensure that the specified products are furnished and installed in accordance with design intent, procedures have been established for advance submittal design data and for their review by the Consultant.

3. Make all submittals required by the Contract Documents and revise and resubmit as necessary to establish compliance with the specified requirements.
- B. Substitutions:
- Substitutions will not be accepted for consideration unless the specified products are unavailable. These Contract Documents have been prepared on the basis that only certain materials and manufacturers will be permitted to furnish products for this project. The intent is not to limit competition but to ensure utilization of products used on previous projects of a similar nature and found acceptable.
- C. Products
1. In the event substitutions become necessary, the Contractor will submit a *Substitution Request Form* to the Consultant in triplicate form along with "cut-sheets" and other complete manufacturer's literature on both the original product specified and the proposed product substitute.
  2. All substitutions required to complete the project will be "equal to" the original products specified. The submittal data required above will clearly identify the physical and performance characteristics of both the original and proposed product for substitution.
  3. Both Owner's Representative and the Consultant will make the final decision of acceptability of the proposed product substitution.
  4. Any substitute products, which are used on this project without prior approval from the Consultant, will be cause for rejection of the Work. Any such Work incorporating non-approved substitutions will be removed and replaced with the original specified or other prior approved materials by the Contractor without additional costs to Owner.
- D. Manufacturer's Literature
1. Where contents of submitted literature from manufacturers includes data not pertinent to the submittal, clearly indicate which portion of the contents is being submitted for review.
  2. Complete submittal package including all pertinent manufacturer literature to coincide with the previously submitted Owner "Materials List & Description".

## PART 2 – PRODUCTS

Not Used.

## PART 3 – EXECUTION

### 3.01 FIELD QUALITY CONTROL

#### A. Auditing:

1. Work may be audited at any time by WeatherTech or Owner. Provide the auditors safe entry to work areas, and records and information requested.
  2. The presence of the auditors is for Owner's purposes. Information furnished or not furnished by the auditors does not relieve the Roofing Contractor of responsibility for the work.
- B. Contractor and WeatherTech shall perform any test deemed necessary to assure the roof system installation is acceptable.
1. Variances: Follow procedures in paragraph 1.02 of this Section.
- C. If more samples are necessary because the original samples fail to meet Contract requirements, the Contractor must pay the cost of additional sampling, repair, and testing.
- D. Acceptance of Completed Work
1. Acceptance of completed work will be based on its conformance to the Contract Document requirements. Non-conforming work is subject to rejection. Quantities and tolerances stated herein apply, unless specifically amended by the Roofing Manufacturer on "*Roofing Manufacturer's Certification*" (Attachment A of roof section) in the roofing section of these specifications and accepted by Owner.

### 3.02 CLEANING

- A. Progress Cleaning
1. All stored materials and equipment shall be maintained in an orderly manner allowing maximum access, not impeding drainage or traffic, and providing the required protection of materials.
  2. Accumulation of construction debris, scraps, and other items is not permitted and must be removed daily.
  3. Contractor shall provide adequate storage for all items awaiting removal from the job site in accordance fire protection and environmental requirements.
- B. Site
1. Contractor shall conduct daily inspection of work areas for the purpose of removal of construction debris, scraps, and other items. All such items shall be removed to the disposal or storage place designated daily.
  2. Contractor shall conduct weekly (more often if necessary) inspections of all stored materials for the purpose of compliance with the requirements of paragraph 1.07 of the applicable roofing section.
  3. The job site shall be maintained in a neat and orderly condition at all time during the construction period.
- C. Facade

1. Contractor shall inspect the work area of facade and completely clean all scraps, droppings, debris, and waste materials from metal sills, brick, glass, etc.
2. As required, the work areas shall be cleaned prior to installation of materials.

**D. Final Cleaning**

1. Final cleaning shall be conducted as outlined in Section 01 78 00 and noted below.
2. Execute cleaning prior to Close-out Audit.
3. Timing: Final cleaning shall be scheduled with Owner or WeatherTech.
4. Prior to completion of the Work, remove all tools, surplus materials, equipment, debris, and waste materials from job site.
5. Site: Unless otherwise specifically directed by the Owner or WeatherTech, all areas of the building affected by the Work shall be broom cleaned. All debris accumulated as the result of cleaning shall be removed from the site.
6. Clean all work areas. Clean interior exterior surfaces exposed to view; remove stains and foreign substances. Clean equipment as required.
7. Remove waste and surplus materials, rubbish, and construction facilities from the Site.
8. Clean all drains and drainage systems. Test all drains to insure unrestricted flow into drains and drainage systems.

**END OF SECTION 01 33 26/ QUALITY CONTROL**

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## Quality Inspection Check List #1 Pre-Construction Activities

PROJECT/STORE # \_\_\_\_\_ DIVISION: \_\_\_\_\_ DATE: \_\_\_\_\_

LOCATION: \_\_\_\_\_

CONTRACTOR QUALITY CONTROLLER: \_\_\_\_\_

COMPANY: \_\_\_\_\_

CIRCLE: Y-Yes N-No N/A-Not Applicable			
Y	N	N/A	Specifications and drawings read, understood, and are available on site for review.
Y	N	N/A	All permits for the work to be performed in the contract documents are available on site for review.
Y	N	N/A	All project submittals to start work have been stamped "Approved" or Approved as Noted" and are available on site for review.
Y	N	N/A	All certifications or approvals received for decking and roofing materials.
Y	N	N/A	Material supplier's literature and application specifications are available on site for information and review.
Y	N	N/A	Safety precautions, regulations and MSDSs have been reviewed, in compliance, and are on site during application.
Y	N	N/A	Amount and type of materials required by specifications (and verified by on-site inspection of product labels) are at the job site, and are visually suitable for application.
Y	N	N/A	Materials are stored appropriately covered, off ground, and on pallets.
Y	N	N/A	All roofing equipment is in good working order and functioning properly.
Y	N	N/A	Edge nailers, curbs, drains, and penetrations have been installed before starting roofing.
Y	N	N/A	Drainage patterns proper for roof membrane installation.
Y	N	N/A	Tapered insulation layout plans are site understood and are available on site.
Y	N	N/A	The Contractor Sample Package to process the <b>Quality Inspection Check List #2 Roof Membrane Sampling</b>
Y	N	N/A	If fastener pullout tests are specified, verify they have been conducted and the results have been approved by the specifier.
<b>EXPLAIN AND COMMENT "NO" ENTRIES</b>			

Contractors Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

### Attachment A

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## Quality Inspection Check List #2 Roof Membrane Sampling

### THIS FORM SINGLE-PLY ROOFS ONLY

Project/Store #: \_\_\_\_\_ Division: \_\_\_\_\_ Date: \_\_\_\_\_

Location: \_\_\_\_\_

Company: \_\_\_\_\_ Samples Taken By: \_\_\_\_\_

# of Samples Taken & Shipped: \_\_\_\_\_ Sample Id's: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

1. Samples are to be removed every 50 squares of roofing from field seam locations on the roof as required by the Owner's Roof Consultant.
  - a. Do not remove samples within 18 inches of walls, curbs, valleys, tie-ins, or penetrations.
2. Cut the sample as accurately as possible, using a metal template and a knife. The samples are to be cut 6 inches by 6 inches square.
3. Immediately place each sample into the two polyethylene bags. Seal each bag separately (using indelible ink or typing). Submit Roof Plan with sample(s) location accurately dimensioned. ENCLOSE THIS FORM WITH SAMPLE.
4. Repair the sampled area immediately after taking the sample.
5. Fill the hole left by the sample removal unit it is level with the rest of the membrane. Use layers of insulation loose laid. Cap the sample area with a 12 x 12 inch matching membrane and heat weld into place.
6. Caulk perimeter edges of the patch with an approved lap sealant.
7. Send wrapped samples to WeatherTech Consulting Group, Inc., for testing. Send the roof samples Next Day delivery to the address on the UPS forms.

**WeatherTech Consulting Group, Inc.**  
**7747 Auburn Road**  
**Utica, MI 48317**  
**Phone: 586-731-3095**

9. Verbal results will be available within 24 hrs. and written results within 48 hrs. after receipt of the samples.

ATTACHMENT B

## SECTION 01 35 01

### SAFETY

#### PART 1 - GENERAL

##### 1.01 CONTRACTOR SAFETY PLAN

- A. Contractor shall maintain written Safety Plan enforced at the Site at all times.
- B. Contractor shall maintain a copy of contractor's Safety Plan at the Site at all times.
- C. Contractor shall conduct, document and submit proof of Safety Meeting prior to start of Work.

##### 1.02 SAFETY AND HEALTH PROCEDURES

- A. Public Safety
  - 1. Safety Orders
    - a. The Contractor will have at the Work site, copies or suitable extracts of: Construction Safety Orders and general industrial safety orders issued by the federal, state or municipality. Contractor will comply with the provisions of these and all other applicable laws, ordinances and regulations.
    - b. Payment for performing all Work necessary to provide safety measures will be included in the prices Bid for other items of Work.
  - 2. Special Hazardous Substances and Processes
    - a. Materials that contain hazardous substances or mixtures may be required on the Work. A Material Safety Data Sheet (MSDS) as described in the federal, state and municipal codes will be requested by the Contractor from the manufacturer of any hazardous material used and provided to Consultant per submittals.
    - b. Material usage will be accomplished with strict adherence to federal, state municipal including and/or project requirements and all manufacturer's warnings and application instructions listed on the Material Safety Data Sheet and on the product container label.
    - c. The Contractor will notify the Consultant if a specified product cannot be used under safe conditions.
  - 3. The Contractor will restrict public access by installing opaque fencing, such as a green screen, around the setup or staging areas.
- B. General
  - 1. These Construction Documents are to be governed, at all times, by applicable provisions of the State and Federal Law(s) including but not limited to the latest amendments of the following:
    - a. William-Steiger Occupational Safety and Health Act of 1970, Public Law 91-596 as amended in 2004.
    - b. Part 1910-Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations.
    - c. Part 1518-Safety and Health Regulations for Constructions, Chapter XIII of Title 29, Code of Federal Regulations.
  - 2. This program will become a part of the Contract Documents and the Contract between Owner's Representative and Contractor and the Contractor and all Subcontractors, as though fully written herein.

3. For the purposes of this Contract, neither Owner's Representative nor their Consultant and Consultants' Observers are to be considered experts in safety. All construction safety issues are the sole responsibility of the Contractor.
- C. Safety Provisions
  1. Precaution will be exercised at all times for the protection of persons, including employees and property. The safety provisions of applicable laws and building and construction codes will be guarded or implemented in accordance with the applicable safety provisions.
  2. All equipment used in construction or to be installed will meet the requirements of all applicable codes. Equipment will have all required protection devices such as belt and shaft guards, heat protection, insulation, clearances warnings, etc. For equipment, which is to be installed, such devices will be indicated on shop drawings and reviewed by the Consultant.
- D. Necessary controls will be provided to prevent pollution of the air by odors or particulate matter. The location and operation of heating equipment will be such that no hazard is created and objectionable odors do not enter the building.
- E. Reasonable precautions must be exercised to prevent vandalism and to safeguard the public at the existing buildings. Equipment will not be left unprotected and materials will be carefully stacked. The set-up or staging area must be controlled at all times so that no unauthorized person can access the Contractor's equipment or materials, day or night.

## PART 2 – PRODUCTS

NOT USED

## PART 3 - EXECUTION

- 3.01 Contractor shall conduct job site Safety Meetings as detailed in Contractor's Safety Plan.
- 3.02 Contractor shall conduct job site Safety Inspections as detailed in Contractor's Safety Plan.
- 3.03 Contractor shall conduct, document and submit proof of Safety Meetings and Inspections during performance of Work.

## END OF SECTION 01 35 01/SAFETY

## SECTION 01 42 16

### TERMS AND DEFINITIONS

#### 1.01 GENERAL

- A. The following terms and definitions apply to the content of these Contract Documents to describe the Work as designed and intended by WeatherTech Consulting Group, Inc. (WT).
- B. The definitions used in Contract Documents (Contract, General Conditions, Supplemental Conditions and all other documents) provided by the Owner shall apply when interpreting all Contract Documents.
- C. All conflicts or clarifications in definitions and terms used by or between WT and Owner provided documents as interpreted by the contractor shall be forwarded via Request for Information/Interpretation (RFI) to WT for a response.

#### 1.02 TERMS AND DEFINITIONS

**Addendum:** Addenda as written or graphic instruments issued prior to the execution of the Contract which may modify or interpret the Bidding Documents, including Specifications and Drawings, by additions, deletions, clarification, revisions or corrections will become part of the Contract Documents when the Construction Contract is executed.

**Bid:** The offer or Proposal of the Bidder submitted on the prescribed form setting forth the price of the Work.

**Bidder:** Any individual, firm, partnership, corporation, or combination, thereof, submitting a Bid for the work, acting directly through a duly authorized representative.

**Bidding Documents:** Bidding Documents include all documentation listed under Bidding Requirement in the Table of Contents of the Project Manual; and, the proposed Contract Documents including any addenda issued prior to receipt of the bids.

**Bid Guarantee:** The cash, certified check, or Bidder's surety bond accompanying the Bid as a guaranty that the Bidder will enter into a Contract with Owner for the performance of the Work.

**Bond:** Bid, performance or payment bond or other instrument of security..

**Change Order:** A written order to the Contractor signed by Owner directing an addition, deletion, or revision in the Work, or an adjustment in the Contract price or the Contract time issued after the effective date of the Contract.

**Code:** The International Building Code including all other model building codes and regulatory requirements as legislated to apply for Work to be completed at the Project location. Including but not limited to all local, state and federal codes and requirements.

**Consultant:** The term "Consultant" or "Roofing Consultant" used throughout these documents refers to WeatherTech Consulting Group, Inc. and/or their duly authorized representatives. The Consultant is the professional who designed the project or performed other services for Owner on the Project, WeatherTech Consulting Group, Inc. It is expressly understood that Consultant does not practice architecture and/or structural engineering.

**Contract:** The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the Owner and Contractor and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification.

**Contract Documents:** The Contract Documents are enumerated in the contract between the Owner and Contractor (hereinafter the contract) and consist of the contract. Conditions of the contract (General, Supplementary and Other Conditions), Drawing, Specifications, Addenda issued prior to the execution of contract, Modification is (1) a written amendment to the contract signed by both parties, (2) a change order, (3) a Construction Change Directive or (4) a written order for the work issued by the Architect or Owner. Unless specifically excluded in the contract the contract document do include the advertisement or invitation to bid, Instruction to Bidders, sample forms, other information furnished by the owner in anticipation of receiving bids or proposals, The Contract Manual, The Contractor's bid or proposal or portions of addenda relating to bidding requirements.

**Contractor:** The term "Contractor" in these documents refers to the organization, individual, partnership, corporation, joint venture, or other legal entity who has a direct contract with the Owner to perform the Work under the Contract. "Contractor" shall employ and have direct contact with all Subcontractors.

**Contract Price:** The total amount of money for which the Contract is being awarded.

**Contract Unit Price:** The Contractor's original Bid for a single unit of an item of Work in the Proposal.

**Drawings:** The drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

**Furnish:** The term "Furnish" means purchase and/or fabricate and deliver to the work area at the site or other location when so directed

**General Conditions:** The conditions under which the Work is performed in addition to and in conjunction with the Contract.

**Install:** The term "Install" means build in, mount in position, connect or apply specified objects, and, where applicable, adjust and start in operation.

**Modification:** Includes Change Orders and Supplemental Agreements. A modification may only be issued after the effective date of the Contract.

**Notice of Award:** The written notice by Owner to the successful Bidder stating that upon compliance by it with the required conditions, Owner will execute the Contract.

**Notice to Proceed:** A written notice given by Owner to the Contractor fixing the date on which the Contract time will start.

**Owner:** The legal entity for whom the Work is being performed, Troy School District.

**Person:** Any individual, firm, association, partnership, corporation, trust, joint venture, or other legal entity.

**Product:** The term "Product" when herein (after) referred to includes materials, systems, and equipment.

**Prompt:** The briefest interval of the time required for a considered reply, including time required for approval by a governing body.

**Provide:** The term "Provide" means furnished and install, complete in place and ready for operation and use.

**Reference Specification:** Those bulletins, standards, rules, methods of analysis, or test, codes and Specification of material manufacturers, American Society for Testing and Materials and accepted industry standards in effect and published at the time of Notice of Award, unless specifically referred to be edition, volume, or date.

**Subcontractor:** The term "Sub-Contractor" in these documents refers to the organization or organizations who is (are) employed by the "Contractor" to perform specialty tasks. The "Contractor" shall be responsible for any work, actions, and fabrication of the "Sub-Contractor". "Sub-Contractors" must be approved by the Roofing Consultant.

**Substantial Completion:** means that the Work has reached such a point in quantity and quality of construction that, except for de minimis matters, the Contractor has performed its Work in accordance with the Contract so that Owner has the full use and benefit of the premises no leaks in the building to which the Work was done for or in connection with Owner's business.

**Supplemental Conditions:** Any provision, which supplement or modify the General Project Conditions.

**Specifications:** The specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

**State:** The state in which the Project is located within the United States.

**Subcontractor:** An individual, firm or corporation having a direct Contract with the Contractor or with any other Subcontractor for the performance of a part of the Work.

**Work:** The term Work means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or part of the Project.

**Working Day:** A day in which actual Work takes place.

#### 1.03 MULTIPLE TERM DEFINITIONS

- A. The terms "as indicated" or "as designated" or "as shown" mean specifically included and shown on Drawings.
- B. The terms "as required", "as applicable" or "as necessary" mean not specifically indicated as to location and/or extent, but to be determined in field during course of work.

#### END OF SECTION 01 42 16/ TERMS & DEFINITIONS

## **SECTION 01 50 00**

### **CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS**

#### **PART 1 – GENERAL**

##### **1.01 UTILITIES**

- A. Owner may provide utility services required for construction operations limited to electrical and water.
- B. Existing utilities may be used during construction only after coordination with Owner and receipt of Owner's expressed written approval.
- C. Contractor shall be responsible for all required hook-ups of his equipment (Owner or Contractor-supplied electric).

##### **1.02 VENTILATION**

- A. Provide facilities as required to maintain specific storage conditions as described within this Specification.
- B. Provide adequate ventilation of enclosed areas to prevent the accumulation of fumes, vapors, and gases including condensation.
- C. Existing facilities may not be used for storage during construction.

##### **1.03 SANITARY FACILITIES**

- A. Existing facilities may not be used; contractor to provide.
- B. Facilities shall be located in areas as designated by the Owner.

##### **1.04 CONSTRUCTION AIDS**

- A. Contractor shall provide stairs/ladders, roof access points to be approved by Owner at all times during construction.
- B. Construction of stairs and installation of ladders shall be approved by OSHA and the Owner's Safety Officer. Unsafe conditions or failure to comply shall be sufficient grounds to restrict access.
- C. Remove ladders on a daily basis or completely restrict access. Completely restrict access of stairs on a daily basis.

- D. Contractor shall not access roof from interior of the building, i.e. roof hatch. Access must be from exterior of the building.

#### 1.05 INTERIOR PROTECTION PROCEDURES & PRACTICES

- A. General Considerations
  - 1. Interior Protection Contractor shall coordinate and schedule his operations to minimize the impact of the work on the operations of the facility.
  - 2. Control of dust & debris shall be accomplished utilizing a combination of materials, methods and personnel.
  - 3. The contractor shall coordinate the interior protection schedule with the roofing contractor and/or Owner to insure that interior protection is completed prior to the start of the roofing project.
  - 4. Contractor shall, to the best of their ability, conduct all work and operations so as not to:
    - a. Impede or endanger ingress and egress into production, storage, and/or office areas: or,
    - b. Cause, permit or allow falling or blowing particulate, material, dust and/or debris which might endanger the safety of persons, equipment or product located in the areas designated as "Interior Protected".
    - c. The contractor shall adjust his operations and work plan as required minimizing interference with the operations of the facility.
- B. Installer Requirements
  - 1. Personnel must be familiar with all OSHA regulations pertaining to the safe operation of the equipment used in the installation of debris containment systems.
  - 2. Installers will use appropriate safety glasses, hard hats, hearing protection, foot protection, and breathing apparatus (where required) while adhering to guidelines relating to fall protection.
  - 3. Installers will also agree to successfully complete Customer mandated Safety Course (where required) prior to start of project.
  - 4. Dress code will be in keeping with the customer's requirements.
- C. Supplemental Debris Netting (Where Applicable)
  - 1. In cases where pieces of debris over 1 lb. may fall during normal roofing operations, debris netting must be installed below the debris containment barrier system prior to the start of work. The extent of these requirements (if any) will be discussed during the pre-bid meeting.



## 1.06 INTERIOR PROTECTION CONTRACTOR SAFETY REQUIREMENTS

- A. Interior Protection Contractor shall familiarize themselves, and execute the work in strict accordance with, local, state and federal regulations that govern work of this type.
- B. The Interior Protection Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage injury or loss to, all employees on the project and all other persons who may be affected thereby.

## PART 2 – MATERIALS

### 2.01 GENERAL

- A. Protective materials shall withstand abrasion and water penetration and shall withhold dust and other foreign matter.
- B. Existing work shall be protected by one or more of the following as directed by the Owner or the Owner's consultant; masonite, kraft paper, 6 mil reinforced fire retardant polyethylene film with taped joints and/or protective construction nets.
- C. Contractor shall only utilize exterior grade, fire-retardant, plywood in the fabrication of temporary controls.

### 2.04 DEBRIS CONTAINMENT SYSTEM MATERIALS

- A. Debris containment barrier sheet shall be reinforced, fire retardant treated, polyethylene based clear sheet providing a total nominal thickness of 6 mils. Product should be reinforced with a minimum of a 900 denier scrim laid in a diagonal trapezoidal pattern spaced 3/8" apart with an additional machine direction scrim every 9" across the width to create longitudinal strength and stability.
  - 1. Barrier Sheet Material Requirements
    - Fire Rated Polyethylene
    - Reinforced
    - 6 MIL minimum thickness
    - 1-¼" point load tear strength of 30 lbs., minimum.
    - Melting point of 180°
    - Perm rating of .13
    - Flame spread index of 0
    - Smoke developed value of 20, maximum

- B. Seam and joint tape shall be of compatible materials. Tape shall not leave a residue on existing building or equipment components when removed. Tape shall be 4" wide, minimum.
- C. Existing wall connectors and overhead supports shall be used whenever possible. If no suitable wall connection or overhead supports are available, wall or ceiling anchors shall be installed. All support anchors shall provide a minimum load capability of 50 lbs. Care must be taken to control dust created while installing these anchors.
  - 1. Wherever feasible, temporary anchors for installation of debris containment barrier system shall be clamp-on or compression type devices to avoid penetration of existing building components with anchor screws or other fasteners.
  - 2. Where existing building components must be penetrated by temporary anchor fasteners, care should be taken to locate penetration point in the least visible area possible.

### PART 3 – EXECUTION

#### 3.01 EXECUTION

- A. Install and maintain all necessary coverings, boarding, and partitioning to effectively protect existing work, finishes, and windows.
- B. Install and maintain protective bridging, scaffolding, and netting.
- C. All materials brought to or removed from the work shall be covered to prevent intrusion of dust and debris.
- D. The work area and adjacent areas shall be washed with water to remove construction dust.
- E. Interior access points shall be covered at all times during construction. Stair wells shall be kept clean and unobstructed at all times during construction. Fire egress openings shall be maintained free of any obstructions and shall not be closed, bordered, or temporarily immobilized during the entire work.
- F. Any damage caused as a result of improper protection shall be repaired and restored to pre-construction condition by Contractor at no additional cost to Owner.
- G. All protection materials shall be removed at completion of construction to the satisfaction of the Owner or Consultant.
- H. All temporary protection shall be coordinated with Owner or Consultant.

### 3.02 SITE PROTECTION

- A. Damage caused by the contractor or his subcontractors to the new and/or existing work shall be repaired by the Contractor, at no additional cost to the Owner.
- B. Contractor shall not store materials or debris on site or roof top in excess of allowable loads. It is cautioned that the existing roof deck construction is not intended for the storage of materials or debris.
- C. Demolition, preparation, and new work requirements shall be coordinated with Owner or Consultant.
- D. Contractor shall be held solely responsible for all demolition, temporary protection, and new work.
- E. Protect all underside deck equipment, conduits, and ducts from damage during construction.

### 3.03 DEBRIS CONTAINMENT SYSTEM INSTALLATION

- A. Barrier Sheet Installation - General
  - 1. All barrier sheets shall be installed using the largest sheet size possible
  - 2. All debris containment barriers shall be securely fastened and supported in a manner to positively contain light dust & debris and prevent displacement and/or collapse.
  - 3. Site line and aesthetic issues shall be discussed with Owner's Representative before installation
  - 4. Minimum height requirements must meet Owner's needs and allow normal activities below the barrier sheet.
  - 5. Barrier must be installed with least amount of penetrations possible.
  - 6. Where practical, seams shall be cut to install sheets with least amount of seams and to allow positioning of seams to happen in non-critical areas.
- B. Vertical and Horizontal Surface Connections
  - 1. Suspended cover installed along walls shall be secured every 10', or closer spacing.
  - 2. Each tie off anchor point or installed anchor device shall be able to support a minimum load of 50 lbs.
  - 3. Barrier sheet hung from horizontal surfaces shall have vertical supports every 10' in both directions.

4. Existing structural members or wall and ceiling mounted equipment or conduit may be utilized where capable of supporting a 30 lb., minimum point load
- C. Seams & Penetrations
1. All side and end laps in barrier sheets shall be joined with a 360 degree "roll seam" and shall be secured/pinned and taped together to create one continuous unit.
  2. All seams are to be taped with a 6" wide tape centered over the seam.
  3. All penetrations are to be sealed by running the barrier sheet as close as possible to the penetration and then turning the sheet up onto the surface of the penetration 2".
  4. Penetrations shall be taped to barrier sheet with a 4" wide tape, minimum.
  5. Individual pieces of seam tape shall be used to seal all openings and voids around penetrations and at terminations in the barrier system.
- D. Termination of Barrier at Protection Area Boundaries
1. Where interior protection is ended at the boundary areas above a protected interior space of a building, away from walls or other typical boundaries, the debris containment system shall be extended beyond the boundary of the protected area 6', minimum or as otherwise directed or indicated on the drawings.

### 3.04 DEBRIS CONTAINMENT SYSTEM REMOVAL

- A. General Requirements
1. Prior to removal of suspended barrier sheet any exposed product or equipment below shall be covered with 4 mil polyethylene to provide additional protection from dust & debris.
  2. Care must be taken to completely identify and contain all dust & debris in any suspended barrier sheet protection. Remove all dust and debris from barrier sheets prior to removal of the barrier system from the building.
  3. Timing of removal of containment system shall be as directed by the Owner's Representative and shall not disrupt or interfere with normal plant operations.
  4. Use of HEPA vacuum equipment and HEPA air filtration systems shall be utilized where possible and practical to reduce and/or eliminate the amount of dust released into the interior environment during barrier removal operations.
- B. Anchor and Support System Removal

1. All tape and anchor systems used for the installation of the barrier sheet to the existing structure shall be removed so as to cause minimal disruption or damage to existing building surfaces/components, equipment and personnel below.
  2. All existing surfaces shall be restored to their original condition at the end of the removal process.
- C. Disposal
1. All removed debris and barrier system materials shall be removed from the job site and disposed of in a legal manner.
  2. Owner/owner representative trash containers or dumpsters shall not be used to dispose debris containment system materials.

**END OF SECTION 01 50 00/CONST. FACILITIES AND TEMPORARY CONTROLS**

## **SECTION 01 74 23**

### **FINAL CLEANING**

#### **PART 1 – GENERAL**

##### **1.01 SECTION INCLUDES**

- A. General requirements for cleaning throughout performance of Work under Contract:
  - 1. Progress cleaning
  - 2. Site cleaning
  - 3. Façade cleaning
  - 4. Drainage testing
  - 5. Final and Close-out cleaning

##### **1.02 GENERAL REQUIREMENTS**

- A. Contractor shall maintain a clean site for all products, services, site conditions, safety and workmanship.
- B. If, in the opinion of the Contractor, any Work is indicated on drawings or specified in such a manner that cannot be properly cleaned, the Contractor will notify the Consultant and/or the Owner before proceeding that portion of the work.
- C. Work may be audited at any time. Provide the Owner, WeatherTech, building code official and contractor (General Contractor if applicable), safe entry to all work areas and all the records and information requested during the audit.
- D. The acceptability of cleaning and the interpretation of Specification or drawings, the decision of the Consultant is final and binding unless otherwise ordered by Owner.
- E. Contract Close-out: Contract closeout procedures relating to cleaning shall be conducted in accordance with Section 01 77 00.
  - 1. Prior to final acceptance, Contractor will restore all areas affected by Work to original state of cleanliness and repair all damage done to the premises, including the grounds, by contractor's employees, subcontractors and equipment.
- F. Materials left on site after acceptance of work shall be deemed to have been abandoned by Contractor. Title of abandoned materials shall thereupon revert to the Owner. The Owner shall hold Contractor liable for cost incurred in removal and disposal of those materials.
- G. At completion of demolition operations debris and salvage materials shall be removed from the premises.
- H. Leave premises broom clean and orderly to the satisfaction of the Owner

#### **PART 2 – PRODUCTS - Not Used**

#### **PART 3 – EXECUTION**

##### **3.01 GENERAL**

- A. Contractor will remove markings from finished surfaces. In areas where finished surfaces are soiled by any source, caused by Work of this section, consult manufacturer of surfaces for cleaning advice and conform to instructions.

##### **3.02 PROGRESS CLEANING**

- A. All stored materials and equipment shall be maintained in an orderly manner allowing maximum access, not impeding drainage or traffic, and providing the required protection of materials.
- B. Accumulation of construction debris, scraps, and other items is not permitted and must be removed daily.
- C. Contractor shall provide adequate storage for all items awaiting removal from the job site in accordance fire protection and environmental requirements.

3.03. SITE

- A. Contractor shall conduct daily inspection of work areas for the purpose of removal of construction debris, scraps, and other items. All such items shall be removed to the disposal or storage place designated daily.
- B. Contractor shall conduct weekly (more often if necessary) inspections of all stored materials for the purpose of compliance with the requirements of the "*Materials Storage and Handling*" paragraph of the applicable roofing section.
- C. The job site shall be maintained in a neat and orderly condition at all time during the construction period.

3.04. FACADE

- A. Contractor shall inspect the work area of facade and completely clean all scraps, droppings, debris, and waste materials from metal sills, brick, glass, etc.
- B. As required, the work areas shall be cleaned prior to installation of materials.

3.05 DRAINAGE CLEANING

- A. Clean all drains and drainage systems. Test all drains to insure unrestricted flow into drains and drainage systems.

3.06. FINAL CLEANING

- A. Execute cleaning prior to Close-out Audit.
- B. Timing: Final cleaning inspection shall be scheduled with Owner or WeatherTech.
- C. Prior to completion of the Work, remove all tools, surplus materials, equipment, debris, and waste materials from job site.
- D. Site: Unless otherwise specifically directed by the Owner or WeatherTech, all areas of the building affected by the Work shall be broom cleaned. All debris accumulated as the result of cleaning shall be removed from the site.
- E. Clean all work areas. Clean interior exterior surfaces exposed to view; remove stains and foreign substances. Clean equipment as required.
- F. Remove waste and surplus materials, rubbish, and construction facilities from the Site.

**END OF SECTION 01 74 23/ FINAL CLEANING**

**SECTION 01 77 00**

**CLOSEOUT**

**PART 1 – GENERAL**

**1.01 SECTION INCLUDES**

- A. Substantial Completion.
- B. Punch List procedures
- C. Closeout documentation and procedures.

**1.02 SUBSTANTIAL COMPLETION**

- A. Preliminary procedures: Before requesting a Punch List Inspection of Substantial Completion, Contractor shall submit a *Certificate of Substantial Completion* online at Project Website using the Submittals tab at [www.wtcg.net](http://www.wtcg.net) and complete the following: List all exceptions in the Certificate.
  - 1. Submit the Performance Agreement (Roofing Section Attachment C), final certifications and similar documents.
  - 2. Submit record drawings, record specifications, record product data, record samples, miscellaneous record submittals, record photographs, maintenance manuals and similar record information.
  - 3. Deliver tools, spare parts, extra stock and similar items.
  - 4. Complete startup testing of systems and instruction of the operation and maintenance personnel.
  - 5. Discontinue and remove temporary facilities from the site, along with mockups, construction tools and similar items.
  - 6. Complete final cleanup requirements, including removal of asphalt drippage for all exposed building finishes and touch-up painting of pre-finished sheet metal components.
  - 7. Touch up and otherwise repair and restore marred, exposed finishes.

**1.03 PUNCH LIST**

- A. Inspection Procedures: On receipt of *Certificate of Substantial Completion* the Consultant will either proceed with the Punch List Inspection or advise the Contractor of unfilled requirements that need to be completed based on the project records and *Certificate of Substantial Completion*. The Consultant will prepare the Punch List Report following the inspection to alert the Contractor if there is construction that must be completed or corrected before the certificate will be issued.
  - 1. The Punch List Report will indicate itemized list of Work that needs to be completed or correct:
    - a. Report will contain a Description of the Punch List item and the Action required to rectify the non-compliant Item.
    - b. Contractor shall complete all Punch List Report items and photo document all Punch List work.
    - c. Upon completion of the Punch List work the Contractor shall upload a signed copy of the Punch List Report and photos at [www.wtcg.net](http://www.wtcg.net) on the Project Website using the Submittals tab.
  - 2. In the event Items on the Punch List Report require an additional inspection by the Consultant to Close Out the Contract:
    - a. All costs for additional punch list inspections by the Consultant will be deducted from the Contractor's retainage.



3. Results of the completed inspection will form the basis of requirements for final acceptance.

#### 1.04 CLOSE-OUT

- A. Preliminary Procedures: Before requesting certification of final acceptance and payment, complete the following. List exceptions in the request.
  1. Provide a signed Punch List Report and if applicable Close Out Audit Inspection Report confirming all punch list inspection items to be completed are finished.
  2. Submit the final payment request with releases, lien waivers, and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.
  3. Submit any required warranty/certification documentation.
  4. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
  5. If required due to Punch List noncompliance, submit a certified copy of the Consultant's Close-Out Audit inspection list of items to be completed or corrected, endorsed and dated by the Consultant and Contractor. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by the Consultant.
- B. Maintenance Instructions: Contractor and primary roofing materials manufacturer are to meet with Owner's maintenance personnel to provide instruction in proper maintenance. Include a detailed review and provide the following items:
  1. Maintenance manuals.
  2. Semi-annual inspection checklists.
  3. Emergency repair procedures.
  4. Contractor and manufacturer contacts.

#### 1.05 COMPLETION

- A. Upon completion of Close-out Contractor shall submit a *Certificate of Completion* using the online Project Website [www.wtcg.net](http://www.wtcg.net) and using the Submittal tab complete the *Certificate of Completion*

#### PART 2 – PRODUCTS

NOT USED

#### PART 3 – EXECUTION

##### 3.01 CLOSEOUT PROCEDURES

- A. Operation and Maintenance Instructions: Contractor shall provide instructions for regular maintenance of installed systems. Provide instruction by manufacturer's representatives if installers are not experienced in operation and maintenance procedures. Include a detailed review of the following items:
  1. Maintenance manuals.
  2. Record documents.
  3. Warranties.
- B. Warranties
  1. Provide warranty in a form approved by the Owner and provide all manufacturers extended warranties to the Owner.

#### END OF SECTION 01 77 00/ CLOSE OUT

## SECTION 02 41 19

### SELECTIVE DEMOLITION

#### PART 1 – GENERAL

##### 1.01 SECTION INCLUDES

- A. Reroof Projects: Removal of existing roofing system, insulation, base flashings, designated metal counter flashing and removal of materials from site.
- B. Refer to Cover Page Sheet “CP” for determination of asbestos abatement requirements. Removal and disposal of ACRM (Asbestos Containing Roofing Materials) and ACM (Asbestos Containing Construction Materials) in the roof membrane or flashings shall be according to all applicable federal, state and local standards, including but not limited to EPA and OSHA standards.
  - 1. Refer to asbestos report attached to this section for information on testing of roof samples (See Section 02 41 19 - *Appendix A*).
- D. Refer to individual roof plan sheets for schedule on special provisions as necessary for special interior protection requirements.
- E. Troy School District:
  - 1. General
    - a. Schedule: Prior to each day's work, coordinate with owner the location(s) where demolition work is to be performed.
    - b. **Conduit and Wiring in Deck Flutes: In some locations there are areas where electrical conduit and cabling run directly under the top surface of the steel deck in the flutes. Contractor shall take precautions not to damage any conduit or wiring during steel deck repair and replacement.**
    - c. Interior Work: An interior monitor must be present during roof tear off over areas with underside exposed deck and any deck replacement, curb demolition, or repair work, or in the event Owner determines it is necessary that an area where tear off work or deck remediation work may be a potential hazard to contents or operations.
    - d. Remove and dispose of the existing materials from site in compliance with all applicable code requirements.

- e. Coordinate all equipment shut down and/or movement of equipment with Owner so as not to disrupt building operations.
  - f. All tools must be removed from the ground of roof staging area daily. All work areas on ground to be swept with magnet to collect all metal over working area.
  - g. ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1/
    - 1) Refer to Appendix 1 for asbestos testing results. Contact Michelle for info.
  - h. INTERIOR PROTECTION: **Specific requirements Refer to School Roof Plan Schedule:** The projects will require localized interior protection, refer to individual roof plan. IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.
  - i. As noted in QC Check List #1 contractor to determine drains are functional or blocked. All blocked drains to be identified prior to start of work and TSD will cover cost to correct drainage. All subsequent drains that become blocked are be cleared at contractor's expense.
2. Roof System Demolition: EXISTING ROOF ASSEMBLIES: Ref. **Refer to School Roof Plan Schedule:**
- a. Roof Membrane and insulation. Remove and dispose of existing roof membranes, base flashings and insulation including tapered EPS insulation (**NOTE: Troy High School Roof Areas existing polyisocyanurate insulation to be salvaged for reuse if Alternates are accepted.**) down to the steel roof decking.
  - b. Remove existing sheet metal flashings including counter flashings, expansion joint covers, existing gutters, metal edging and gravel stop metal at perimeter edges and flue/vent stack flashings.
  - c. Raise existing ventilators and build up curbs with wood blocking to ensure a minimum flashing height of 8".

- d. Remove only Owner marked abandoned penetrations and curbs and repair the roof deck in those areas. **NOTE - Deck repair required to patch openings from removed equipment and penetrations shall not count toward the deck repair or replacement referenced above in Item 2, paragraph e, sub paragraphs 1, 2, 3.**
- e. Metal Decks:
  - 1) Prepare and prime paint rusted steel decking with one coat of "rust reformer" followed by one coat of enamel primer.
  - 2) Repair localized areas of deteriorated or damaged steel decking up to 18" in any direction with 20 gage galvanized steel.
  - 3) Replace all large scale areas of deck deterioration or damage with new 22 gage steel decking to match the existing deck profile. **Include in Unit Pricing bid replacement decking to match existing, labor, interior protection and fasteners.**
- f. Gypsum Deck: Wet and/or damaged gypsum decking to be identified during demolition to determine extent of damage and repair. Ref. to Unit Pricing for sq. ft. pricing to repair gypsum deck.
- g. Cementitious Wood Deck: Wet and/or damaged cementitious wood decking to be identified during demolition to determine extent of damage and repair. Ref. to Unit Pricing for sq. ft. pricing to repair gypsum deck.

## 1.02 RELATED SECTIONS

- A. Section 06 10 00 – Rough Carpentry
- B. Applicable Roofing Specification Section: Reference Cover Page Sheet for Schedule of roof specification.

## 1.03 PROTECTION OF WORK AND BUILDING

- A. The Contractor shall be responsible for the protection of the building interior and its contents from moisture, debris, and/or fume/odor penetration during all phases/operations of the Work. Contractor shall also be responsible for the protection of Owner's merchandise, furnishings and equipment by covering all items that may be affected during the Work with suitable protection such as, but not limited to plastic tarp. Provide protection of merchandise, equipment and personnel during operations creating dust/debris from roof tear-off and new roof installation, etc.

#### 1.04 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section and conform to requirements in Section 01 33 26.

#### 1.05 REGULATORY REQUIREMENTS

- A. Conform to applicable Code for demolition of roofing, safety of adjacent structures, dust control and disposal.
- B. Notify Owner of affected mechanical or electrical disconnects 24 hours before starting work. All disconnect and reconnection shall be performed by licensed contractor for equipment type.
  - 1. All satellite disconnects and reconnects to be done and paid for by the Owner.
  - 2. All refrigerant piping stands requiring temporary supports or movement shall be completed by a licensed refrigerant contractor.
- C. Do not close or obstruct roadways, sidewalks, and hydrants without prior authorization.
- D. Conform to applicable regulatory procedures when hazardous or contaminated materials are present.
- E. As necessary comply with provisions of local, state and national regulatory requirements for the identification, removal and disposal of Asbestos Containing Building Materials (ACBM) and Asbestos Containing Roofing Materials (ACRM) including:
  - 1. Environmental Protection Agency (EPA):
    - a. EPA National Emission Standard for Hazardous Air Pollutants (NESHAP) 40 CFR, Part 61, Subpart M.
  - 2. Occupational Safety and Health Administration (OSHA)
    - a. OSHA Standard for Occupational Exposure to Asbestos in construction work, 29CFR1926.1101.
  - 3. Department of Transportation (DOT).
    - a. Hazardous Material Rules.

#### 1.06 SCHEDULING

- A. Schedule work to coincide with new roofing work. All existing roofing removed shall be replaced with new roofing in watertight condition each day. All decking or building components exposed by demolition shall be put in a watertight condition each day.

- B. Provide a schedule describing demolition removal procedures, staging and schedule.

#### 1.07 SUBMITTALS

- A. Procedure for staging of equipment required for debris removal. Provide analysis of staging equipment and erection in accordance with OSHA requirements.
- B. Provide work schedule according to Section 01 32 00.

#### 1.08 EXISTING ROOF AND BUILDING CONDITIONS

- A. The Owner assumes no responsibility for actual condition of the structure.
- B. The Contractor may make test cuts to review the existing conditions, coordinate with the Owner. It is expressly understood that the Owner will not be responsible for interpretations or conclusions drawn by the Contractor.
- C. Conditions existing at the time of inspection for bidding purposes will be maintained by Owner insofar as practicable. However, variations may occur by Owner's operations.
- D. The Contractor is responsible for having taken steps reasonably necessary to ascertain the conditions that can affect the Work or its cost. Any failure by the Contractor to have done so does not relieve the Contractor from responsibility for successfully performing the Work without additional expense to the Owner.

#### 1.09 EXISTING CONDITIONS, OCCUPANCY

- A. The Contractor is reminded that the Work is to be performed in an operational environment. The continuation of the Owner's operation and its employees and the public's safety are of top priority. The Contractor shall consult with the Owner in order to coordinate procedures for the work.
- B. Consider all aspects of the Work, and how it will affect Owner's operations. Control noise, dust, and work force at all times, particularly during critical hours established by the Owner.
- C. Premises will be occupied during entire period of construction. Cooperate with the Owner to minimize conflict and to facilitate Owner's operation.
- D. Schedule work on site, both demolition and installations, in the sequence and within hours established by the Owner.

## PART 2 – PRODUCTS

Not Used

## PART 3 – EXECUTION

### 3.01 EXAMINATION

- A. Examine conditions at the job site where work of this Section is to be performed to insure proper arrangement and fit of the Work. Start of Work implies acceptance of job site conditions.
- B. Examine work that is intended to remain as part of the completed project and report unsatisfactory conditions to the Owner or Consultant prior to commencement of Work.
- C. Examine the areas and conditions under which work of this Section will be performed. Contractor to notify Owner or Consultant prior to performing corrective work. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

### 3.02 PREPARATION

- A. Provide, erect and maintain temporary barriers and security devices.
- B. Protect existing materials finishes and structures which are not to be demolished.
- C. Review NESHAP inspection survey or other available reports to determine the applicable regulations governing the demolition, removal and disposal of all ACBM and ACRM.
  - 1. Refer to asbestos report attached to project manual.

### 3.03 DEMOLITION AND REMOVAL

- A. General
  - 1. Prior to start of demolition; carefully study the Drawing and these Specifications.
  - 2. In company with the Owner or Consultant, visit the site and verify the extent of demolition to be performed under this Contract.
- B. Conduct demolition to minimize interference with surrounding facilities and occupants.

- C. Cease operations immediately if building interior, building operations or adjacent structures might pose to be a structural, operational safety danger. Notify Owner or Consultant. Do not resume operations until directed.
- D. Conduct operations with minimum interference to accesses. Maintain egress and access at all times.
- E. The Contractor shall maintain a dust free operation when removing debris from roofs either by chutes, hoist crane or other approved method.
- F. The Contractor shall, upon completion of the demolition phase of the Work, provide the Consultant and Owner copies of all dump receipts.
- G. Carefully check the demolition drawings and existing conditions where alterations and changes are to be made and include labor and material costs herein. Protect parts of the existing building not designed for demolition and removal, adjacent property and items removed and intended for reuse.
- H. The present building shall be kept watertight, both from the roof and from openings in the roof.
- I. Mechanical services shall be kept in operation in all areas used by the Owner. Required material and labor for barricades, bulkheads, temporary enclosures, protection of openings, shutoffs, disconnects, caps and other items as necessary shall be included herein. Where temporary wood construction and scaffoldings are installed inside the building, the wood shall be fire-retarded treated and adequate fire pails and fire extinguishers shall be provided and maintained. Rubbish shall not be allowed to accumulate. The Owner may require rubbish removal at time agreed to between Owner and Contractor.
- J. As the greater part of the work to be performed under this Contract will be within and adjacent to the occupied areas of the building, work shall be done so as to cause as little inconvenience as possible in the operation of the building. Suppress noise and dust to the maximum possible extent and wet down debris as required to accomplish this. Construct dust-tight partitions where necessary so as to separate noise, dirt and dust producing operations from adjacent occupied areas. Avoid tracking of dirt and dust into areas of the existing building not affected by this operation. Dust and clean areas affected by dust as directed by Owner at no additional cost. Provide adequate protection from dust for elevator shafts, duct shafts, other vertical openings, motors, switchgear, convactor enclosures and other elements of building systems to remain.
- K. Work in the existing building or any other work which might affect the operation of the existing building shall be performed at the convenience of



the Owner. When execution of the work requires an interruption of services, approval of Owner must be obtained so that "out of service" time is restricted to periods convenient to normal activities.

- L. Exercise caution in the process of the work. If damage occurs to the building elements or contents due to the negligence of the Contractor, the Contractor shall be held responsible to rectify or reimburse the Owner for damages.
- M. No cutting shall impair the strength of the construction. Should any trade request extensive cutting, consult with the Architect before performing work. Do not perform such cutting until approval has been obtained.
- N. The size and location of items requiring an opening, chase or other provisions to receive work of the various trades shall be given by the trades requiring them in ample time to avoid undue cutting of any work to be installed. This provision shall not relieve the Contractor from keeping informed as to required openings and chases.
- O. Note that, in order to remove and/or install mechanical, electrical and other work specified or required, roofs to remain may have to be cut and then repaired.
- P. Demolition and removal work shall be performed in strict accordance with regulations of codes and ordinances of local, State and Federal authorities, as applicable.
- Q. **Conduit and Wiring in Deck Flutes:** In some locations there are areas where electrical conduit and cabling run directly under the top surface of the steel deck in the flutes. Contractor shall take precautions not to damage any conduit or wiring during steel deck repair and replacement.

#### 3.04. CLEANUP

- A. At completion of each day's work operations, clean surrounding streets and walks of any accumulation of debris, materials and dirt resultant from demolition operations. Do not allow debris or salvage materials to accumulate on site. At completion of demolition operations and prior to final payment, debris and salvage materials shall be removed from the premises. Leave premises broom clean and orderly to the satisfaction of the Owner.
- B. Materials left on site after acceptance of work shall be deemed to have been abandoned by Contractor. Title of abandoned materials shall thereupon revert to the Owner. The Owner shall hold Contractor liable for cost incurred in removal and disposal of those materials.

**END OF SECTION 02 41 19/ SELECTIVE DEMOLITION**

**SECTION 06 10 00**  
**ROUGH CARPENTRY**

**PART 1 – GENERAL**

**1.01 SUMMARY**

- A. Work included: Provide wood, fasteners, and other items required, and perform carpentry for the construction shown on the Drawings, as specified herein, and as a needed for a complete and proper installation. Locations include but are not limited to:
  - 1. Roof mechanical curbs.
  - 2. Perimeter nailers and blocking.
- B. The use of pressure treated wood nailers, fasteners and separation materials shall follow the recommendations of the NRCA's Special Report "Use of Treated Wood in Roof Assemblies", February 2005.

**1.03 REFERENCES**

- A. General: All standard refer to the latest edition or revision unless otherwise noted.
- B. Reference contract documents and the following:
  - 1. ALSC (American Lumber Standards Committee) – Softwood Lumber Standards
  - 2. APA (American Plywood Association)
  - 3. AWWA (American Wood Preservers Association) C1- All Timber Products- Preservative Treatment by Pressure Process
  - 4. ASTM – D3498
  - 5. NFPA (National Forest Products Association)
  - 6. WWPA (Western Wood Products Association)

**1.04 PRODUCT HANDLING**

- A. Protect materials from physical damage. Store materials on raised platform and protect from weather.

**1.05 PROJECT CONDITIONS**

- A. Existing Conditions:
  - 1. Verify existing conditions, such as soundness of wood nailers, and varying deck and wall thickness for length of anchoring required and other conditions prior to bidding. Nailers indicated on the details may vary in height. Coordinate nailer height with insulation prior to bidding.
  - 2. Report conflicts or problems to the Consultant for resolution prior to bidding. Failure to report these conflicts and problems places the responsibility on the Contractor to complete the Work in accordance with the documents at no additional cost to the Owner.
  - 3. Replace or restore to original condition any materials or work damaged during construction.

**PART 2 - PRODUCTS**

**2.01 GENERAL LUMBER**

- A. Lumber Standards: Comply with DOC PS, "American Softwood Lumber Standard", and the applicable grading rules of inspection agencies certified by ALSC's Board of Review.

- B. Inspection Agencies: Inspection agencies, and the abbreviations used to reference them, include the following:
  - 1. WWP.
- C. Grade Stamps: Provide lumber with each piece factory marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency grade, species, moisture content at time of surfacing, and mill.
- D. Where nominal sizes are indicated, provide actual sizes required by DOC 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
  - 1. Provide dressed lumber S4S, unless otherwise indicated.
  - 2. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 4-inch nominal or less, unless otherwise indicated.
- E. Lumber, wood nailers, cants and curbs:
  - 1. Grade: No. 2.
  - 2. Wood Preservative: Meet AWP Standard LP-2.
  - 3. Thickness: Provide as required to meet specified insulation thicknesses for construction of details in drawings, as required.
- F. Plywood:
  - 1. APA Exterior Grade, C-C, Group 2, Exposure 1.
  - 2. Plywood thickness as indicated on drawings, as required.

## 2.02 FIRE RETARDANT TREATMENT

- A. All fire-retardant lumber and plywood must have an Underwriters Laboratories stamp signifying an FR-S rating certifying a 25 or less flame spread and smoke developed value, when tested in accordance to UL 723, ASTM E-84, NFPA 255 and UBC Standard No. 42-1.
- B. All lumber kiln dried to a maximum moisture content of nineteen (19) percent after treatment. All plywood kilns dried to maximum moisture content of (15) percent after treatment.
- C. Fire retardant chemical: free of halogens, sulfates, ammonium phosphate and formaldehyde.
- D. Corrosion rates: Less than one (1) mil per year for carbon steel, galvanized steel, aluminum, copper and red brass in contact with the fire retardant treated wood when tested in accordance with Federal Specification MIL-L-19140E.
- E. The fire retardant treated wood must have an equilibrium moisture content of not more than twenty-five (25) percent when tested in accordance with ASTM D3201 procedures at ninety-five (95) percent relative humidity and eighty (80) degrees Fahrenheit.
- F. The Fire Retardant Chemical: Registered for use as a wood preservative by the U.S. EPA.
- G. Testing: Fire performance and strength properties of the fire retardant treated wood shall be recognized by issuance of a National Evaluation Services Report.
- H. Preservatives or fire retardant must be compatible with specified roofing materials.

## 2.03 PRESERVATIVES

- A. Do not use oil-based preservatives with bitumen roofing materials.
  - 1. APA bulletin cautioning use of treatment of wood materials and potential degradation of those materials in certain environments. Refer to APA Technical Bulletin Number TB-200.

## 2.04 NAILERS

- A. All nailers shall be pressure treated and sized as shown on the drawings or as required to accommodate the configuration and dimensions of new roof system. Where applicable match existing dimensions of wood.

## 2.05 CURBS AND MISCELLANEOUS WOOD CONSTRUCTION

- A. Wood used for equipment curbs, fan curbs, and other such wood accessories shall be of two (2) inch by eight (8) inch minimum size, unless otherwise dimensioned in the construction details or as existing curb construction.

## 2.06 FASTENERS

- A. All fasteners for wood securement must have a sufficient corrosion resistant coating as to not accumulate more than fifteen (15) percent red rust after fifteen (15) cycles in the Kesternich cabinet as tested per FM 4470 in accordance with modified DIN 50018 standard test procedure.
  - 1. Fasteners: Hot dipped or Electro galvanized steel for high humidity and treated wood locations, unfinished steel elsewhere.
  - 2. Fastener types listed in this section are for securement of wood and are to be used in cases when no specific types are stipulated in construction details. Nondescript fastener references on the construction details shall not relieve the contractor from responsibility for proper fastener selection.
- B. General Fasteners – Nails/Screws
  - 1. Number 10, hot dipped; galvanized steel or 304 stainless steel ringed shank nails.
  - 2. Number 10, 300 series stainless wood screws.
  - 3. Number 14 Phillips Panhead 300 series stainless steel sheet metal screws.
- C. Anchors
  - 1. Toggle bolt type for anchorage to hollow masonry.
  - 2. Expansion shield and lag bolt type for anchorage to solid masonry or concrete.
  - 3. Bolt or ballistic fastener for anchorage to steel.
- D. Adhesives/Glue
  - 1. APA, AFG-01, waterproof of water base, air cure type, cartridge dispensed.

## PART 3 – EXECUTION

### 3.01 GENERAL

- A. All work performed in accordance with the applicable roofing section. Roof deck shall meet the following criteria as minimum standards. Coordinate installation of Work.
- B. Contractor shall perform all cutting and fabrication operations of nailers, cants and plywood in centralized work area provided with a wood work surface. Every effort shall be made to prevent contamination with debris of the construction area and damage to the contract and non-contract roof areas resulting from cutting and fabrication operations.

1. Discard pieces with defects, which might impair quality of work.
- C. All installation shall conform to FM Data Sheet 1-49.

### 3.02 CURBS

- A. All wood curbs shall be placed in accordance with the construction details.
- B. General Installation
1. Coordinate curb installation with installation of sheathing of decking and structural support repair.
  2. Form corners by alternating lapping side members except where prefabricated curbs are provided. All joints in the installation shall be true and tight with changes in direction, such as at corners.
  3. When fastening successive layers of wood blocking or nailers or when anchoring wood cants to existing curbs, the fastener shall be of a sufficient length to penetrate the existing curb being anchored to by one and one-quarter (1-1/4) inches.
  4. Dimensions: To match existing as required. Height requirements per contract detail drawings.
- C. Special Conditions
1. Existing curbs will need to be raised as indicated.

### 3.03 NAILERS AND OTHER WOOD ANCHORED TO DECK

- A. All nailers and other wood anchored to deck to be placed in accordance with the construction detail.
- B. General Installation:
1. All deck-mounted wood shall be anchored to resist a minimum pull out strength of one hundred seventy five (175) pounds per foot.
  2. Nailers, and other deck mounted wood, shall be secured using two rows of fasteners spaced at eighteen (18) inches on center with the rows offset or staggered from each other.
  3. All nailers shall be placed with joints gapped one-eighth (1/8) inch apart and in full contact with the deck surface.
  4. On decks with undulating surfaces or other irregularities that may prevent level placement of the wood to be anchored to it, the contractor shall either level the deck surface or provide proper shimming for the wood prior to placement.

### 3.04 CLEANING

- A. Upon the Substantial Completion of the Work, the Contractor shall remove all waste materials and rubbish from and about the Site, as well as all tools, construction equipment, machinery, and surplus materials and leave the Work "broom-clean" or equivalent.
- B. The Contractor and Subcontractors shall be responsible for clean up as indicated in accordance with the Contract Documents.
- C. If the Contractor fails to clean up, after notice to do so, the Owner may do so, and the cost shall be charged to the Contractor.

## END OF SECTION 06 10 00/ ROUGH CARPENTRY

## SECTION 07 54 00

### FULLY ADHERED EPDM SINGLE PLY ROOFING

#### PART 1 - GENERAL

##### 1.01 SUMMARY

- A. This section includes all labor, materials, equipment, and services necessary to complete the fully adhered EPDM single-ply roofing as shown on the drawings and herein specified, including but not limited to: EPDM membrane, flashings and roofing accessories.

##### 1.02 RELATED SECTIONS

- A. Related Sections: The following Sections contain requirements that relate to the Work in this Section.
  - 1. Section 02 41 19 – Selective Demolition
  - 2. Section 06 10 00 - Rough Carpentry
  - 3. Section 07 22 50 – Single Ply Roof Insulation
  - 4. Section 07 62 00 - Sheet Metal Flashings and Trim

##### 1.03 REFERENCES

- A. General: All standards refer to the latest edition or revision, unless otherwise noted.
  - 1. ASTM D 4637 - *Standard Specification for Ethylene-Propylene-Diene Terpolymer (EPDM) Based Sheet Roofing*
  - 2. FM: Factory Mutual Insurance Company/ FM Global
  - 3. FS: Federal Specification or Federal Standard.
  - 4. SMACNA: Sheet Metal and Air Conditioning Contractors National Association.
  - 5. UL: Underwriters Laboratories, Incorporated.

##### 1.04 REGULATORY REQUIREMENTS

- A. Underwriters Laboratories, Inc. (UL.):
  - 1. Fire Classification Rating: UL 790 Standard: Meets - Class A.
- B. Factory Mutual Research Corp. (FM): FM Standard 4470: Meets - Class 1(A).
  - 1. Windstorm Classification Rating: Meets - FM 90
  - 2. Fire Classification Rating: Meets – Class A
- C. Building Code:
  - 1. Meet applicable provisions of local, state, and national building codes. This also includes, but is not limited to, agencies regulating safety, environmental protection, transportation, and insurance.

## 1.05 SUBMITTALS

- A. General:
1. Submit according to Section 01 33 00.
  2. Submit requests for all changes in writing.
  3. Do not proceed with any changes without written authorization.
  4. All substitutions are subject to Owners approval.
  5. The roofing contractor is responsible for processing and submitting all specified submittals.
- B. Pre-Construction Submittals: The following submittals must be submitted and stamped "Approved" or "Approved as Noted" prior to convening a Pre-Construction Conference: Submit 4 copies.
1. "Roofing Manufacturer's Certification" **Attachment A** of this Section. Completed and signed by the Technical Services Department of the roofing systems manufacturer.
  2. Materials List and Descriptions **Attachment B** of this Section. This Attachment is to be completely filled out and approved by the Thermoplastic Membrane Manufacturer.
  3. Copy of roofing manufacturer's literature describing and illustrating the following requirements for an extended 20-year type system as specified.
    - a. Roof System Spec. No.
    - b. Insulation
    - c. Flashing System
    - d. Preliminary Warranty
  4. Copy manufacturer's literature for prefinished sheet metal, color as scheduled; according to Section 07 62 00.
  5. Shop Drawings: according to Section 07 62 00.
  6. Proposed Construction schedule.
  7. List of any other roofing Suppliers and/or Subcontractors.
  8. Prior to starting any roofing work submit **Quality Control Inspection Check List # 1 Attachment E** Pre-Construction Activities and submit to the owner/owner representative.
- C. Post Construction Submittals
1. Contractor shall submit an executed **Performance Agreement Attachment C** covering a duration of 5 years.
  2. WARRANTY/GUARANTEE: Contractor shall provide upon acceptance work by the Owner, Consultant and Manufacturer a 20 year "No Dollar Limit "(NDL) replacement cost roofing system warranty/guarantee. Reference paragraph 1.09 Warranty.

## 1.06 QUALITY ASSURANCE

- A. Roofing Contractors: Only Contractors authorized by the specified EPDM Membrane Roofing Manufacturer's and who have prequalified through WeatherTech RFQ process shall be allowed to bid the project.



- B. Membrane Roofing Systems shall be installed in accordance with the most current guide specifications and details as amended and/or authorized by Manufacturer for specific project requirements to issue a 20 year NDL warranty.
- C. Roofing contractor shall designate a Quality Controller for the project to perform the following duties on behalf of the roof contracting firm:
  - 1. Attending pre-construction roofing conference.
  - 2. Prior to starting any roofing work submit **Quality Control Inspection Check List # 1 Attachment E** Pre-Construction Activities and submit to the owner/owner representative.
- D. Work may be audited at any time. Provide the Owner, Owner's Representative and Consultant safe entry to all work areas and all the records and information requested during the audit.
- E. Pre-Construction Roofing Conference:
  - 1. Upon receipt of approved submittals, the Quality Controller for the roofing contractor is required to coordinate with the attendance of:
    - a. Roofing Contractor
    - b. Owner
    - c. WeatherTech Consulting Group
    - d. Roofing Manufacturer
    - e. Others as designated
  - 2. Convene the Pre-Construction Roofing Conference with the designated participants a minimum two weeks prior to start of work.
  - 3. WeatherTech Representative conducting the conference will:
    - a. Review Contract requirements, procedures, and coordination to assure a complete understanding of requirements and responsibilities.
    - b. Discuss procedures and plans to execute the work, scheduling, and equipment to be used, on-site material handling, assignments, and storage procedures.
    - c. Walk participants through areas where work is to be performed.
- F. Notification to Start Work:
  - 1. Notify the Owner's Representative and WeatherTech Consulting Group, Inc. one week in advance of work start date. Confirm in writing.
- G. Meetings:
  - 1. Schedule meetings as requested by Union Pacific Railroad or WeatherTech according to Contract Documents. Coordinate the attendance of requested participants.
- H. Punch List Inspection: Once all work is completed, Quality Controller for the roofing contractor shall schedule punch list inspection with the owner's representative and the roofing manufacturer to review the completed work

and determine all corrective actions necessary to meet the intent of the Contract.

I. Close-out Audit Inspection

1. Once all punch list items have been completed by the contractor, Quality Controller for the roofing contractor shall schedule final inspection. Coordinate the attendance of requested participants.
2. This final review will release the process for Final Payment as outlined in Section 01 77 00, less any designated retention clause, unless the above review reveals all of the punch items have not been completed. In such case, the contractor will continue to make corrections and a new Final Inspection Date shall be established.

J. Contract Close-out

1. Contract closeout procedures shall be conducted in accordance with Section 01 77 00.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver all materials to the job site in manufacturer's original, unopened containers, with readable labels. Use those materials having labels that:

1. Identify the material.
2. Indicate conformance with reference standard applicable to the material.
3. Bear UL and FM labels as applicable.

B. Roofing Membrane and Accessories:

1. All rolls of membrane shall be stored, lying down.
2. Do not expose materials to moisture in any form before, during or after delivery to the site.
3. Store on clean raised platforms at least four inches above the ground or roof surface.
4. Conspicuously mark unprotected materials and permanently remove such materials from the site.
5. Adhesives and sealants shall be safely stored between 40° F (5° C) and 80° F (27° C).
6. Flammable materials shall be stored in a cool, dry area away from sparks and open flames. Follow all precautions as outlined in manufacturer's Material Safety Data Sheets.

C. Insulation and cover board materials shall be elevated on pallets and fully protected from moisture with tarpaulins. (Manufacturer's packaging is not considered adequate protection from moisture.)

D. Materials, having been determined by the owner/owner's representative to be damaged, not as specified or as otherwise not approved shall be immediately removed from the construction site and replaced at no cost to the owner.

1. Use spray paint or crayon to mark each piece of rejected material. If materials get wet or damaged, mark them as rejected. Do not use rejected material.

## 1.08 SCHEDULING

- A. Schedule and supervise work crews so that daily production schedules of new roofing shall be limited to only that which can be made 100% watertight at the end of the day, including all flashing and night seals.
  1. The definition of daily-completed roofing will be as agreed to in the Pre-Construction Conference and all flashings within and adjoining the membrane.
- B. Contractor to supply Construction Schedule at Pre-Construction Conference according to Division 1 Section - Construction Schedule.
- C. Plan and coordinate the installation of the roofing system with other trades in such a manner to avoid membrane damage, keeping the complete installation weather tight and in accordance with all approved details and warranty requirements.

## 1.09 WARRANTY

- A. Manufacturer's representative shall inspect the installation for compliance with manufacturer's standards upon completion of the roofing system.
  1. Deviations or changes from the contract specification shall have written approval from the roofing manufacturer, for presentation to the Consultant at completion of roofing system.
- B. The Contractor shall provide the Owner with the roof system manufacturer's 20 year "No Dollar Limit" warranty against defects in materials and workmanship. Submit a specimen of this warranty for approval prior to commencement of the work. The completed and approved warranty agreement shall be delivered to the Owner before final payment will be made. The warranty shall provide for repair and replacement of defective Work at no cost to the Owner.
- C. Additionally, the Contractor shall issue a separate guarantee **Performance Agreement Attachment "C"** for a period of 5 years from the date of Substantial Completion covering all portions of the Work not within the scope of the manufacturer's warranty. Contractors guarantee repairs to, and replacements of, defective work shall be performed promptly upon notice by the Owner and at no cost to the Owner.

## PART 2 - PRODUCTS

### 2.01 MANUFACTURER

A. Roofing Manufacturer

1. The Roofing Manufacturer referred to in the Contract is the primary roofing manufacturer of the specified 20-year type roofing membrane and flashing systems, and may or may not manufacture and market other components in the system.

B. Manufacturer Requirements

1. Except as modified and supplemented herein, follow the Roofing Manufacturer's and other materials Manufacturers' catalogs, general and special requirements, and specific application recommendations.
2. With respect to methods of installation, industry practices apply only when this Contract does not address the matter.

## 2.02 MEMBRANE COMPONENTS

- A. Minimum product requirements have been listed for each approved roof system manufacturer. All of these components must be used and bid. Products not supplied by the manufacturer are to be purchased from a manufacturer approved source.

B. The following manufacturers are approved suppliers of roof system listed:

1. Carlisle Syntec, Firestone Building Products, Johns Manville

## 2.03 EPDM ROOF MEMBRANE AND FLASHING MATERIALS

- A. Roof membrane shall be non-reinforced 60 mil (.060) nominal thickness cured Ethylene-propylene-diene terpolymer (EPDM) single ply roof membrane conforming to ASTM D4637, Type I.

1. Approved membrane sheets are:

- a. Carlisle Syntec Systems – Sure-Seal EPDM 60 mil
- b. Firestone Building Products - RubberGard EPDM 60 mil
- c. Johns Manville – JM EPDM NR 60 mil

- B. Membrane flashing for walls, strip-ins and curbs shall be 60 mil (.060") nominal thickness, Ethylene-propylene-diene terpolymer (EPDM) sheet regardless of roof cover sheet thickness.

1. Pre-fabricated EPDM flashing accessories such as pipe boots, inside and outside corners, etc. to be utilized when offered by the manufacturer.

## 2.04 RELATED MATERIALS AND ACCESSORIES

- A. Bonding Adhesive: Manufacturer approved Bonding Adhesive shall be used for bonding all membranes and flashing membranes to wood, metal, masonry, and approved roof insulation board surfaces.

B. Seam Adhesives, Primers and Seam Tapes

1. Manufacturer approved self adhering seam tape, cleaners and primers shall be used at all field seams in the roof membrane

- wherever feasible.
2. Manufacturer approved seam adhesive shall be used in areas where seam tapes cannot be used and for special or unusual flashing installations.
- C. Lap Sealant: Manufacturer approved Seam Caulk to be solvent-based caulk and shall be used to seal exposed edges of adhesively joined seams.
- D. Fastening Strips: Manufacturer approved polyester scrim reinforced, cured EPDM self adhering termination strips to be at all base terminations.
- E. All-Purpose Sealant: Manufacturer approved butyl-based sealant shall be used for a water cutoff mastic, sealant to top off pitch boxes, and as an exterior grade caulk for metal work.
- F. Termination Bar: Manufacturer approved Termination Bar shall be pre-punched 1-1/4" X 1/8" aluminum or stainless steel bar with an integral caulk receiver.
- G. Roof Walkways: Manufacturer approved Walkway material shall be compatible with the roof membrane and as supplied or approved by the manufacturer.

## PART 3- EXECUTION

### 3.01 PREPARATION

- A. Do not begin roofing work until all decks, walls, curbs, nailers, accessories, and underlying substrates are ready and acceptable to have roofing materials installed. Submit **Quality Control Checklist #1**. By beginning roofing work, the Contractor acknowledges that such preparatory work is satisfactory.
- B. Verification of Conditions:
1. Layout: Verify layout of work before beginning installation.
  2. Existing Conditions: Examine substrate before beginning installation. Examine surfaces for inadequate anchorage, drainage, foreign material, moisture, penetration and curb locations, and unevenness, which would prevent execution and quality of application of roof system as specified.
  3. Verify that work of other trades, which penetrates roof deck, has been completed.
  4. Verify heights of curbs, penetrations and perimeter conditions to accommodate minimum 8 in. flashing height, particularly conditions impacted by installation of tapered insulation or crickets.
  5. Examine deck slope, equipment placement and tapered insulation layout for positive drainage. No ponding water shall remain on roof deck for greater than 48 hours after the completed roof system is installed.

6. Notification: Notify Owner and roof consultant of unsatisfactory conditions in writing.
  7. Prefabricated curbs:
    - a. Metal skinned curbs without wood blocking for nailing require ½ in. CDX plywood around curb prior to base flashing application.
    - b. Metal skinned curbs with wood blocking curbs for nailing whose finished base flashing height will be a maximum 12 in. are acceptable for direct application of base flashing. Curbs whose finished base flashing height is greater than 12.in. require ½ in. CDX plywood around curb prior to base flashing applications.
    - c. Curbs with exterior insulation and no wood blocking for nailing require ½ in. CDX plywood around curb prior to base flashing application.
    - d. Curbs with exterior insulation and wood blocking for nailing are acceptable for direct application of base flashing.
  8. **Conduit and Wiring in Deck Flutes: In some locations there are areas where electrical conduit and cabling run directly under the top surface of the steel deck in the flutes. Contractor shall take precautions not to damage any conduit or wiring during steel deck repair and replacement.**
  9. Notification: Notify Owner of unsatisfactory conditions in writing.
- C. Coordination:
1. Coordinate Work of this Section with work of other sections and trades.
  2. Coordinate the work at perimeters, roof penetrations, equipment curbs and other conditions as required for:
    - a. Roof drains and/or scuppers are located at proper level to drain finished roof and meet code requirements. Contractor responsible to reset before proceeding with installation of roof system.
    - b. Installation of flashing and sheet metal as indicated on drawings or as required to insure water tightness.
- D. Do not install roofing materials during rain, fog, mist, snow, or other inclement weather. One exception is that temporary work may be installed during such weather to protect materials that are already installed. Remove all temporary work and materials that have been exposed to such weather, then install permanent materials as specified.
1. Do not apply roofing materials when moisture in any form (such as dew) can be seen or felt on the surface to which those materials will be applied.
- E. Confine equipment, storage of materials and debris, and the operations and movements of workmen within the limits as indicated or as directed by the Owner. Do not load or permit any part of a structure to be loaded with

a weight that will endanger safety of personnel, the public or cause damages to the building. When there is any doubt about roof deck or structural components being able to bear the load of any material and/or equipment, do not load the roof deck until design structural engineer gives clearance in writing.

- F. Protect the building, all contents, and the surrounding area from damage and protect building occupants from injury during execution of work. Do this in a manner which will not affect the normal conduct of operations in the building. It is the Contractor's responsibility to determine the nature of these operations and provide the appropriate level of protection. Repair, replace or otherwise compensate the Owner for all damaged items and loss of operations caused by lack of such protection to the Owner's satisfaction. No driving on sidewalks per TSD.
- G. Remove all debris daily from the roof. Use enclosed chute, crane and bucket, or construction hoist to minimize dust, dirt, and noise.
- H. Where wheeled or other traffic over the partially or fully completed roofing is unavoidable, provide and use adequate plank or plywood protection for the roofing.

### 3.02 WOOD NAILER INSTALLATION

- A. Install continuous wood nailers at the perimeter of the entire roof and around roof projections and penetrations as shown on the Detail Drawings.
  - 1. Nailers shall be anchored to resist a minimum force of 300 pounds per lineal foot (4,500 Newtons/lineal meter) in any direction. Individual nailer lengths shall not be less than 3 feet long. Nailer fastener spacing shall be at 12 inches on center or 16 inches on center if necessary to match the structural framing. Fasteners shall be staggered 1/3 the nailer width and installed within 6 inches of each end. Two fasteners shall be installed at ends of nailer lengths. Nailer attachment shall meet this requirement and that of the current Factory Mutual Loss Prevention Data Sheet 1-49.
  - 2. Thickness shall be as required to match substrate or insulation height to allow a smooth transition.

### 3.03 INSULATION INSTALLATION

- A. On steel and wood decks, the insulation shall be attached to the prepared deck substrate as outlined in Specification Section 07 22 50 Single Ply Roof Insulation. **SEE SCHEDULE ON COVER PAGE – “CP” OR ROOF PLAN – “RP” FOR INSULATION ATTACHMENT REQUIREMENTS**

### 3.04 MEMBRANE INSTALLATION

- A. Provide temporary ballast in partially completed sections to control wind effects during construction.

- B. Fully Adhered Membrane Installation:
1. Outside ambient air temperature must be a minimum 40 degrees °F (4.4 degrees C) and rising.
  2. For roofs with interior drainage, start with first sheet centered on drain valley. Fold sheet so that the bottom side half of the full length of sheet is exposed.
  3. Apply a 100 percent continuous coat of bonding adhesive to the corresponding substrate or insulation area.
  4. Allow adhesive to dry until tacky and does not string or stick to a dry finger. When sufficiently dry, carefully unfold the glued portion of the membrane in a rolling motion onto the glued substrate surface, avoiding any wrinkles or air pockets. Immediately roll the adhered area using a weighted pressure roller. Applying pressure with a weighted roller is required to promote full contact of the membrane with adhesive.
  5. Repeat the procedure for the other half of the sheet.
  6. For roofs with edge drainage, start at the low edge with the first sheet.
- C. Seam Tape Application
1. Seaming area is to be absolutely clean and free of moisture traces, dust, dirt, or debris.
  2. Remove protective backer from one side of the seam tape and apply seam tape to the bottom sheet of membrane in the lap area and roll top of seam tape to completely remove all voids and air bubbles.
  3. Fold the top sheet over the bottom sheet and allow the seam area to freely fall together, avoiding wrinkling, pulling or stretching the membrane.
  4. Pull top layer of protective backing from seam tape while rolling top membrane into adhesive surface of tape.
  5. Roll all seams with a 2" to 3" wide steel roller to ensure proper seam adhesion. Seams are to be rolled perpendicular to the lap and for the length of the entire seam.
- D. Flashing Installation: Perimeters, curbs, vents, expansion joints, drains, and other details shall be flashed. Under no circumstances shall flashings cover weep holes or any form of through-wall drainage
- E. In all areas where side laps intersect end laps ("T" joints) a manufacturer approved cover patch of uncured EPDM membrane shall be centered over the "T".
- F. Overnight Seal/Temporary Water Stop Installation:
1. Water stop shall be made by a sealant method approved by manufacturer.
  2. Roofing contractor shall coordinate installation to ensure the system is made watertight at the end of each work day.



- G. Roof Walkways Installation: When regular and routine roof traffic is anticipated (for example, to service rooftop units), walkway roll is required to be installed over the membrane.
  - 1. Membrane shall be clean and dry. Remove any visible dirt and debris.
  - 2. Position walkway roll and cut to desired length.
  - 3. Walkway shall not cover seams. Walkway shall be kept a minimum of 2 inches from the edge of the seam on the bottom sheet of the completed lap and a minimum of 6 inches (152 mm) from the edge of the seam when located on the top sheet of a completed lap.

### 3.05 SEALANT APPLICATION

- A. Apply sealant at detailed in Section 07 90 00.
- B. Preparation:
  - 1. Remove any existing materials or debris from joint between surfaces. Removal shall be completed with approved equipment.
  - 2. Immediately before sealant installation, clean all surfaces. The surface shall be cleaned to provide uncontaminated, dry surfaces suitable for the application of the new sealant.
  - 3. Clean all joints and surfaces removing all foreign matter and contaminants such as grease, oil, dust, water, frost, surface dirt, old sealant.
- C. Application
  - 1. Install joint filler and backers rods as necessary.
  - 2. Apply primer as required for substrate type and condition.
  - 3. Apply in continuous beads between 1/8 – 3/8 in. thick.
  - 4. Do not apply below 40°F or higher than 100° F.
  - 5. Tool immediately, as required, and in a manner to slope water away from sealed surfaces.
  - 6. There shall be no voids across the entire sealant joint cross section.
  - 7. Install backer rod for any joint width greater and ¼\_ in.
  - 8. Install as indicated on drawings.

### 3.06 INSPECTION

- A. Upon completion of the installation, an inspection will be performed by a representative of the roofing manufacturer to ascertain that the roofing membrane system has been installed according to approved specifications and details. Upon approval of the project, a Warranty shall be written.

### 3.07 CLEANING

- A. Progress Cleaning

1. All stored materials and equipment shall be maintained in an orderly manner allowing maximum access, not impeding drainage or traffic, and providing the required protection of materials.
2. Accumulation of construction debris, scraps, and other items is not permitted and must be removed daily.
3. Contractor shall provide adequate storage for all items awaiting removal from the job site in accordance fire protection and environmental requirements.

### 3.09 CLOSE OUT

- A. Performance Agreement Sign: Provide a 24 inch x 24 inch minimum size, painted metal sign (Attachment D) with dark color background and letters of contrasting color. Use paint compatible with the metal. Make the sign to read as shown on detail at end of this Section. Sign to be mounted in conspicuous place on roof.

END OF SECTION

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## **ROOFING MANUFACTURER'S CERTIFICATION**

Manufacturer: \_\_\_\_\_

Address: \_\_\_\_\_

Technical Services Dept Ph. \_\_\_\_\_ Fax \_\_\_\_\_ Email \_\_\_\_\_

### **CONTRACTOR INFORMATION**

This is to advise you that the referenced contractor is accredited and an authorized and approved applicator of our roofing membrane systems.

Roofing Contractor: \_\_\_\_\_

Address: \_\_\_\_\_

Manufacturer's Contractor Number: \_\_\_\_\_

### **PROJECT CERTIFICATION**

We have reviewed the project documents for referenced project and certify that the 20-year type roofing membrane system(s) and related flashings listed below are suitable for use with the roof system construction specified for this project. This certification is limited to normal wear and tear by the elements. It does not include the structural design of the building, abuse, misuse, or Acts of God

Project Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Roof Area Designation (as indicated in specification)	Roofing Membrane Specification Number	Flashing Specification Number

**Signature of Primary Membrane Manufacturer's Authorized Representative:**

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Address: \_\_\_\_\_

Date: \_\_\_\_\_ Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

Attachment A

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## MATERIALS LIST AND DESCRIPTIONS

**Project Name/Identification:** \_\_\_\_\_

**Location:** \_\_\_\_\_

**Contractor: Complete this submittal as follows:**

- Refer to Part 2 of the project technical specifications for a complete description of each listed material.
- Fill in the "Manufacturer or Supplier Description" column; provide brand name or other material identification. Also include thicknesses, sizes, or gauges if applicable to the material.

Complete the signature block at the end of the attachment.

Materials and Standards	Spec. Ref. Item	Manufacturer or Suppliers Description	Notes
<b>Membrane Components</b>	<b>075400</b>		
Roofing Manufacturer's Membrane Spec. No.	<b>2.05, A, 2</b>		
EPDM Membrane, 060, ASTM D4637, Type I	<b>2.05, A,</b>		
Bonding Adhesive; Field Membrane	<b>2.05, B, 1</b>		
Lap/splice Cement	<b>2.05, B, 2</b>		
Lap/splice Tape	<b>2.05, B, 3</b>		
Cleaning Solvent	<b>2.05, B, 4</b>		
Internal Sealant	<b>2.05, B, 5</b>		
External Sealant	<b>2.05, B, 6</b>		
Walk Pads	<b>2.05, B, 7</b>		
<b>Sealant Components</b>	<b>07540</b>		
Pitch Pan Filler: 2Part Urethane	<b>2.07, B</b>		
Pitch Pan: Quick dry Concrete	<b>2.07, B, 4</b>		

Materials and Standards	Spec. Ref. Item	Manufacturer or Suppliers Description	Notes
<b>Insulation components</b>	<b>072250</b>		
First/Bottom Insulation: Polyisocyanurate, ASTM C1289, Type II, Class 1, Grade 2	<b>2.02, A</b>		
Second/Top Insulation Polyisocyanurate, ASTM C1289, Type II, Class 1, Grade 2	<b>2.02, A</b>		
(As required) Third/Top Insulation Layer: Reinforced Gypsum Board	<b>2.02, B</b>		
Mechanical Fasteners (Deck) FM Approved	<b>2.03, A</b>		
Insulation Adhesive	<b>2.03, B</b>		
Tapered Edge Strips:	<b>2.02, C</b>		

Polyisocyanurate ASTM C1289, Type II, Class 1, Grade 2.			
Cricket Insulation: Polyisocyanurate ASTM C1289, Type II, Class 1, Grade 2.	<b>2.02, C</b>		

**Contractor: Complete the signature block below (if applicable):**

**Name of Roofing Contracting Firm:** \_\_\_\_\_

**Address:** \_\_\_\_\_

\_\_\_\_\_

**Telephone:** \_\_\_\_\_

**Roofing Contractor's Authorized Signature:** \_\_\_\_\_

**Roofing Contractor's Name (print or type):** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Name of General Contracting Firm:** \_\_\_\_\_

**Address:** \_\_\_\_\_

\_\_\_\_\_

**Telephone:** \_\_\_\_\_ **Fax:** \_\_\_\_\_

**General Contractor's Authorized Signature:** \_\_\_\_\_

**General Contractor's Name (print or type):** \_\_\_\_\_

**Date:** \_\_\_\_\_

**ATTACHMENT B (end)**

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## ***Performance Agreement***

**Project Name/Identification:** \_\_\_\_\_

**Project Address:** \_\_\_\_\_

**Roof Areas:** \_\_\_\_\_

**Substantial Completion Date:** \_\_\_\_\_

**End of Performance Agreement Date:** \_\_\_\_\_

**CONFORMANCE STATEMENT:** The above titled project has been completed in accordance with the requirements of the Contract.

For a 5-year period, from date of notice of substantial completion of the building, we will inspect and make emergency repairs to defects and leaks in the roof system within 24 hours of receipt of notice from Owner. As soon as weather permits, we will make permanent repairs and restore the affected areas to the standard of the Contract requirements. All this work will be done without additional cost to Owner, except if it is determined that such leaks and defects were caused by abuse, or by lightning, hurricane, tornado, or other unusual natural phenomena or failure of related work done by others.

**Name of Roofing Contracting Firm:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Telephone:** \_\_\_\_\_ **Fax:** \_\_\_\_\_

**Email Address:** \_\_\_\_\_

**Roofing Contractor's Authorized Signature:** \_\_\_\_\_

**Roofing Contractor's Name (print or type):** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Name of General Contracting Firm (if applicable):** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Telephone:** \_\_\_\_\_ **Fax:** \_\_\_\_\_

**Email Address:** \_\_\_\_\_

**General Contractor's Authorized Signature:** \_\_\_\_\_

**General Contractor's Name(print or type):** \_\_\_\_\_

**Date:** \_\_\_\_\_

### **ATTACHMENT C**

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***PERFORMANCE AGREEMENT SIGN***

**THIS ROOF IS UNDER  
A PERFORMANCE AGREEMENT  
UNTIL (MONTH/YEAR)**

**ANY REPAIRS OR ALTERATIONS  
MUST BE PERFORMED BY**

**(ROOFING CONTRACTOR)  
ADDRESS**

**(CITY, STATE, ZIP CODE)  
(AREA CODE/PHONE NUMBER)**

**(GENERAL CONTRACTOR)  
ADDRESS**

**(CITY, STATE, ZIP CODE)  
(AREA CODE/PHONE NUMBER)**

**Construct a sign 2' x 2' (4 square feet) and include the above wording. Insert Month and Year (5 year after final acceptance date) Contractor's names, addresses, phone numbers. Sign to be posted as specified.**

**ATTACHMENT D**

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## Quality Inspection Check List #1 Pre-Construction Activities

PROJECT/STORE # \_\_\_\_\_ DIVISION: \_\_\_\_\_ DATE: \_\_\_\_\_

LOCATION: \_\_\_\_\_

QUALITY INSPECTION PERFORMED BY: \_\_\_\_\_

COMPANY: \_\_\_\_\_

CIRCLE: Y-Yes N-No N/A-Not Applicable			
Y	N	N/A	Specifications and drawings read, understood, and are available for review.
Y	N	N/A	All certifications or approvals received for decking and roofing materials.
Y	N	N/A	Material supplier's literature and application specifications are available for information and review.
Y	N	N/A	Safety precautions, regulations and MSDSs have been reviewed, in compliance, and are on site during application.
Y	N	N/A	Amount and type of materials required by specifications (and verified by on-site inspection of product labels) are at the job site, and are visually suitable for application.
Y	N	N/A	Materials are stored appropriately covered, off ground, and on pallets.
Y	N	N/A	All roofing equipment is in good working order and functioning properly.
Y	N	N/A	Edge nailers, curbs, drains, and penetrations have been installed before starting roofing.
Y	N	N/A	Drainage patterns proper for roof membrane installation. Drains tested for positive drainage with no back up.
Y	N	N/A	If fastener pullout tests are specified, verify they have been conducted and the results have been approved by the specifier.
EXPLAIN AND COMMENT "NO" ENTRIES			

Contractors Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

### Attachment E

## SECTION 07 62 00

### SHEET METAL FLASHING AND TRIM

#### PART 1 - GENERAL

##### 1.01 SUMMARY

- A. This Section includes sheet metal flashing and trim in the following categories:
  - 1. Metal copings, sheet metal flashing and counterflashings, pitch pans, stack flashings and other fabricated sheet metal items as indicated on the Schedule(s) on the Roof Plan(s).
  - 2. Reglets and accessories.
  - 3. Sheet metal splash pans and pre-cast concrete splash blocks.

##### 1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 1 specification Sections, apply to this Section.
- B. Related Sections – the following sections contain requirements that relate to this section:
  - 1. Section 07 54 00 – Fully Adhered EPDM Single Ply Roofing
  - 2. Section 02 41 19 – Selective Demolition
  - 3. Section 06 10 00 - Rough Carpentry
  - 4. Section 07 22 50 – Single Ply Roof Insulation

##### 1.03 PERFORMANCE REQUIREMENTS

- A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing.
- B. ANSI/SPRI ES-1 or GD-1 tested and certified by a 3<sup>rd</sup> party testing laboratory active in the testing of industry standard edge metal systems.
- C. Product Data: Manufacturer's data sheets on each product to be used, including:
  - 1. Preparation instructions and recommendations.
  - 2. Storage and handling requirements and recommendations
  - 3. Installation methods.
- D. Manufacturer's Certificates: Certify products meet specified performance requirements.

##### 1.04 SUBMITTALS

- A. Submit according to Section 01 33 00.
- B. Shop Drawings: Indicate materials profile, jointing pattern, jointing details, fastening methods, flashings, terminations and installation details.
- C. Product Data: Provide data on prefabricated components.
- D. Samples: Submit two samples in minimum 8 in. by 8 in. sizes illustrating typical material and finish and metal finish color.
- E. Submit information for sheet metal materials as required on Attachment B, *Materials List and Description* in the roofing specification section for the chosen roof membrane system.

#### 1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has completed sheet metal flashing and trim work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
  - 1. Company specializing in sheet metal work with 5 years experience.
- B. Pre-construction conference: Coordinate with roofing and other related work; convene conference minimum one week before starting work.
  - 1. Manufacturer Qualifications: Company certified by Roof System Manufacturers as a "Authorized Fabricator" in manufacturing Edge Metal Products specified in this section.
  - 2. 3<sup>rd</sup> Party QA Certification: "Authorized Fabricator" certified and inspected by 3<sup>rd</sup> party ANSI/SPRI authorized testing laboratory for quality assurance. Current annual certificate required.
  - 3. Installer Qualifications: Company certified by Metal Manufacture as a "Certified Installer: in the installation of Edge Metal Products specified in this section.
  - 4. Mock-up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
    - a. Finish areas designated by (Consultant or Owner).
    - b. Do not proceed with remaining work until workmanship, color and sheen are approved by (Consultant or Owner).
    - c. Refinish mock-up area as required to produce acceptable work.

#### 1.06 REGULATORY REQUIREMENTS

- A. Building Code:
  - 1. Meet applicable provisions of local, state, and national building codes. This also includes, but is not limited to, agencies regulating safety, environmental protection, transportation, and insurance.

- B. Gutter and Downspout Components: Conform to applicable code for size and method of rain discharge. Use SMACNA gutter sizing recommendations if other criteria is not available.

#### 1.07 DELIVERY, STORAGE AND PROTECTION

- A. Stack material to prevent twisting, bending and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- B. Prevent contact with materials which may cause discoloration.
- C. Remove protective plastic surface film immediately before installation.

#### 1.08 PROJECT CONDITIONS

- A. Coordinate Work of this Section with interfacing and adjoining Work for proper sequencing of each installation. Ensure best possible weather resistance, durability of Work, and protection of materials and finishes.

#### 1.09 DESIGN CRITERIA AND PERFORMANCE STANDARDS

- A. Sheet metal work shall conform with the following standards:
  - 1. *Copper, Brass, and Bronze Handbook: Sheet Copper Applications*, published by the Copper Development Association, Inc., (CED), New York, NY.
  - 2. *Factory Mutual Global Loss Prevention Data Sheet* 1-49.
  - 3. Sheet Metal and Air Conditioning Contractor's National Association (SMACNA) *Architectural Sheet Metal Manual* - Latest Edition.

### PART 2 - PRODUCTS

#### 2.01 DESIGN

- A. Sheet metal shall be formed sheet shapes as indicated on the drawings and in conformance with details on the approved shop drawings.
- B. Where sheet metal is required and no material or gauge is indicated on the drawings, provide the highest quality and gauge commensurate with the referenced standards.
- C. Sheet metal shall be installed in accordance with the recommendations of SMACNA and FMG *Loss Prevention Data Sheet* 1-49.

#### 2.02 METALS

- A. Sheet metal work shall be the type and thickness recommended by the



SMACNA Manual. In no case, however, shall any material be less than the following:

1. Galvanized Steel Sheet: ASTM A526, G90, or ASTM A527, G90, lock-forming quality, hot-dip galvanized steel sheet, paintable as indicated; not less than 24 gage unless otherwise indicated.
2. Pre-Finished Galvanized Steel Sheet: ASTM A526, G90, or ASTM A527, G90, lock-forming quality, hot-dip galvanized steel sheet, lock-forming quality, hot-dip galvanized steel sheet; not less than 26 gage unless otherwise indicated. Shop pre-coated with PVDF (polyvinylidene fluoride) Kynar 500 finish; color as scheduled or as selected by the Owner.
3. Stainless steel shall be fully annealed, type 304, stainless steel sheet, minimum 26 gage.
4. Aluminum shall be fully annealed, type 1035, aluminum sheet, minimum .032" or .040" thick, minimum thickness.
5. Thermoplastic Membrane Clad Galvanized Steel Sheet: ASTM A526, G90, or ASTM A527, G90, steel sheet metal with thermoplastic membrane clad surface on one side - suitable for heat welding to thermoplastic membrane, not less than 24 gage unless otherwise indicated. To be supplied by the roof system manufacturer.
6. Galvanized Steel Sheet: ASTM A526, G90, or ASTM A527, G90, lock-forming quality, hot-dip galvanized steel sheet, paintable as indicated; not less than 20 gage unless otherwise indicated for cleats.

## 2.03 COUNTERFLASHING AND REGLETS

- A. General: Units of type, material, and profile indicated, formed to provide secure interlocking of separate reglet and counterflashing pieces and compatible with flashing indicated.
  1. Counterflashing: Minimum 24 gage.
- B. Surface-Mounted Type: Provide with slotted holes for fastening to substrate, with EPDM backed weatherproofing washers, and with channel for sealant at top edge.
- C. Masonry Type: Provide with offset top flange for embedment in masonry mortar joint.
  1. Minimum embedment into masonry joints shall be 1".
- D. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Fry Reglet Corporation.
  2. Hickman: W.P. Hickman Co.
  3. Firestone Building Products
  4. Johns Manville
  5. Carlisle Syntec

## 2.04 MISCELLANEOUS MATERIALS AND ACCESSORIES

- A. Solder: ASTM B32, Grade Sn50, used with rosin flux.
- B. Fasteners
  - 1. Provide hot dipped zinc coated (galvanized) steel, stainless steel or brass fasteners for exterior use. Select fasteners for the type, grade, and class required and to be compatible with the type of metal being fastened.
  - 2. Approved Products - Wood Fasteners
    - a. Ring shanked galvanized steel or stainless steel roofing nail with a 3/8" head. Fastener to provide 1-1/4" embedment into nailing substrate.
    - b. Galvanized steel or stainless steel #12 pan head sheet metal screws. Screw type fasteners to provide 1" embedment into substrate.
  - 3. Approved Products - Steel Fasteners
    - a. Dekfast by Construction Fasteners
    - b. Roof Grip by Buildex
    - c. Insul Fixx by Fabco
  - 4. Concrete Fasteners
    - a. Fasteners for fastening sheet metal to masonry/concrete surfaces shall be one of the following:
      - 1) Metal Hit Anchor by Hilti
      - 2) Rawl Drives by Rawl
      - 3) Zamac Nailin by Rawl
  - 5. Unless specifically shown otherwise on the detailed drawings, all exposed fasteners shall have EPDM backed metal washers.
  - 6. Blind ("Pop") rivets for fastening sheet metal to sheet metal shall be 1/8" diameter X 1/4" long (minimum) and shall be composed of the same type of metal being fastened. Use 3/16" diameter X 3/8" long rivets for sheet metal thicker than 24 gage steel, 16 o.z. copper or .032" aluminum.
- C. Asphalt Coating: SSPC-Paint 12, solvent-type asphalt mastic, nominally free of sulfur and containing no asbestos fibers, compounded for 15-mil (0.4-mm) dry film thickness per coat.
- D. Sealants:
  - 1. Urethane Sealant Compound
    - a. Compound shall be a single-component, urethane-base sealant.
    - b. ASTM C920, Type S, Grade NS, Class 25, Uses NT, M, G, A, O
    - c. Sealant shall meet or exceed all requirements of MIL-S 8802 and FS-TT-S-001543A.
  - 2. Heat Resistant Sealant

- a. Heat Resistant Sealant: 1-part, non-slumping for applications with high temperature exposure ranging from -85°F to 500°F. Dow Corning 736 or equal.
- 3. Butyl Sealant
- 4. Pitch Pan Sealant - Two part, chemical cure, urethane, pourable
  - a. Acceptable Products:
    - 1) Chem Link Pro Pack by Chem Link
    - 2) JM UltraGard Pourable Sealer by Johns Manville
    - 3) Pourable Sealer S-10 by Firestone Building Products
- E. Quick-drying, non-expanding concrete grout for pre-filling pitch pans shall meet the following requirements:
  - 1. Early Volume Change (ASTM C827) 0% shrinkage
  - 2. Hardened Volume Change - 0% shrinkage, 0% expansion after set
  - 3. Compressive Strength (ASTM C109) - 5000 PSI/7 days
  - 4. Acceptable Products
    - a. Thorite
    - b. Five Star Grout
- F. 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 thickness required for performance.
- G. Primer paint shall conform to Federal Specifications DOD-P-21035A and MIL-P-26915C
  - 1. Approved Product
    - a. Rust-O-leum V2185 Cold Galvanizing Compound, or approved equivalent
  - 2. Primer paint shall be applied by spray, roller or brush to metal surfaces in two (2) 1-2 mil coats, minimum
- H. Asphalt Flashing Cement: ASTM D4586, Type I.
- I. Downspout Splash Pads: Precast Concrete type sizes and profiles as indicated minimum 3,000 psi at 28 days, with minimum 5% air entrainment.
- J. Termination bar shall be 1/8" X 1-1/4" type 1035 aluminum with holes pre-punched at 4" o.c. Termination bar shall be provided with an integral caulking lip at the top edge.
- K. Self-adhering, modified bitumen membrane shall conform to ASTM D 1970.

## PART 3 - EXECUTION

### 3.01 FABRICATION

- A. Sheet Metal Fabrication Standard: Fabricate sheet metal flashing and trim to comply with recommendations of the latest edition of the Sheet Metal and Air Conditioning Contractor's National Association's (SMACNA) *Architectural Sheet Metal Manual* that apply to the design, dimensions, metal, and other characteristics of the item indicated.
- B. Comply with details shown to fabricate sheet metal flashing and trim that fit substrates and result in waterproof and weather-resistant performance once installed. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
- C. Form exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems.
- D. Fabricate nonmoving seams in sheet metal with flat-lock seams, except where otherwise indicated. At moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
- E. Form pieces in maximum 10 foot lengths to with no joints allowed within 24" of corner or intersection.
- F. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, non-corrosive metal recommended by sheet metal manufacturer.
  - 1. Size: As recommended by SMACNA manual or sheet metal manufacturer for application but never less than one full even numbered gage greater in thickness than the metal being secured.
- G. Hem exposed edges on underside  $\frac{1}{2}$ "; miter and seam corners.
- H. Fabricate corners from one piece with minimum 24" long legs; seam for rigidity and seal with solder, by welding or with sealant as is appropriate for the metal being used.
- I. Fabricate vertical faces with bottom edge formed outward  $\frac{1}{2}$ " and hemmed to form drip.
- J. Sheet metal edgings, fascia and copings shall extend down past the top of masonry, wood/metal siding, or other wall covering a minimum of 2".

### 3.02 EXAMINATION

- A. Examine substrates and conditions under which sheet metal flashing and trim are to be installed and verify that work may properly commence. Do not proceed with installation until unsatisfactory conditions have been corrected. Verify that the substrate is dry, clean and free of foreign matter.

- B. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.
- C. Verify roofing termination and base flashings are in place, sealed, and secure.

### 3.03 WORKMANSHIP

- A. Form all sheet metal accurately and to the required dimensions and shapes.
- B. All exposed edges of cut sheet metal shall be folded back on concealed surfaces.
- C. Form, fabricate, and install all sheet metal so as to adequately provide for expansion and contraction in the finished work.
- D. Whenever possible, secure metal by means of clips or cleats without fastening through exposed metal.

### 3.04 WEATHERPROOFING

- A. Finish all sheet metal watertight and weathertight where so required.
- B. Where lap seams do not have a joint cover, lap according to the pitch of the roof, but in no case less than 3".
- C. Make all lap seams in the direction of the water flow.

### 3.04 JOINTS

- A. Join parts with rivets or sheet metal screws where necessary for strength or stiffness. All corner joints shall be soldered; or in the case of aluminum, welded, unless shown otherwise on the detail drawings.
- B. Provide suitable watertight expansion joints for all sheet metal as required for proper installation.
- C. Caulking of sheet metal shall be neatly and thoroughly performed for a watertight seal.

### 3.04 PREPARATION

- A. Install starter and edge strips, and cleats before starting installation.
- B. Install surface mounted reglets true to lines and levels. Seal top of reglets with sealant.

- C. Paint concealed metal surfaces with protective backing paint to minimum dry film thickness of 15 mils.

### 3.05 INSTALLATION

- A. General: Unless otherwise indicated, install sheet metal flashing and trim to comply with regulatory requirements, performance requirements, manufacturer's installation instructions, and SMACNA's *Architectural Sheet Metal Manual*. Anchor units of Work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install Work with laps, joints, and seams that will be permanently watertight and weatherproof.
- B. Install exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
- C. Fabricate nonmoving seams in sheet metal with flat-lock seams, to match existing seams, or as indicated on drawings.
- D. Separate metal from non-compatible metal or corrosive substrates by coating concealed surfaces, at locations of contact, with asphalt mastic or other permanent separation as recommended by manufacturer.
- E. Install in accordanc with Manufacturer's installation instructions and code requirements.
- F. Install water cut-off mastics and sealants, as recommended by Manufacturer.

### 3.06 FASTENING

- A. Secure metal as per detailed drawings.
- B. All clips and cleats are to be fastened a maximum of 12" O.C. with screws and 6" O.C. with ring shanked nails.
- C. For concealed fastening into wood, use hot dipped, double coated zinc ring shank roofing nails.
- D. For exposed fastening into wood or metal, use screws with EPDM backed washers.

- E. Secure metal flashings at roof edges according to FMG *Loss Prevention Data Sheet* 1-49 for specified wind zone.
- F. Provide for thermal expansion of exposed sheet metal Work.
  - 1. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1" deep, filled with mastic sealant (concealed within joints).
- G. Form non-expansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards. Fill joint with sealant and form metal to completely conceal sealant.
  - 1. Use joint adhesive for nonmoving joints specified not to be soldered.
- H. All fasteners to be corrosion resistant coated.

### 3.07 PERIMETER SHEET METAL & PENETRATION FLASHINGS

- A. Reglets and Counterflashings
  - 1. Install reglets to receive counterflashing according to the manufacturer's directions.
  - 2. Saw cut reglets in masonry and concrete construction shall be a minimum of 1" deep by ¼" wide.
  - 3. Coordinate installation of counterflashings with installation of assemblies to be protected by counterflashing.
  - 4. Install counterflashings in reglets or by an approved face fastening method - see the drawings.
  - 5. Secure in a waterproof manner by means of snap-in installation and sealant, lead wedges and sealant, interlocking folded seam, or blind rivets, screws with washers and sealant.
  - 6. Lap counterflashing end joints a minimum of 2" (50 mm) and bed with sealant.
  - 7. Form sections of counterflashings in 10' lengths, maximum.
  - 8. Counterflashing to extend down past the top termination of base flashings a minimum of 3".
- B. Copings
  - 1. Install metal copings with a minimum slope of ¼" per foot to the roof side of the parapet.
  - 2. Copings are to be secured on the exterior side using continuous cleats and on the interior side with self-drilling/self-tapping screws with EPDM backed washers with a maximum spacing of 18" o.c.
  - 3. Metal copings are to be provided with 1" high standing seam joints between sections unless otherwise noted on the drawings.
  - 4. Exterior face of metal copings are to extend down past the top termination of the exterior wall masonry, siding or other covering a minimum of 2".

5. Interior face of metal copings are to extend down past the top of base flashings 3" minimum in areas where base flashings are installed to the top of parapet walls.
- C. Equipment Support Flashing
1. Coordinate equipment support flashing installation with roofing and equipment installation.
  2. Weld or seal flashing to equipment support member.
- D. Hot Stack Flashings
1. Install hot stack flashings with a minimum clearance of 1" between vertical flashing sleeve and hot stack.
  2. Flange of flashing shall be 4" wide and height of flashing shall be 8" minimum.
  3. Fasten flashing flange through roof membrane into wood blocking with appropriate fasteners at a spacing of 3" o.c. staggered.
  4. Install non-flammable fiberglass batt insulation fill between stack and flashing sleeve.
  5. Install rain-hood to hot stack as detailed and seal with high-temperature sealant.
- E. Metal Edging and Gravel Stops
1. Gravel stops and metal edging are to be provided with 4" nailing flanges.
  2. When exterior face of gravel stop or metal edge exceeds 3" gravel stop or metal edging is to be secured exterior side using continuous cleats fastened 6" o.c. with ring shank nails or 12" o.c. with #12, minimum, pan head screws.
  3. Nailing flanges are to be fastened to underlying substrate at 3" o.c. staggered with ring shank nails.
  4. Exterior face of gravel stops or metal edgings are to extend down past the top termination of the exterior wall masonry, siding or other covering a minimum of 2".
  5. Ends of sections of gravel stops or metal edging are to be installed as follows:
    - a. Lapped 3" minimum with butyl sealant applied in the lap.
    - b. Installed with a ¼" space between sections with a 6" wide coverplate centered over the end joint.
    - c. Installed with a 1" wide "blind S-clip" at the end joint with butyl sealant embedded in the joint.
    - d. Installed with a 2' lap joint and stripped in with thermoplastic membrane 6" wide or as recommended by the roofing manufacturer (thermoplastic single ply systems only).

### 3.08 SOLDERING

- A. Clean surfaces to be soldered, removing oils and foreign matter.



- B. Use heavy soldering copper of a blunt design, properly tinned for use. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely.
- C. Perform all soldering slowly with well heated soldering copper in order to heat seams thoroughly and to completely fill them in.
- D. Make all exposed soldering of finished surfaces neat, full flowing, and smooth.
- E. After soldering, thoroughly wash and flux with a soda solution. Completely remove flux and spatter from exposed surfaces.
- F. All joints to be soldered shall be pre-tinned a minimum of  $\frac{3}{4}$ " from the outside edge prior to final fitting and soldering.

### 3.09 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.
- B. Provide final protection and maintain conditions that ensure sheet metal flashing and trim Work during construction is without damage or deterioration other than natural weathering at the time of Substantial Completion.

### **END OF SECTION 07 62 00/SHEET METAL FLASHING AND TRIM**

SECTION 07 90 00  
JOINT SEALERS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Preparation of sealant substrate surfaces.
- B. Exterior sealant masonry, metal wood and cement. Vertical and horizontal, exterior corners, re-entrant corners and all other joints presently executed with original sealant.

1.2 RELATED SECTIONS

- A. General Conditions -
- B. Section 07520 Temporary Roof
- D. Section 07 54 00 EPDM Roofing
- E. Section 024119 Building Demolition

1.3 SUBMITTALS

- A. Submit manufacturer's product data and installation instructions to owner's representative for each type of sealant required.
- B. Submit product data indicating sealant chemical characteristics, limitations, and color availability.
- C. Submit two samples six inches in size illustrating color of sealants to be installed.
- D. Submit manufacturer's letter of certification, to owner's representative, that products meet or exceed specified requirements and are appropriate for the uses indicated.
- E. Submit manufacturer's standard twenty-year warranty. Include coverage of installed sealants and accessories against failure to achieve airtight or watertight seal or loss of adhesion, cohesion or color stability.
- F. Submit manufacturer's letters stating that actual samples have been tested for adhesion and compatibility, and surface preparation recommendations are made based upon those tests.

1.4 QUALITY ASSURANCE

- A. Applicator: Company specializing in the installation of sealants with a minimum of five years experience.

1.5 MOCK-UP

- A. Construct a mock-up sample panel of 1 foot long by 1 foot wide, showing sealant types, colors and tooled surfaces.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original unopened packages with manufacturer's labels, instructions and product identification and lot numbers intact and legible.
- B. Store materials protected from the weather, in original containers or unopened packages, in

accordance with manufacturer's instructions.

## PART 2 PRODUCTS

### 2.1 SEALANTS

- A. One-component, premium-grade, polyurethane-base, elastomeric sealant. ASTM Specifications: C-920 Type M, Grade P & NS, Class 25. Federal Specifications: TT-S-00230C (COM-NBS) Class A for one-component building sealants  
1) "Sikaflex-1a" as manufactured by Sika Corporation, Lyndhurst, NJ, (201) 933-8800.
- B. Alternate: Two-component, premium-grade, polyurethane-base, elastomeric sealant of matching color.  
ASTM specification: C-920 Type M, Grade P & NS, Class 25.  
Federal Specifications: TT-S-00227E (COM-NBS) Class A for two-component building sealants of matching color.  
1) "Sikaflex-2c NS/SL" as manufactured by Sika Corporation, Lyndhurst, NJ, (201) 933-8800.
- C. Color: To match existing.

### 2.2 ACCESSORIES

- A. Backer Rod: Open cell polyurethane foam or closed cell polyethylene foam, compatible with sealant, sized and shaped to provide proper compression upon insertion in accordance with manufacturer's recommendations.
- B. Bond Breaker: Pressure sensitive adhesive polyethylene, TEFLON or polyurethane foam tape. For joints too shallow to allow backer rod.
- C. Masking Tape: Pressure sensitive adhesive paper tape.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify that surfaces and joint openings are free of defects, are in the specified dimensions, including tolerances, and are ready to receive the work.
- B. Beginning of installation means installer accepts existing surfaces.

### 3.2 PREPARATION

- A. Remove existing sealant from the joint between the surfaces. Removal shall be completed with an approved equipment procedure detailing in these specifications.
- B. Immediately before sealant installation, clean all surfaces, using one or any combination of the following methods: grinding, saw cutting, blast cleaning (sand or water) or mechanical abrading. The surface shall be cleaned to provide uncontaminated, dry surfaces suitable for the application of the new sealant and accessory products.
- C. Compressed air equipment shall be used to thoroughly blow out dust and all other loose particles from the joints.

**NOTE:** Contractor is advised that building employee vehicles are in the immediate vicinity of the sealant project. Beware of windblown dust that damages auto finishes. Exercise extra precautions in all work.

- D. Clean all joints and glazing pockets, removing all foreign matter and contaminants such as grease, oil dust, water, frost surface dirt, old sealants or glazing compounds.
- E. Masking:
  - 1) Protect all surfaces adjacent to the sealant with non-staining removable tape or other approved covering to prevent soiling or staining and to assure neat sealant lines.
  - 2) The masking tape shall not touch clean surfaces to which the sealant is to adhere.
  - 3) All substrates surrounding the sealant application areas shall be masked to prevent the contact of sealant with these surfaces.
  - 4) Extreme care must be taken to avoid the contact of sealant with the surrounding substrates because contact will leave a film that will change the aesthetic surface characteristics of the substrate. If the sealant is applied over the adjacent substrate, the contractor shall - at their own cost - clean the sealant, while still uncured, using xylol, toluol, or methylethyketone.
  - 5) Tooling of the sealant shall be completed in one continuous stroke immediately after the sealant application and prior to the formation of a sealant skin. The masking shall be removed immediately after the tooling.

### 3.3 INSTALLATION

- A. Joint Filler Application
  - 1) Install joint filler and backer rods to depths necessary to result in sealant depths indicated in the guidelines. If joint is of insufficient depth to receive joint fillers or backer rod, install bond breaker tape to the bottom of the joint to prevent sealant bonding to the bottom of the joint ("three-sided adhesion").backing rod while installing. Install backing rod so that joint depth is 50 percent of joint width, but a minimum of 1/8-inch deep and a maximum of 3/8-inch deep.
- B. Mixing Sealant Components:
  - 1) Mix two-part components in accordance with manufacturer's latest printed specifications.
  - 2) Pour entire contents of Component "B" into pail of Component "A".
  - 3) Add entire contents of Color-Pak into pail and mix with a low speed drill (400-600 rpm) and Sikaflex paddle. Mix for three (3) to five (5) minutes to achieve a uniform color and consistency.

**NOTE:** When mixing a 3-gallon unit two (2) containers of Component "B" and two (2) Color-Pak's must be used.

- C. Sealant Application Guide Lines:
  - 1) Sealant shall be applied in beads no thicker than 3/8-inch and no thinner than 1/8-inch.
  - 2) The ratio of joint width to sealant depth shall be a minimum of 2:1.
  - 3) Sealant installation shall be in compliance with the following sealant depth guidelines:  
Minimum joint size: ¼-inch in depth by ¼-inch in width. Minimum depth of sealant in horizontal joints subject to traffic is ½-inch.
  - 4) Do not apply sealant when the outside temperature is below 40 degrees Fahrenheit or above 100 degrees Fahrenheit, unless specifically waived by the sealant manufacturer and approved by the Architect/Consultant.
  - 5) Do not apply sealant to any surface with perceptible moisture in any form. Allow adequate time before start of sealant work to permit complete evaporation of all surface moisture.
  - 6) Do not use sealant that is too gelled to be discharged in a continuous flow from the gun. Do not modify the sealant by addition of liquids, solvents or powders.
- D. Sealant Application:
  - 1) Apply Sika 2c NS/SL sealant in a continuous operation using positive pressure adequate to properly fill and seal the joint.
  - 2) Use air guns of sufficient pressure, and with properly sized nozzles, to force the sealant into the joint solidly, without voids. Place the nozzle of the gun into the bottom of the joint and fill the entire joint. Keep the nozzle deep into the sealant and continue with a steady flow preceding the nozzle to avoid air entrapments.

- 3) Do not overlap the sealant.
- 4) Tool the joint immediately after installation, in one continuous stroke, to ensure firm and full contact with the opposing surfaces of the joint and before a skin forms. The finished bead is to be slightly concave, uniformly smooth, and free of wrinkles, bubbles, or sags.
- 5) As the work progresses, remove surplus material and masking. Remove smears and excess sealant as recommended by the sealant manufacturer, leaving adjacent surfaces clean, and without damage.

#### 3. 4 CLEANING

- A. Remove all excess materials adjacent to joints by mechanical means or mask to prevent evidence of spillage or damage to adjacent surfaces.
- B. Leave finished work in neat, clean condition with no evidence of spillovers onto adjacent surfaces.
- C. When using flammable solvents, avoid heat, sparks and open flames. Provide necessary ventilation. Follow all precautions and safe handling recommendations from the solvent manufacturer and pertinent local, state and federal regulations.

END OF SECTION

**ATTACHMENT A**  
**PERFORMANCE AGREEMENT**

The undersigned agrees to maintain the sealant application system at the Jackson City Hall Building, Jackson, Michigan, for a period of 5 years from the date of final acceptance. During that period, we will inspect and make temporary repairs to defects and leaks in the sealant application system within 24 hours of notification from City of Jackson. As soon as weather permits, we will make permanent repairs to restore the affected areas to the standard of the Contract Documents. It is understood that all this work will be done without cost to City of Jackson, unless it is determined that leaks and defects were caused by abuse, or by natural phenomena, or by related work of others.

Final Acceptance Date: \_\_\_\_\_

End of Performance Agreement Date: \_\_\_\_\_

Name of Sealant Application Contracting Firm: \_\_\_\_\_

Address:

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Telephone: \_\_\_\_\_

Roofing Contractor's Authorized Signature:

\_\_\_\_\_

\_\_\_\_\_  
(Printed or Typed)

Date: \_\_\_\_\_

## **SECTION 22 14 26.13 ROOF DRAINS**

### **PART 1 - GENERAL**

#### **1.01 DESCRIPTION**

- A. Furnish new clamping rings, domes, and bolts for all existing drains where existing drain components are broken, deteriorated or otherwise un-useable. Replace broken or damaged drain bowl assemblies on a unit price basis.
- B. Install new roof drains, drain lines and tie-ins to existing plumbing where noted on the drawings or on a unit price basis as authorized by change order.

#### **1.02 RELATED SECTIONS**

- A. Section 07 53 00 - Mechanically Attached Thermoplastic Single Ply Roofing

#### **1.03 SUBMITTALS**

- A. As provided in Section 01 33 00.

#### **1.04 QUALITY ASSURANCE**

- A. As provided in Section 01 33 26.

#### **1.05 REGULATORY REQUIREMENTS**

- A. All roof drains and plumbing work shall be installed by a licensed plumber in accordance with all applicable local and State building codes and regulations.

#### **1.06 SEQUENCING AND SCHEDULING**

- A. Proceed with permanent plumbing installations concurrently with membrane roofing.

### **PART 2 - PRODUCTS**

#### **2.01 ROOF DRAINS**

- A. Replacement roof drains to be equivalent to the Z-100 Dura coated main roof drain, with a cast iron body and combination membrane flashing clamp/gravel guard and low silhouette aluminum dome, as manufactured by



Zurn or approved equal. Drains to have no hub option for use with no hub piping. Install 18 gage galvanized steel roof sump receiver at all drains.

- B. Replacement roof drains and roof drain parts shall match existing construction with regard to type, size and configuration to the extent possible.
- C. Replacement roof drains shall match existing size where replaced on a unit price basis.
- D. New roof drains shall be 4" diameter drains unless otherwise noted on the drawings.

## 2.02 DRAIN LINES

- A. Schedule 40 PVC piping, tie-ins to existing plumbing and accessories for new drain lines shall meet the requirements of all applicable State and Local building codes. Where required by code cast iron drain lines shall be used in lieu of PVC piping.

## 2.03 PIPE INSULATION

- A. All horizontal piping shall have 1/2" fiberglass insulation with integral vapor barrier with Zeston fittings or approved equal.

## 2.04 EXPANSION JOINT COUPLINGS

- A. All new roof drains shall be provided with flexible, no-hub, expansion joint couplings between the drain outlets and the new drain lines.

# PART THREE EXECUTION

## 3.01 INSTALLATION - DRAINS

- A. Install interior protection below the area where drains are to be installed or replaced prior to proceeding with the demolition work.
- B. Cut appropriate opening if necessary and install steel roof drain sump pans on existing decking and fasten to deck 6" o.c. with #14 self-tapping sheet metal screws.
- C. Provide 1.5" X 1.5" X .25" angle iron support framing under the new drain sumps. Securely fasten new angle iron supports to existing roof framing members.
- D. Install new roof drain body in new sump per the manufacturer's recommendations.

### 3.02 INSTALLATION - DRAIN PIPING

- A. Install all no hub piping, sized as required for new drains as is appropriate, securely supported from building structure on 10 foot centers or less, if necessary, for proper installation. Minimum pitch to be 1/8" per foot.
- B. Properly support all fittings and joints such that they do not bend or warp.
- C. All horizontal piping shall have 1/2" fiberglass insulation with integral vapor retarder to prevent condensation. Tape all joints.

### 3.03. QUALITY CONTROL

- A. The building is to remain absolutely watertight during installation of new drains. The deck and new membrane is not to be cut if any ponded water exists on roof surface.
- B. Be careful not to damage any interior or exterior finishes, including floors, ceilings, and walls.
- C. Restore all surfaces damaged by the operations of this section to like new condition, at no additional cost to the owner.

### 3.04 VERIFICATION

- A. Upon completion of the installation of each drain and attached piping, visually inspect and verify that all components are complete and properly installed. Verify that all new drains and piping are securely attached to the building structure, are in working order, and are absolutely watertight via water testing.

### 3.05 CLEANUP

- A. At completion of all plumbing work, remove all construction debris and equipment from job site. Contractor is to ensure that all building components (ceilings, lights, etc.) are undamaged and properly in place.

## **END OF SECTION 22 14 26.13/ROOF DRAINS**

# Flood Test Acknowledgement

Pursuant to Substantial Completion and by executing this document, the contractor confirms that:

1) A Flood Test of the roof has been completed to insure all drains are working and no leaks occur in the roof drainage and flashing systems or any other work completed for completion of the Contract Documents.

- Document flood testing with photographs and submit to Owner/Consultant any documentation of leaks, prior to final payment.

*School/Bldg.:* \_\_\_\_\_

*Address:* \_\_\_\_\_

Acknowledged By: \_\_\_\_\_  
*Name*

\_\_\_\_\_  
*Signature Date*

\_\_\_\_\_  
*Company Name*  
Date



PPROJECT SUMMARY

SUMMARY OF WORK: ref. Section 00 02 00

General: Troy School District (TSD) 2018 Roof Program work for five (5) schools and one (1) District building covering approximately 145,925 sq. ft. Roofing work includes roof replacement and restoration required to remediate all work identified in the specifications and drawings inclusive of all Bid Documents requirements.

Schedules: Ref. "PROJECT WORK SCHEDULE" on this Sheet A1.0 - Cover Page.

BID SUMMARY:

- Contractor proposal and two copies will be submitted only on the forms provided and will be enclosed in a sealed envelope marked with the name of the bidder, the title of the work, the time, place and date due and must be hand delivered or delivered by courier no later than 10:00 A.M., Wednesday, November 29, 2017, Administrative Building, Troy School District, 4400 Livernois, Troy, Michigan 48098, at which time all bids will be publicly opened and read aloud immediately thereafter. Bid proposals received after this time will not be considered or accepted. Oral, telephone, fax or electronic mail bids are invalid and will not receive consideration.
  - Bid Bond: Submit with bid five percent (5%) bid bond or certified check.
- Pre-Bid Conference: A mandatory pre-bid conference will be held at Administration Building, 4400 Livernois, Troy, MI 48098, on Monday, November 20, 2017 at 10:00 am Local Time. The roofing contractors will have access to walk the roofs on Wednesday, November 22, 2017. (Between 8am-4pm)
- Bid Form Section 000300: Bid Form to contain Base Bid including all work as specified in Bid Documents including performance (Section 000300) and payment bond (Section 000304) fees, number work days to complete work, square footages are required on Bid Form found in Section 000300.
  - Allowance expenditures shall be documented and compensated on a unit pricing basis per the Unit Pricing Bid Form (Section 000301) values provided.
- Allowances Section 012100: Allowances will be defined on individual school roof plans under "Allowances" and are to be included in Base Bid value found in Section 000300.
  - Allowance expenditures shall be documented and compensated on a unit pricing basis per the Unit Pricing Bid Form (Section 000301) values provided.
- Unit Pricing Section 004322: Unit Pricing for unit work is defined on the Unit Price Bid Form in Section 000301. Unit Pricing bid values are entered by unit price individually on form.
- Alternates Section 012300: Alternates are individually listed on school roof plans and bids for Alternates. Alternated bid value are to be entered on Bid Form (Section 000300) as enumerated.
- TSD reserves the right to issue contracts to multiple contractors.
- Any questions regarding bid specifications must be received noon, Monday, November 27, 2017. Questions must be submitted in writing on the WTT website using the online RFI form at [www.wtcgproject.net](http://www.wtcgproject.net) any questions on how to use the RFI form contact Ann Crispen at (586) 731-3095 x10 or Geof Garabedian at (586) 731-3095 x12. No response will be made to oral questions.

EXISTING ROOF SYSTEM CONSTRUCTION: ref. Roof Plans

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions.

REPLACEMENT ROOF ASSEMBLY SUMMARY:

- Roof System: Ref. Roof Plan Schedules
  - Roof Membrane: EPDM, 60 mil, unreinforced and fully adhered;
  - Insulation: Min. R20, min. two layers. Top layer must be adhered.
  - Underlayment: Modified base sheet, mechanically fasten. Reference Individual Roof Plans.
  - Deck: Multiple types Reference individual Roof Plans.
  - Warranty:
    - Roof replacement: 20 yr. Materials manufacturer, No Dollar Limit materials and installation;
    - Restoration: 2 yr No leak warranty, contractor.
- Roof System Performance: Ref. Roof Plan Schedules
  - Wind : FM Global (FM): FM Standard 4470 Meets - Windstorm Classification FMG 90
  - Fire: Underwriters Laboratory External Fire Resistance - Class "A".
  - Energy: Michigan Uniform Energy Code: Insulation R-value: R20.
  - Drainage: Drainage Performance Acknowledgement"

RESTORATION:

Ref. School Sheet(s), RepairRestoration Manuals

- Troy Union only applies to this work.
  - Drawings of each roof area with defect locations marked on plan using 10 ft. x 10 ft.
  - All defect to be repair by designated code number for BUR NRCA manual for TSD Restoration work as revised and amended by WeatherTech Consulting Group, Inc. for completion of restoration work:
    - BUR Manual
    - Thermoplastic Repair Manual
    - Thermoset Repair Manual

GENERAL SHEET NOTES

- All work shall be executed with accordance with the appropriate document of the Contract Documents.
- Any conflicts between specifications and drawings shall be brought to the attention of the Owner and Consultant immediately. In all situations the more restrictive and higher quality shall govern.
- All dimensions to, of, and in existing building and roof shall be verified in the field by contractor. Field measure existing conditions to verify material quantities and dimensions prior to fabrication on component material.
- Details shown are typical. Similar details apply to similar conditions unless otherwise indicated.
- The drawings herein are related to an alteration/ restoration to an existing structure. The specified work was based upon as much observation, destructive testing, etc. as circumstances permitted.

GENERAL CONSTRUCTION DETAIL NOTES

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Flashing Heights: Perimeters, curbs, penetrations shall be raised as necessary to meet the new insulation heights, tapered edge strip and tapered insulation height to meet typical industry standard of 8 in. base flashing height.
- Drains Existing: Remove existing drain flashings. Furnish and install ½ inch per foot sloped tapered insulation sump area as detailed. Clean and reuse existing drains and accessories, replace all damaged, nonfunctional, incompatible, missing and broken drain components. All replacement bowls, strainers, and clamping rings shall be cast iron. All nonmetallic drains strainers shall be replaced with fitted Refer to Details 1.10 and 1.12. Overflow drains same requirements as noted above. Refer to Details 1.11 and 1.13.
- Drains New: Furnish and install new drains as indicated on drawing. New drains to tie into existing primary drain. Size to match existing up 3 in. dia. (Use 3 in. dia for bidding). Contractor to provide all drains, leaders and hook ups as necessary for fully functional drains.
- Tapered Insulation: Furnish and install new tapered insulation, crickets, saddles and kick-backs as designated on roof plan to provide a finished slope of 1/4 in/ ft slope and a min length to width ratio of 3:1. All equipment w/ curb size greater than 24 in. shall have cricket install on up slope side. Contractor responsible for identifying and notifying Consultant and Owner all existing tapered insulation not called out on plans for determination of unit costing. Verify in Pre-bid Conference additional ponded areas identified on the roof and install as noted.
- Curbs - Movable Equipment: Lift equipment from curbs; run new fully adhered membrane flashing up and over top of curb; install continuous sealing material over top of curb. Reset equipment and mechanically fasten to curb. Coordinate with Owner prior to installing equipment. Install new flashings. Metal equipment flashing and/or counter flashing must extend a minimum of 3 in. past the termination of the base flashing; add metal counter flashing as required. Refer to Details 1.17 and 1.18.
- Curbs - Non-Movable Equipment: Terminate new fully adhered membrane flashing at unit framing member. Metal equipment flashing and/or counter flashing must extend a minimum of 3 in. past the termination of the base flashing; add metal counter flashing as required. Refer to Details 1.15 and 1.16.
- Equipment on Support Curbs - Non-Movable Equipment: Cut corners of metal flashing cap, terminate new adhered membrane flashing to curb nailer. Reposition metal; install new shop fabricated corner metal, welded and set in sealant. Wire brush and apply rust inhibitive paint to rusted cap metal. Refer to Details 3.04 and 3.18.
- Equipment on Support Curbs - Movable Equipment: Raise or move equipment to furnish and install new metal cap on curb. Refer to Details 2.12.
- Round penetrations: All penetrations shall be cleaned down to surface where any sealant will contact; install new prefabricated pipe boots or field wrap with membrane. Install draw band and sealant Refer to Details 2.01, 2.02, 2.03 and 2.04.
- Heat Stacks: Reuse existing metal jacks and storm collars. Clean surfaces and apply new field wrapped EPDM flashing. Reattach and reseal storm collars. Refer to Detail 2.05.
- Steel Support Posts: Install split pipe boot or field wrap flashing with membrane. Terminate with draw band and sealant Refer to Details 2.06, 2.08, 2.09, 2.10 and 2.11.
- Prefabricated Pipe Chase Cover: Reuse existing pipe cover. Replace any damaged or missing clamping bands or sealants. Refer to Detail 3.05.
- Gas line and conduit support blocks: Reuse existing wood supports and sleepers. Install pads under all wood supports. Replace any damaged wood with matching wood or rubber support blocking Refer to Details 2.17 and 4.04.
- Condensate Drain Lines: Reuse, repair or replace all damaged or unusable drain lines. Add additional drain line to extend minimum 4 ft from equipment or to any drains within 20 ft. Provide manufacturer's approved splash pan/pad/block where condensate drainage water would contact the roof membrane.
- Abandoned Curbs & Penetrations: Existing abandoned equipment curbs flash according to General Note C. Owner will mark all equipment to be removed and the curb capped. Remove all equipment and curbs as designated by owner and identified at the prebid conference. Where directed, remove curbs flush to deck surface, install framing and matching decking material. For abandoned curbs to remain in place, install new base flashing and install new 24 gauge sloped metal cap. Provide interior protection when removing any equipment or penetration. All small round abandoned penetrations that have no utility service as confirmed by Owner and licensed contractor shall be removed to deck patched according to deck type. Refer to Details 3.03 and 3.04.
- Pitch pans: Pitch pans can only be used when approved by Consultant. In the event they are to be used furnish and install new pitch pans, clean all penetrations down to original surface, blocking required at all pitch pans. Ref. Details 2.06 and 2.07.
- Satellite Dish Ballasted Stand: Prior to moving any satellite dish coordinate with Owner and use Owner approved communications contractor to move, reset and recalibrate satellite stand. When repositioning over the new membrane. Furnish and install new pads under satellite stand strong enough to distribute satellite weight without crushing insulation.
- Base Flashing Surface Mounted Two - Piece: Two piece is the standard for surface. Furnish and install new termination bar to match existing locations and conditions. Refer to Details 1.06 and 3.16.
- Parapet w/ Metal Cap Flashing: Furnish and install new prefinished metal coping, color as selected by Owner. For base flashings extending above 18 inches install 2-piece base and wall flashing. Ref. Details 1.05, 3.09, 3.10, 3.11 and 3.12.
- Base Flashing w/ Metal Wall Siding: Loosen and/or remove existing metal siding flashing. Install base flashing w/ term bar and sealant. Furnish and install new (or reuse functional existing) flashing metal panel and fasten siding w/ new gasketed fastener. Ref. Detail 1.09.
- Base Flashing w/ Thru-Wall Flashing: Confirm if through wall flashing has weep holes do not cover any weep holes. Reuse existing thru-wall metal flashing. Furnish and install new metal counterflashing. Repair and repoint all coping stone and mortar joints to assure watertight condition. Ref. Detail 1.07.
- Base Flashing w/ Existing Reglet: Remove existing reglet/ Furnish and install new prefinished metal coping, color as selected by Owner. Extend base flashings up and over coping. For base flashings extending above 18 inches install 2-piece base and wall flashing. Ref. Detail 1.08.
- Door Threshold: Remove threshold plate and carry flashing up over and set in water block. Before resetting threshold mechanically attach termination bar, fasten min. 6 in. o.c. Door Threshold: Remove and dispose of existing counter flashing. Roof flashing to extend up and under existing threshold plate. Furnish and install new metal counter flashing and sealant.
- Area Divider: Furnish and install new cap metal, replace damaged wood nailers. Ref. Detail 2.18. Consultant approved low profile for areas divider for separating two different types of roof systems. Ref Detail 4.13.
- Abandoned Lightning Protection: Remove all existing lightning protection cable, attachment cleats, air terminals and penetrations. Identify salvage value on bid form. Seal all holes from fasteners and lightning protection equipment left from demolition on roof top component to be left in place.
- Roof to Wall Expansion Joint: Furnish and install new metal expansion joint. Ref. Detail 3.01, 3.02 and 4.06.

- Non-Standard Roof Transitions: Contractor to provide manufacturer written approved transition shop drawings. Roof Transition: Install new metal edge at transition; install tapered edge strip to reduce ponding at edge. Run base flashings using sheet widths in vertical run. Ref. Detail 3.06.
- Overflow scupper: Furnish and install new through-wall scupper and face frame. Face frame prefinished, size and color to match existing. Ref. Detail 1.14, 4.01, 4.02 and 4.03.
- Metal Edge: Remove existing fascia/ water dam; install new 24 gauge prefinished galvanized metal edging, standard color as selected by Owner, min. 4 in. hemmed flange. Refer to Details 1.03 and 1.04.
- Roof curb building out the sides to match the roof cap base opening: Remove existing fascia/ water dam; install new 24 gauge prefinished galvanized metal edging, standard color as selected by Owner, min. 4 in. hemmed flange. Refer to Details 1.17 and 1.18.

Project Manual

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BUR Manual
THERMOPLASTIC REPAIR MANUAL
THERMOSET REPAIR MANUAL

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PROJECT WORK SCHEDULE

School	Reroofing sq. ft.	Restoration sq. ft.	TSD 2018 Roof Work	Project Time Frame
Troy Athens HS	53,200		Roof Area C Roof Area A: Sec. 1, Sec 2, Sec. 6, Roof Area F: Sec. 3, Sec. 4, Roof Area I	6/18/18-8/17/18
Morse Elementary School	15,325		Roof Area C: Sec 1, 2, 3, 4	6/18/18-8/17/18
Niles Community HS	14,650		Roof Area G and H	6/18/18-8/17/18
Transportation Bldg.	1,275		Roof Area C	6/18/18-8/17/18
Troy High School	4,625		Roof Area (s) N2, P1	6/18/18-8/17/18
Troy Union Elementary School	13,100	4,400	Reroof Roof Area (s) A, B; Restoration Roof Area E	6/18/18-8/17/18
Base Bid	102,175	4,400		
Alternate Bid No. 1 Troy Athens HS	43,750		ALT. Bid Reroof Roof Area A Sec. 3, 4, 5, 6, 7, 8, 9, 10, 11	6/18/18-8/17/18
Total Roof Area (sf)	145,925	4,400		

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DIRECTORY

OWNER:  
Troy School District  
4400 Livernois  
Troy, MI 48098

CONTACT:  
Rob Carson  
Dir of Operations  
Phone: (248) 823-4067  
Email:RCarson@troy.k12.mi.us

PROJECT LOCATION:

See Project List below

Contact:

Michelle Kern - Bond Rep  
Phone: (248) 921-3929  
Email: MKerns@troy.k12.mi.us

ROOF CONSULTANTS:  
WeatherTech Consulting Group, Inc.  
7747 Auburn Road  
Utica, Michigan 48317

CONTACT  
Geof Garabedian  
Principal/Project Manager  
Phone (586) 731-3095 ext 12  
Email: ggarabedian@wtcg.net

PROJECT LOCATIONS

Athens High School	4333 John R Rd. Troy, MI 48085
Morse Elementary School	475 Cherry Dr. Troy, MI 48083
Niles Community High School	201 Square Lake Rd, Troy, MI 48098
Transportation Building	120 Hart Dr Troy MI 48098
Troy High School	4777 Northfield Pkwy. Troy, MI 48098
Troy Union Elementary School	1340 E Square Lake Rd, Troy, MI 48085

PROFESSIONAL



WeatherTech

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WEB SITE:www.wtcg.net

CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Troy School District  
**BID NO. 9848**  
2018 Roofing Program

WTProject No:

TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/06/17	90% Review Set
11/10/17	OTB

File Name: Roof Plan

Drawn By: MD

Checked By: GG, AW, AC

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SHEET TITLE

Cover Page

A1.0

Sheet 1 of 23



Athens High School - Troy School District  
Sheet Notes: Roof Area A: Sections 1, 2, 6  
Schedule

WORK DESCRIPTION - ROOF REPLACEMENT

Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area A: Sections 1, 2 & 6: 18,250 sq. ft.

- New Roof System
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer mechanically fasten to deck;
    - Second insulation layer adhere to first layer of insulation;
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Deck: Metal: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.

- Building Height: Ground to building edge: 20+ ft.

- EXISTING ROOF SYSTEM CONSTRUCTION  
All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:

Core Sample Results

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
  - Insulation:
    - First insulation layer Approx. 1.0 in. polyisocyanurate insulation;
    - Second insulation layer ½ in. wood fiber insulation
  - Tapered Insulation: Exists in various locations.
  - Deck: Metal: Multiple types, contractor to verify.
- Warranty/Guarantee
    - Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.
  - Allowances: Add to base bid \$14,000 for allowances covering Unit Price and contingency items.

General Construction Details: Ref A1.0

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

Key Notes:

All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Metal Walls: Remove old metal counter flashing for roof base flashing as applicable. Furnish and install new base flashing and new counter flashing. Ref. Photos 2947, 2959, BF3.
- Raised Perimeter Edge: Furnish and install new metal edge detail. Ref Photo 2940, EM3.
- Area Dividers: Furnish and install new low profile area dividers as needed to accommodate tapered insulation specified as noted on Plan. Ref. Photo 2957.
- Expansion Joint: Furnish and install new expansion joint separating Secs 2, 6 from Sec. 3, 7 (NIC). Ref. Photo P2956, BF7.
- Area Divider: Between sections 2 and 6: Ref. Photo 2957. Contractor to confirm no structural deck issues that would require area divider or Expansion joint, if not required, remove existing area divider and roof over.
- Ladders: Furnish and install new wall mounted OSHA compliant ladder;
- Tapered insulation: Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights. Ref. Photos 2947 and 2982.
- Door Thresholds: If waterproofed as part of roof system furnish and install new base flashings under threshold plate or mechanical termination. If separated from base flashing not do not disturb door.
- Satellite: Do not disturb position, disconnect or rotate satellite, Ref. Photo 2972.
- Masonry Reglet: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing. Ref. Photo 2982.

PROFESSIONAL



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CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Athens High School  
4333 John R Rd.  
Troy, MI 48085

Troy School District  
BID NO. 9848  
2018 Roofing Program

WTProject No:

TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50%Review Set
11/06/17	90%Review Set
11/10/17	OTB

File Name: Roof Plan

Drawn By: MD

Checked By: AW, GG, AC

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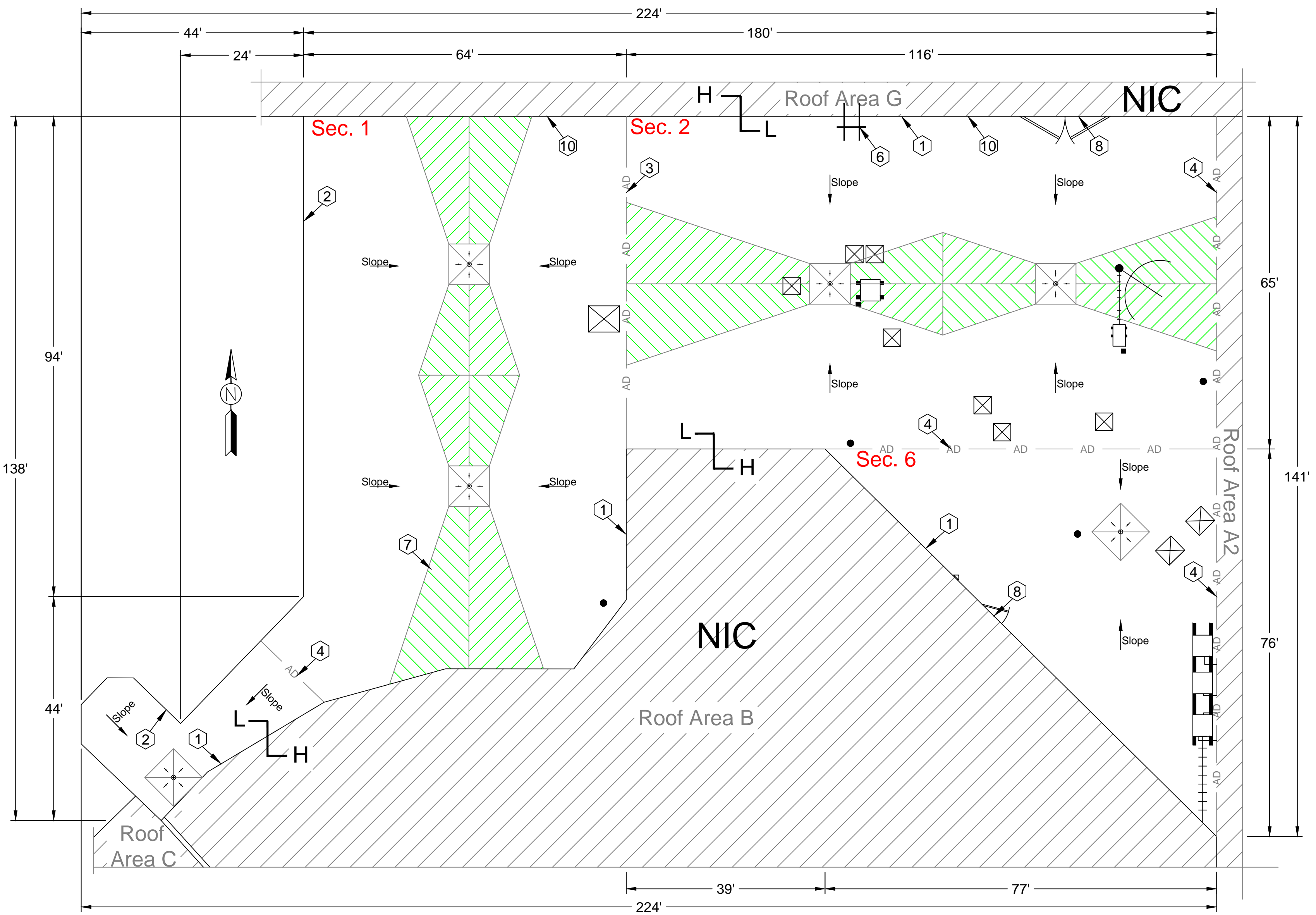
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SHEET TITLE

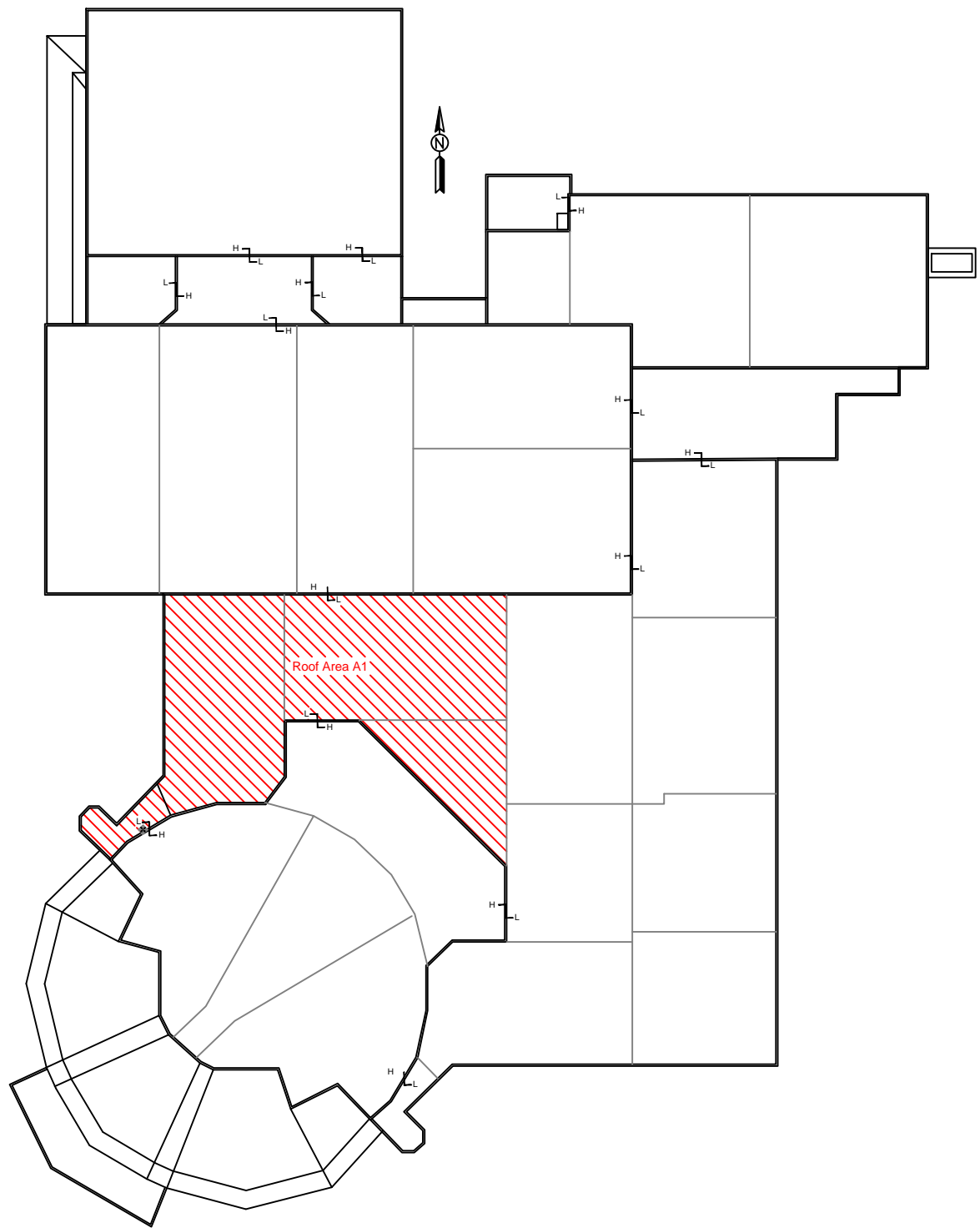
Athens High School,  
Roof Area A, Sec 1, 2,  
& 6  
Roof Plan

A2.0

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Key Plan



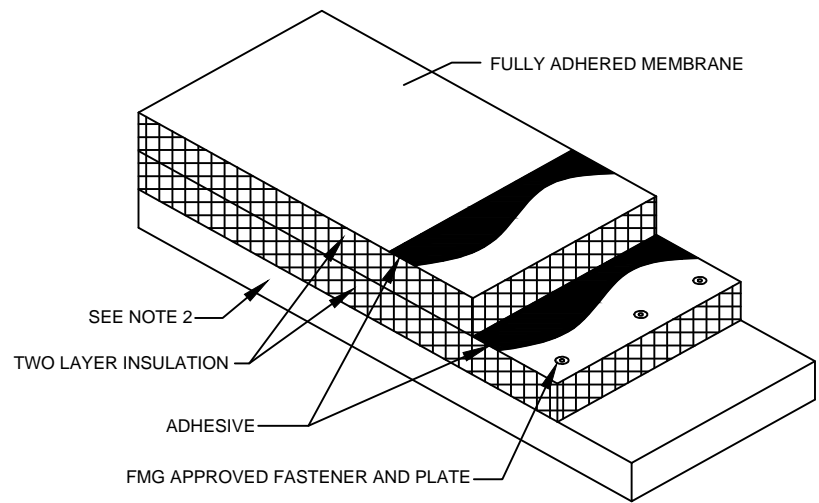
Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	H	Roof Hatch	Walk Way	
○	Vent Stack	S	Skylight	Elevation Change	
⊙	Insulated Pipe	A	Abandoned Equipment	Ladder	
⊙	Insulated Stack/Pipe on Curb	OF	Overflow Drain	123	Photo Indicator
●	Screen support stanchion	⊗	Drain	01	Key Note
■	Tube/Structural Equipment Support	⊕	New Drain	⌒	Satellite Dish
■	Pitch Pan		Overflow Scupper	Ⓒ	Core cut
■	Equip. on Support		Scupper	02	Revision/ Addendum
■	Equip. on Sleepers/Wood Blocking	—	Expansion Joint	Green Hatched	Tappered Insulation
⊗	Equipment Unit on Curb	G G	Gutter	Vertical Lines	Metal Roofing
□	Duct or Flanged Equipment	R R	Ridge	Brick Pattern	Shingles
—	Area Divider	+++	Pipe/ Conduit on Blocks	+++	Pipe/ Conduit Attached to Parapet

Athens High School

Roof Plan

Roof Area A, Sections 1, 2, 6

Scale:

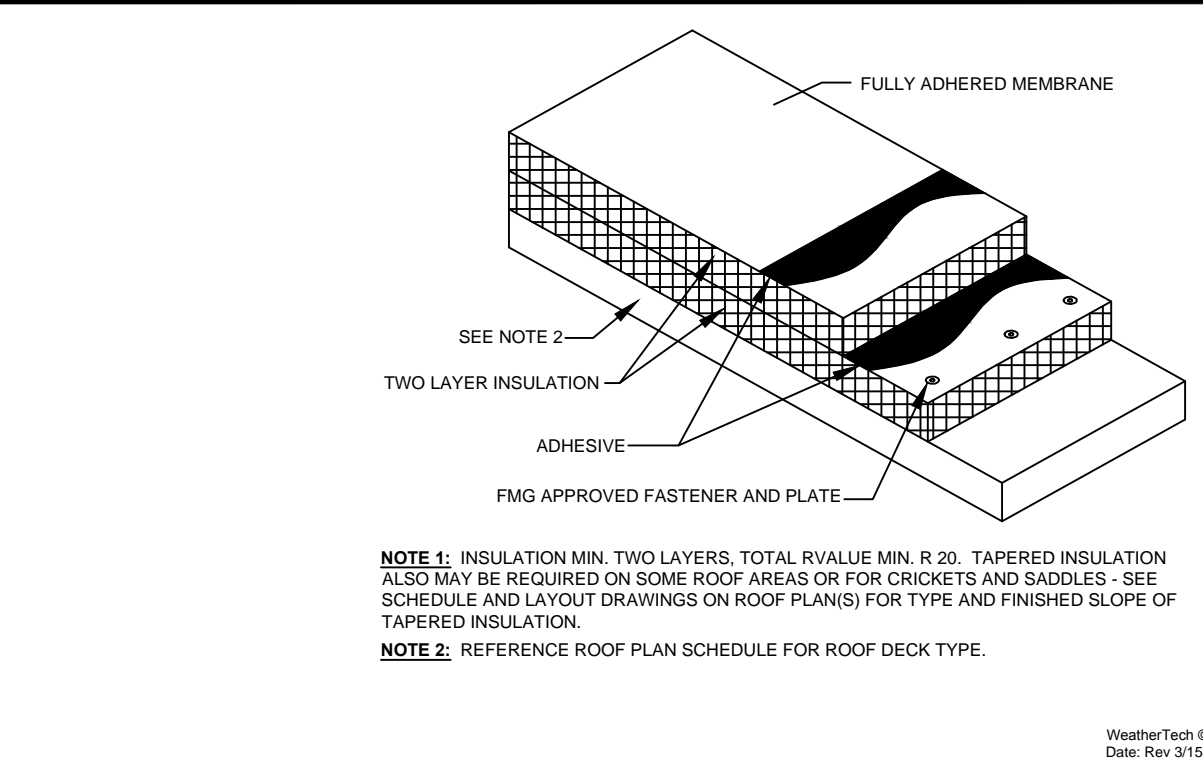


NOTE 1: INSULATION MIN. TWO LAYERS, TOTAL RVALUE MIN. R 20. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS (ON ROOF PLAN(S)) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.  
NOTE 2: REFERENCE ROOF PLAN SCHEDULE FOR ROOF DECK TYPE.

FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S.

1.01

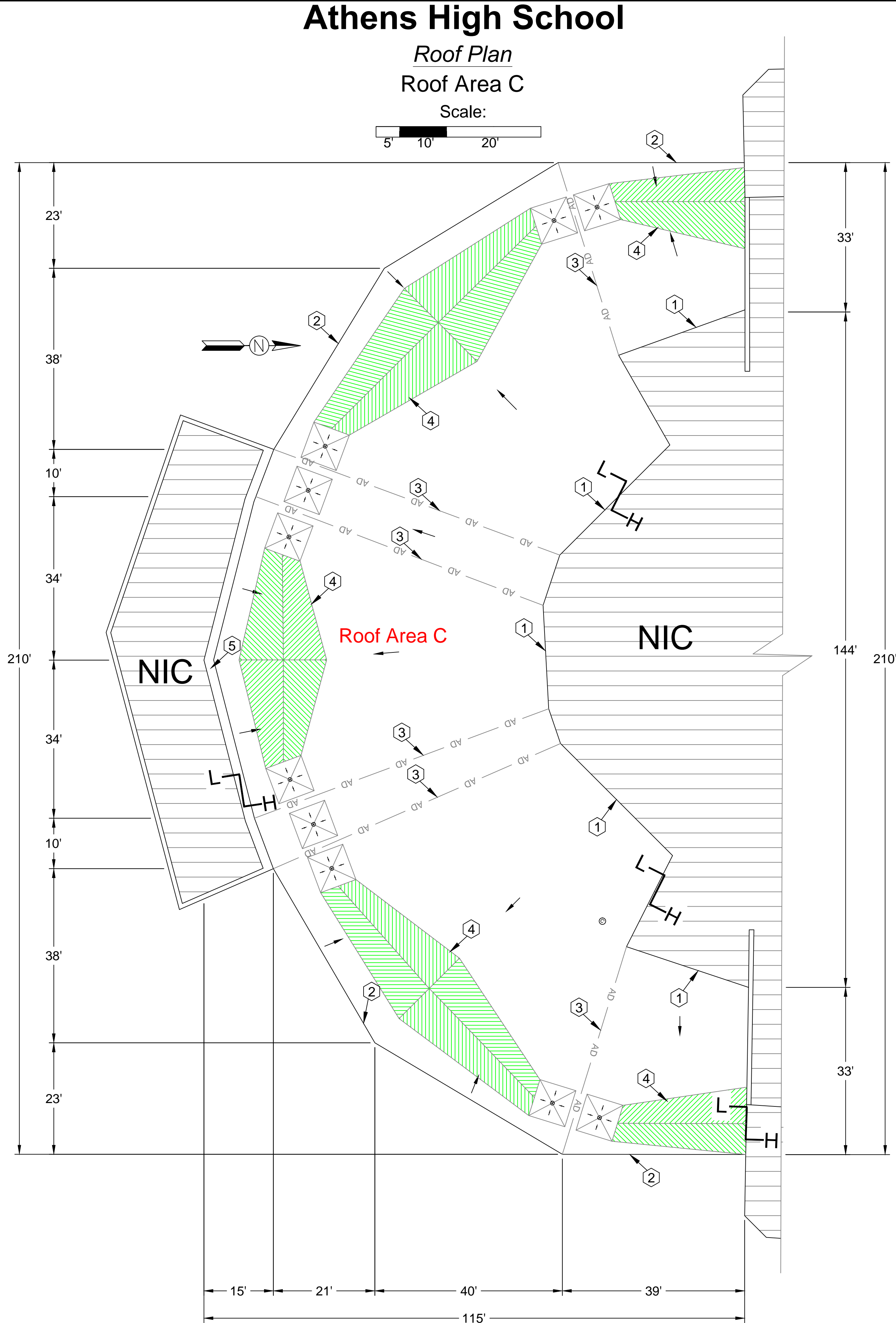
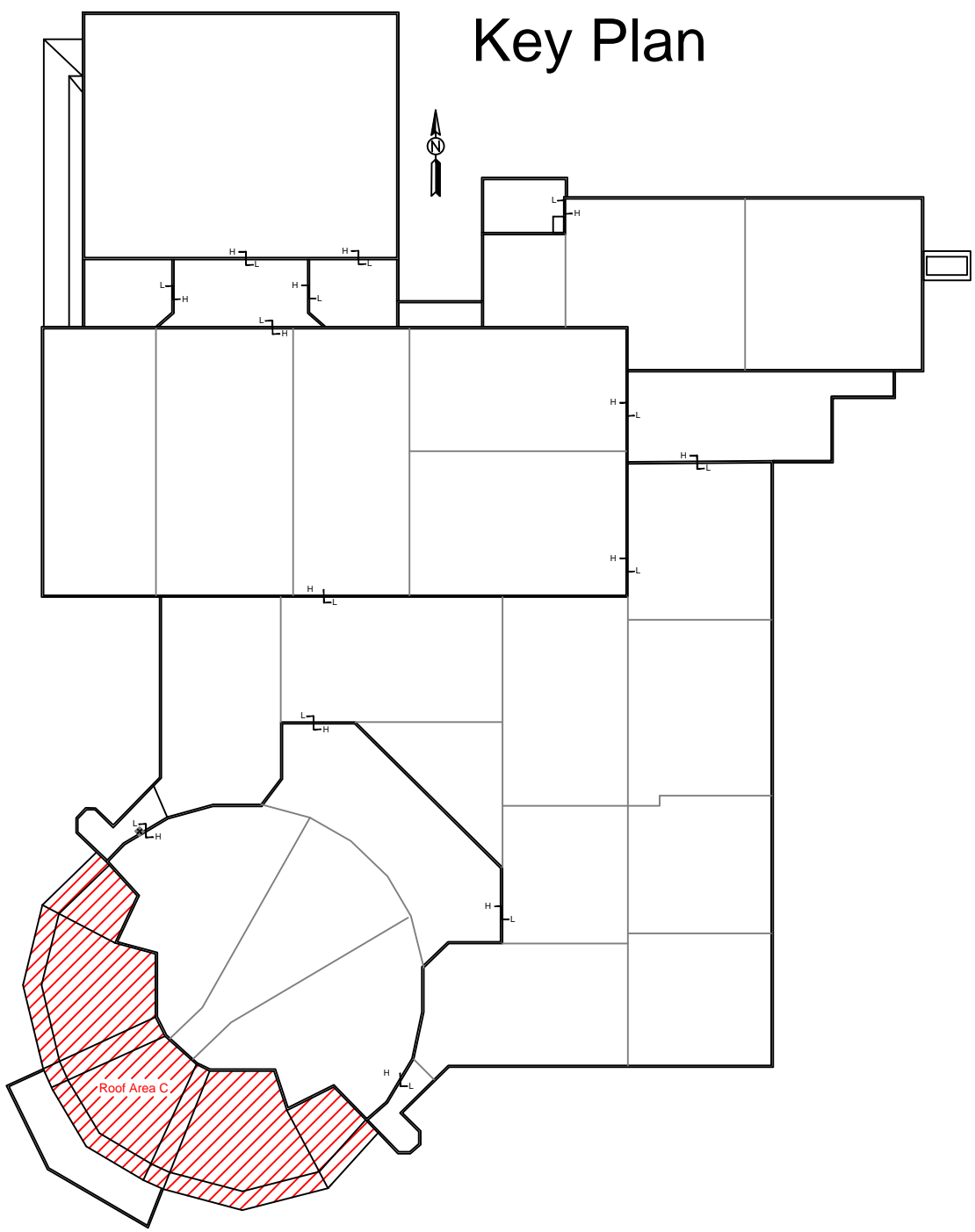




FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S.

1.01

Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	[H]	Roof Hatch	[W]	Walk Way
○	Vent Stack	[S]	Skylight	0' ↗ +15	Elevation Change
⊙	Insulated Pipe	[A]	Abandoned Equipment	⋈	Ladder
⊙	Insulated Stack/Pipe on Curb	⊗ OF	Overflow Drain	123	Photo Indicator
●	Screen support stanchion	⊗	Drain	01	Key Note
■	Tube/Structural Equipment Support	⊕	New Drain	⌒	Satellite Dish
■	Pitch Pan		Overflow Scupper	⊙	Core cut
■	Equip. on Support		Scupper	△ 02	Revision/ Addendum
■	Equip. on Sleepers/Wood Blocking	—	Expansion Joint	▨	Tapered Insulation
⊗	Equipment Unit on Curb	G G	Gutter		Metal Roofing
□	Duct or Flanged Equipment	R R	Ridge	⬮	Shingles
—	Area Divider	++++	Pipe/ Conduit on Blocks	ttt	Pipe/ Conduit Attached to Parapet



**Athens High School - Troy School District**  
**Sheet Notes: Roof Area C**  
**Schedule**  
**WORK DESCRIPTION - ROOF REPLACEMENT**  
Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area C: 14,875 sq. ft.

- New Roof System
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer mechanically fasten to deck;
    - Second insulation layer adhere to first layer of insulation;
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Deck: Metal: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.
- Building Height: Ground to building edge: 20+ ft.
- EXISTING ROOF SYSTEM CONSTRUCTION**  
**All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:**  
  
Core Sample Results: Two existing roofs in place  
Roof System 1: Attached to deck
  - Roof Membrane: Bituminous built-up roof membrane, gravel noted.
  - Insulation: variable ½ - 1 in. fiber glass insulation;
  - Tapered Insulation: Exists in various locations.
  - Deck: Metal: Multiple types, contractor to verify.  
Roof System 2: Attached to Roof System 1
  - Roof Membrane: Modified Bituminous two ply roof membrane
  - Insulation: ½ fiber glass insulation.
  - Tapered Insulation: Exists in various locations.
- Warranty/Guarantee
  - Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.
- Allowances: Add to base bid \$14,000 for allowances covering Unit Price and contingency items.

**General Construction Details: Ref A1.0**  
Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

**Key Notes:**  
All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Metal Walls: Furnish and install new base flashing and new counter flashing, loosen wall panels to remove old counter flashing. **Ref. Photos BF2, BL2.**
- Raised Perimeter Edge: Furnish and install new metal edge detail. **Ref Photo PD1 and PD2.**
- Area Dividers: Furnish and install new low profile area dividers as needed to accommodate tapered insulation specified as noted on Plan. **Ref. Photos BF1, SR2.**
- Tapered Insulation: Furnish and install new tapered insulation between drains as detailed on plan, **Ref. Photos PD1, PD3, PD4.** Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights.
- Metal Coping: Furnish and install new base flashings and metal cap.
- Masonry Reglet: Reuse metal receiver, furnish and install metal counter flashing over new base flashing. **Ref, Photo PD1.**



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4400 Livernois  
Troy, MI 48098

**PROJECT:**  
  
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4333 John R Rd.  
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2018 Roofing Program

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ISSUE	
DATE	DESCRIPTION
10/27/17	50%Review Set
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File Name: Roof Plan  
Drawn By: MD  
Checked By: AW, GG, AC  
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**SHEET TITLE**  
  
Athens High School,  
Roof Area C,  
Roof Plan

**A2.1**  
  
Sheet 3 of 23



Athens High School - Troy School District  
Sheet Notes: Roof Area F: Sections 3 & 4  
Schedule  
WORK DESCRIPTION - ROOF REPLACEMENT  
Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area A: Sections 3: 8,600 sq. ft. & Section 4: 9,275 sq. ft.

1. New Roof System  
a. Roof Membrane: EPDM, 60 mil, adhered to insulation.  
b. Insulation: R20:  
1) First insulation layer mechanically fasten to deck.  
2) Second insulation layer adhere to first layer of insulation.  
c. Tapered Insulation: Exists in various locations, see roof plan and details.  
d. Deck: Metal: Repair as necessary to comply w/ building codes.  
e. Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.

2. Building Height: Ground to building edge: 20+ ft.

3. EXISTING ROOF SYSTEM CONSTRUCTION  
All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:

- Core Sample Results  
a. Roof Membrane: Gravel surfaced bituminous built-up roof membrane  
b. Insulation:  
1) First insulation layer Approx. 1.0 in. polyisocyanurate insulation.  
2) Second insulation layer ½ in. wood fiber insulation  
c. Tapered Insulation: Exists in various locations.  
d. Deck: Metal: Multiple types, contractor to verify.

4. Warranty/Guarantee  
a. Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.

5. Allowances: Add to base bid \$15,000 for allowances covering Unit Price and contingency items.

General Construction Details: Ref A1.0  
Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

Key Notes:  
All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

1. Roof to Wall Expansion Joint: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing. Ref. Detail 3.02 and Photo 3139, 3140.
2. Tapered Insulation: Furnish and install in tapered insulation as detailed; Raise Area Divider heights at existing area dividers to accommodate height as necessary. Confirm height at roof edge of Sec 4. Ref. Photos 3271, 3128.
3. Cable Penetration: Furnish and install prefab flashing detail. Ref. Photo 3126.
4. Perimeter Raised Edge. Furnish and install new metal edge detail. Ref. Photo 3133A.
5. Stack Penetration: Furnish and install new metal stack flashing and storm collar. Ref. Photo 3125.
6. Abandon Curbs: Confirm Owner approval to remove and marked in orange paint Remove and repair deck. Ref. Photo 3122 .
7. Ladder down to RA E: Furnish and install new OSHA compliant ladder.
8. Area Divider Tie-in Sections 3 and 2: Furnish and install new area divider, increase height to accommodate new tapered insulation in KN 2.

PROFESSIONAL



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Troy, MI 48098

PROJECT:

Athens High School  
4333 John R Rd.  
Troy, MI 48085

Troy School District  
BID NO. 9848  
2018 Roofing Program

WTProject No:  
TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50%Review Set
11/06/17	90%Review Set
11/10/17	OTB

File Name: Roof Plan  
Drawn By: MD  
Checked By: AW, GG, AC

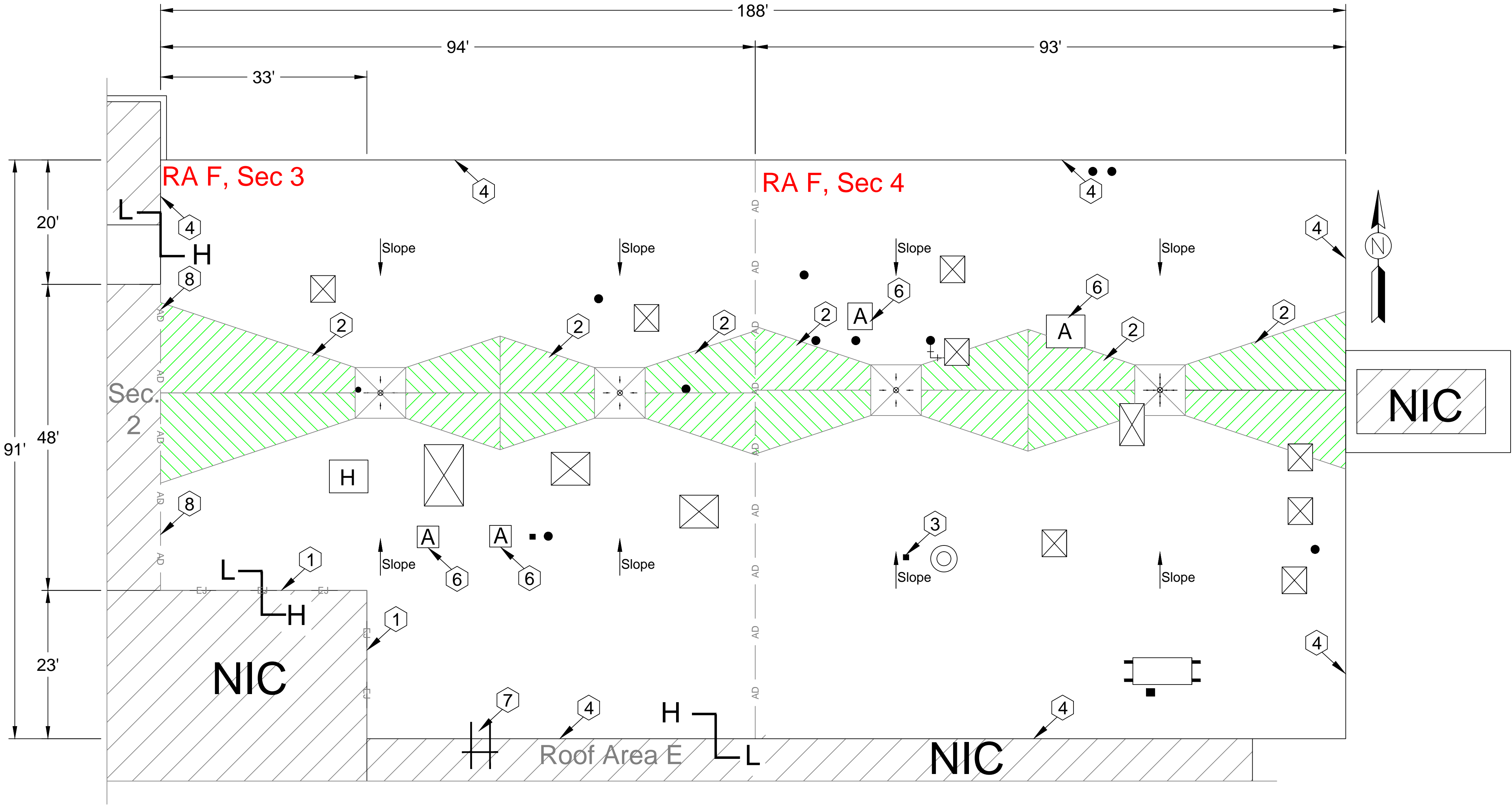
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SHEET TITLE

Athens High School,  
Roof Area F: Sec 3  
and 4,  
Roof Plan

A2.2

Sheet 4 of 23

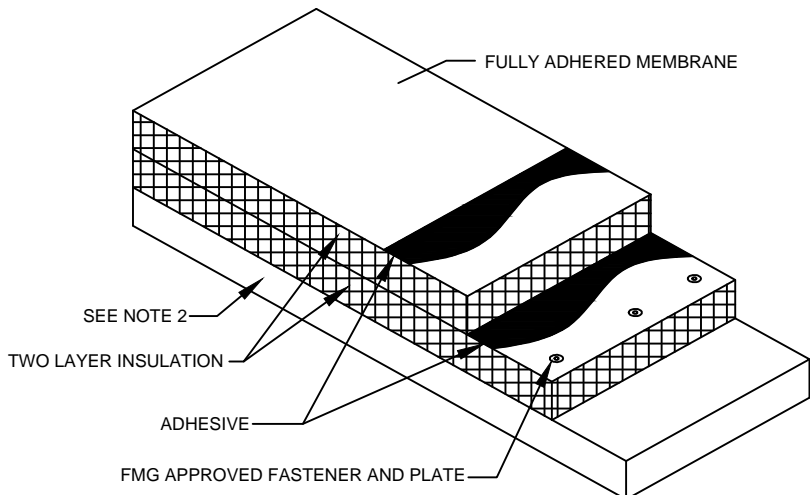
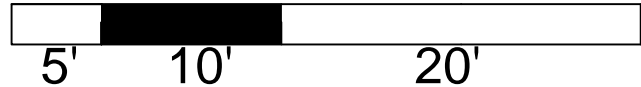


Athens High School

Roof Plan

Roof Area F: Sec 3 and 4

Scale:



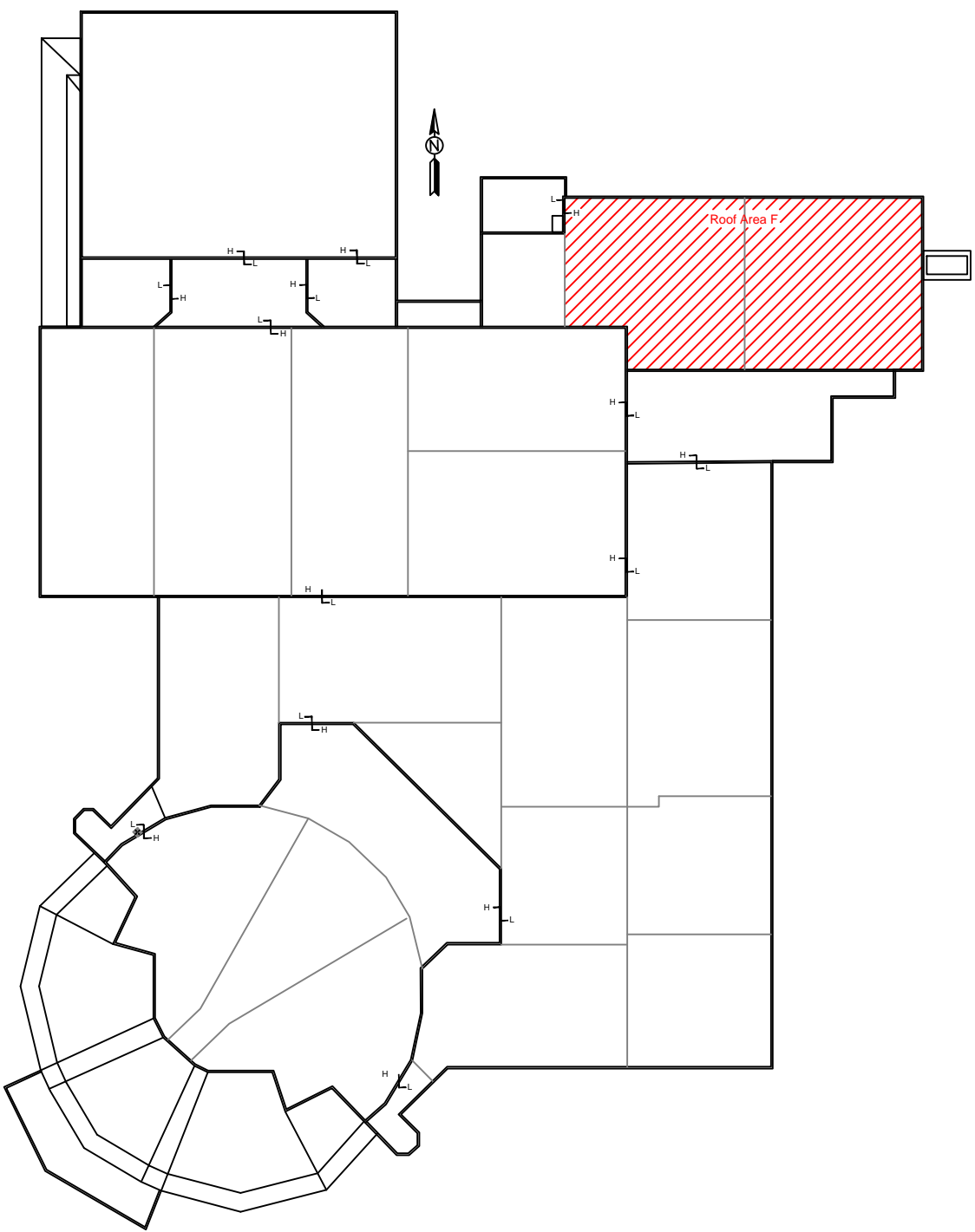
NOTE 1: INSULATION MIN. TWO LAYERS, TOTAL RVALUE MIN. R 20. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.  
NOTE 2: REFERENCE ROOF PLAN SCHEDULE FOR ROOF DECK TYPE.

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Date: Rev 3/15

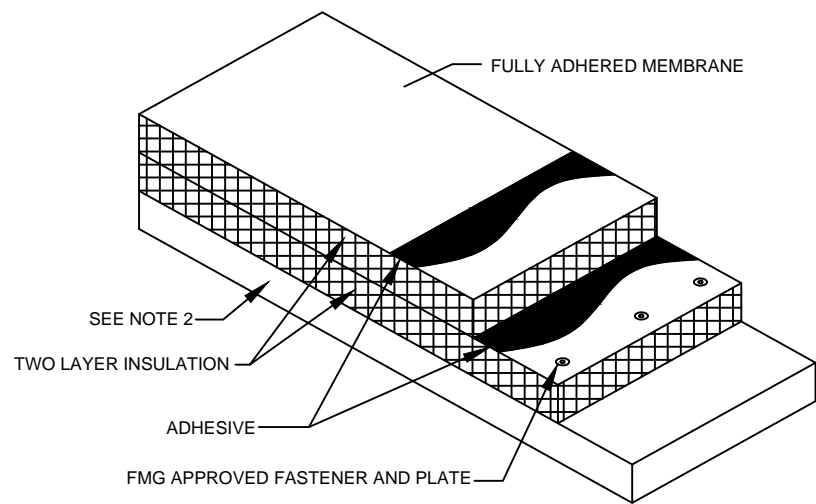
FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S.

1.01

Key Plan







**NOTE 1:** INSULATION MIN. TWO LAYERS; TOTAL R-VALUE MIN. R-20. \*TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.

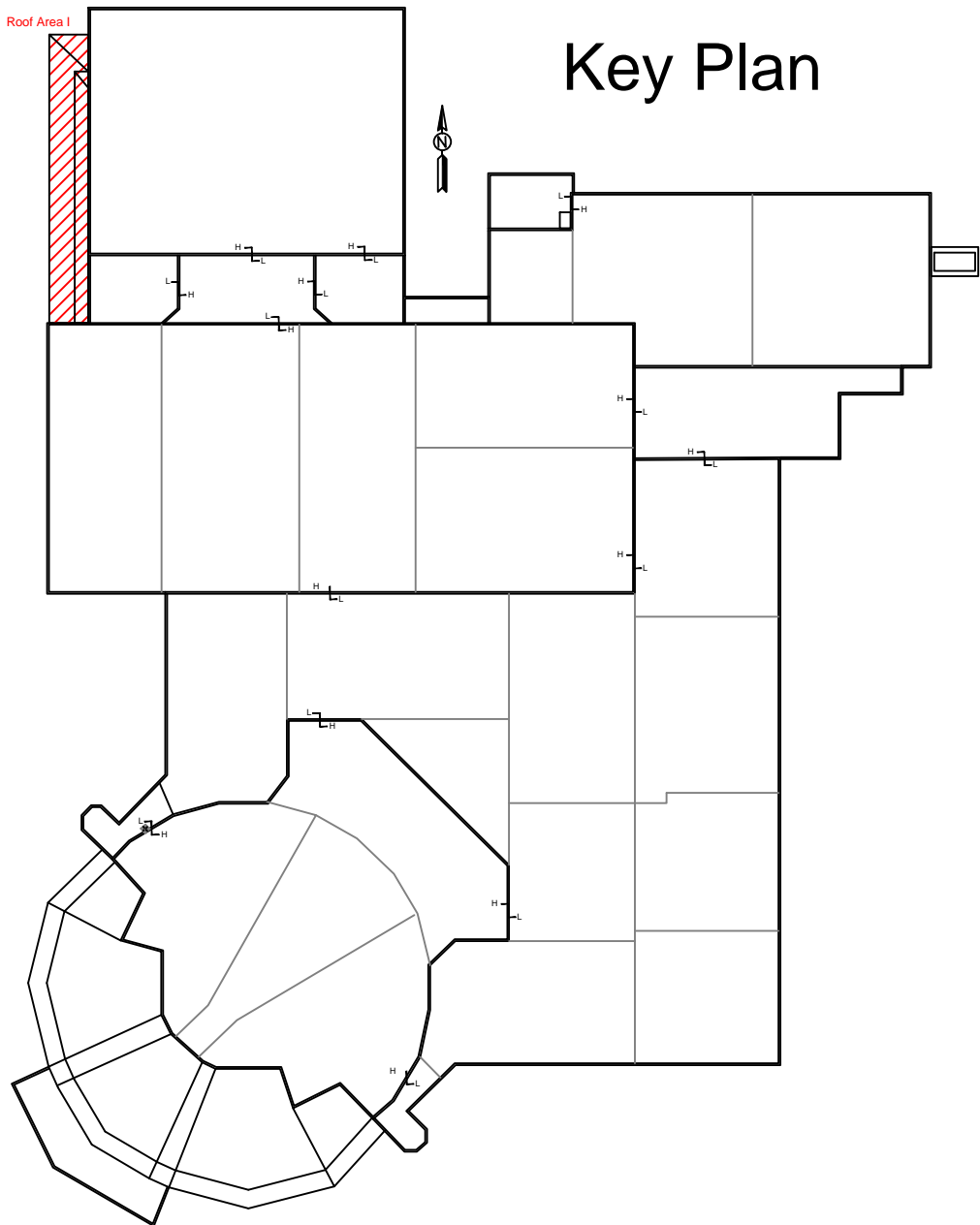
**NOTE 2:** REFERENCE ROOF PLAN SCHEDULE FOR ROOF DECK TYPE.

WeatherTech®  
Date: Rev 3/15

FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S.

1.01

Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	[H]	Roof Hatch	[WW]	Walk Way
○	Vent Stack	[S]	Skylight	0' ↗ +15'	Elevation Change
⊙	Insulated Pipe	[A]	Abandoned Equipment	⋈	Ladder
⊙	Insulated Stack/Pipe on Curb	⊗ OF	Overflow Drain	123	Photo Indicator
●	Screen support stanchion	⊗	Drain	01	Key Note
■	Tube/Structural Equipment Support	⊕	New Drain	⌒	Satellite Dish
■	Pitch Pan		Overflow Scupper	©	Core cut
■	Equip. on Support		Scupper	02	Revision/ Addendum
■	Equip. on Sleepers/Wood Blocking	---	Expansion Joint	[HI]	Tapered Insulation
⊗	Equipment Unit on Curb	G G	Gutter	[MR]	Metal Roofing
□	Duct or Flanged Equipment	R R	Ridge	[SH]	Shingles
---	Area Divider	+++	Pipe/ Conduit on Blocks	ttt	Pipe/ Conduit Attached to Parapet

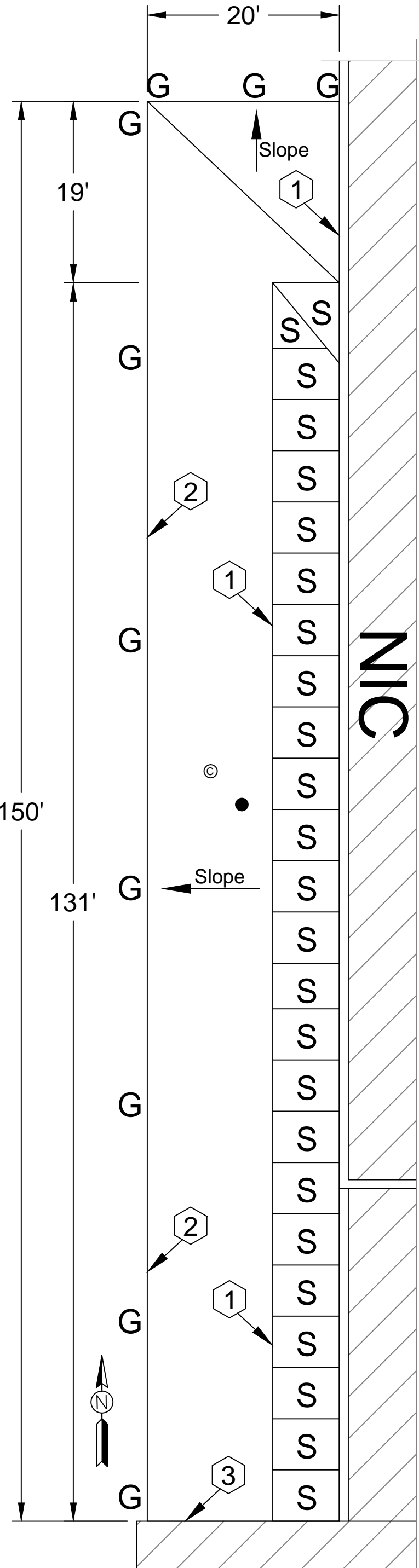
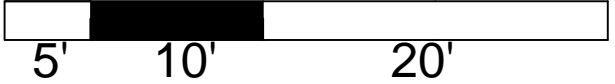


# Athens High School

## Roof Plan

### Roof Area I

Scale:



## Athens High School - Troy School District

### Sheet Notes: Roof Area I

#### Schedule

#### WORK DESCRIPTION - ROOF REPLACEMENT

Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area I: 3,000 sq. ft.

- New Roof System
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer mechanically fasten to deck;
    - Second insulation layer adhere to first layer of insulation;
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Deck: Metal: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.

- Building Height: Ground to building edge: 20 ft.

#### 3. EXISTING ROOF SYSTEM CONSTRUCTION

**All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:**

Core Sample Results: Two existing roofs in place

Roof System 1: Attached to deck

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane, gravel noted.
- Insulation:
  - First insulation layer Approx. 1.0 in. polyisocyanurate insulation.
  - Second insulation layer ½ in. wood fiber insulation.
- Tapered Insulation: Exists in various locations.
- Deck: Metal: Multiple types, contractor to verify.

Roof System 2: Attached to Roof System 1

- Roof Membrane: Modified Bituminous two ply roof membrane
- Insulation: ½ fiber glass insulation.
- Tapered Insulation: Exists in various locations.

#### 4. Warranty/Guarantee

- Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.

- Allowances: Add to base bid \$9,000 for allowances covering Unit Price and contingency items.

#### General Construction Details: Ref A1.0

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

#### Key Notes:

All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

#### A. Overview photo 3305

- Metal Walls: Furnish and install new base flashing and new counter flashing, loosen wall panels to remove old counter flashing. **Photo BF2 and BF3** no fasteners to loosen counter flashing.
- Gutters: Furnish and install new gutters. **Ref. Photo DR1.**
- Masonry Reglet: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing.

## PROFESSIONAL



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## PROJECT:

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4333 John R Rd.

Troy, MI 48085

Troy School District

BID NO. 9848

2018 Roofing Program

WTProject No:

TSD-R102-18

## ISSUE

DATE	DESCRIPTION
10/27/17	50%Review Set
11/06/17	90%Review Set
11/10/17	OTB

File Name: Roof Plan

Drawn By: MD

Checked By: AW, GG, AC

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## SHEET TITLE

Athens High School,

Roof Area I,

Roof Plan

# A2.3

Sheet 5 of 23



# Athens High School

## Roof Plan

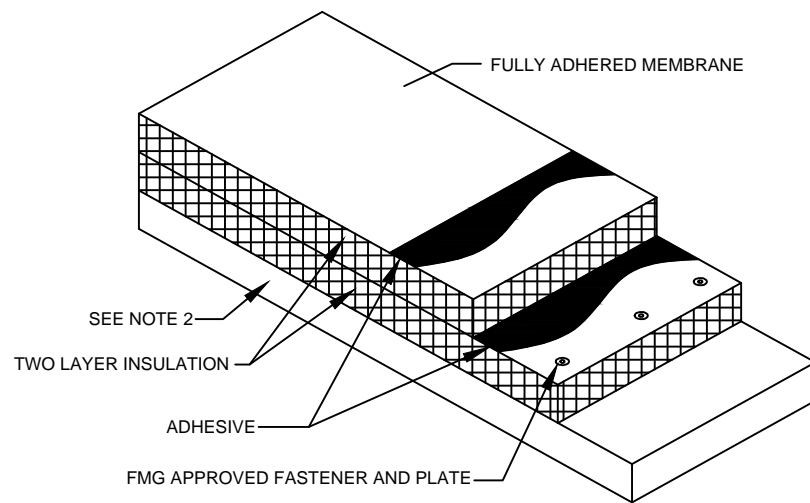
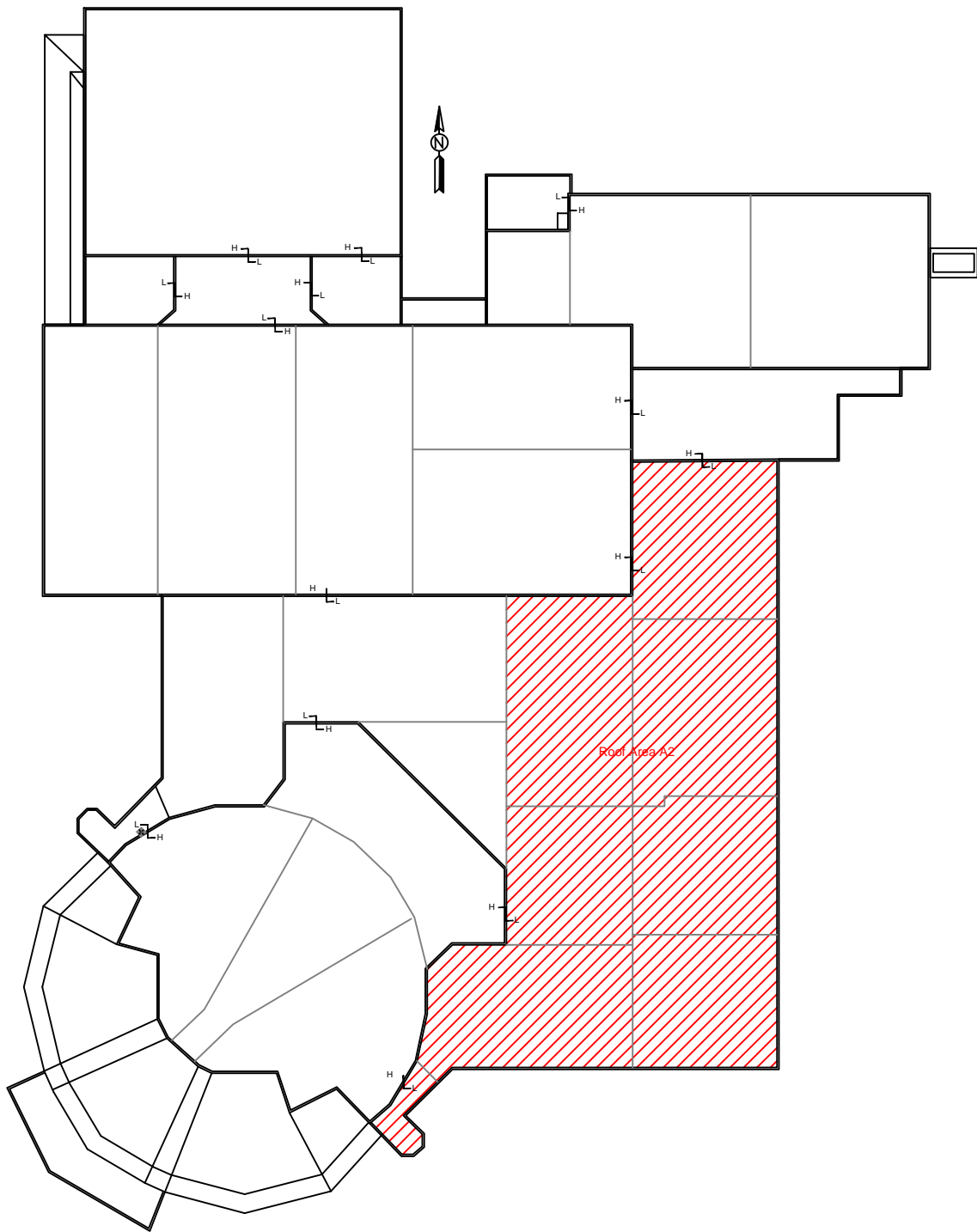
Alternate No. 1: Roof Area A, Sec 3, 4, 5, 7, 8, 9, 10, 11

Scale:



Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	[H]	Roof Hatch	[ ] [ ] [ ]	Walk Way
○	Vent Stack	[S]	Skylight	0' L +15'	Elevation Change
⊙	Insulated Pipe	[A]	Abandoned Equipment	⊢	Ladder
⊙	Insulated Stack/Pipe on Curb	⊗ OF	Overflow Drain	123	Photo Indicator
●	Screen support stanchion	⊗	Drain	01	Key Note
—■—	Tube/Structual Equipment Support	⊕	New Drain	⌒	Satellite Dish
■	Pitch Pan		Overflow Scupper	⊙	Core cut
[ ]	Equip. on Support		Scupper	△ 02	Revision/ Addendum
[ ]	Equip. on Sleepers/Wood Blocking	—	Expansion Joint	[ ]	Tapered Insulation
[X]	Equipment Unit on Curb	G G	Gutter	[ ]	Metal Roofing
[ ]	Duct or Flanged Equipment	R R	Ridge	[ ]	Shingles
—	Area Divider	+++	Pipe/ Conduit on Blocks	+++	Pipe/ Conduit Attached to Parapet

## Key Plan

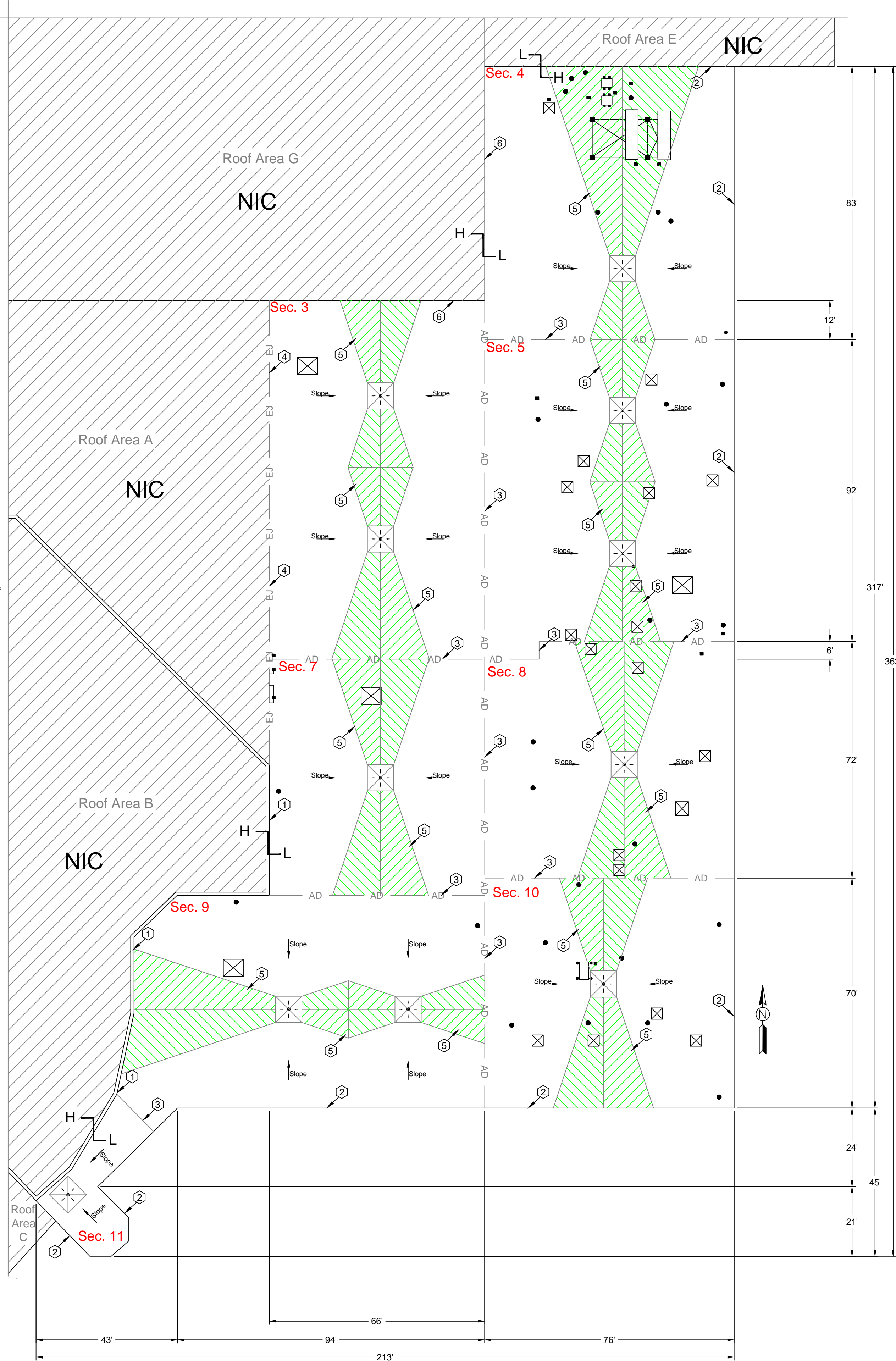


**NOTE 1:** INSULATION MIN. TWO LAYERS, TOTAL R-VALUE MIN. R 20. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.  
**NOTE 2:** REFERENCE ROOF PLAN SCHEDULE FOR ROOF DECK TYPE.

FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S.

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Date: Rev 3/15

1.01



## Athens High School - Troy School District

### Sheet Notes: ALTERNATE NO. 1

### Roof Area A: Sections 3, 4, 5, 7, 8, 9, 10, 11

### Schedule

#### WORK DESCRIPTION - ROOF REPLACEMENT ALTERNATE NO.1

Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area A: Sections 3, 4, 5, 7, 8, 9, 10, 11: 43,750 sq. ft.

- New Roof System
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer mechanically fasten to deck.
    - Second insulation layer adhere to first layer of insulation.
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Deck: Metal: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.

- Building Height: Ground to building edge: 16 ft.

#### 3. EXISTING ROOF SYSTEM CONSTRUCTION

**All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:**

#### Core Sample Results

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
- Insulation:
  - First insulation layer Approx. 1.0 in. polyisocyanurate insulation.
  - Second insulation layer ½ in. wood fiber insulation
- Tapered Insulation: Exists in various locations.
- Deck: Metal: Multiple types, contractor to verify.

#### 4. Warranty/Guarantee

- Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.

- Allowances: Add to base bid \$32,000 for allowances covering Unit Price and contingency items.

### General Construction Details: Ref A1.0

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

### Key Notes:

All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Metal Walls: Remove old metal counter flashing for roof base flashing as applicable. Furnish and install new base flashing and new counter flashing. **Ref. Photos 2947, 2959, BF3.**
- Raised Perimeter Edge: Furnish and install new metal edge detail. **Ref Photo 2940, EM3.**
- Area Dividers: Furnish and install new low profile area dividers as needed to accommodate tapered insulation specified as noted on Plan. **Ref. Photo 2957.**
- Expansion Joint: Furnish and install new expansion joint separating Secs 3, 7 from Sec 2, 6. **Ref. Photo P2956, BF7.**
- Tapered insulation: Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights. **Ref. Photos 2947 and 2982.**
- Masonry Reglet: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing. **Ref. Photo 2982.**

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BID NO. 9848  
2018 Roofing Program

WTPProject No:

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## ISSUE

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10/27/17	50%Review Set
11/06/17	90%Review Set
11/10/17	OTB

File Name: Roof Plan

Drawn By: MD

Checked By: AW, GG, AC

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## SHEET TITLE

Athens High School,  
Alt No. 1:Roof Area A:  
Sec 3, 4, 5, 7, 8, 9, 10,  
11  
Roof Plan

# A2.4

Sheet 6 of 23



Logistics Plan

TSD - Athens High School

Satellite Image

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11/10/17	OTB

File Name: Roof Plan

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Checked By: AW, GG, AC

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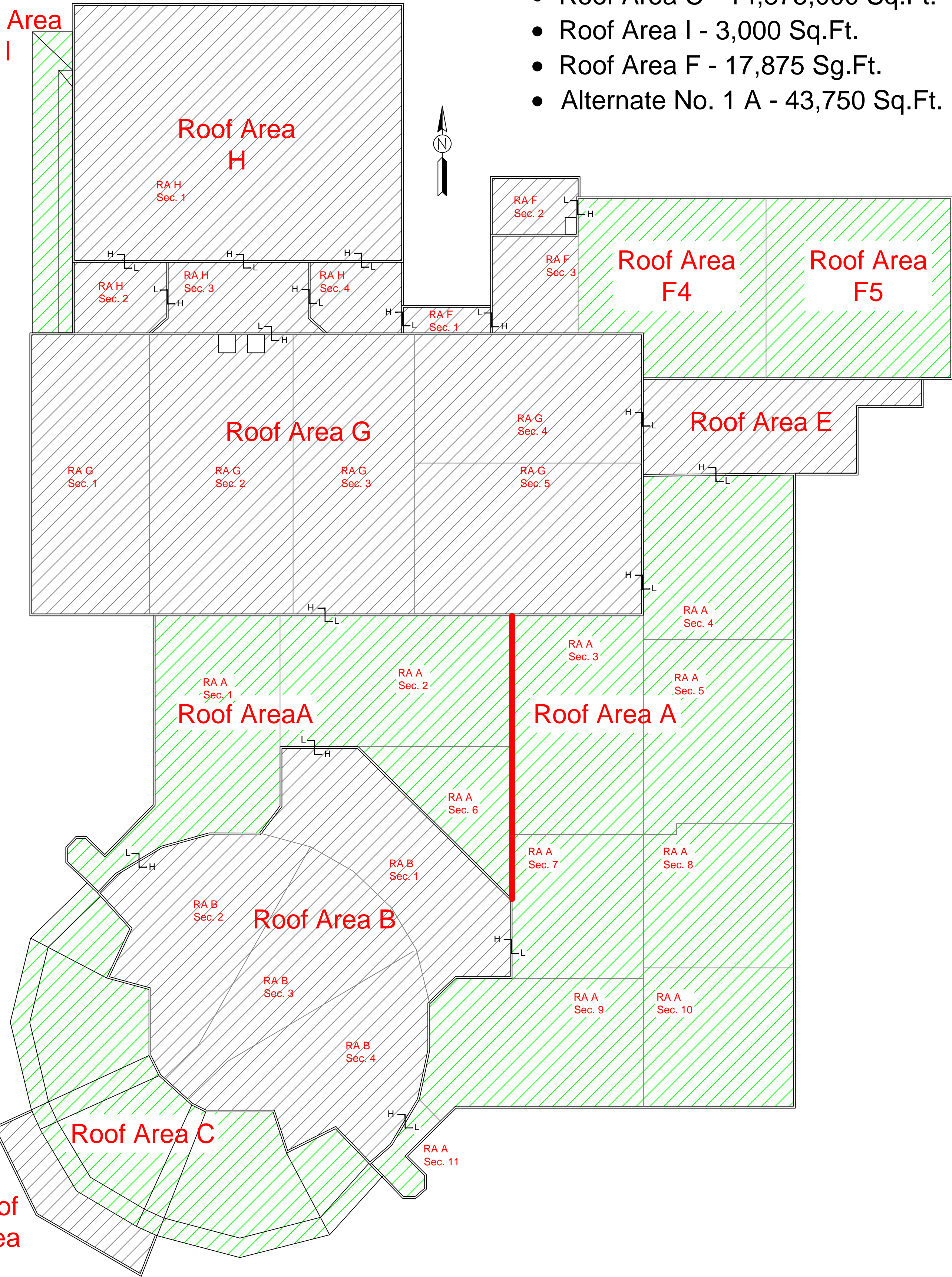
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Logistics Plan

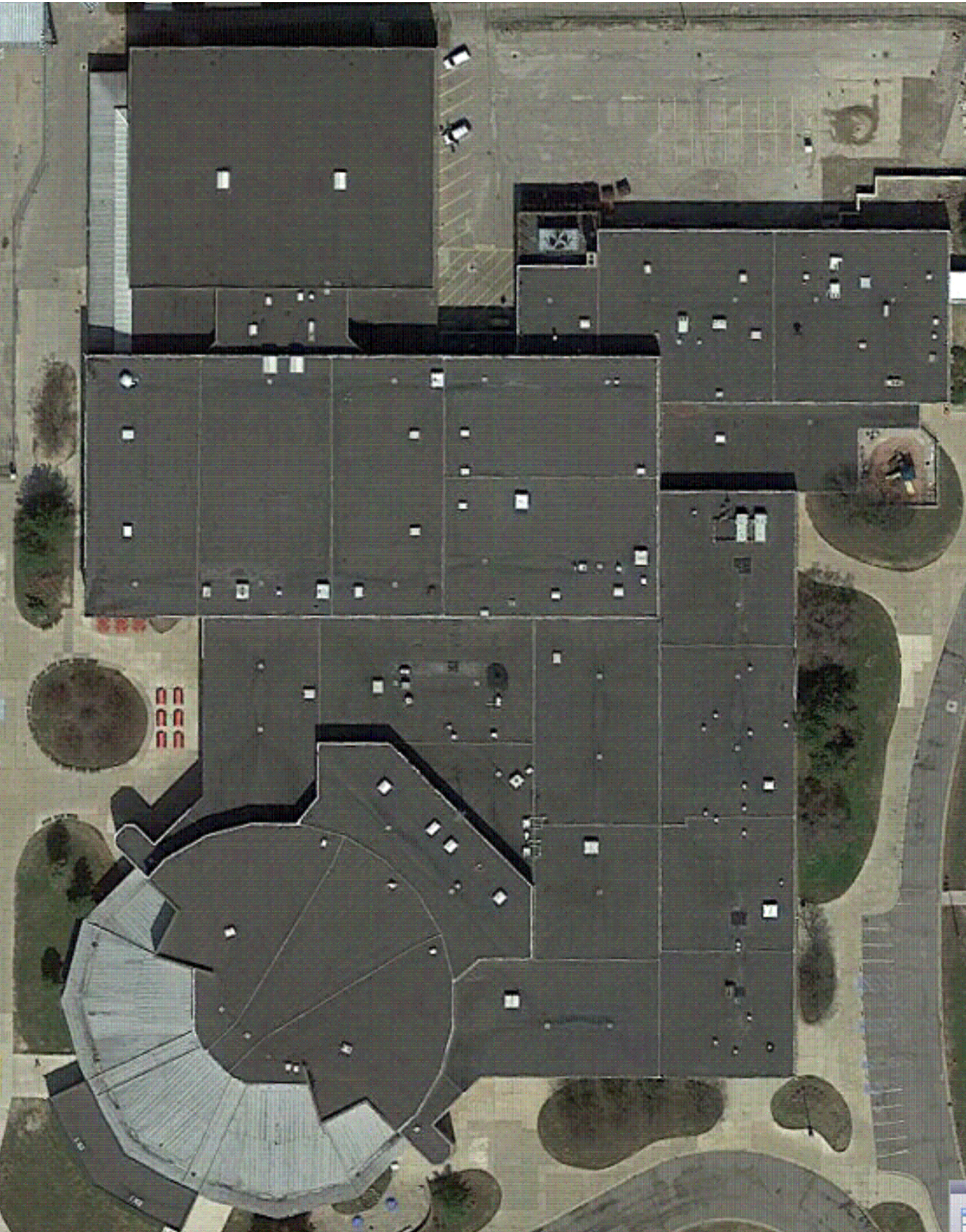
A2.5

Sheet 7 of 23

Roof  
Area  
I



Roof  
Area  
D





Athens High School - Roof Area A, Sec. 1, 2 and 6



BF3



BF7



EM3



2940



2947



2956



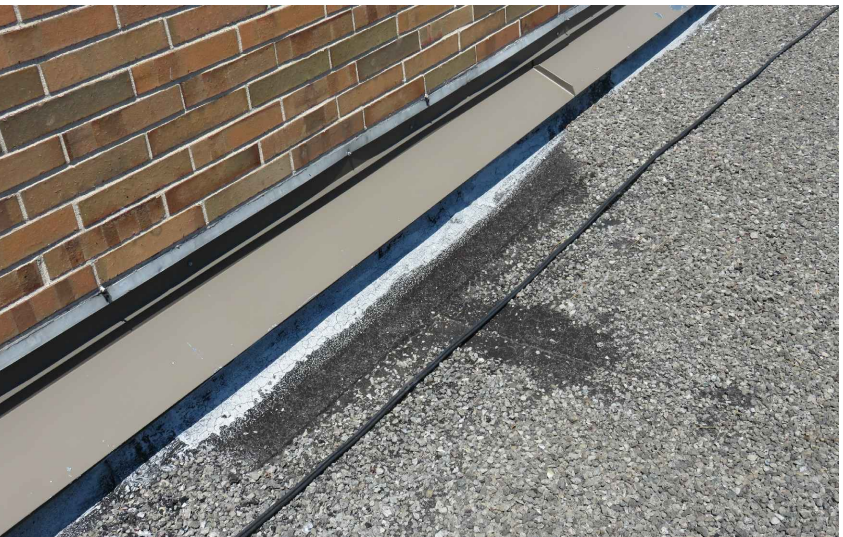
2957



2959



2972



2982

Athens High School - Roof Area C



BF1



BF2



BL2



PD1



PD2



PD3



PD4



SR2

Athens High School - Roof Area F, Sec 3 and 4



3122



3125



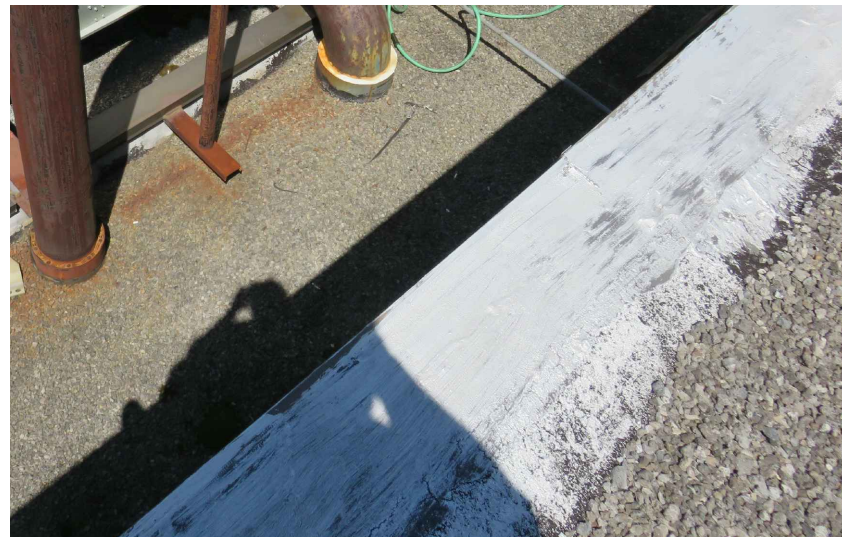
3126



3271



3128



3133A

PROFESSIONAL



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2018 Roof Program

WTPProject No:  
TSD-R102-17

ISSUE

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11/10/17	OTB

File Name: Photo Page

Drawn By: MD

Checked By: GG, AC, AW

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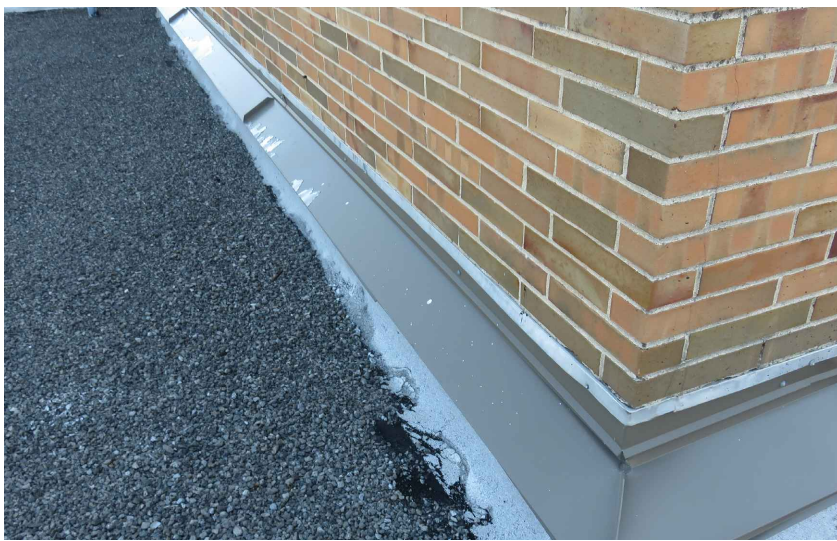
Athens High School  
Photo Page

A2.6

Sheet 8 of 23



Athens High School - Roof Area F, Sec. 3 and 4

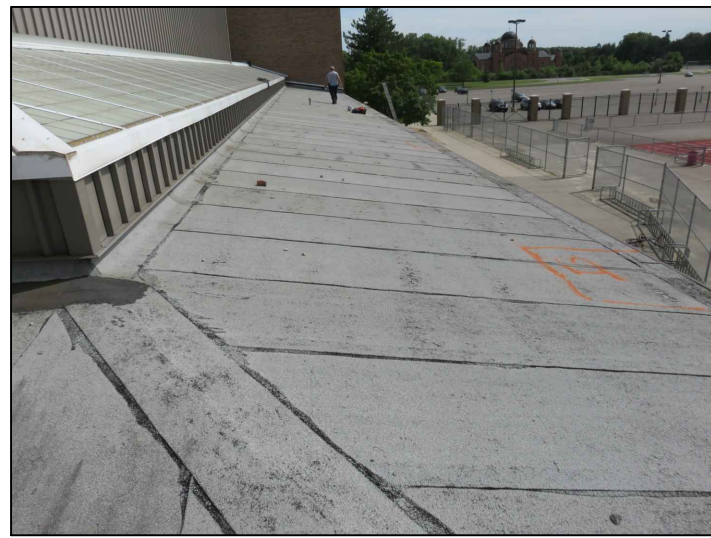


3139



3140

Athens High School - Roof Area I



3305



BF3



BF2

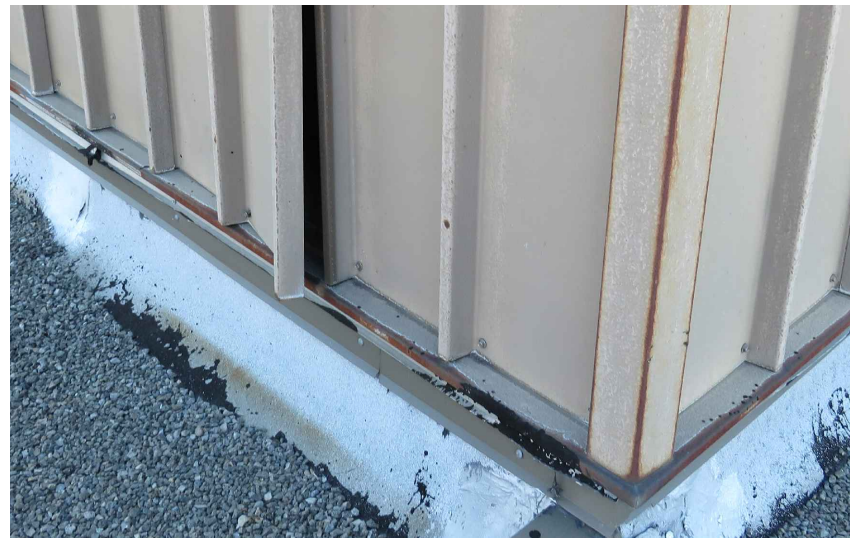


DR1

Athens High School - Roof Area A and Alternate No. 1: Roof Area A, Sec. 3, 4, 5, 6, 7, 8, 9, 10, 11



2947



2959



BF3



2940



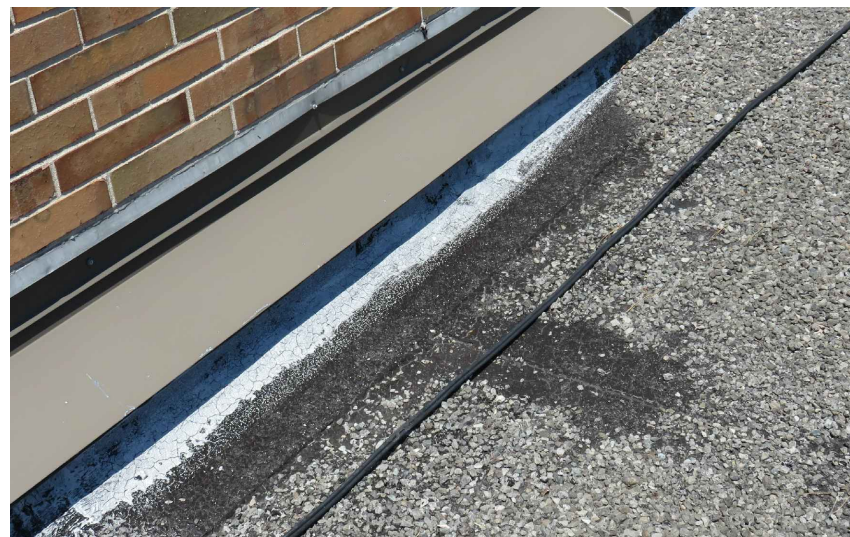
EM3



P2956



BF7



2982



2957

PROFESSIONAL



WeatherTech

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PROJECT:

Athens High School  
4333 John R Rd.  
Troy, MI 48085

Troy School District  
BID NO. 9848  
2018 Roof Program

WTPProject No:  
TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/06/17	90% Review Set
11/10/17	OTB

File Name: Photo Page

Drawn By: MD

Checked By: GG, AC, AW

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SHEET TITLE

Athens High School  
Photo Page

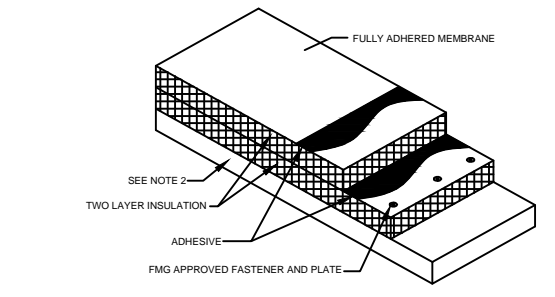
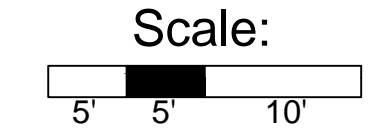
A2.7



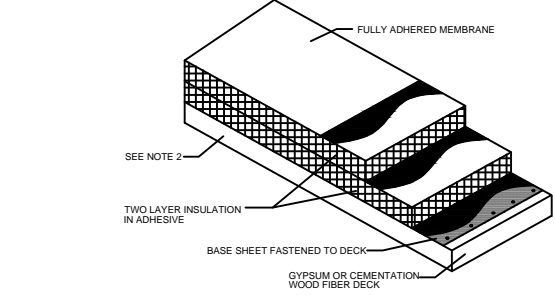
Morse Elementary School

Roof Plan

Roof Area C



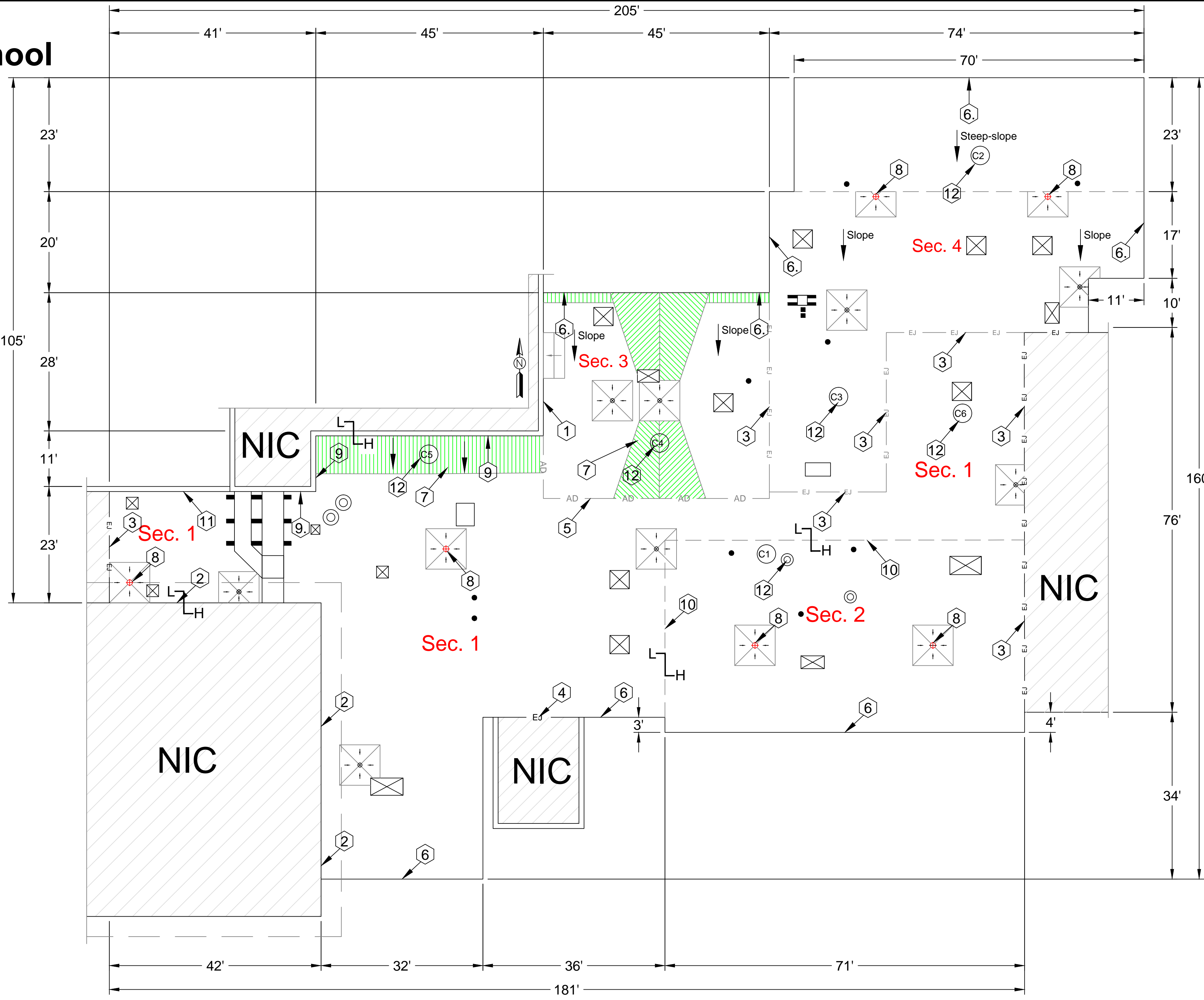
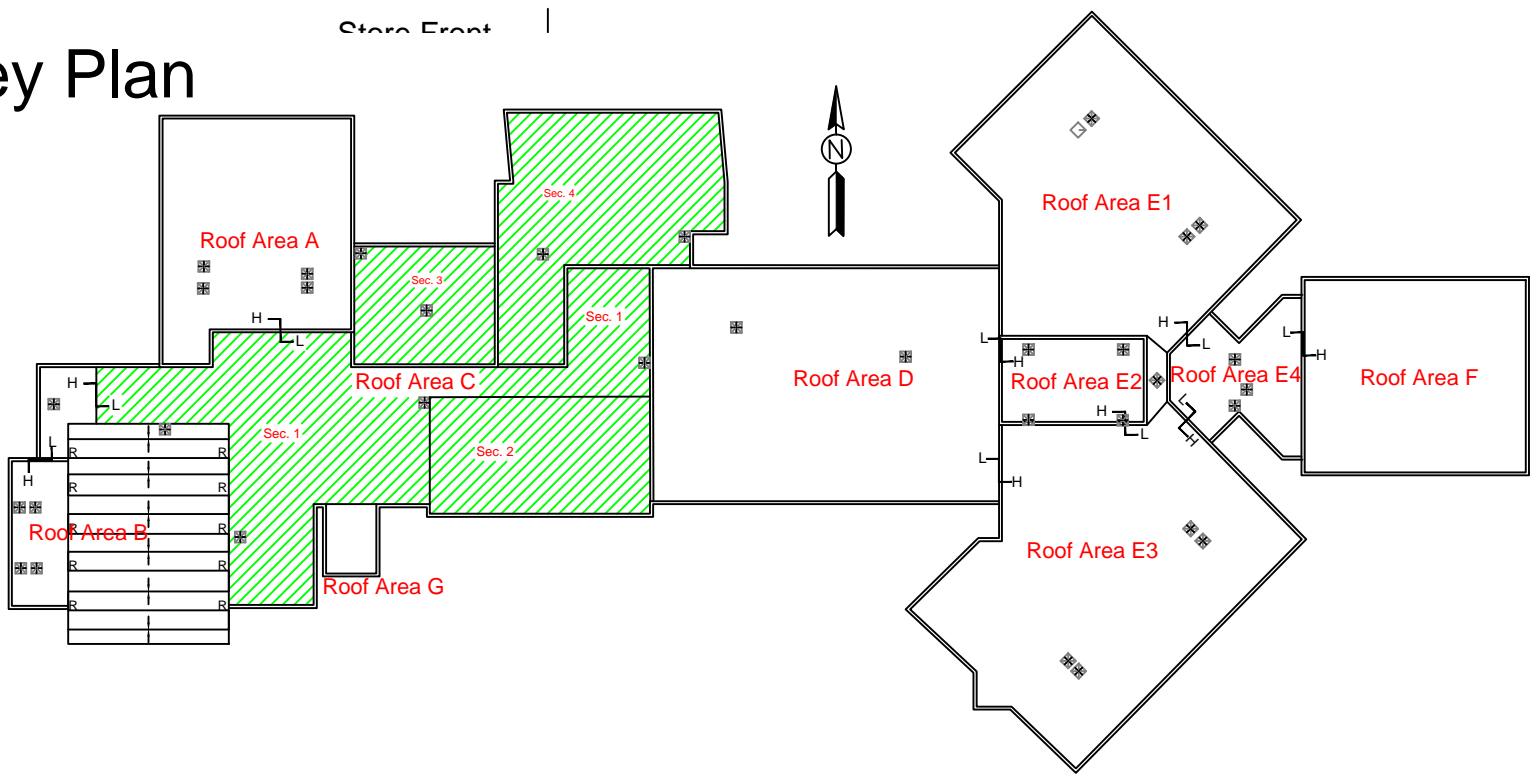
FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S. 1.01



FULLY ADHERED EPDM SYSTEM OVER GYPSUM  
AND CEMENTITIOUS WOOD FIBER DECKS  
SCALE: N.T.S. 4.14

Symbol Key			
SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	H	Roof Hatch
○	Vent Stack	S	Skylight
⊙	Insulated Pipe	A	Abandoned Equipment
⊗	Insulated Stack/Pipe on Curb	⊗	Overflow Drain
—	Screen Support Attachment	⊗	Drain
—	Tube/Structural Equipment Support	⊕	New Drain
■	Pitch Plan	⊗	Overflow Scupper
—	Equip. on Support		Scupper
—	Equip. on Sleepers/Wood Blocking	—	Expansion Joint
⊗	Equipment Unit on Curb	—	Gutter
□	Dust or Flanged Equipment	—	Ridge
—	Area Divider	+++	Pipe/Conduit on Slope
⊗	Walk Way	⊗	Elevation Change
⊗	Ladder	⊗	Photo Indicator
⊗	Key Note	⊗	Satellite Dish
⊗	Core cut	⊗	Revision/ Addendum
⊗	Tapered Insulation	⊗	Metal Roofing
⊗	Shingles	⊗	Pipe/Conduit Attached to Flange

Key Plan



Morse Elementary School - Troy School District  
Sheet Notes: Roof Area C: Sec. 1, 2, 3, 4

**Schedule**  
**WORK DESCRIPTION - ROOF REPLACEMENT**  
Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area C: Sec. 1, 2, 3, 4: 15,325 sq. ft.

- New Roof System 1: Metal Deck: **Ref Detail 1.01**
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer mechanically fasten to deck.
    - Second insulation layer adhere to first layer of insulation.
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Deck: Metal/ Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.

- New Roof System 2: Cementitious Wood Fiber Decks **Ref. Detail 4.14**; Contractor to submit FMG RoofNav approved assembly number.
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer adhered to Base Sheet.
    - Second insulation layer adhere to first layer of insulation.
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Underlayment: Modified Bitumen Base Sheet: Mechanically fasten to deck.
  - Deck: Cementitious wood fiber: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.
- Building Height: Sections 1, 2, 3: Ground to building edge: 20 ft. Section 4: 30 ft.
- EXISTING ROOF SYSTEM CONSTRUCTION** See **Core Sample Locations on Roof Plan**  
**All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:**

**Core Sample Results: Section: 1:** Location on Roof Plan: C5  
**Roof System: Attached to deck**

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane, gravel noted;
- Insulation:
  - First insulation layer ½ in. wood fiber insulation;
  - Second insulation layer 1.5 in. polyisocyanurate insulation.
  - Third insulation layer ½ in. wood fiber
- Tapered Insulation: Exists in various locations.
- Deck: Metal: Contractor to verify. **Ref. Key Note 10.**

**Core Sample Results: Section: 1:** Location on Roof Plan: C6.  
**Roof System: Attached to deck**

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane, gravel noted;
- Insulation:
  - First insulation layer ½ in. wood fiber insulation.
  - Second insulation layer 1.5 in. polyisocyanurate insulation.
  - Third insulation layer ½ in. wood fiber
- Tapered Insulation: Exists in various locations.
- Deck: **Metal and Cementitious Wood Fiber:** Contractor to verify location of decks tie -in. **Ref. Key Note 10.**

**Core Sample Results: Section: 2:** Location on Roof Plan: C1  
**Roof System: Attached to deck**

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane, gravel noted.
- Insulation:
  - First insulation layer ½ in. wood fiber insulation.
  - Second insulation layer 1.5 in. polyisocyanurate insulation.
  - Third insulation layer ½ in. wood fiber.
- Tapered Insulation: Exists in various locations.
- Deck: Metal: Contractor to verify deck. **Ref. Key Note 10.**

**Core Sample Results: Section 3:** Location on Roof Plan: C4  
**Roof System: Attached to deck**

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane, gravel noted.
- Insulation:
  - First insulation layer ½ in. wood fiber insulation.
  - Second insulation layer 1.75 in. polyisocyanurate insulation.
- Tapered Insulation: Exists in various locations.
- Deck: Metal:

**Core Sample Results: Section 4:** Two existing roofs in place: Location on Roof Plan C2, C3.  
**Roof System 1: Attached to deck**

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane, gravel noted;
- Deck: Cementitious wood fiber, contractor to verify.

**Roof System 2: Attached to Roof System 1**

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
- Insulation: ½ fiber glass insulation.

- Warranty/Guarantee
  - Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.
- Allowances: Add to base bid \$24,000 for allowances covering Unit Price and contingency items.

**General Construction Details: Ref A1.0**  
Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

**Key Notes:**  
All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Metal Walls: Remove old metal counter flashing for roof base flashing as applicable. Furnish and install new base flashing and new counter flashing. **Ref. Photos 5000 and BF3.**
- Masonry Reglet/Flashing: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing. **Ref. Photo 4973, 4971, 4979.**
- Expansion Joints: Furnish and install new expansions joints. **Ref. Photo MC5**
- Expansion Joint at Roof Area G: Contractor to provide shop drawing. **Ref Photo SR1.**
- Area Dividers: Contractor to confirm no structural deck issues and tapered insulation that would require area divider or expansion joint, if not required, remove existing area divider and roof over. **Ref. Photo 4993**
- Raised Perimeter Edge: Furnish and install new metal edge detail. **Ref Photos BF2, PA3.**
- Tapered insulation: Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall, metal wall; Contact consultant if tapered heights exceed existing base flashing heights.
- Drains: New: Furnish and install new drain; See plan for locations.
- Roof to Wall Expansion Joint: Furnish and install new metal expansion joint. **Ref. Detail 3.02 and Photo 4978.**
- Uneven Roof System and Deck Variations: Confirm structural deck changes and install expansion joints.
- Metal Coping: Furnish and install new metal coping.
- Core Cut Locations: Core samples 1, 2, 3, 4, 5, 6.

PROFESSIONAL



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Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Morse Elementary School  
475 Cherry Dr  
Troy, MI 48083

Troy School District  
BID NO. 9848  
2018 Roofing Program

WTProject No:  
TSD-R102-18

ISSUE

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File Name: Roof Plan  
Drawn By: MD  
Checked By: AW, GG, AC

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SHEET TITLE

Morse Elementary School,  
Roof Area C:  
Sec 1, 2, 3, 4  
Roof Plan  
**A3.0**



<p>SEE NOTE 2</p> <p>TWO LAYER INSULATION</p> <p>ADHESIVE</p> <p>FMG APPROVED FASTENER AND PLATE</p> <p>NAILABLE DECK</p> <p><b>NOTE:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.</p> <p><b>NOTE 2:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>SEE NOTE 2</p> <p>TWO LAYER INSULATION IN ADHESIVE</p> <p>NON NAILABLE DECK</p> <p><b>NOTE 1:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.</p> <p><b>NOTE 2:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>24 GAGE PREFINISHED GALVANIZED STEEL FASCIA COVER</p> <p>22 GAGE GALVANIZED STEEL CANT-DAM WITH CONTINUOUS CLEAT - FASTEN 6" O.C. WITH RING SHANK ROOFING NAILS</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - RUN FLASHING OVER CANT DAM AND DOWN ONTO CLEAT AS SHOWN</p> <p>6" SEAM TAPE</p> <p>EPDM MEMBRANE FULLY ADHERED</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>NEW 6" WIDE TREATED WOOD BLOCKING TO MATCH HEIGHT OF ROOF INSULATION - FASTEN @ 12" O.C.</p> <p>FIELD CRIMP PER</p> <p>(E) EXTERIOR WALL</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>22 GAGE GALVANIZED STEEL CONTINUOUS CLEAT FASTENED 6" O.C. WITH RING SHANK ROOFING NAILS</p> <p>TREATED WOOD 2X BLOCKING ATTACHED TO PARAPET WITH APPROPRIATE FASTENERS @ 12" O.C. - SLOPE TOWARDS ROOF AT A RATE OF 1/4" PER FOOT</p> <p>24 GAGE PRE-FINISHED GALVANIZED STEEL COPING WITH 1" HIGH STANDING SEAM JOINTS</p> <p>#12 STAINLESS STEEL SCREWS WITH EPDM BACKED S.S. WASHERS @ 18" O.C. MAX.</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF PARAPET</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>NEW 2x6 TREATED WOOD BLOCKING TO MATCH HIGHEST POINT IN TAPERED INSULATION ASSEMBLY - FASTEN @ 6" O.C.</p> <p>(E) EXTERIOR WALL</p> <p>APPROVED SEALANT</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>22 GAGE GALVANIZED STEEL CONTINUOUS CLEAT FASTENED 6" O.C. WITH RING SHANK ROOFING NAILS</p> <p>TREATED WOOD 2X BLOCKING ATTACHED TO PARAPET WITH APPROPRIATE FASTENERS @ 12" O.C. - SLOPE TOWARDS ROOF AT A RATE OF 1/4" PER FOOT</p> <p>24 GAGE PRE-FINISHED GALVANIZED STEEL COPING WITH 1" HIGH STANDING SEAM JOINTS</p> <p>#12 STAINLESS STEEL SCREWS WITH EPDM BACKED S.S. WASHERS @ 18" O.C.</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF PARAPET</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>FASTENER AND PLATE 12" (300 mm) O.C. MAXIMUM</p> <p>PARAPET WALL</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>(E) WALL ASSEMBLY</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>22 GA GAL RECEIVER STAINLESS STEEL FASTENERS WITH EPDM BACKED S.S. WASHERS @ 8" O.C. MINIMUM</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>24 GA GAL COUNTER FLASHING STAINLESS STEEL FASTENERS WITH EPDM BACKED S.S. WASHERS @ 8" O.C. MINIMUM</p> <p>EPDM FLASHING MEMBRANE ADHERED W/ BONDING ADHESIVE</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>WeatherTech © Date: Rev 3/15</p>
<p>FULLY ADHERED EPDM SYSTEM NAILABLE DECK SCALE: N.T.S.</p> <p>1.01</p>	<p>FULLY ADHERED EPDM SYSTEM NON-NAILABLE DECK SCALE: N.T.S.</p> <p>1.02</p>	<p>CANT-DAM WITH FASCIA COVER SCALE: N.T.S.</p> <p>1.03</p>	<p>RAISED EDGE FLASHING SCALE: N.T.S.</p> <p>1.04</p>	<p>PARAPET WITH METAL COPING SCALE: N.T.S.</p> <p>1.05</p>	<p>2-PIECE SURFACE MOUNT METAL FLASHING SCALE: N.T.S.</p> <p>1.06</p>
<p>(E) WALL ASSEMBLY</p> <p>(E) THRU-WALL METAL COUNTERFLASHING</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>METAL COUNTERFLASHING INTO EXISTING RECEIVER - SEE NOTE 1</p> <p>EPDM FLASHING MEMBRANE ADHERED W/ BONDING ADHESIVE</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p><b>NOTE 1:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL, 26 GAGE STAINLESS STEEL OR 16 O.Z. COLD ROLLED COPPER AND SHALL MATCH EXISTING TYPE OF THROUGH-WALL REGLET METAL. SECURE NEW COUNTERFLASHING TO EXISTING REGLET WITH POP RIVETS OF SAME TYPE OF METAL @ 12" O.C. MAX.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>NEW OR EXISTING SAW-CUT REGLET</p> <p>LEAD WEDGES @ 12" O.C. MAX.</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>METAL COUNTERFLASHING INTO EXISTING RECEIVER - SEE NOTE 1</p> <p>EPDM FLASHING MEMBRANE ADHERED W/ BONDING ADHESIVE</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p><b>NOTE 1:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL OR PREFINISHED STEEL, 26 GAGE STAINLESS STEEL OR 16 O.Z. COLD ROLLED COPPER. SEE SCHEDULE(S) ON THE ROOF PLAN(S) FOR SPECIFIC REQUIREMENTS FOR EACH ROOF AREA.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>(E) WALL ASSEMBLY</p> <p>(E) METAL SIDING - SEE NOTE 2</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>METAL COUNTERFLASHING - SLIP UP AND BEHIND BASE OF SIDING - SEE NOTE 1</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p><b>NOTE 1:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL OR PREFINISHED STEEL, 26 GAGE STAINLESS STEEL OR .032" (MINIMUM) MILL FINISHED ALUMINUM. SEE SCHEDULE(S) ON ROOF PLAN(S) FOR SPECIFIC REQUIREMENTS FOR EACH ROOF AREA.</p> <p><b>NOTE 2:</b> LOOSEN BOTTOM OF SIDING TO FACILITATE INSTALLATION OF NEW COUNTERFLASHING. RESecure SIDING WITH GROMMETTED SCREWS AS INDICATED.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>(E) DRAIN STRAINER - REPLACE IF MISSING OR BROKEN</p> <p>(E) CLAMPING RING BOLTS - REPLACE IF MISSING OR DAMAGED DURING REMOVAL</p> <p>(E) CLAMPING RING - REMOVE ALL BITUMINOUS MATERIALS - REPLACE IF MISSING OR BROKEN DURING REMOVAL</p> <p>TAPERED INSULATION - MINIMUM 3/4" PER FOOT TAPER</p> <p>12"</p> <p>1" MIN</p> <p>(E) STRUCTURAL DECK</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>EPDM ROOF MEMBRANE</p> <p>MANUFACTURER APPROVED SEALANT - MINIMUM ONE TUBE PER DRAIN</p> <p>(E) DRAIN PIPING</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>THERMAL INSULATION</p> <p>CENTER LINE DRAIN</p> <p>72"</p> <p>24"</p> <p>24" MIN</p> <p>CENTER LINE OVERFLOW DRAIN</p> <p>OVERFLOW COLLAR</p> <p>DECK</p> <p>EPDM MEMBRANE AND FLASHING</p> <p>ROOF DRAIN</p> <p>LEADER</p> <p>TAPERED EDGE STRIP</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>DRAIN</p> <p>SLOPE</p> <p>TAPERED INSULATION</p> <p>96"</p> <p>96"</p> <p>SLOPE</p> <p>TAPER. INSUL.</p> <p>SLOPE</p> <p>RECEIVER DRAIN</p> <p>WeatherTech © Date: Rev 3/15</p>
<p>BASE FLASHING W/ THRU WALL COUNTERFLASHING SCALE: N.T.S.</p> <p>1.07</p>	<p>BASE FLASHING W/ CUT-IN REGLET@ MASONRY WALL SCALE: N.T.S.</p> <p>1.08</p>	<p>BASE FLASHING AT METAL SIDING SCALE: N.T.S.</p> <p>1.09</p>	<p>DRAIN FLASHING SCALE: N.T.S.</p> <p>1.10</p>	<p>ROOF/OVERFLOW DRAIN SCALE: N.T.S.</p> <p>1.11</p>	<p>DRAIN SUMP-A SCALE: N.T.S.</p> <p>1.12</p>
<p>DRAIN</p> <p>120"</p> <p>RECEIVER DRAIN</p> <p>OVERFLOW DRAIN</p> <p>TAPERED INSULATION</p> <p>SLOPE</p> <p>24" MIN</p> <p>72"</p> <p>24"</p> <p>TAPER. INSUL.</p> <p>SLOPE</p> <p>TAPERED INSULATION</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>EPDM FLASHING</p> <p>EPDM STRIP-IN FLASHING</p> <p>APPROVED SEALANT</p> <p>24 GAGE T GALVANIZED STEEL SCUPPER - FASTEN 4" O.C. STAGGERED WITH RING SHANK ROOFING NAILS - SEE NOTE 2</p> <p>EPDM STRIP-IN FLASHING</p> <p>1-1/2"</p> <p>1-1/2"</p> <p>4"</p> <p>1-1/2"</p> <p>1-1/2"</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>NEW 6" WIDE TREATED WOOD BLOCKING TO MATCH HEIGHT OF ROOF INSULATION - FASTEN @ 12" O.C.</p> <p>(E) EXTERIOR WALL</p> <p>(E) STRUCTURAL DECK</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>SEALING MATERIAL</p> <p>ROOFTOP EQUIPMENT FRAME</p> <p>GASKETED FASTENERS MIN. TWO FASTENERS PER SIDE</p> <p>REMOVABLE SHEET-METAL COUNTERFLASHING</p> <p>ADHERED MEMBRANE FLASHING</p> <p>BONDING ADHESIVE</p> <p>PREMOLDED CORNER</p> <p>EPDM MEMBRANE</p> <p>SEALANT (IF REQUIRED FOR THE SPECIFIC CURB)</p> <p>EPDM MEMBRANE</p> <p>SEAM PLATES AND FASTENERS</p> <p>TAPERED CANT</p> <p>THERMAL INSULATION</p> <p>SEE SCHEDULE</p> <p>STRUCTURAL DECK</p> <p>OPTION:</p> <p>MECHANICAL UNIT, HOOD, ETC.</p> <p>BASE OF UNIT EXTENDS 1/2" MINIMUM BEYOND TOP OF CURB</p> <p>MINIMUM 6" BELOW TOP OF CURB</p> <p>FLASHING RECEIVER</p> <p>FASTENERS</p> <p>COUNTERFLASHING</p> <p>FLASHING MEMBRANE</p> <p>WOOD CURB</p> <p><b>NOTES:</b></p> <p>1. THE CURB, TOP WOOD NAILER AND SEAL STRIP ARE TO BE SUPPLIED BY THE CURB MANUFACTURER.</p> <p>2. WHEN POSSIBLE, THE MECHANICAL UNITS SHOULD NOT BE SET UNTIL THE ROOF MEMBRANE AND FLASHING HAVE BEEN INSTALLED.</p> <p>3. WHERE THE SKYLIGHT, SCUPPER OR SMOKE VENT FRAME OVERLAPS THE BASE FLASHING AT LEAST 1 INCHES, THE REMOVABLE SHEET-METAL COUNTERFLASHING IS NOT REQUIRED.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>(E) NON-REMOVABLE UNIT</p> <p>POLYURETHANE SEALANT</p> <p>#12 STAINLESS STEEL SCREWS WITH EPDM BACKED S.S. WASHERS @ 12" O.C.</p> <p>METAL COUNTERFLASHING - SEE NOTES 1 AND 2</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - TUCK FLASHING UP AND BEHIND BOTTOM OF UNIT SKIRT</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>(E) CURB</p> <p><b>NOTE 1:</b> WHEN BASE OF UNIT PROVIDES LESS THAN 4" COVERAGE OVER TOP OF FLASHING, INSTALL SEPARATE COUNTERFLASHING AS SHOWN.</p> <p><b>NOTE 2:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL, 24 GAGE PRE-FINISHED GALVANIZED STEEL, .032" MILL FINISHED ALUMINUM OR 26 GAGE STAINLESS STEEL. SEE SCHEDULE(S) ON THE ROOF PLAN(S) FOR SPECIFIC TYPE OF METAL REQUIRED IN EACH ROOF AREA.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>(E) SHEET METAL GUTTER AND DOWNSPOUTS</p> <p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>BASE OF WALL OR CURB</p> <p>SELF-FLASHING UNIT</p> <p>1-1/2" x 1/2" NEOPRENE FOAM SEALING STRIP</p> <p>ADDITIONAL WOOD BLOCKING IF REQUIRED TO ACHIEVE MINIMUM 8" FLASHING HEIGHT</p> <p>#12 WOOD SCREWS @ 12" O.C.</p> <p>FASTEN FLASHING 8" O.C. WITH ROOFING NAILS</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF CURB</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>(E) CURB</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>BASE OF WALL OR CURB</p> <p>1-1/2" x 1/2" NEOPRENE FOAM SEALING STRIP</p> <p>TREATED WOOD BLOCKING TO RAISE CURB TO 8" ABOVE THE ROOF SURFACE (IF REQUIRED)</p> <p>#12 WOOD SCREWS @ 12" O.C.</p> <p>FASTEN VENTILATOR BASE TO CURB WITH #12 STAINLESS STEEL FASTENERS WITH EPDM BACKED S.S. WASHERS @ 18" O.C. - MINIMUM 1 PER SIDE</p> <p>FASTEN FLASHING 8" O.C. WITH ROOFING NAILS</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF CURB</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>(E) CURB</p> <p>WeatherTech © Date: Rev 3/15</p>
<p>DRAIN SUMP-A SCALE: N.T.S.</p> <p>1.13</p>	<p>THRU-WALL OVERFLOW SCUPPER SCALE: N.T.S.</p> <p>1.14</p>	<p>NON REMOVABLE PREFABRICATED METAL CURB SCALE: N.T.S.</p> <p>1.15</p>	<p>NON REMOVABLE UNIT CURB FLASHING SCALE: N.T.S.</p> <p>1.16</p>	<p>REMOVABLE UNIT CURB FLASHING SCALE: N.T.S.</p> <p>1.17</p>	<p>REMOVABLE VENTILATOR CURB FLASHING SCALE: N.T.S.</p> <p>1.18</p>



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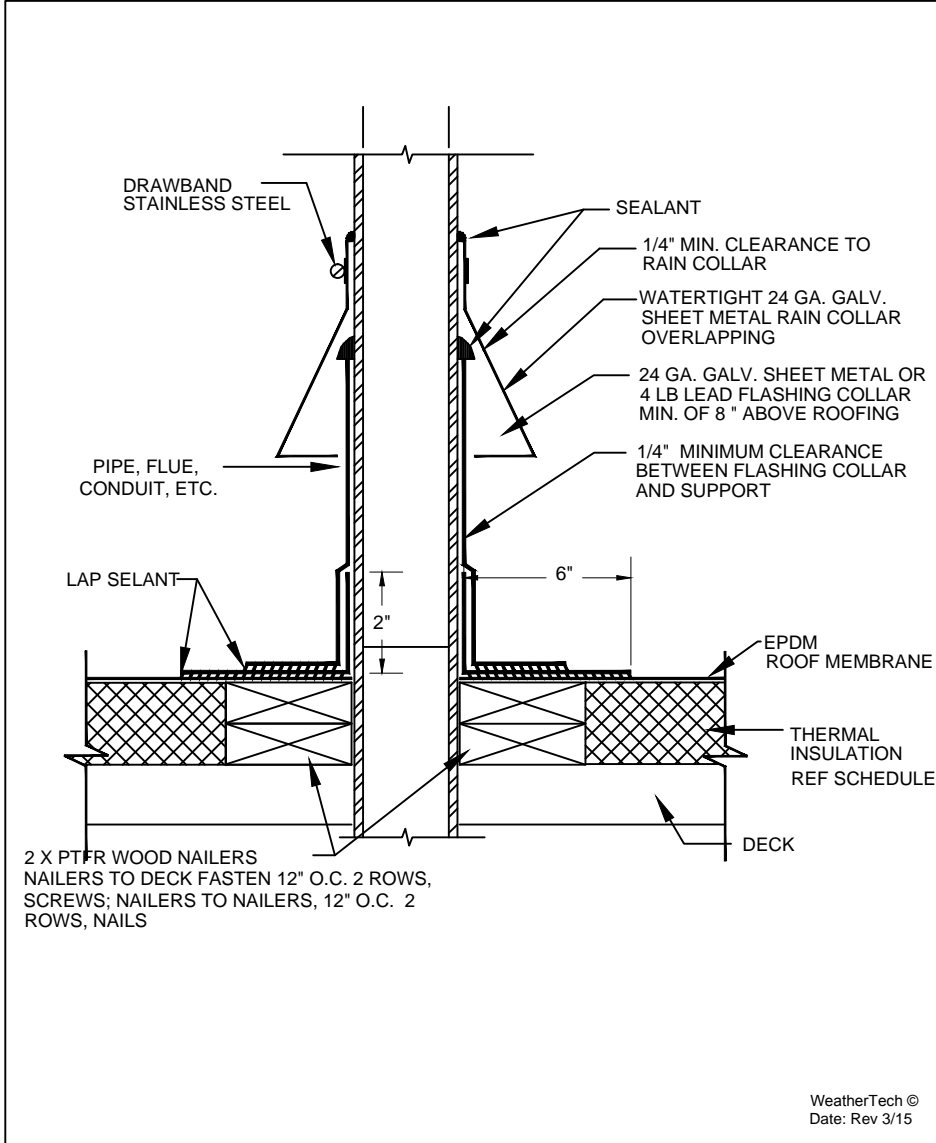
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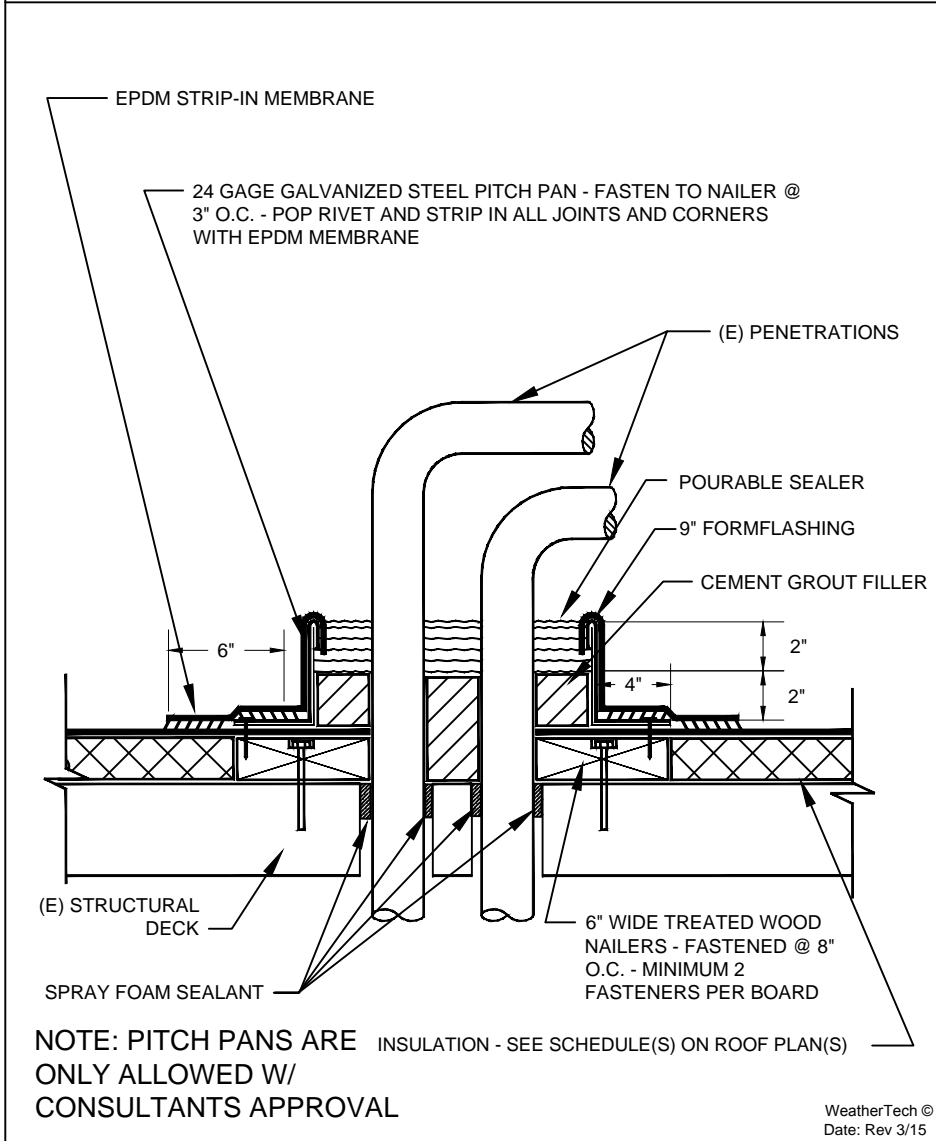
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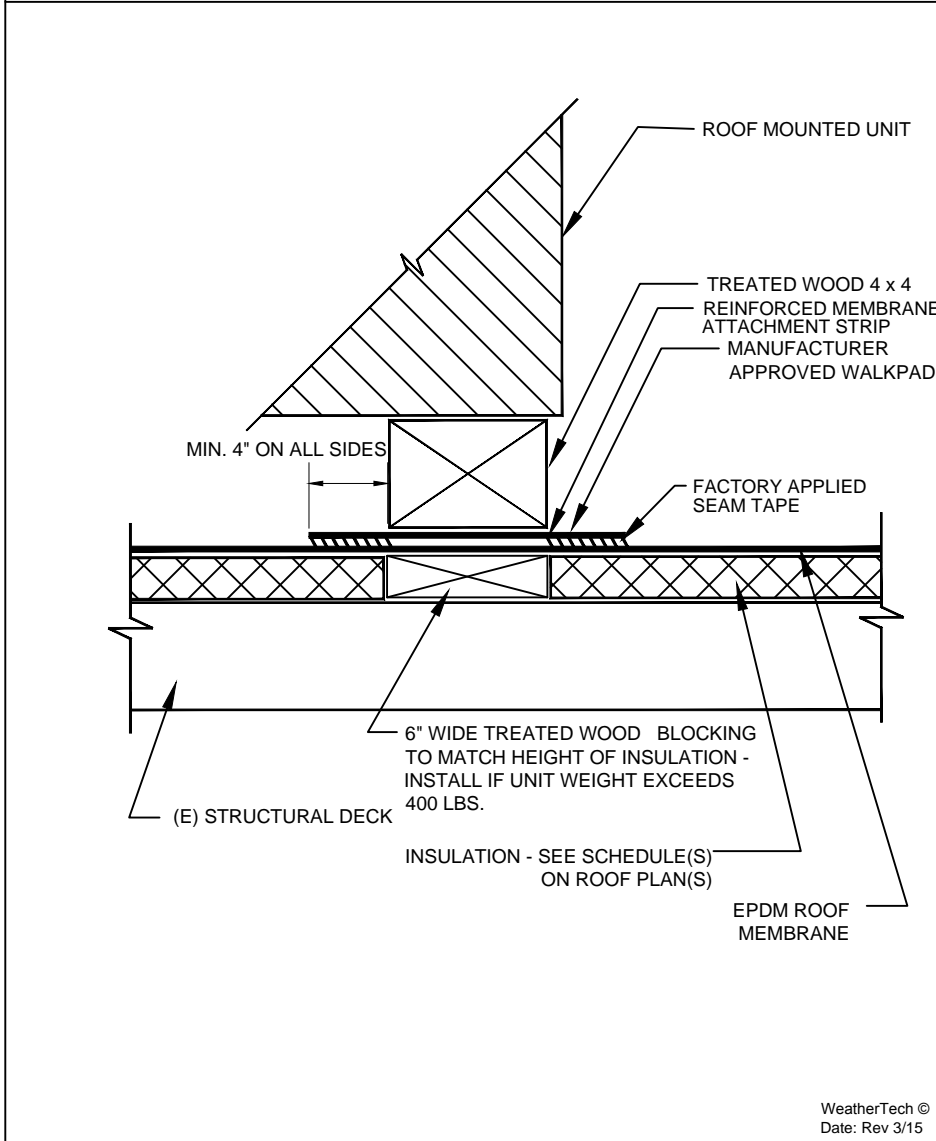




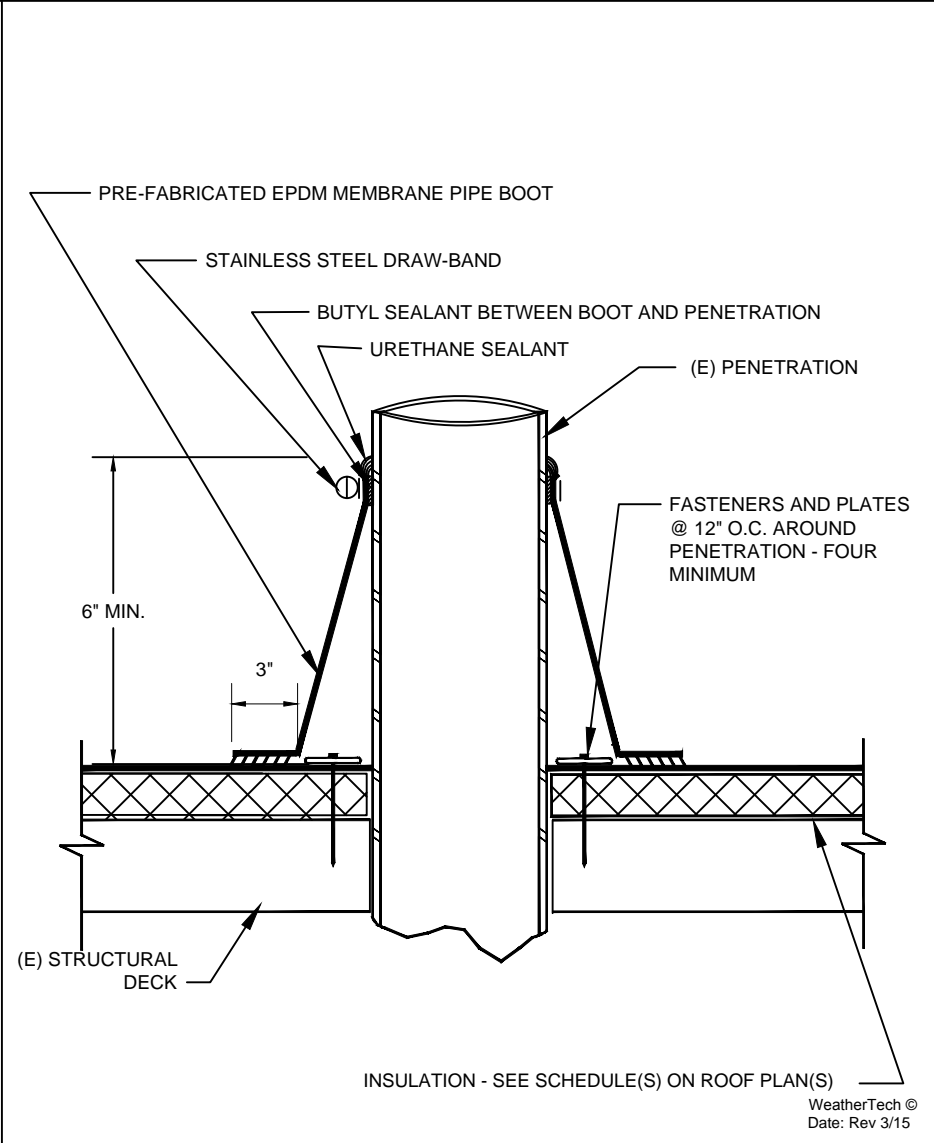
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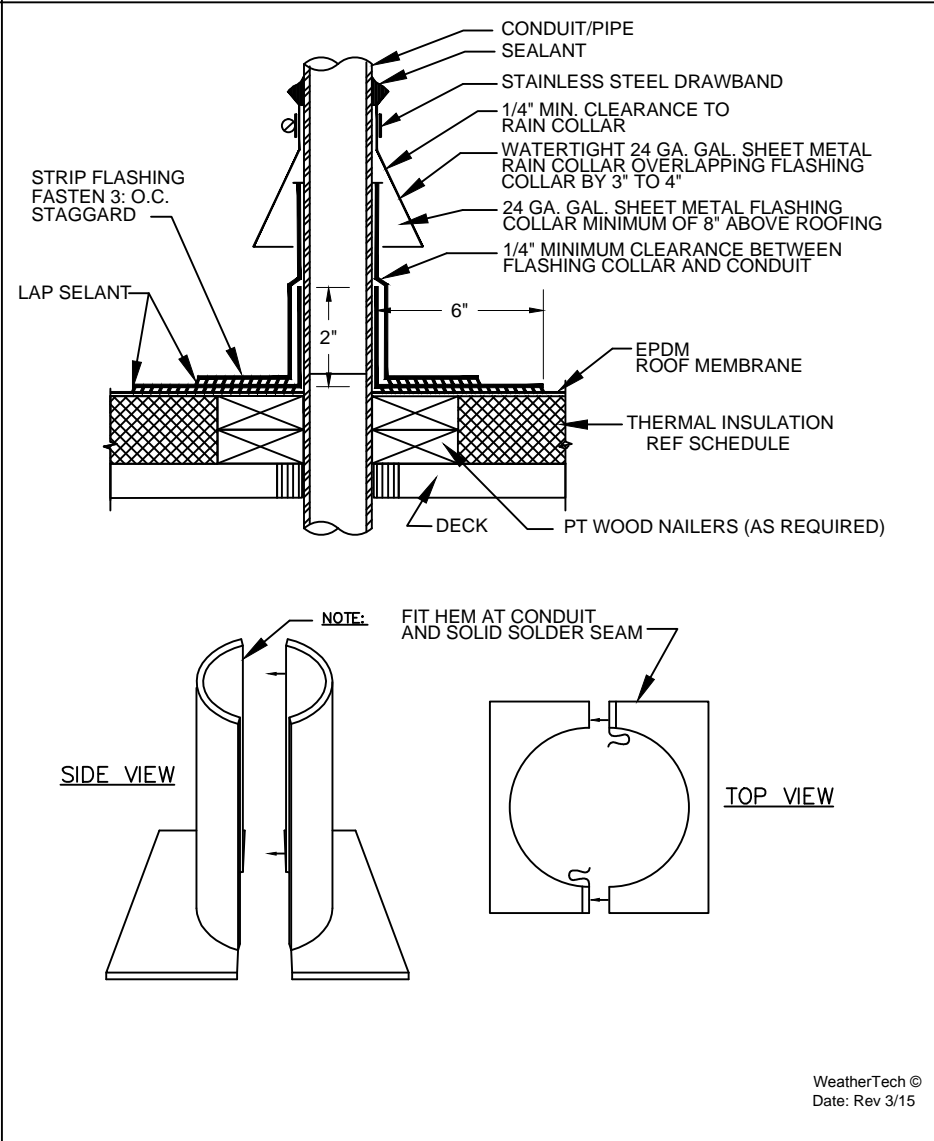
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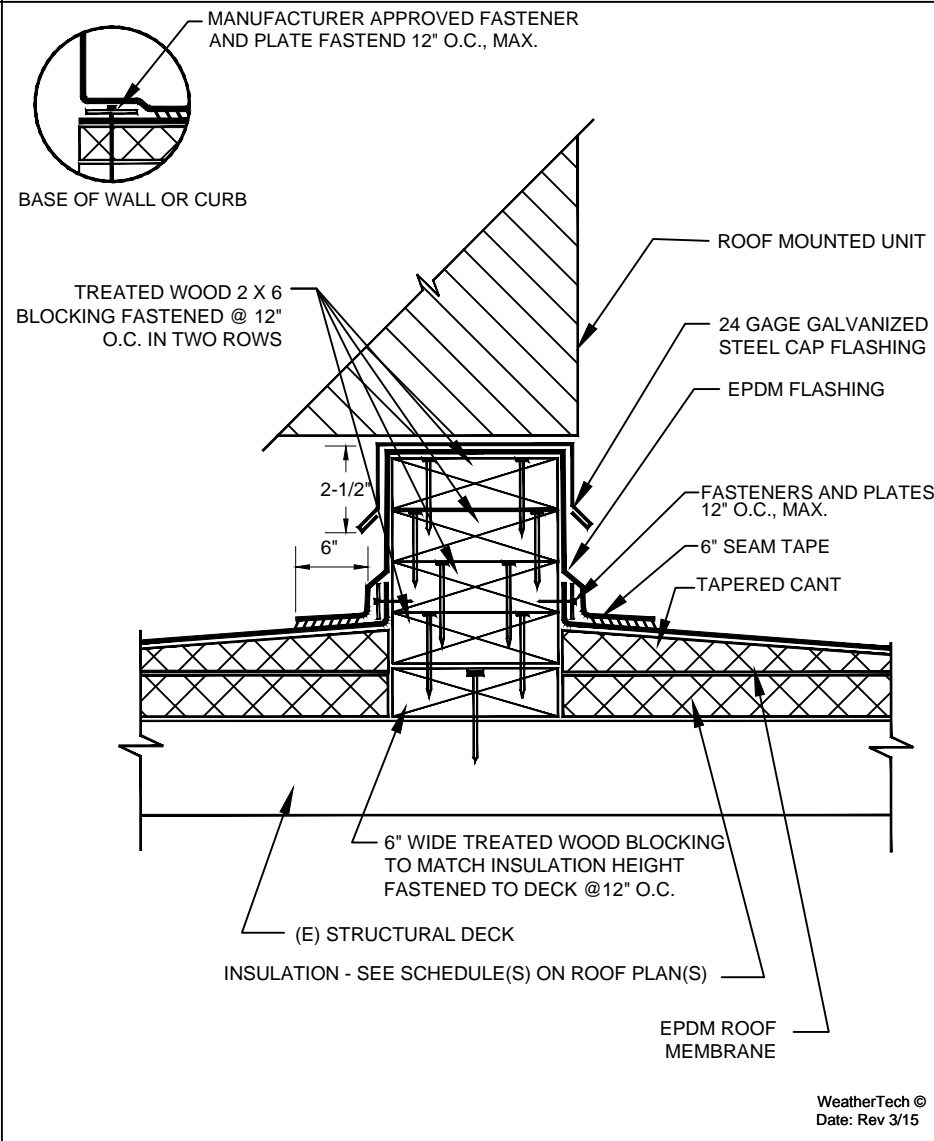
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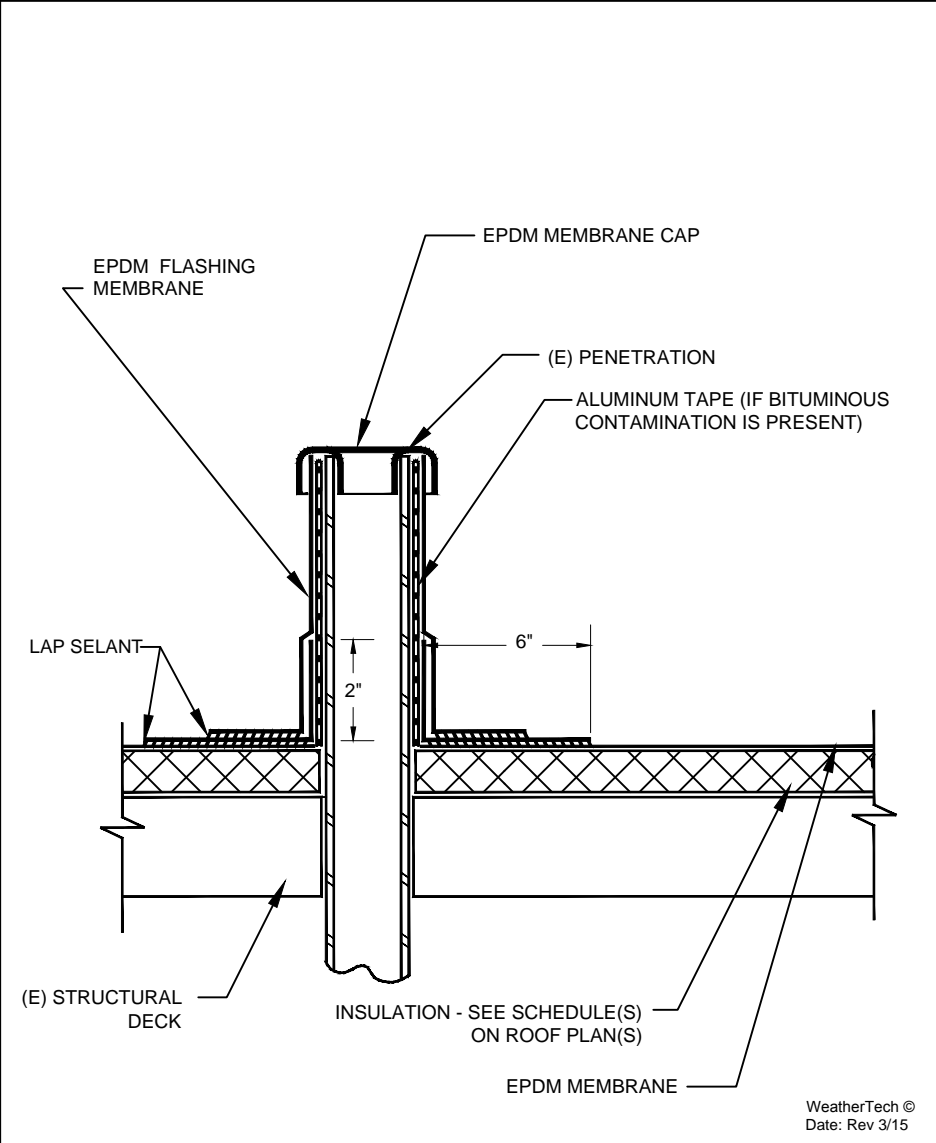
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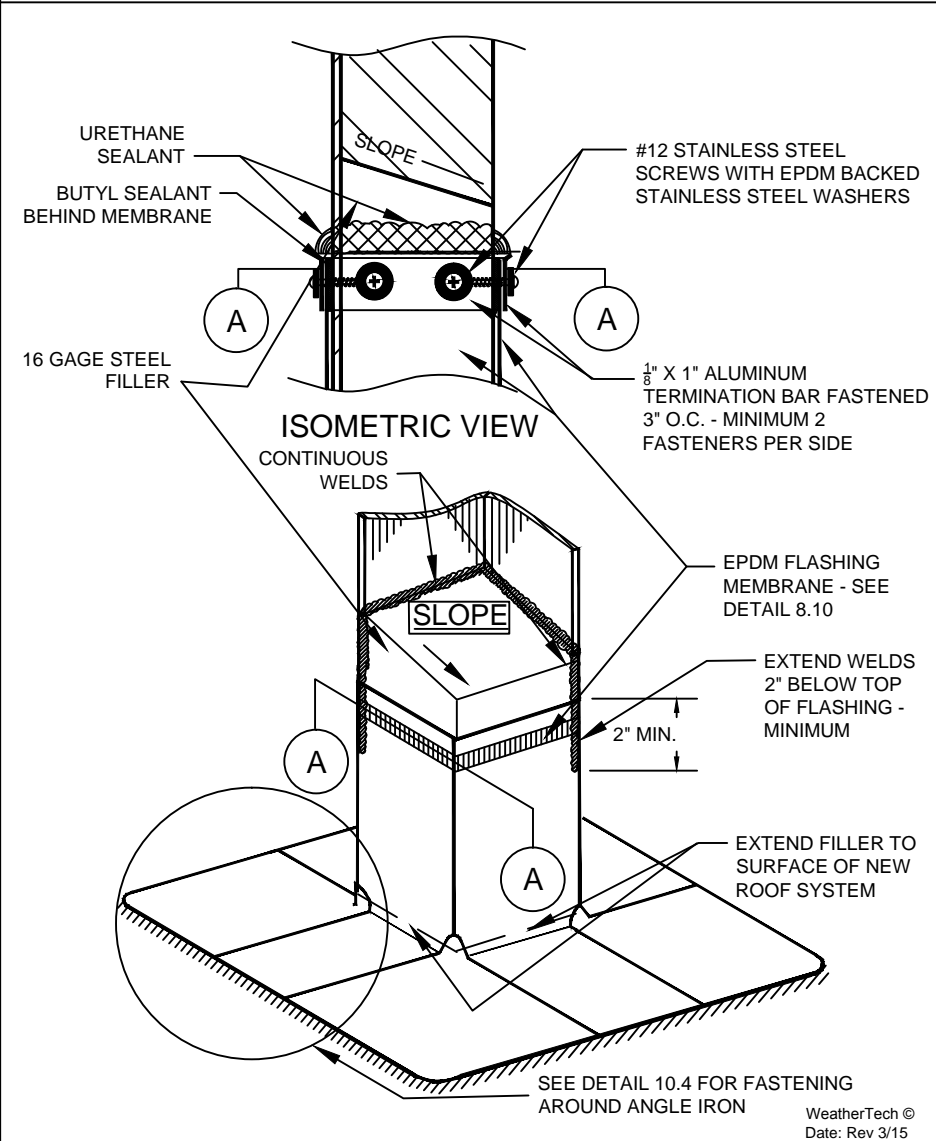
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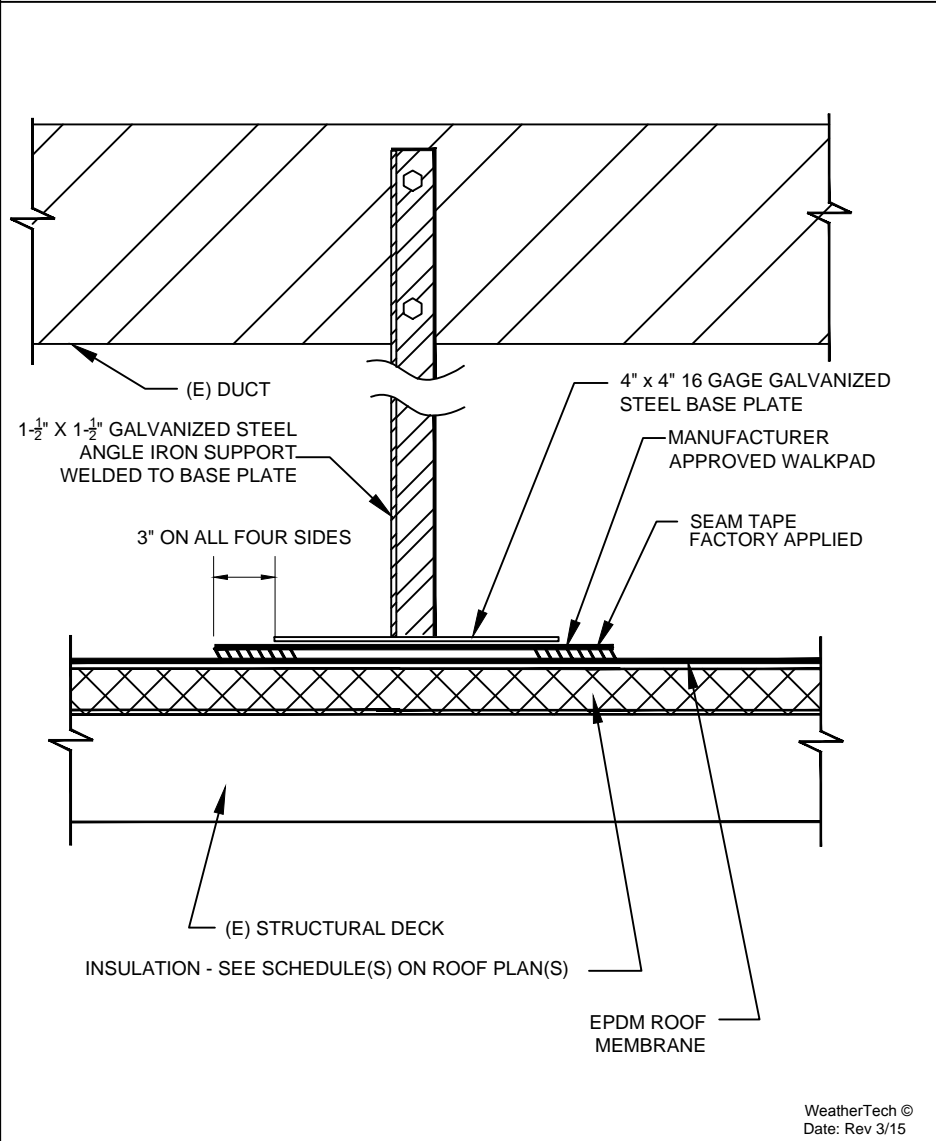
THROUGH ROOF CONDUIT/PIPE  
FLASHING - 2 PC COLLAR  
SCALE: N.T.S.



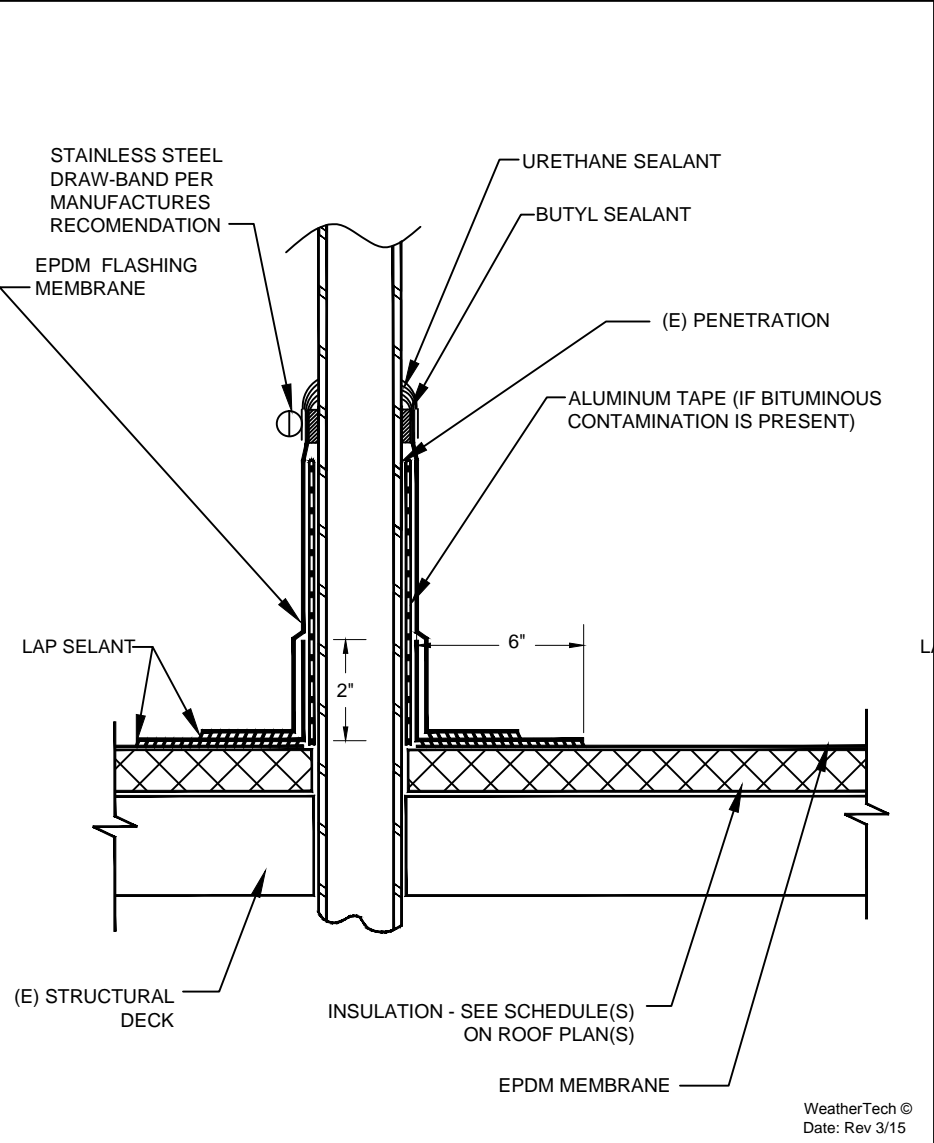
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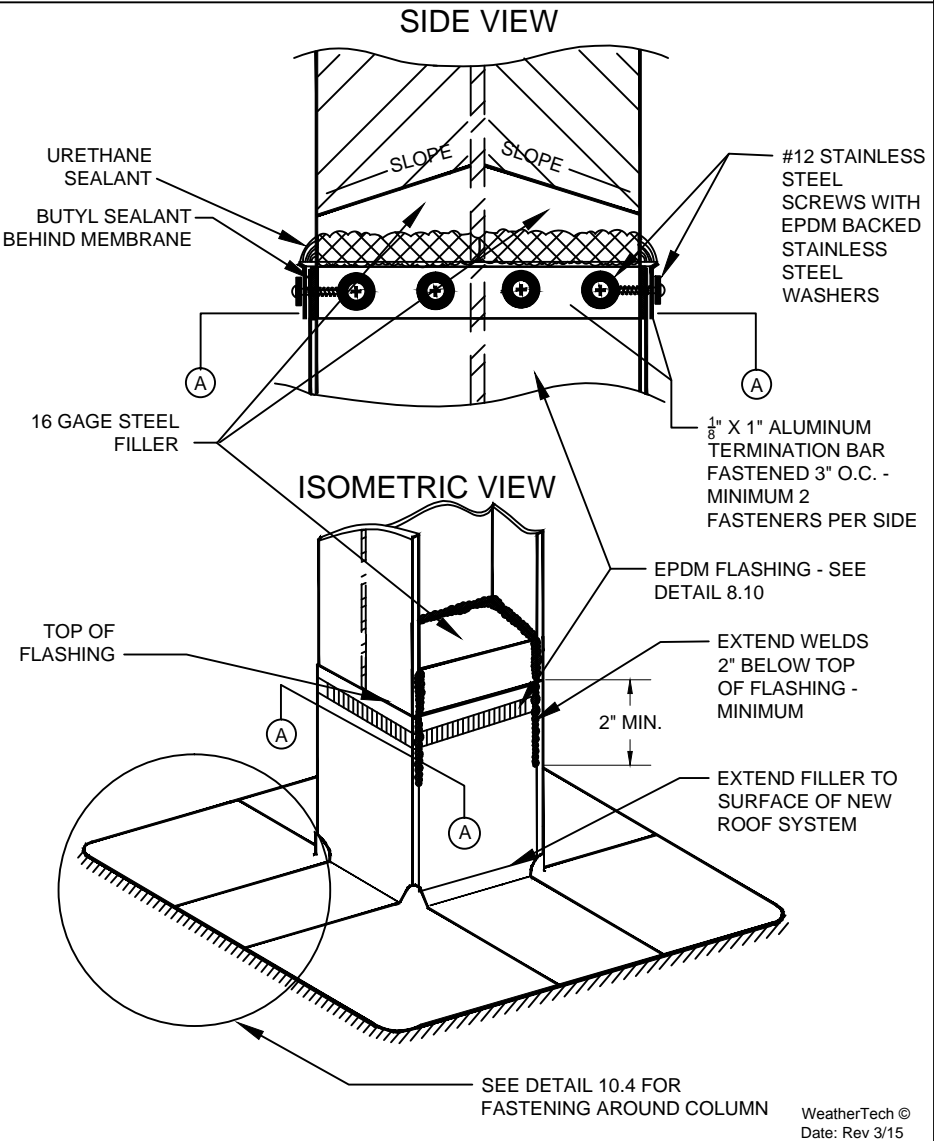
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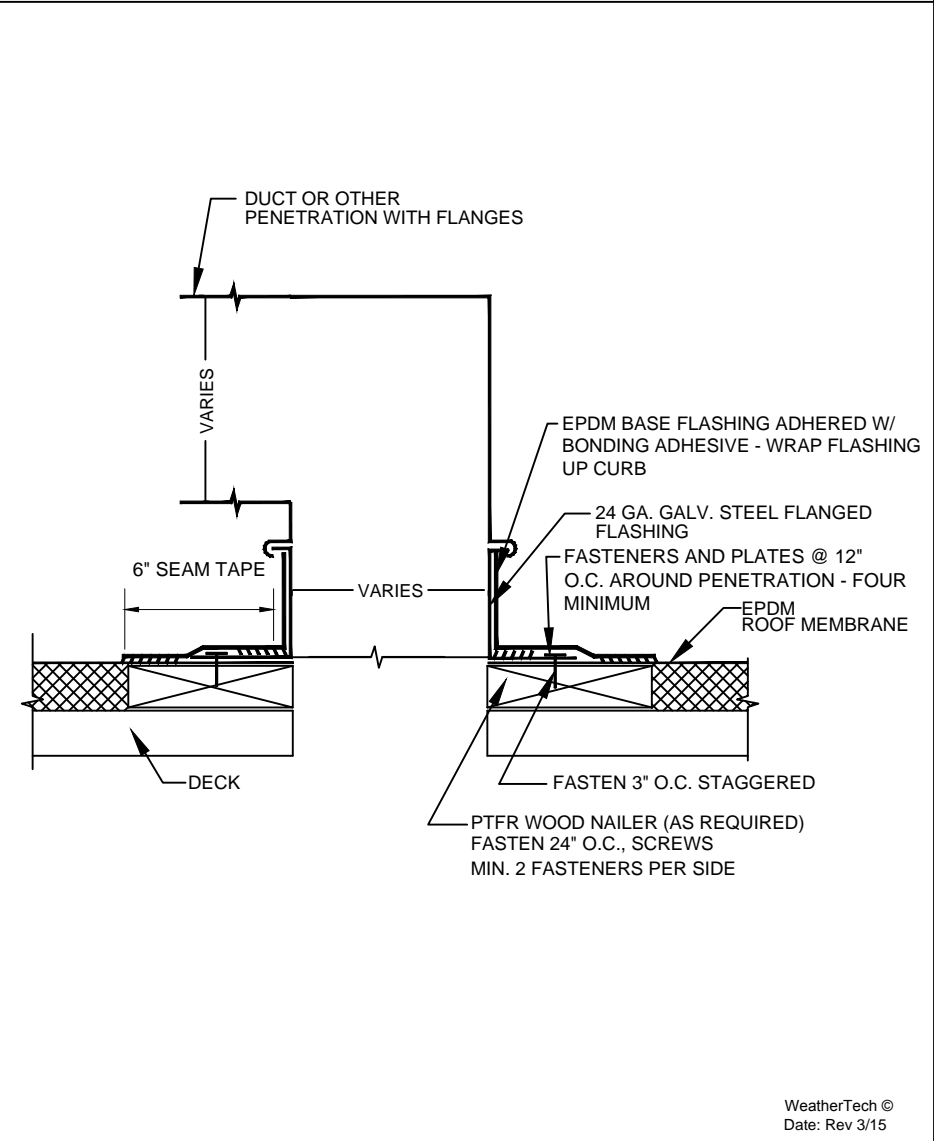
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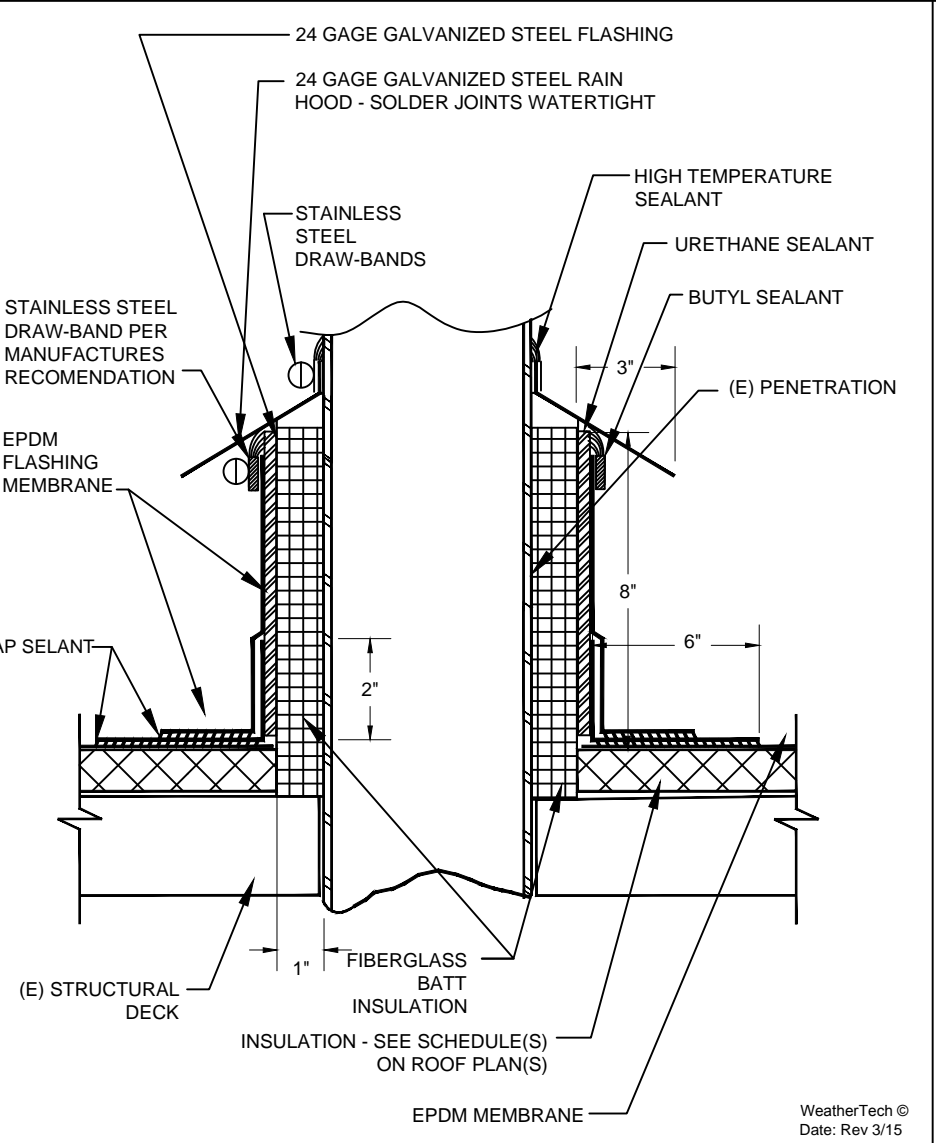
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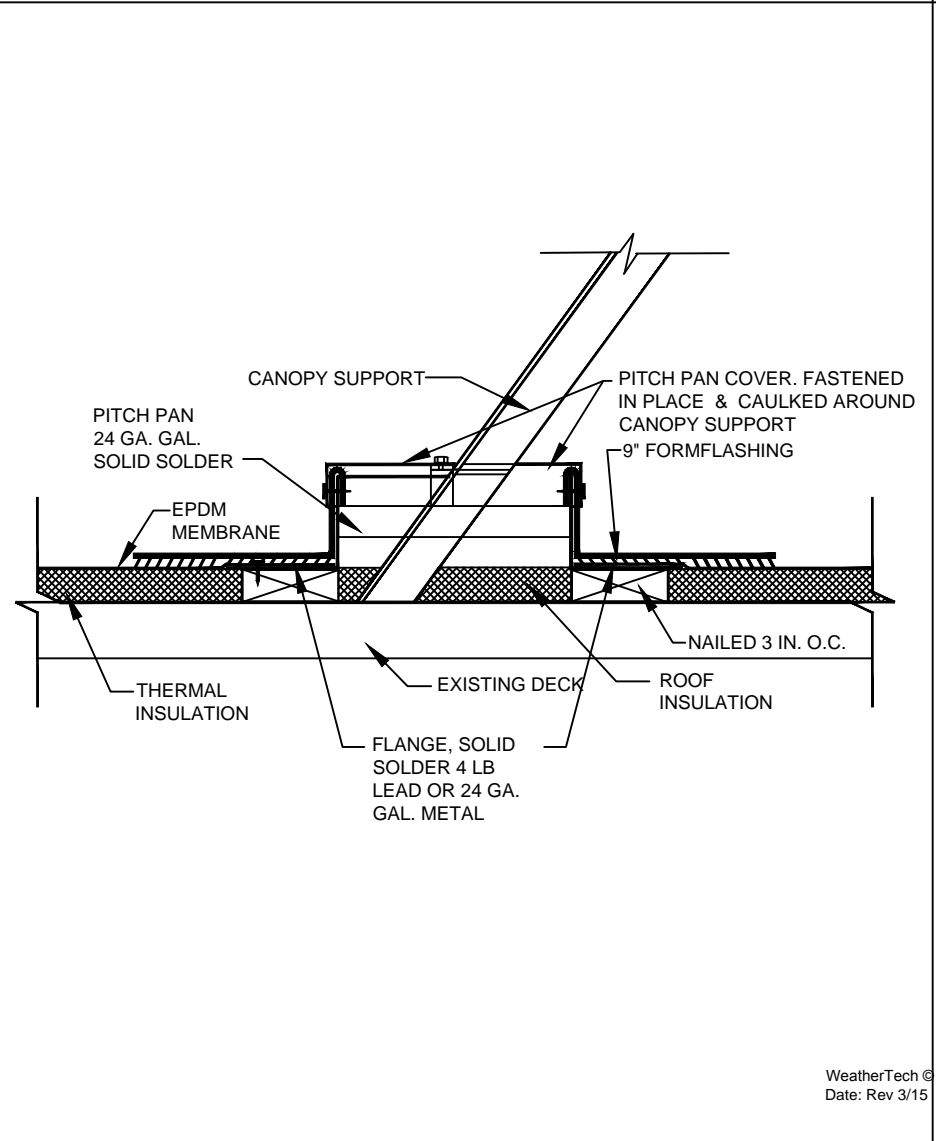
AREA DIVIDER/CONTROL JOINT  
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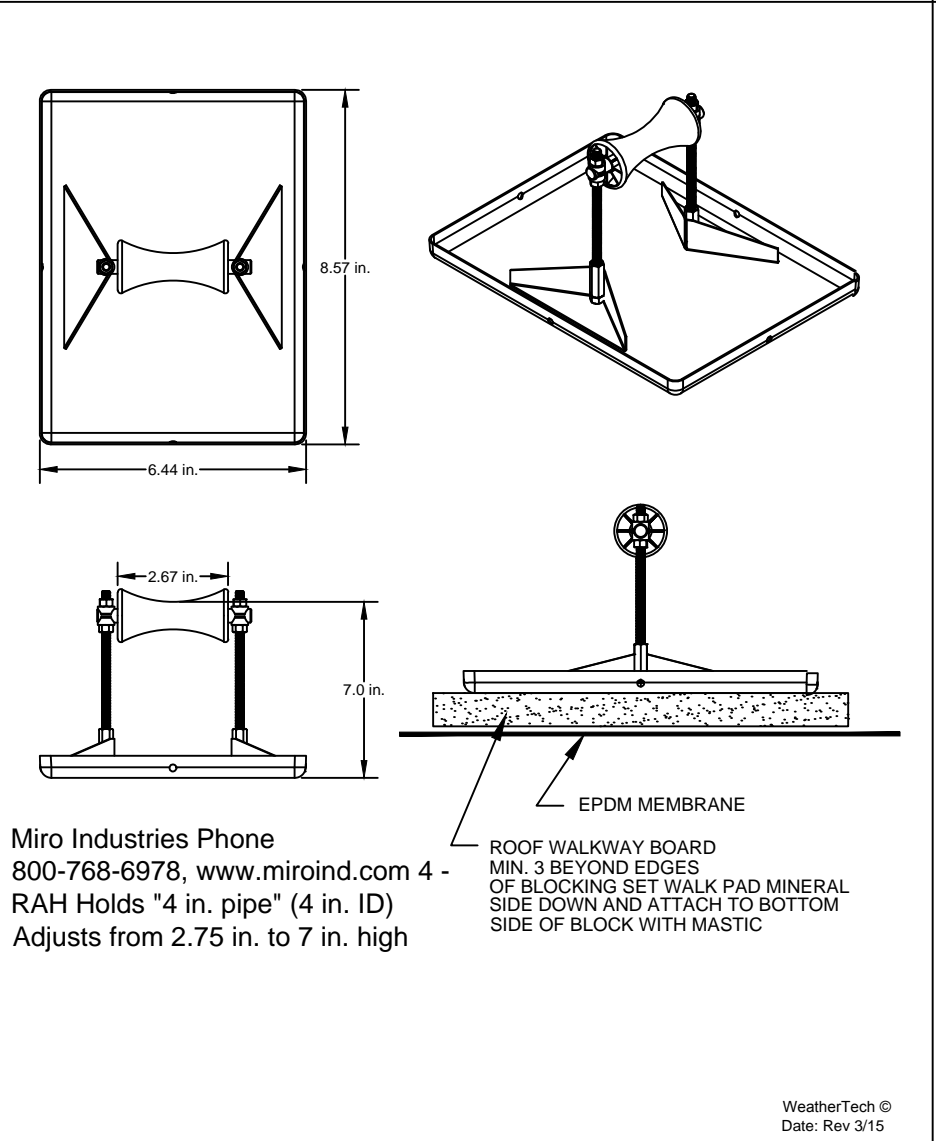
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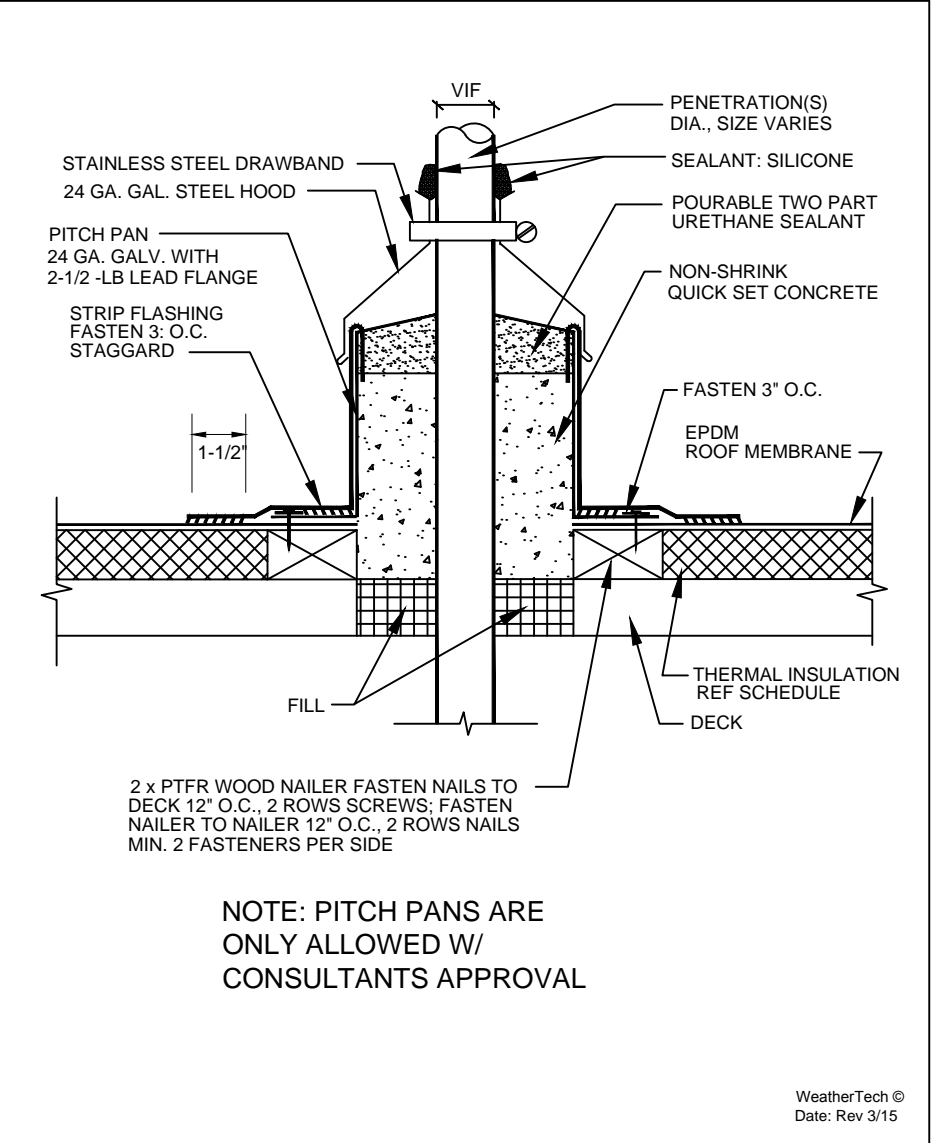
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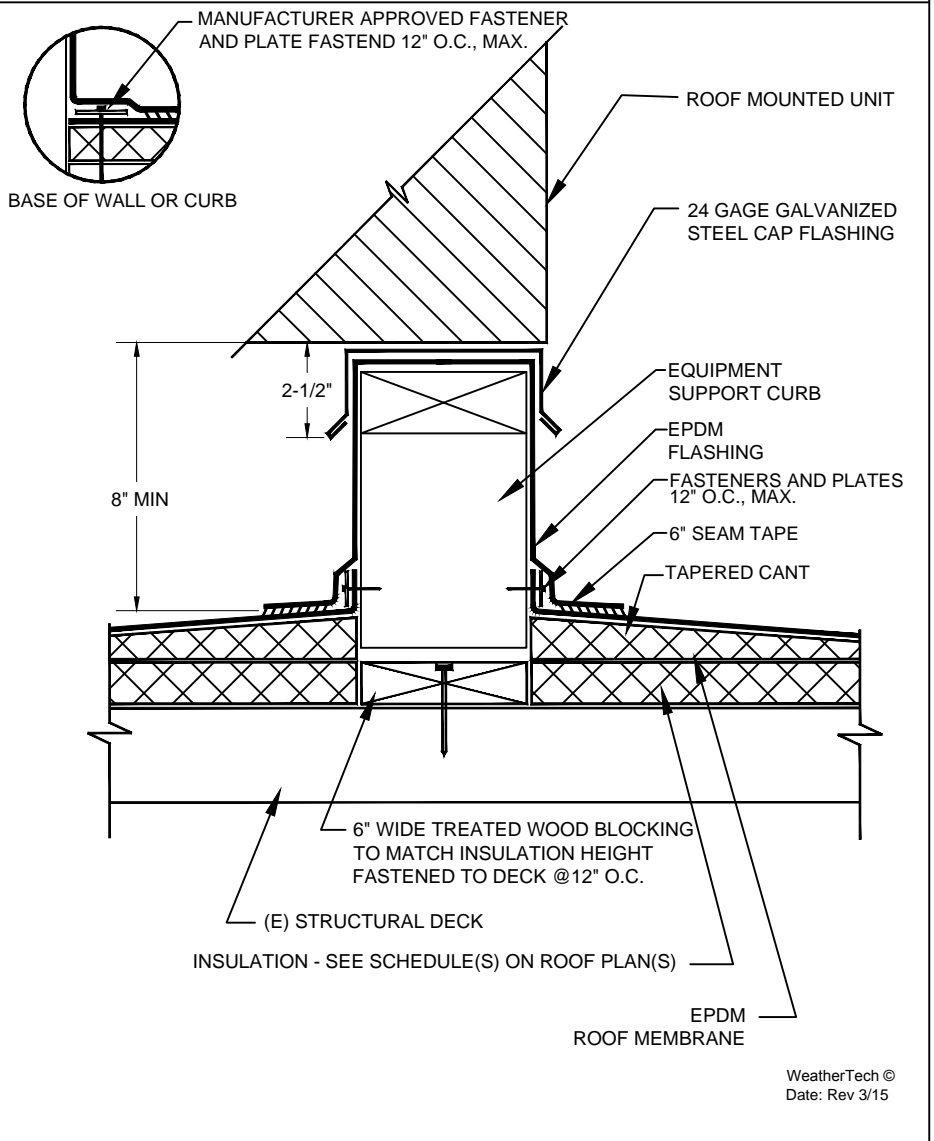
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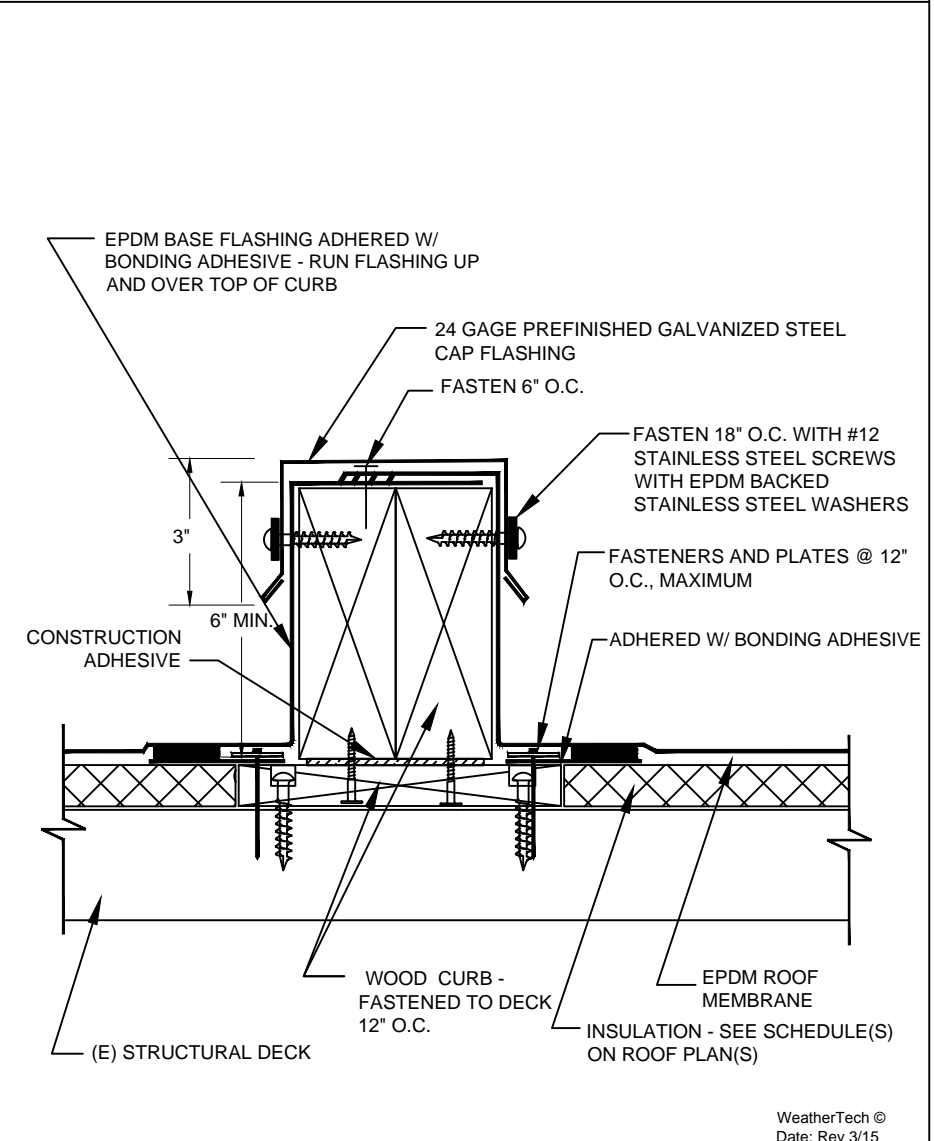
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AREA DIVIDER/CONTROL JOINT  
SCALE: N.T.S.



AREA DIVIDER/CONTROL JOINT  
SCALE: N.T.S.



AREA DIVIDER/CONTROL JOINT  
SCALE: N.T.S.

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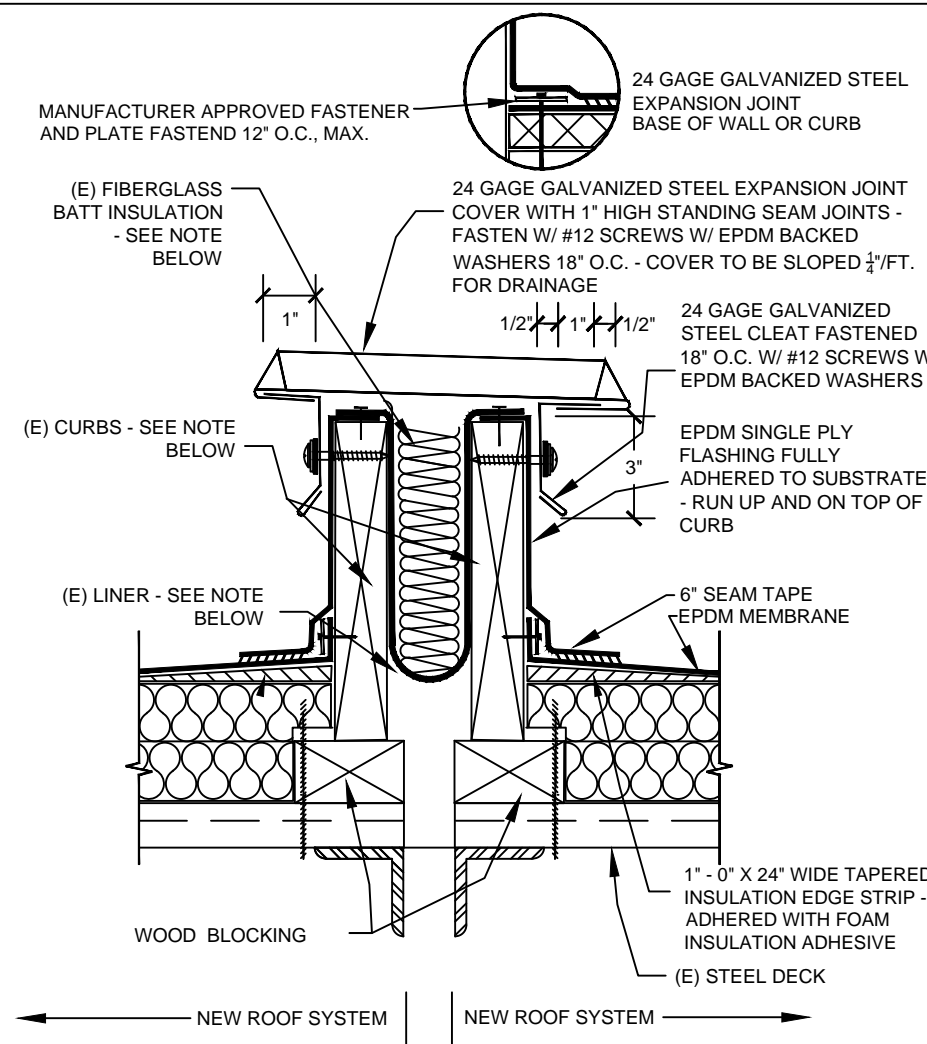
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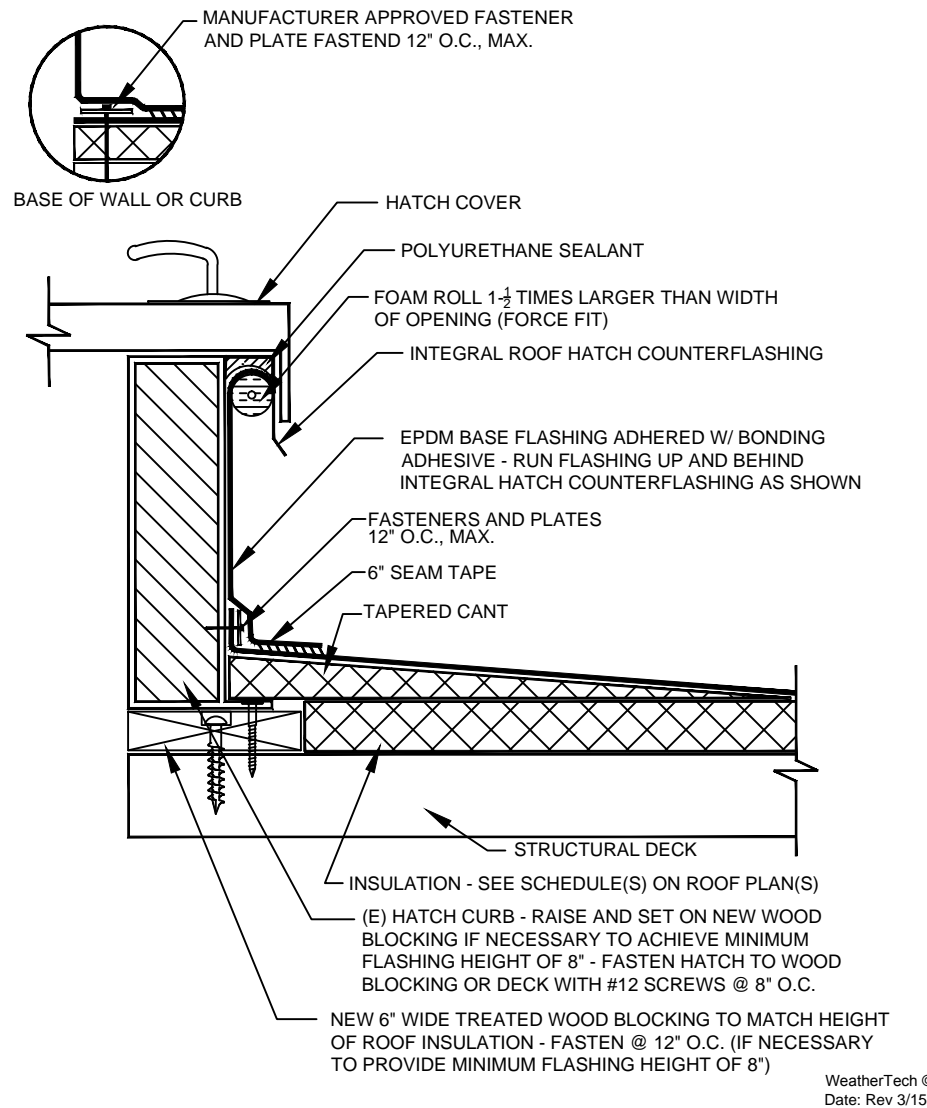
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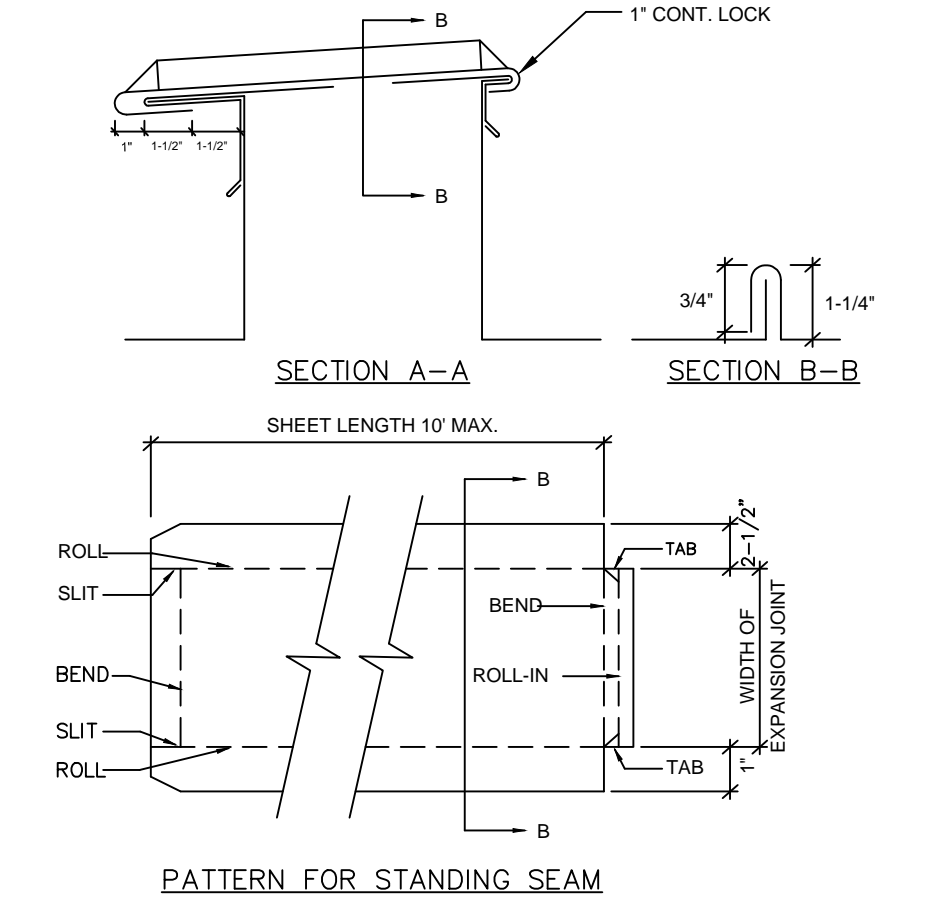


NOTE - REPLACE OR REPAIR LINER AND/OR FIBERGLASS INSULATION IF MISSING OR DAMAGED. SHIM TOP OF ONE CURB TO PROVIDE 1/2" SLOPE IN SHEET METAL EXPANSION JOINT COVER IF NECESSARY.

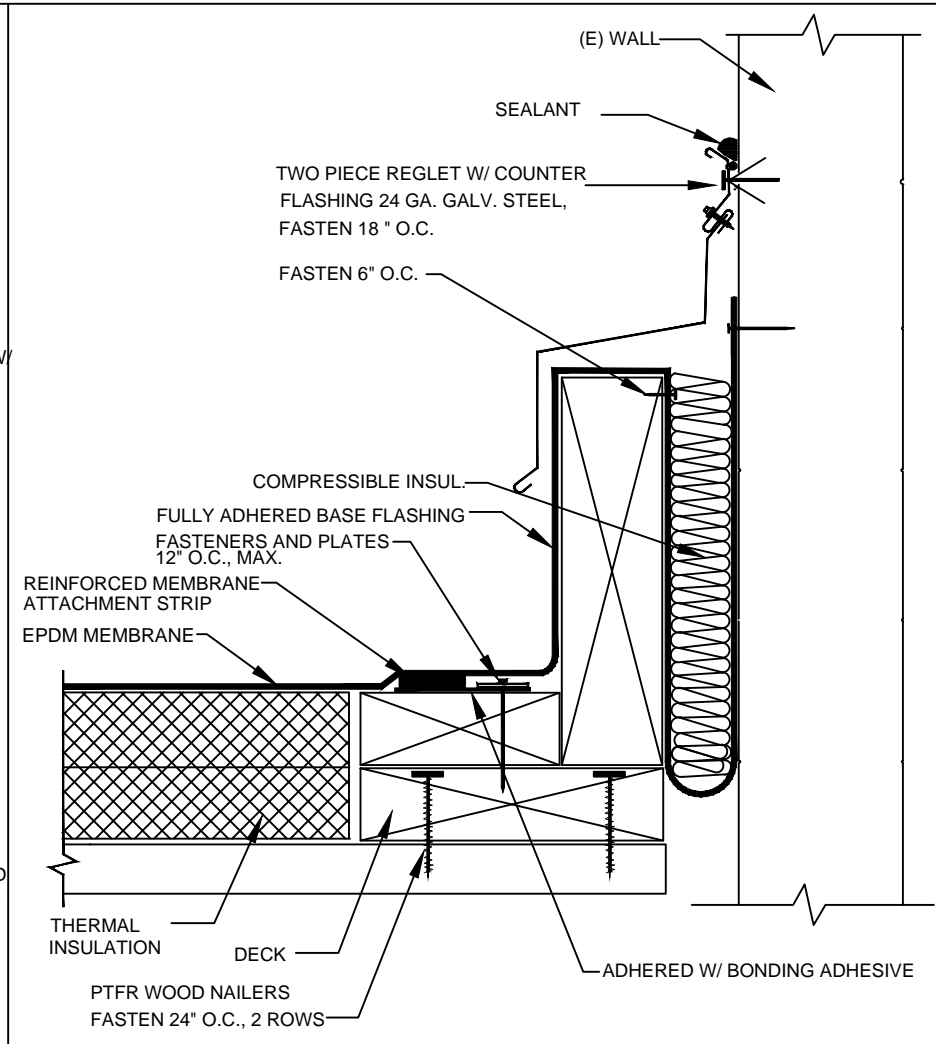
ROOF MOUNTED EXPANSION JOINT @ NEW CURB  
SCALE: N.T.S.



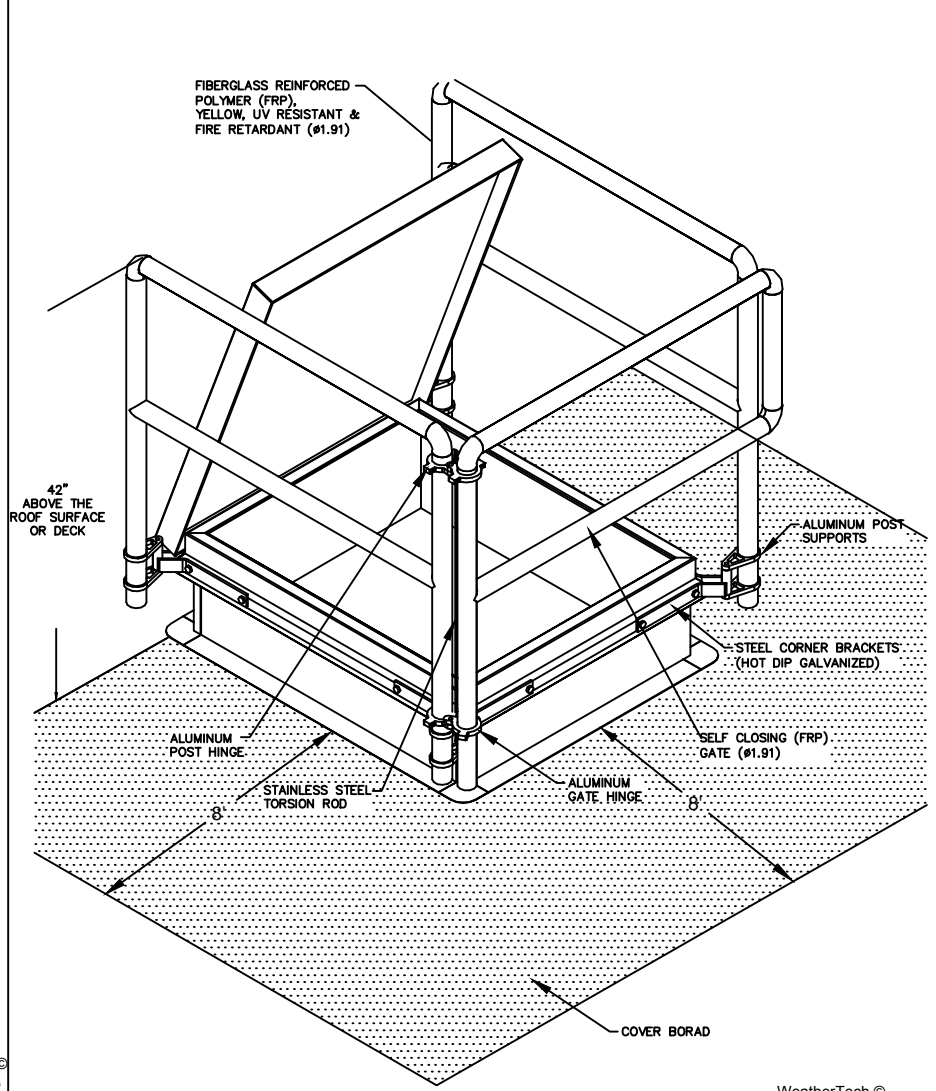
ROOF HATCH FLASHING (NON REMOVABLE)  
SCALE: N.T.S.



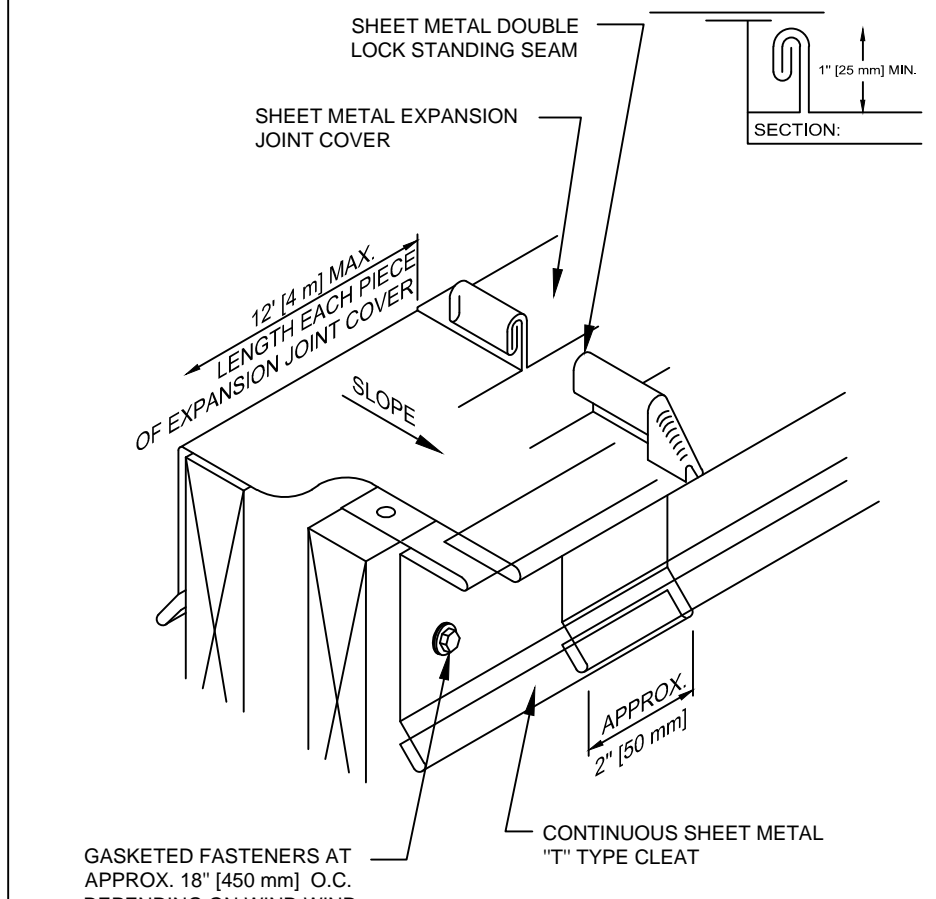
EXPANSION JOINT CAP  
FABRICATION  
SCALE: N.T.S.



ROOF TO WALL EXPANSION JOINT  
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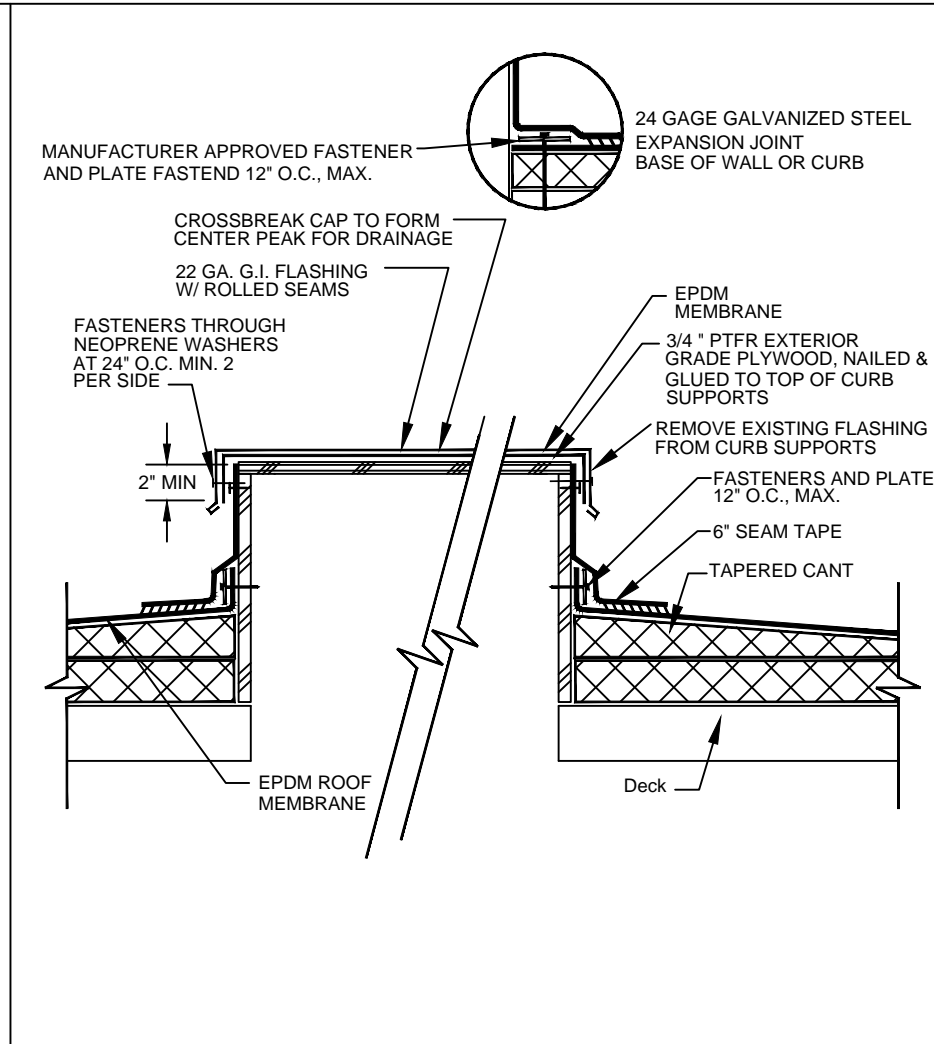


BILCO BIL-GUARD TYPE S E F  
HATCH RAIL SYSTEM  
SINGLE LEAF ROOF SCUTTLE

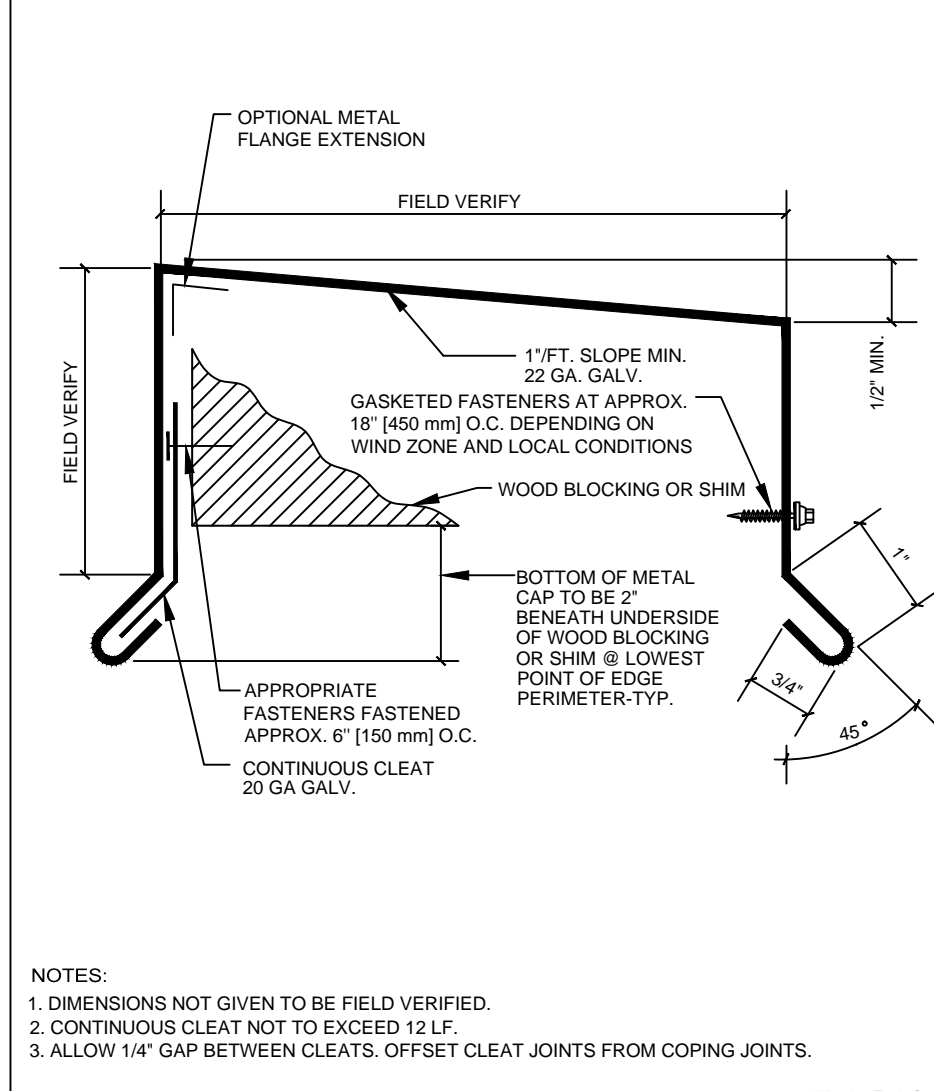


EXPANSION JOINT COVER WITH STANDING SEAM  
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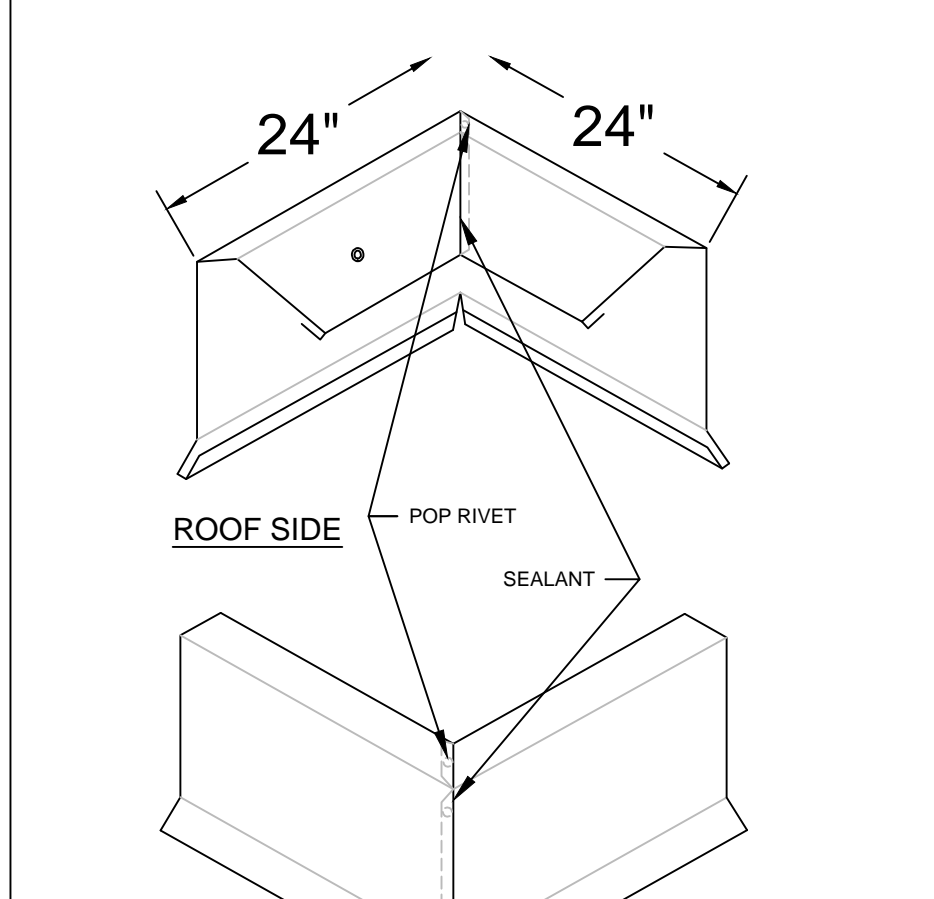
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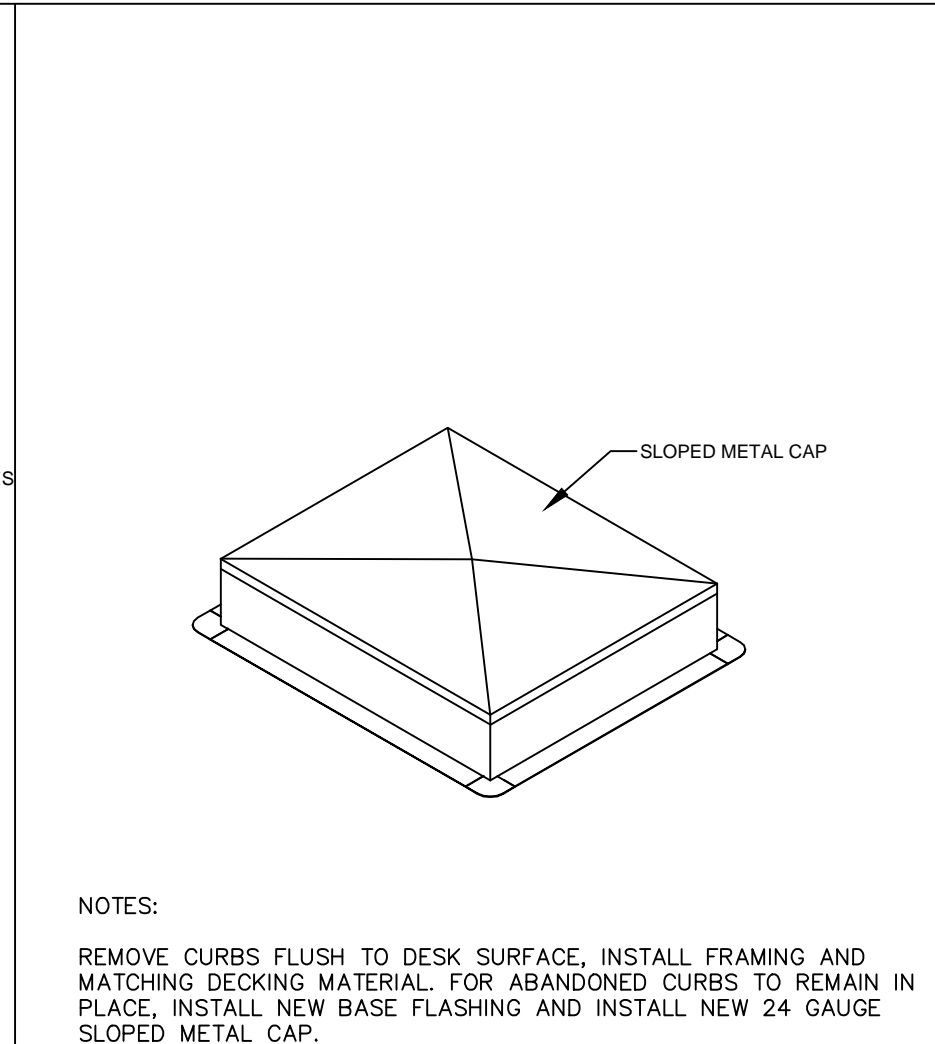


TYPICAL PARAPET/COPING CAP  
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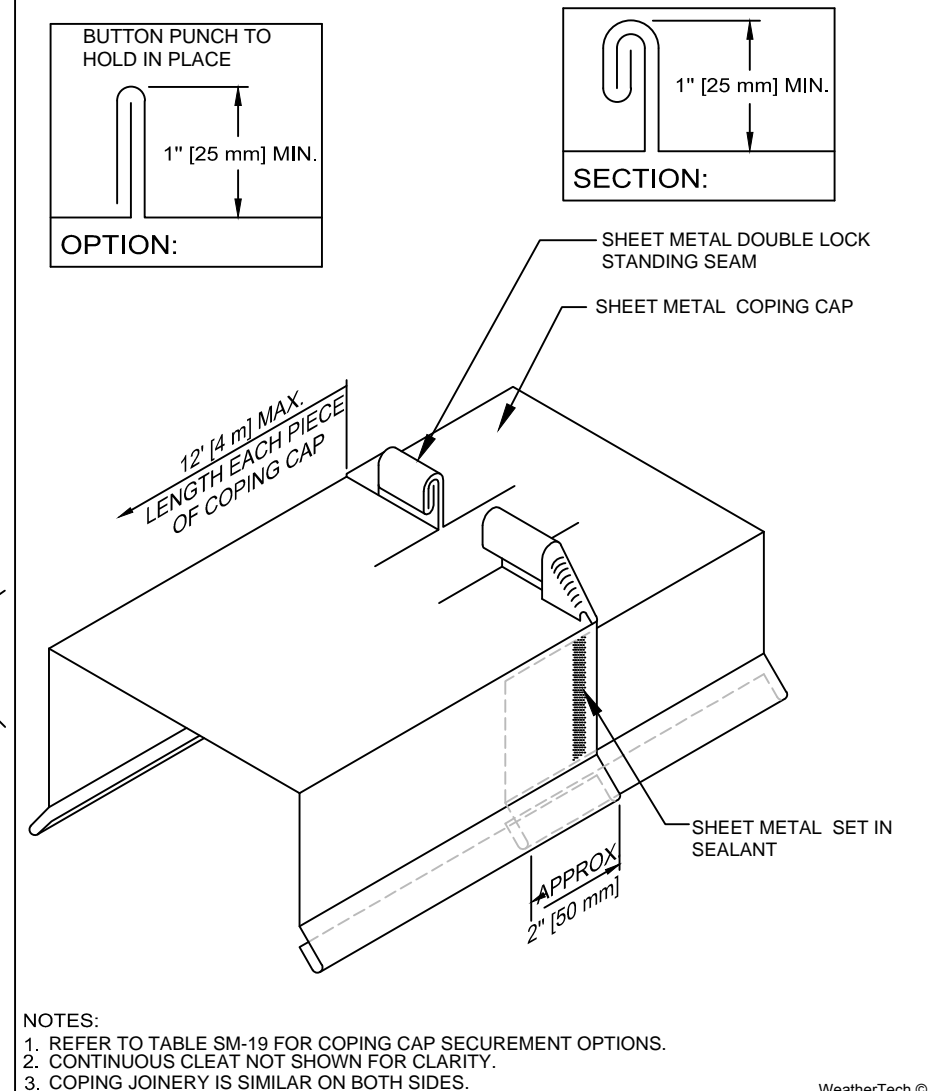


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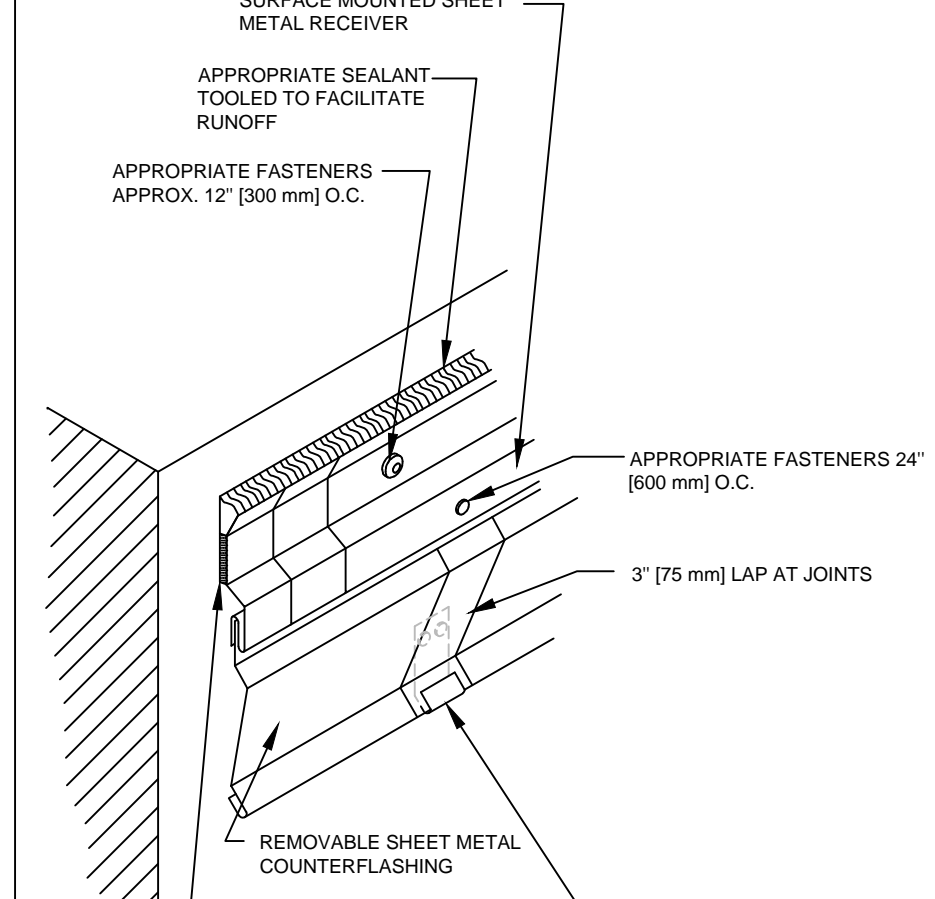
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ABANDONED CURBS  
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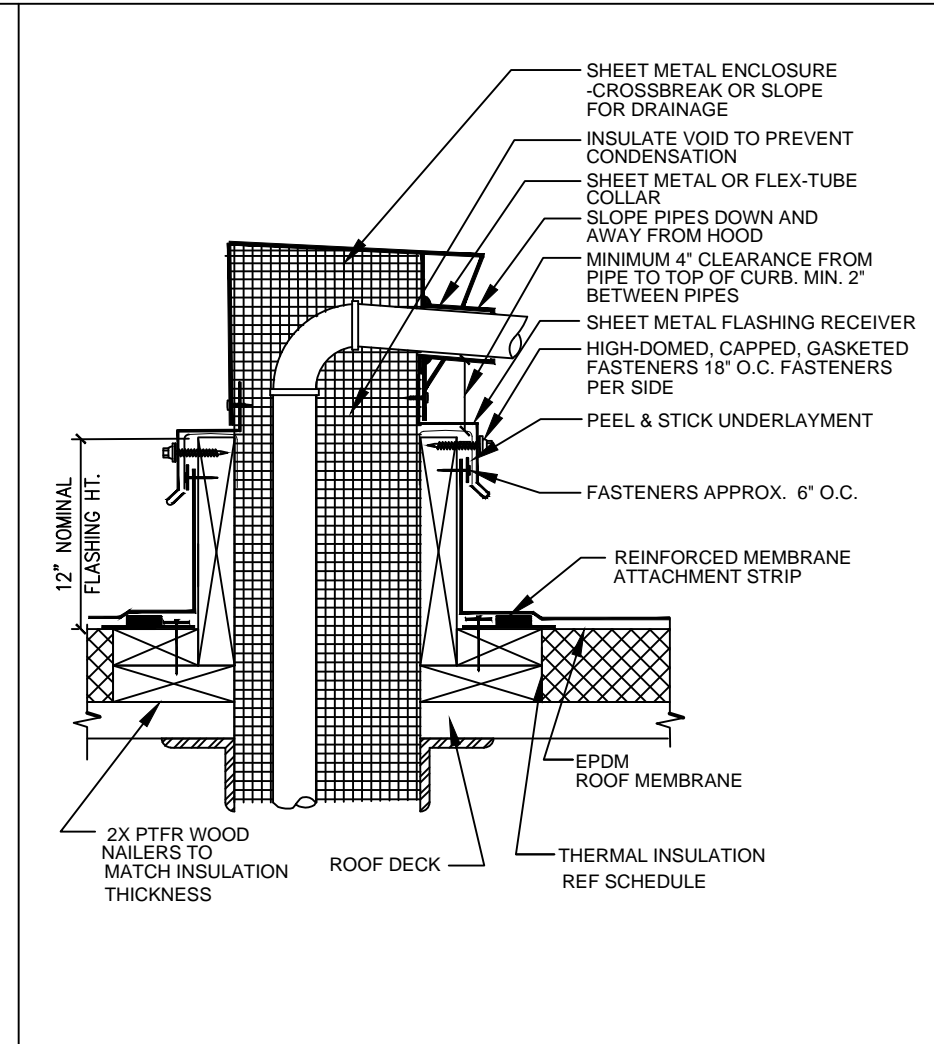


COPING CAP WITH DOUBLE LOCK  
STANDING SEAM

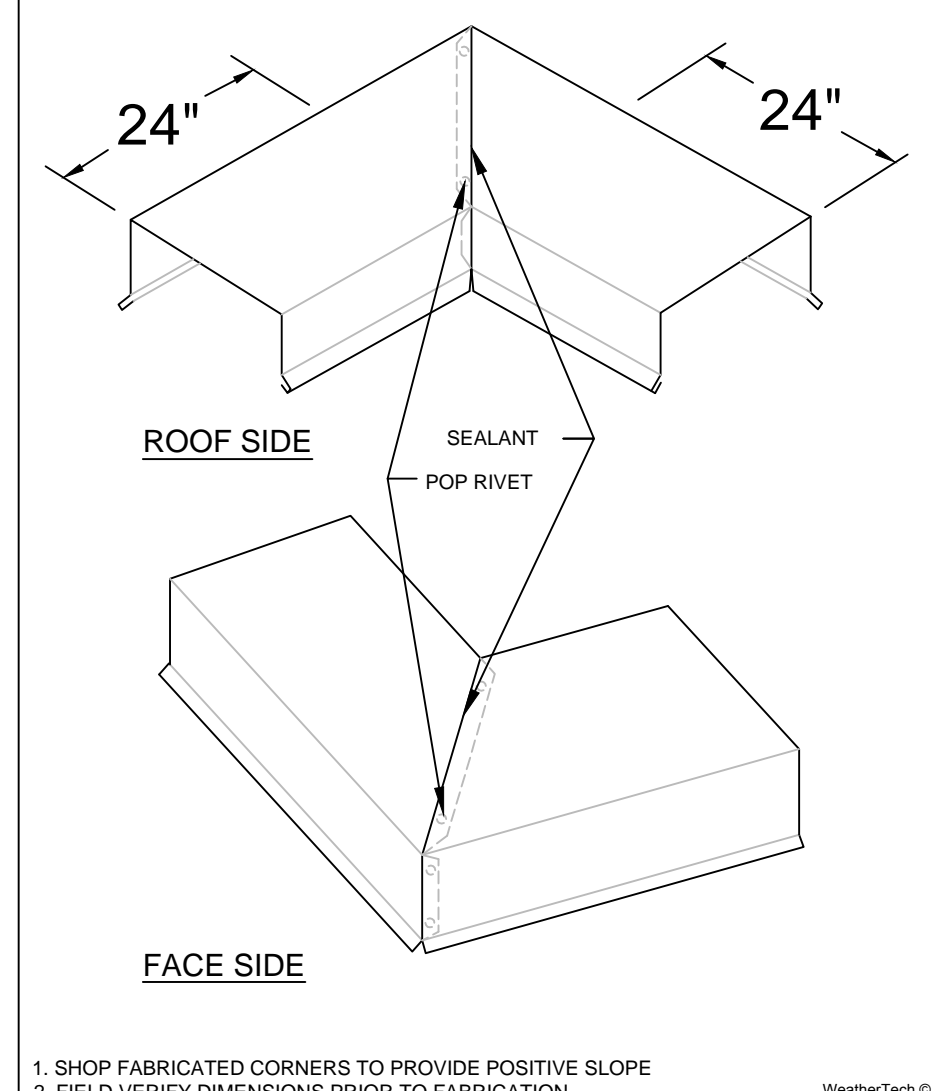


TWO PIECE SURFACE MOUNTED REGLET AND  
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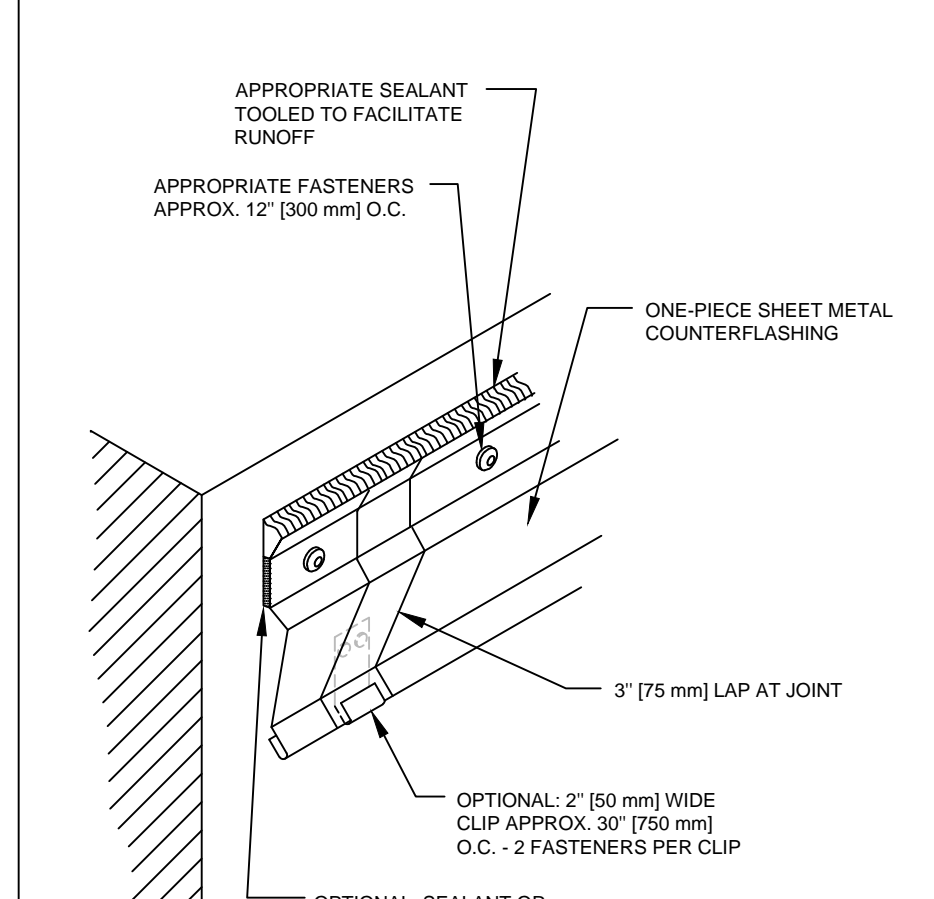
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COUNTERFLASHING WITH OVERLAP JOINT  
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MULTIPLE PENETRATION CLOSURE  
BOX W/ WD. CURBED OPENING  
SCALE: N.T.S.

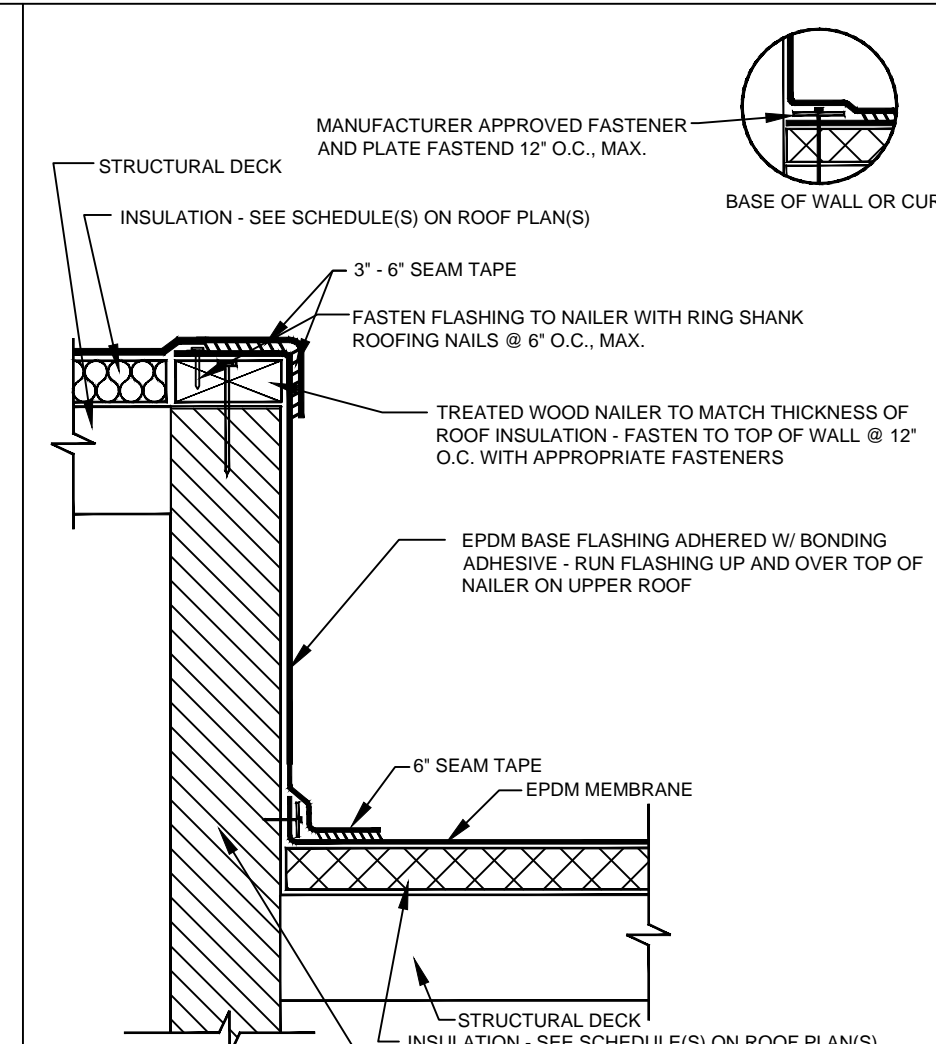


PARAPET COPING CAP CORNERS  
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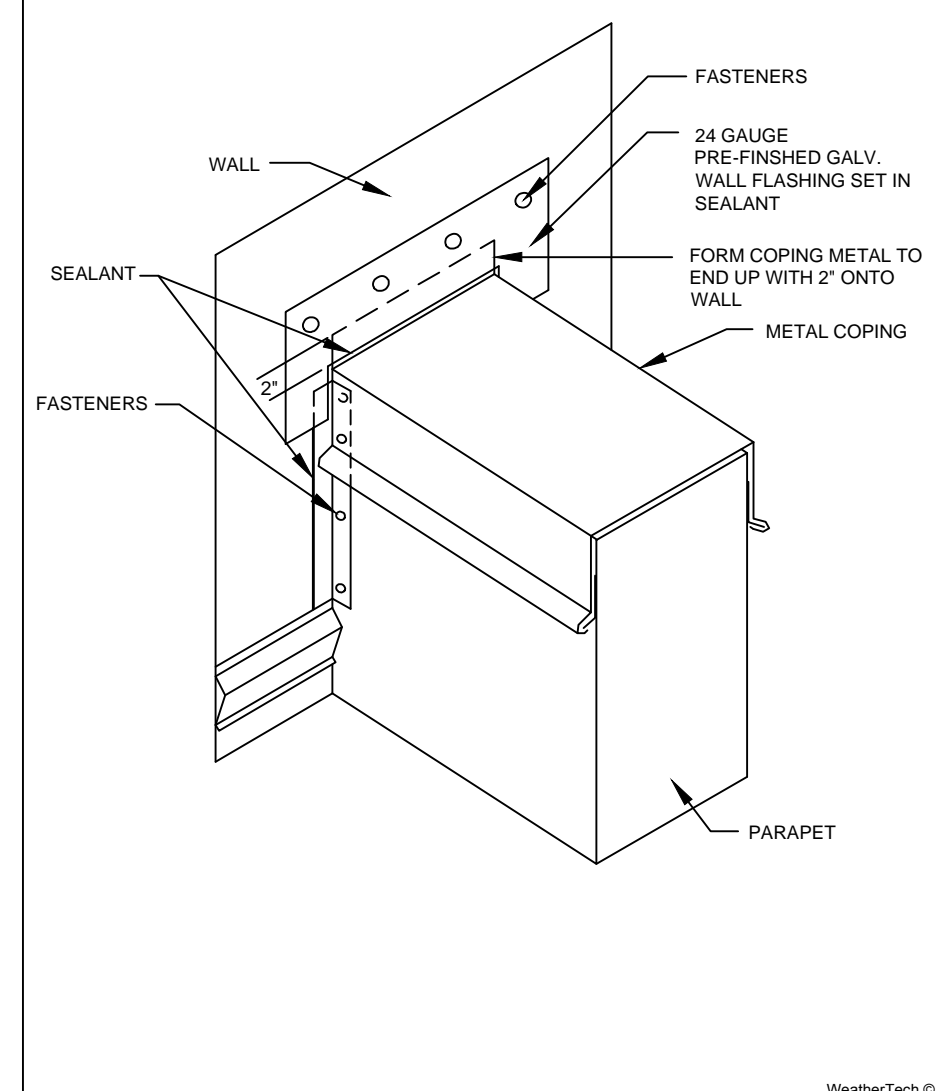


ONLY USE THIS DETAIL WHEN  
APPROVED BY CONSULTANT

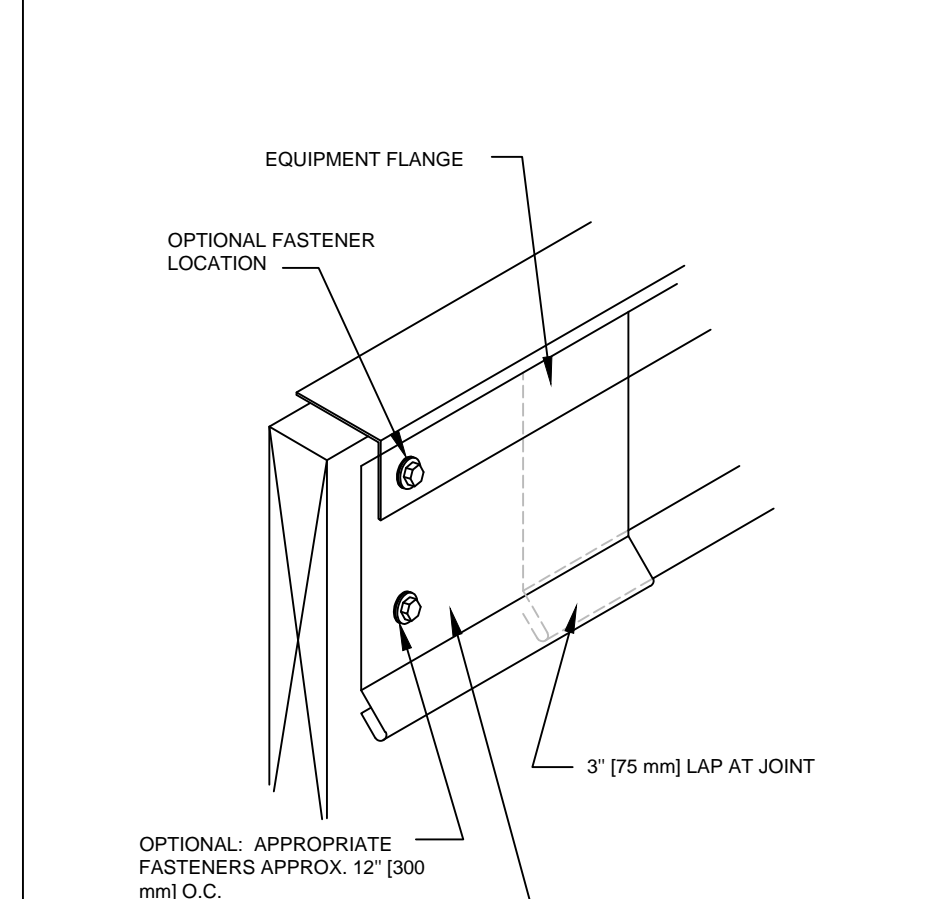
ONE-PIECE SURFACE MOUNTED  
COUNTERFLASHING WITH OVERLAP JOINT  
SCALE: N.T.S.



WALL TRANSITION  
SCALE: N.T.S.



WALL TERMINATION  
SCALE: N.T.S.



CURB COUNTERFLASHING  
(SKIRT FLASHING)

CURB COUNTERFLASHING  
(SKIRT FLASHING)  
SCALE: N.T.S.



Roofing/Waterproofing Consultants  
Consulting Group, Inc.

PHONE: 586-731-3095  
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WEB SITE: [www.wtcg.net](http://www.wtcg.net)

Troy School District  
4400 Livernois  
Troy, MI 48098

Troy School District  
**BID 9848**  
2018 Roofing Program

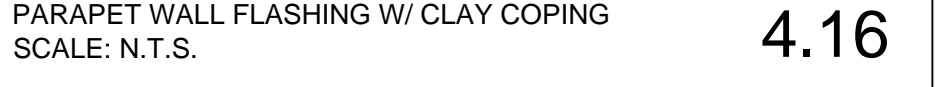
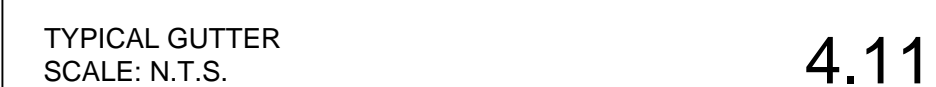
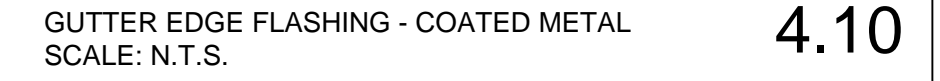
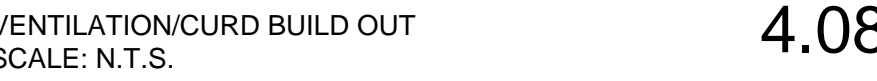
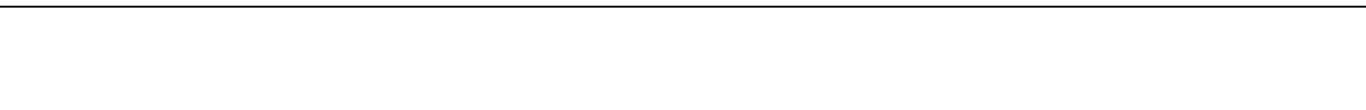
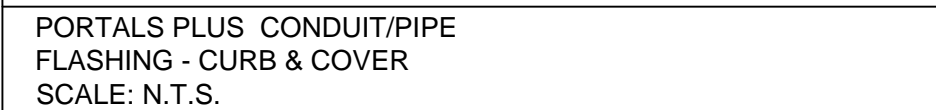
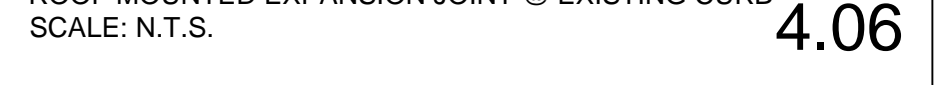
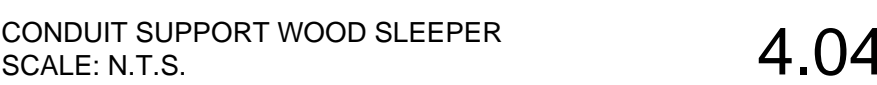
## ISSUE

File Name: A8.0 - Detail Page
Drawn By: MD, GG
Checked By: AW, GG, AC

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## A8.3

Sheet 23 of 23





PPROJECT SUMMARY

SUMMARY OF WORK: ref. Section 00 02 00

General: Troy School District (TSD) 2018 Roof Program work for five (5) schools and one (1) District building covering approximately 145,925 sq. ft. Roofing work includes roof replacement and restoration required to remediate all work identified in the specifications and drawings inclusive of all Bid Documents requirements.

Schedules: Ref. "PROJECT WORK SCHEDULE" on this Sheet A1.0 - Cover Page.

BID SUMMARY:

- Contractor proposal and two copies will be submitted only on the forms provided and will be enclosed in a sealed envelope marked with the name of the bidder, the title of the work, the time, place and date due and must be hand delivered or delivered by courier no later than 10:00 A.M., Wednesday, November 29, 2017, Administrative Building, Troy School District, 4400 Livernois, Troy, Michigan 48098, at which time all bids will be publicly opened and read aloud immediately thereafter. Bid proposals received after this time will not be considered or accepted. Oral, telephone, fax or electronic mail bids are invalid and will not receive consideration.
  - Bid Bond: Submit with bid five percent (5%) bid bond or certified check.
- Pre-Bid Conference: A mandatory pre-bid conference will be held at Administration Building, 4400 Livernois, Troy, MI 48098, on Monday, November 20, 2017 at 10:00 am Local Time. The roofing contractors will have access to walk the roofs on Wednesday, November 22, 2017. (Between 8am-4pm)
- Bid Form Section 000300: Bid Form to contain Base Bid including all work as specified in Bid Documents including performance (Section 000300) and payment bond (Section 000304) fees, number work days to complete work, square footages are required on Bid Form found in Section 000300.
  - Allowance expenditures shall be documented and compensated on a unit pricing basis per the Unit Pricing Bid Form (Section 000301) values provided.
- Allowances Section 012100: Allowances will be defined on individual school roof plans under "Allowances" and are to be included in Base Bid value found in Section 000300.
  - Allowance expenditures shall be documented and compensated on a unit pricing basis per the Unit Pricing Bid Form (Section 000301) values provided.
- Unit Pricing Section 004322: Unit Pricing for unit work is defined on the Unit Price Bid Form in Section 000301. Unit Pricing bid values are entered by unit price individually on form.
- Alternates Section 012300: Alternates are individually listed on school roof plans and bids for Alternates. Alternated bid value are to be entered on Bid Form (Section 000300) as enumerated.
- TSD reserves the right to issue contracts to multiple contractors.
- Any questions regarding bid specifications must be received noon, Monday, November 27, 2017. Questions must be submitted in writing on the WTT website using the online RFI form at [www.wtcgproject.net](http://www.wtcgproject.net) any questions on how to use the RFI form contact Ann Crispen at (586) 731-3095 x10 or Geof Garabedian at (586) 731-3095 x12. No response will be made to oral questions.

EXISTING ROOF SYSTEM CONSTRUCTION: ref. Roof Plans

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions.

REPLACEMENT ROOF ASSEMBLY SUMMARY:

- Roof System: Ref. Roof Plan Schedules
  - Roof Membrane: EPDM, 60 mil, unreinforced and fully adhered;
  - Insulation: Min. R20, min. two layers. Top layer must be adhered.
  - Underlayment: Modified base sheet, mechanically fasten. Reference Individual Roof Plans.
  - Deck: Multiple types Reference individual Roof Plans.
  - Warranty:
    - Roof replacement: 20 yr. Materials manufacturer, No Dollar Limit materials and installation;
    - Restoration: 2 yr No leak warranty, contractor.
- Roof System Performance: Ref. Roof Plan Schedules
  - Wind : FM Global (FM): FM Standard 4470 Meets - Windstorm Classification FMG 90
  - Fire: Underwriters Laboratory External Fire Resistance - Class "A".
  - Energy: Michigan Uniform Energy Code: Insulation R-value: R20.
  - Drainage: Drainage Performance Acknowledgement"

RESTORATION:

Ref. School Sheet(s), RepairRestoration Manuals

- Troy Union only applies to this work.
  - Drawings of each roof area with defect locations marked on plan using 10 ft. x 10 ft.
  - All defect to be repair by designated code number for BUR NRCA manual for TSD Restoration work as revised and amended by WeatherTech Consulting Group, Inc. for completion of restoration work:
    - BUR Manual
    - Thermoplastic Repair Manual
    - Thermoset Repair Manual

GENERAL SHEET NOTES

- All work shall be executed with accordance with the appropriate document of the Contract Documents.
- Any conflicts between specifications and drawings shall be brought to the attention of the Owner and Consultant immediately. In all situations the more restrictive and higher quality shall govern.
- All dimensions to, of, and in existing building and roof shall be verified in the field by contractor. Field measure existing conditions to verify material quantities and dimensions prior to fabrication on component material.
- Details shown are typical. Similar details apply to similar conditions unless otherwise indicated.
- The drawings herein are related to an alteration/ restoration to an existing structure. The specified work was based upon as much observation, destructive testing, etc. as circumstances permitted.

GENERAL CONSTRUCTION DETAIL NOTES

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Flashing Heights: Perimeters, curbs, penetrations shall be raised as necessary to meet the new insulation heights, tapered edge strip and tapered insulation height to meet typical industry standard of 8 in. base flashing height.
- Drains Existing: Remove existing drain flashings. Furnish and install ½ inch per foot sloped tapered insulation sump area as detailed. Clean and reuse existing drains and accessories, replace all damaged, nonfunctional, incompatible, missing and broken drain components. All replacement bowls, strainers, and clamping rings shall be cast iron. All nonmetallic drains strainers shall be replaced with fitted Refer to Details 1.10 and 1.12. Overflow drains same requirements as noted above. Refer to Details 1.11 and 1.13.
- Drains New: Furnish and install new drains as indicated on drawing. New drains to tie into existing primary drain. Size to match existing up 3 in. dia. (Use 3 in. dia for bidding). Contractor to provide all drains, leaders and hook ups as necessary for fully functional drains.
- Tapered Insulation: Furnish and install new tapered insulation, crickets, saddles and kick-backs as designated on roof plan to provide a finished slope of 1/4 in/ ft slope and a min length to width ratio of 3:1. All equipment w/ curb size greater than 24 in. shall have cricket install on up slope side. Contractor responsible for identifying and notifying Consultant and Owner all existing tapered insulation not called out on plans for determination of unit costing. Verify in Pre-bid Conference additional ponded areas identified on the roof and install as noted.
- Curbs - Movable Equipment: Lift equipment from curbs; run new fully adhered membrane flashing up and over top of curb; install continuous sealing material over top of curb. Reset equipment and mechanically fasten to curb. Coordinate with Owner prior to installing equipment. Install new flashings. Metal equipment flashing and/or counter flashing must extend a minimum of 3 in. past the termination of the base flashing; add metal counter flashing as required. Refer to Details 1.17 and 1.18.
- Curbs - Non-Movable Equipment: Terminate new fully adhered membrane flashing at unit framing member. Metal equipment flashing and/or counter flashing must extend a minimum of 3 in. past the termination of the base flashing; add metal counter flashing as required. Refer to Details 1.15 and 1.16.
- Equipment on Support Curbs - Non-Movable Equipment: Cut corners of metal flashing cap, terminate new adhered membrane flashing to curb nailer. Reposition metal; install new shop fabricated corner metal, welded and set in sealant. Wire brush and apply rust inhibitive paint to rusted cap metal. Refer to Details 3.04 and 3.18.
- Equipment on Support Curbs - Movable Equipment: Raise or move equipment to furnish and install new metal cap on curb. Refer to Details 2.12.
- Round penetrations: All penetrations shall be cleaned down to surface where any sealant will contact; install new prefabricated pipe boots or field wrap with membrane. Install draw band and sealant. Refer to Details 2.01, 2.02, 2.03 and 2.04.
- Heat Stacks: Reuse existing metal jacks and storm collars. Clean surfaces and apply new field wrapped EPDM flashing. Reattach and reseal storm collars. Refer to Detail 2.05.
- Steel Support Posts: Install split pipe boot or field wrap flashing with membrane. Terminate with draw band and sealant. Refer to Details 2.06, 2.08, 2.09, 2.10 and 2.11.
- Prefabricated Pipe Chase Cover: Reuse existing pipe cover. Replace any damaged or missing clamping bands or sealants. Refer to Detail 3.05.
- Gas line and conduit support blocks: Reuse existing wood supports and sleepers. Install pads under all wood supports. Replace any damaged wood with matching wood or rubber support blocking. Refer to Details 2.17 and 4.04.
- Condensate Drain Lines: Reuse, repair or replace all damaged or unusable drain lines. Add additional drain line to extend minimum 4 ft from equipment or to any drains within 20 ft. Provide manufacturer's approved splash pan/pad/block where condensate drainage water would contact the roof membrane.
- Abandoned Curbs & Penetrations: Existing abandoned equipment curbs flash according to General Note C. Owner will mark all equipment to be removed and the curb capped. Remove all equipment and curbs as designated by owner and identified at the prebid conference. Where directed, remove curbs flush to deck surface, install framing and matching decking material. For abandoned curbs to remain in place, install new base flashing and install new 24 gauge sloped metal cap. Provide interior protection when removing any equipment or penetration. All small round abandoned penetrations that have no utility service as confirmed by Owner and licensed contractor shall be removed to deck patched according to deck type. Refer to Details 3.03 and 3.04.
- Pitch pans: Pitch pans can only be used when approved by Consultant. In the event they are to be used furnish and install new pitch pans, clean all penetrations down to original surface, blocking required at all pitch pans. Ref. Details 2.06 and 2.07.
- Satellite Dish Ballasted Stand: Prior to moving any satellite dish coordinate with Owner and use Owner approved communications contractor to move, reset and recalibrate satellite stand. When repositioning over the new membrane. Furnish and install new pads under satellite stand strong enough to distribute satellite weight without crushing insulation.
- Base Flashing Surface Mounted Two - Piece: Two piece is the standard for surface. Furnish and install new termination bar to match existing locations and conditions. Refer to Details 1.06 and 3.16.
- Parapet w/ Metal Cap Flashing: Furnish and install new prefinished metal coping, color as selected by Owner. For base flashings extending above 18 inches install 2-piece base and wall flashing. Ref. Details 1.05, 3.09, 3.10, 3.11 and 3.12.
- Base Flashing w/ Metal Wall Siding: Loosen and/or remove existing metal siding flashing. Install base flashing w/ term bar and sealant. Furnish and install new (or reuse functional existing) flashing metal panel and fasten siding w/ new gasketed fastener. Ref. Detail 1.09.
- Base Flashing w/ Thru-Wall Flashing: Confirm if through wall flashing has weep holes do not cover any weep holes. Reuse existing thru-wall metal flashing. Furnish and install new metal counterflashing. Repair and repoint all coping stone and mortar joints to assure watertight condition. Ref. Detail 1.07.
- Base Flashing w/ Existing Reglet: Remove existing reglet/ Furnish and install new prefinished metal coping, color as selected by Owner. Extend base flashings up and over coping. For base flashings extending above 18 inches install 2-piece base and wall flashing. Ref. Detail 1.08.
- Door Threshold: Remove threshold plate and carry flashing up over and set in water block. Before resetting threshold mechanically attach termination bar, fasten min. 6 in. o.c. Door Threshold: Remove and dispose of existing counter flashing. Roof flashing to extend up and under existing threshold plate. Furnish and install new metal counter flashing and sealant.
- Area Divider: Furnish and install new cap metal, replace damaged wood nailers. Ref. Detail 2.18. Consultant approved low profile for areas divider for separating two different types of roof systems. Ref Detail 4.13.
- Abandoned Lightning Protection: Remove all existing lightning protection cable, attachment cleats, air terminals and penetrations. Identify salvage value on bid form. Seal all holes from fasteners and lightning protection equipment left from demolition on roof top component to be left in place.
- Roof to Wall Expansion Joint: Furnish and install new metal expansion joint. Ref. Detail 3.01, 3.02 and 4.06.

- Non-Standard Roof Transitions: Contractor to provide manufacturer written approved transition shop drawings. Roof Transition: Install new metal edge at transition; install tapered edge strip to reduce ponding at edge. Run base flashings using sheet widths in vertical run. Ref. Detail 3.06.
- Overflow scupper: Furnish and install new through-wall scupper and face frame. Face frame prefinished, size and color to match existing. Ref. Detail 1.14, 4.01, 4.02 and 4.03.
- Metal Edge: Remove existing fascia/ water dam; install new 24 gauge prefinished galvanized metal edging, standard color as selected by Owner, min. 4 in. hemmed flange. Refer to Details 1.03 and 1.04.
- Roof curb building out the sides to match the roof cap base opening: Remove existing fascia/ water dam; install new 24 gauge prefinished galvanized metal edging, standard color as selected by Owner, min. 4 in. hemmed flange. Refer to Details 1.17 and 1.18.

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REPAIRS/RESTORATION MANUALS

BUR Manual
THERMOPLASTIC REPAIR MANUAL
THERMOSET REPAIR MANUAL

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PROJECT WORK SCHEDULE

School	Reroofing sq. ft.	Restoration sq. ft.	TSD 2018 Roof Work	Project Time Frame
Troy Athens HS	53,200		Roof Area C Roof Area A: Sec. 1, Sec 2, Sec. 6, Roof Area F: Sec. 3, Sec. 4, Roof Area I	6/18/18-8/17/18
Morse Elementary School	15,325		Roof Area C: Sec 1, 2, 3, 4	6/18/18-8/17/18
Niles Community HS	14,650		Roof Area G and H	6/18/18-8/17/18
Transportation Bldg.	1,275		Roof Area C	6/18/18-8/17/18
Troy High School	4,625		Roof Area (s) N2, P1	6/18/18-8/17/18
Troy Union Elementary School	13,100	4,400	Reroof Roof Area (s) A, B; Restoration Roof Area E	6/18/18-8/17/18
Base Bid	102,175	4,400		
Alternate Bid No. 1 Troy Athens HS	43,750		ALT. Bid Reroof Roof Area A Sec. 3, 4, 5, 6, 7, 8, 9, 10, 11	6/18/18-8/17/18
Total Roof Area (sf)	145,925	4,400		

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DIRECTORY

OWNER:  
Troy School District  
4400 Livernois  
Troy, MI 48098

CONTACT:  
Rob Carson  
Dir of Operations  
Phone: (248) 823-4067  
Email:RCarson@troy.k12.mi.us

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See Project List below

Contact:

Michelle Kern - Bond Rep  
Phone: (248) 921-3929  
Email: MKerns@troy.k12.mi.us

ROOF CONSULTANTS:  
WeatherTech Consulting Group, Inc.  
7747 Auburn Road  
Utica, Michigan 48317

CONTACT  
Geof Garabedian  
Principal/Project Manager  
Phone (586) 731-3095 ext 12  
Email: ggarabedian@wtcg.net

PROJECT LOCATIONS

Athens High School	4333 John R Rd. Troy, MI 48085
Morse Elementary School	475 Cherry Dr. Troy, MI 48083
Niles Community High School	201 Square Lake Rd, Troy, MI 48098
Transportation Building	120 Hart Dr Troy MI 48098
Troy High School	4777 Northfield Pkwy. Troy, MI 48098
Troy Union Elementary School	1340 E Square Lake Rd, Troy, MI 48085

PROFESSIONAL



WeatherTech

Roofing/Waterproofing Consultants  
Consulting Group, Inc.

Corporate Office:  
7747 Auburn Road  
Utica, MI 48317

PHONE: 586-731-3095  
FAX: 586-731-6863  
EMAIL: weathertech@wtcg.net  
WEB SITE:www.wtcg.net

CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Troy School District  
**BID NO. 9848**  
2018 Roofing Program

WTProject No:

TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/06/17	90% Review Set
11/10/17	OTB

File Name: Roof Plan

Drawn By: MD

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SHEET TITLE

Cover Page

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BF2



BF3



MC5



PA3



SR1



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4979



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PROFESSIONAL



WeatherTech

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Troy, MI 48098

PROJECT:

Morse Elementary School  
475 Cherry Dr. Troy, MI  
48083

Troy School District  
BID NO. 9848  
2018 Roof Program

WTPProject No:  
TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/06/17	90% Review Set
11/10/17	OTB

File Name: Photo Page

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SHEET TITLE

Morse Elementary  
School  
Photo Page

A3.1



<p>SEE NOTE 2</p> <p>TWO LAYER INSULATION</p> <p>ADHESIVE</p> <p>FMG APPROVED FASTENER AND PLATE</p> <p>NAILABLE DECK</p> <p><b>NOTE:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.</p> <p><b>NOTE 2:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>SEE NOTE 2</p> <p>TWO LAYER INSULATION IN ADHESIVE</p> <p>NON NAILABLE DECK</p> <p><b>NOTE 1:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.</p> <p><b>NOTE 2:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>24 GAGE PREFINISHED GALVANIZED STEEL FASCIA COVER</p> <p>22 GAGE GALVANIZED STEEL CANT-DAM WITH CONTINUOUS CLEAT - FASTEN 6" O.C. WITH RING SHANK ROOFING NAILS</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - RUN FLASHING OVER CANT DAM AND DOWN ONTO CLEAT AS SHOWN</p> <p>6" SEAM TAPE</p> <p>EPDM MEMBRANE FULLY ADHERED</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>NEW 6" WIDE TREATED WOOD BLOCKING TO MATCH HEIGHT OF ROOF INSULATION - FASTEN @ 12" O.C.</p> <p>FIELD CRIMP PER</p> <p>(E) EXTERIOR WALL</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>22 GAGE GALVANIZED STEEL CONTINUOUS CLEAT FASTENED 6" O.C. WITH RING SHANK ROOFING NAILS</p> <p>TREATED WOOD 2X BLOCKING ATTACHED TO PARAPET WITH APPROPRIATE FASTENERS @ 12" O.C. - SLOPE TOWARDS ROOF AT A RATE OF 1/4" PER FOOT</p> <p>24 GAGE PREFINISHED GALVANIZED STEEL COPING WITH 1" HIGH STANDING SEAM JOINTS</p> <p>#12 STAINLESS STEEL SCREWS WITH EPDM BACKED S.S. WASHERS @ 18" O.C. MAX.</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF PARAPET</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>NEW 2x6 TREATED WOOD BLOCKING TO MATCH HIGHEST POINT IN TAPERED INSULATION ASSEMBLY - FASTEN @ 6" O.C.</p> <p>(E) EXTERIOR WALL</p> <p>APPROVED SEALANT</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>22 GAGE GALVANIZED STEEL CONTINUOUS CLEAT FASTENED 6" O.C. WITH RING SHANK ROOFING NAILS</p> <p>TREATED WOOD 2X BLOCKING ATTACHED TO PARAPET WITH APPROPRIATE FASTENERS @ 12" O.C. - SLOPE TOWARDS ROOF AT A RATE OF 1/4" PER FOOT</p> <p>24 GAGE PREFINISHED GALVANIZED STEEL COPING WITH 1" HIGH STANDING SEAM JOINTS</p> <p>#12 STAINLESS STEEL SCREWS WITH EPDM BACKED S.S. WASHERS @ 18" O.C.</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF PARAPET</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>FASTENER AND PLATE 12" (300 mm) O.C. MAXIMUM</p> <p>PARAPET WALL</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>(E) WALL ASSEMBLY</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>22 GA GAL RECEIVER STAINLESS STEEL FASTENERS WITH EPDM BACKED S.S. WASHERS @ 8" O.C. MINIMUM</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>24 GA GAL COUNTER FLASHING STAINLESS STEEL FASTENERS WITH EPDM BACKED S.S. WASHERS @ 8" O.C. MINIMUM</p> <p>EPDM FLASHING MEMBRANE ADHERED W/ BONDING ADHESIVE</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>WeatherTech © Date: Rev 3/15</p>
<p>FULLY ADHERED EPDM SYSTEM NAILABLE DECK</p> <p>SCALE: N.T.S.</p> <p>1.01</p>	<p>FULLY ADHERED EPDM SYSTEM NON-NAILABLE DECK</p> <p>SCALE: N.T.S.</p> <p>1.02</p>	<p>CANT-DAM WITH FASCIA COVER</p> <p>SCALE: N.T.S.</p> <p>1.03</p>	<p>RAISED EDGE FLASHING</p> <p>SCALE: N.T.S.</p> <p>1.04</p>	<p>PARAPET WITH METAL COPING</p> <p>SCALE: N.T.S.</p> <p>1.05</p>	<p>2-PIECE SURFACE MOUNT METAL FLASHING</p> <p>SCALE: N.T.S.</p> <p>1.06</p>
<p>(E) WALL ASSEMBLY</p> <p>(E) THRU-WALL METAL COUNTERFLASHING</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>METAL COUNTERFLASHING INTO EXISTING RECEIVER - SEE NOTE 1</p> <p>EPDM FLASHING MEMBRANE ADHERED W/ BONDING ADHESIVE</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p><b>NOTE 1:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL, 26 GAGE STAINLESS STEEL OR 16 O.Z. COLD ROLLED COPPER AND SHALL MATCH EXISTING TYPE OF THROUGH-WALL REGLET METAL. SECURE NEW COUNTERFLASHING TO EXISTING REGLET WITH POP RIVETS OF SAME TYPE OF METAL @ 12" O.C. MAX.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>NEW OR EXISTING SAW-CUT REGLET</p> <p>LEAD WEDGES @ 12" O.C. MAX.</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>METAL COUNTERFLASHING INTO EXISTING RECEIVER - SEE NOTE 1</p> <p>EPDM FLASHING MEMBRANE ADHERED W/ BONDING ADHESIVE</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p><b>NOTE 1:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL OR PREFINISHED STEEL, 26 GAGE STAINLESS STEEL OR 16 O.Z. COLD ROLLED COPPER. SEE SCHEDULE(S) ON THE ROOF PLAN(S) FOR SPECIFIC REQUIREMENTS FOR EACH ROOF AREA.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>(E) WALL ASSEMBLY</p> <p>(E) METAL SIDING - SEE NOTE 2</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>METAL COUNTERFLASHING - SLIP UP AND BEHIND BASE OF SIDING - SEE NOTE 1</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p><b>NOTE 1:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL OR PREFINISHED STEEL, 26 GAGE STAINLESS STEEL OR .032" (MINIMUM) MILL FINISHED ALUMINUM. SEE SCHEDULE(S) ON ROOF PLAN(S) FOR SPECIFIC REQUIREMENTS FOR EACH ROOF AREA.</p> <p><b>NOTE 2:</b> LOOSEN BOTTOM OF SIDING TO FACILITATE INSTALLATION OF NEW COUNTERFLASHING. RESecure SIDING WITH GROMMETTED SCREWS AS INDICATED.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>(E) DRAIN STRAINER - REPLACE IF MISSING OR BROKEN</p> <p>(E) CLAMPING RING BOLTS - REPLACE IF MISSING OR DAMAGED DURING REMOVAL</p> <p>(E) CLAMPING RING - REMOVE ALL BITUMINOUS MATERIALS - REPLACE IF MISSING OR BROKEN DURING REMOVAL</p> <p>TAPERED INSULATION - MINIMUM 3/4" PER FOOT TAPER</p> <p>12"</p> <p>1" MIN</p> <p>(E) STRUCTURAL DECK</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>EPDM ROOF MEMBRANE</p> <p>MANUFACTURER APPROVED SEALANT - MINIMUM ONE TUBE PER DRAIN</p> <p>(E) DRAIN PIPING</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>THERMAL INSULATION</p> <p>CENTER LINE DRAIN</p> <p>72"</p> <p>24" min.</p> <p>24"</p> <p>OVERFLOW COLLAR</p> <p>EPDM MEMBRANE AND FLASHING</p> <p>ROOF DRAIN</p> <p>LEADER</p> <p>TAPERED EDGE STRIP</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>DRAIN</p> <p>SLOPE</p> <p>TAPERED INSULATION</p> <p>RECEIVER DRAIN</p> <p>SLOPE</p> <p>TAPER. INSUL.</p> <p>SLOPE</p> <p>TAPERED INSULATION</p> <p>96"</p> <p>96"</p> <p>WeatherTech © Date: Rev 3/15</p>
<p>BASE FLASHING W/ THRU WALL COUNTERFLASHING</p> <p>SCALE: N.T.S.</p> <p>1.07</p>	<p>BASE FLASHING W/ CUT-IN REGLET@ MASONRY WALL</p> <p>SCALE: N.T.S.</p> <p>1.08</p>	<p>BASE FLASHING AT METAL SIDING</p> <p>SCALE: N.T.S.</p> <p>1.09</p>	<p>DRAIN FLASHING</p> <p>SCALE: N.T.S.</p> <p>1.10</p>	<p>ROOF/OVERFLOW DRAIN</p> <p>SCALE: N.T.S.</p> <p>1.11</p>	<p>DRAIN SUMP-A</p> <p>SCALE: N.T.S.</p> <p>1.12</p>
<p>DRAIN</p> <p>120"</p> <p>RECEIVER DRAIN</p> <p>OVERFLOW DRAIN</p> <p>TAPERED INSULATION</p> <p>SLOPE</p> <p>24" min.</p> <p>72"</p> <p>TAPER. INSUL.</p> <p>SLOPE</p> <p>TAPERED INSULATION</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>EPDM FLASHING</p> <p>EPDM STRIP-IN FLASHING</p> <p>APPROVED SEALANT</p> <p>24 GAGE T GALVANIZED STEEL SCUPPER - FASTEN 4" O.C. STAGGERED WITH RING SHANK ROOFING NAILS - SEE NOTE 2</p> <p>EPDM STRIP-IN FLASHING</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>NEW 6" WIDE TREATED WOOD BLOCKING TO MATCH HEIGHT OF ROOF INSULATION - FASTEN @ 12" O.C.</p> <p>(E) EXTERIOR WALL</p> <p>(E) STRUCTURAL DECK</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>SEALING MATERIAL</p> <p>ROOFTOP EQUIPMENT FRAME</p> <p>GASKETED FASTENERS MIN. TWO FASTENERS PER SIDE</p> <p>REMOVABLE SHEET-METAL COUNTERFLASHING</p> <p>ADHERED MEMBRANE FLASHING</p> <p>BONDING ADHESIVE</p> <p>PREMOLDED CORNER</p> <p>EPDM MEMBRANE</p> <p>SEALANT (IF REQUIRED FOR THE SPECIFIC CURB)</p> <p>SEAM PLATES AND FASTENERS</p> <p>TAPERED CANT</p> <p>THERMAL INSULATION</p> <p>SEE SCHEDULE</p> <p>STRUCTURAL DECK</p> <p>OPTION:</p> <p>MECHANICAL UNIT, HOOD, ETC.</p> <p>BASE OF UNIT EXTENDS 1/2" MINIMUM BEYOND TOP OF CURB</p> <p>MINIMUM 1/2" BELOW TOP OF CURB</p> <p>FLASHING RECEIVER</p> <p>FASTENERS</p> <p>COUNTERFLASHING</p> <p>FLASHING MEMBRANE</p> <p>WOOD CURB</p> <p><b>NOTES:</b></p> <p>1. THE CURB, TOP WOOD NAILER AND SEAL STRIP ARE TO BE SUPPLIED BY THE CURB MANUFACTURER.</p> <p>2. WHEN POSSIBLE, THE MECHANICAL UNITS SHOULD NOT BE SET UNTIL THE ROOF MEMBRANE AND FLASHING HAVE BEEN INSTALLED.</p> <p>3. WHERE THE SKYLIGHT, SCUTTLE OR SMOKE VENT FRAME OVERLAPS THE BASE FLASHING AT LEAST 1 INCHES, THE REMOVABLE SHEET-METAL COUNTERFLASHING IS NOT REQUIRED.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>(E) NON-REMOVABLE UNIT</p> <p>POLYURETHANE SEALANT</p> <p>#12 STAINLESS STEEL SCREWS WITH EPDM BACKED S.S. WASHERS @ 12" O.C.</p> <p>METAL COUNTERFLASHING - SEE NOTES 1 AND 2</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - TUCK FLASHING UP AND BEHIND BOTTOM OF UNIT SKIRT</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>(E) CURB</p> <p><b>NOTE 1:</b> WHEN BASE OF UNIT PROVIDES LESS THAN 4" COVERAGE OVER TOP OF FLASHING, INSTALL SEPARATE COUNTERFLASHING AS SHOWN.</p> <p><b>NOTE 2:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL, 24 GAGE PREFINISHED GALVANIZED STEEL, .032" MILL FINISHED ALUMINUM OR 26 GAGE STAINLESS STEEL. SEE SCHEDULE(S) ON THE ROOF PLAN(S) FOR SPECIFIC TYPE OF METAL REQUIRED IN EACH ROOF AREA.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>(E) SHEET METAL GUTTER AND DOWNSPOUTS</p> <p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>BASE OF WALL OR CURB</p> <p>SELF-FLASHING UNIT</p> <p>1-1/2" x 1/2" NEOPRENE FOAM SEALING STRIP</p> <p>ADDITIONAL WOOD BLOCKING IF REQUIRED TO ACHIEVE MINIMUM 8" FLASHING HEIGHT</p> <p>#12 WOOD SCREWS @ 12" O.C.</p> <p>FASTEN FLASHING 8" O.C. WITH ROOFING NAILS</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF CURB</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>(E) CURB</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>BASE OF WALL OR CURB</p> <p>1-1/2" x 1/2" NEOPRENE FOAM SEALING STRIP</p> <p>TREATED WOOD BLOCKING TO RAISE CURB TO 8" ABOVE THE ROOF SURFACE (IF REQUIRED)</p> <p>#12 WOOD SCREWS @ 12" O.C.</p> <p>FASTEN VENTILATOR BASE TO CURB WITH #12 STAINLESS STEEL FASTENERS WITH EPDM BACKED S.S. WASHERS @ 18" O.C. - MINIMUM 1 PER SIDE</p> <p>FASTEN FLASHING 8" O.C. WITH ROOFING NAILS</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF CURB</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>(E) CURB</p> <p>WeatherTech © Date: Rev 3/15</p>
<p>DRAIN SUMP-A</p> <p>SCALE: N.T.S.</p> <p>1.13</p>	<p>THRU-WALL OVERFLOW SCUPPER</p> <p>SCALE: N.T.S.</p> <p>1.14</p>	<p>NON REMOVABLE PREFABRICATED METAL CURB</p> <p>SCALE: N.T.S.</p> <p>1.15</p>	<p>NON REMOVABLE UNIT CURB FLASHING</p> <p>SCALE: N.T.S.</p> <p>1.16</p>	<p>REMOVABLE UNIT CURB FLASHING</p> <p>SCALE: N.T.S.</p> <p>1.17</p>	<p>REMOVABLE VENTILATOR CURB FLASHING</p> <p>SCALE: N.T.S.</p> <p>1.18</p>

PROFESSIONAL



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PROJECT:

Troy School District  
**BID 9848**  
2018 Roofing Program

WTPProject No:  
TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/08/17	90% Review Set
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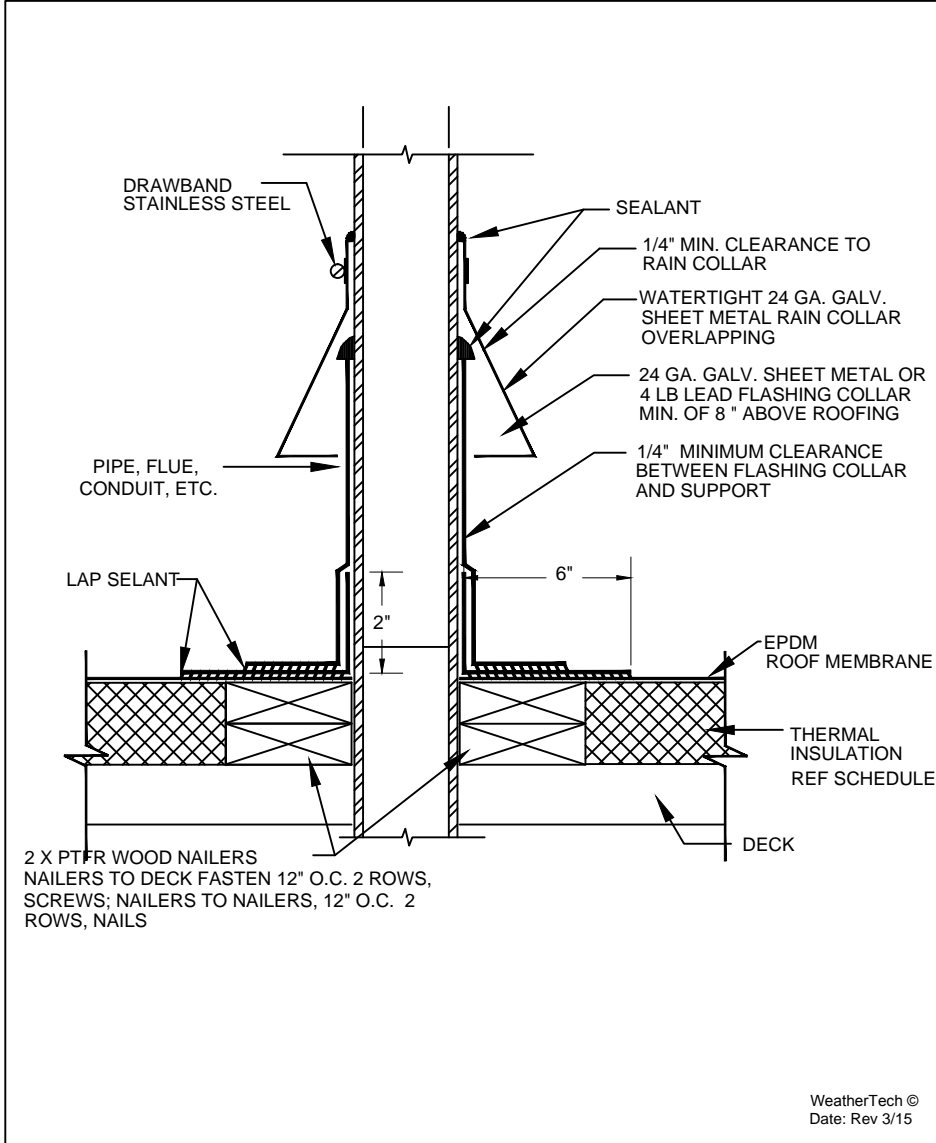
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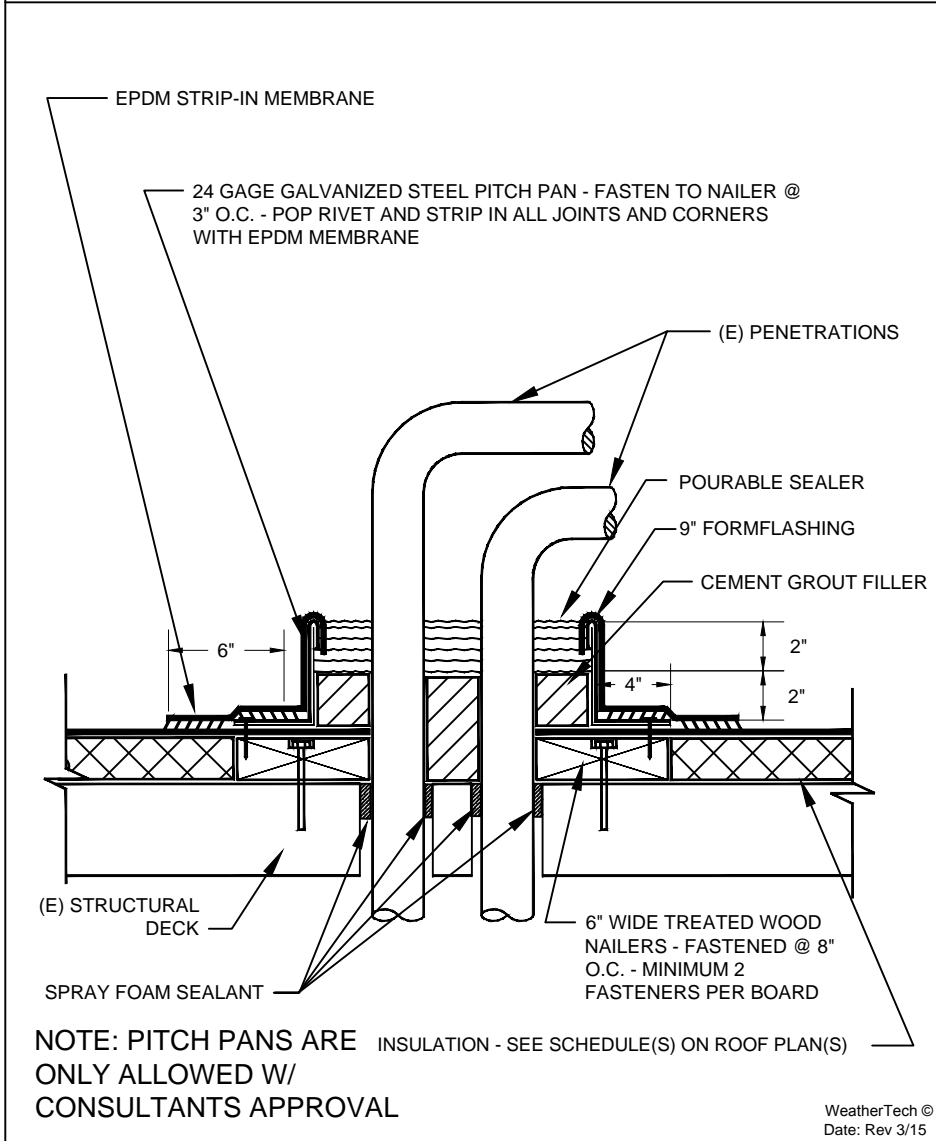
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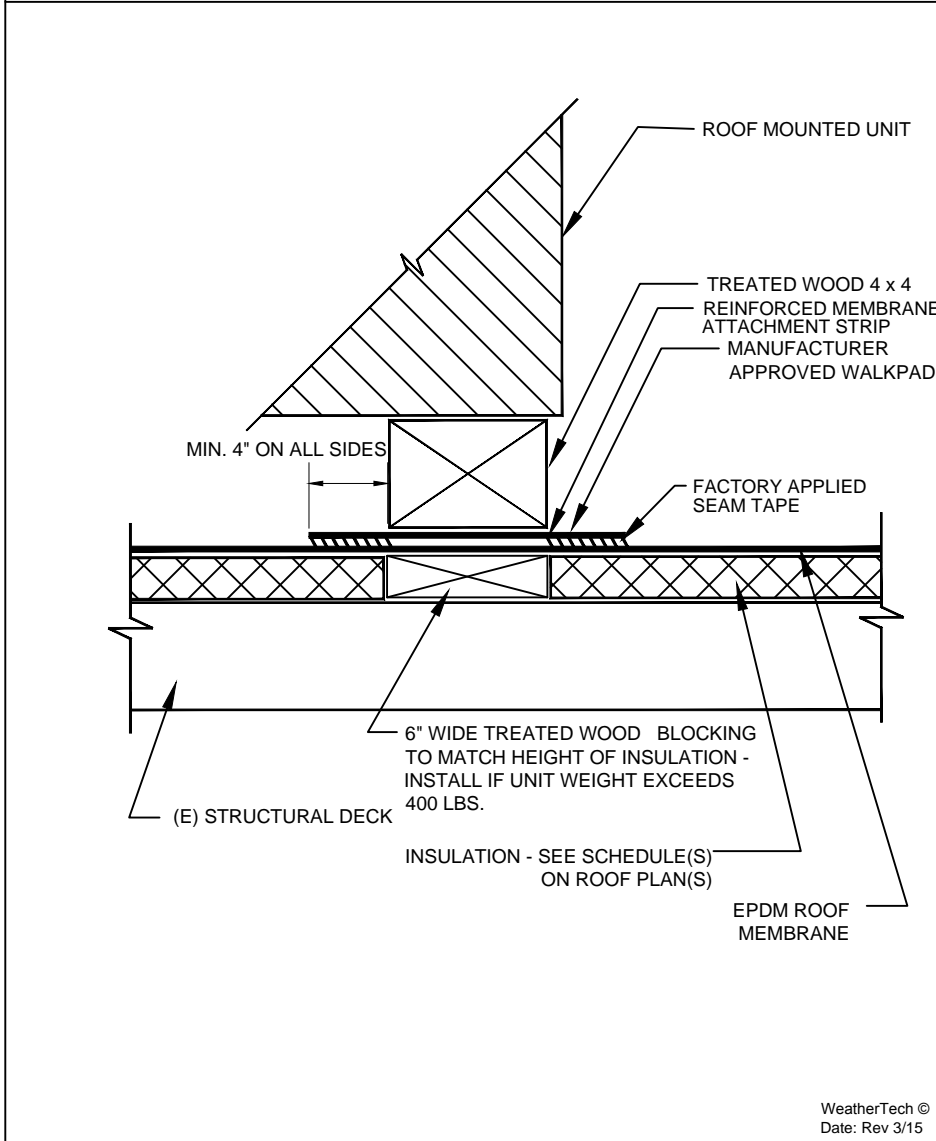




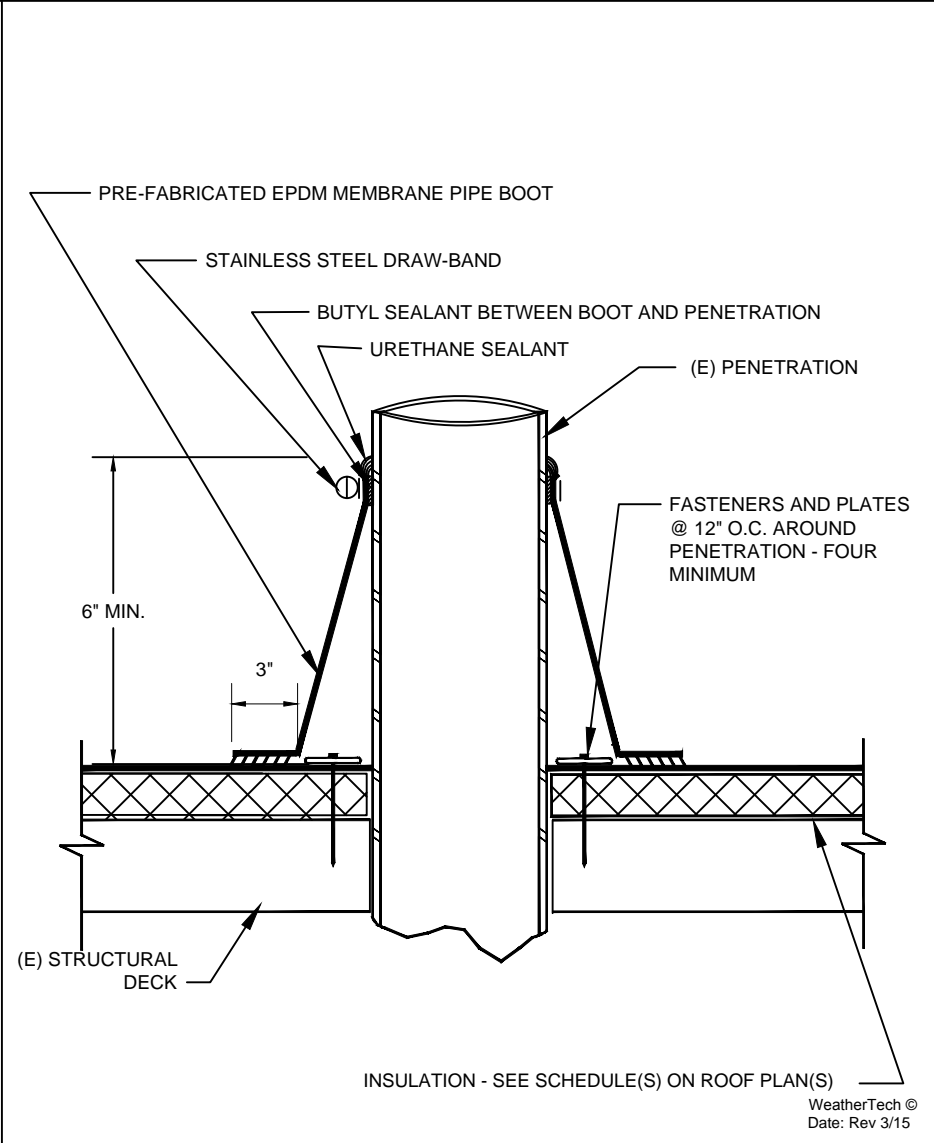
ROOF PENETRATION  
SCALE: N.T.S.



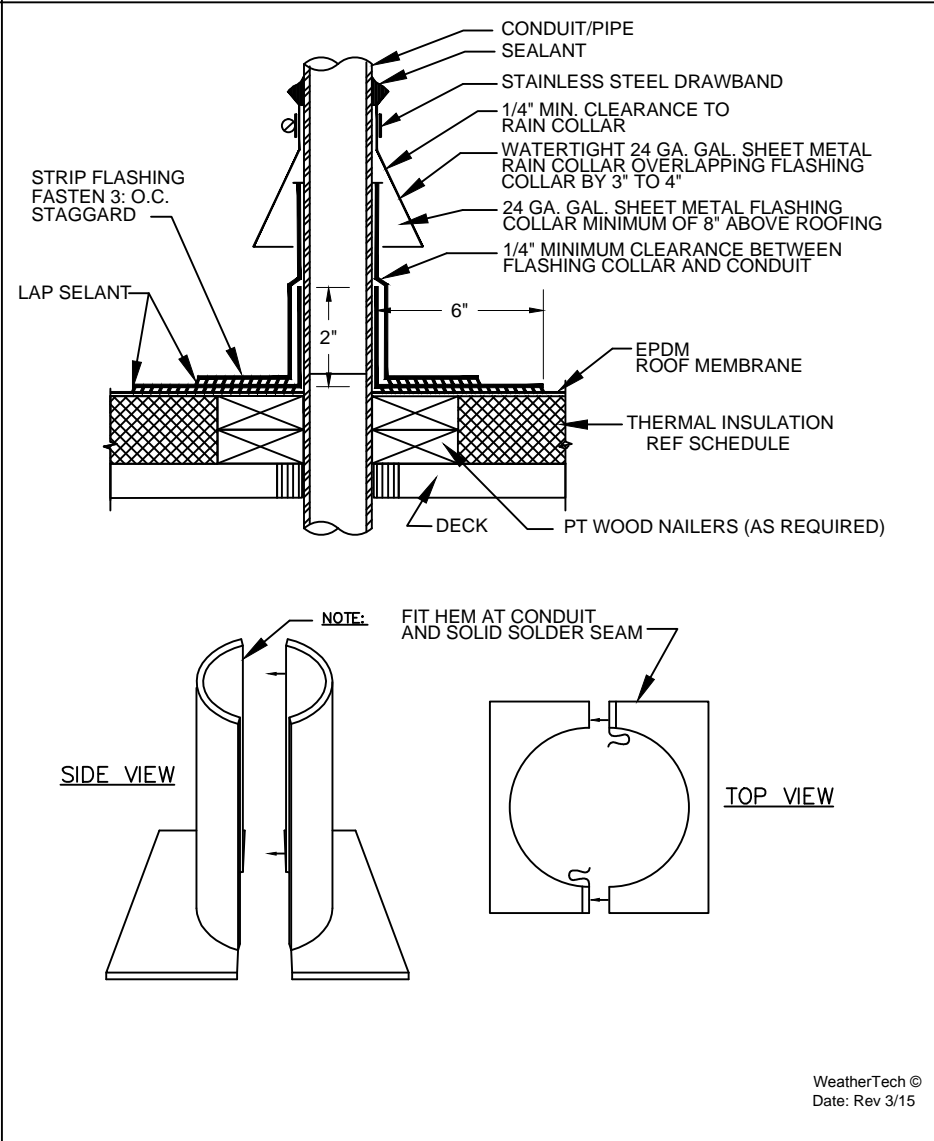
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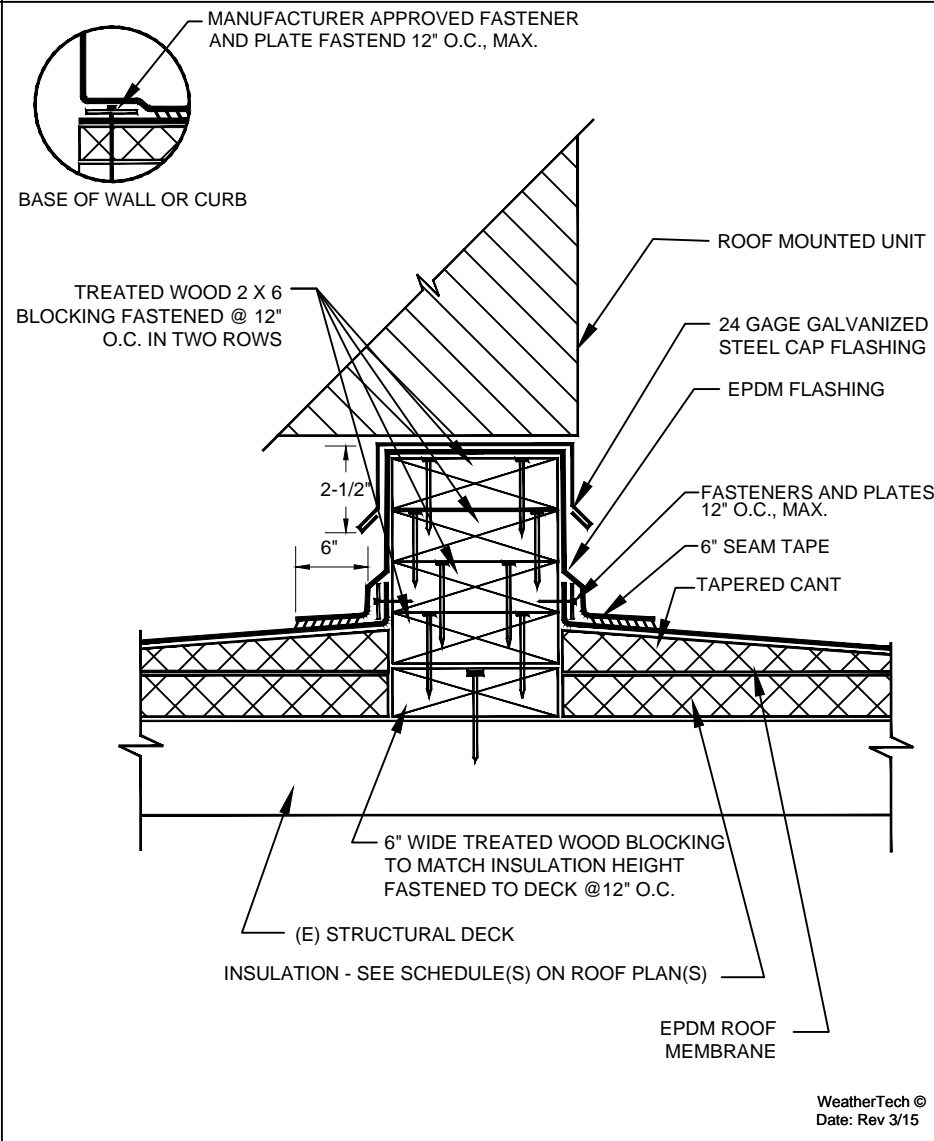
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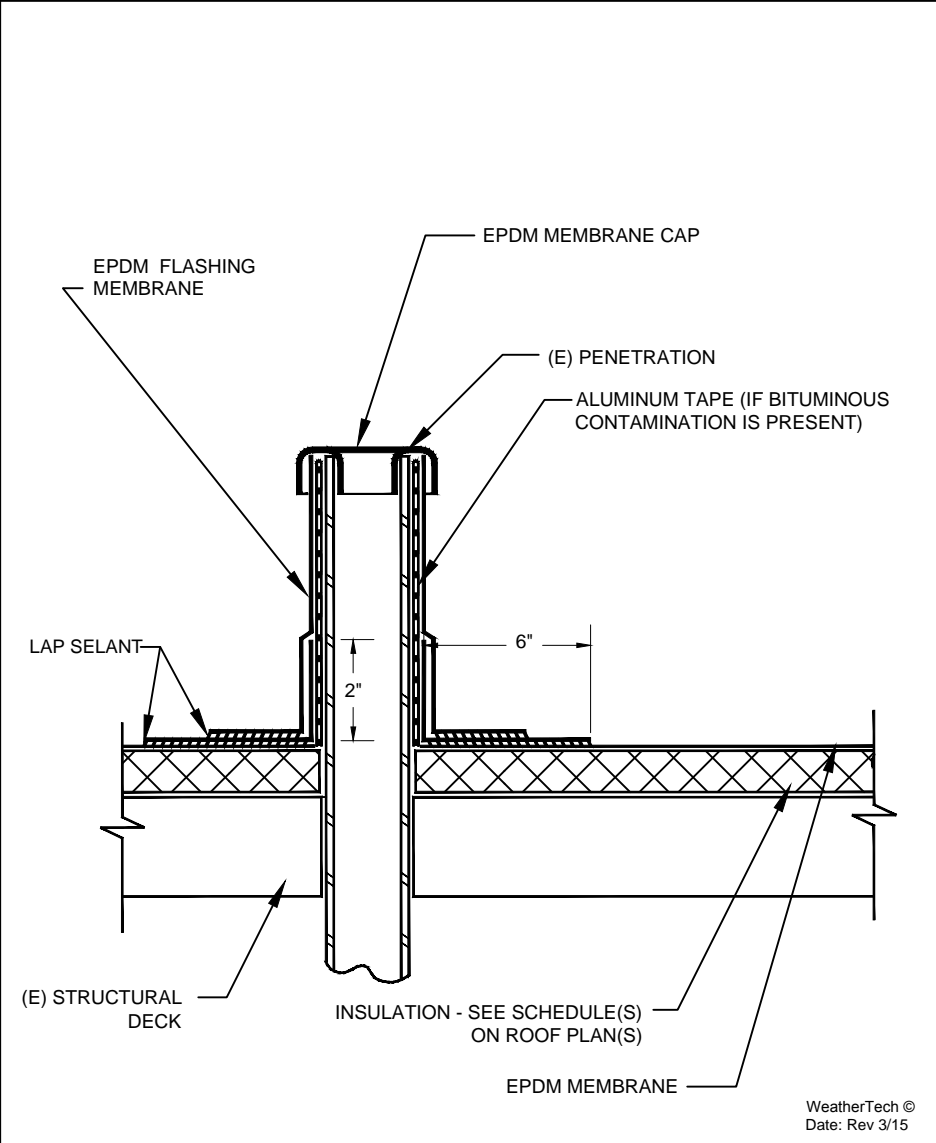
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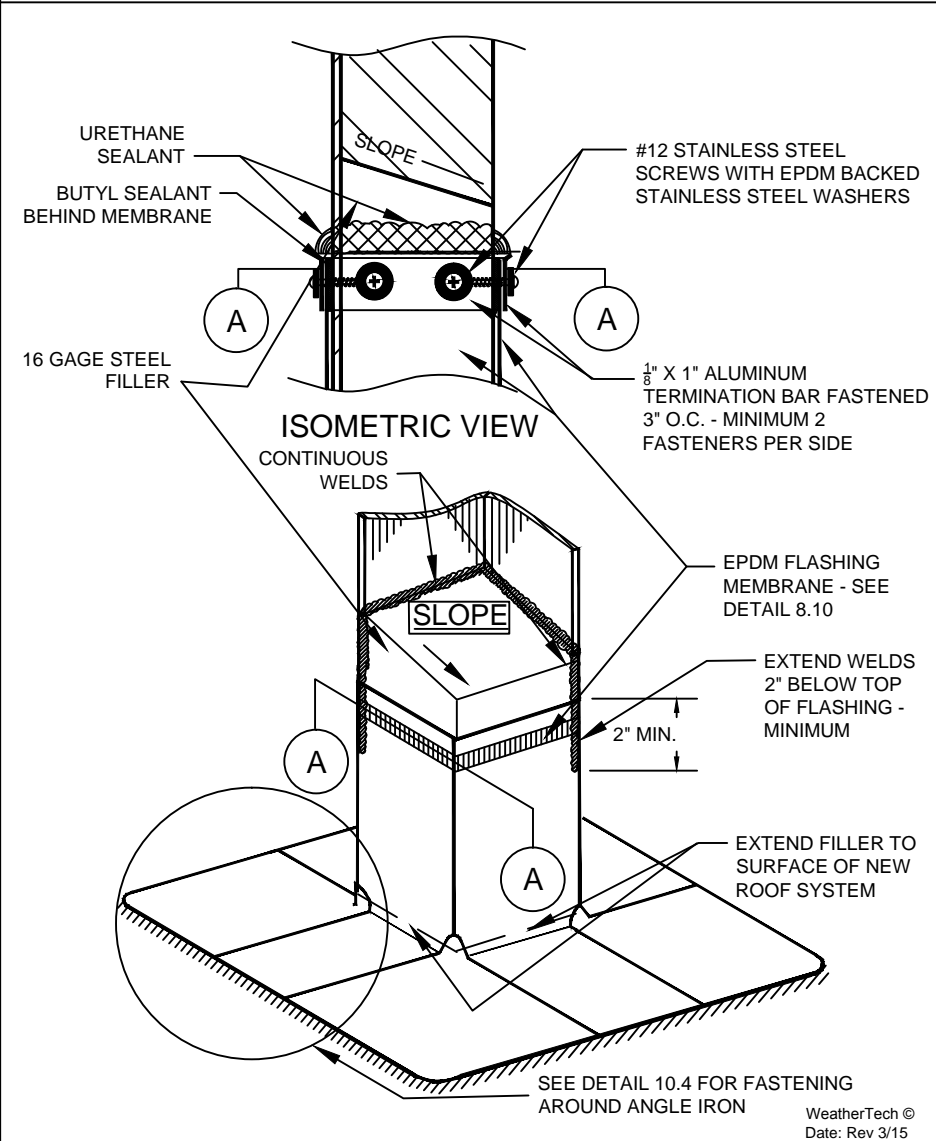
PITCH PAN  
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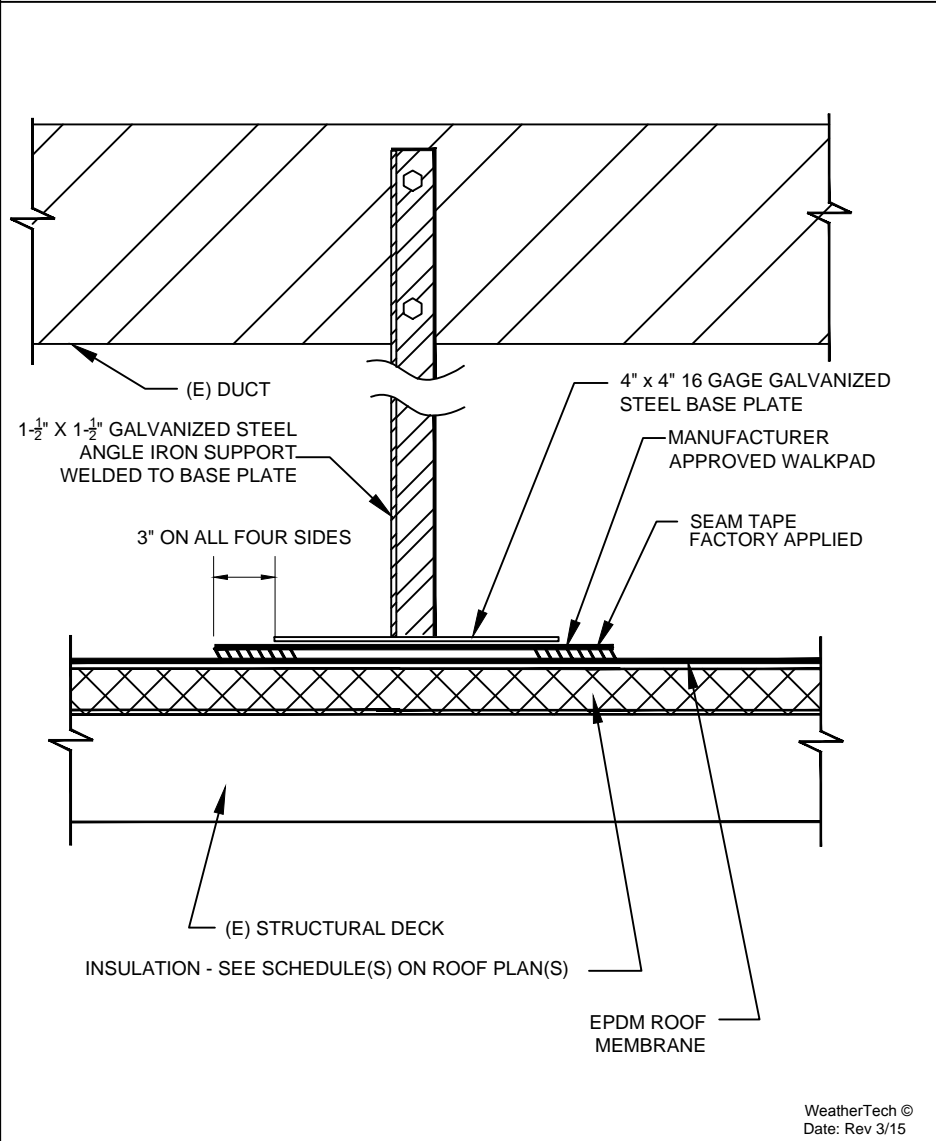
THROUGH ROOF CONDUIT/PIPE  
FLASHING - 2 PC COLLAR  
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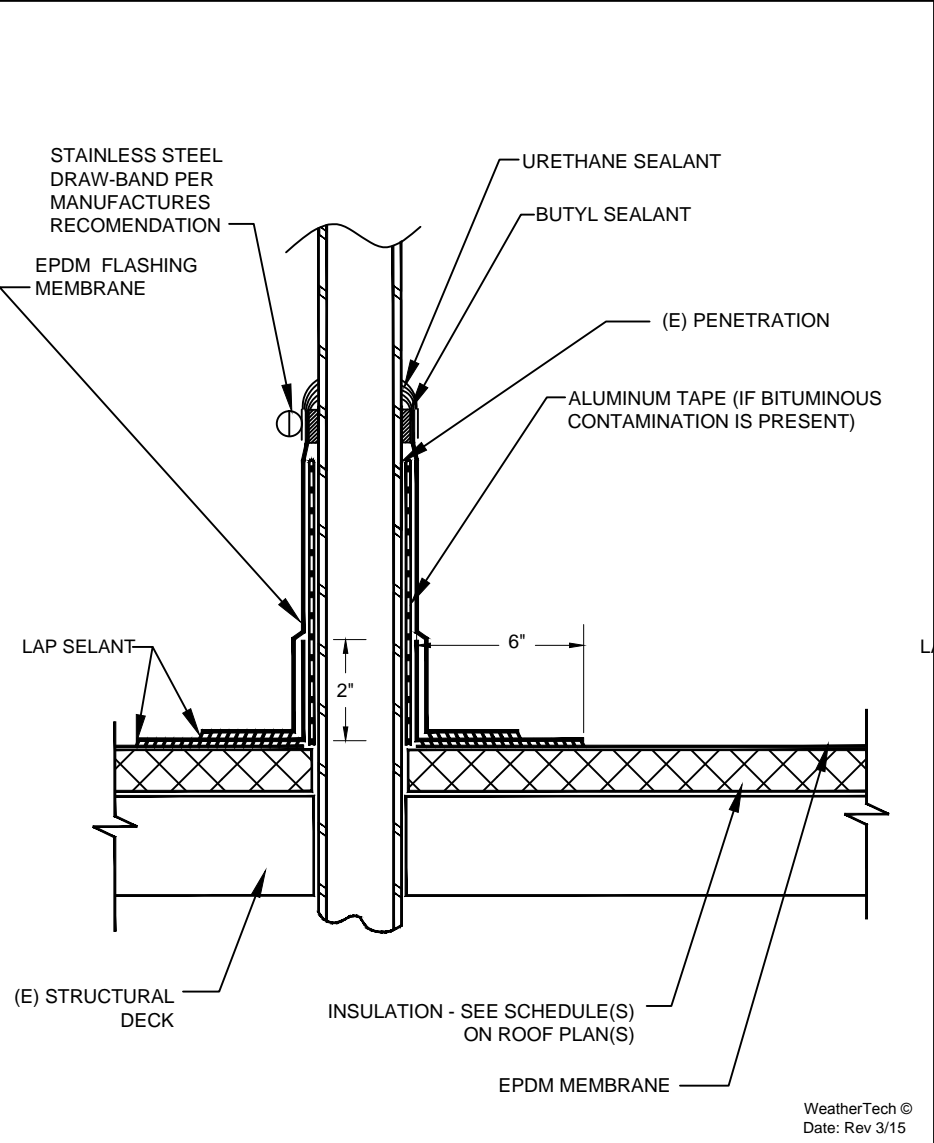
ANGLE IRON SUPPORT FLASHING  
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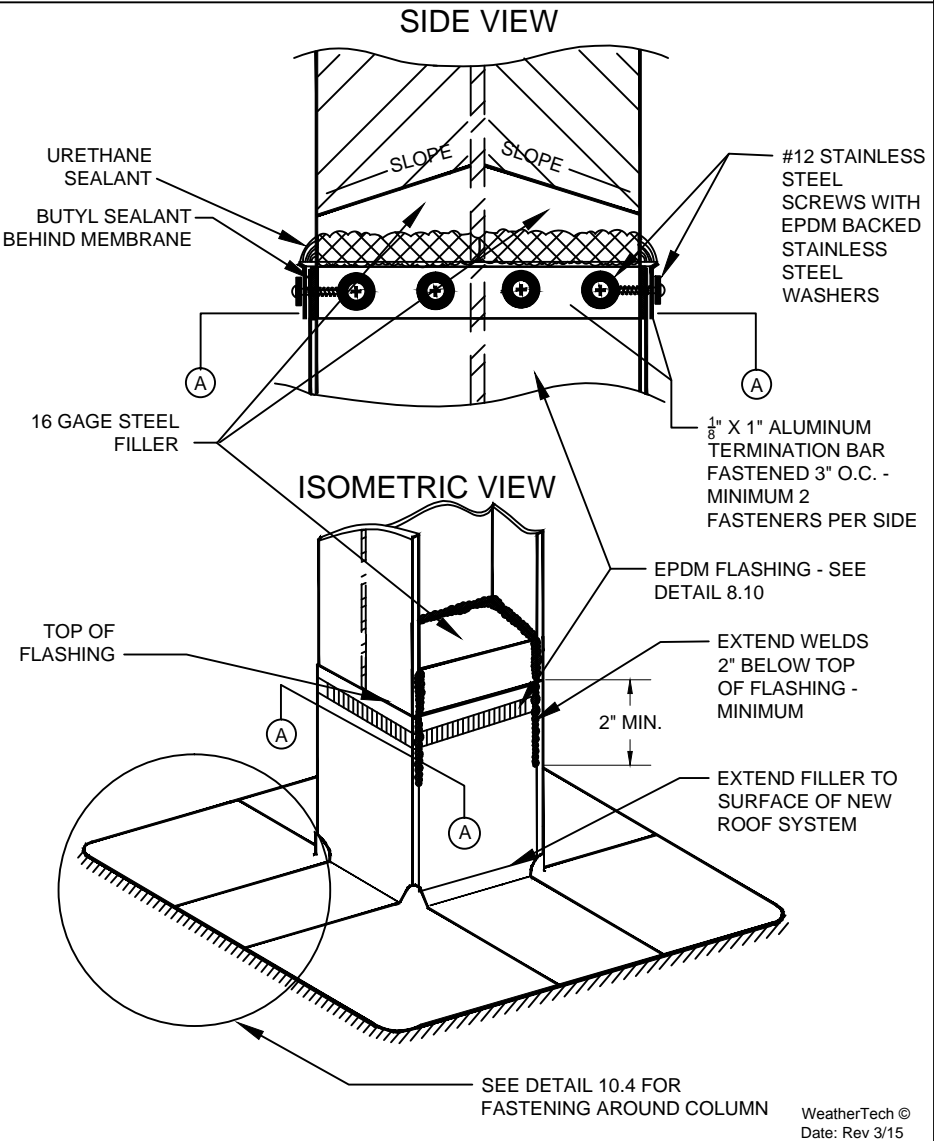
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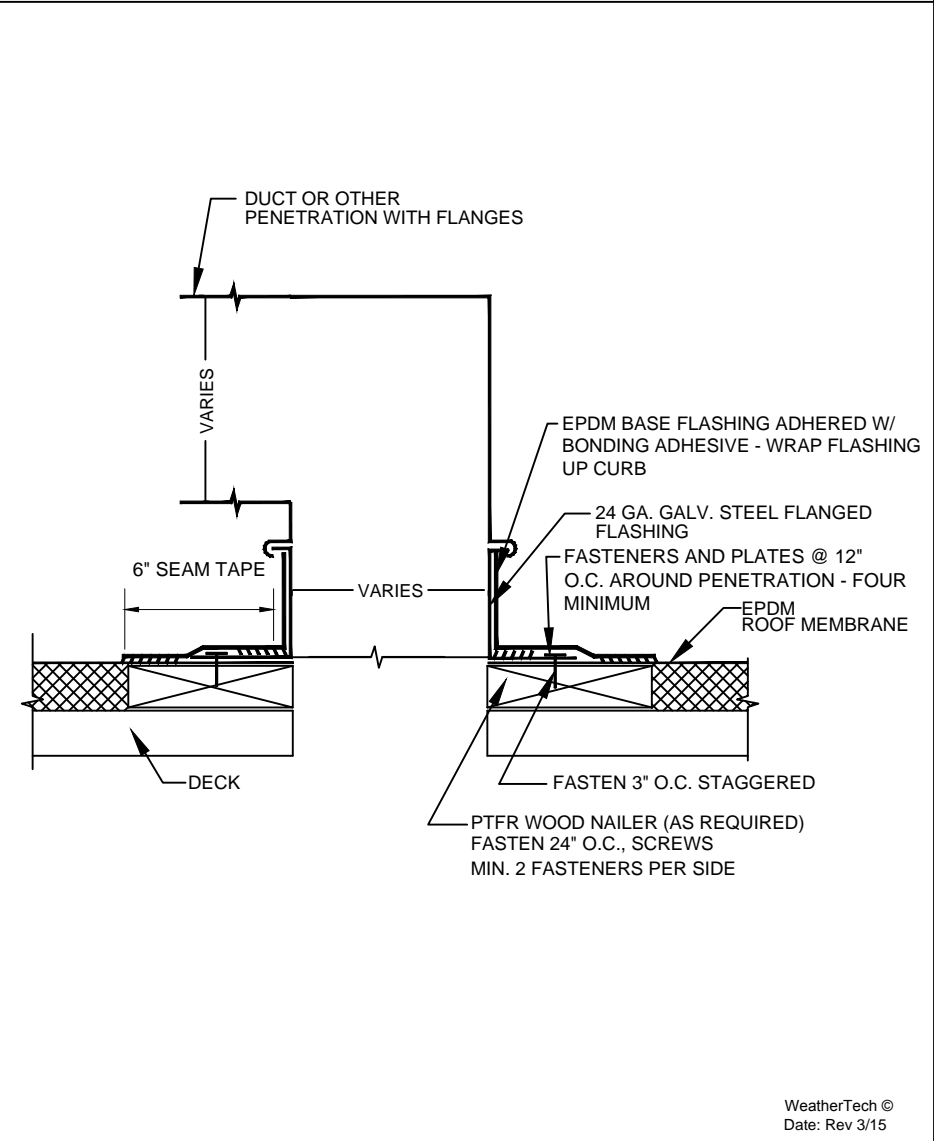
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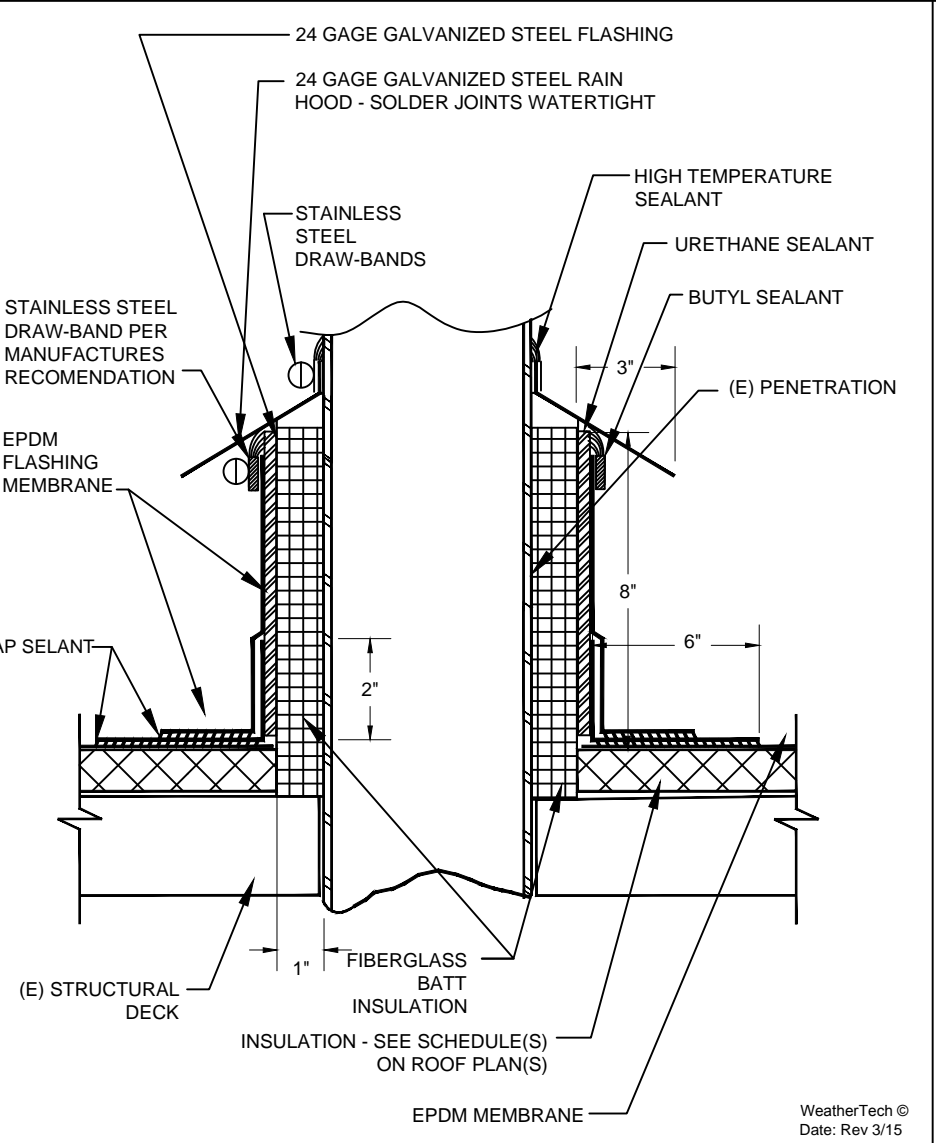
I-BEAM COLUMN FLASHING  
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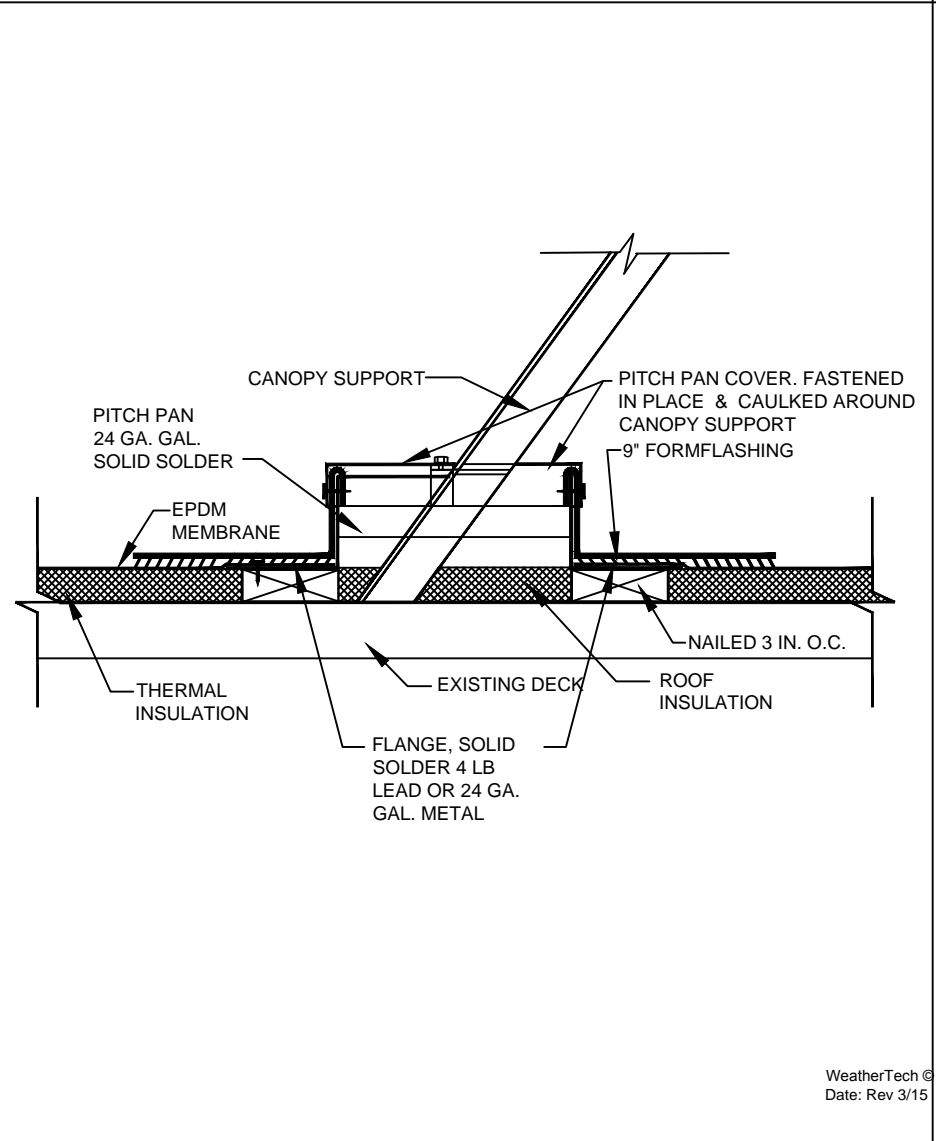
PITCH PAN COVER  
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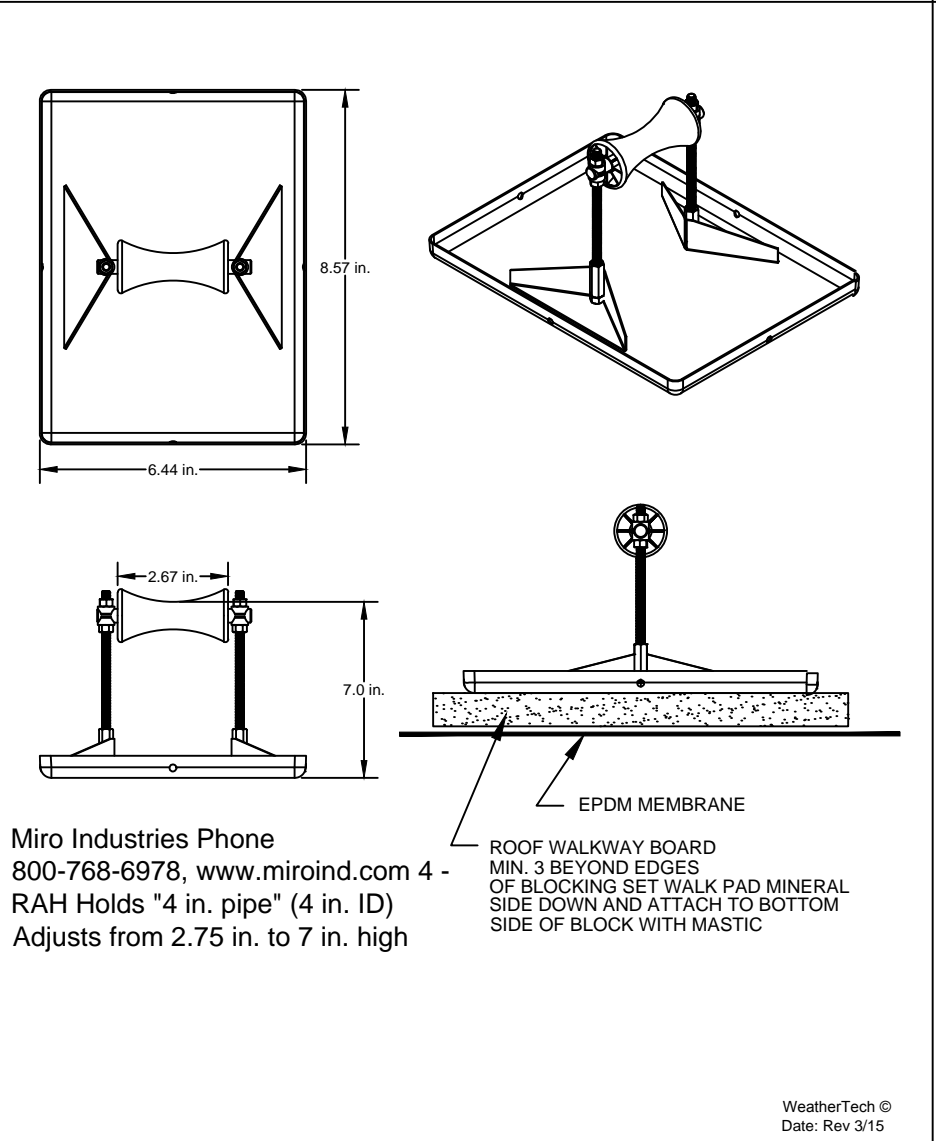
EQUIPMENT SUPPORT  
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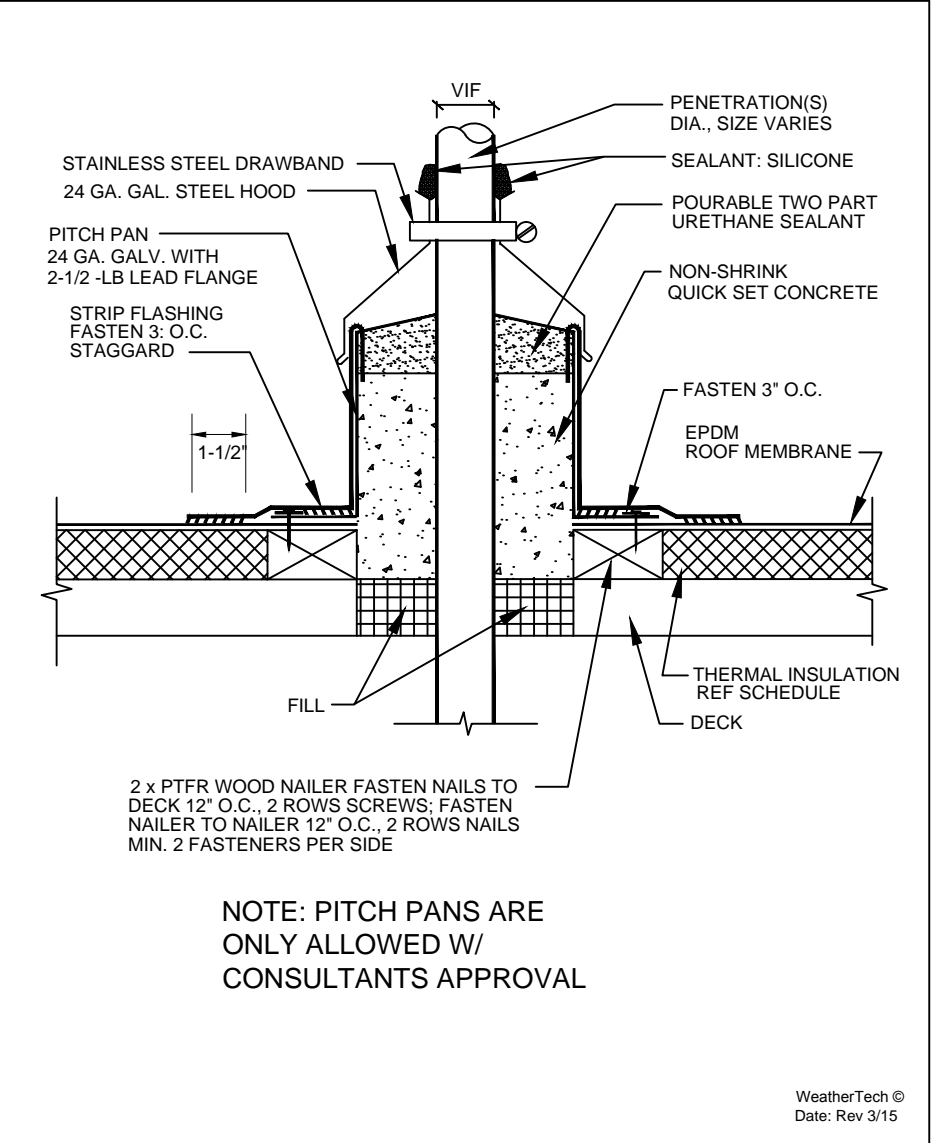
PROTECTED WOOD SLEEPER SUPPORT -  
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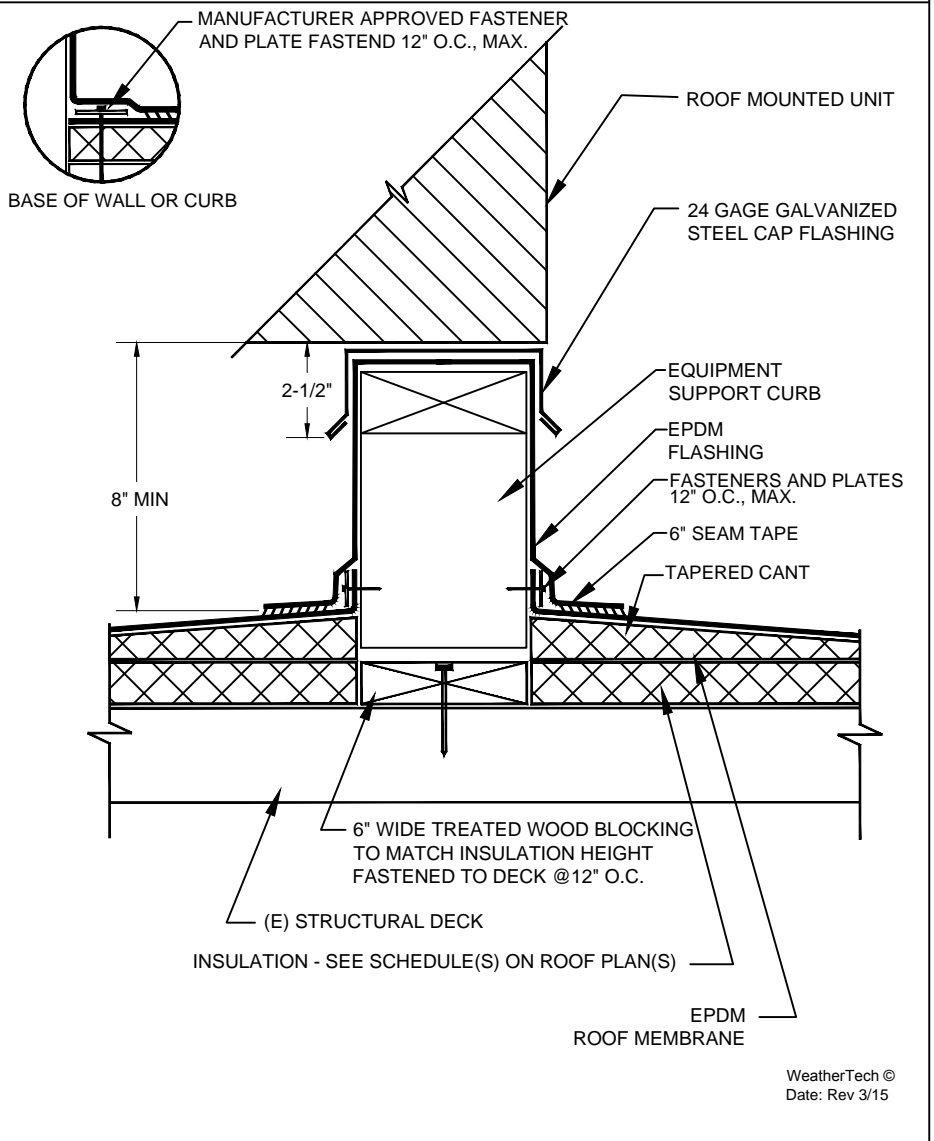
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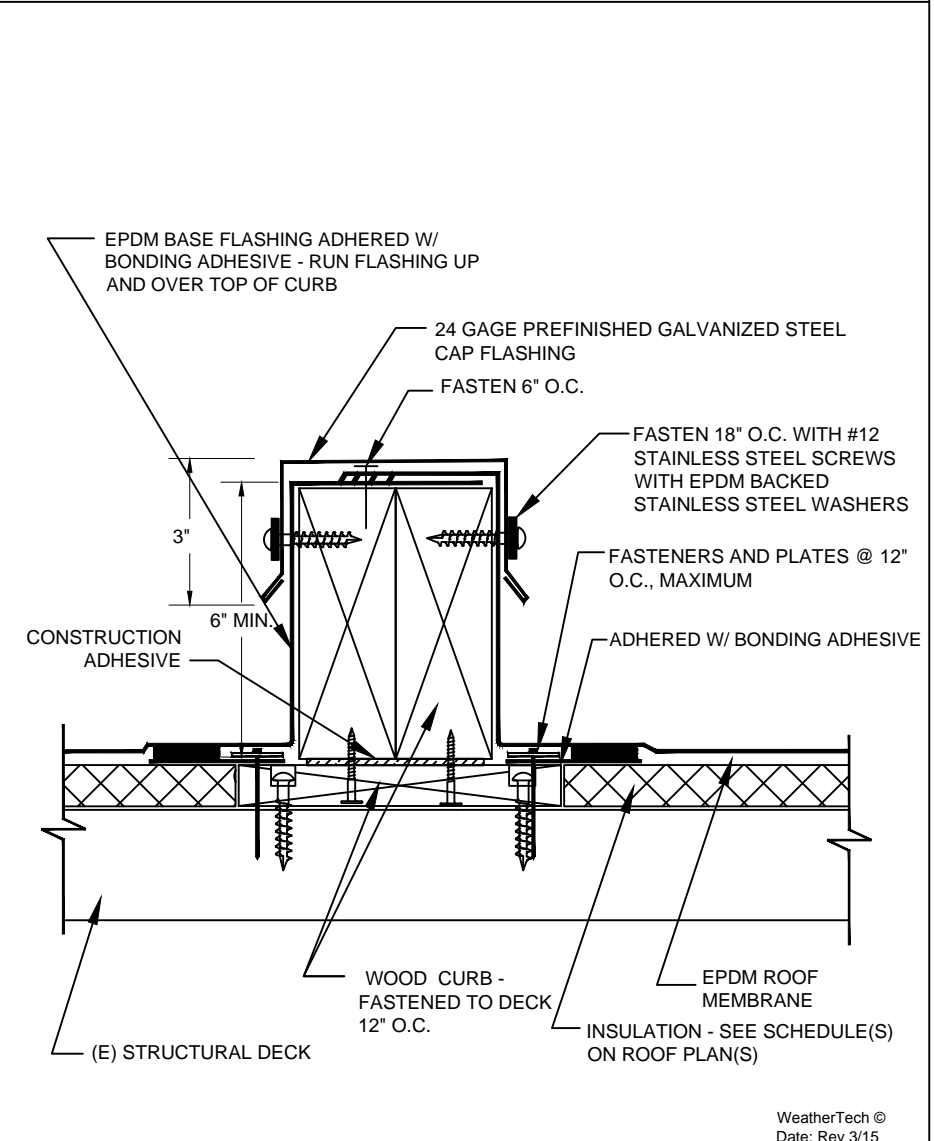
FLANGED DUCTS  
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GAS PIPE SUPPORT  
SCALE: N.T.S.



AREA DIVIDER/CONTROL JOINT  
SCALE: N.T.S.



SHEET TITLE  
Detail Page  
SCALE: N.T.S.

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EMAIL: [weathertech@wtcg.net](mailto:weathertech@wtcg.net)  
WEB SITE: [www.wtcg.net](http://www.wtcg.net)

CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Troy School District  
**BID 9848**  
2018 Roofing Program

WTPProject No:  
TSR-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/08/17	90% Review Set
11/10/17	OTB

File Name: A8.0 - Detail Page

Drawn By: MD, GG

Checked By: AW, GG, AC

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A8.1





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Drawn By: MD, GG

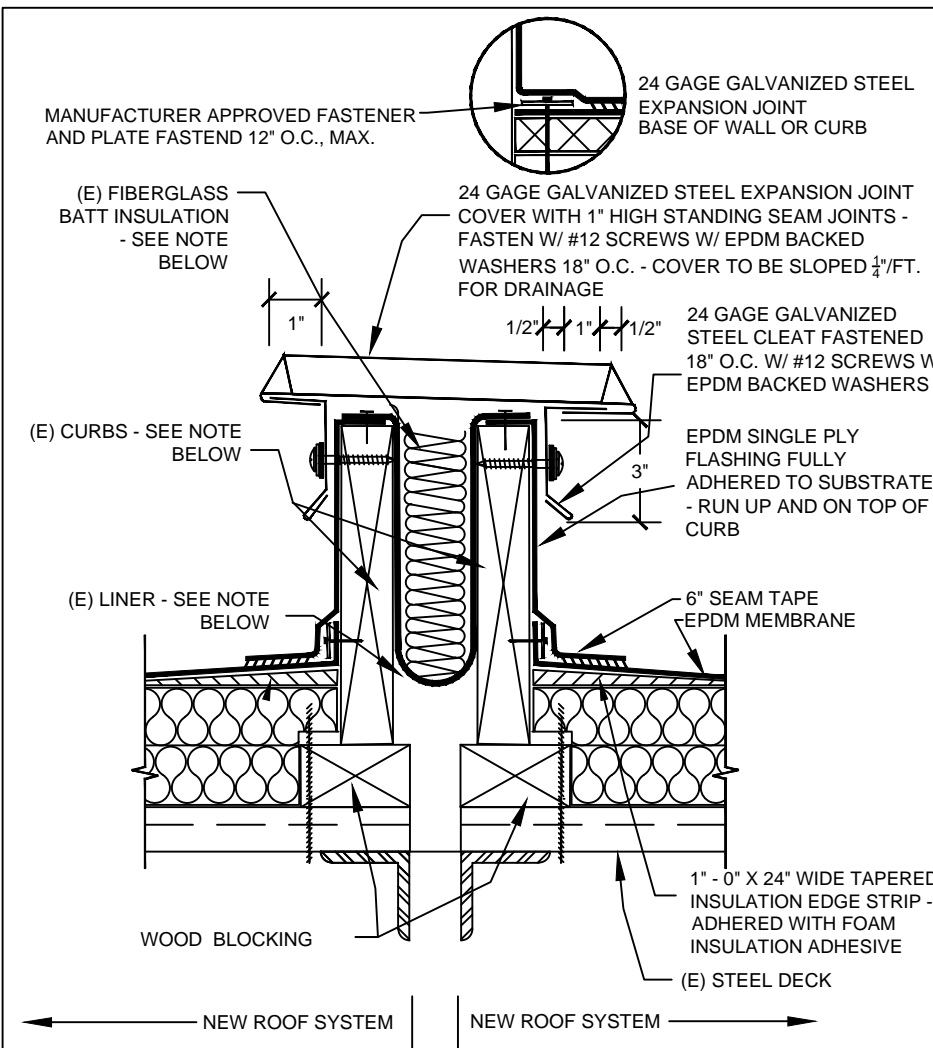
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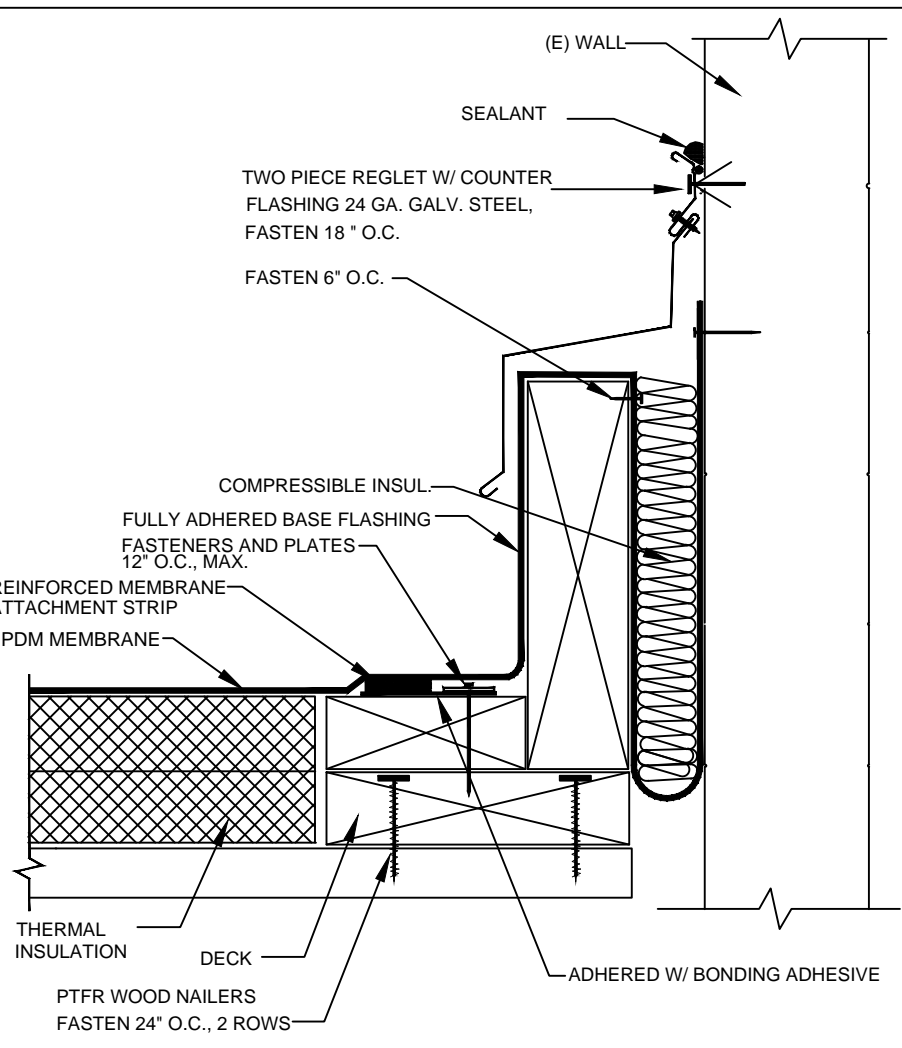
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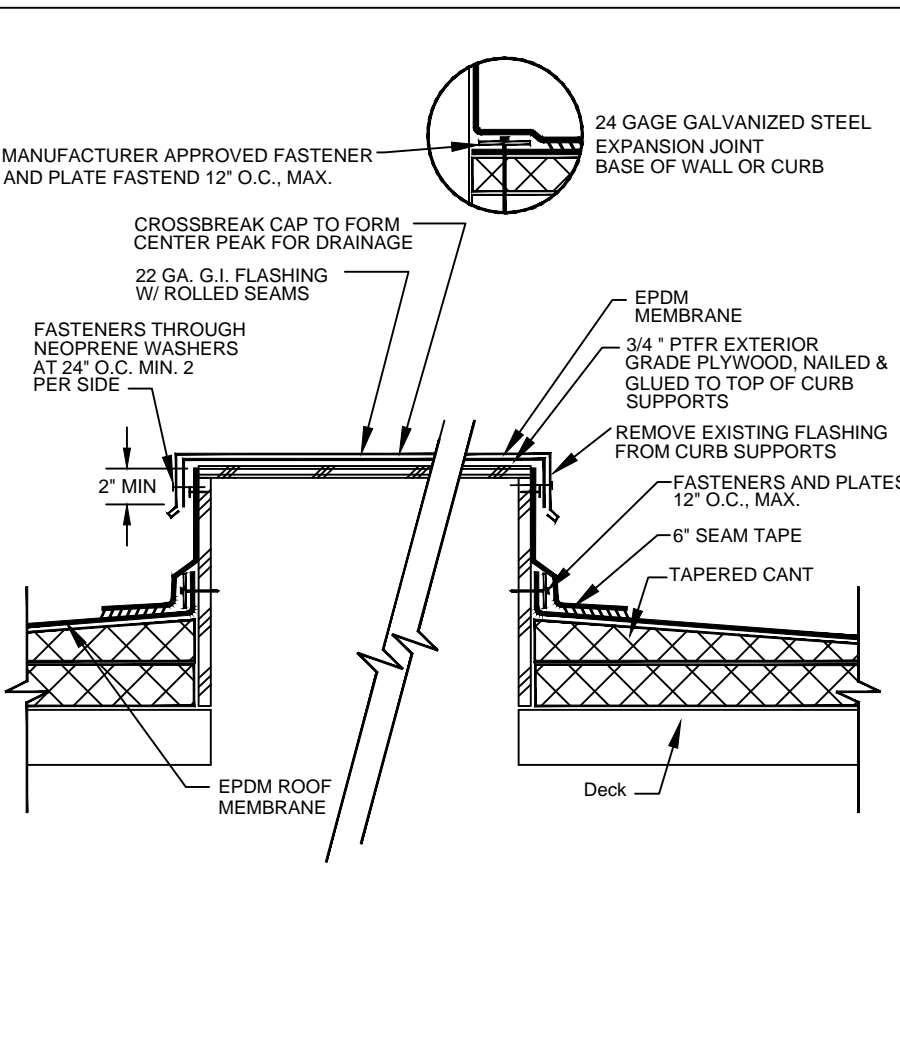


NOTE - REPLACE OR REPAIR LINER AND/OR FIBERGLASS INSULATION IF MISSING OR DAMAGED. SHIM TOP OF ONE CURB TO PROVIDE 1/2" SLOPE IN SHEET METAL EXPANSION JOINT COVER IF NECESSARY.

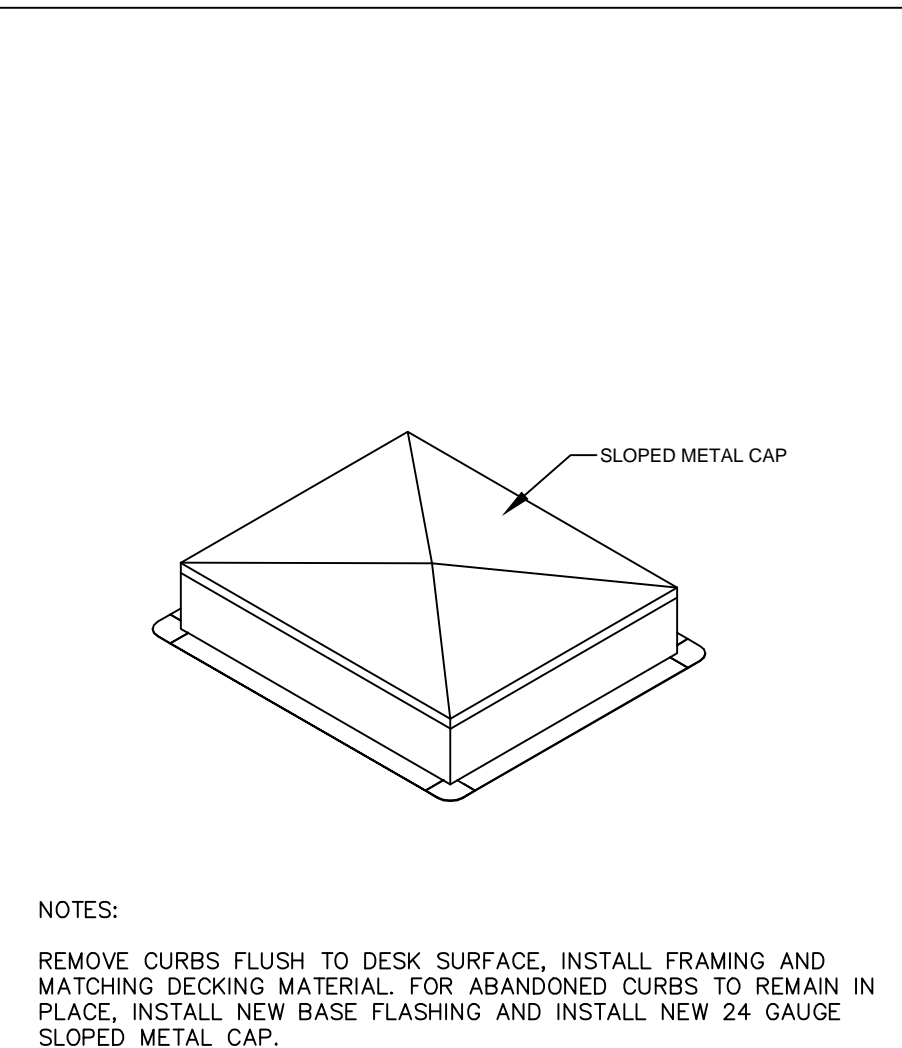
ROOF MOUNTED EXPANSION JOINT @ NEW CURB  
SCALE: N.T.S.



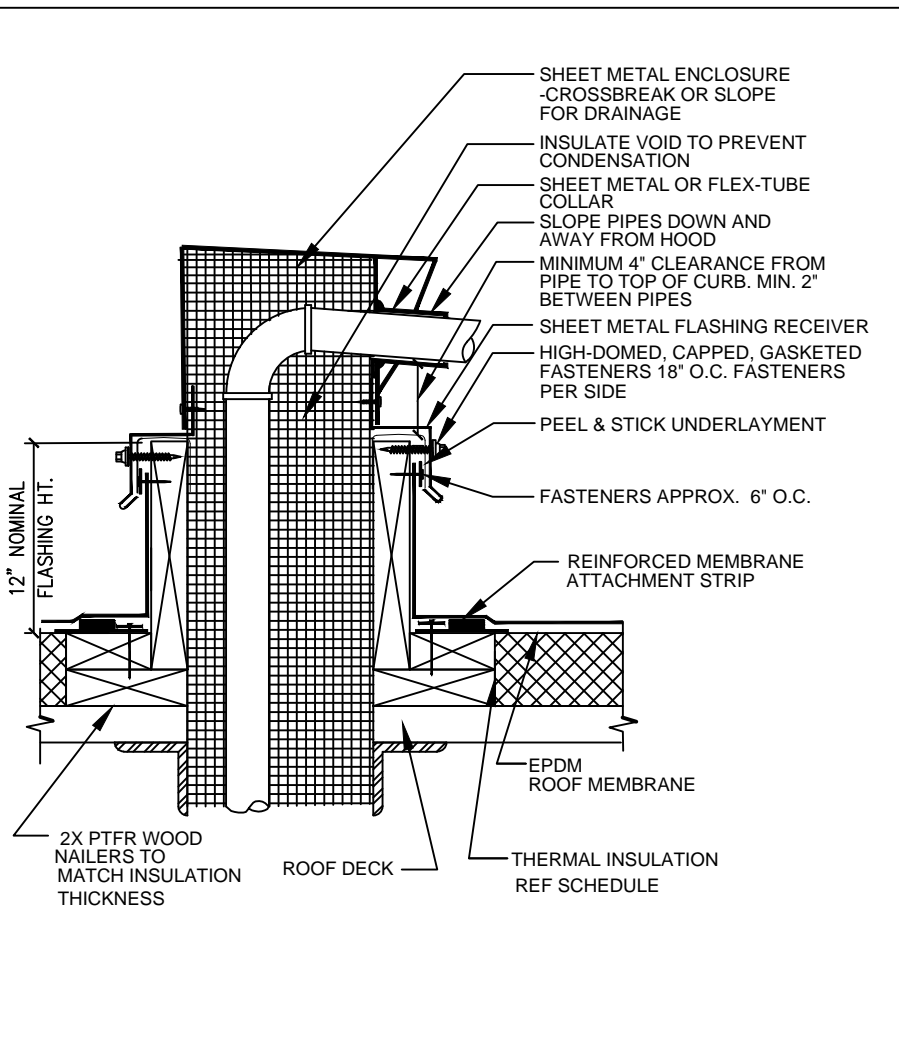
ROOF TO WALL EXPANSION JOINT  
SCALE: N.T.S.



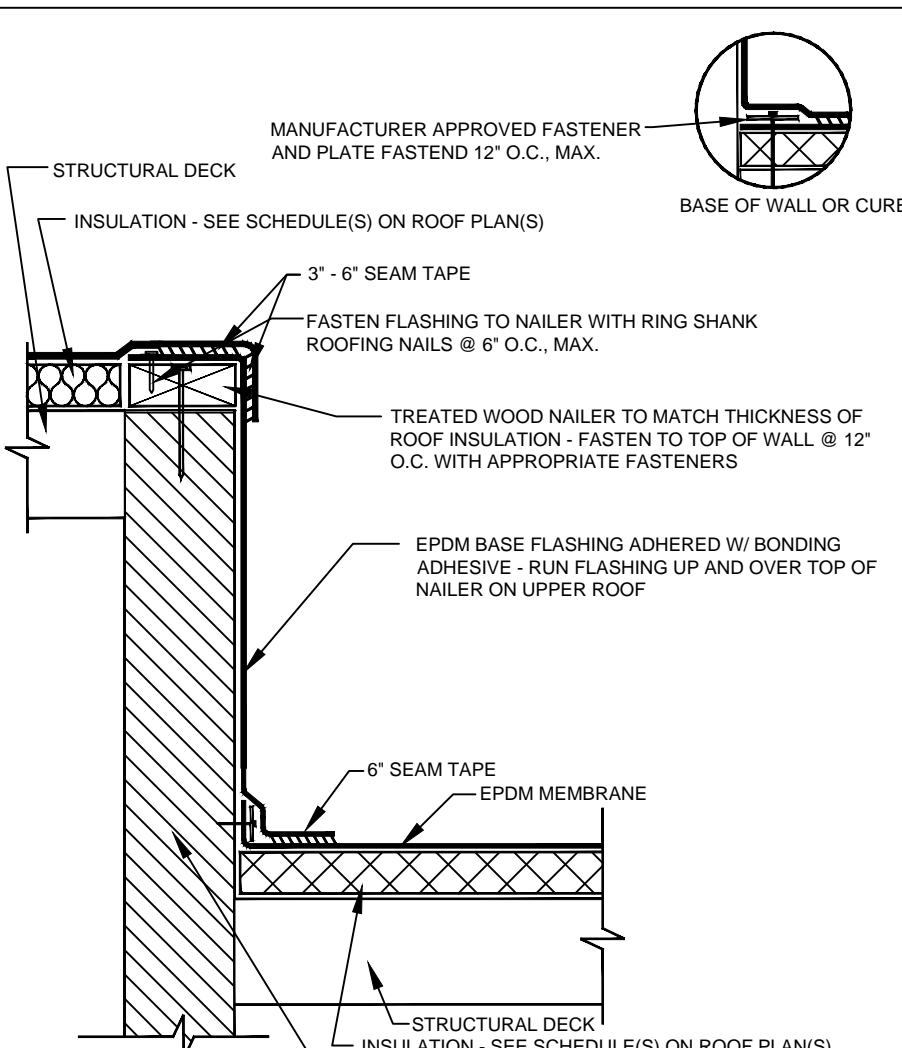
ABANDONED CURB OPENING  
SCALE: N.T.S.



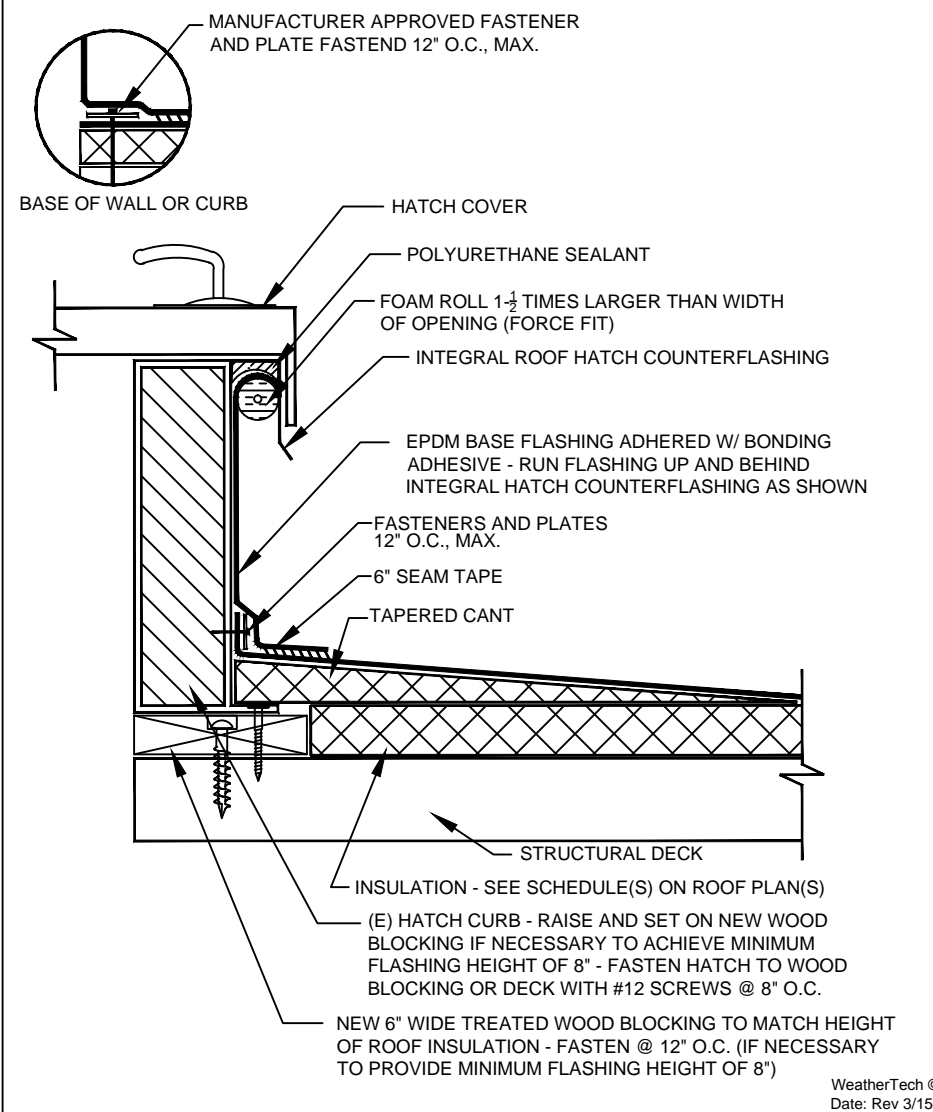
ABANDONED CURBS  
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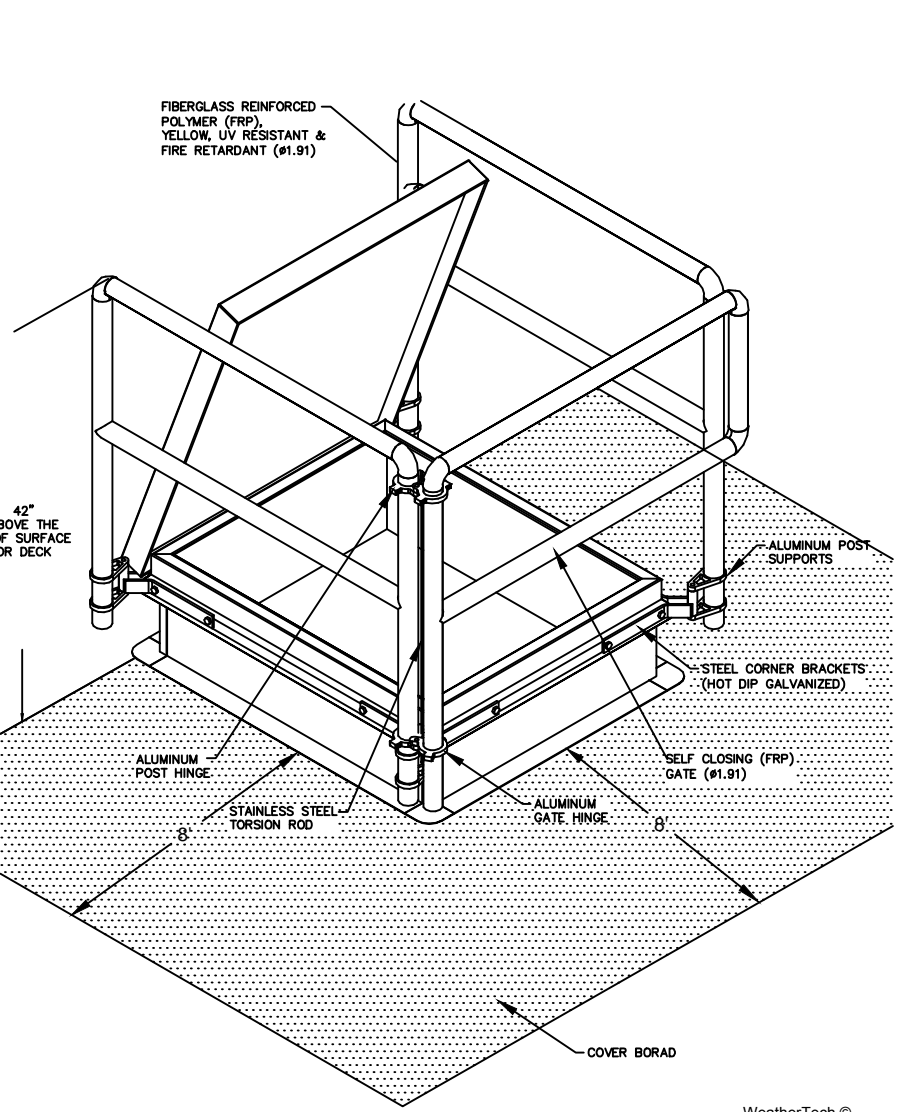
MULTIPLE PENETRATION CLOSURE  
BOX W/ WD. CURBED OPENING  
SCALE: N.T.S.



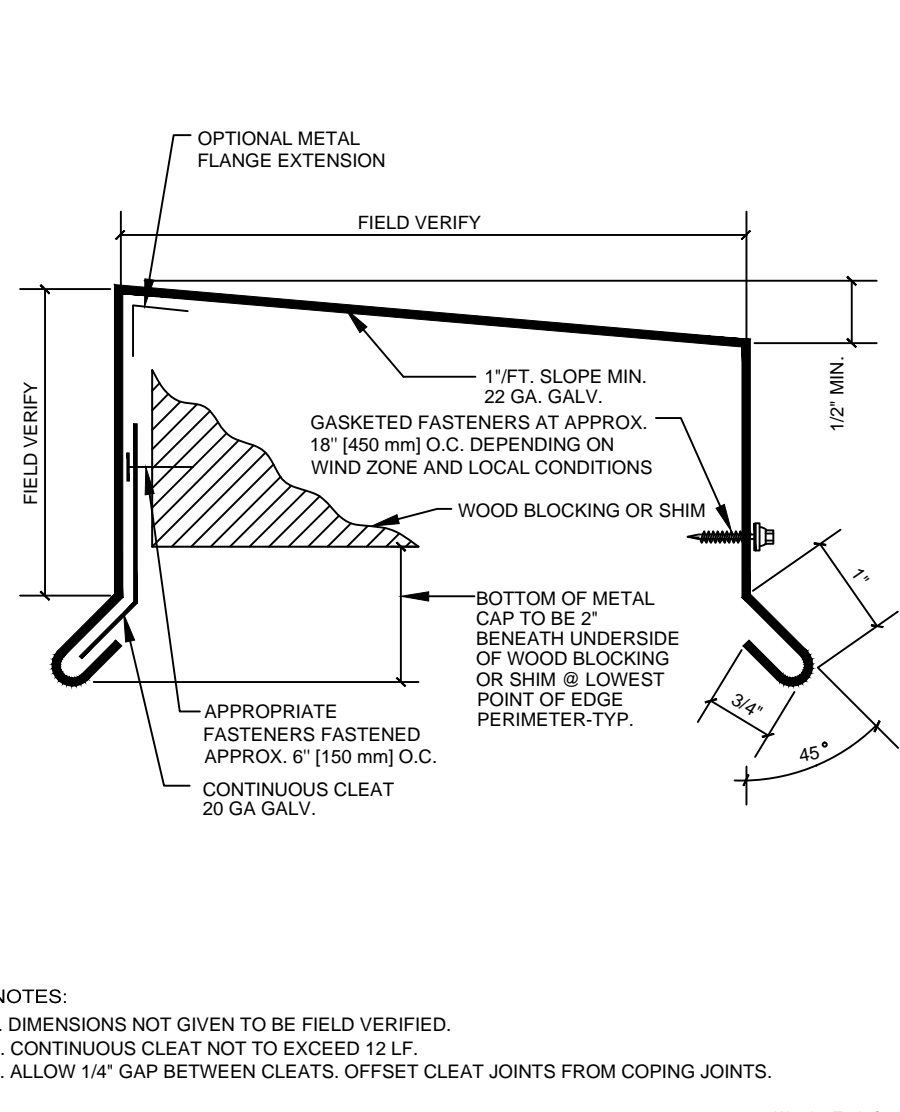
WALL TRANSITION  
SCALE: N.T.S.



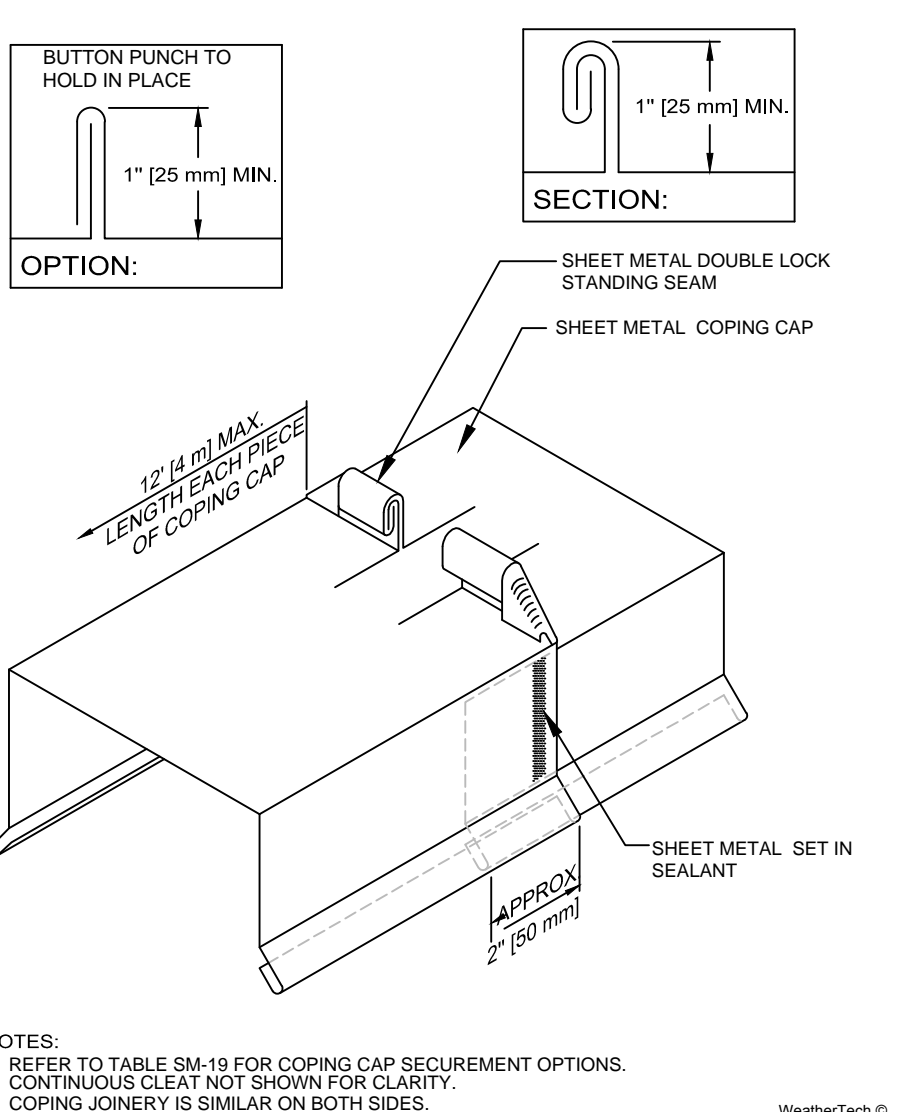
ROOF HATCH FLASHING (NON REMOVABLE)  
SCALE: N.T.S.



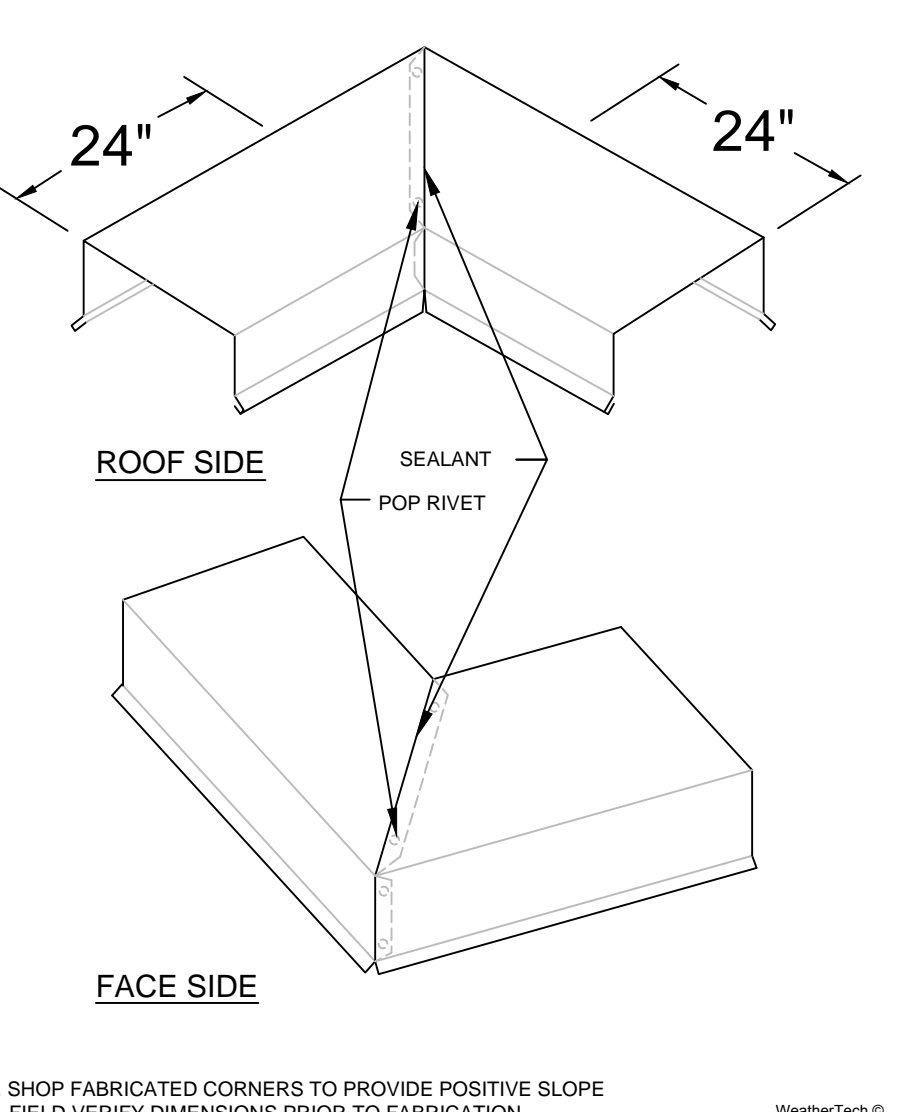
BILCO BIL-GUARD TYPE S E F  
HATCH RAIL SYSTEM  
SINGLE LEAF ROOF SCUTTLE



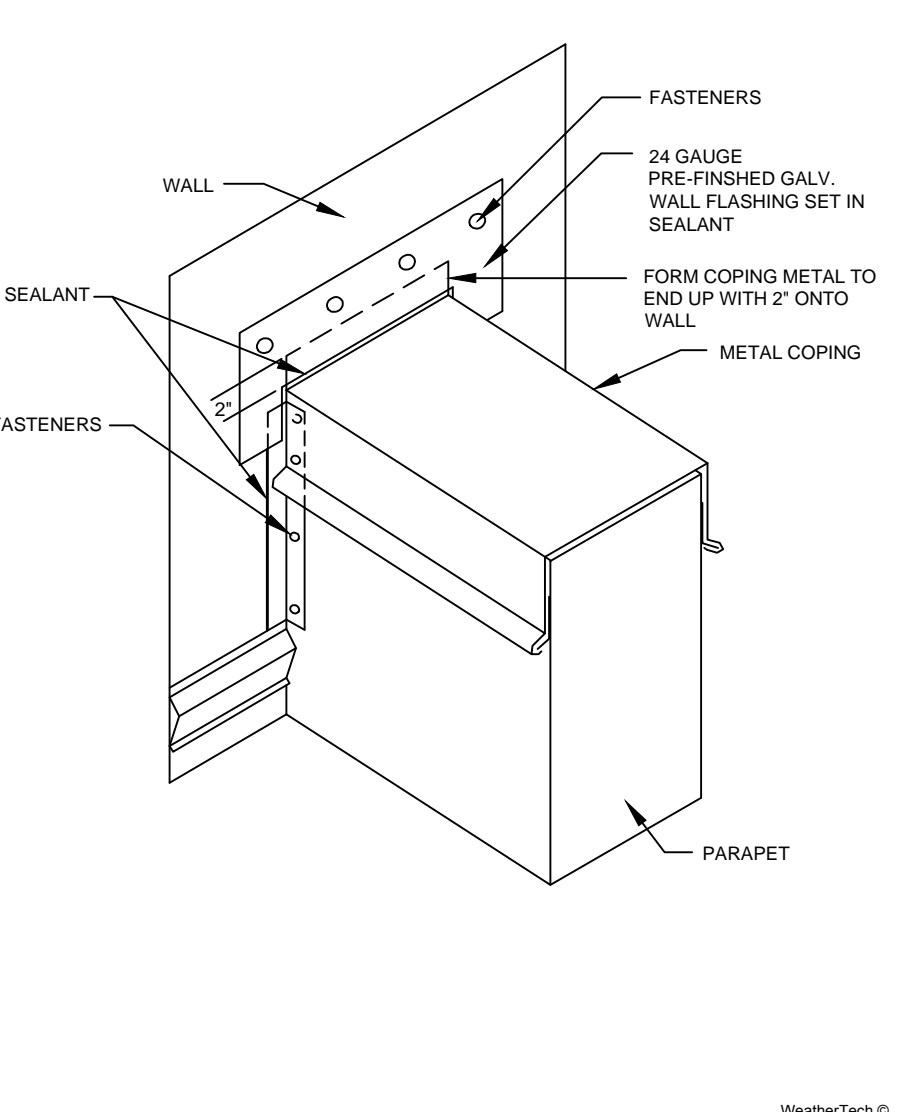
TYPICAL PARAPET/COPING CAP  
SCALE: N.T.S.



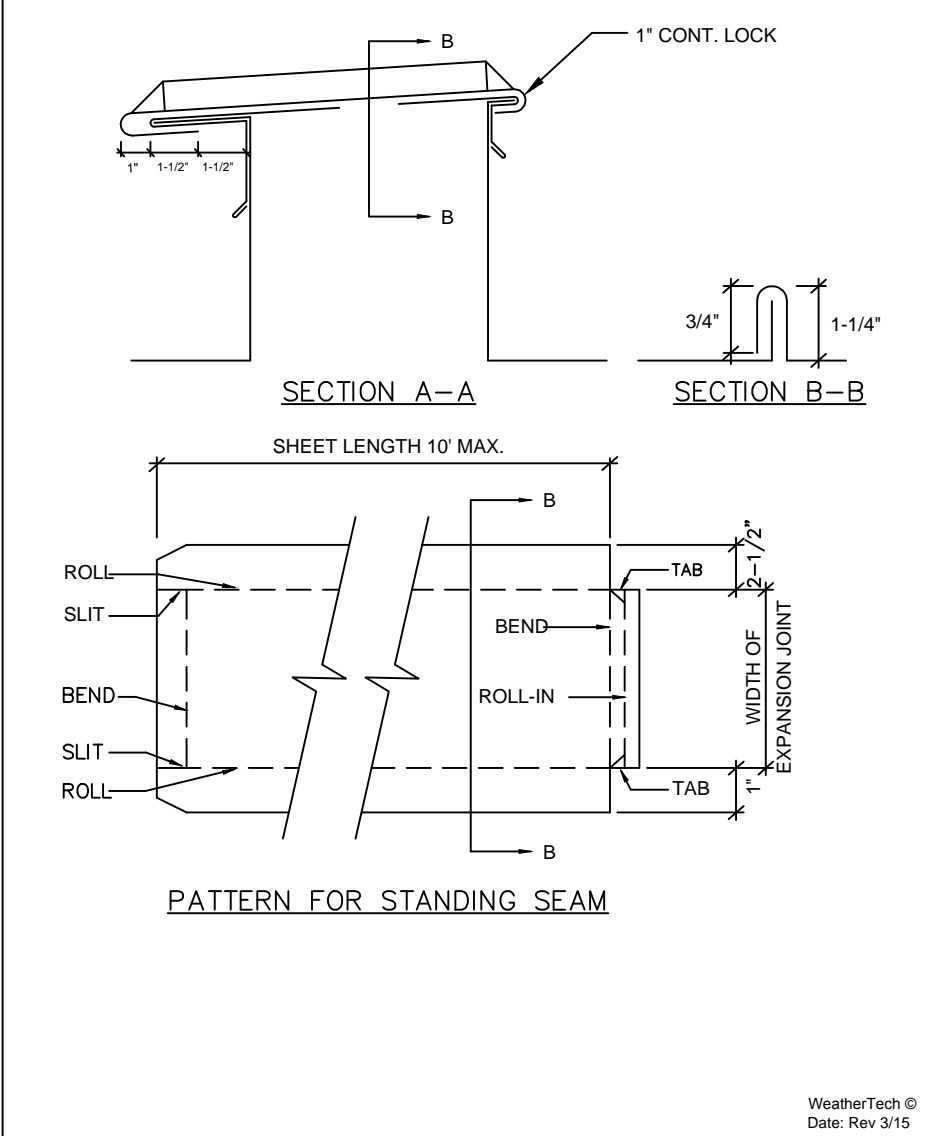
COPING CAP WITH DOUBLE LOCK  
STANDING SEAM



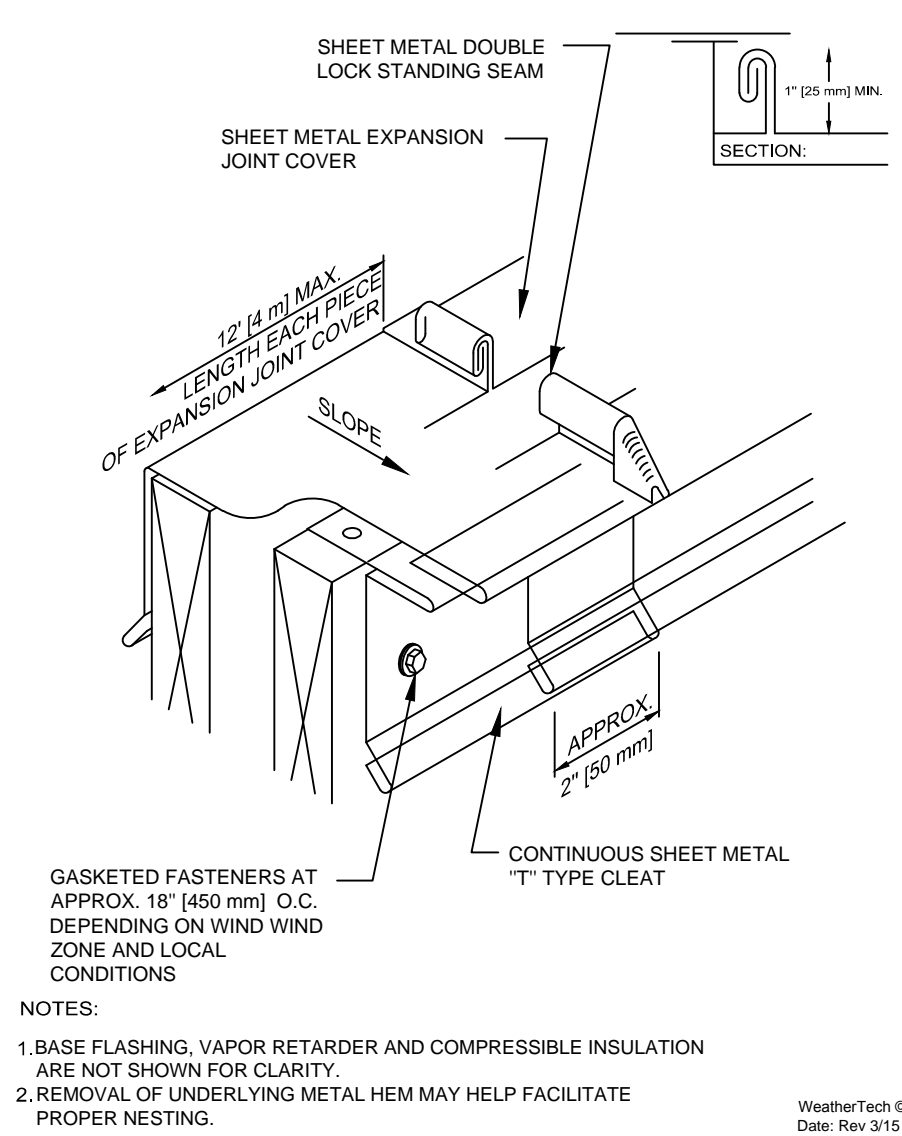
PARAPET COPING CAP CORNERS  
SCALE: N.T.S.



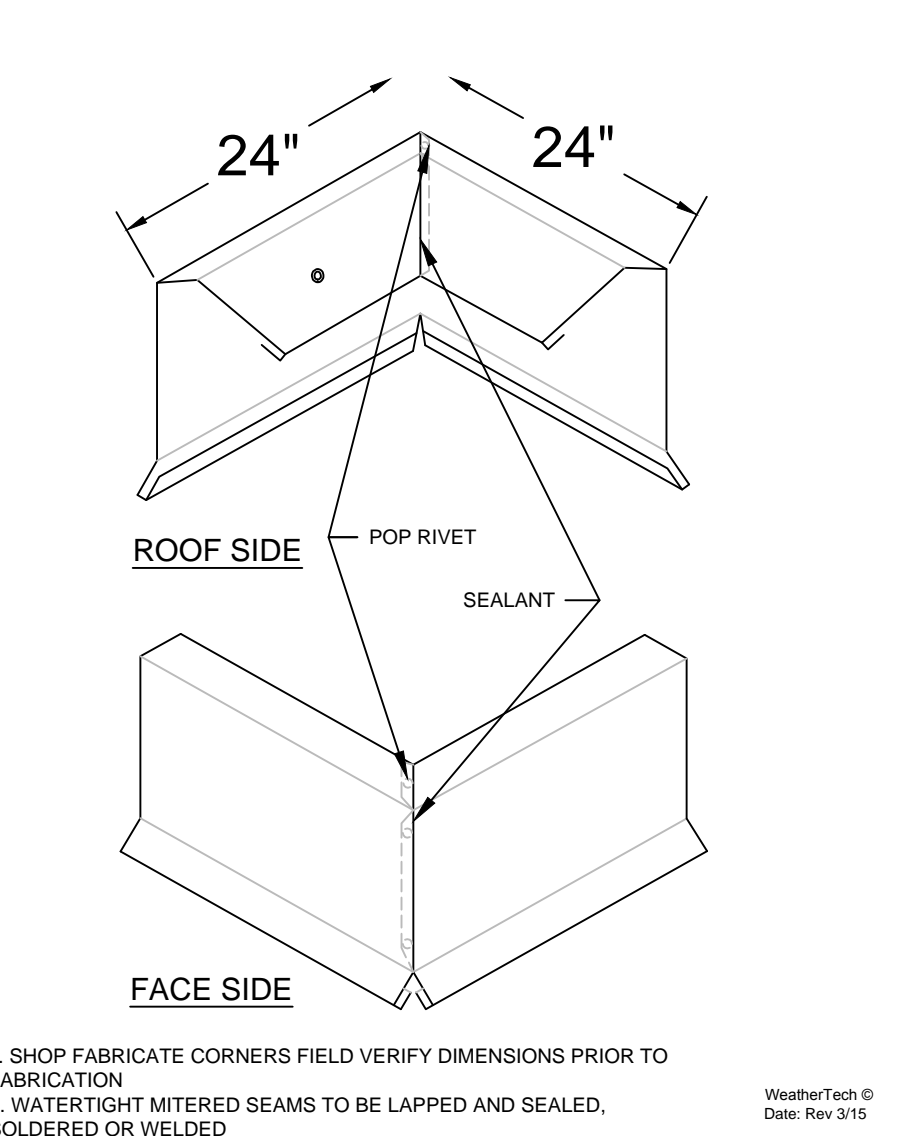
WALL TERMINATION  
SCALE: N.T.S.



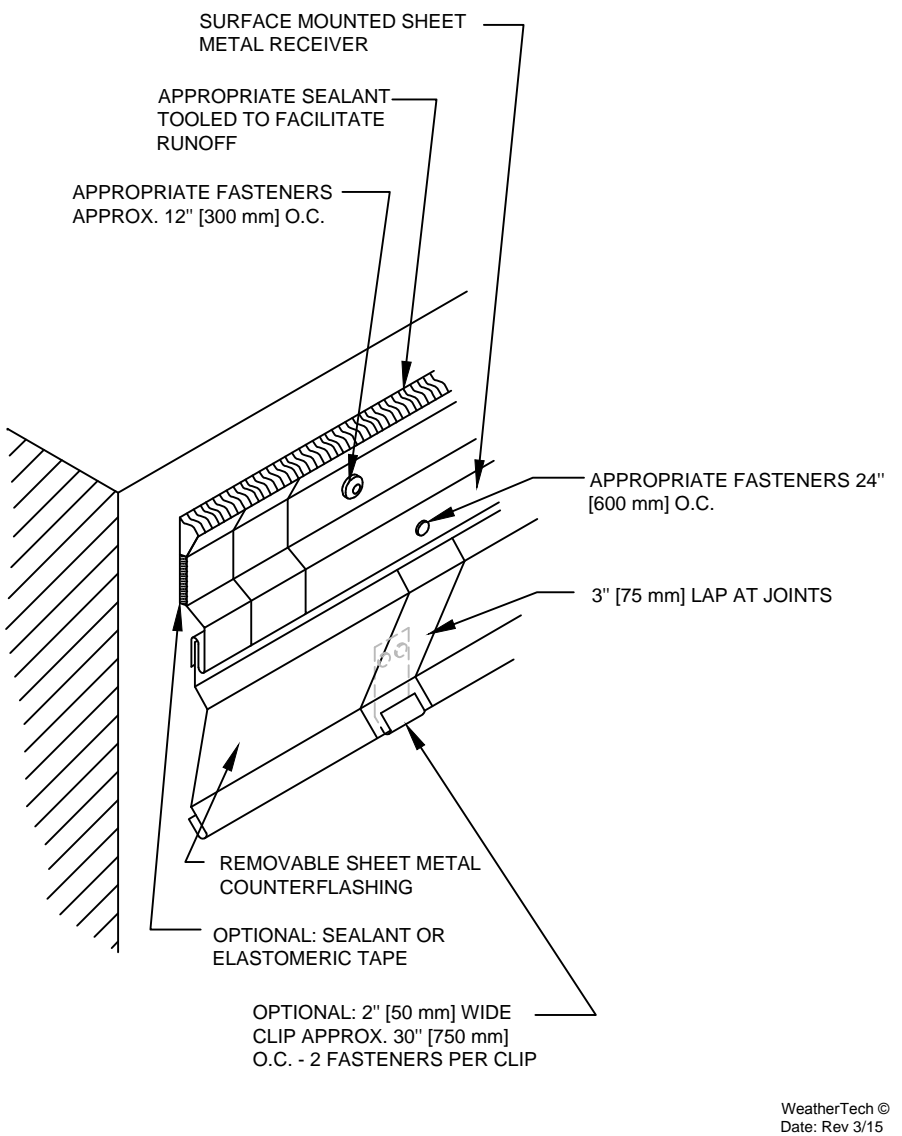
EXPANSION JOINT CAP  
FABRICATION  
SCALE: N.T.S.



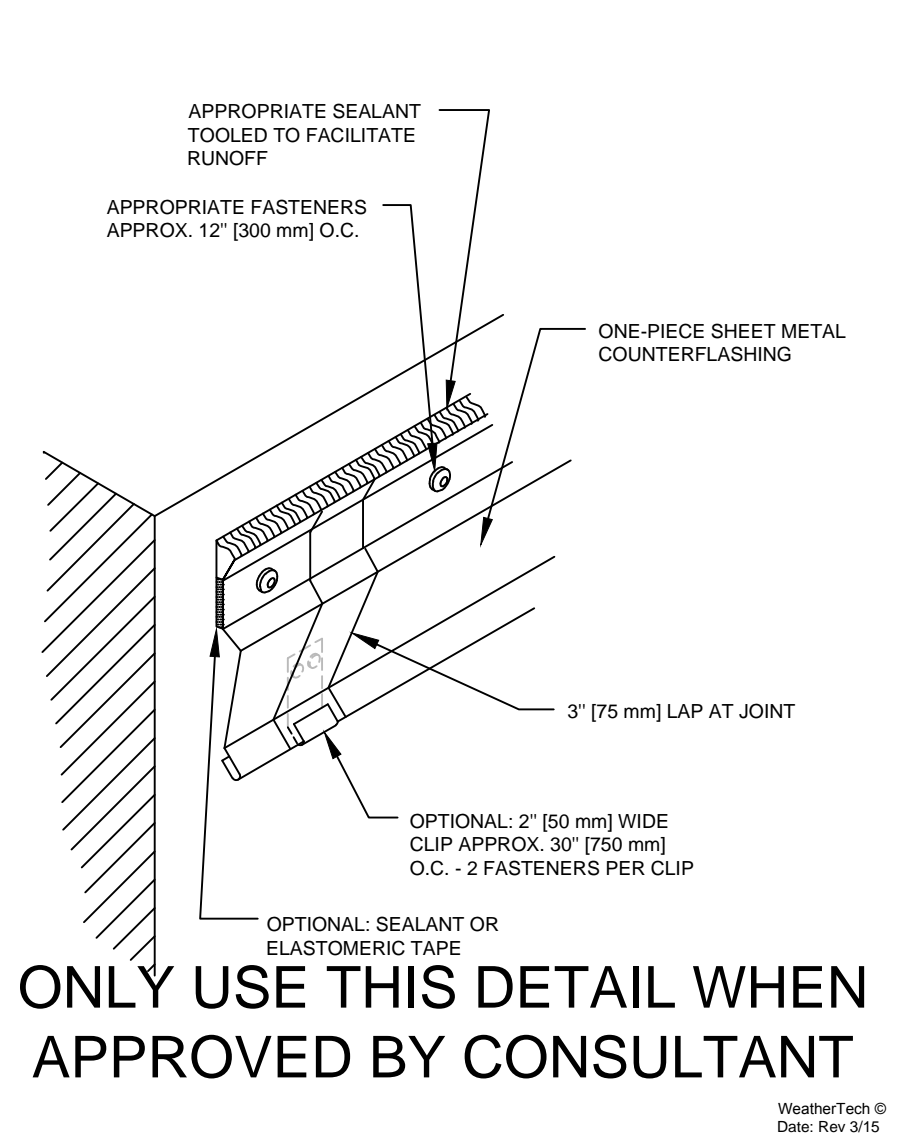
EXPANSION JOINT COVER WITH STANDING SEAM  
SCALE: N.T.S.



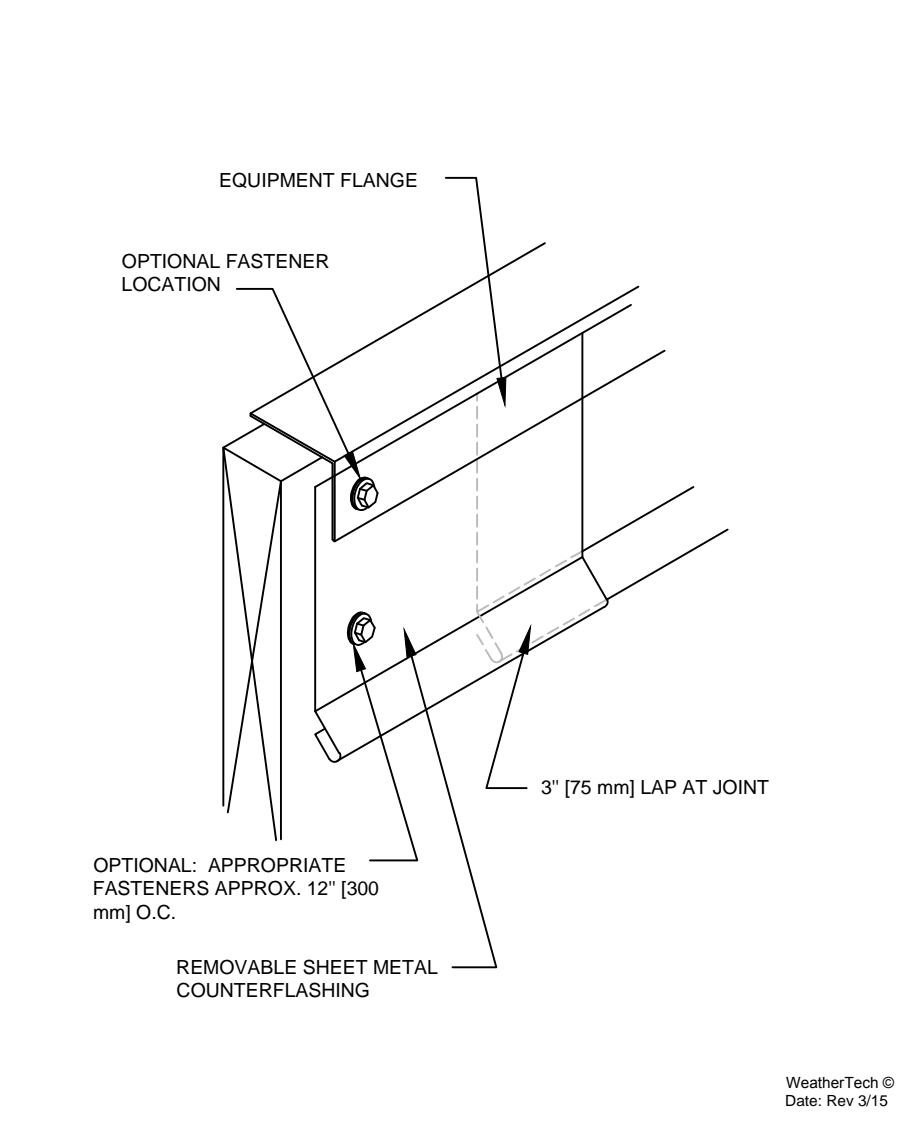
RAISED PERIMETER EDGE METAL  
SCALE: N.T.S.



TWO PIECE SURFACE MOUNTED REGLET AND  
COUNTERFLASHING WITH OVERLAP JOINT  
SCALE: N.T.S.

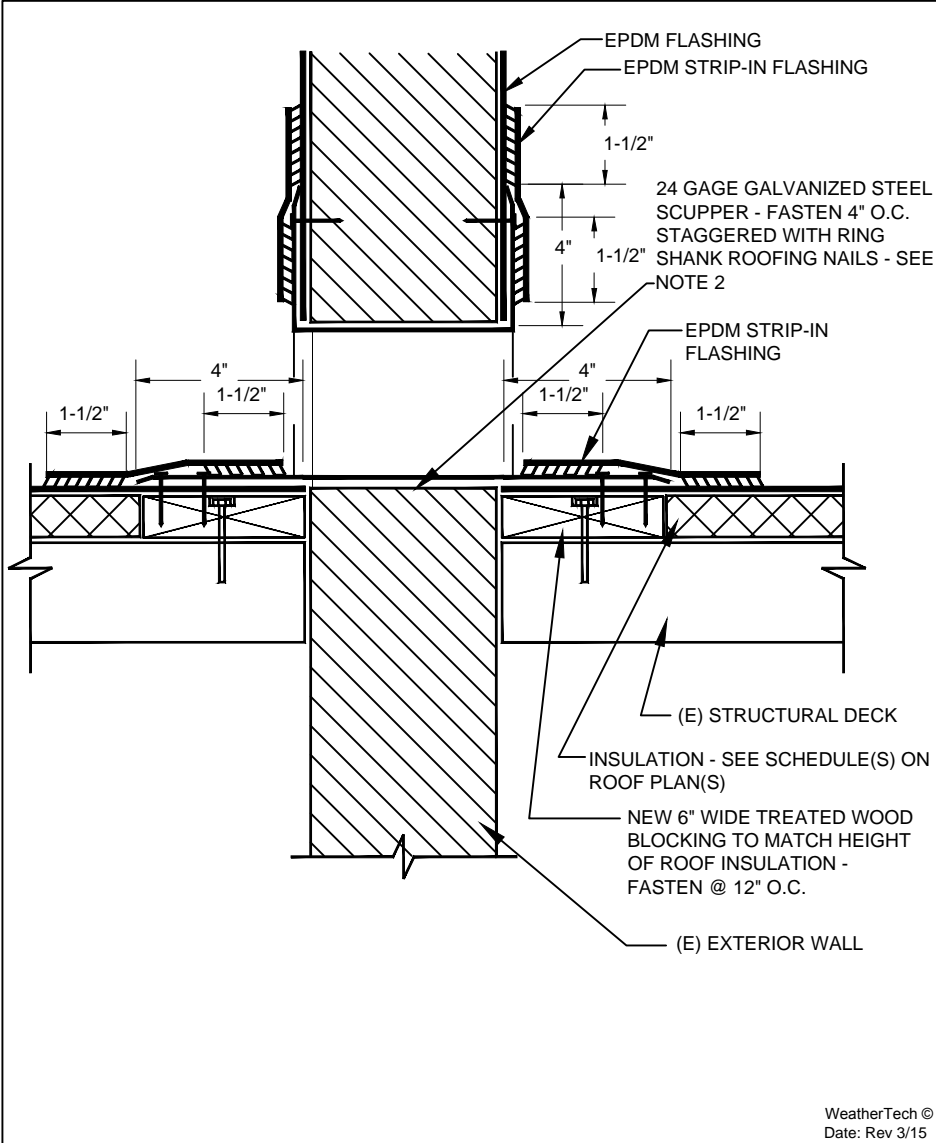


ONE-PIECE SURFACE MOUNTED  
COUNTERFLASHING WITH OVERLAP JOINT  
SCALE: N.T.S.



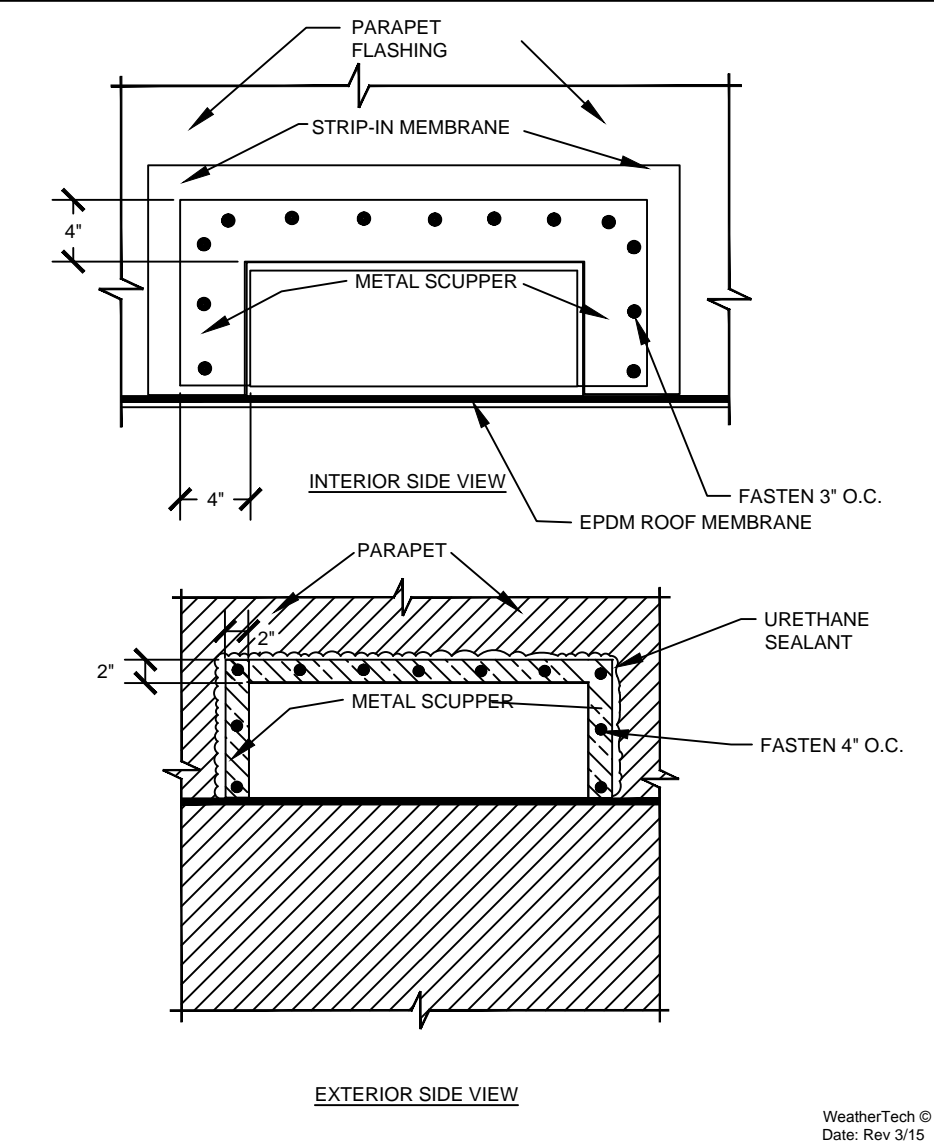
CURB COUNTERFLASHING  
(SKIRT FLASHING)  
SCALE: N.T.S.





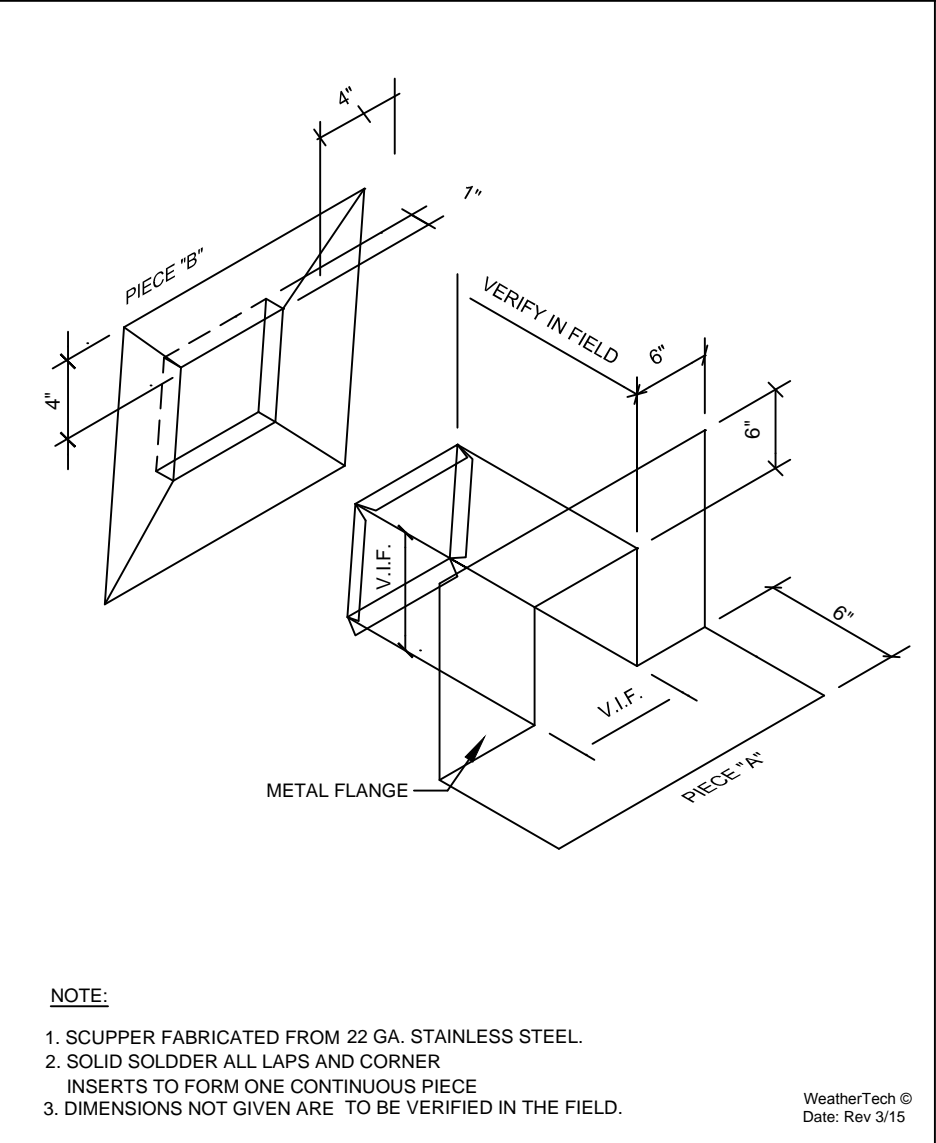
THRU-WALL SCUPPER  
SCALE: N.T.S.

4.01



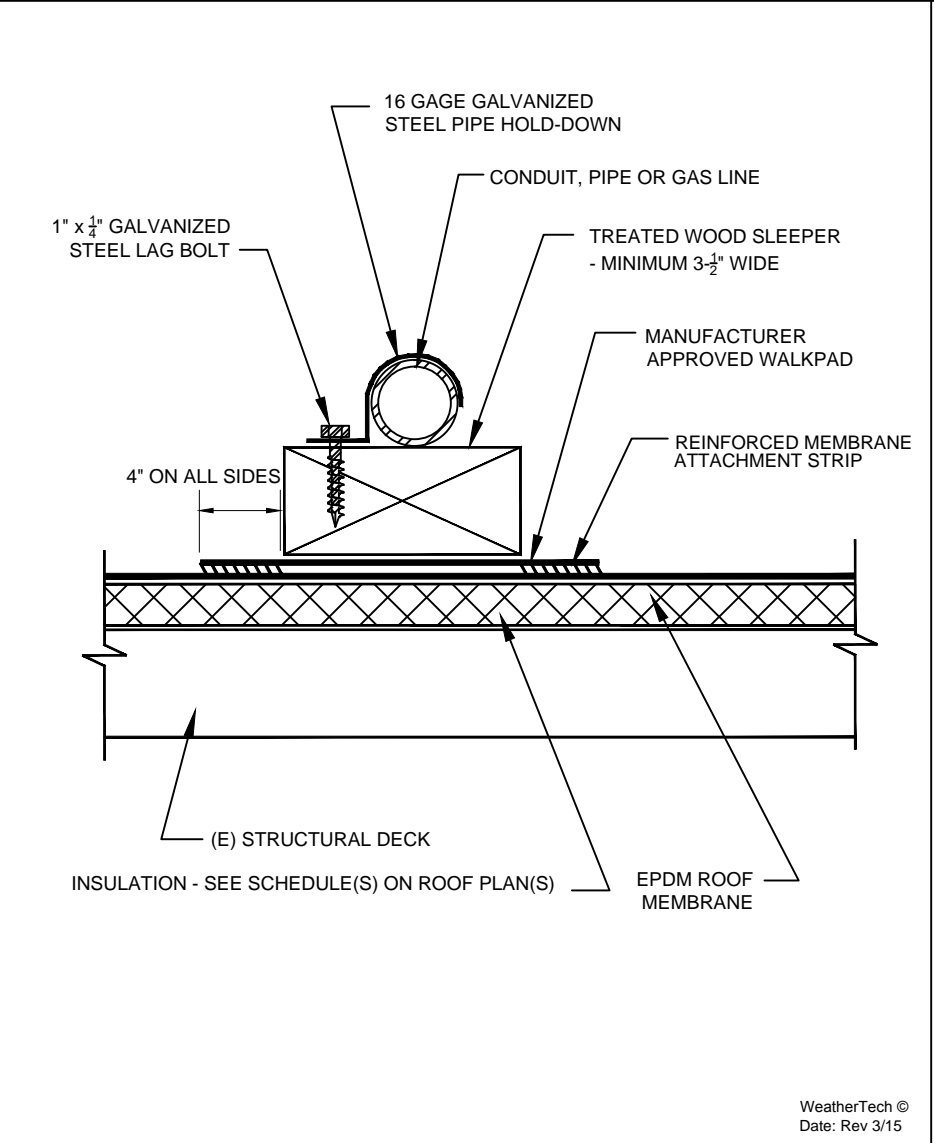
THRU-WALL SCUPPER  
SCALE: N.T.S.

4.02



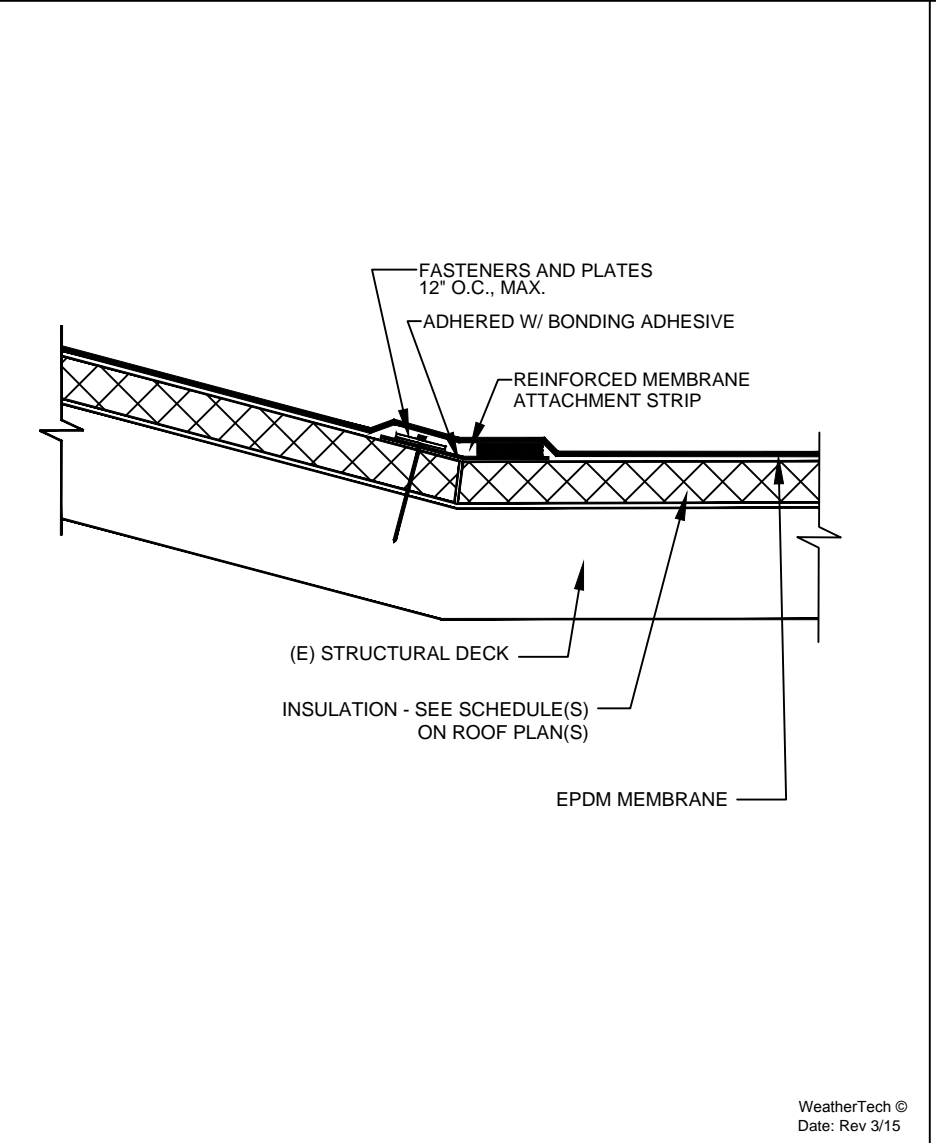
SCUPPER FABRICATION  
SCALE: N.T.S.

4.03



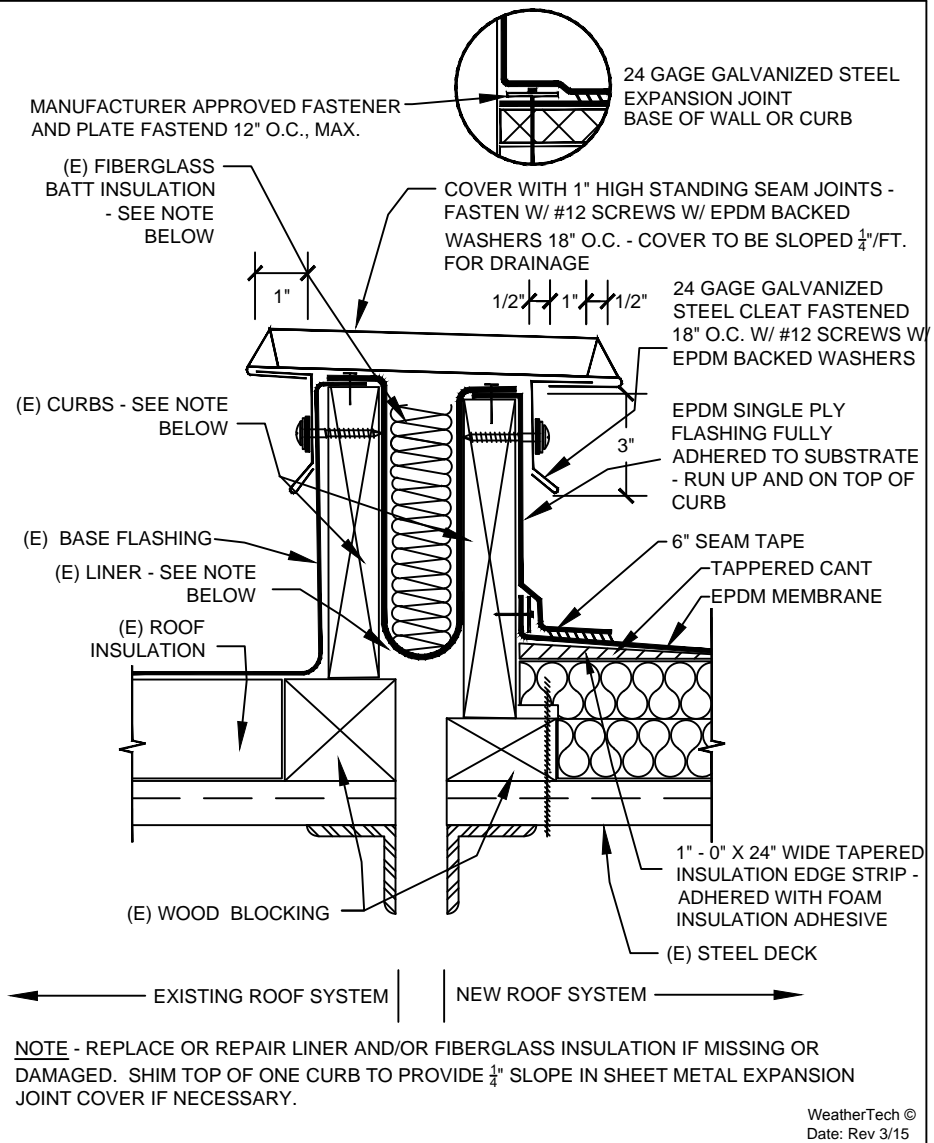
CONDUIT SUPPORT WOOD SLEEPER  
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4.04



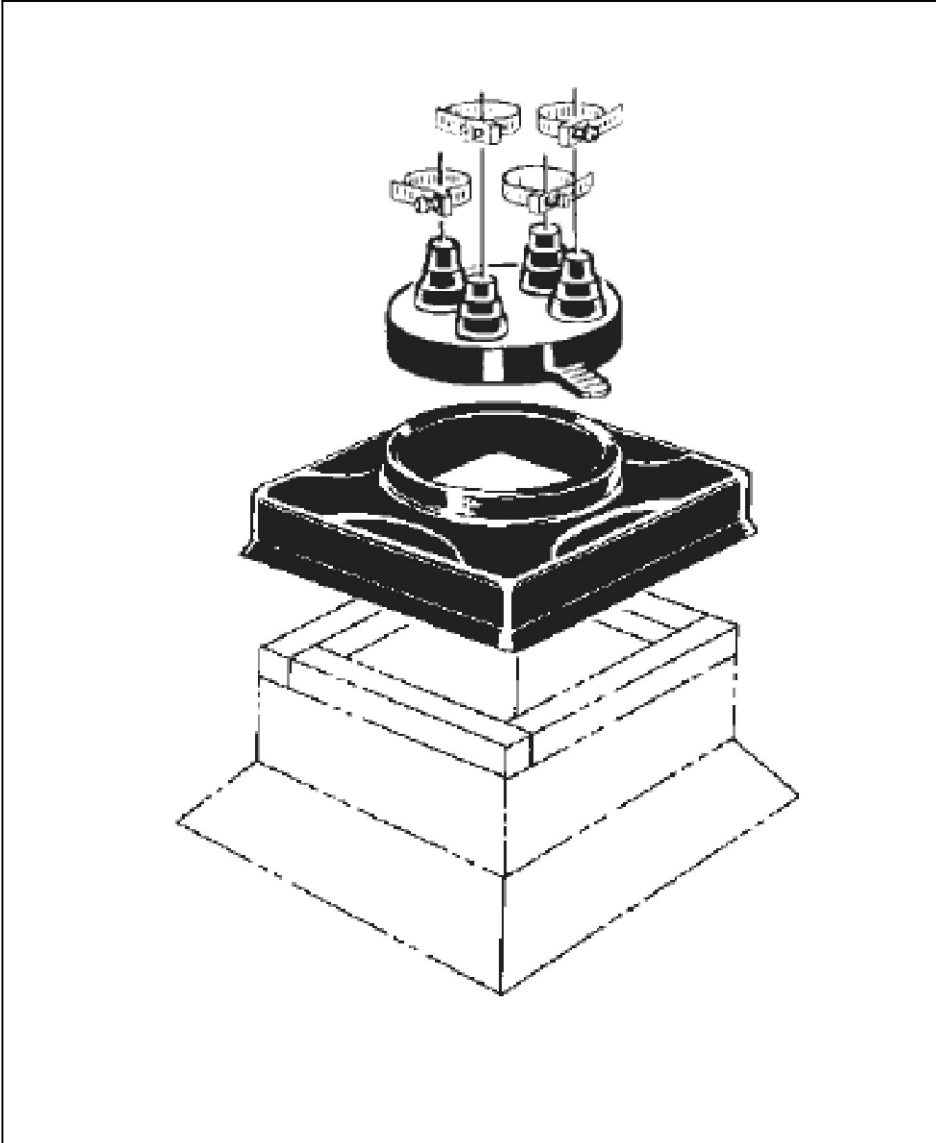
SLOPE TRANSITION  
SCALE: N.T.S.

4.05



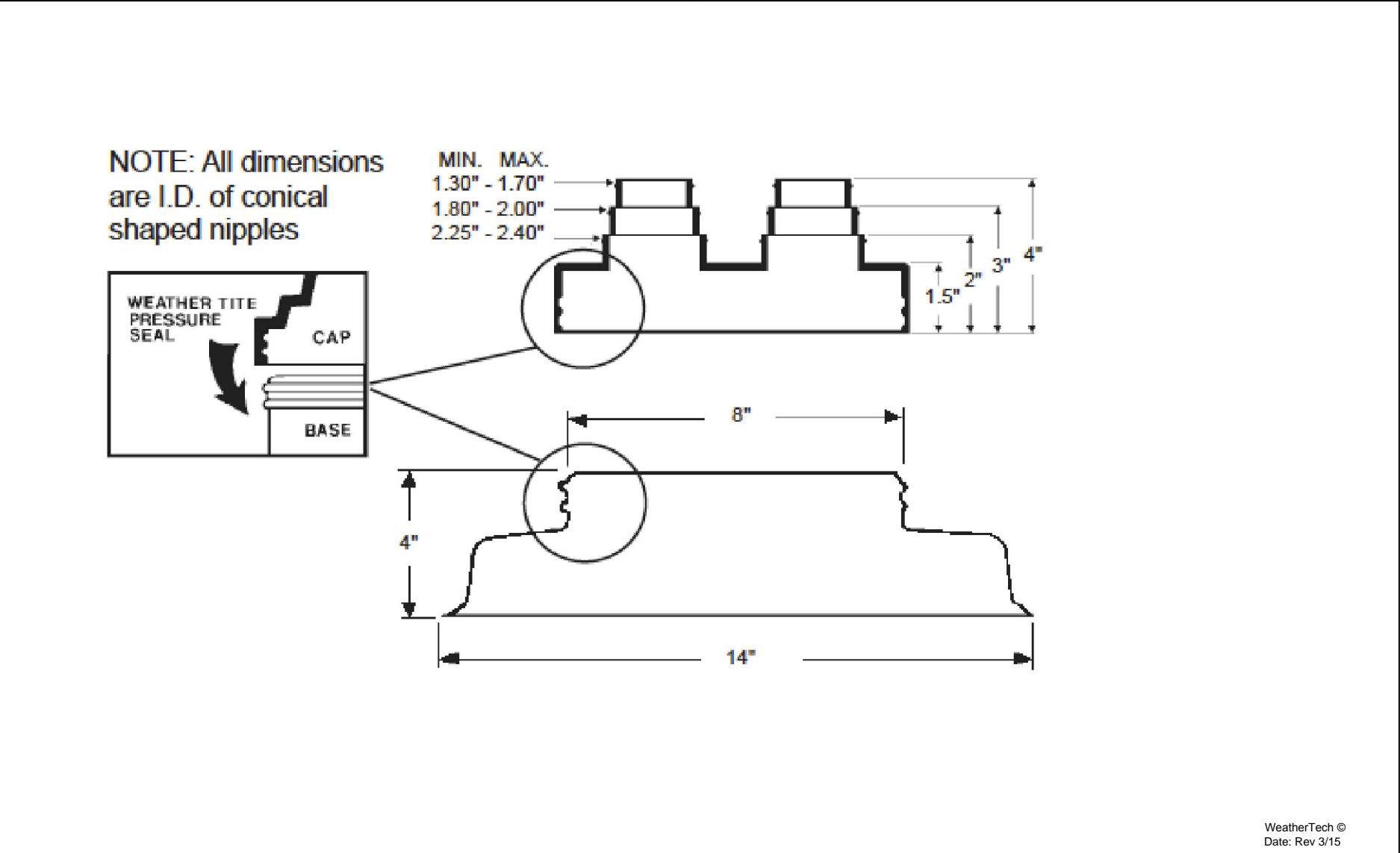
ROOF MOUNTED EXPANSION JOINT @ EXISTING CURB  
SCALE: N.T.S.

4.06



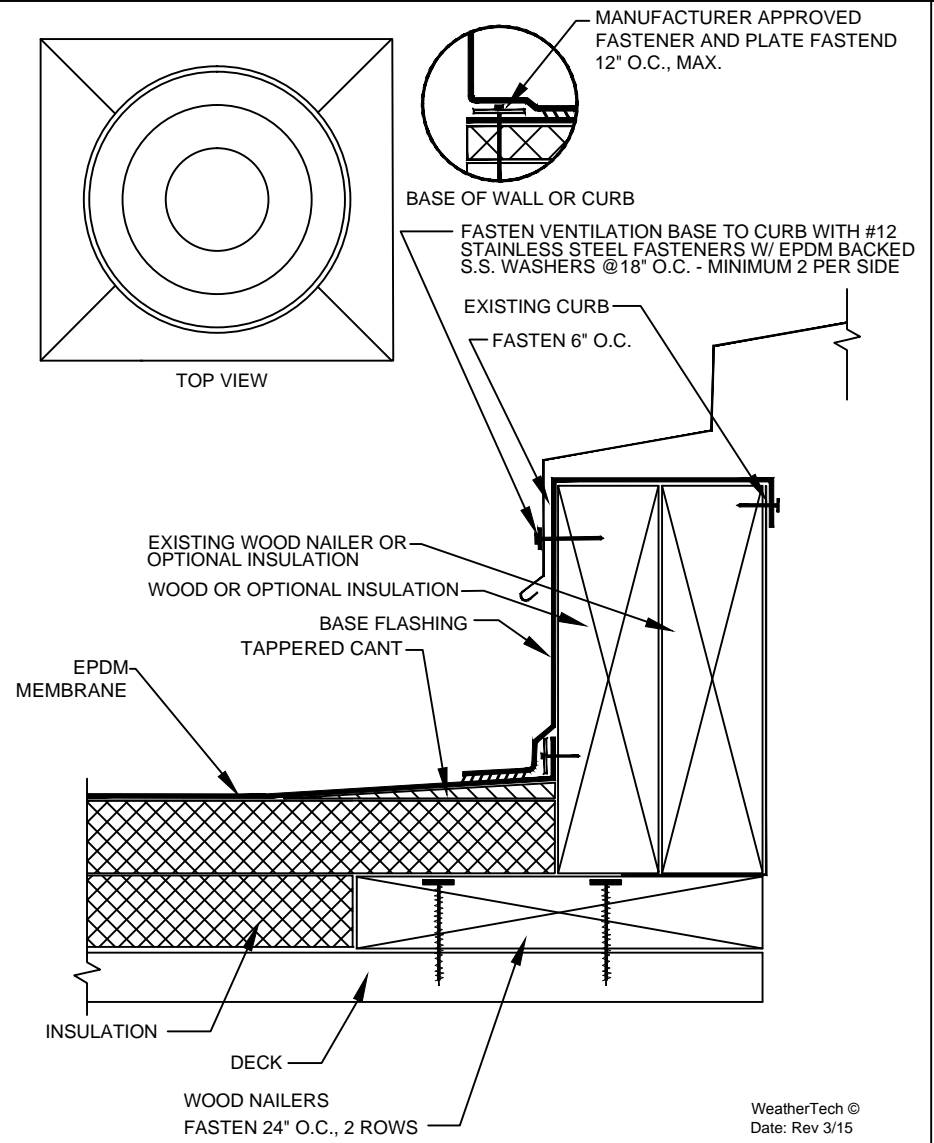
PORTALS PLUS CONDUIT/PIPE  
FLASHING - CURB & COVER  
SCALE: N.T.S.

4.07



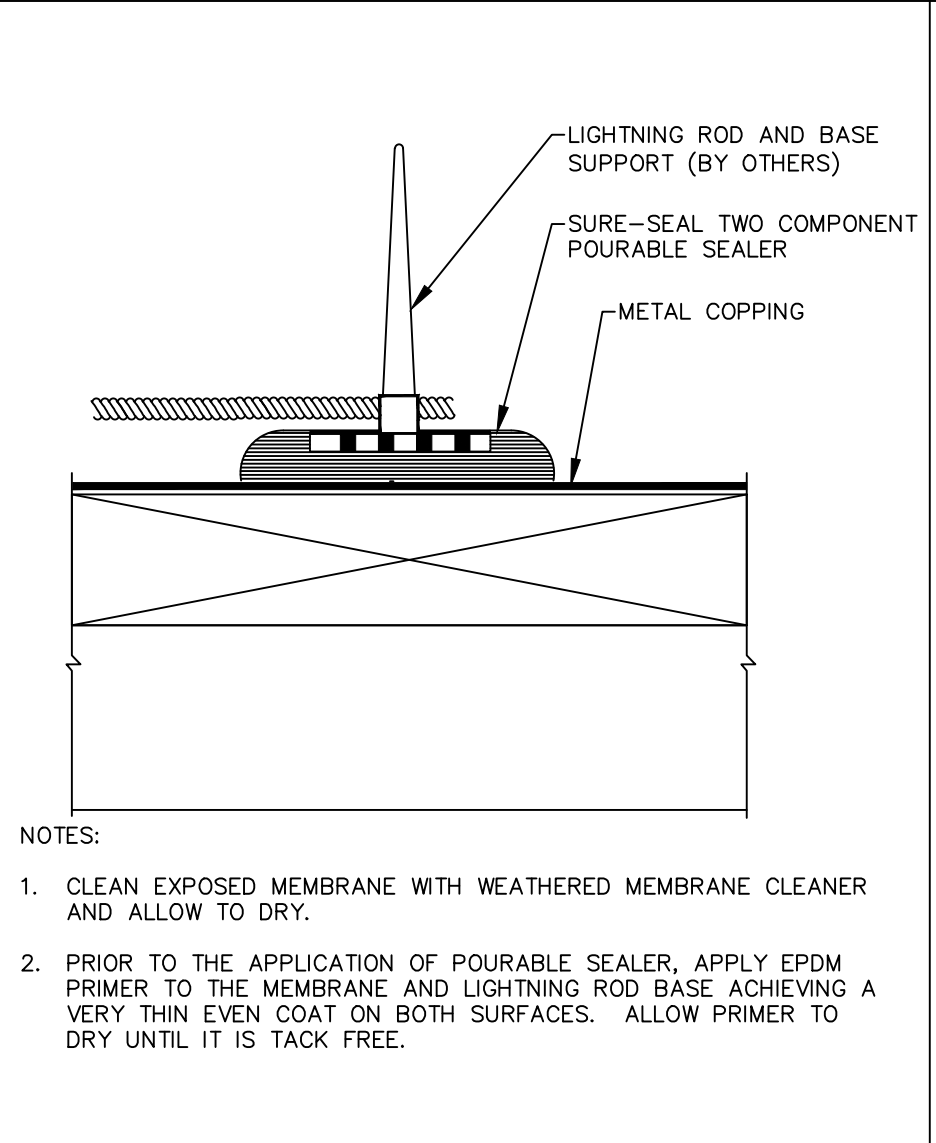
VENTILATION/CURD BUILD OUT  
SCALE: N.T.S.

4.08



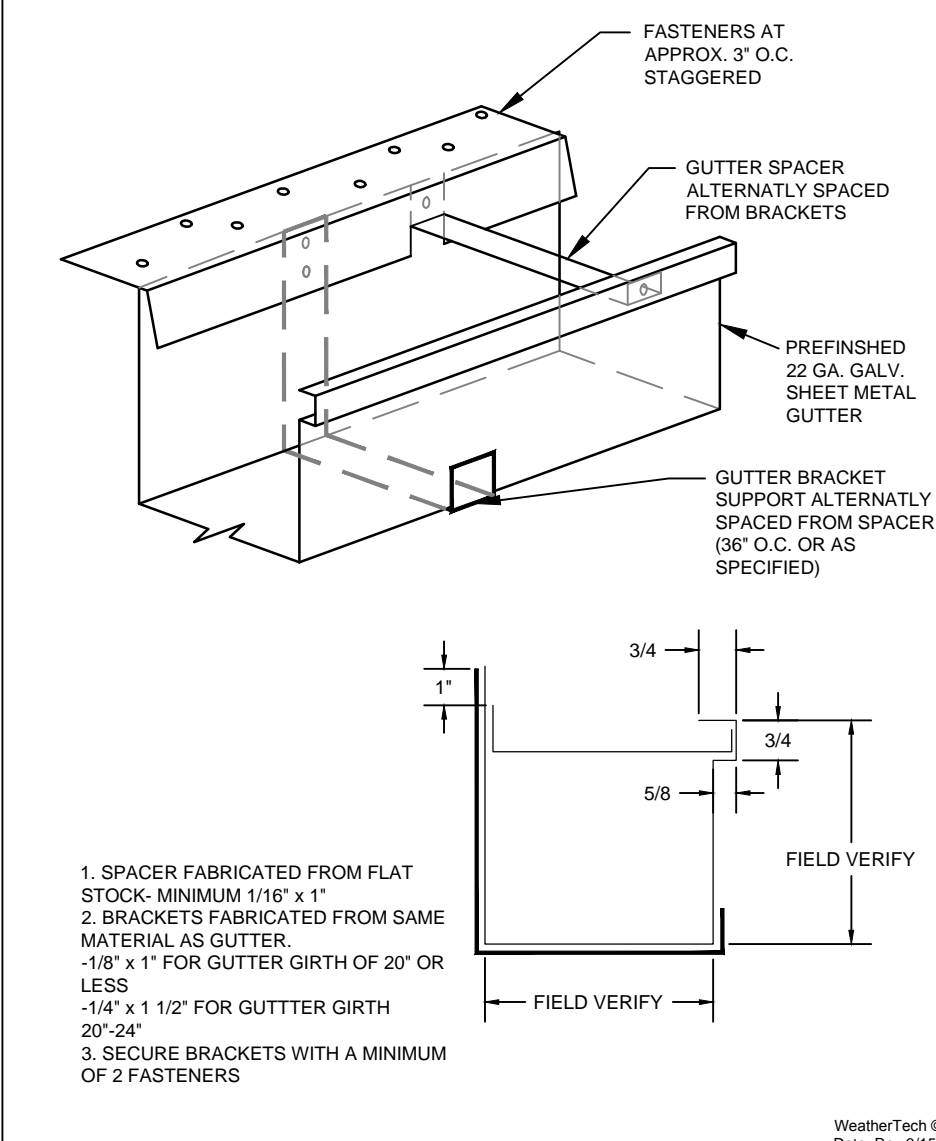
LIGHTNING ROD AT PARAPET WITH  
POURABLE SEALER  
SCALE: N.T.S.

4.09



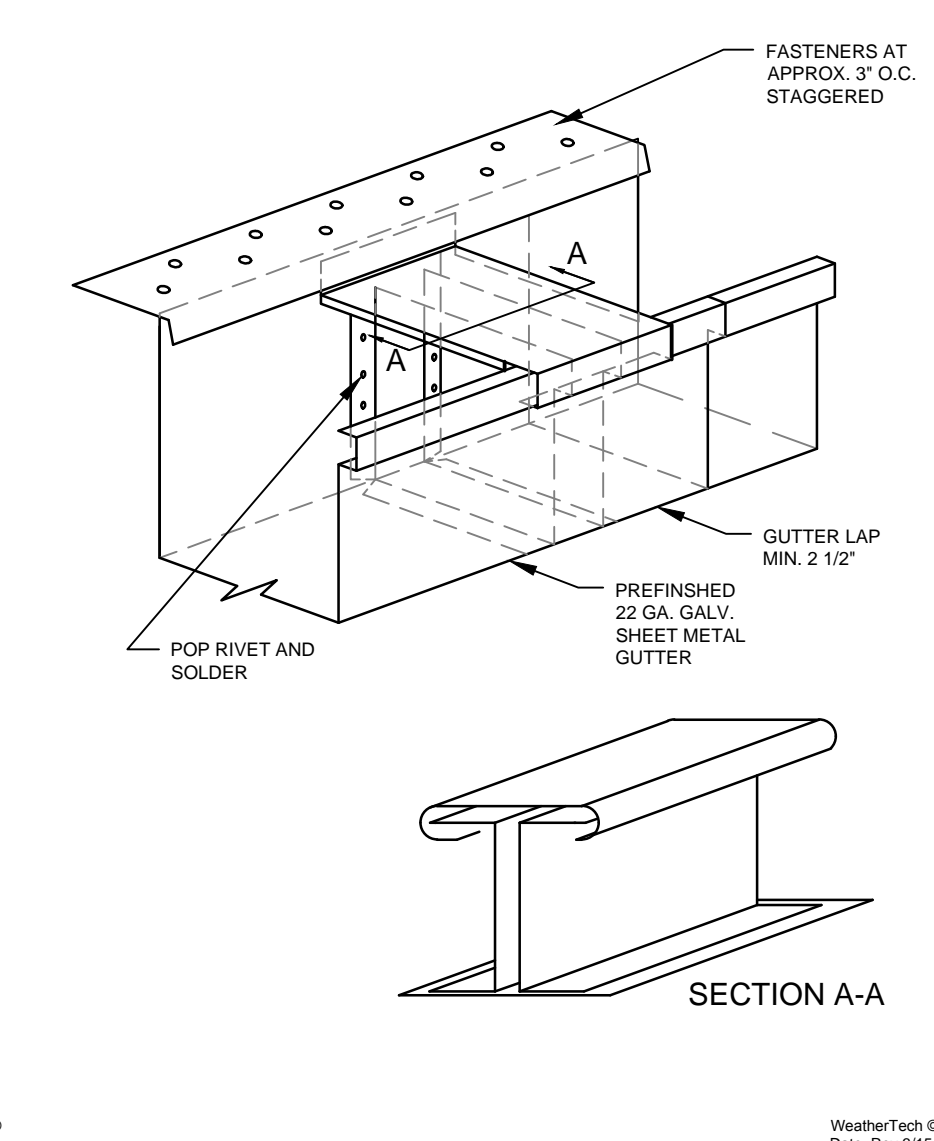
GUTTER EDGE FLASHING - COATED METAL  
SCALE: N.T.S.

4.10



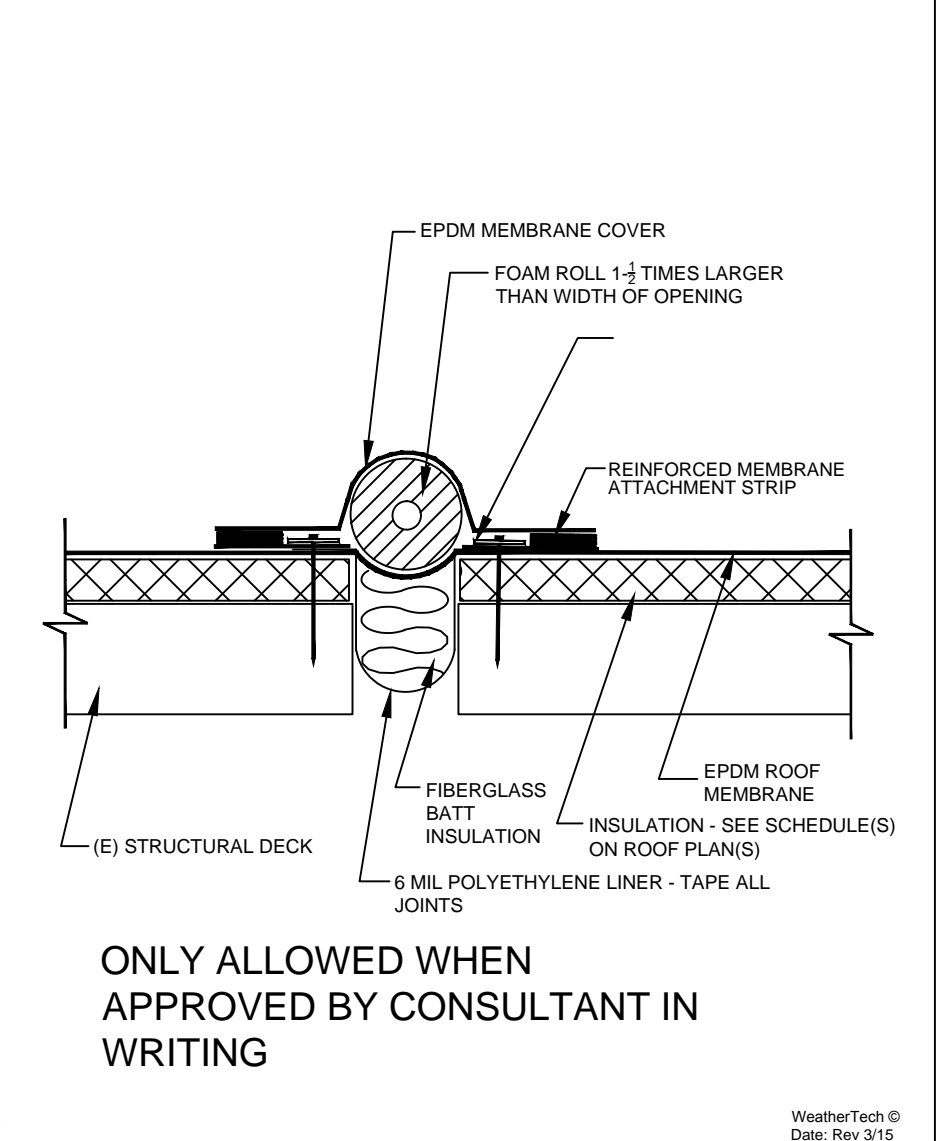
TYPICAL GUTTER  
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4.11



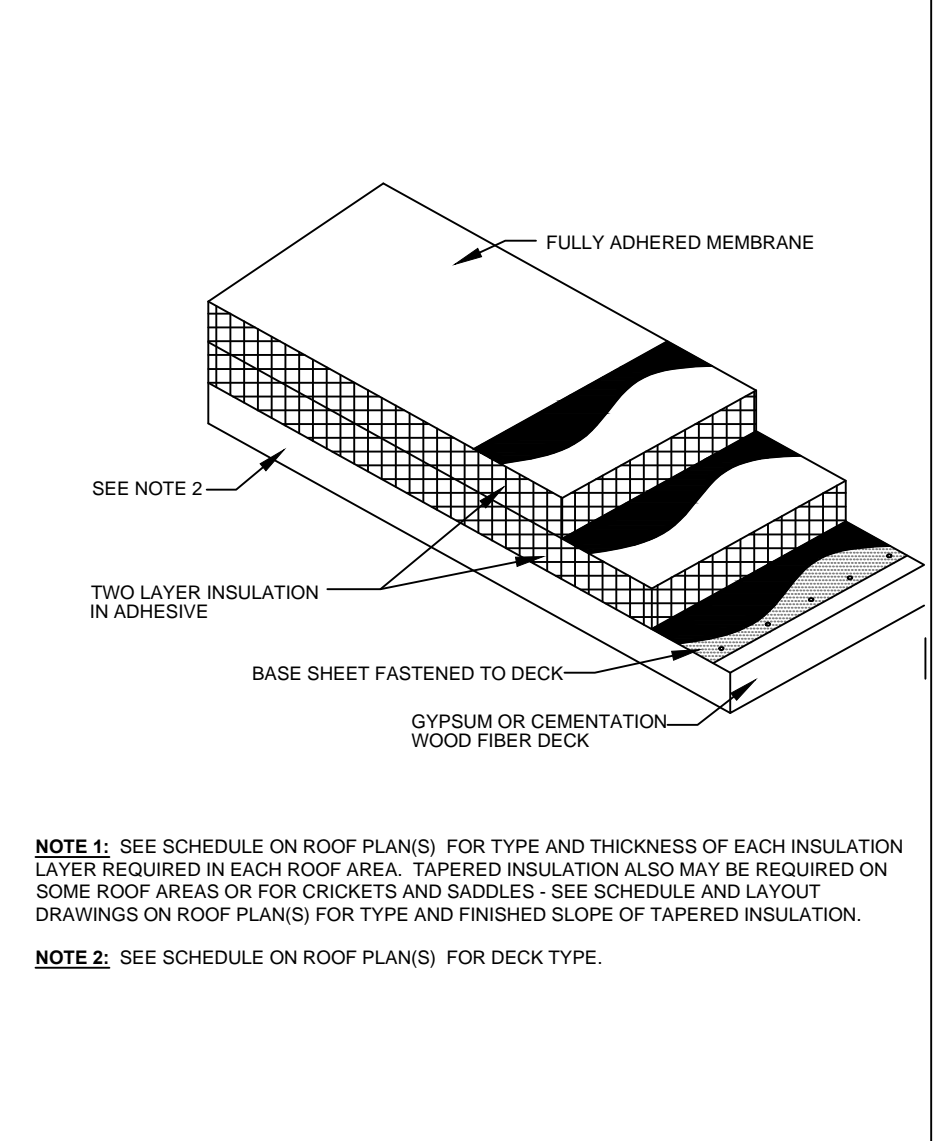
GUTTER EXPANSION JOINT  
SCALE: N.T.S.

4.12



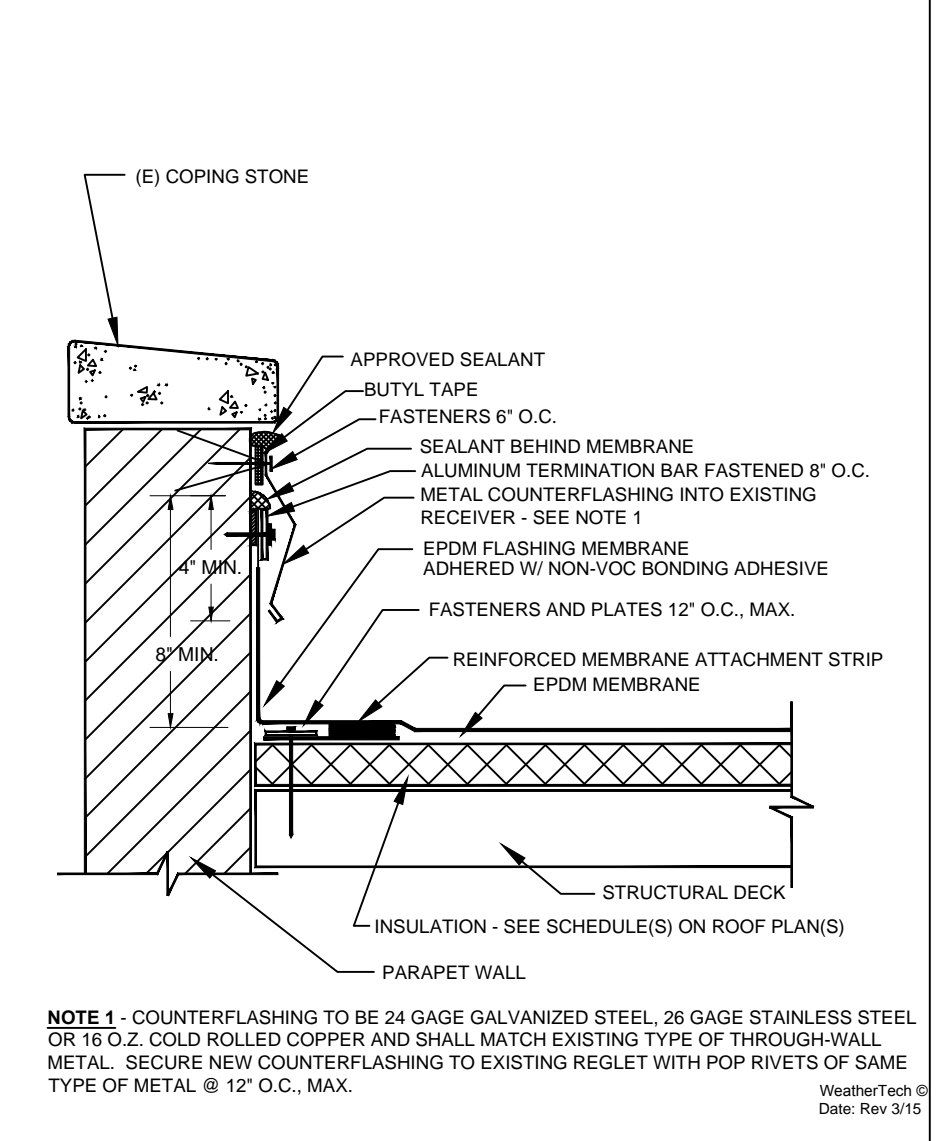
ROOF MOUNTED EXPANSION JOINT  
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4.13



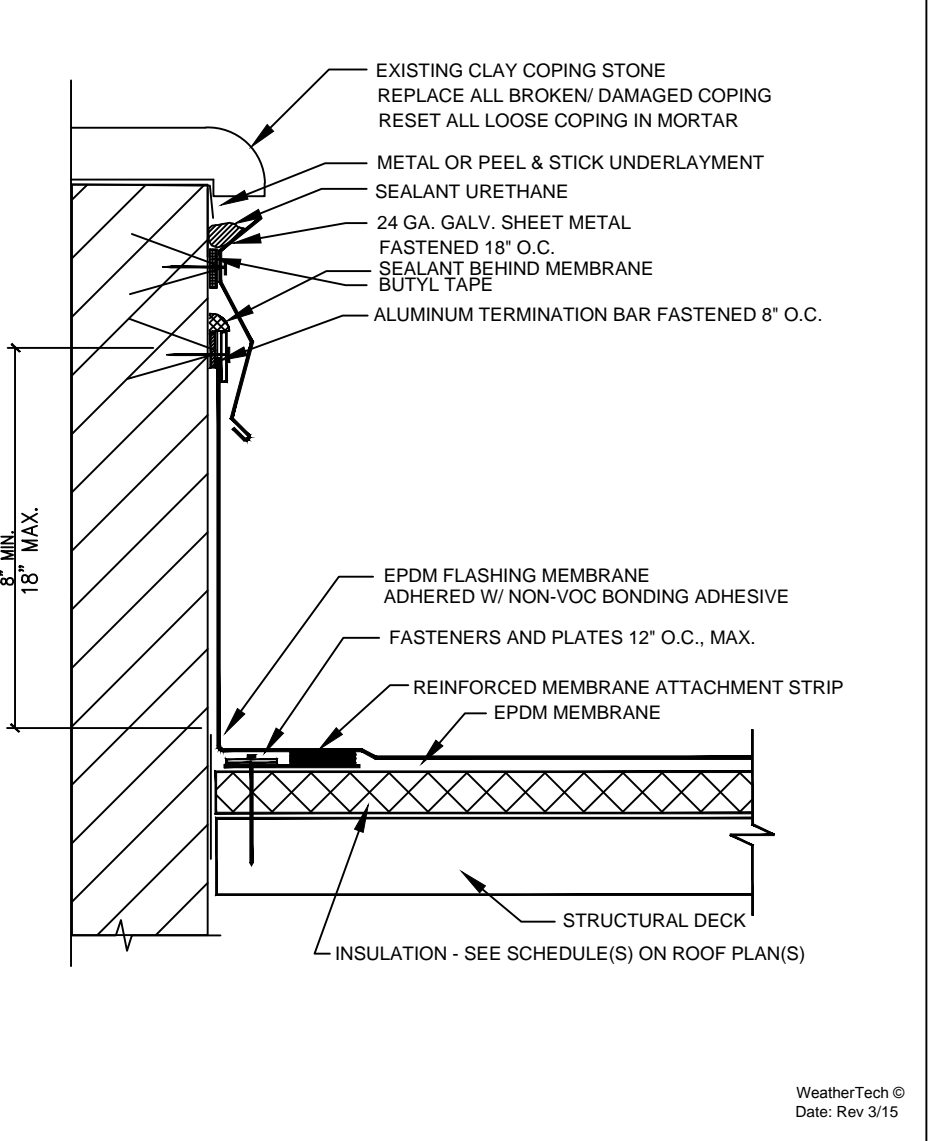
FULLY ADHERED EPDM SYSTEM OVER GYPSUM  
AND CEMENTATION WOOD FIBER DECKS  
SCALE: N.T.S.

4.14



PARAPET WALL W/COPING STONE  
W/ TERMINATION BAR  
SCALE: N.T.S.

4.15



PARAPET WALL FLASHING W/ CLAY COPING  
SCALE: N.T.S.

4.16

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Troy School District

4400 Livernois

Troy, MI 48098

PROJECT:

Troy School District

**BID 9848**

2018 Roofing Program

WTPProject No:  
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Detail Page

A8.3

Sheet 23 of 23



PPROJECT SUMMARY

SUMMARY OF WORK: ref. Section 00 02 00

General: Troy School District (TSD) 2018 Roof Program work for five (5) schools and one (1) District building covering approximately 145,925 sq. ft. Roofing work includes roof replacement and restoration required to remediate all work identified in the specifications and drawings inclusive of all Bid Documents requirements.

Schedules: Ref. "PROJECT WORK SCHEDULE" on this Sheet A1.0 - Cover Page.

BID SUMMARY:

- Contractor proposal and two copies will be submitted only on the forms provided and will be enclosed in a sealed envelope marked with the name of the bidder, the title of the work, the time, place and date due and must be hand delivered or delivered by courier no later than 10:00 A.M., Wednesday, November 29, 2017, Administrative Building, Troy School District, 4400 Livernois, Troy, Michigan 48098, at which time all bids will be publicly opened and read aloud immediately thereafter. Bid proposals received after this time will not be considered or accepted. Oral, telephone, fax or electronic mail bids are invalid and will not receive consideration.  
a. Bid Bond: Submit with bid five percent (5%) bid bond or certified check.
- Pre-Bid Conference: A mandatory pre-bid conference will be held at Administration Building, 4400 Livernois, Troy, MI 48098, on Monday, November 20, 2017 at 10:00 am Local Time. The roofing contractors will have access to walk the roofs on Wednesday, November 22, 2017. (Between 8am-4pm)
- Bid Form Section 000300: Bid Form to contain Base Bid including all work as specified in Bid Documents including performance (Section 000300) and payment bond (Section 000304) fees, number work days to complete work, square footages are required on Bid Form found in Section 000300.  
a. Allowance expenditures shall be documented and compensated on a unit pricing basis per the Unit Pricing Bid Form (Section 000301) values provided.
- Allowances Section 012100: Allowances will be defined on individual school roof plans under "Allowances" and are to be included in Base Bid value found in Section 000300.  
a. Allowance expenditures shall be documented and compensated on a unit pricing basis per the Unit Pricing Bid Form (Section 000301) values provided.
- Unit Pricing Section 004322: Unit Pricing for unit work is defined on the Unit Price Bid Form in Section 000301. Unit Pricing bid values are entered by unit price individually on form.
- Alternates Section 012300: Alternates are individually listed on school roof plans and bids for Alternates. Alternated bid value are to be entered on Bid Form (Section 000300) as enumerated.
- TSD reserves the right to issue contracts to multiple contractors.
- Any questions regarding bid specifications must be received noon, Monday, November 27, 2017. Questions must be submitted in writing on the WTT website using the online RFI form at www.wtcgproject.net any questions on how to use the RFI form contact Ann Crispen at (586) 731-3095 x10 or Geof Garabedian at (586) 731-3095 x12. No response will be made to oral questions.

EXISTING ROOF SYSTEM CONSTRUCTION: ref. Roof Plans

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions.

REPLACEMENT ROOF ASSEMBLY SUMMARY:

- Roof System: Ref. Roof Plan Schedules  
a. Roof Membrane: EPDM, 60 mil, unreinforced and fully adhered;  
b. Insulation: Min. R20, min. two layers. Top layer must be adhered.  
c. Underlayment: Modified base sheet, mechanically fasten. Reference Individual Roof Plans.  
d. Deck: Multiple types Reference individual Roof Plans.  
e. Warranty:  
1) Roof replacement: 20 yr. Materials manufacturer, No Dollar Limit materials and installation;  
2) Restoration: 2 yr No leak warranty, contractor.
- Roof System Performance: Ref. Roof Plan Schedules  
a. Wind : FM Global (FM): FM Standard 4470 Meets - Windstorm Classification FMG 90  
b. Fire: Underwriters Laboratory External Fire Resistance - Class "A".  
c. Energy: Michigan Uniform Energy Code: Insulation R-value: R20.  
d. Drainage: Drainage Performance Acknowledgement"

RESTORATION:

Ref. School Sheet(s), RepairRestoration Manuals

- Troy Union only applies to this work.  
a. Drawings of each roof area with defect locations marked on plan using 10 ft. x 10 ft.  
b. All defect to be repair by designated code number for BUR NRCA manual for TSD Restoration work as revised and amended by WeatherTech Consulting Group, Inc. for completion of restoration work:  
1) BUR Manual  
2) Thermoplastic Repair Manual  
3) Thermoset Repair Manual

GENERAL SHEET NOTES

- All work shall be executed with accordance with the appropriate document of the Contract Documents.
- Any conflicts between specifications and drawings shall be brought to the attention of the Owner and Consultant immediately. In all situations the more restrictive and higher quality shall govern.
- All dimensions to, of, and in existing building and roof shall be verified in the field by contractor. Field measure existing conditions to verify material quantities and dimensions prior to fabrication on component material.
- Details shown are typical. Similar details apply to similar conditions unless otherwise indicated.
- The drawings herein are related to an alteration/ restoration to an existing structure. The specified work was based upon as much observation, destructive testing, etc. as circumstances permitted.

GENERAL CONSTRUCTION DETAIL NOTES

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Flashing Heights: Perimeters, curbs, penetrations shall be raised as necessary to meet the new insulation heights, tapered edge strip and tapered insulation height to meet typical industry standard of 8 in. base flashing height.
- Drains Existing: Remove existing drain flashings. Furnish and install ½ inch per foot sloped tapered insulation sump area as detailed. Clean and reuse existing drains and accessories, replace all damaged, nonfunctional, incompatible, missing and broken drain components. All replacement bowls, strainers, and clamping rings shall be cast iron. All nonmetallic drains strainers shall be replaced with fitted Refer to Details 1.10 and 1.12. Overflow drains same requirements as noted above. Refer to Details 1.11 and 1.13.
- Drains New: Furnish and install new drains as indicated on drawing. New drains to tie into existing primary drain. Size to match existing up 3 in. dia. (Use 3 in. dia for bidding). Contractor to provide all drains, leaders and hook ups as necessary for fully functional drains.
- Tapered Insulation: Furnish and install new tapered insulation, crickets, saddles and kick-backs as designated on roof plan to provide a finished slope of 1/4 in/ ft slope and a min length to width ratio of 3:1. All equipment w/ curb size greater than 24 in. shall have cricket install on up slope side. Contractor responsible for identifying and notifying Consultant and Owner all existing tapered insulation not called out on plans for determination of unit costing. Verify in Pre-bid Conference additional ponded areas identified on the roof and install as noted.
- Curbs - Movable Equipment: Lift equipment from curbs; run new fully adhered membrane flashing up and over top of curb; install continuous sealing material over top of curb. Reset equipment and mechanically fasten to curb. Coordinate with Owner prior to installing equipment. Install new flashings. Metal equipment flashing and/or counter flashing must extend a minimum of 3 in. past the termination of the base flashing; add metal counter flashing as required. Refer to Details 1.17 and 1.18.
- Curbs - Non-Movable Equipment: Terminate new fully adhered membrane flashing at unit framing member. Metal equipment flashing and/or counter flashing must extend a minimum of 3 in. past the termination of the base flashing; add metal counter flashing as required. Refer to Details 1.15 and 1.16.
- Equipment on Support Curbs - Non-Movable Equipment: Cut corners of metal flashing cap, terminate new adhered membrane flashing to curb nailer. Reposition metal; install new shop fabricated corner metal, welded and set in sealant. Wire brush and apply rust inhibitive paint to rusted cap metal. Refer to Details 3.04 and 3.18.
- Equipment on Support Curbs - Movable Equipment: Raise or move equipment to furnish and install new metal cap on curb. Refer to Details 2.12.
- Round penetrations: All penetrations shall be cleaned down to surface where any sealant will contact; install new prefabricated pipe boots or field wall with membrane. Install draw band and sealant. Refer to Details 2.01, 2.02, 2.03 and 2.04.
- Heat Stacks: Reuse existing metal jacks and storm collars. Clean surfaces and apply new field wrapped EPDM flashing. Reattach and reseal storm collars. Refer to Detail 2.05.
- Steel Support Posts: Install split pipe boot or field wall flashing with membrane. Terminate with draw band and sealant. Refer to Details 2.06, 2.08, 2.09, 2.10 and 2.11.
- Prefabricated Pipe Chase Cover: Reuse existing pipe cover. Replace any damaged or missing clamping bands or sealants. Refer to Detail 3.05.
- Gas line and conduit support blocks: Reuse existing wood supports and sleepers. Install pads under all wood supports. Replace any damaged wood with matching wood or rubber support blocking. Refer to Details 2.17 and 4.04.
- Condensate Drain Lines: Reuse, repair or replace all damaged or unusable drain lines. Add additional drain line to extend minimum 4 ft from equipment or to any drains within 20 ft. Provide manufacturer's approved splash pan/pad/block where condensate drainage water would contact the roof membrane.
- Abandoned Curbs & Penetrations: Existing abandoned equipment curbs flash according to General Note C. Owner will mark all equipment to be removed and the curb capped. Remove all equipment and curbs as designated by owner and identified at the prebid conference. Where directed, remove curbs flush to deck surface, install framing and matching decking material. For abandoned curbs to remain in place, install new base flashing and install new 24 gauge sloped metal cap. Provide interior protection when removing any equipment or penetration. All small round abandoned penetrations that have no utility service as confirmed by Owner and licensed contractor shall be removed to deck patched according to deck type. Refer to Details 3.03 and 3.04.
- Pitch pans: Pitch pans can only be used when approved by Consultant. In the event they are to be used furnish and install new pitch pans, clean all penetrations down to original surface, blocking required at all pitch pans. Ref. Details 2.06 and 2.07.
- Satellite Dish Ballasted Stand: Prior to moving any satellite dish coordinate with Owner and use Owner approved communications contractor to move, reset and recalibrate satellite stand. When repositioning over the new membrane. Furnish and install new pads under satellite stand strong enough to distribute satellite weight without crushing insulation.
- Base Flashing Surface Mounted Two - Piece: Two piece is the standard for surface. Furnish and install new termination bar to match existing locations and conditions. Refer to Details 1.06 and 3.16.
- Parapet w/ Metal Cap Flashing: Furnish and install new prefinished metal coping, color as selected by Owner. For base flashings extending above 18 inches install 2-piece base and wall flashing. Ref. Details 1.05, 3.09, 3.10, 3.11 and 3.12.
- Base Flashing w/ Metal Wall Siding: Loosen and/or remove existing metal siding flashing. Install base flashing w/ term bar and sealant. Furnish and install new (or reuse functional existing) flashing metal panel and fasten siding w/ new gasketed fastener. Ref. Detail 1.09.
- Base Flashing w/ Thru-Wall Flashing: Confirm if through wall flashing has weep holes do not cover any weep holes. Reuse existing thru-wall metal flashing. Furnish and install new metal counterflashing. Repair and repoint all coping stone and mortar joints to assure watertight condition. Ref. Detail 1.07.
- Base Flashing w/ Existing Reglet: Remove existing reglet/ Furnish and install new prefinished metal coping, color as selected by Owner. Extend base flashings up and over coping. For base flashings extending above 18 inches install 2-piece base and wall flashing. Ref. Detail 1.08.
- Door Threshold: Remove threshold plate and carry flashing up over and set in water block. Before resetting threshold mechanically attach termination bar, fasten min. 6 in. o.c. Door Threshold: Remove and dispose of existing counter flashing. Roof flashing to extend up and under existing threshold plate. Furnish and install new metal counter flashing and sealant.
- Area Divider: Furnish and install new cap metal, replace damaged wood nailers. Ref. Detail 2.18. Consultant approved low profile for areas divider for separating two different types of roof systems. Ref Detail 4.13.
- Abandoned Lightning Protection: Remove all existing lightning protection cable, attachment cleats, air terminals and penetrations. Identify salvage value on bid form. Seal all holes from fasteners and lightning protection equipment left from demolition on roof top component to be left in place.
- Roof to Wall Expansion Joint: Furnish and install new metal expansion joint. Ref. Detail 3.01, 3.02 and 4.06.

- Non-Standard Roof Transitions: Contractor to provide manufacturer written approved transition shop drawings. Roof Transition: Install new metal edge at transition; install tapered edge strip to reduce ponding at edge. Run base flashings using sheet widths in vertical run. Ref. Detail 3.06.
- Overflow scupper: Furnish and install new through-wall scupper and face frame. Face frame prefinished, size and color to match existing. Ref. Detail 1.14, 4.01, 4.02 and 4.03.
- Metal Edge: Remove existing fascia/ water dam; install new 24 gauge prefinished galvanized metal edging, standard color as selected by Owner, min. 4 in. hemmed flange. Refer to Details 1.03 and 1.04.
- Roof curb building out the sides to match the roof cap base opening: Remove existing fascia/ water dam; install new 24 gauge prefinished galvanized metal edging, standard color as selected by Owner, min. 4 in. hemmed flange. Refer to Details 1.17 and 1.18.

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REPAIRS/RESTORATION MANUALS

BUR Manual
THERMOPLASTIC REPAIR MANUAL
THERMOSET REPAIR MANUAL

DRAWINGS - SEE SHEET INDEX

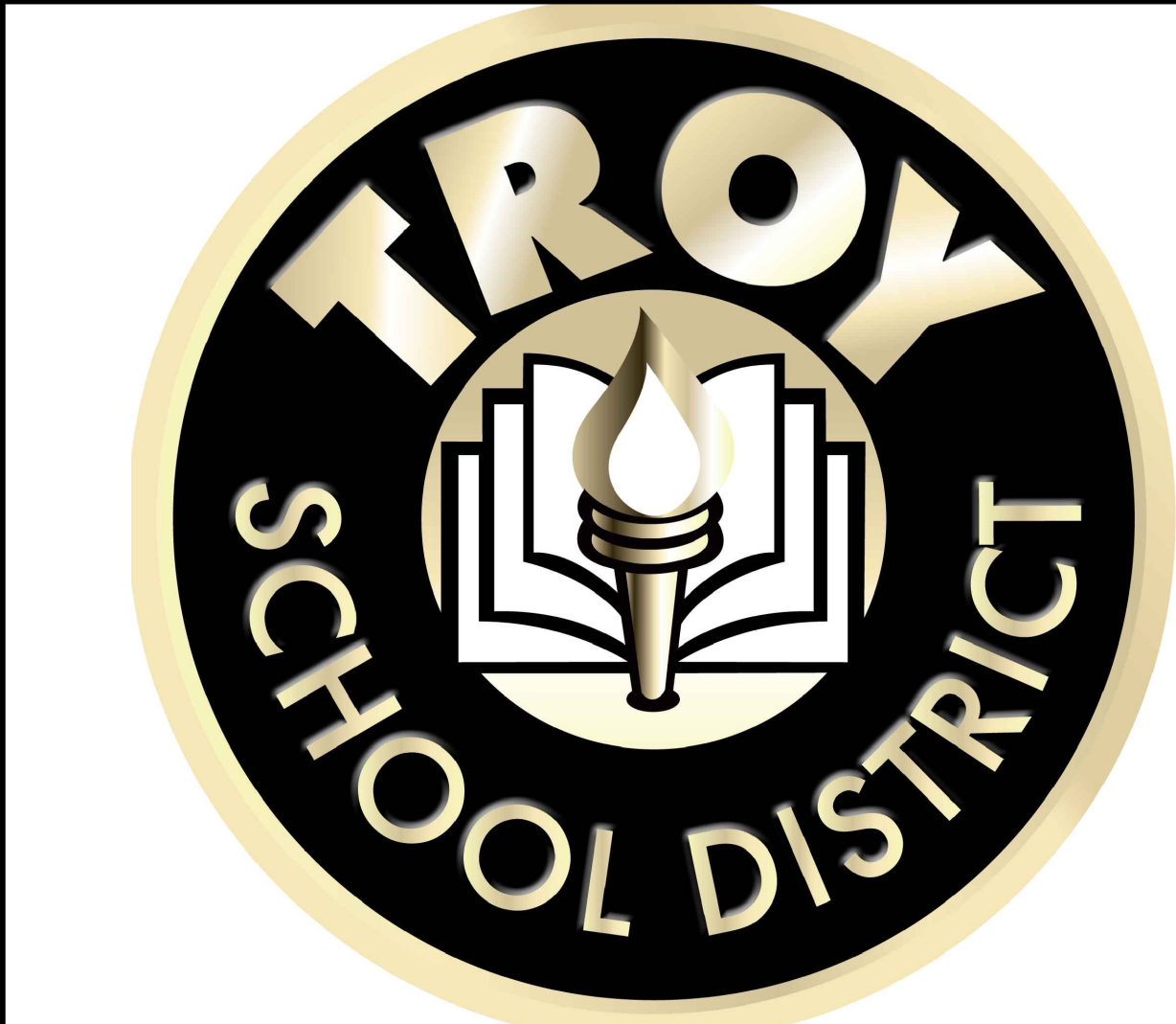
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PROJECT WORK SCHEDULE

School	Reroofing sq. ft.	Restoration sq. ft.	TSD 2018 Roof Work	Project Time Frame
Troy Athens HS	53,200		Roof Area C Roof Area A: Sec. 1, Sec 2, Sec. 6, Roof Area F: Sec. 3, Sec. 4, Roof Area I	6/18/18-8/17/18
Morse Elementary School	15,325		Roof Area C: Sec 1, 2, 3, 4	6/18/18-8/17/18
Niles Community HS	14,650		Roof Area G and H	6/18/18-8/17/18
Transportation Bldg.	1,275		Roof Area C	6/18/18-8/17/18
Troy High School	4,625		Roof Area (s) N2, P1	6/18/18-8/17/18
Troy Union Elementary School	13,100	4,400	Reroof Roof Area (s) A, B; Restoration Roof Area E	6/18/18-8/17/18
Base Bid	102,175	4,400		
Alternate Bid No. 1 Troy Athens HS	43,750		ALT. Bid Reroof Roof Area A Sec. 3, 4, 5, 6, 7, 8, 9, 10, 11	6/18/18-8/17/18
Total Roof Area (sf)	145,925	4,400		

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DIRECTORY

OWNER:  
Troy School District  
4400 Livernois  
Troy, MI 48098

CONTACT:  
Rob Carson  
Dir of Operations  
Phone: (248) 823-4067  
Email:RCarson@troy.k12.mi.us

PROJECT LOCATION:

See Project List below

Contact:  
Michelle Kern - Bond Rep  
Phone: (248) 921-3929  
Email: MKerns@troy.k12.mi.us

ROOF CONSULTANTS:  
WeatherTech Consulting Group, Inc.  
7747 Auburn Road  
Utica, Michigan 48317

CONTACT  
Geof Garabedian  
Principal/Project Manager  
Phone (586) 731-3095 ext 12  
Email: ggarabedian@wtcg.net

PROJECT LOCATIONS

Athens High School	4333 John R Rd. Troy, MI 48085
Morse Elementary School	475 Cherry Dr. Troy, MI 48083
Niles Community High School	201 Square Lake Rd, Troy, MI 48098
Transportation Building	120 Hart Dr Troy MI 48098
Troy High School	4777 Northfield Pkwy. Troy, MI 48098
Troy Union Elementary School	1340 E Square Lake Rd, Troy, MI 48085

PROFESSIONAL



WeatherTech

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WEB SITE:www.wtcg.net

CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Troy School District  
**BID NO. 9848**  
2018 Roofing Program

WTProject No:

TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/06/17	90% Review Set
11/10/17	OTB

File Name: Roof Plan

Drawn By: MD

Checked By: GG, AW, AC

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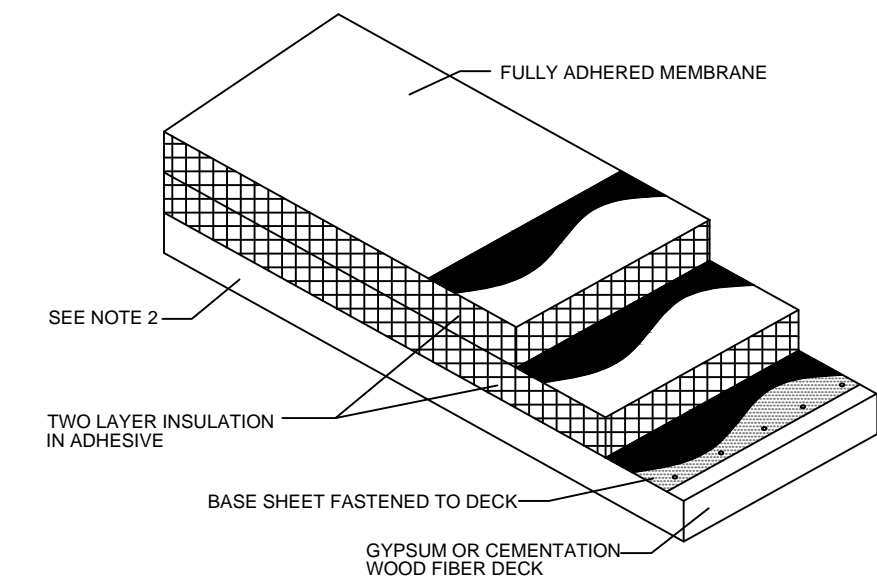
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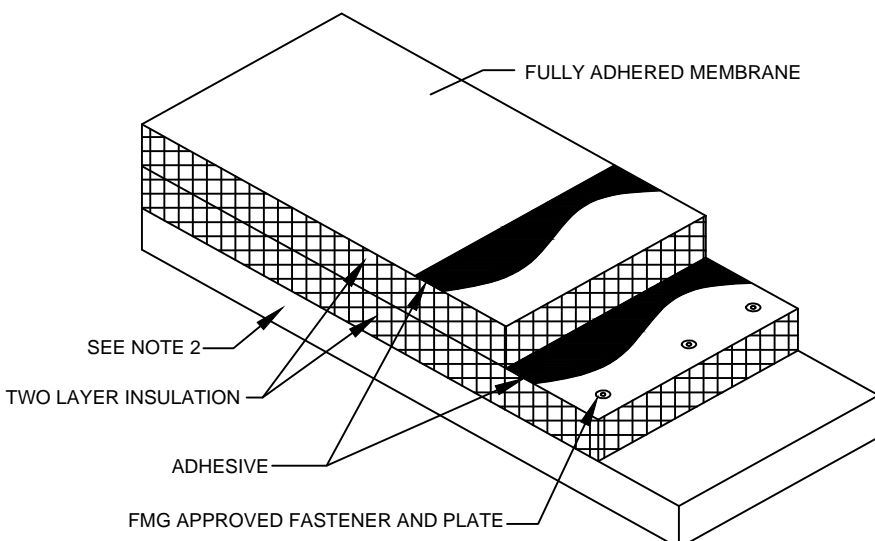


**NOTE 1:** SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.

**NOTE 2:** SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.

FULLY ADHERED EPDM SYSTEM OVER GYPSUM AND CEMENTATION WOOD FIBER DECKS  
SCALE: N.T.S.

4.14



**NOTE 1:** INSULATION MIN. TWO LAYERS, TOTAL RVALUE MIN. R 20. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.

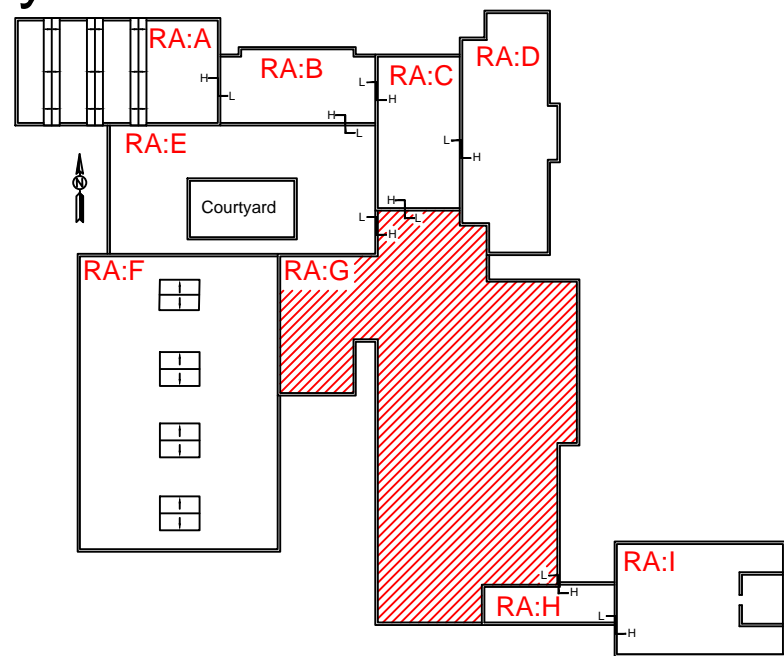
**NOTE 2:** REFERENCE ROOF PLAN SCHEDULE FOR ROOF DECK TYPE.

FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S.

1.01

Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	[H]	Roof Hatch	[ ]	Walk Way
○	Vent Stack	[S]	Skylight	[ ]	Elevation Change
⊙	Insulated Pipe	[A]	Abandoned Equipment	[ ]	Ladder
⊙	Insulated Stack/Pipe on Curb	[X] OF	Overflow Drain	[1]	Photo Indicator
●	Screen support stanchion	[X]	Drain	[01]	Key Note
■	Tube/Structural Equipment Support	[⊕]	New Drain	[ ]	Satellite Dish
■	Pitch Pan	[ ]	Overflow Scupper	[C]	Core cut
■	Equip. on Support	[ ]	Scupper	[ ]	Revision/ Addendum
■	Equip. on Sleepers/Wood Blocking	[ ]	Expansion Joint	[ ]	Roof Tile
[X]	Equipment Unit on Curb	[G-G]	Gutter	[ ]	Metal Roofing
[ ]	Duct or Flanged Equipment	[R-R]	Ridge	[ ]	Shingles
[ ]	Area Divider	[ ]	Pipe/ Conduit Attached to Parapet	[ ]	

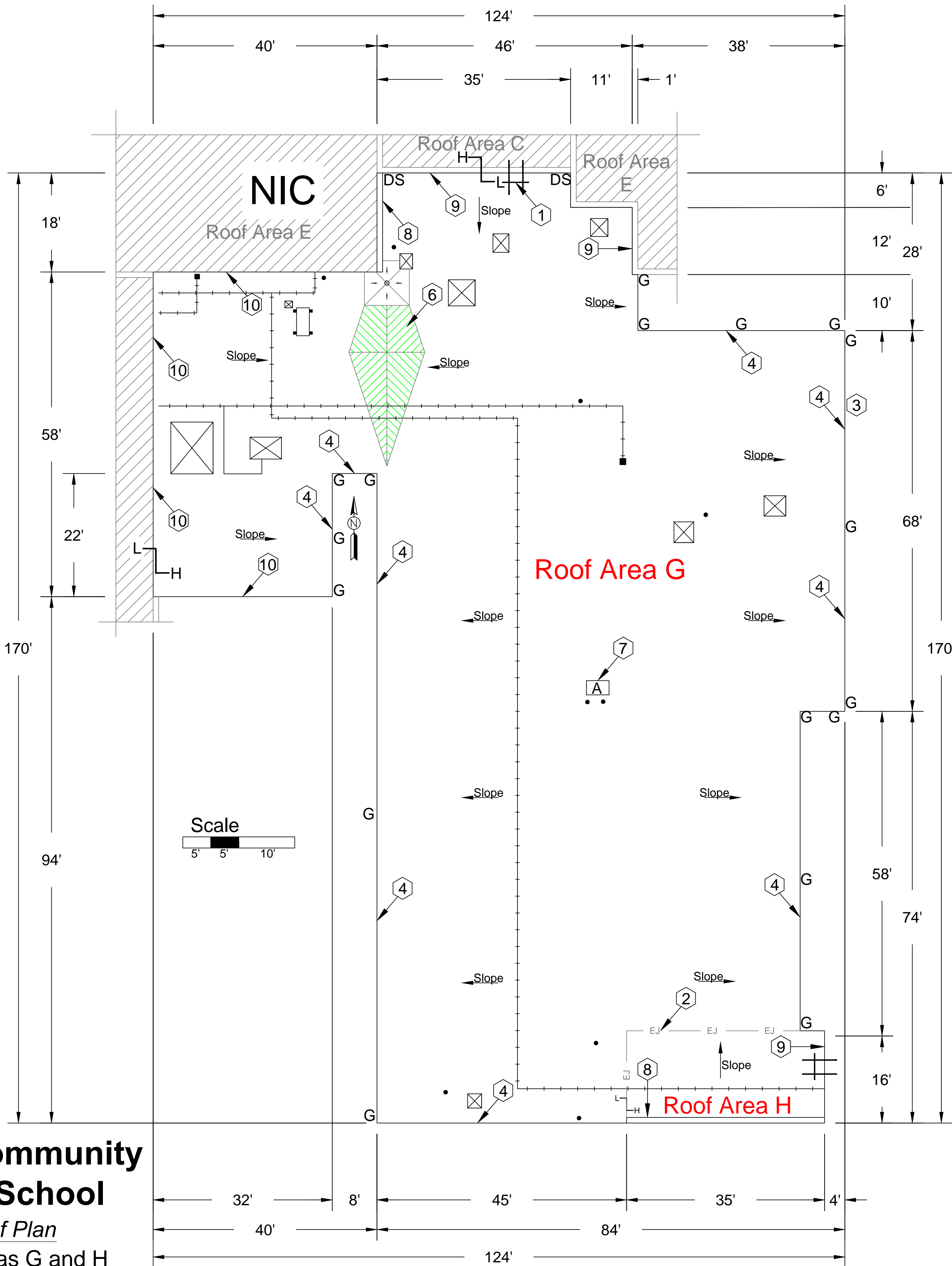
Key Plan



## Niles Community High School

### Roof Plan

Roof Areas G and H



## Niles Community High School - Troy School District

### Sheet Notes: Roof Area G and H

#### Schedule

#### WORK DESCRIPTION - ROOF REPLACEMENT

Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area G: 13,600 sq. ft. Roof Area H: 800 sq. ft.

- New Roof System: Roof Area G: Cementitious Wood Fiber Decks **Ref. Detail 4.14**; Contractor to submit FMG RoofNav approved assembly number.
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer adhered to underlayment;
    - Second insulation layer adhere to first layer of insulation;
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Underlayment: Modified Bitumen Base Sheet: Mechanically fasten to deck;
  - Deck: Cementitious wood fiber: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.
- New Roof System 1: Roof Area H: Metal Decks: **Ref Detail 1.01**
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer mechanically fasten to deck;
    - Second insulation layer adhere to first layer of insulation;
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Deck: Metal: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.
- Building Height: Ground to building edge: 20 ft.

#### EXISTING ROOF SYSTEM CONSTRUCTION

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:

#### Roof Area G: Core Sample Results: Two existing roofs in place

##### Roof System 1: Attached to deck

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane,
- Vapor Barrier: Attached to deck.
- Tapered Insulation: Exists in various locations.
- Deck: Cementitious wood fiber

##### Roof System 2: Attached to Roof System 1

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
- Insulation:
  - First insulation layer Approx. 1.5 in. polyisocyanurate insulation;
  - Second insulation layer ½ in. wood fiber insulation.
- Tapered Insulation: Exists in various locations.

#### Roof Area H: Core Sample

##### Roof System 1:

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
- Insulation:
  - First insulation layer Approx. 2.0 in. polyisocyanurate insulation;
  - Second insulation layer ½ in. wood fiber insulation.
- Tapered Insulation: Exists in various locations.
- Deck: Metal

#### Warranty/Guarantee

- Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.

- Allowances: Add to base bid \$14,000 for allowances covering Unit Price and contingency items.

#### General Construction Details: Ref A1.0

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

#### Key Notes:

All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Ladders: Furnish and install new ladder to access. New wall mounted ladder meeting OSHA standards. Pads installed at top and bottom of ladders. **Ref. Photo 3922.**
- Expansion Joint: Roof Transition G to H, **Ref Photo BF1.** Furnish and install in plane Expansion Joint (Cementitious wood fiber to Metal) or step down detail for drainage.
- Vegetation: Trim back all vegetation growing over the roof. Trim back so no vegetation hangs over roof. **Ref. Photo DV1.**
- Gutters: Furnish and install in gutters: **Ref Photos EM5, 3919.** Contractor to confirm all downspout locations and splash blocks.
- Roof Area C: Furnish and install new splash blocks. **Ref. Photo 3922.**
- Tapered insulation: Furnish and install new tapered insulation as detailed on plan. **Ref. Photo 3893.**
- Abandoned Curb: Check interior if exposed otherwise remove dispose and reroof **Ref. Photo 3894.**
- Metal Cap: Furnish and install new metal cap. **Ref. Photo BF3.**
- Masonry Reglet: Reuse cut in metal receiver or one piece reglet/receiver, furnish and install new two-piece counter flashing over new base flashing. **Ref. Photo 3919.**
- Raised Perimeter Edge: Furnish and install new metal edge detail. **Ref Photo 3926.**

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Troy, MI 48098

## PROJECT:

Niles Community High School

201 Square Lake Rd,

Troy, MI 48098

Troy School District

BID NO. 9848

2018 Roofing Program

WTProject No:

TSD-R102-18

## ISSUE

DATE	DESCRIPTION
10/28/17	50% Review Set
11/08/17	90% Review Set
11/10/17	OTB

File Name: Roof Plan

Drawn By: MD

Checked By: AW, GG, AC

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## SHEET TITLE

Niles Community High School,  
Roof Areas G&H  
Roof Plan

# A4.0

Sheet 12 of 23





3922



BF1



DV1



EM5



3919



3893



3894



BF3



3926

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File Name: Photo Page

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High School  
Photo Page

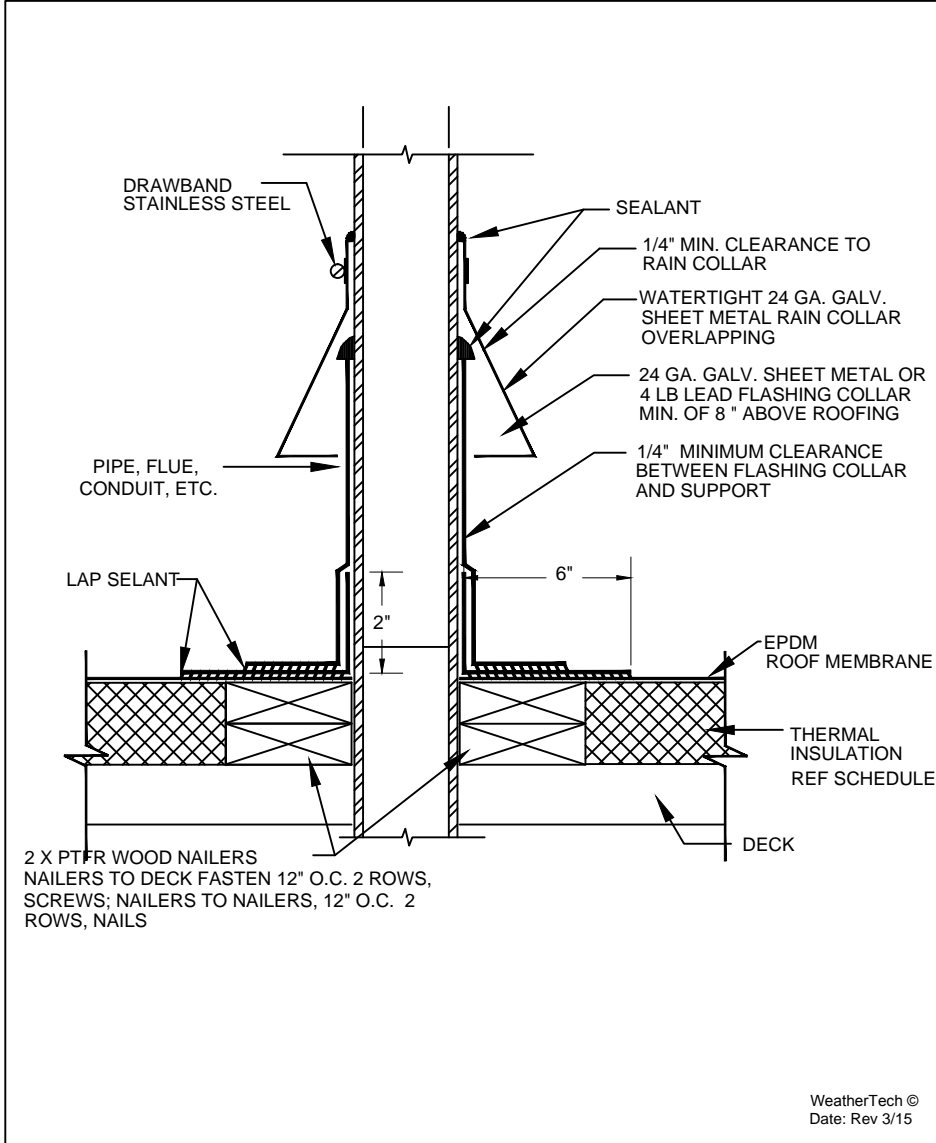
A4.1



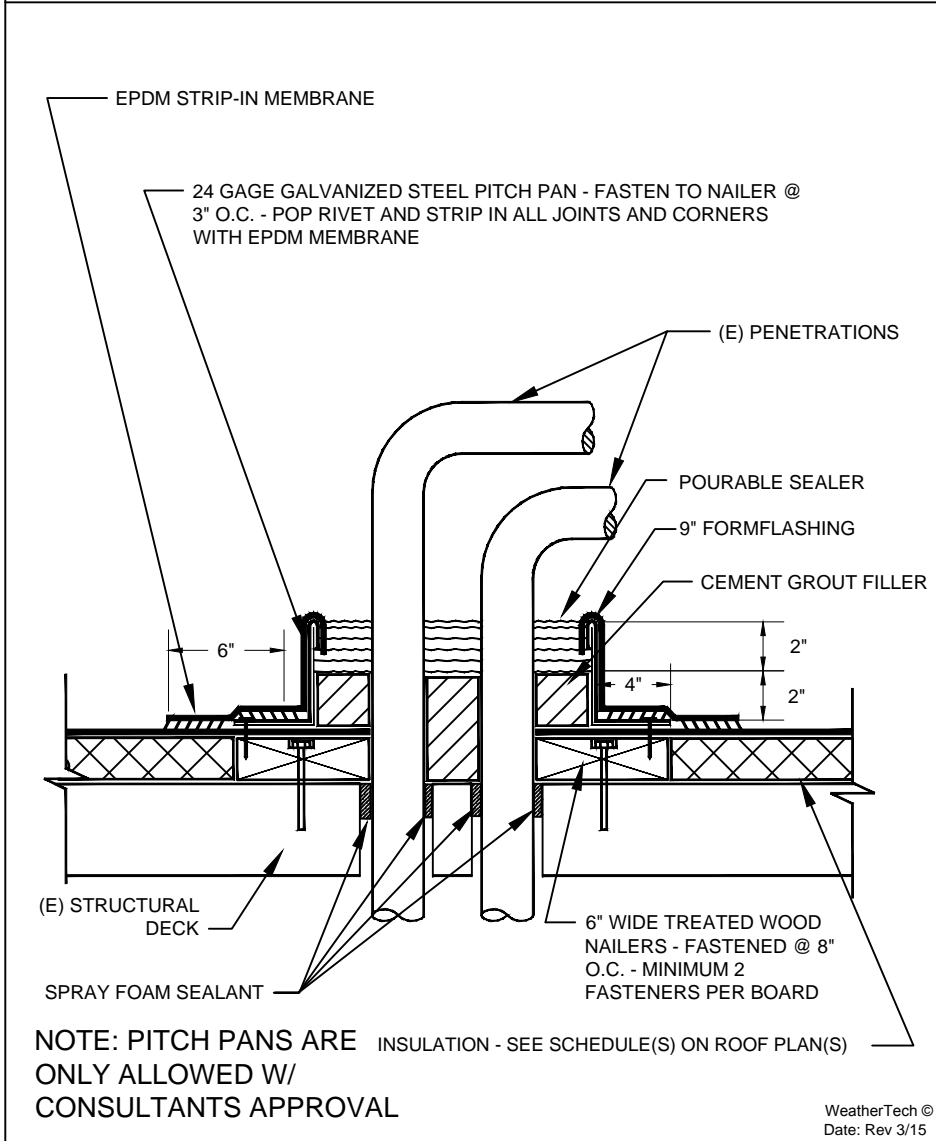
<p>SEE NOTE 2</p> <p>TWO LAYER INSULATION</p> <p>ADHESIVE</p> <p>FMG APPROVED FASTENER AND PLATE</p> <p>NAILABLE DECK</p> <p><b>NOTE:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.</p> <p><b>NOTE 2:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>SEE NOTE 2</p> <p>TWO LAYER INSULATION IN ADHESIVE</p> <p>NON NAILABLE DECK</p> <p><b>NOTE 1:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.</p> <p><b>NOTE 2:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>24 GAGE PREFINISHED GALVANIZED STEEL FASCIA COVER</p> <p>22 GAGE GALVANIZED STEEL CANT-DAM WITH CONTINUOUS CLEAT - FASTEN 6" O.C. WITH RING SHANK ROOFING NAILS</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - RUN FLASHING OVER CANT DAM AND DOWN ONTO CLEAT AS SHOWN</p> <p>6" SEAM TAPE</p> <p>EPDM MEMBRANE FULLY ADHERED</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>NEW 6" WIDE TREATED WOOD BLOCKING TO MATCH HEIGHT OF ROOF INSULATION - FASTEN @ 12" O.C.</p> <p>FIELD CRIMP PER</p> <p>(E) EXTERIOR WALL</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>22 GAGE GALVANIZED STEEL CONTINUOUS CLEAT FASTENED 6" O.C. WITH RING SHANK ROOFING NAILS</p> <p>TREATED WOOD 2X BLOCKING ATTACHED TO PARAPET WITH APPROPRIATE FASTENERS @ 12" O.C. - SLOPE TOWARDS ROOF AT A RATE OF 1/4" PER FOOT</p> <p>24 GAGE PREFINISHED GALVANIZED STEEL COPING WITH 1" HIGH STANDING SEAM JOINTS</p> <p>#12 STAINLESS STEEL SCREWS WITH EPDM BACKED S.S. WASHERS @ 18" O.C. MAX.</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF PARAPET</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>NEW 2x6 TREATED WOOD BLOCKING TO MATCH HIGHEST POINT IN TAPERED INSULATION ASSEMBLY - FASTEN @ 6" O.C.</p> <p>(E) EXTERIOR WALL</p> <p>APPROVED SEALANT</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>22 GAGE GALVANIZED STEEL CONTINUOUS CLEAT FASTENED 6" O.C. WITH RING SHANK ROOFING NAILS</p> <p>TREATED WOOD 2X BLOCKING ATTACHED TO PARAPET WITH APPROPRIATE FASTENERS @ 12" O.C. - SLOPE TOWARDS ROOF AT A RATE OF 1/4" PER FOOT</p> <p>24 GAGE PREFINISHED GALVANIZED STEEL COPING WITH 1" HIGH STANDING SEAM JOINTS</p> <p>#12 STAINLESS STEEL SCREWS WITH EPDM BACKED S.S. WASHERS @ 18" O.C. MAX.</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF PARAPET</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>FASTENER AND PLATE 12" (300 mm) O.C. MAXIMUM</p> <p>PARAPET WALL</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>(E) WALL ASSEMBLY</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>22 GA GAL RECEIVER STAINLESS STEEL FASTENERS WITH EPDM BACKED S.S. WASHERS @ 8" O.C. MINIMUM</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>24 GA GAL COUNTER FLASHING STAINLESS STEEL FASTENERS WITH EPDM BACKED S.S. WASHERS @ 8" O.C. MINIMUM</p> <p>EPDM FLASHING MEMBRANE ADHERED W/ BONDING ADHESIVE</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>WeatherTech © Date: Rev 3/15</p>
<p>FULLY ADHERED EPDM SYSTEM NAILABLE DECK SCALE: N.T.S.</p> <p>1.01</p>	<p>FULLY ADHERED EPDM SYSTEM NON-NAILABLE DECK SCALE: N.T.S.</p> <p>1.02</p>	<p>CANT-DAM WITH FASCIA COVER SCALE: N.T.S.</p> <p>1.03</p>	<p>RAISED EDGE FLASHING SCALE: N.T.S.</p> <p>1.04</p>	<p>PARAPET WITH METAL COPING SCALE: N.T.S.</p> <p>1.05</p>	<p>2-PIECE SURFACE MOUNT METAL FLASHING SCALE: N.T.S.</p> <p>1.06</p>
<p>(E) WALL ASSEMBLY</p> <p>(E) THRU-WALL METAL COUNTERFLASHING</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>METAL COUNTERFLASHING INTO EXISTING RECEIVER - SEE NOTE 1</p> <p>EPDM FLASHING MEMBRANE ADHERED W/ BONDING ADHESIVE</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p><b>NOTE 1:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL, 26 GAGE STAINLESS STEEL OR 16 O.Z. COLD ROLLED COPPER AND SHALL MATCH EXISTING TYPE OF THROUGH-WALL REGLET METAL. SECURE NEW COUNTERFLASHING TO EXISTING REGLET WITH POP RIVETS OF SAME TYPE OF METAL @ 12" O.C. MAX.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>NEW OR EXISTING SAW-CUT REGLET</p> <p>LEAD WEDGES @ 12" O.C. MAX.</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>METAL COUNTERFLASHING INTO EXISTING RECEIVER - SEE NOTE 1</p> <p>EPDM FLASHING MEMBRANE ADHERED W/ BONDING ADHESIVE</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p><b>NOTE 1:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL OR PREFINISHED STEEL, 26 GAGE STAINLESS STEEL OR 16 O.Z. COLD ROLLED COPPER. SEE SCHEDULE(S) ON THE ROOF PLAN(S) FOR SPECIFIC REQUIREMENTS FOR EACH ROOF AREA.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>(E) WALL ASSEMBLY</p> <p>(E) METAL SIDING - SEE NOTE 2</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>METAL COUNTERFLASHING - SLIP UP AND BEHIND BASE OF SIDING - SEE NOTE 1</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p><b>NOTE 1:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL OR PREFINISHED STEEL, 26 GAGE STAINLESS STEEL OR .032" (MINIMUM) MILL FINISHED ALUMINUM. SEE SCHEDULE(S) ON ROOF PLAN(S) FOR SPECIFIC REQUIREMENTS FOR EACH ROOF AREA.</p> <p><b>NOTE 2:</b> LOOSEN BOTTOM OF SIDING TO FACILITATE INSTALLATION OF NEW COUNTERFLASHING. RESecure SIDING WITH GROMMETTED SCREWS AS INDICATED.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>(E) DRAIN STRAINER - REPLACE IF MISSING OR BROKEN</p> <p>(E) CLAMPING RING BOLTS - REPLACE IF MISSING OR DAMAGED DURING REMOVAL</p> <p>(E) CLAMPING RING - REMOVE ALL BITUMINOUS MATERIALS - REPLACE IF MISSING OR BROKEN DURING REMOVAL</p> <p>TAPERED INSULATION - MINIMUM 3/4" PER FOOT TAPER</p> <p>12"</p> <p>1" MIN</p> <p>(E) STRUCTURAL DECK</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>EPDM ROOF MEMBRANE</p> <p>MANUFACTURER APPROVED SEALANT - MINIMUM ONE TUBE PER DRAIN</p> <p>(E) DRAIN PIPING</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>THERMAL INSULATION</p> <p>CENTER LINE DRAIN</p> <p>72"</p> <p>24" min.</p> <p>24"</p> <p>OVERFLOW COLLAR</p> <p>DECK</p> <p>EPDM MEMBRANE AND FLASHING</p> <p>ROOF DRAIN</p> <p>LEADER</p> <p>TAPERED EDGE STRIP</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>DRAIN</p> <p>SLOPE</p> <p>TAPERED INSULATION</p> <p>RECEIVER DRAIN</p> <p>SLOPE</p> <p>TAPER. INSUL.</p> <p>SLOPE</p> <p>TAPERED INSULATION</p> <p>96"</p> <p>96"</p> <p>WeatherTech © Date: Rev 3/15</p>
<p>BASE FLASHING W/ THRU WALL COUNTERFLASHING SCALE: N.T.S.</p> <p>1.07</p>	<p>BASE FLASHING W/ CUT-IN REGLET@ MASONRY WALL SCALE: N.T.S.</p> <p>1.08</p>	<p>BASE FLASHING AT METAL SIDING SCALE: N.T.S.</p> <p>1.09</p>	<p>DRAIN FLASHING SCALE: N.T.S.</p> <p>1.10</p>	<p>ROOF/OVERFLOW DRAIN SCALE: N.T.S.</p> <p>1.11</p>	<p>DRAIN SUMP-A SCALE: N.T.S.</p> <p>1.12</p>
<p>DRAIN</p> <p>120"</p> <p>TAPERED INSULATION</p> <p>SLOPE</p> <p>24" min.</p> <p>72"</p> <p>FLAT</p> <p>TAPER. INSUL.</p> <p>SLOPE</p> <p>24"</p> <p>TAPERED INSULATION</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>EPDM FLASHING</p> <p>EPDM STRIP-IN FLASHING</p> <p>APPROVED SEALANT</p> <p>24 GAGE T GALVANIZED STEEL SCUPPER - FASTEN 4" O.C. STAGGERED WITH RING SHANK ROOFING NAILS - SEE NOTE 2</p> <p>EPDM STRIP-IN FLASHING</p> <p>EPDM MEMBRANE</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>NEW 6" WIDE TREATED WOOD BLOCKING TO MATCH HEIGHT OF ROOF INSULATION - FASTEN @ 12" O.C.</p> <p>(E) EXTERIOR WALL</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>SEALING MATERIAL</p> <p>ROOFTOP EQUIPMENT FRAME</p> <p>GASKETED FASTENERS MIN. TWO FASTENERS PER SIDE</p> <p>REMOVABLE SHEET-METAL COUNTERFLASHING</p> <p>ADHERED MEMBRANE FLASHING</p> <p>BONDING ADHESIVE</p> <p>PREMOLDED CORNER</p> <p>EPDM MEMBRANE</p> <p>SEALANT (IF REQUIRED FOR THE SPECIFIC CURB)</p> <p>SEAM PLATES AND FASTENERS</p> <p>TAPERED CANT</p> <p>THERMAL INSULATION</p> <p>SEE SCHEDULE</p> <p>STRUCTURAL DECK</p> <p>OPTION:</p> <p>MECHANICAL UNIT, HOOD, ETC.</p> <p>BASE OF UNIT EXTENDS 1/2" MINIMUM BEYOND TOP OF CURB</p> <p>MINIMUM 1/2" BELOW TOP OF CURB</p> <p>FLASHING RECEIVER</p> <p>FASTENERS</p> <p>COUNTERFLASHING</p> <p>FLASHING MEMBRANE</p> <p>WOOD CURB</p> <p><b>NOTES:</b></p> <p>1. THE CURB, TOP WOOD NAILER AND SEAL STRIP ARE TO BE SUPPLIED BY THE CURB MANUFACTURER.</p> <p>2. WHEN POSSIBLE, THE MECHANICAL UNITS SHOULD NOT BE SET UNTIL THE ROOF MEMBRANE AND FLASHING HAVE BEEN INSTALLED.</p> <p>3. WHERE THE SKYLIGHT, SCUTTLE OR SMOKE VENT FRAME OVERLAPS THE BASE FLASHING AT LEAST 1 INCHES, THE REMOVABLE SHEET-METAL COUNTERFLASHING IS NOT REQUIRED.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>(E) NON-REMOVABLE UNIT</p> <p>POLYURETHANE SEALANT</p> <p>#12 STAINLESS STEEL SCREWS WITH EPDM BACKED S.S. WASHERS @ 12" O.C.</p> <p>METAL COUNTERFLASHING - SEE NOTES 1 AND 2</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - TUCK FLASHING UP AND BEHIND BOTTOM OF UNIT SKIRT</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>(E) CURB</p> <p><b>NOTE 1:</b> WHEN BASE OF UNIT PROVIDES LESS THAN 4" COVERAGE OVER TOP OF FLASHING, INSTALL SEPARATE COUNTERFLASHING AS SHOWN.</p> <p><b>NOTE 2:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL, 24 GAGE PREFINISHED GALVANIZED STEEL, .032" MILL FINISHED ALUMINUM OR 26 GAGE STAINLESS STEEL. SEE SCHEDULE(S) ON THE ROOF PLAN(S) FOR SPECIFIC TYPE OF METAL REQUIRED IN EACH ROOF AREA.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>(E) SHEET METAL GUTTER AND DOWNSPOUTS</p> <p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>BASE OF WALL OR CURB</p> <p>SELF-FLASHING UNIT</p> <p>1-1/2" x 1/2" NEOPRENE FOAM SEALING STRIP</p> <p>ADDITIONAL WOOD BLOCKING IF REQUIRED TO ACHIEVE MINIMUM 8" FLASHING HEIGHT</p> <p>#12 WOOD SCREWS @ 12" O.C.</p> <p>FASTEN FLASHING 8" O.C. WITH ROOFING NAILS</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF CURB</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>(E) CURB</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>BASE OF WALL OR CURB</p> <p>1-1/2" x 1/2" NEOPRENE FOAM SEALING STRIP</p> <p>TREATED WOOD BLOCKING TO RAISE CURB TO 8" ABOVE THE ROOF SURFACE (IF REQUIRED)</p> <p>#12 WOOD SCREWS @ 12" O.C.</p> <p>FASTEN VENTILATOR BASE TO CURB WITH #12 STAINLESS STEEL FASTENERS WITH EPDM BACKED S.S. WASHERS @ 18" O.C. - MINIMUM 1 PER SIDE</p> <p>FASTEN FLASHING 8" O.C. WITH ROOFING NAILS</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF CURB</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>(E) CURB</p> <p>WeatherTech © Date: Rev 3/15</p>
<p>DRAIN SUMP-A SCALE: N.T.S.</p> <p>1.13</p>	<p>THRU-WALL OVERFLOW SCUPPER SCALE: N.T.S.</p> <p>1.14</p>	<p>NON REMOVABLE PREFABRICATED METAL CURB SCALE: N.T.S.</p> <p>1.15</p>	<p>NON REMOVABLE UNIT CURB FLASHING SCALE: N.T.S.</p> <p>1.16</p>	<p>REMOVABLE UNIT CURB FLASHING SCALE: N.T.S.</p> <p>1.17</p>	<p>REMOVABLE VENTILATOR CURB FLASHING SCALE: N.T.S.</p> <p>1.18</p>

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11/08/17	90% Review Set
11/10/17	OTB

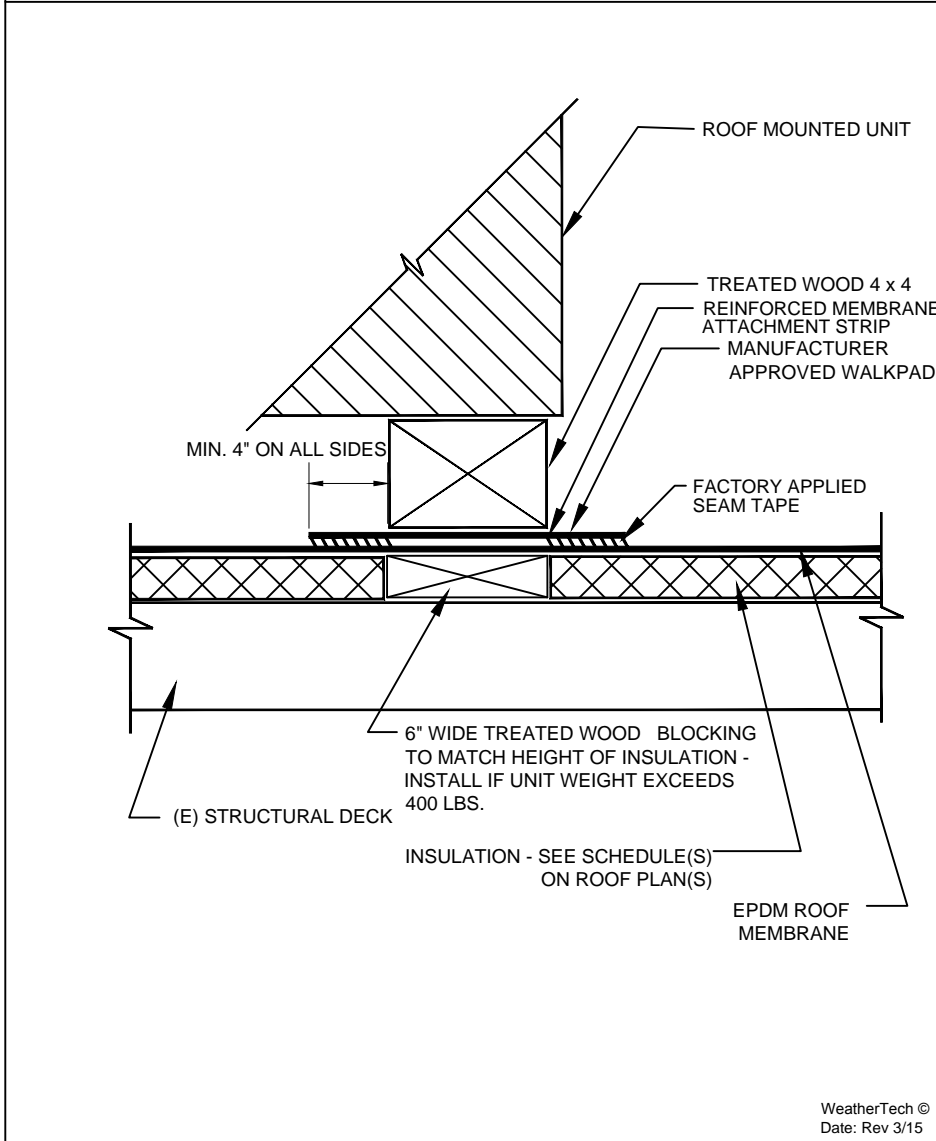




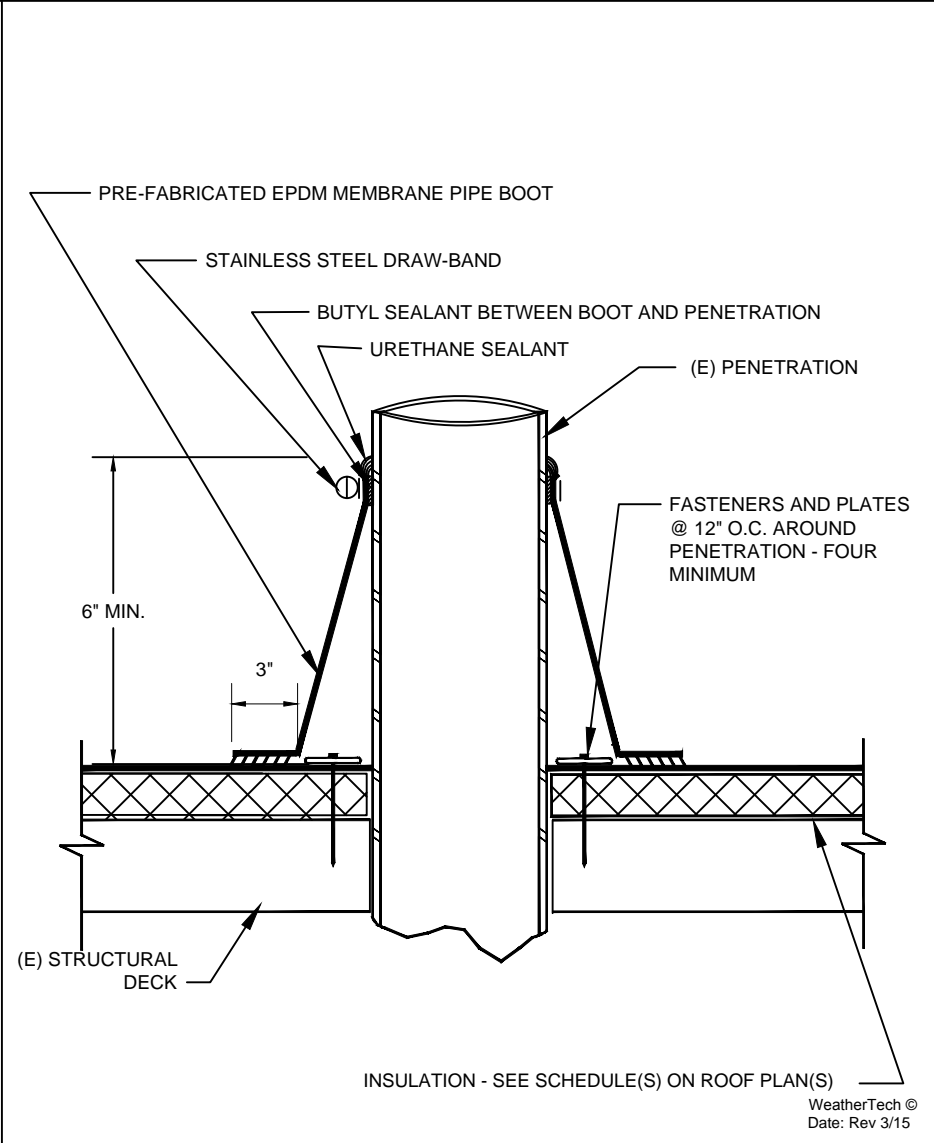
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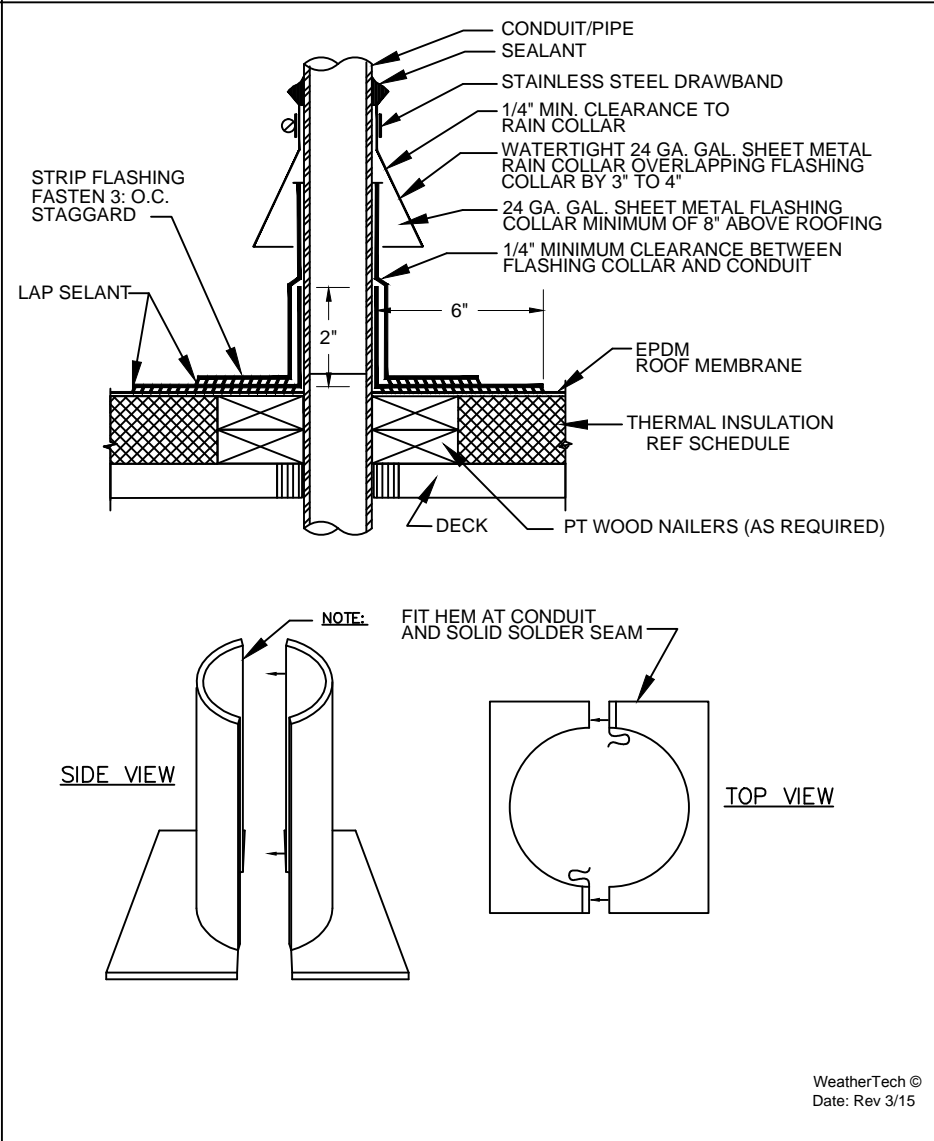
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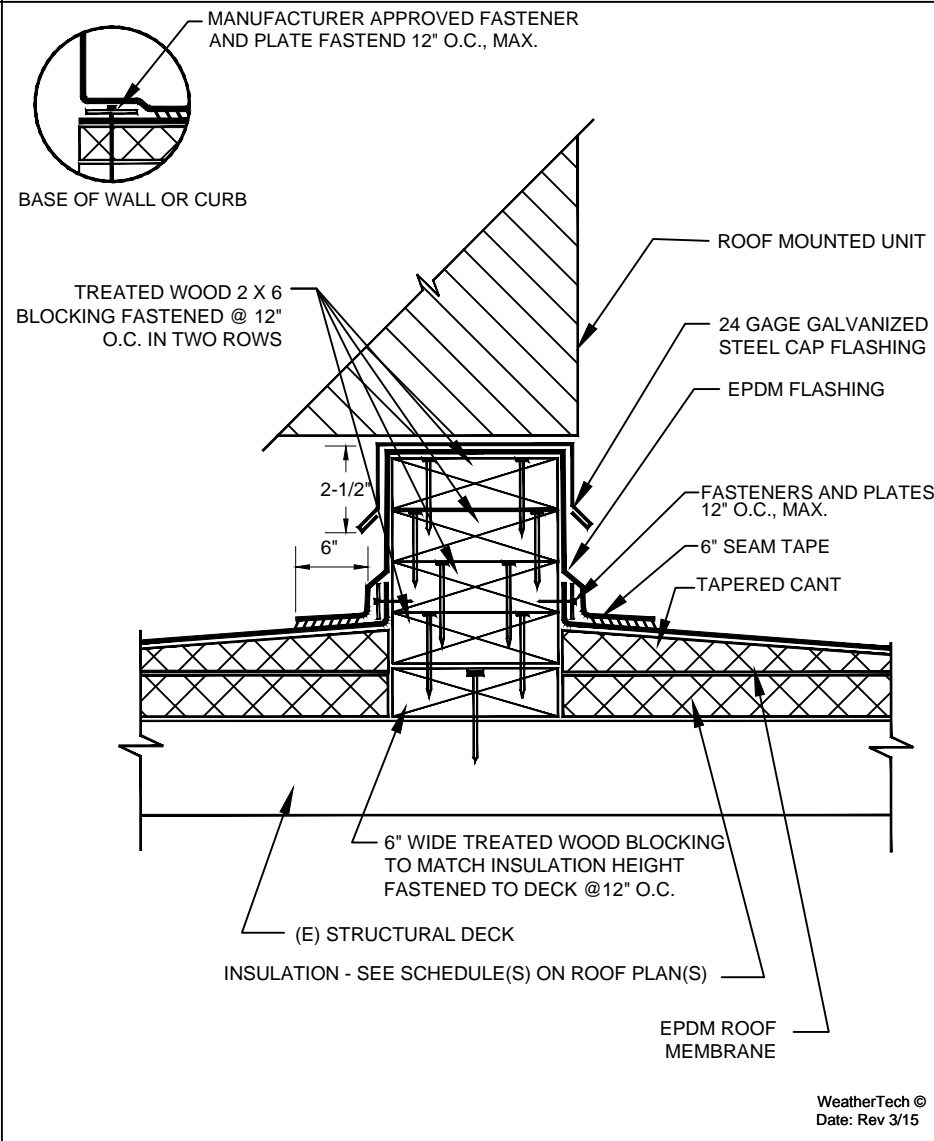
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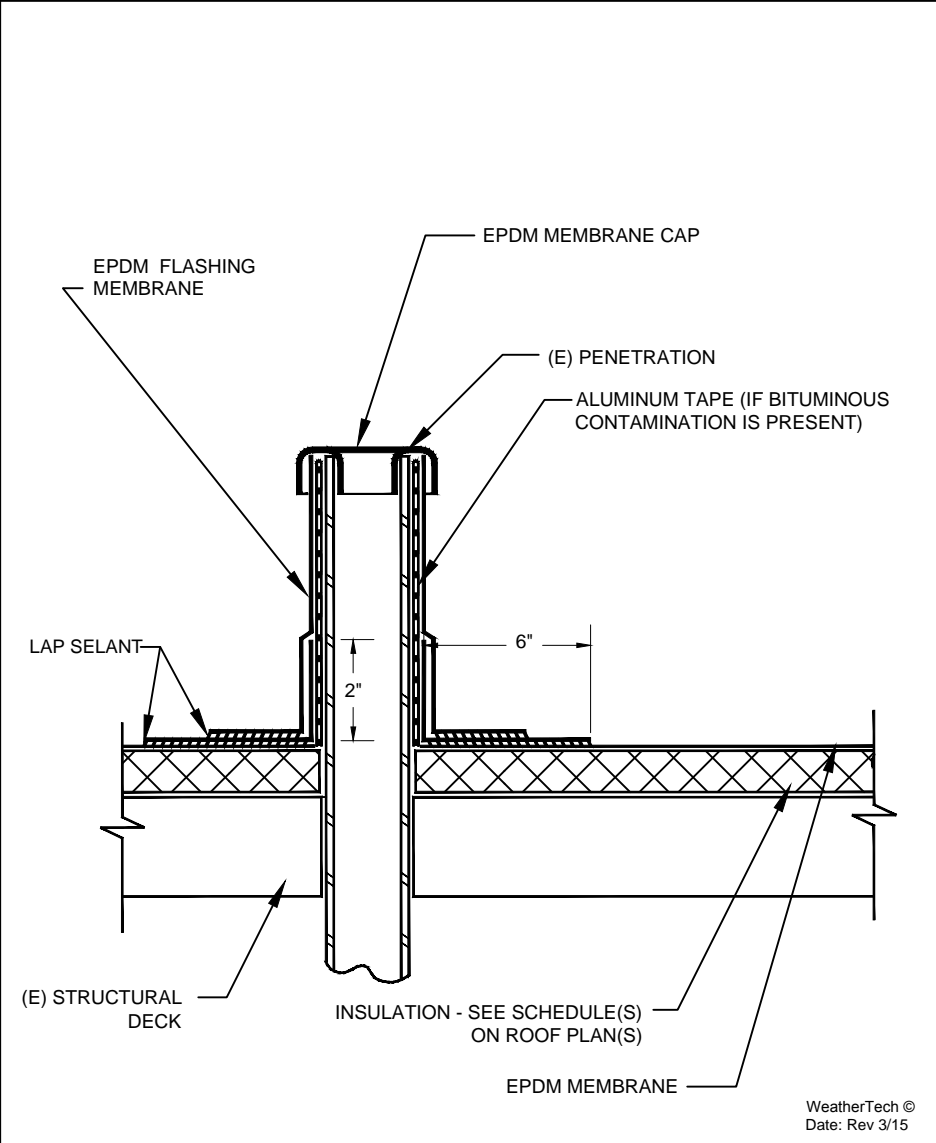
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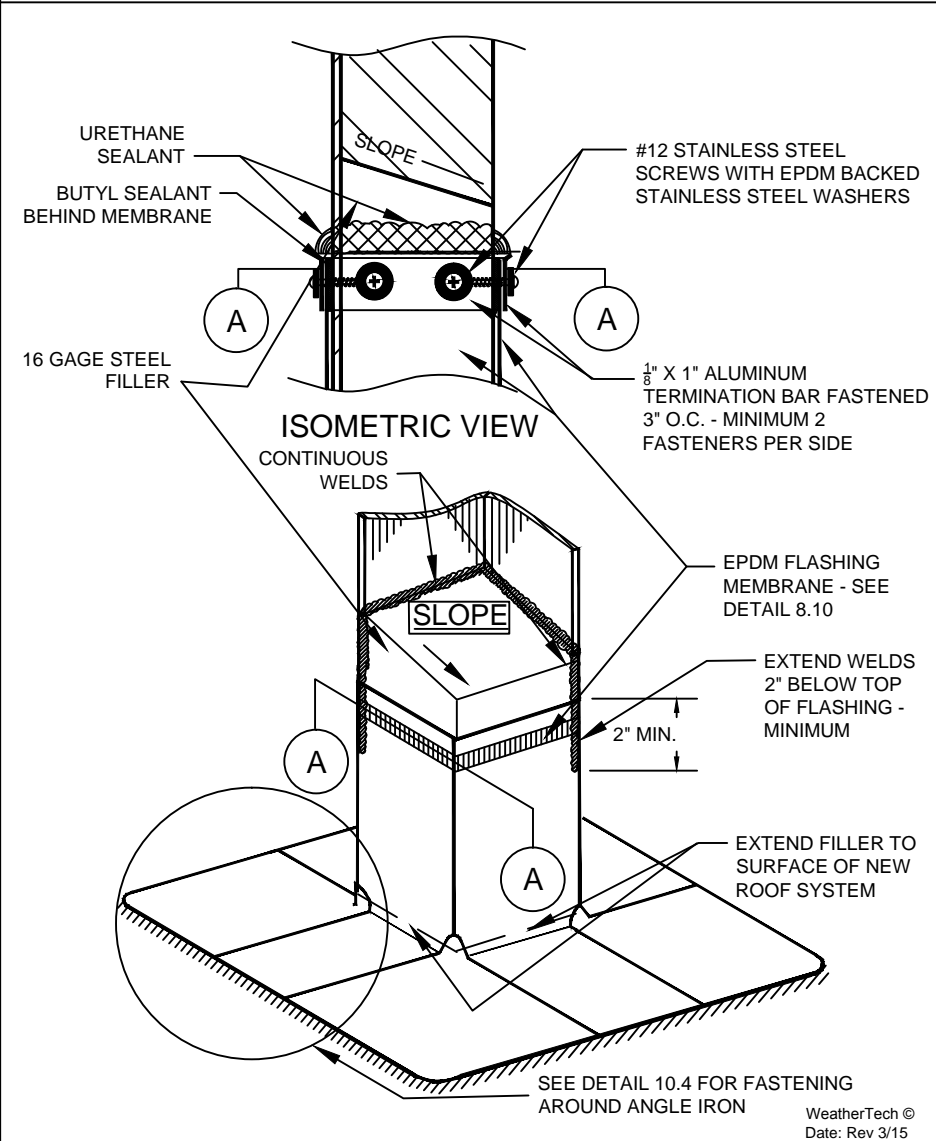
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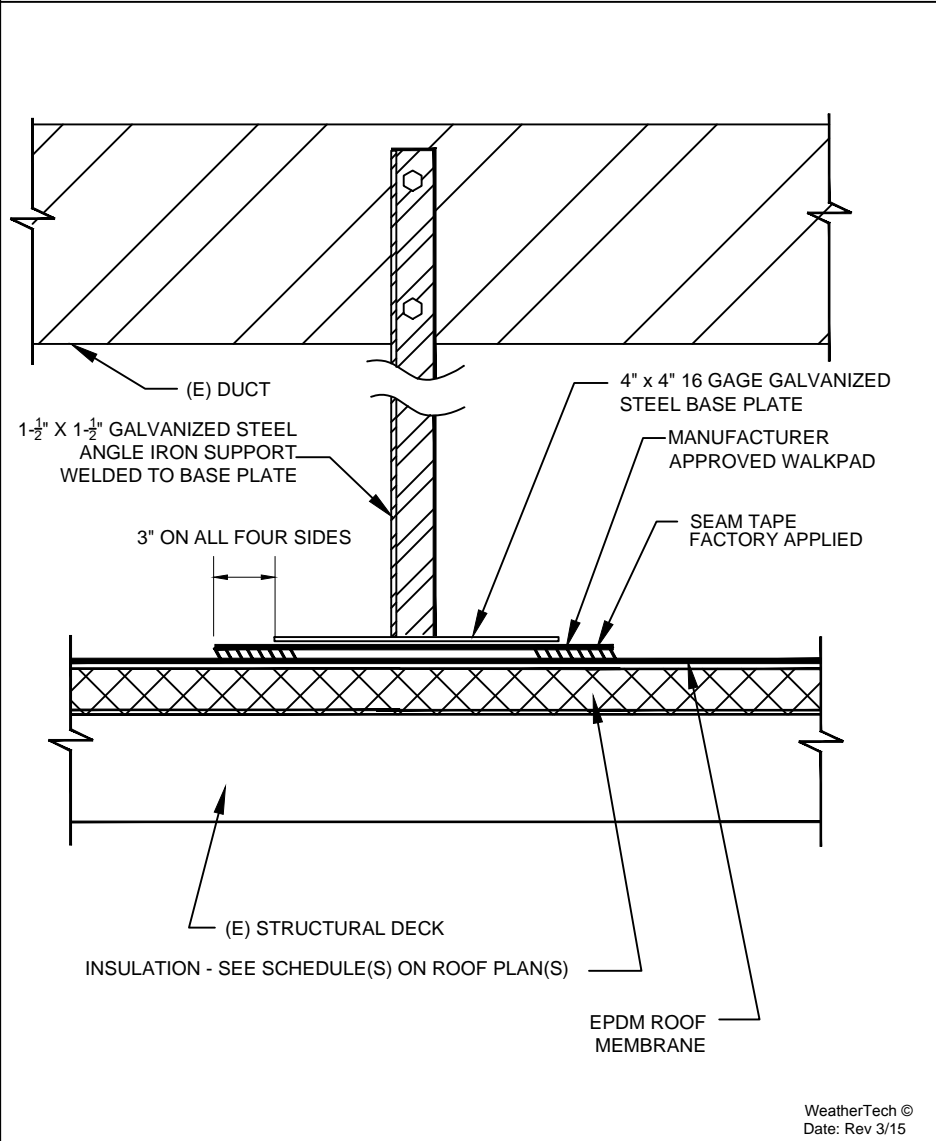
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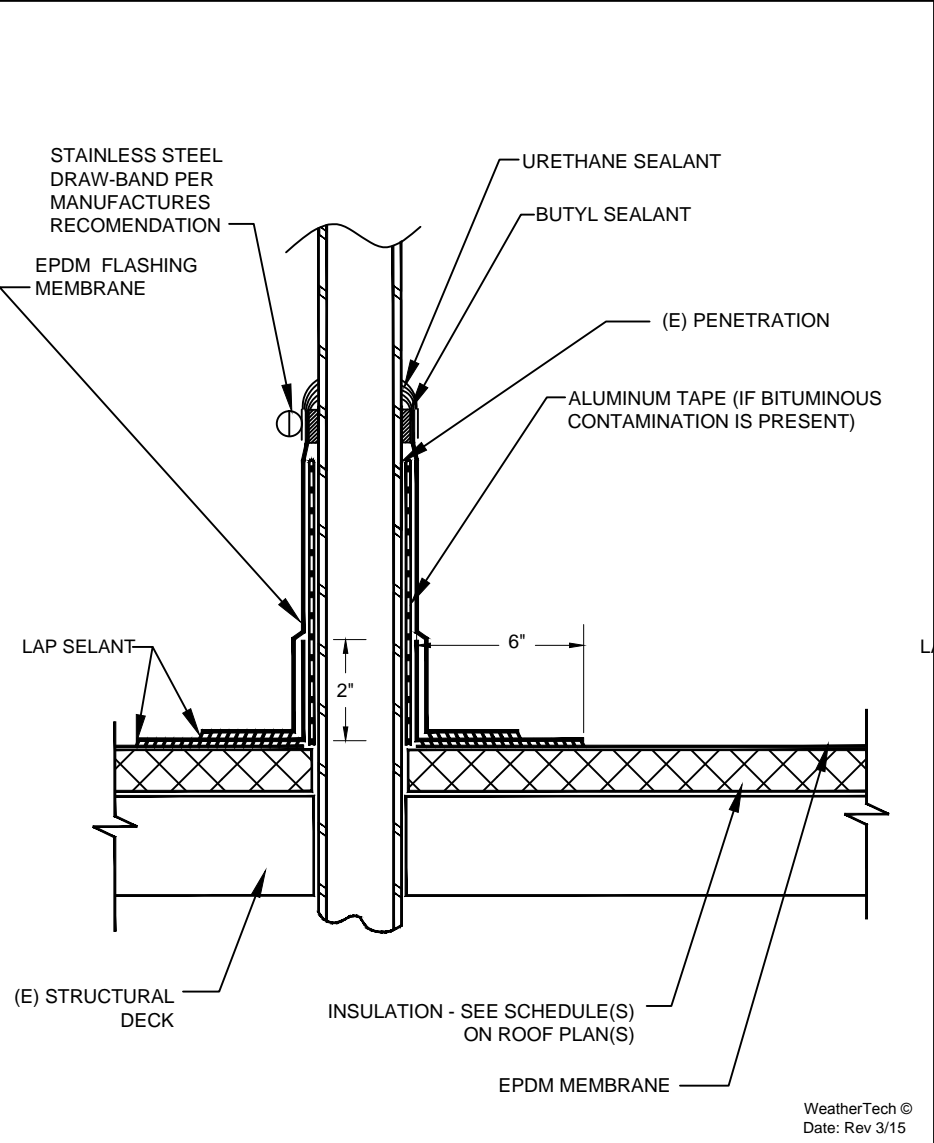
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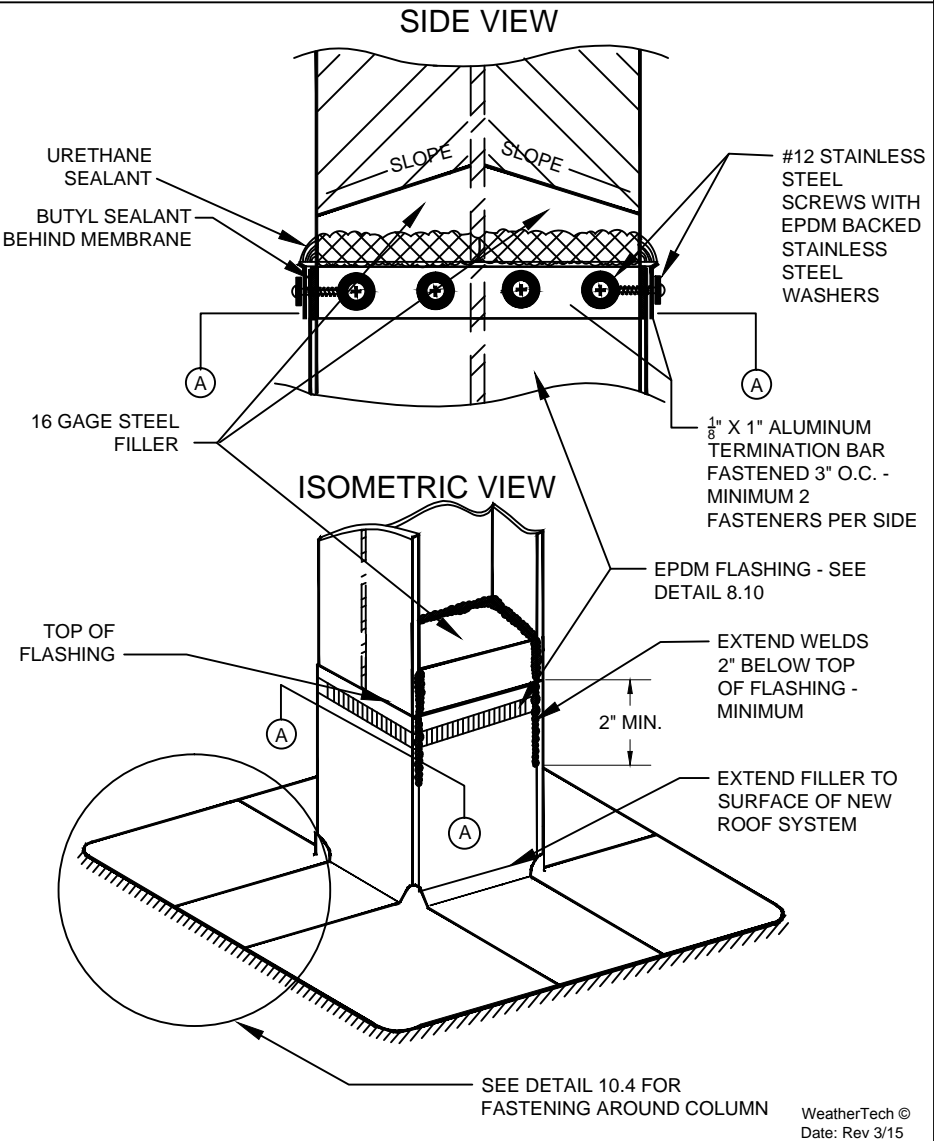
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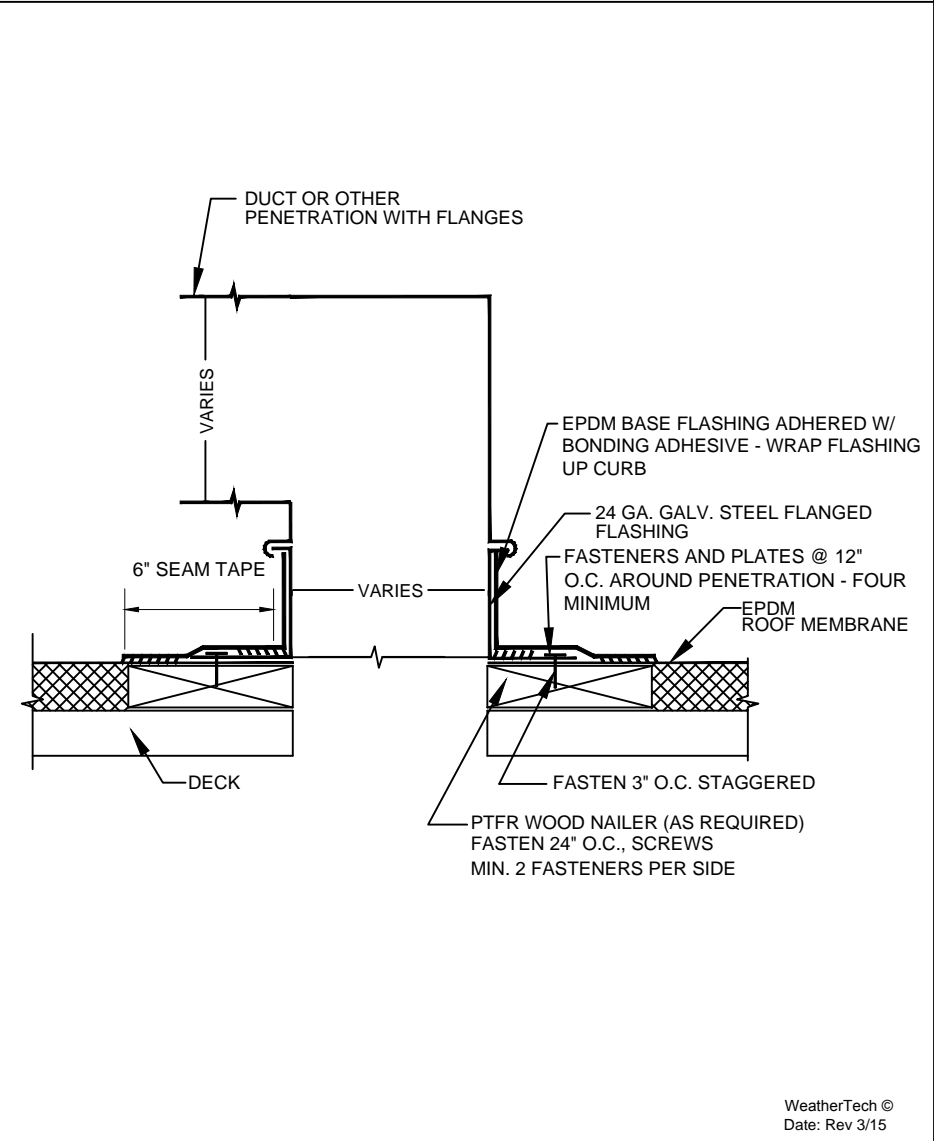
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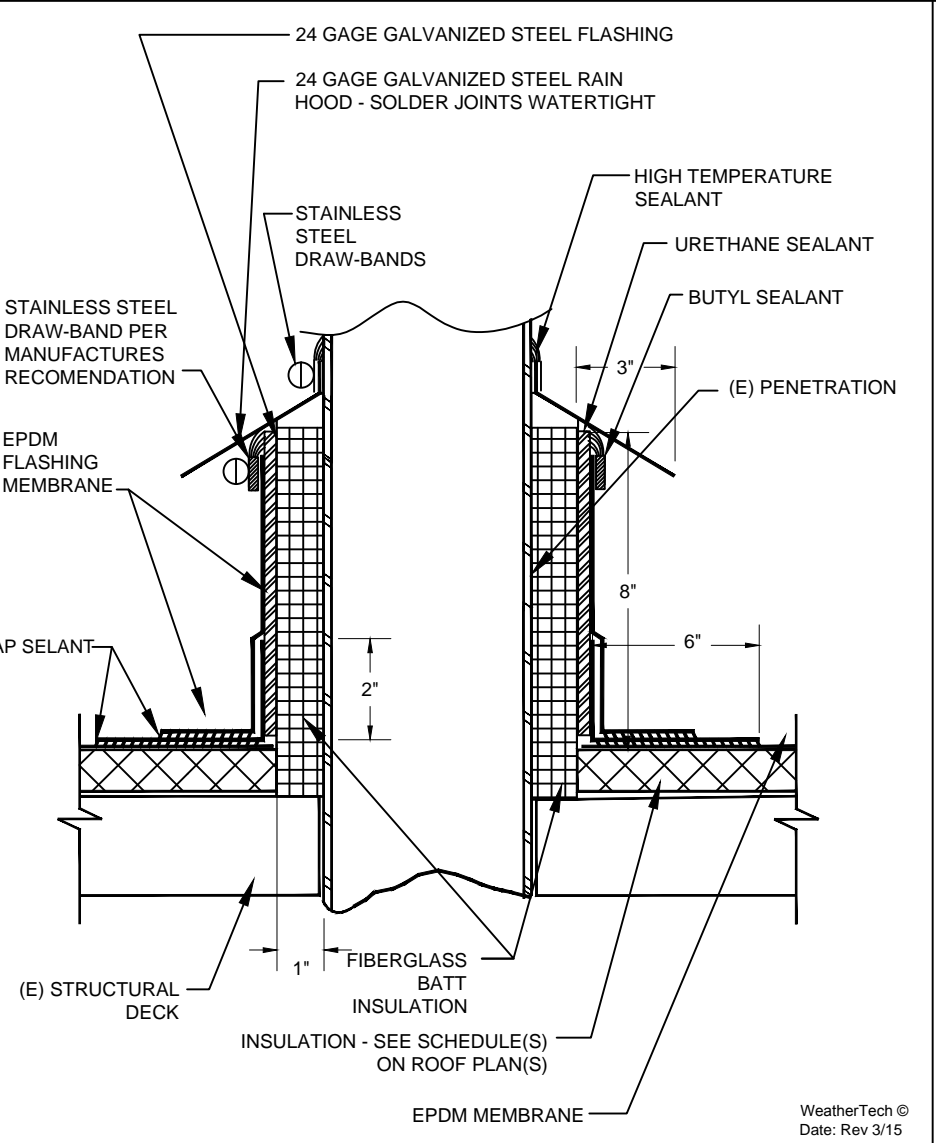
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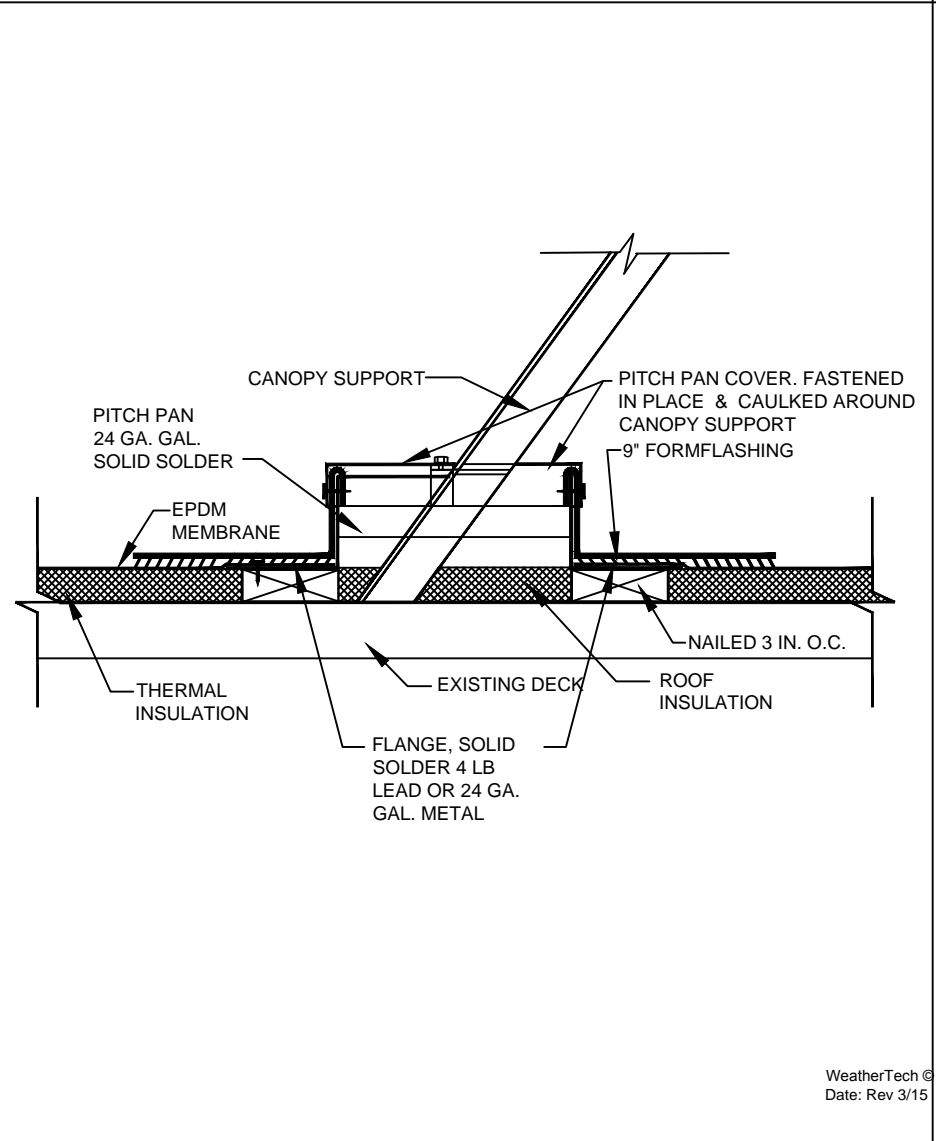
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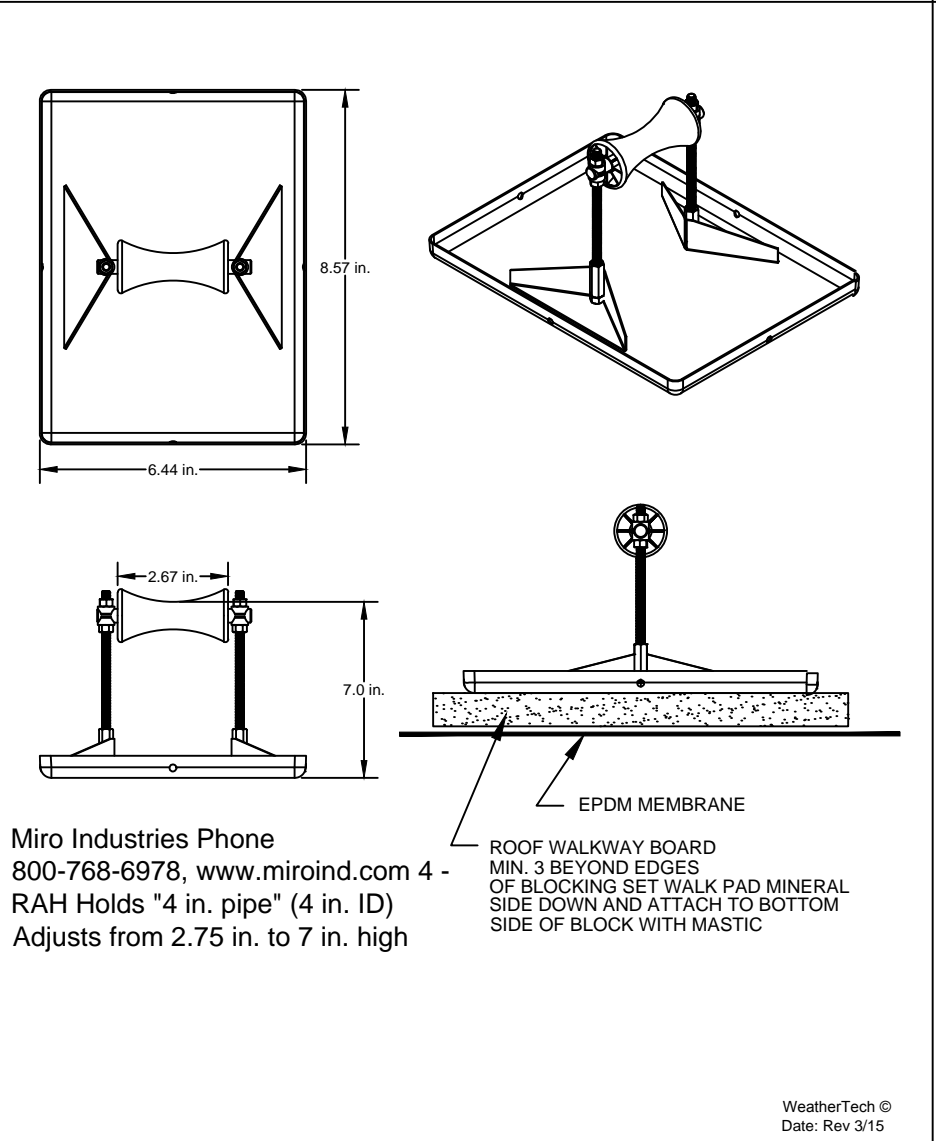
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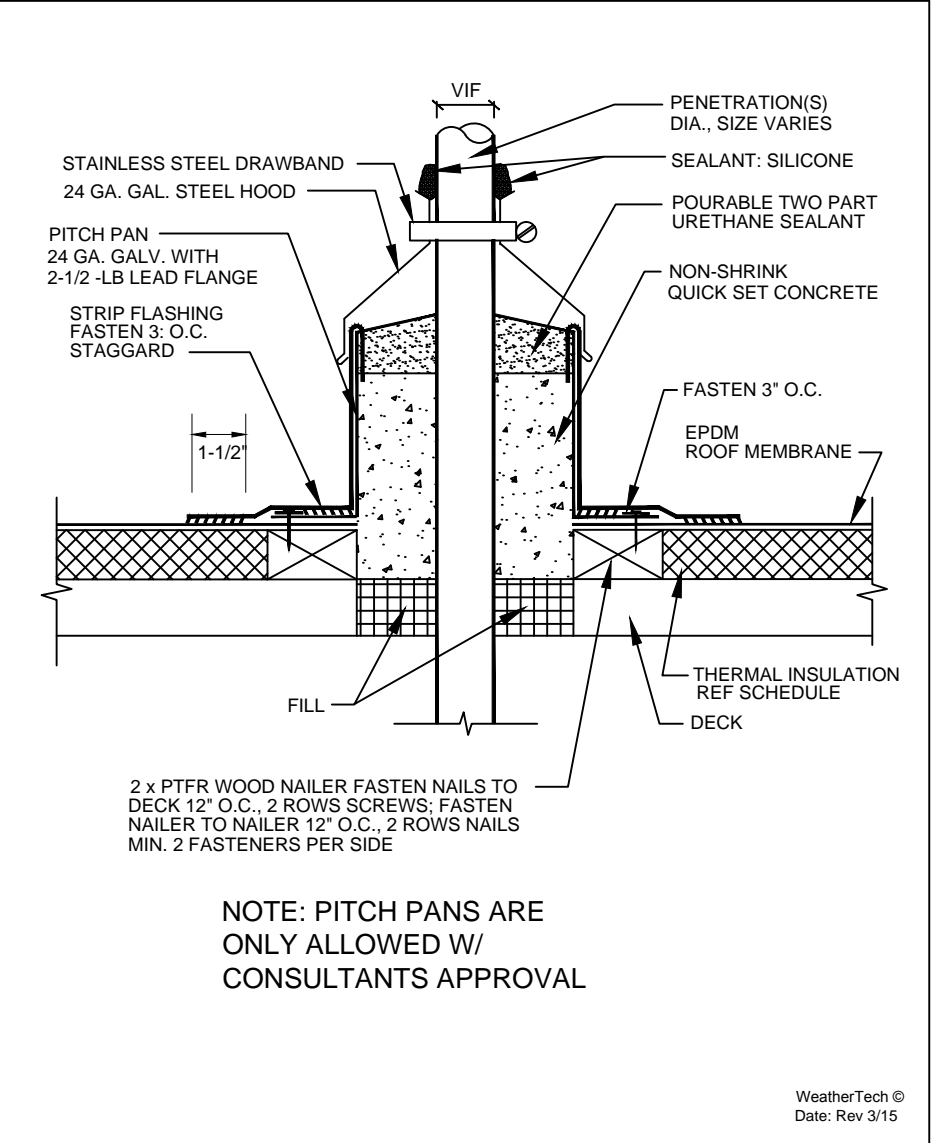
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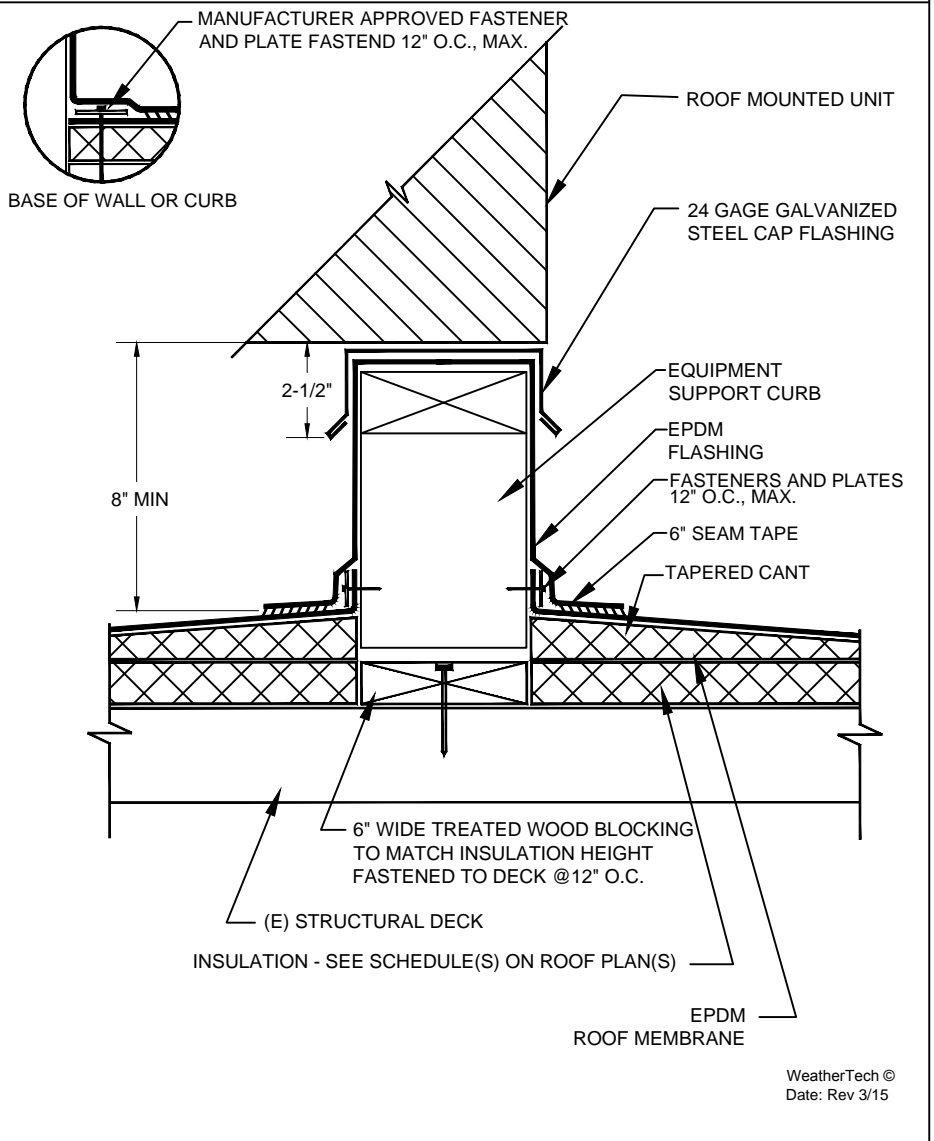
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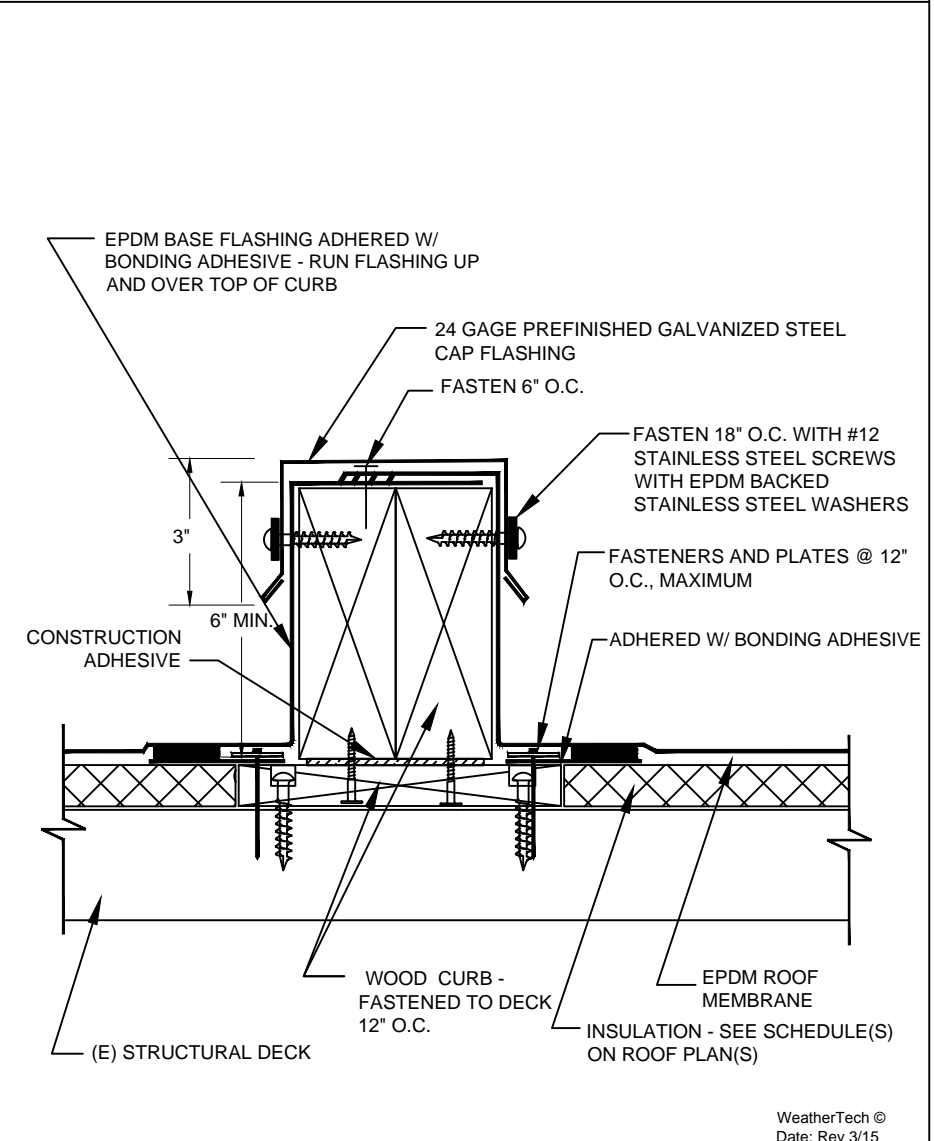
FLANGED DUCTS  
SCALE: N.T.S.



AREA DIVIDER/CONTROL JOINT  
SCALE: N.T.S.



AREA DIVIDER/CONTROL JOINT  
SCALE: N.T.S.



AREA DIVIDER/CONTROL JOINT  
SCALE: N.T.S.

PROFESSIONAL



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PROJECT:

Troy School District  
**BID 9848**  
2018 Roofing Program

WTPProject No:  
TSR-102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/08/17	90% Review Set
11/10/17	OTB

File Name: A8.0 - Detail Page

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SHEET TITLE

Detail Page

A8.1





WeatherTech

Roofing/Waterproofing Consultants  
Consulting Group, Inc.

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WEB SITE: [www.wtcg.net](http://www.wtcg.net)

CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Troy School District  
**BID 9848**  
2018 Roofing Program

WTPProject No:  
TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/08/17	90% Review Set
11/10/17	OTB

File Name: A8.0 - Detail Page

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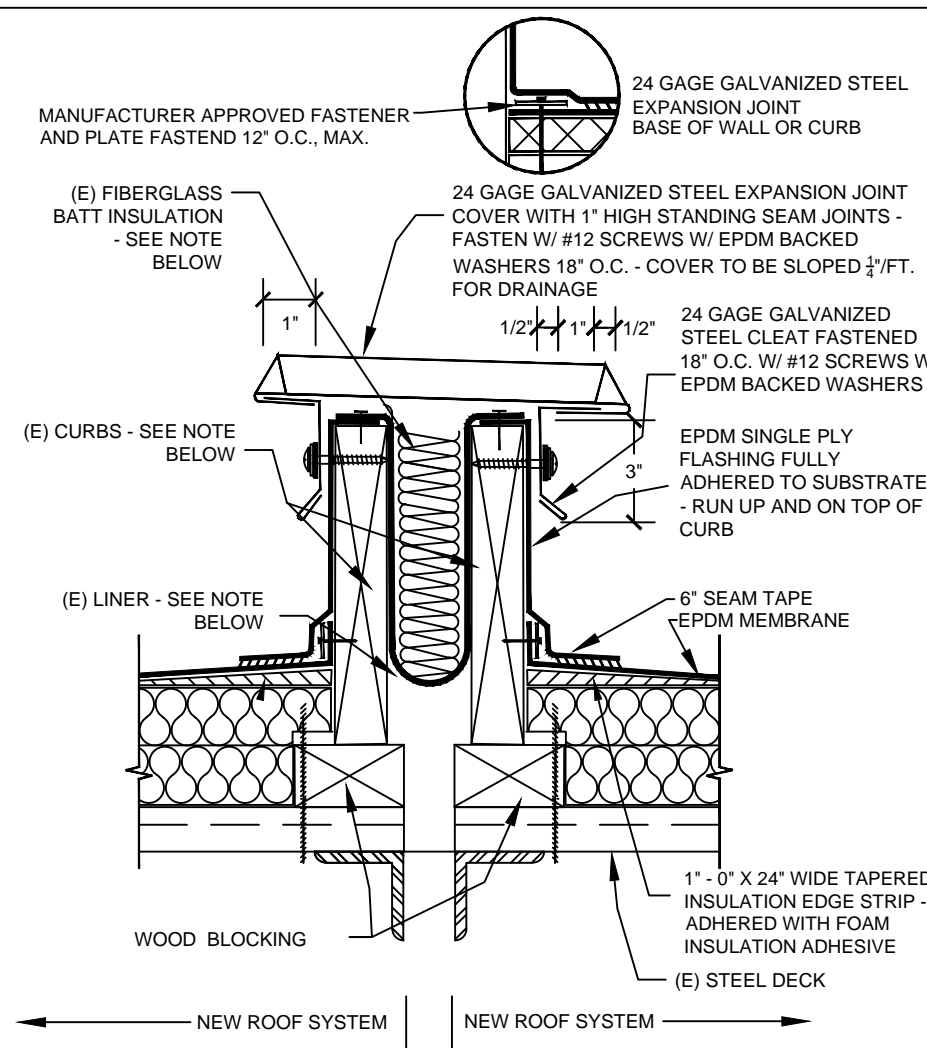
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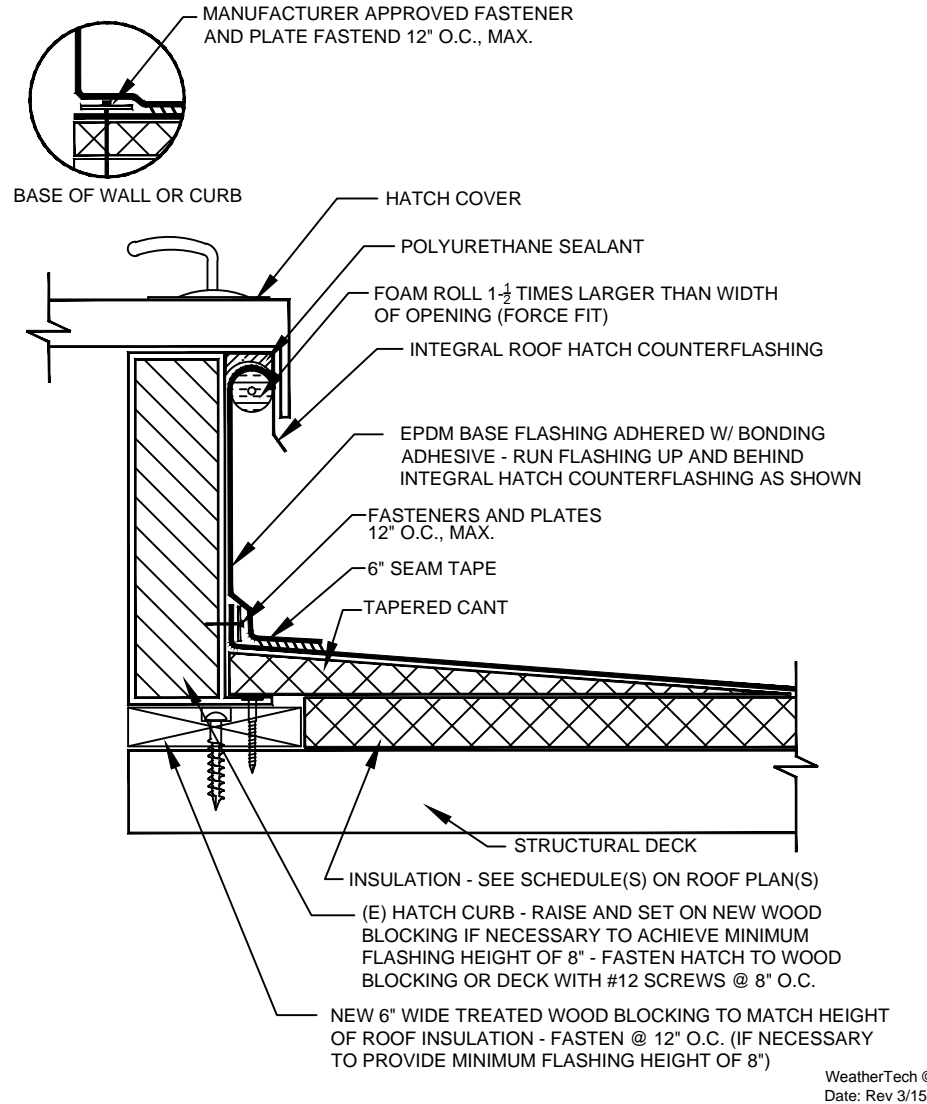
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A8.2

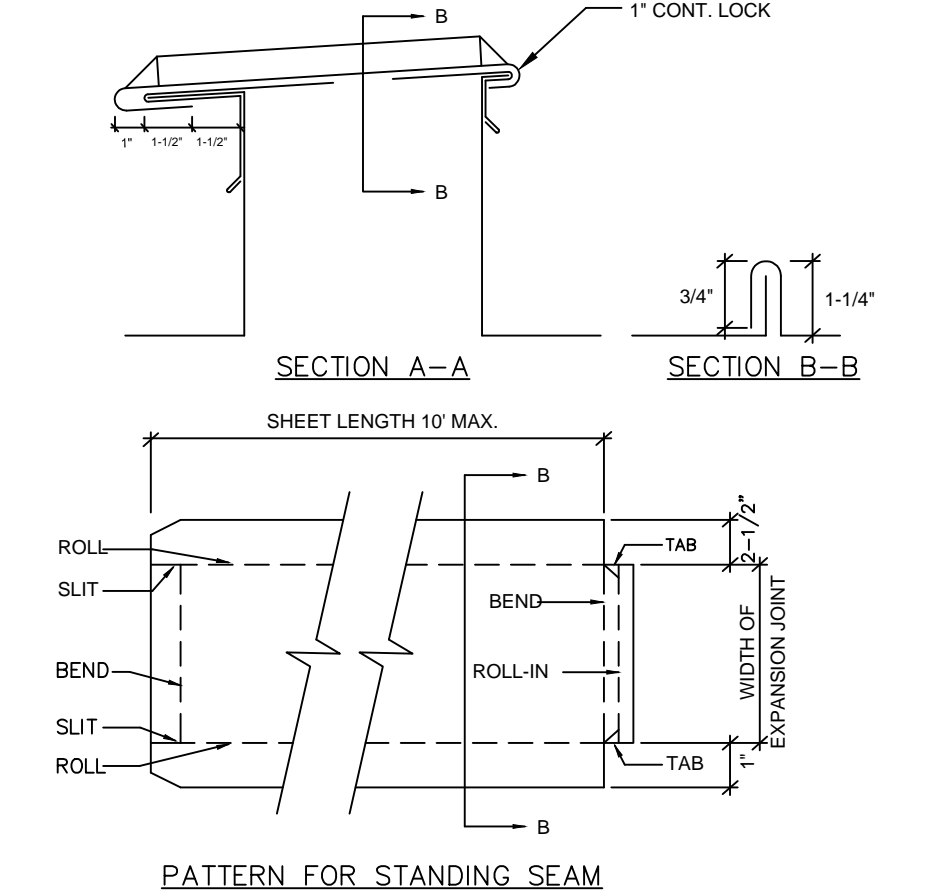


NOTE - REPLACE OR REPAIR LINER AND/OR FIBERGLASS INSULATION IF MISSING OR DAMAGED. SHIM TOP OF ONE CURB TO PROVIDE 1/2" SLOPE IN SHEET METAL EXPANSION JOINT COVER IF NECESSARY.

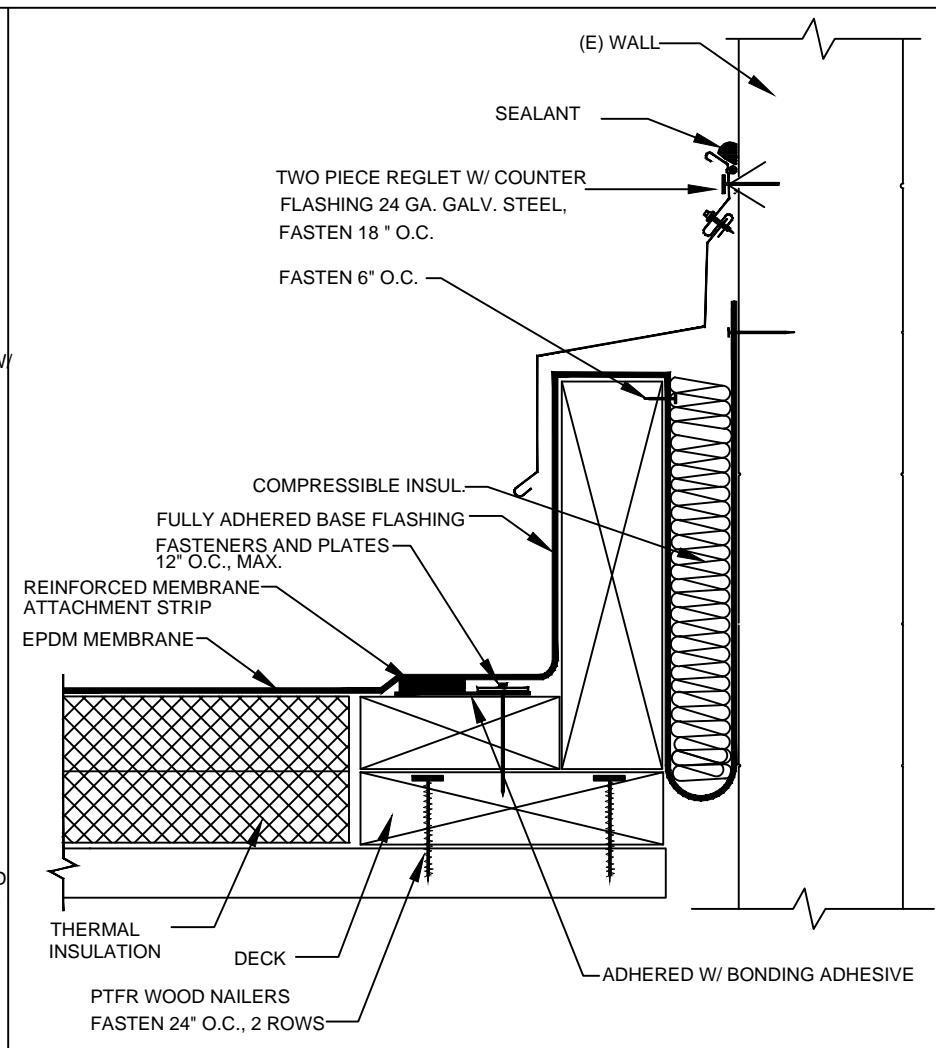
ROOF MOUNTED EXPANSION JOINT @ NEW CURB  
SCALE: N.T.S.



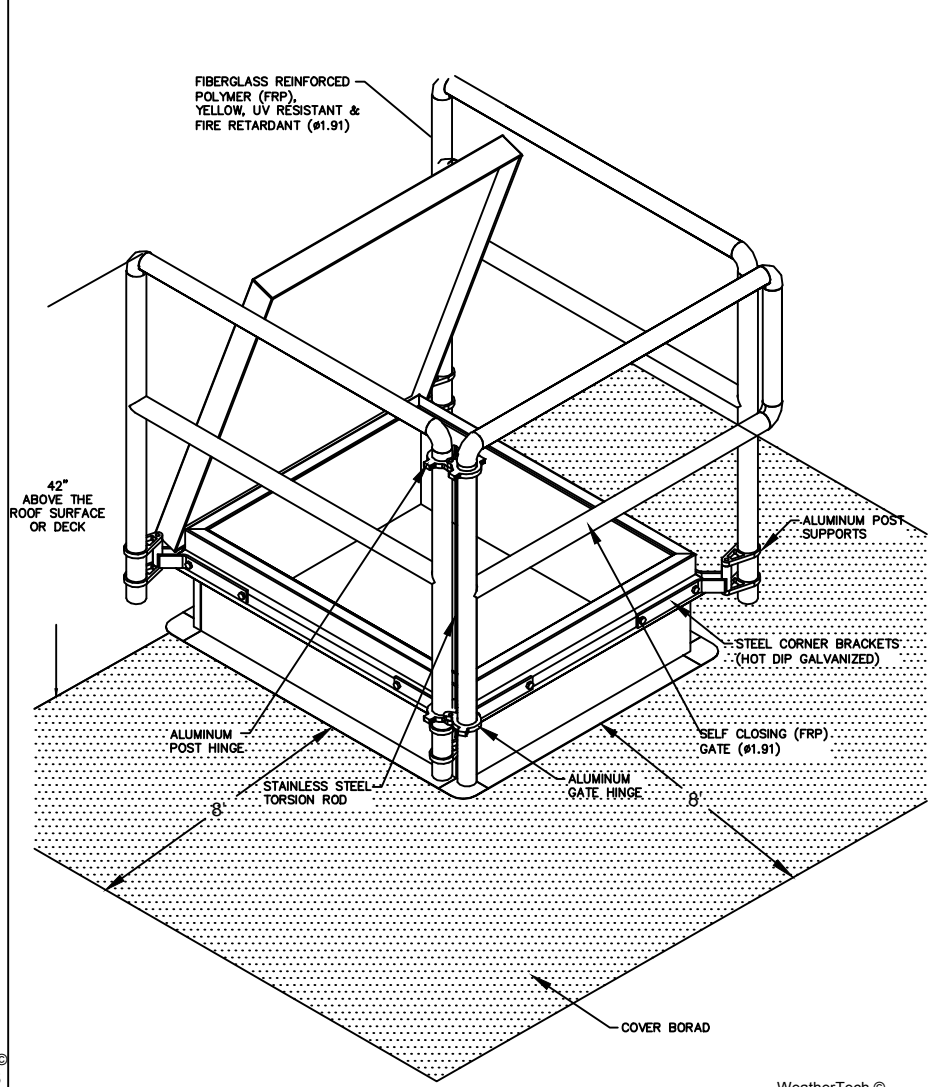
ROOF HATCH FLASHING (NON REMOVABLE)  
SCALE: N.T.S.



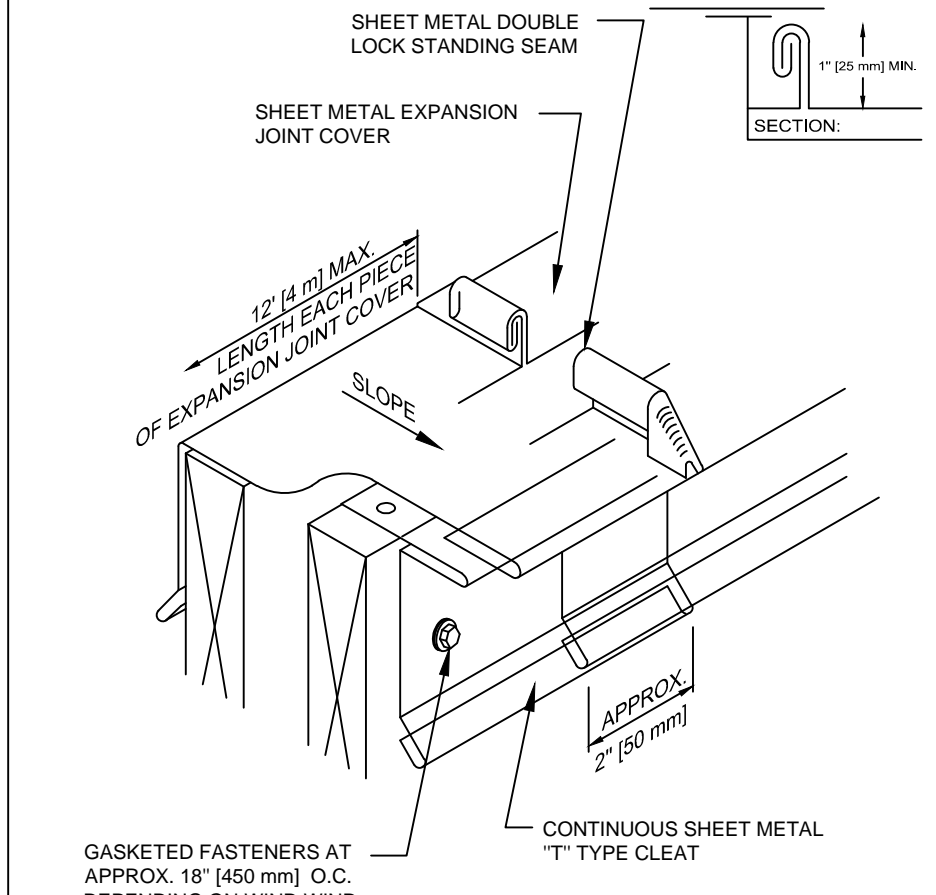
EXPANSION JOINT CAP  
FABRICATION  
SCALE: N.T.S.



ROOF TO WALL EXPANSION JOINT  
SCALE: N.T.S.

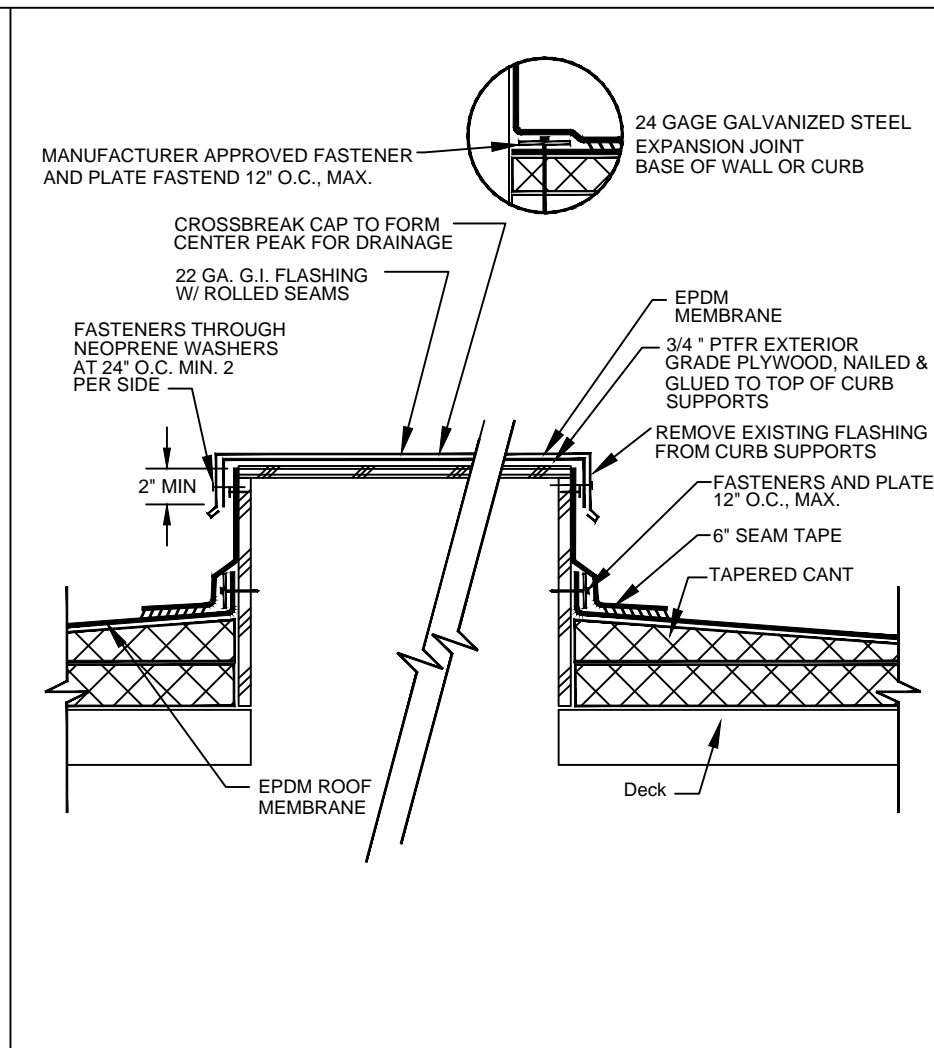


BILCO BIL-GUARD TYPE S E F  
HATCH RAIL SYSTEM  
SINGLE LEAF ROOF SCUTTLE

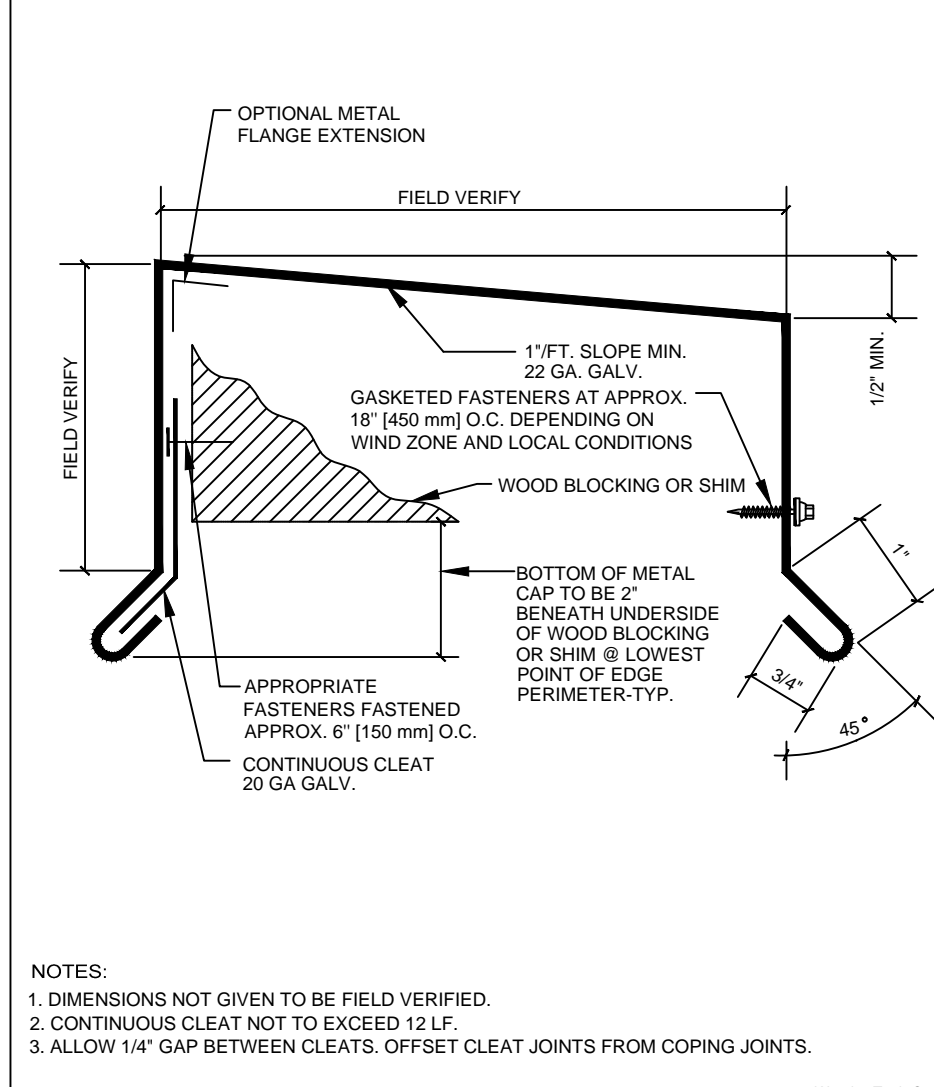


EXPANSION JOINT COVER WITH STANDING SEAM  
SCALE: N.T.S.

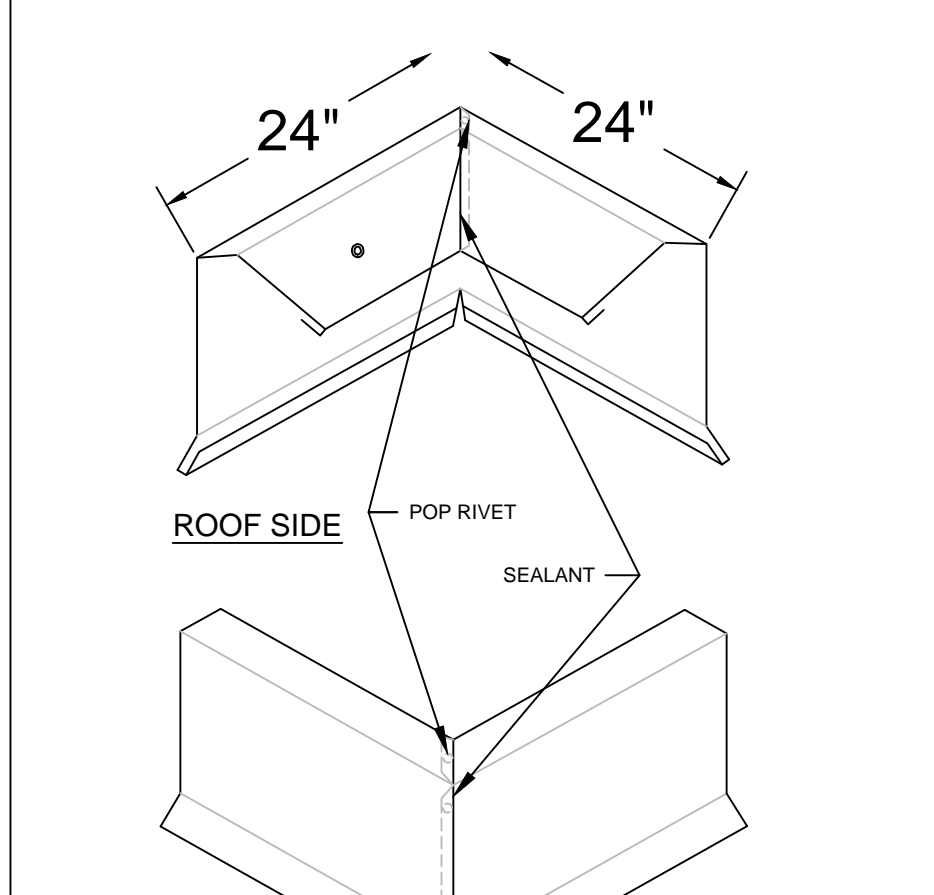
EXPANSION JOINT COVER WITH STANDING SEAM  
SCALE: N.T.S.



ABANDONED CURB OPENING  
SCALE: N.T.S.

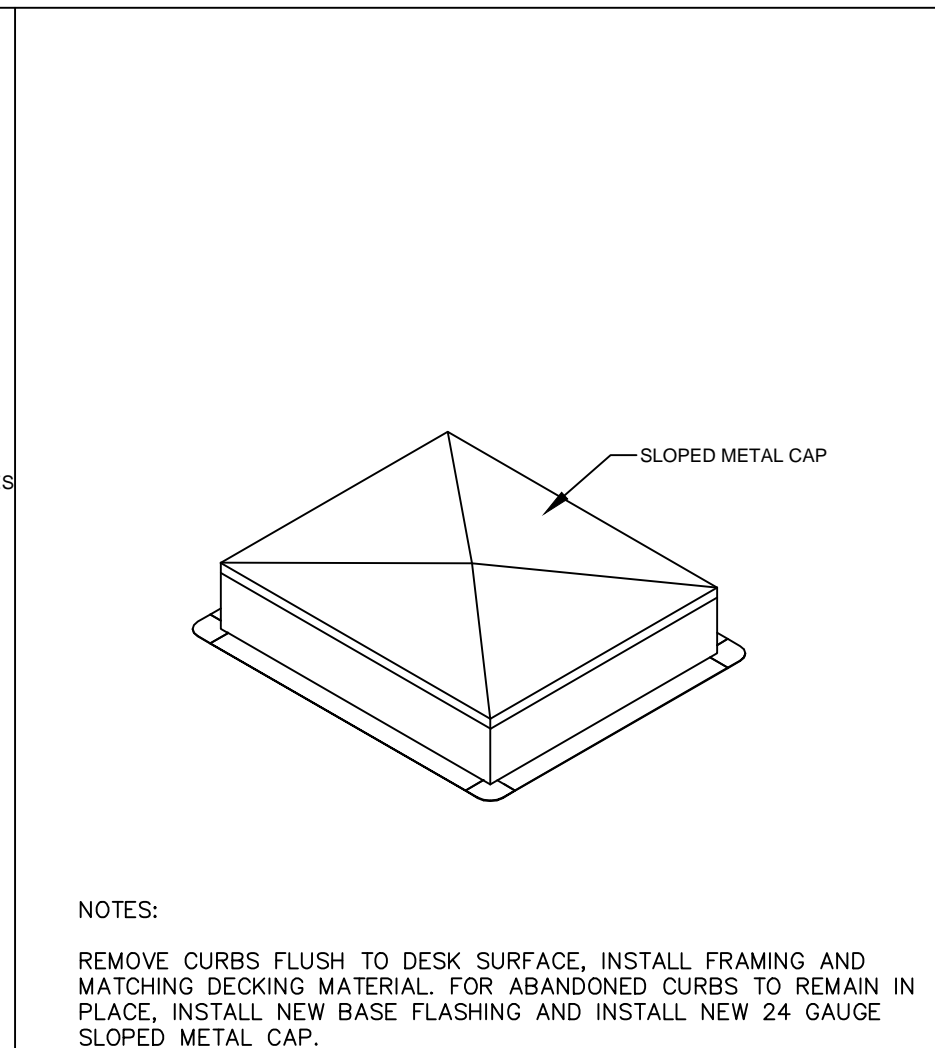


TYPICAL PARAPET/COPING CAP  
SCALE: N.T.S.



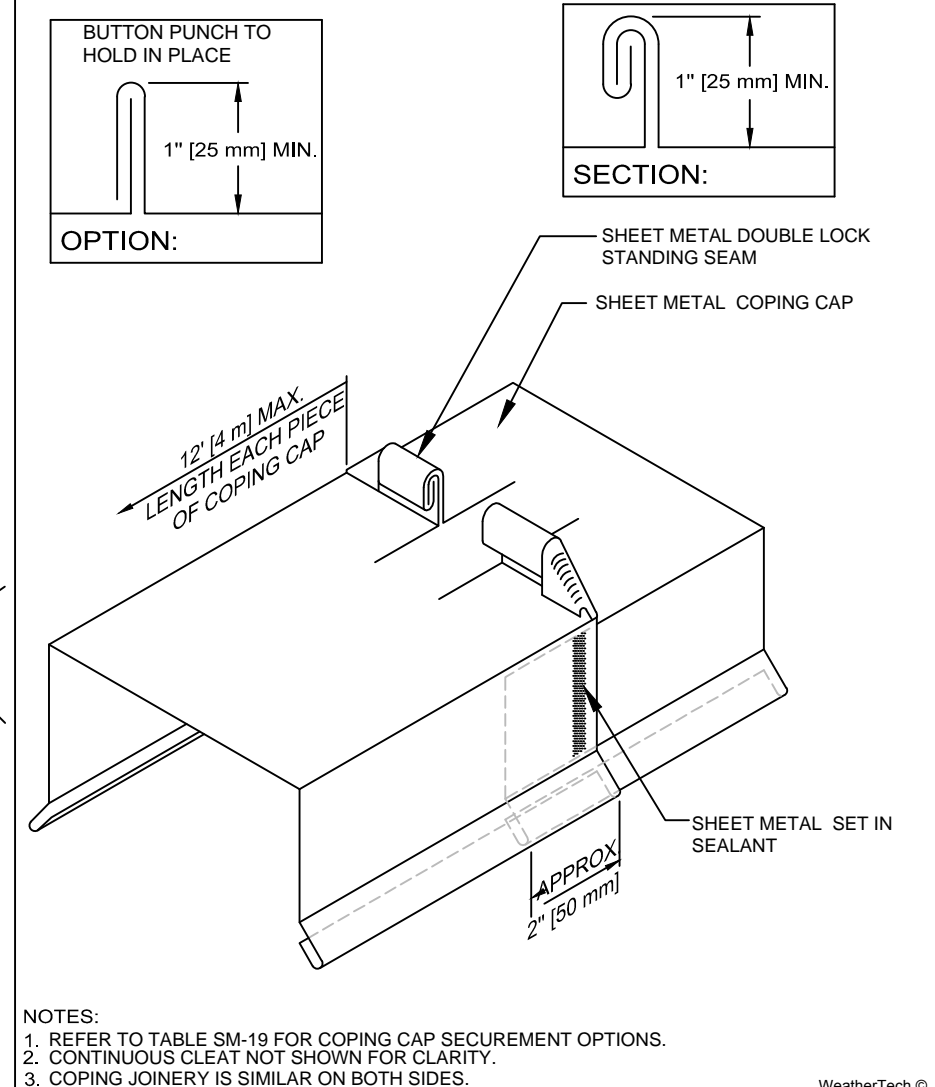
RAISED PERIMETER EDGE METAL  
SCALE: N.T.S.

RAISED PERIMETER EDGE METAL  
SCALE: N.T.S.

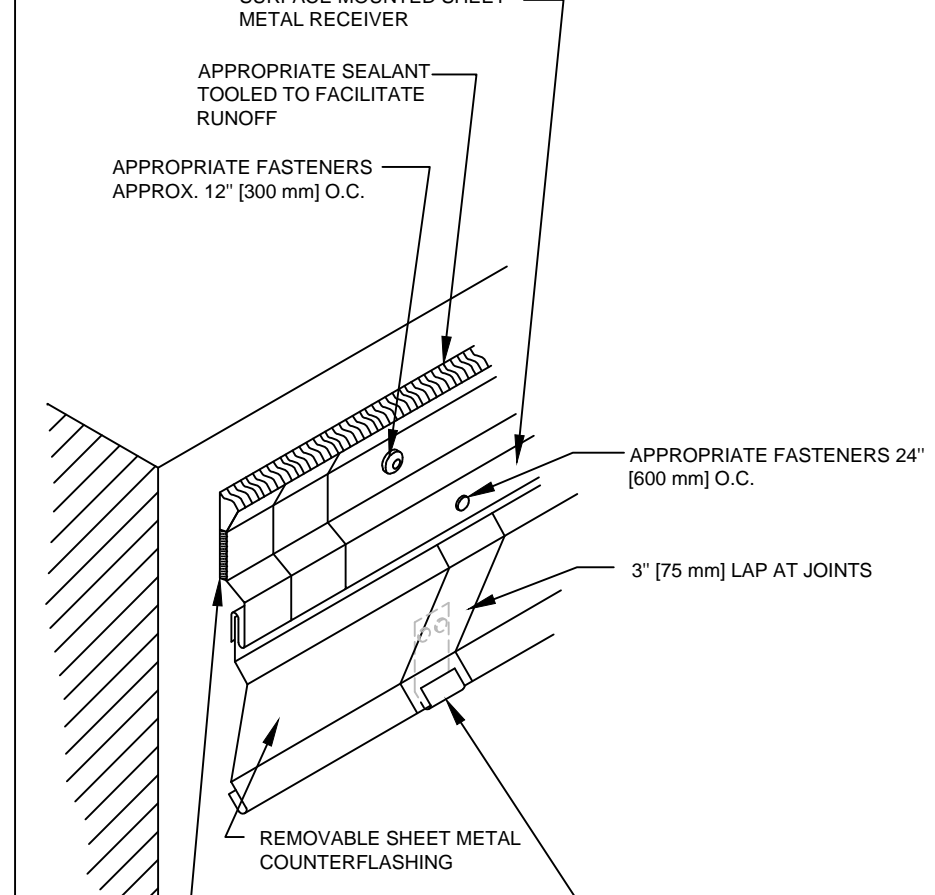


REMOVE CURBS FLUSH TO DECK SURFACE. INSTALL FRAMING AND MATCHING DECKING MATERIAL FOR ABANDONED CURBS TO REMAIN IN PLACE. INSTALL NEW BASE FLASHING AND INSTALL NEW 24 GAUGE SLOPED METAL CAP.

ABANDONED CURBS  
SCALE: N.T.S.

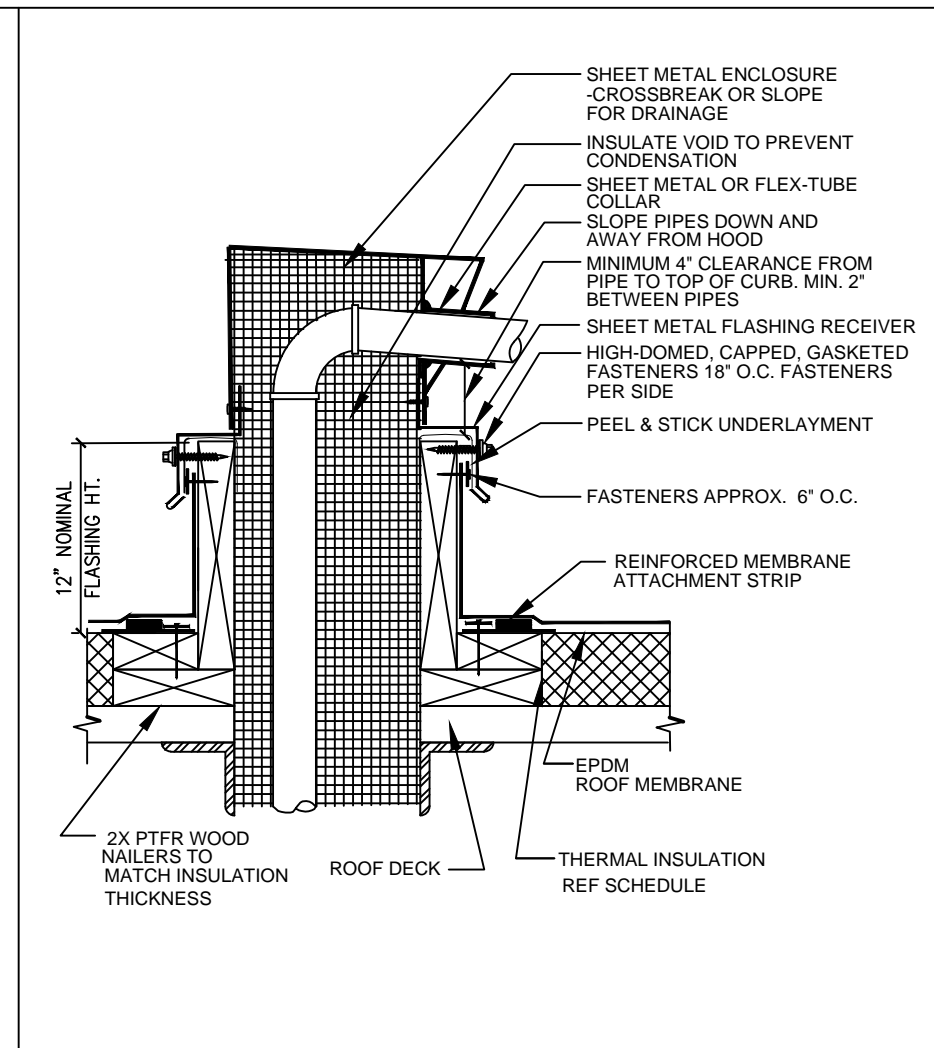


COPING CAP WITH DOUBLE LOCK  
STANDING SEAM

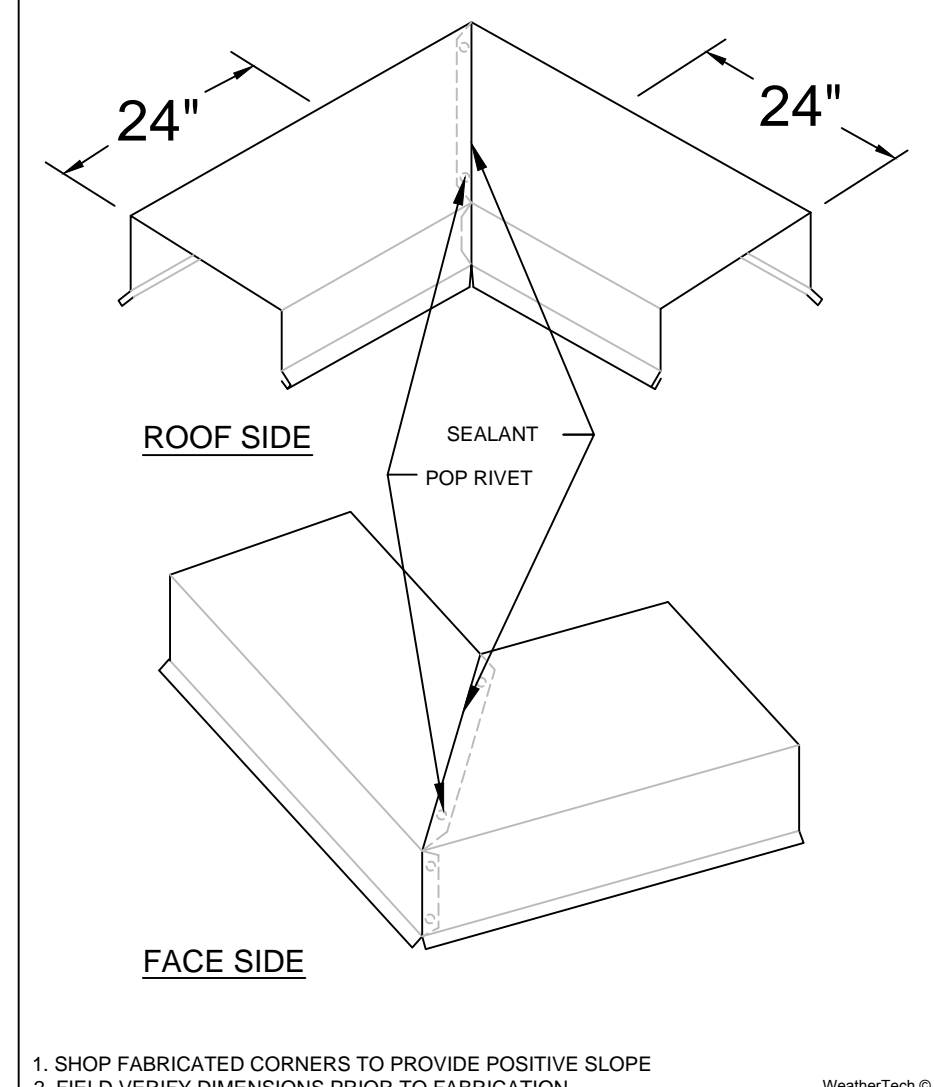


TWO PIECE SURFACE MOUNTED REGLET AND  
COUNTERFLASHING WITH OVERLAP JOINT

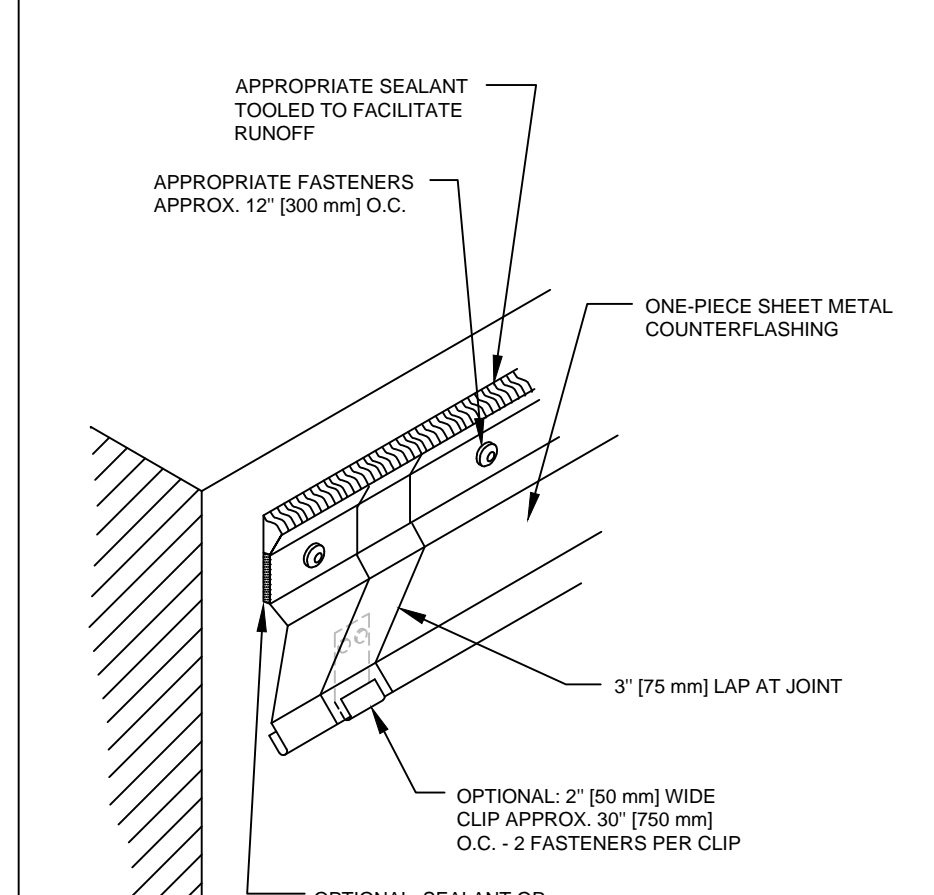
TWO PIECE SURFACE MOUNTED REGLET AND  
COUNTERFLASHING WITH OVERLAP JOINT  
SCALE: N.T.S.



MULTIPLE PENETRATION CLOSURE  
BOX W/ WD. CURBED OPENING  
SCALE: N.T.S.

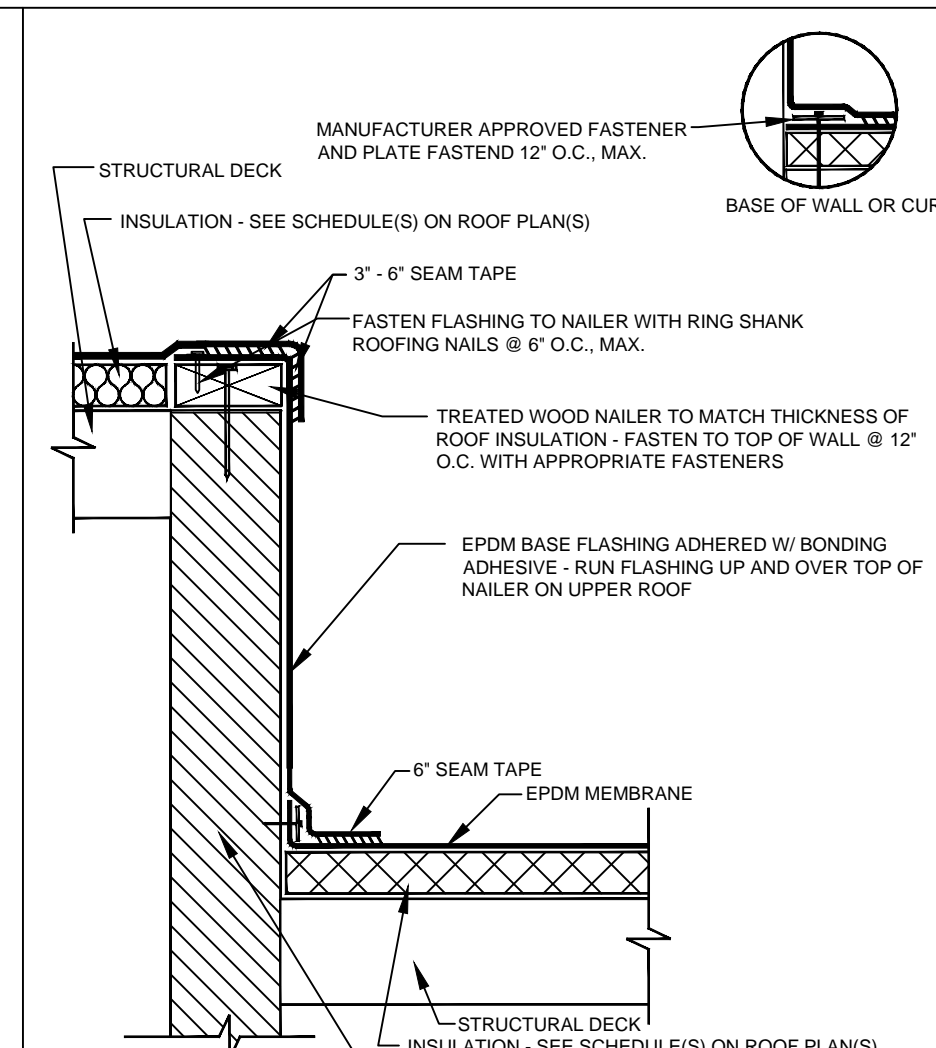


PARAPET COPING CAP CORNERS  
SCALE: N.T.S.

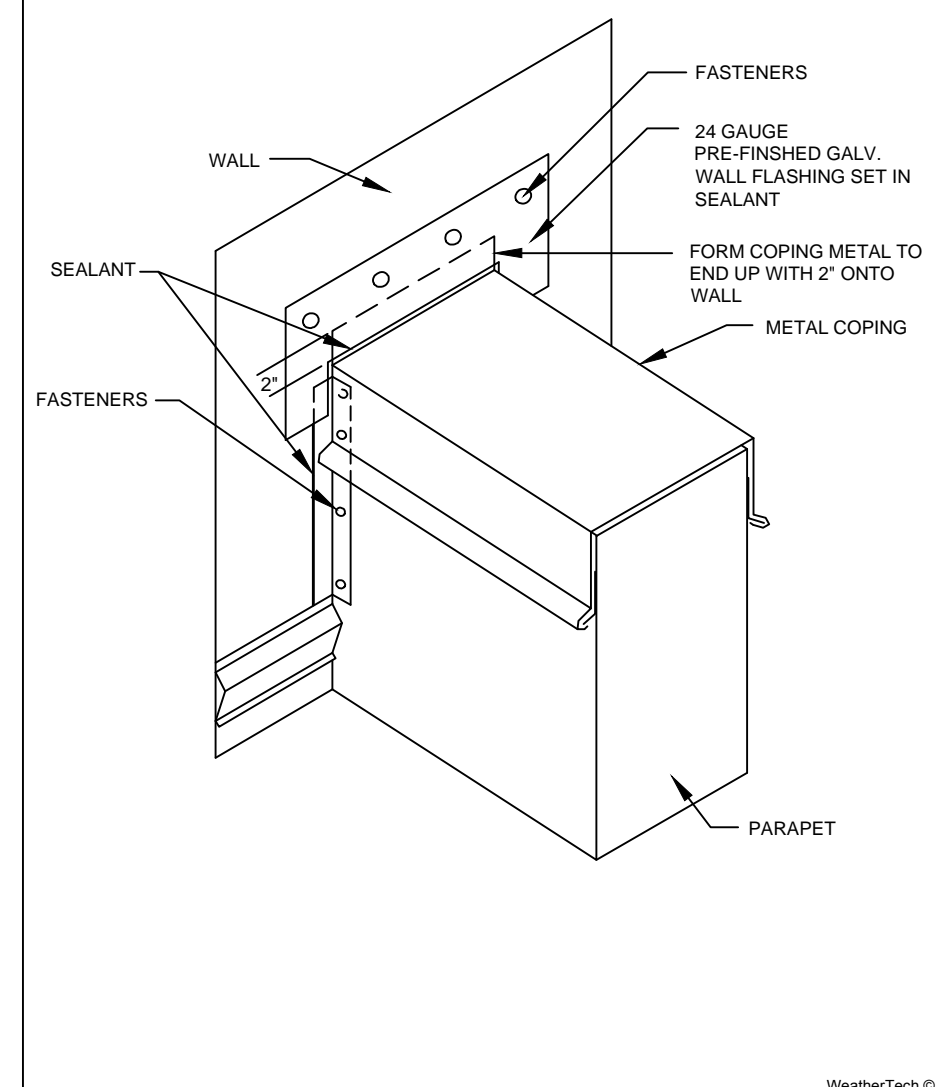


ONLY USE THIS DETAIL WHEN  
APPROVED BY CONSULTANT

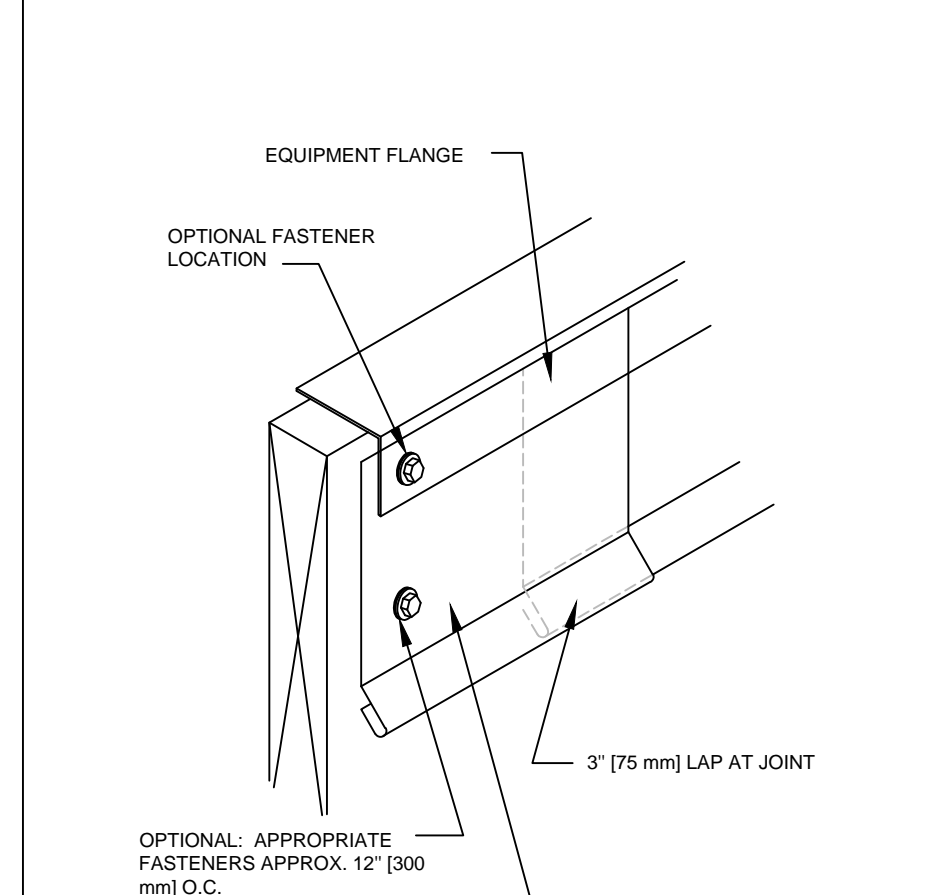
ONE-PIECE SURFACE MOUNTED  
COUNTERFLASHING WITH OVERLAP JOINT  
SCALE: N.T.S.



WALL TRANSITION  
SCALE: N.T.S.



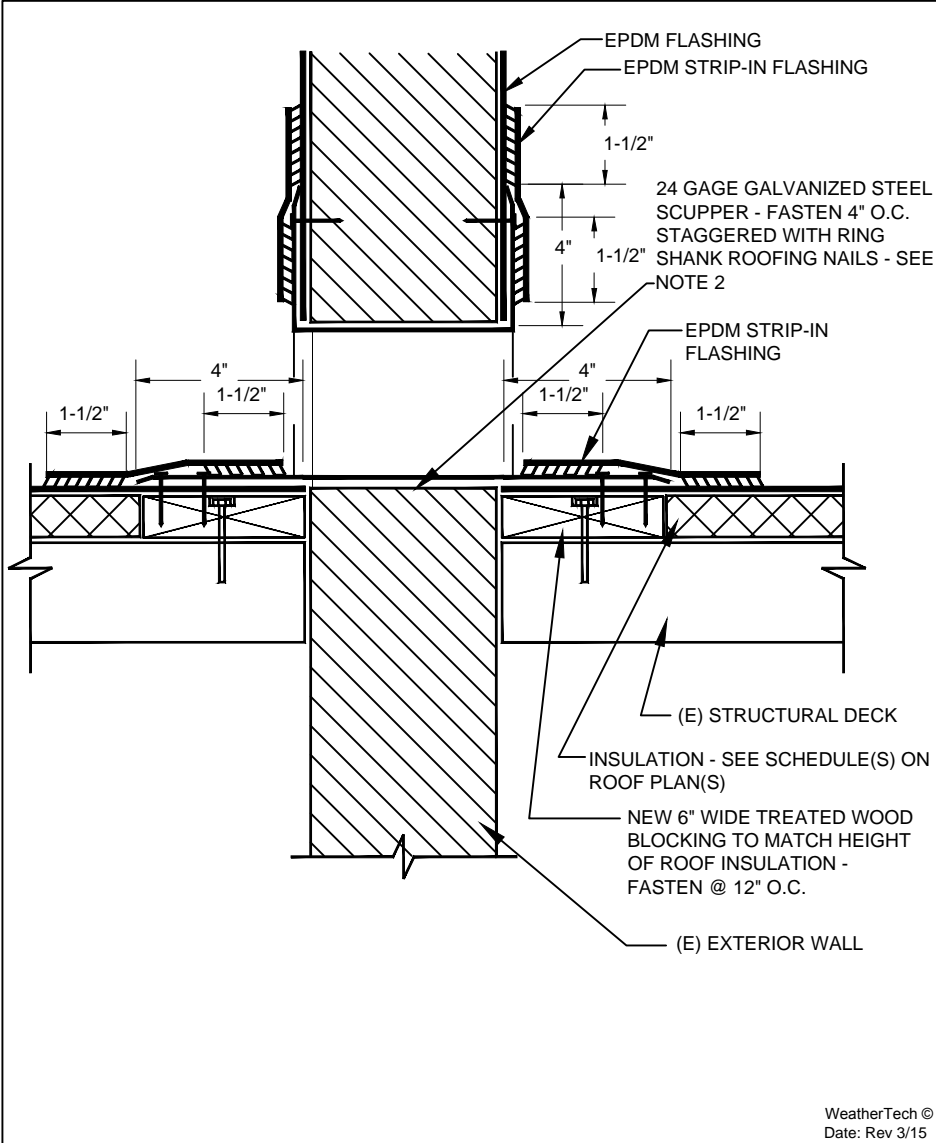
WALL TERMINATION  
SCALE: N.T.S.



CURB COUNTERFLASHING  
(SKIRT FLASHING)

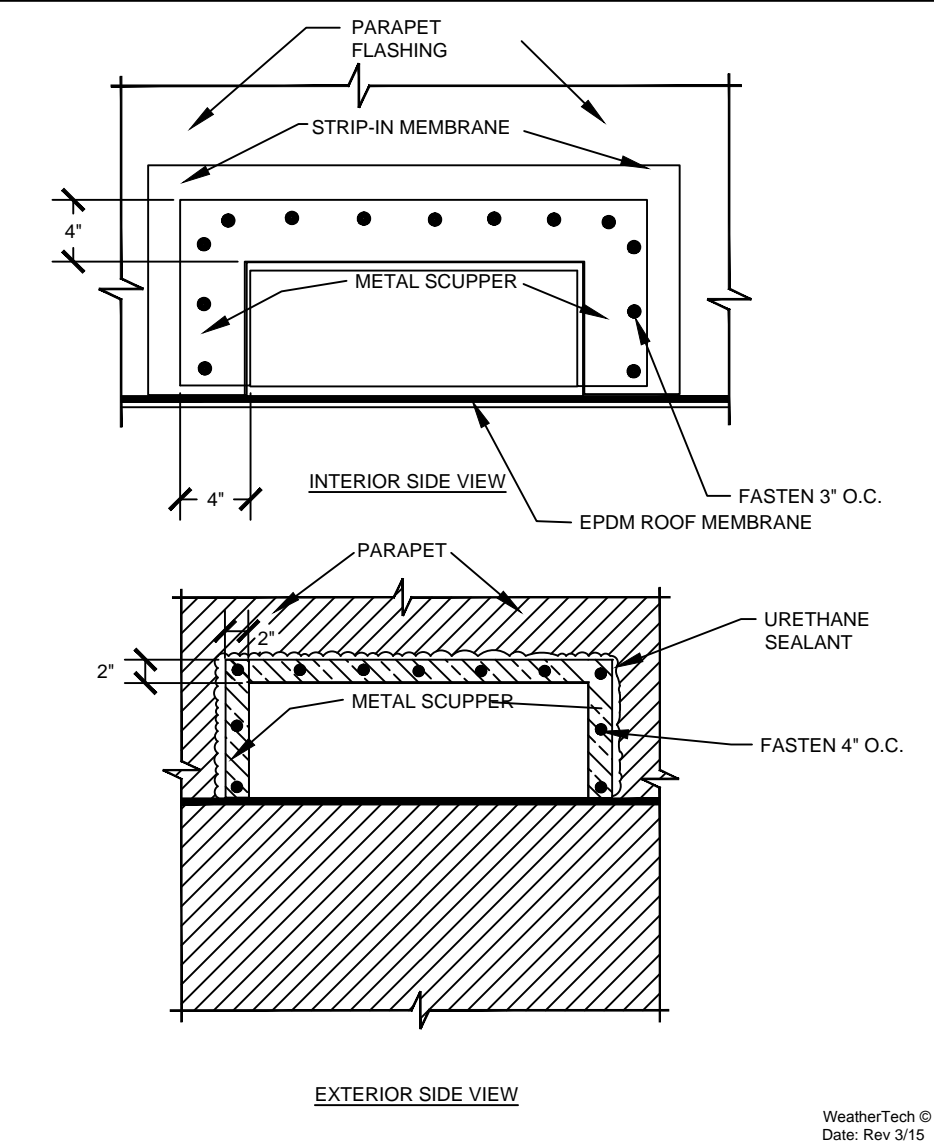
CURB COUNTERFLASHING  
(SKIRT FLASHING)  
SCALE: N.T.S.





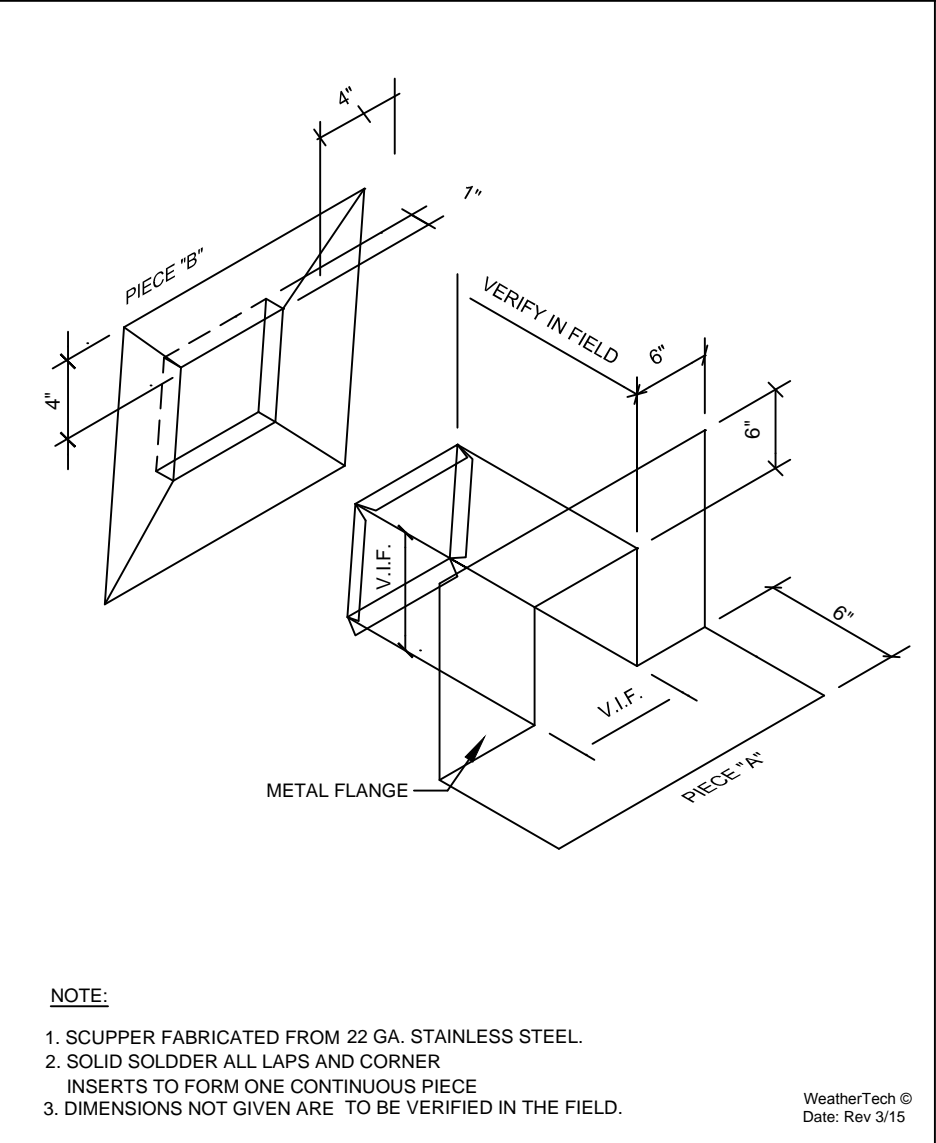
THRU-WALL SCUPPER  
SCALE: N.T.S.

4.01



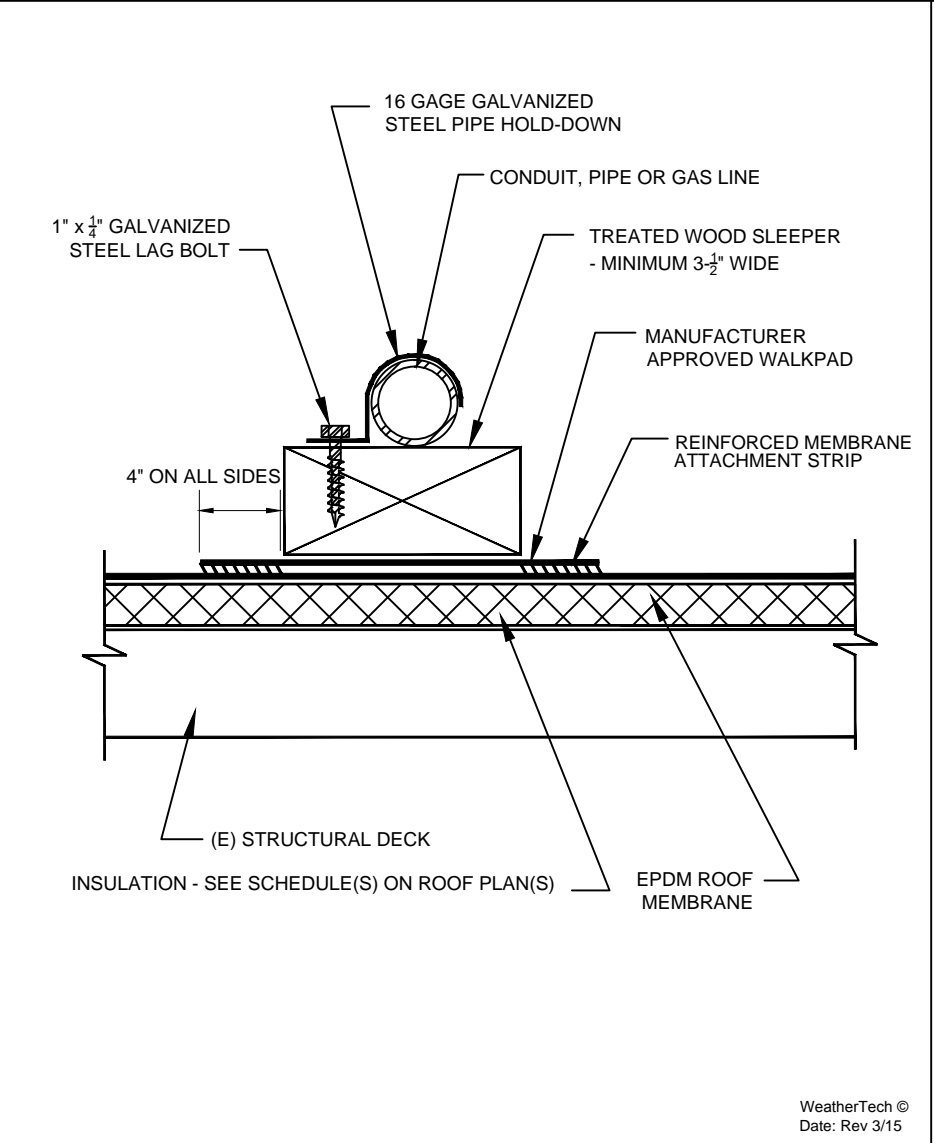
THRU-WALL SCUPPER  
SCALE: N.T.S.

4.02



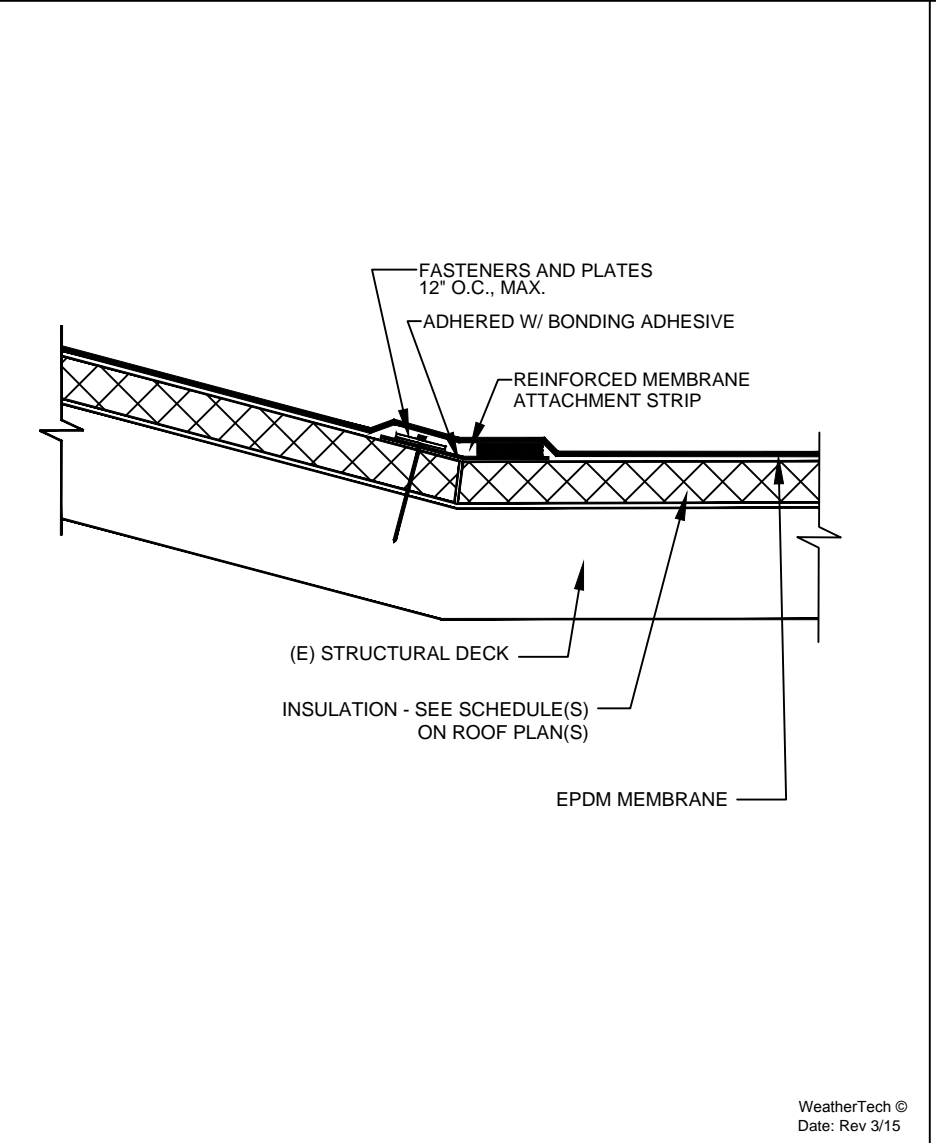
SCUPPER FABRICATION  
SCALE: N.T.S.

4.03



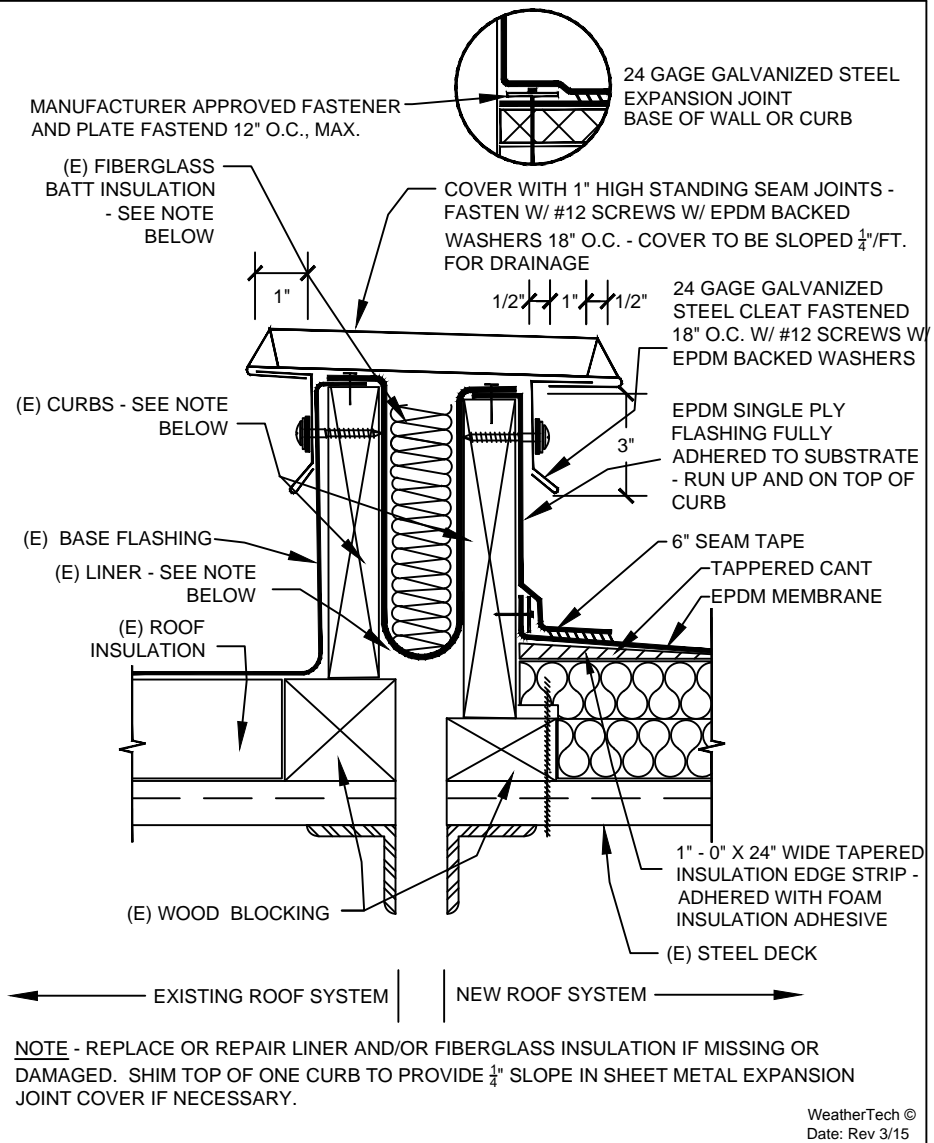
CONDUIT SUPPORT WOOD SLEEPER  
SCALE: N.T.S.

4.04



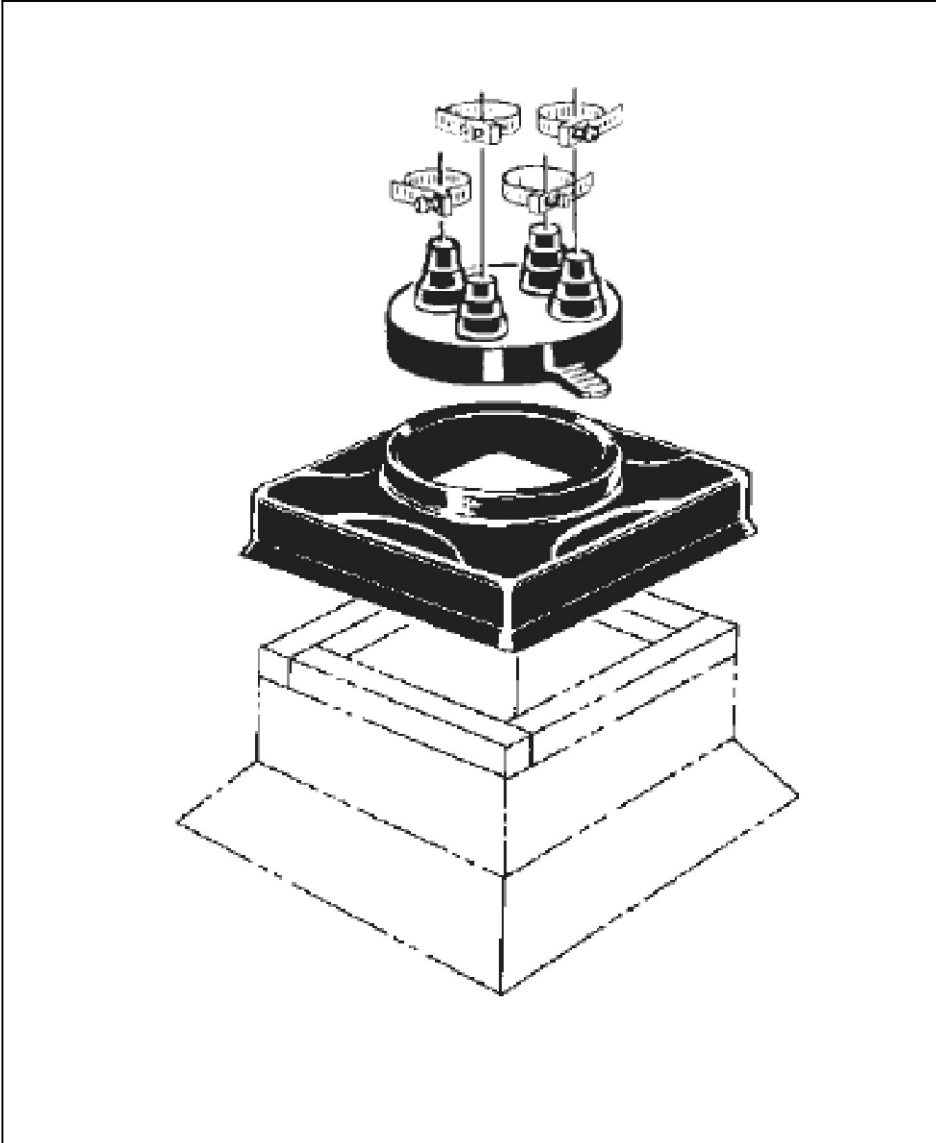
SLOPE TRANSITION  
SCALE: N.T.S.

4.05



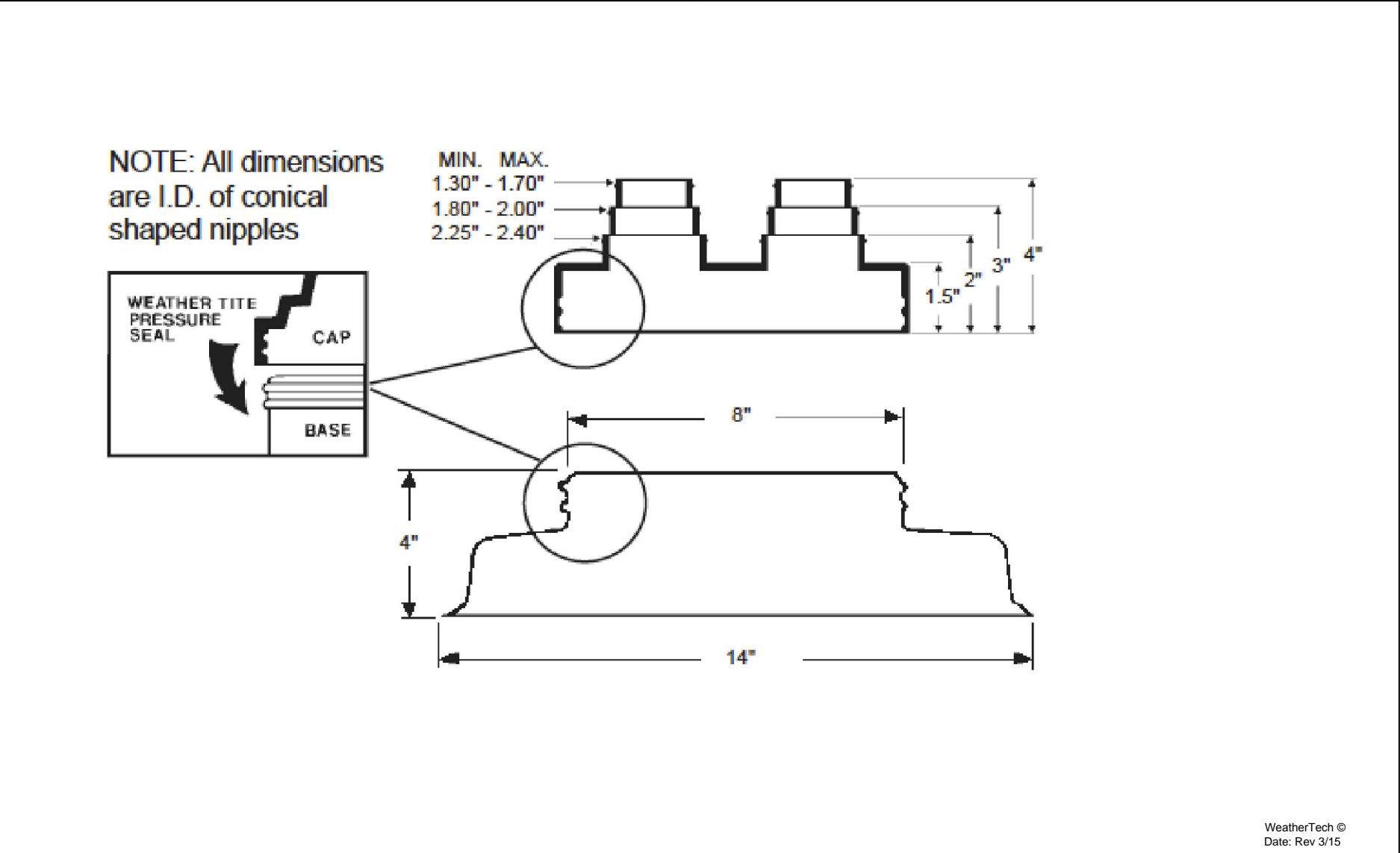
ROOF MOUNTED EXPANSION JOINT @ EXISTING CURB  
SCALE: N.T.S.

4.06



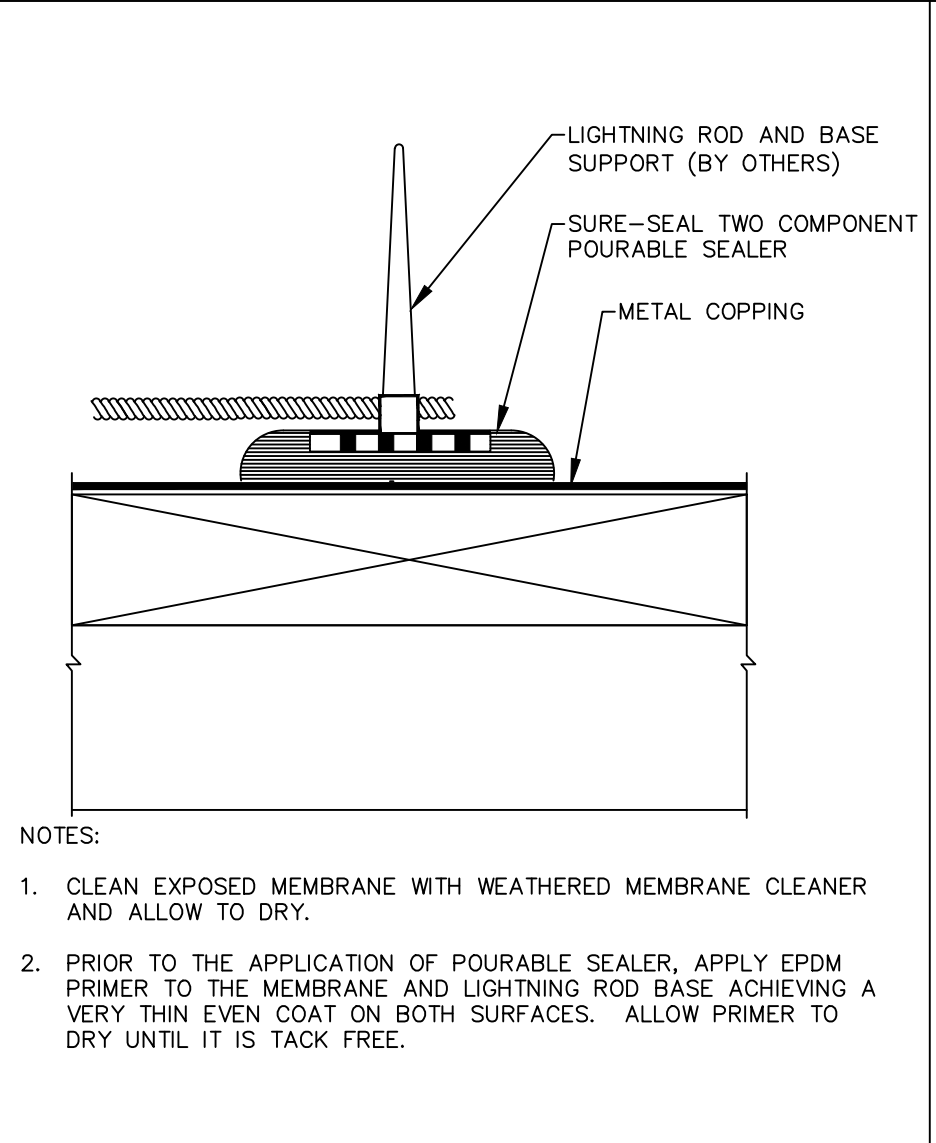
PORTALS PLUS CONDUIT/PIPE  
FLASHING - CURB & COVER  
SCALE: N.T.S.

4.07



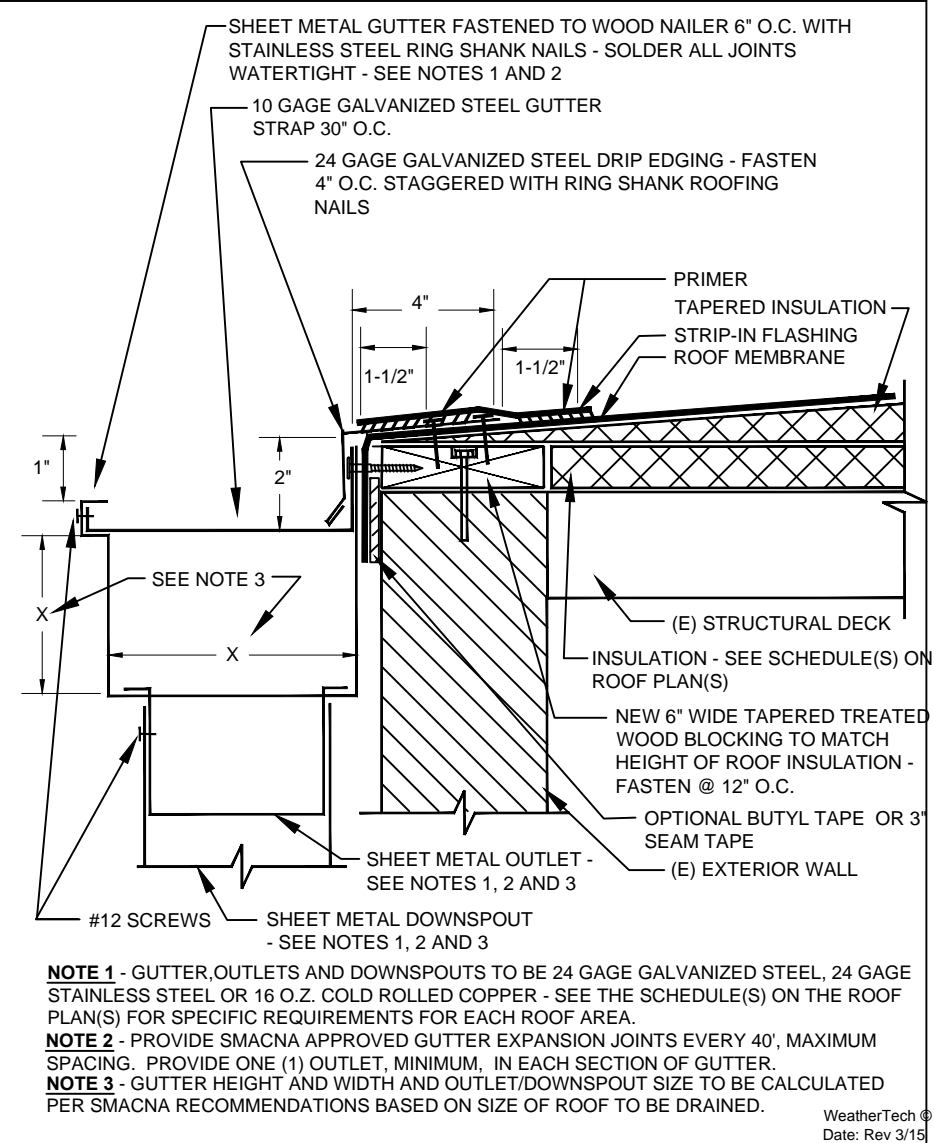
VENTILATION/CURD BUILD OUT  
SCALE: N.T.S.

4.08



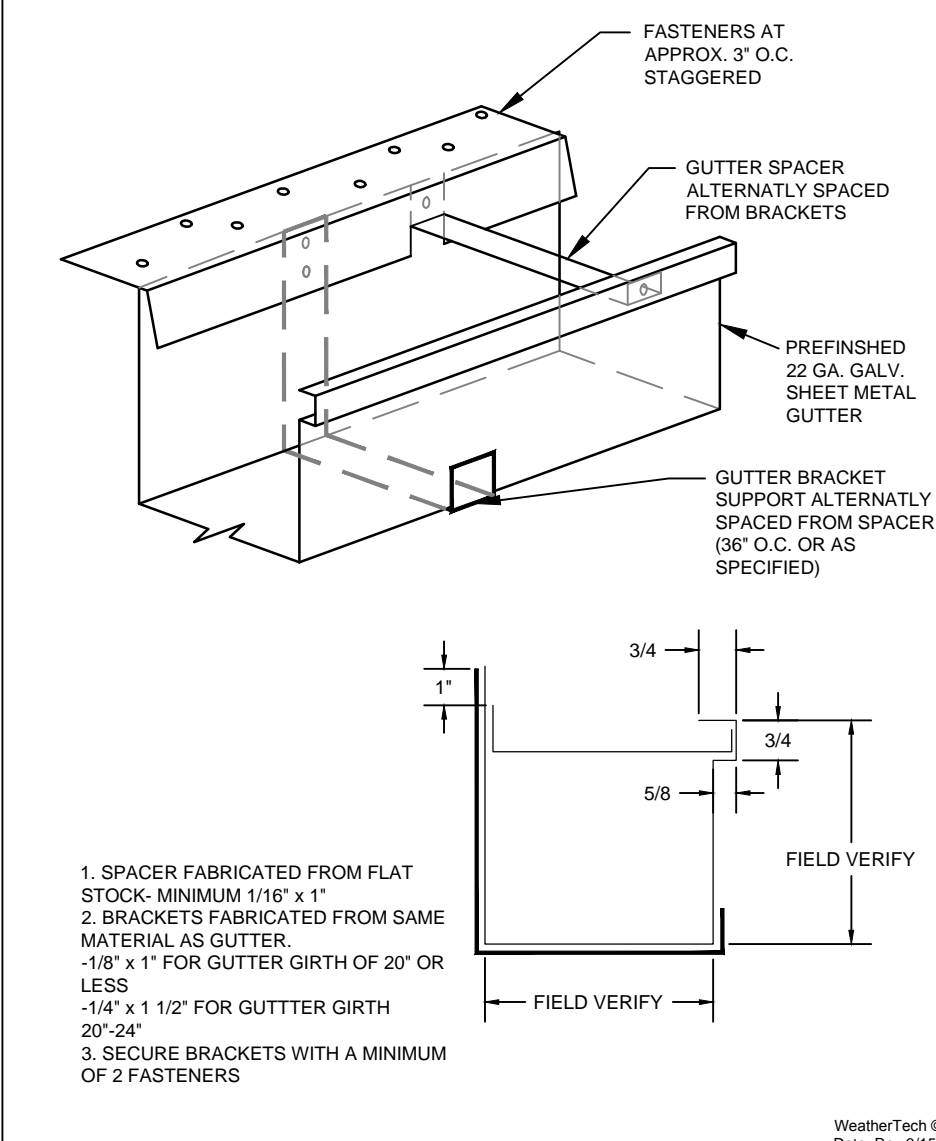
LIGHTNING ROD AT PARAPET WITH  
POURABLE SEALER  
SCALE: N.T.S.

4.09



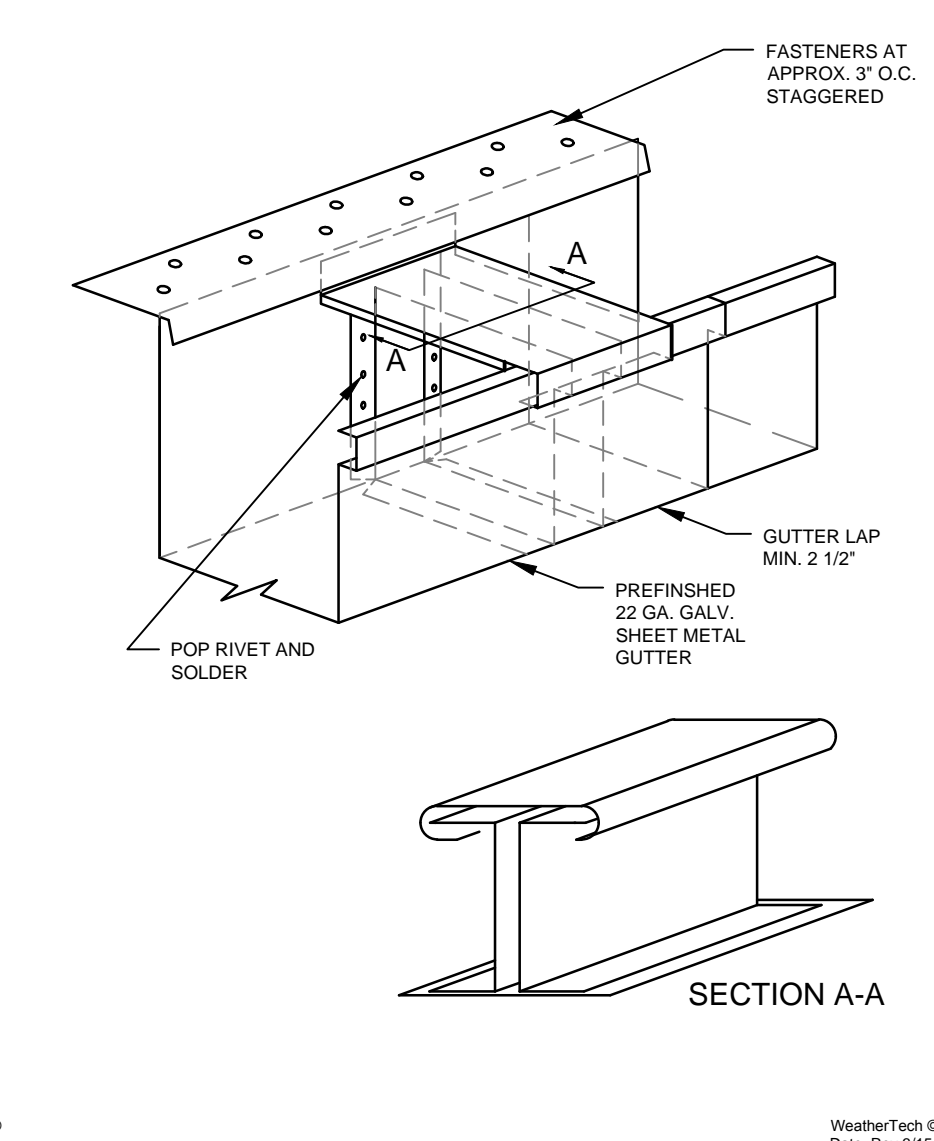
GUTTER EDGE FLASHING - COATED METAL  
SCALE: N.T.S.

4.10



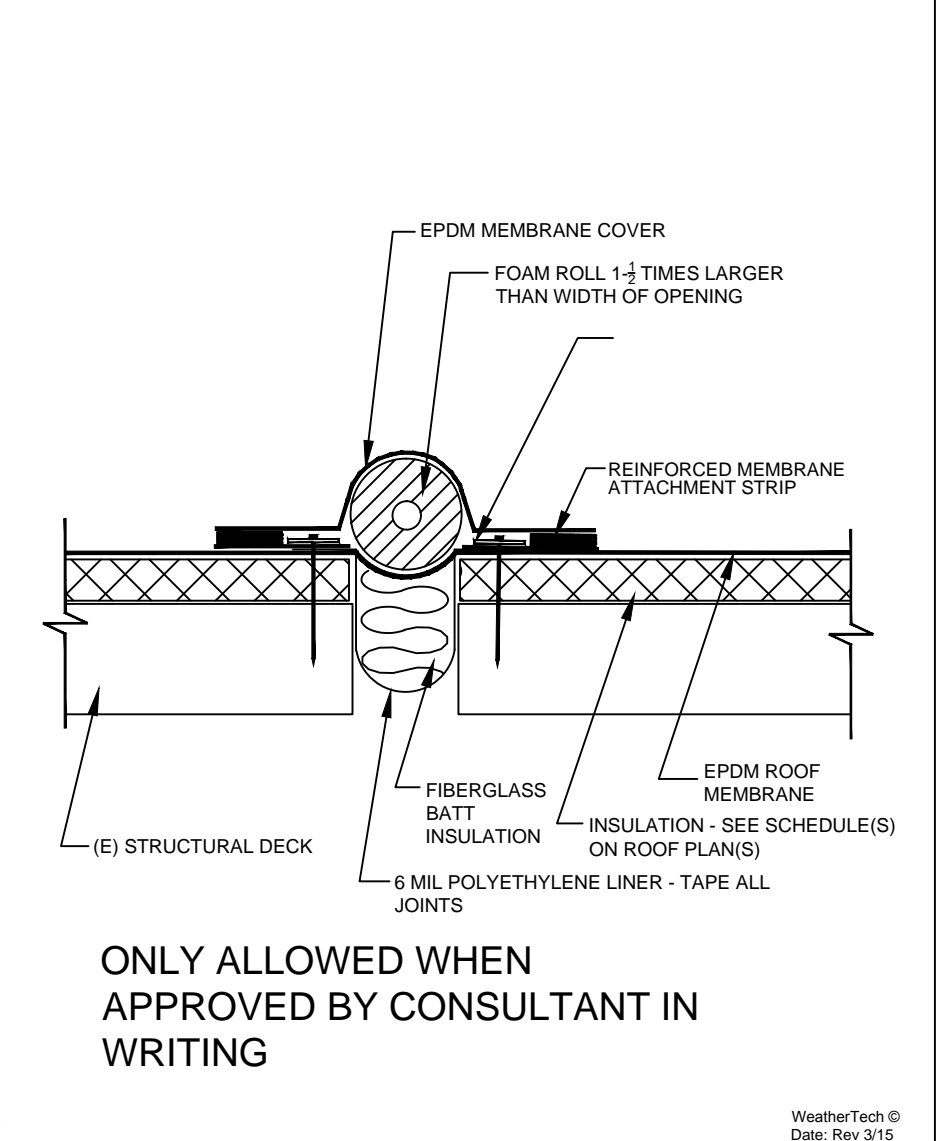
TYPICAL GUTTER  
SCALE: N.T.S.

4.11



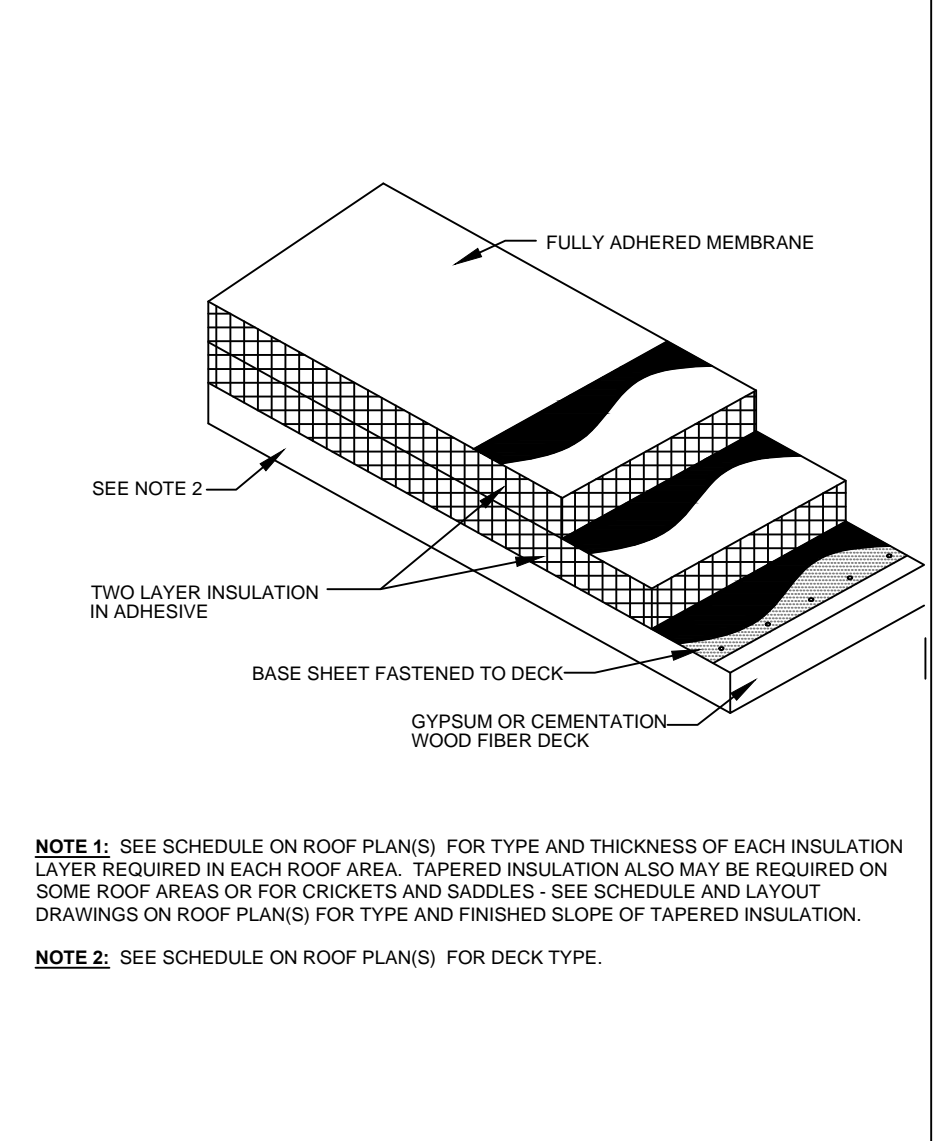
GUTTER EXPANSION JOINT  
SCALE: N.T.S.

4.12



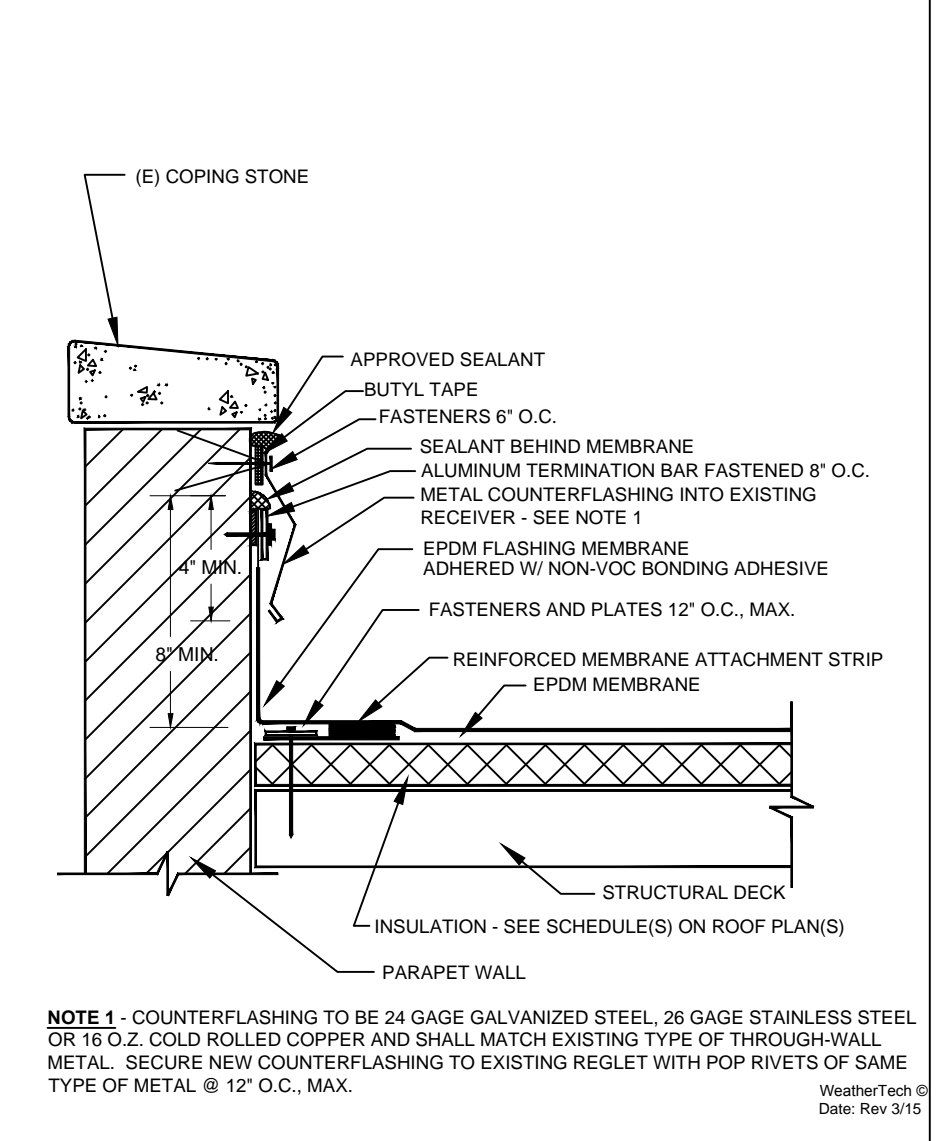
ROOF MOUNTED EXPANSION JOINT  
SCALE: N.T.S.

4.13



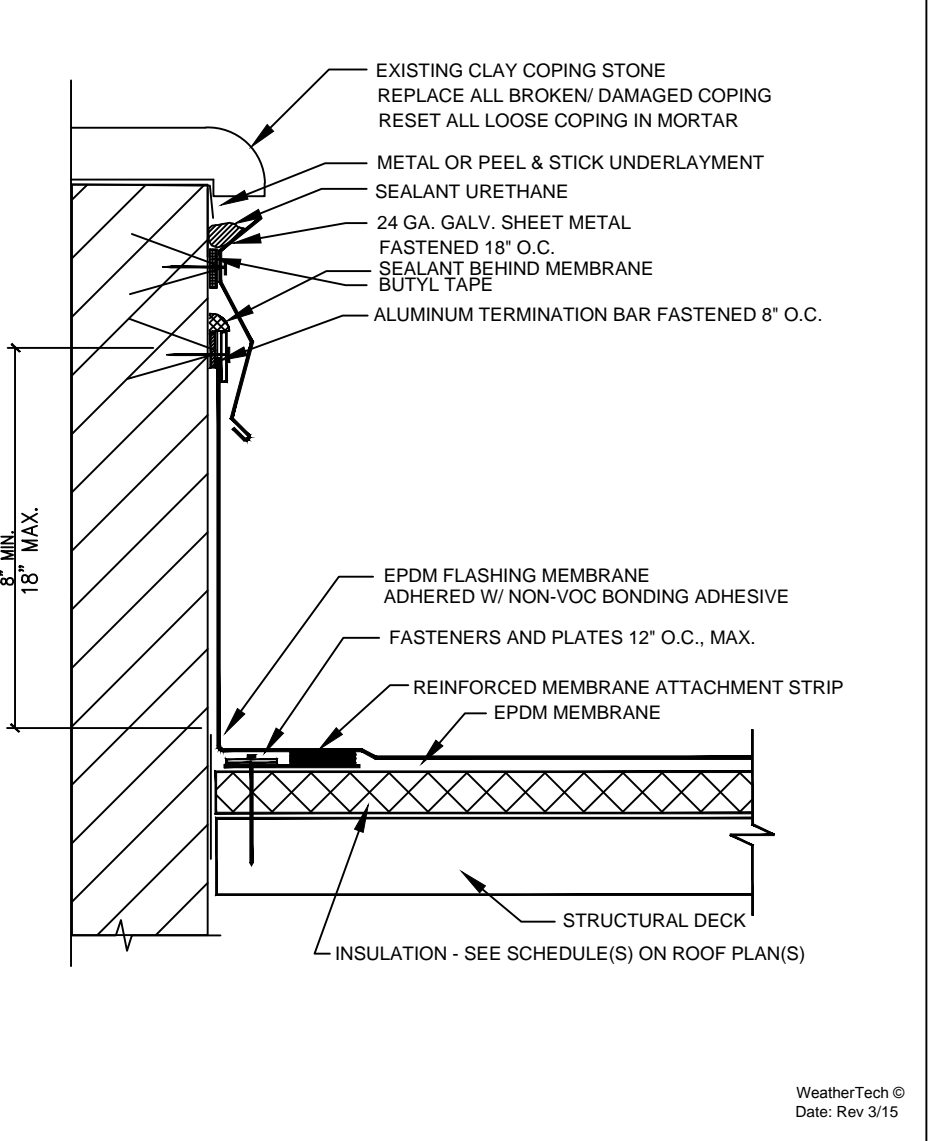
FULLY ADHERED EPDM SYSTEM OVER GYPSUM  
AND CEMENTATION WOOD FIBER DECKS  
SCALE: N.T.S.

4.14



PARAPET WALL W/COPING STONE  
W/ TERMINATION BAR  
SCALE: N.T.S.

4.15



PARAPET WALL FLASHING W/ CLAY COPING  
SCALE: N.T.S.

4.16

PROFESSIONAL



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CLIENT:

Troy School District

4400 Livernois

Troy, MI 48098

PROJECT:

Troy School District

**BID 9848**

2018 Roofing Program

WTPProject No:  
TSR-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/08/17	90% Review Set
11/10/17	OTB

File Name: A8.0 - Detail Page

Drawn By: MD, GG

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SHEET TITLE

Detail Page

A8.3

Sheet 23 of 23



PPROJECT SUMMARY

SUMMARY OF WORK: ref. Section 00 02 00

General: Troy School District (TSD) 2018 Roof Program work for five (5) schools and one (1) District building covering approximately 145,925 sq. ft. Roofing work includes roof replacement and restoration required to remediate all work identified in the specifications and drawings inclusive of all Bid Documents requirements.

Schedules: Ref. "PROJECT WORK SCHEDULE" on this Sheet A1.0 - Cover Page.

BID SUMMARY:

- Contractor proposal and two copies will be submitted only on the forms provided and will be enclosed in a sealed envelope marked with the name of the bidder, the title of the work, the time, place and date due and must be hand delivered or delivered by courier no later than 10:00 A.M., Wednesday, November 29, 2017, Administrative Building, Troy School District, 4400 Livernois, Troy, Michigan 48098, at which time all bids will be publicly opened and read aloud immediately thereafter. Bid proposals received after this time will not be considered or accepted. Oral, telephone, fax or electronic mail bids are invalid and will not receive consideration.  
a. Bid Bond: Submit with bid five percent (5%) bid bond or certified check.
- Pre-Bid Conference: A mandatory pre-bid conference will be held at Administration Building, 4400 Livernois, Troy, MI 48098, on Monday, November 20, 2017 at 10:00 am Local Time. The roofing contractors will have access to walk the roofs on Wednesday, November 22, 2017. (Between 8am-4pm)
- Bid Form Section 000300: Bid Form to contain Base Bid including all work as specified in Bid Documents including performance (Section 000300) and payment bond (Section 000304) fees, number work days to complete work, square footages are required on Bid Form found in Section 000300.  
a. Allowance expenditures shall be documented and compensated on a unit pricing basis per the Unit Pricing Bid Form (Section 000301) values provided.
- Allowances Section 012100: Allowances will be defined on individual school roof plans under "Allowances" and are to be included in Base Bid value found in Section 000300.  
a. Allowance expenditures shall be documented and compensated on a unit pricing basis per the Unit Pricing Bid Form (Section 000301) values provided.
- Unit Pricing Section 004322: Unit Pricing for unit work is defined on the Unit Price Bid Form in Section 000301. Unit Pricing bid values are entered by unit price individually on form.
- Alternates Section 012300: Alternates are individually listed on school roof plans and bids for Alternates. Alternated bid value are to be entered on Bid Form (Section 000300) as enumerated.
- TSD reserves the right to issue contracts to multiple contractors.
- Any questions regarding bid specifications must be received noon, Monday, November 27, 2017. Questions must be submitted in writing on the WTT website using the online RFI form at www.wtcgproject.net any questions on how to use the RFI form contact Ann Crispen at (586) 731-3095 x10 or Geof Garabedian at (586) 731-3095 x12. No response will be made to oral questions.

EXISTING ROOF SYSTEM CONSTRUCTION: ref. Roof Plans

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions.

REPLACEMENT ROOF ASSEMBLY SUMMARY:

- Roof System: Ref. Roof Plan Schedules  
a. Roof Membrane: EPDM, 60 mil, unreinforced and fully adhered;  
b. Insulation: Min. R20, min. two layers. Top layer must be adhered.  
c. Underlayment: Modified base sheet, mechanically fasten. Reference Individual Roof Plans.  
d. Deck: Multiple types Reference individual Roof Plans.  
e. Warranty:  
1) Roof replacement: 20 yr. Materials manufacturer, No Dollar Limit materials and installation;  
2) Restoration: 2 yr No leak warranty, contractor.
- Roof System Performance: Ref. Roof Plan Schedules  
a. Wind : FM Global (FM): FM Standard 4470 Meets - Windstorm Classification FMG 90  
b. Fire: Underwriters Laboratory External Fire Resistance - Class "A".  
c. Energy: Michigan Uniform Energy Code: Insulation R-value: R20.  
d. Drainage: Drainage Performance Acknowledgement"

RESTORATION:

Ref. School Sheet(s), RepairRestoration Manuals

- Troy Union only applies to this work.  
a. Drawings of each roof area with defect locations marked on plan using 10 ft. x 10 ft.  
b. All defect to be repair by designated code number for BUR NRCA manual for TSD Restoration work as revised and amended by WeatherTech Consulting Group, Inc. for completion of restoration work:  
1) BUR Manual  
2) Thermoplastic Repair Manual  
3) Thermoset Repair Manual

GENERAL SHEET NOTES

- All work shall be executed with accordance with the appropriate document of the Contract Documents.
- Any conflicts between specifications and drawings shall be brought to the attention of the Owner and Consultant immediately. In all situations the more restrictive and higher quality shall govern.
- All dimensions to, of, and in existing building and roof shall be verified in the field by contractor. Field measure existing conditions to verify material quantities and dimensions prior to fabrication on component material.
- Details shown are typical. Similar details apply to similar conditions unless otherwise indicated.
- The drawings herein are related to an alteration/ restoration to an existing structure. The specified work was based upon as much observation, destructive testing, etc. as circumstances permitted.

GENERAL CONSTRUCTION DETAIL NOTES

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Flashing Heights: Perimeters, curbs, penetrations shall be raised as necessary to meet the new insulation heights, tapered edge strip and tapered insulation height to meet typical industry standard of 8 in. base flashing height.
- Drains Existing: Remove existing drain flashings. Furnish and install ½ inch per foot sloped tapered insulation sump area as detailed. Clean and reuse existing drains and accessories, replace all damaged, nonfunctional, incompatible, missing and broken drain components. All replacement bowls, strainers, and clamping rings shall be cast iron. All nonmetallic drains strainers shall be replaced with fitted Refer to Details 1.10 and 1.12. Overflow drains same requirements as noted above. Refer to Details 1.11 and 1.13.
- Drains New: Furnish and install new drains as indicated on drawing. New drains to tie into existing primary drain. Size to match existing up 3 in. dia. (Use 3 in. dia for bidding). Contractor to provide all drains, leaders and hook ups as necessary for fully functional drains.
- Tapered Insulation: Furnish and install new tapered insulation, crickets, saddles and kick-backs as designated on roof plan to provide a finished slope of 1/4 in/ ft slope and a min length to width ratio of 3:1. All equipment w/ curb size greater than 24 in. shall have cricket install on up slope side. Contractor responsible for identifying and notifying Consultant and Owner all existing tapered insulation not called out on plans for determination of unit costing. Verify in Pre-bid Conference additional ponded areas identified on the roof and install as noted.
- Curbs - Movable Equipment: Lift equipment from curbs; run new fully adhered membrane flashing up and over top of curb; install continuous sealing material over top of curb. Reset equipment and mechanically fasten to curb. Coordinate with Owner prior to installing equipment. Install new flashings. Metal equipment flashing and/or counter flashing must extend a minimum of 3 in. past the termination of the base flashing; add metal counter flashing as required. Refer to Details 1.17 and 1.18.
- Curbs - Non-Movable Equipment: Terminate new fully adhered membrane flashing at unit framing member. Metal equipment flashing and/or counter flashing must extend a minimum of 3 in. past the termination of the base flashing; add metal counter flashing as required. Refer to Details 1.15 and 1.16.
- Equipment on Support Curbs - Non-Movable Equipment: Cut corners of metal flashing cap, terminate new adhered membrane flashing to curb nailer. Reposition metal; install new shop fabricated corner metal, welded and set in sealant. Wire brush and apply rust inhibitive paint to rusted cap metal. Refer to Details 3.04 and 3.18.
- Equipment on Support Curbs - Movable Equipment: Raise or move equipment to furnish and install new metal cap on curb. Refer to Details 2.12.
- Round penetrations: All penetrations shall be cleaned down to surface where any sealant will contact; install new prefabricated pipe boots or field wrap with membrane. Install draw band and sealant. Refer to Details 2.01, 2.02, 2.03 and 2.04.
- Heat Stacks: Reuse existing metal jacks and storm collars. Clean surfaces and apply new field wrapped EPDM flashing. Reattach and reseat storm collars. Refer to Detail 2.05.
- Steel Support Posts: Install split pipe boot or field wrap flashing with membrane. Terminate with draw band and sealant. Refer to Details 2.06, 2.08, 2.09, 2.10 and 2.11.
- Prefabricated Pipe Chase Cover: Reuse existing pipe cover. Replace any damaged or missing clamping bands or sealants. Refer to Detail 3.05.
- Gas line and conduit support blocks: Reuse existing wood supports and sleepers. Install pads under all wood supports. Replace any damaged wood with matching wood or rubber support blocking. Refer to Details 2.17 and 4.04.
- Condensate Drain Lines: Reuse, repair or replace all damaged or unusable drain lines. Add additional drain line to extend minimum 4 ft from equipment or to any drains within 20 ft. Provide manufacturer's approved splash pan/pad/block where condensate drainage water would contact the roof membrane.
- Abandoned Curbs & Penetrations: Existing abandoned equipment curbs flash according to General Note C. Owner will mark all equipment to be removed and the curb capped. Remove all equipment and curbs as designated by owner and identified at the prebid conference. Where directed, remove curbs flush to deck surface, install framing and matching decking material. For abandoned curbs to remain in place, install new base flashing and install new 24 gauge sloped metal cap. Provide interior protection when removing any equipment or penetration. All small round abandoned penetrations that have no utility service as confirmed by Owner and licensed contractor shall be removed to deck patched according to deck type. Refer to Details 3.03 and 3.04.
- Pitch pans: Pitch pans can only be used when approved by Consultant. In the event they are to be used furnish and install new pitch pans, clean all penetrations down to original surface, blocking required at all pitch pans. Ref. Details 2.06 and 2.07.
- Satellite Dish Ballasted Stand: Prior to moving any satellite dish coordinate with Owner and use Owner approved communications contractor to move, reset and recalibrate satellite stand. When repositioning over the new membrane. Furnish and install new pads under satellite stand strong enough to distribute satellite weight without crushing insulation.
- Base Flashing Surface Mounted Two - Piece: Two piece is the standard for surface. Furnish and install new termination bar to match existing locations and conditions. Refer to Details 1.06 and 3.16.
- Parapet w/ Metal Cap Flashing: Furnish and install new prefinished metal coping, color as selected by Owner. For base flashings extending above 18 inches install 2-piece base and wall flashing. Ref. Details 1.05, 3.09, 3.10, 3.11 and 3.12.
- Base Flashing w/ Metal Wall Siding: Loosen and/or remove existing metal siding flashing. Install base flashing w/ term bar and sealant. Furnish and install new (or reuse functional existing) flashing metal panel and fasten siding w/ new gasketed fastener. Ref. Detail 1.09.
- Base Flashing w/ Thru-Wall Flashing: Confirm if through wall flashing has weep holes do not cover any weep holes. Reuse existing thru-wall metal flashing. Furnish and install new metal counterflashing. Repair and repoint all coping stone and mortar joints to assure watertight condition. Ref. Detail 1.07.
- Base Flashing w/ Existing Reglet: Remove existing reglet/ Furnish and install new prefinished metal coping, color as selected by Owner. Extend base flashings up and over coping. For base flashings extending above 18 inches install 2-piece base and wall flashing. Ref. Detail 1.08.
- Door Threshold: Remove threshold plate and carry flashing up over and set in water block. Before resetting threshold mechanically attach termination bar, fasten min. 6 in. o.c. Door Threshold: Remove and dispose of existing counter flashing. Roof flashing to extend up and under existing threshold plate. Furnish and install new metal counter flashing and sealant.
- Area Divider: Furnish and install new cap metal, replace damaged wood nailers. Ref. Detail 2.18. Consultant approved low profile for areas divider for separating two different types of roof systems. Ref Detail 4.13.
- Abandoned Lightning Protection: Remove all existing lightning protection cable, attachment cleats, air terminals and penetrations. Identify salvage value on bid form. Seal all holes from fasteners and lightning protection equipment left from demolition on roof top component to be left in place.
- Roof to Wall Expansion Joint: Furnish and install new metal expansion joint. Ref. Detail 3.01, 3.02 and 4.06.

- Non-Standard Roof Transitions: Contractor to provide manufacturer written approved transition shop drawings. Roof Transition: Install new metal edge at transition; install tapered edge strip to reduce ponding at edge. Run base flashings using sheet widths in vertical run. Ref. Detail 3.06.
- Overflow scupper: Furnish and install new through-wall scupper and face frame. Face frame prefinished, size and color to match existing. Ref. Detail 1.14, 4.01, 4.02 and 4.03.
- Metal Edge: Remove existing fascia/ water dam; install new 24 gauge prefinished galvanized metal edging, standard color as selected by Owner, min. 4 in. hemmed flange. Refer to Details 1.03 and 1.04.
- Roof curb building out the sides to match the roof cap base opening: Remove existing fascia/ water dam; install new 24 gauge prefinished galvanized metal edging, standard color as selected by Owner, min. 4 in. hemmed flange. Refer to Details 1.17 and 1.18.

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BUR Manual
THERMOPLASTIC REPAIR MANUAL
THERMOSET REPAIR MANUAL

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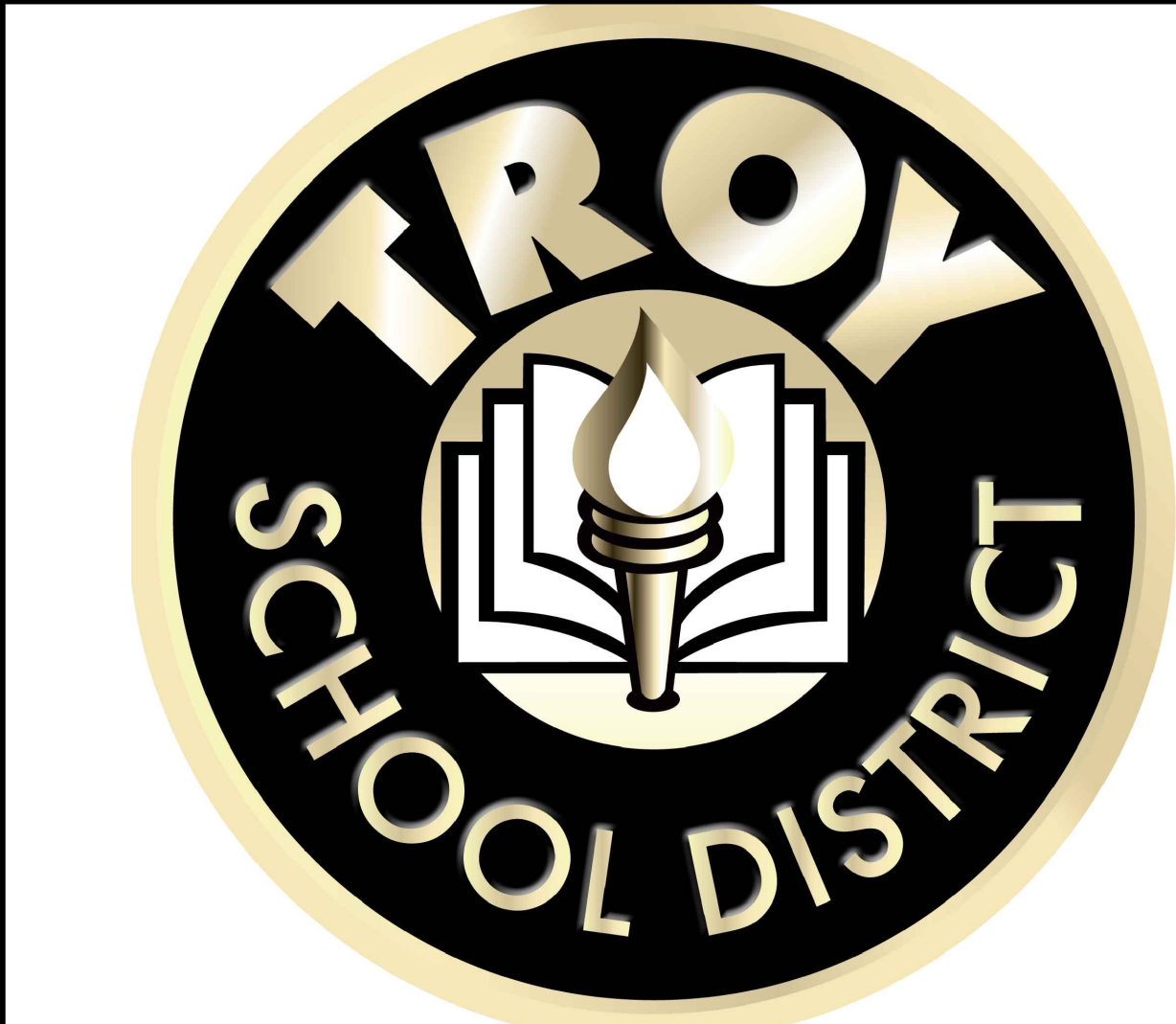
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PROJECT WORK SCHEDULE

School	Reroofing sq. ft.	Restoration sq. ft.	TSD 2018 Roof Work	Project Time Frame
Troy Athens HS	53,200		Roof Area C Roof Area A: Sec. 1, Sec 2, Sec. 6, Roof Area F: Sec. 3, Sec. 4, Roof Area I	6/18/18-8/17/18
Morse Elementary School	15,325		Roof Area C: Sec 1, 2, 3, 4	6/18/18-8/17/18
Niles Community HS	14,650		Roof Area G and H	6/18/18-8/17/18
Transportation Bldg.	1,275		Roof Area C	6/18/18-8/17/18
Troy High School	4,625		Roof Area (s) N2, P1	6/18/18-8/17/18
Troy Union Elementary School	13,100	4,400	Reroof Roof Area (s) A, B; Restoration Roof Area E	6/18/18-8/17/18
Base Bid	102,175	4,400		
Alternate Bid No. 1 Troy Athens HS	43,750		ALT. Bid Reroof Roof Area A Sec. 3, 4, 5, 6, 7, 8, 9, 10, 11	6/18/18-8/17/18
Total Roof Area (sf)	145,925	4,400		

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DIRECTORY

OWNER:  
Troy School District  
4400 Livernois  
Troy, MI 48098

CONTACT:  
Rob Carson  
Dir of Operations  
Phone: (248) 823-4067  
Email:RCarson@troy.k12.mi.us

PROJECT LOCATION:

See Project List below

Contact:  
Michelle Kern - Bond Rep  
Phone: (248) 921-3929  
Email: MKerns@troy.k12.mi.us

ROOF CONSULTANTS:  
WeatherTech Consulting Group, Inc.  
7747 Auburn Road  
Utica, Michigan 48317

CONTACT  
Geof Garabedian  
Principal/Project Manager  
Phone (586) 731-3095 ext 12  
Email: ggarabedian@wtcg.net

PROJECT LOCATIONS

Athens High School	4333 John R Rd. Troy, MI 48085
Morse Elementary School	475 Cherry Dr. Troy, MI 48083
Niles Community High School	201 Square Lake Rd, Troy, MI 48098
Transportation Building	120 Hart Dr Troy MI 48098
Troy High School	4777 Northfield Pkwy. Troy, MI 48098
Troy Union Elementary School	1340 E Square Lake Rd, Troy, MI 48085

PROFESSIONAL



WeatherTech

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WEB SITE:www.wtcg.net

CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Troy School District  
**BID NO. 9848**  
2018 Roofing Program

WTProject No:

TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/06/17	90% Review Set
11/10/17	OTB

File Name: Roof Plan

Drawn By: MD

Checked By: GG, AW, AC

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SHEET TITLE

Cover Page

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1985



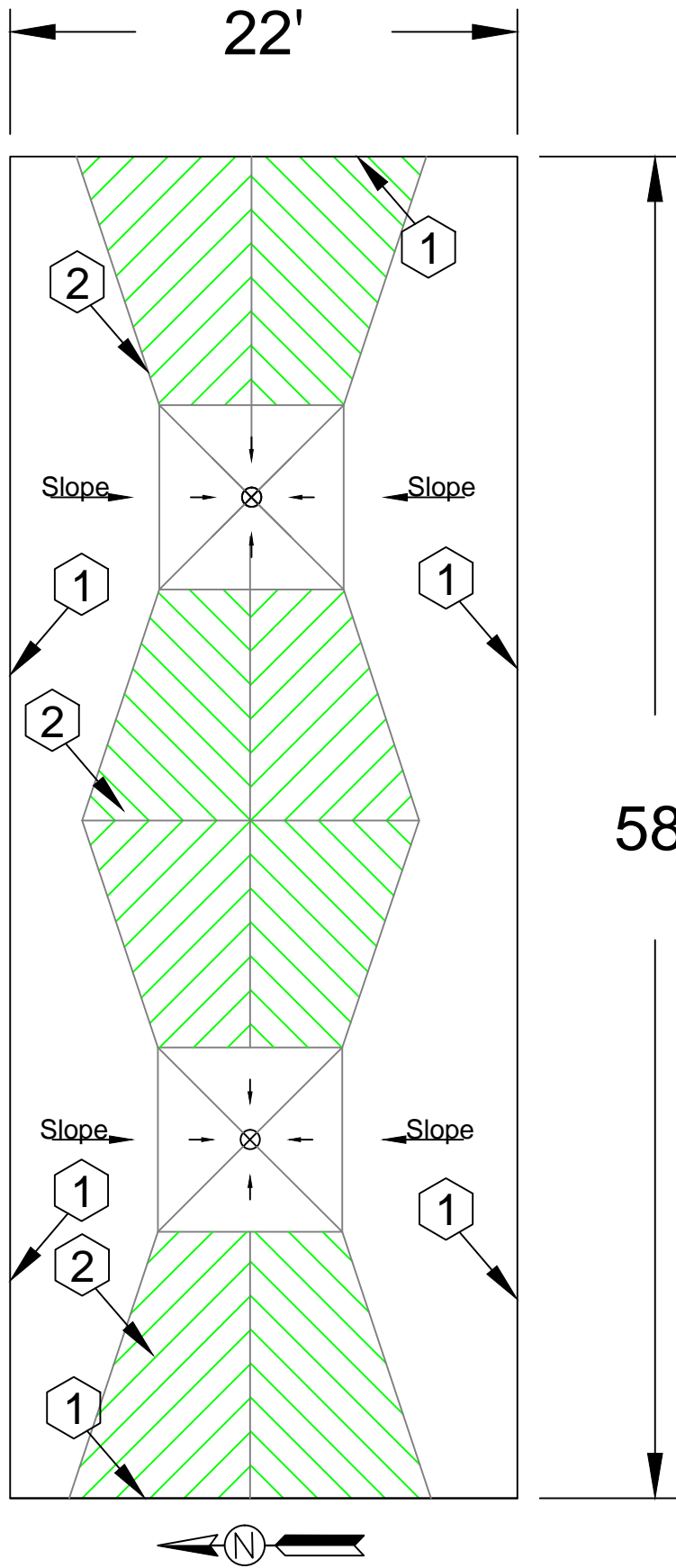
1978



1979



1984



## Transportation Building

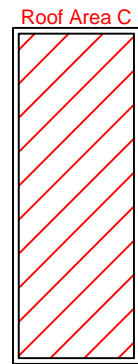
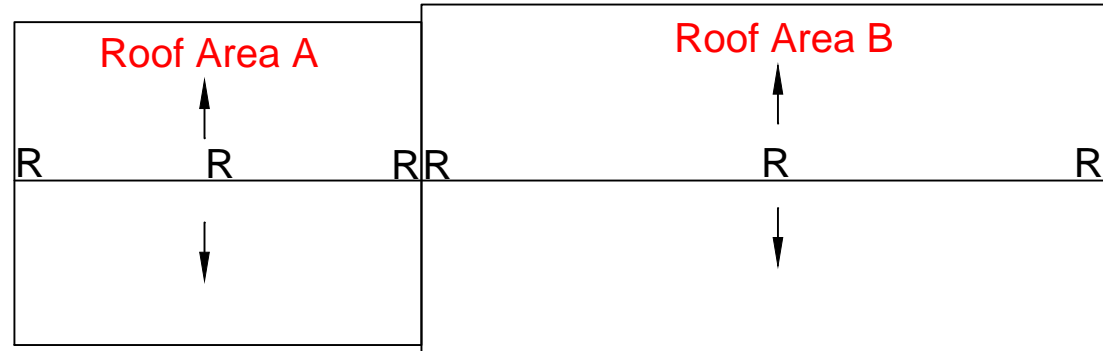
### Roof Plan

#### Roof Area C

Scale:



### Key Plan



### Transportation Building - Troy School District

#### Sheet Notes: Roof Area C

#### Schedule

#### WORK DESCRIPTION - ROOF REPLACEMENT

Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warrantied roof system. Approx. Roof Area C: 1,275 sq. ft.

- New Roof System
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer mechanically fasten to deck;
    - Second insulation layer adhere to first layer of insulation;
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Deck: Metal: Repair as necessary to comply w/ building codes.
  - Interior Exposed deck roof deck interior conditions exist.

- Building Height: Ground to building edge: 25 ft.

#### 3. EXISTING ROOF SYSTEM CONSTRUCTION

**All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:**

- Roof System
- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
  - Insulation:
    - First insulation layer Approx. 1.0 in. polyisocyanurate insulation;
    - Second insulation layer ½ in. wood fiber insulation.
  - Tapered Insulation: Exists in various locations.
  - Deck: Metal: Repair as necessary to comply w/ building codes.

- Warranty/Guarantee
  - Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.

- Allowances: Add to base bid \$3,800 for allowances covering Unit Price and contingency items.

#### General Construction Details: Ref A1.0

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

#### Key Notes:

All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

#### Overview Photos 1978 and 1979

- Raised Perimeter Edge: Furnish and install new metal edge detail. **Ref Photo 1984, 1985.**
- Tapered insulation: Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights. **Ref. Photo 1978.**

Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	H	Roof Hatch	□ □ □	Walk Way
○	Vent Stack	S	Skylight	0' L +15	Elevation Change
⊙	Insulated Pipe	A	Abandoned Equipment	⋈	Ladder
⊙	Insulated Stack/Pipe on Curb	⊗ OF	Overflow Drain	①	Photo Indicator
—●—	Screen support stanchion	⊗	Drain	①	Key Note
—■—	Tube/Structual Equipment Support	⊕	New Drain	⋈	Satellite Dish
■	Pitch Pan		Overflow Scupper	⊙	Core cut
—■—	Equip. on Support		Scupper	△ 02	Revision/ Addendum
—■—	Equip. on Sleepers/Wood Blocking	— R —	Expansion Joint	▨	Tappered Insulation
⊗	Equipment Unit on Curb	G G	Gutter		Metal Roofing
□	Duct or Flanged Equipment	R R	Ridge	⊞	Shingles
— R —	Area Divider	—■—	Pipe/ Conduit on Blocks	⋈	Pipe/ Conduit Attached to Parapet

## PROFESSIONAL



## WeatherTech

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WEB SITE:www.wtcg.net

## CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

## PROJECT:

Transportation Building  
120 Hart Dr Troy, MI 48098

Troy School District  
BID NO. 9848  
2018 Roofing Program

WTProject No:  
TSD-R102-18

## ISSUE

DATE	DESCRIPTION
10/28/17	50% Review Set
11/08/17	90% Review Set
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File Name: Roof Plan

Drawn By: MD

Checked By: AW, GG, AC

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## SHEET TITLE

Transportation  
Building,  
Roof Area C  
Roof Plan

# A5.0

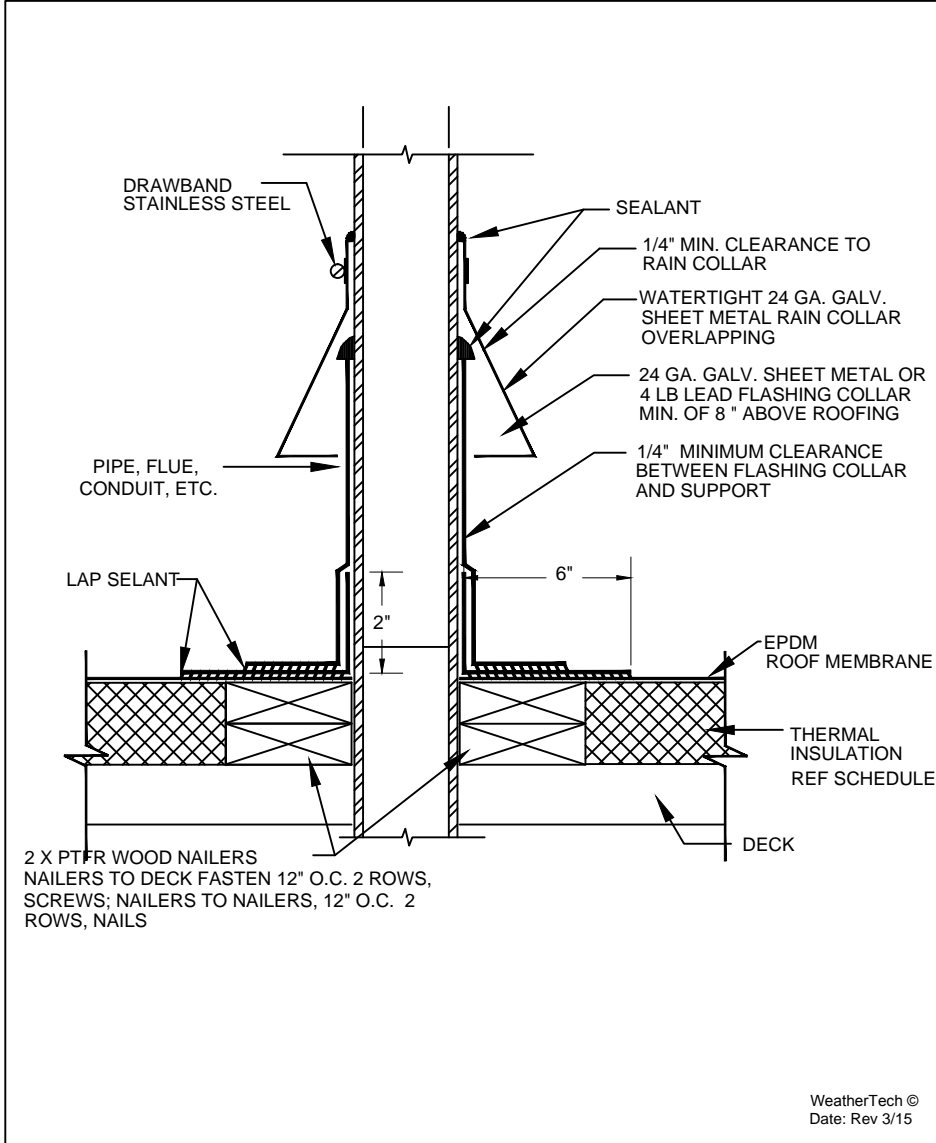
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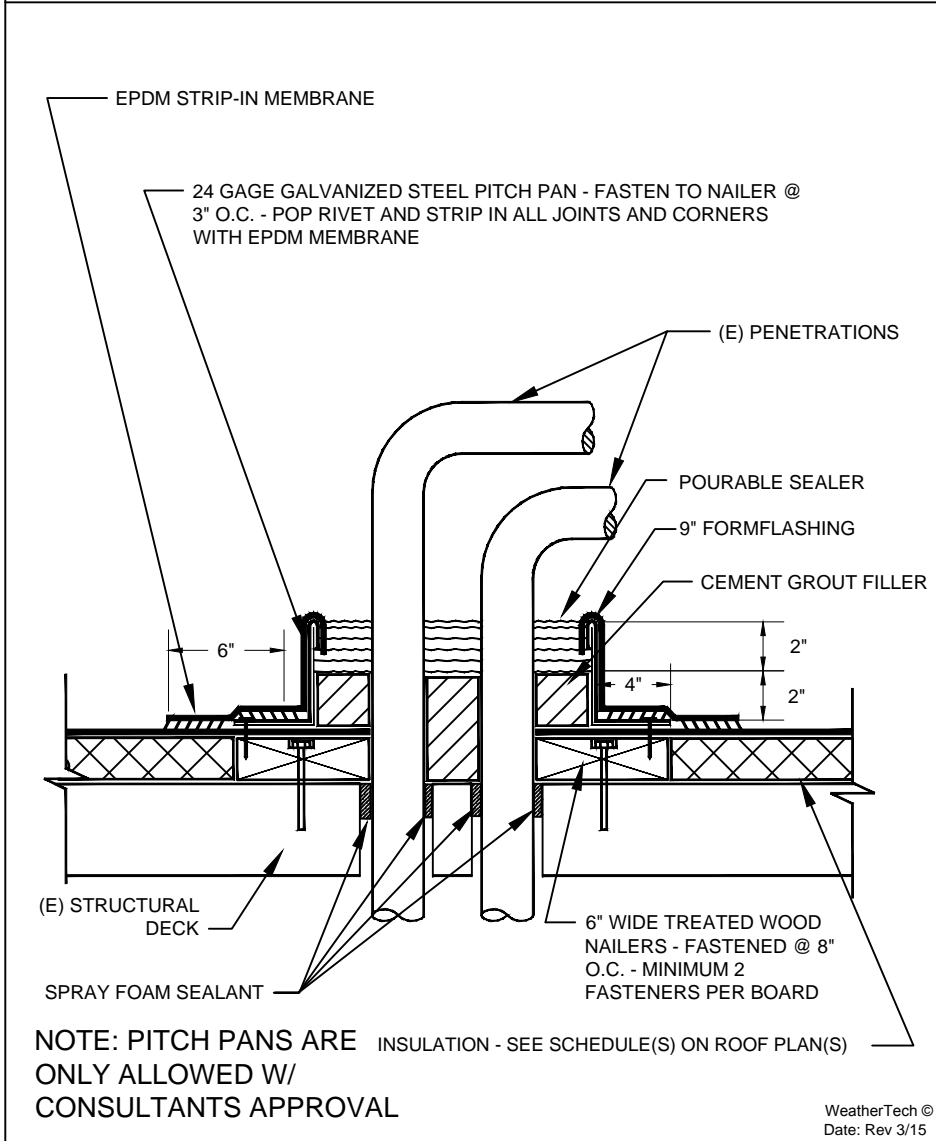
<p>SEE NOTE 2</p> <p>TWO LAYER INSULATION</p> <p>ADHESIVE</p> <p>FMG APPROVED FASTENER AND PLATE</p> <p>NAILABLE DECK</p> <p><b>NOTE:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.</p> <p><b>NOTE 2:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>SEE NOTE 2</p> <p>TWO LAYER INSULATION IN ADHESIVE</p> <p>NON NAILABLE DECK</p> <p><b>NOTE 1:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.</p> <p><b>NOTE 2:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>24 GAGE PREFINISHED GALVANIZED STEEL FASCIA COVER</p> <p>22 GAGE GALVANIZED STEEL CANT-DAM WITH CONTINUOUS CLEAT - FASTEN 6" O.C. WITH RING SHANK ROOFING NAILS</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - RUN FLASHING OVER CANT DAM AND DOWN ONTO CLEAT AS SHOWN</p> <p>6" SEAM TAPE</p> <p>EPDM MEMBRANE FULLY ADHERED</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>NEW 6" WIDE TREATED WOOD BLOCKING TO MATCH HEIGHT OF ROOF INSULATION - FASTEN @ 12" O.C.</p> <p>FIELD CRIMP PER</p> <p>(E) EXTERIOR WALL</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>22 GAGE GALVANIZED STEEL CONTINUOUS CLEAT FASTENED 6" O.C. WITH RING SHANK ROOFING NAILS</p> <p>TREATED WOOD 2X BLOCKING ATTACHED TO PARAPET WITH APPROPRIATE FASTENERS @ 12" O.C. - SLOPE TOWARDS ROOF AT A RATE OF 1/4" PER FOOT</p> <p>24 GAGE PREFINISHED GALVANIZED STEEL COPING WITH 1" HIGH STANDING SEAM JOINTS</p> <p>#12 STAINLESS STEEL SCREWS WITH EPDM BACKED S.S. WASHERS @ 18" O.C. MAX.</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF PARAPET</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>NEW 2x6 TREATED WOOD BLOCKING TO MATCH HIGHEST POINT IN TAPERED INSULATION ASSEMBLY - FASTEN @ 6" O.C.</p> <p>(E) EXTERIOR WALL</p> <p>APPROVED SEALANT</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>22 GAGE GALVANIZED STEEL CONTINUOUS CLEAT FASTENED 6" O.C. WITH RING SHANK ROOFING NAILS</p> <p>TREATED WOOD 2X BLOCKING ATTACHED TO PARAPET WITH APPROPRIATE FASTENERS @ 12" O.C. - SLOPE TOWARDS ROOF AT A RATE OF 1/4" PER FOOT</p> <p>24 GAGE PREFINISHED GALVANIZED STEEL COPING WITH 1" HIGH STANDING SEAM JOINTS</p> <p>#12 STAINLESS STEEL SCREWS WITH EPDM BACKED S.S. WASHERS @ 18" O.C.</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF PARAPET</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>FASTENER AND PLATE 12" (300 mm) O.C. MAXIMUM</p> <p>PARAPET WALL</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>(E) WALL ASSEMBLY</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>22 GA GAL RECEIVER STAINLESS STEEL FASTENERS WITH EPDM BACKED S.S. WASHERS @ 8" O.C. MINIMUM</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>24 GA GAL COUNTER FLASHING STAINLESS STEEL FASTENERS WITH EPDM BACKED S.S. WASHERS @ 8" O.C. MINIMUM</p> <p>EPDM FLASHING MEMBRANE ADHERED W/ BONDING ADHESIVE</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>WeatherTech © Date: Rev 3/15</p>
<p>FULLY ADHERED EPDM SYSTEM NAILABLE DECK SCALE: N.T.S.</p> <p>1.01</p>	<p>FULLY ADHERED EPDM SYSTEM NON-NAILABLE DECK SCALE: N.T.S.</p> <p>1.02</p>	<p>CANT-DAM WITH FASCIA COVER SCALE: N.T.S.</p> <p>1.03</p>	<p>RAISED EDGE FLASHING SCALE: N.T.S.</p> <p>1.04</p>	<p>PARAPET WITH METAL COPING SCALE: N.T.S.</p> <p>1.05</p>	<p>2-PIECE SURFACE MOUNT METAL FLASHING SCALE: N.T.S.</p> <p>1.06</p>
<p>(E) WALL ASSEMBLY</p> <p>(E) THRU-WALL METAL COUNTERFLASHING</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>METAL COUNTERFLASHING INTO EXISTING RECEIVER - SEE NOTE 1</p> <p>EPDM FLASHING MEMBRANE ADHERED W/ BONDING ADHESIVE</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p><b>NOTE 1:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL, 26 GAGE STAINLESS STEEL OR 16 O.Z. COLD ROLLED COPPER AND SHALL MATCH EXISTING TYPE OF THROUGH-WALL REGLET METAL. SECURE NEW COUNTERFLASHING TO EXISTING REGLET WITH POP RIVETS OF SAME TYPE OF METAL @ 12" O.C. MAX.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>NEW OR EXISTING SAW-CUT REGLET</p> <p>LEAD WEDGES @ 12" O.C. MAX.</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>METAL COUNTERFLASHING INTO EXISTING RECEIVER - SEE NOTE 1</p> <p>EPDM FLASHING MEMBRANE ADHERED W/ BONDING ADHESIVE</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p><b>NOTE 1:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL OR PREFINISHED STEEL, 26 GAGE STAINLESS STEEL OR 16 O.Z. COLD ROLLED COPPER. SEE SCHEDULE(S) ON THE ROOF PLAN(S) FOR SPECIFIC REQUIREMENTS FOR EACH ROOF AREA.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>(E) METAL SIDING - SEE NOTE 2</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>METAL COUNTERFLASHING - SLIP UP AND BEHIND BASE OF SIDING - SEE NOTE 1</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p><b>NOTE 1:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL OR PREFINISHED STEEL, 26 GAGE STAINLESS STEEL OR .032" (MINIMUM) MILL FINISHED ALUMINUM. SEE SCHEDULE(S) ON ROOF PLAN(S) FOR SPECIFIC REQUIREMENTS FOR EACH ROOF AREA.</p> <p><b>NOTE 2:</b> LOOSEN BOTTOM OF SIDING TO FACILITATE INSTALLATION OF NEW COUNTERFLASHING. RESecure SIDING WITH GROMMETTED SCREWS AS INDICATED.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>(E) DRAIN STRAINER - REPLACE IF MISSING OR BROKEN</p> <p>(E) CLAMPING RING BOLTS - REPLACE IF MISSING OR DAMAGED DURING REMOVAL</p> <p>(E) CLAMPING RING - REMOVE ALL BITUMINOUS MATERIALS - REPLACE IF MISSING OR BROKEN DURING REMOVAL</p> <p>TAPERED INSULATION - MINIMUM 3/4" PER FOOT TAPER</p> <p>12"</p> <p>1" MIN</p> <p>(E) STRUCTURAL DECK</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>EPDM ROOF MEMBRANE</p> <p>MANUFACTURER APPROVED SEALANT - MINIMUM ONE TUBE PER DRAIN</p> <p>(E) DRAIN PIPING</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>THERMAL INSULATION</p> <p>CENTER LINE DRAIN</p> <p>72"</p> <p>24"</p> <p>24" MIN</p> <p>CENTER LINE OVERFLOW DRAIN</p> <p>OVERFLOW COLLAR</p> <p>DECK</p> <p>EPDM MEMBRANE AND FLASHING</p> <p>ROOF DRAIN</p> <p>LEADER</p> <p>TAPERED EDGE STRIP</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>DRAIN</p> <p>SLOPE</p> <p>TAPERED INSULATION</p> <p>RECEIVER DRAIN</p> <p>SLOPE</p> <p>TAPER. INSUL.</p> <p>SLOPE</p> <p>TAPERED INSULATION</p> <p>SLOPE</p> <p>96"</p> <p>96"</p> <p>WeatherTech © Date: Rev 3/15</p>
<p>BASE FLASHING W/ THRU WALL COUNTERFLASHING SCALE: N.T.S.</p> <p>1.07</p>	<p>BASE FLASHING W/ CUT-IN REGLET@ MASONRY WALL SCALE: N.T.S.</p> <p>1.08</p>	<p>BASE FLASHING AT METAL SIDING SCALE: N.T.S.</p> <p>1.09</p>	<p>DRAIN FLASHING SCALE: N.T.S.</p> <p>1.10</p>	<p>ROOF/OVERFLOW DRAIN SCALE: N.T.S.</p> <p>1.11</p>	<p>DRAIN SUMP-A SCALE: N.T.S.</p> <p>1.12</p>
<p>DRAIN</p> <p>120"</p> <p>RECEIVER DRAIN</p> <p>OVERFLOW DRAIN</p> <p>TAPERED INSULATION</p> <p>SLOPE</p> <p>24" MIN</p> <p>72"</p> <p>24"</p> <p>TAPER. INSUL.</p> <p>SLOPE</p> <p>TAPERED INSULATION</p> <p>SLOPE</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>EPDM FLASHING</p> <p>EPDM STRIP-IN FLASHING</p> <p>1-1/2"</p> <p>4"</p> <p>1-1/2"</p> <p>APPROVED SEALANT</p> <p>24 GAGE T GALVANIZED STEEL SCUPPER - FASTEN 4" O.C. STAGGERED WITH RING SHANK ROOFING NAILS - SEE NOTE 2</p> <p>EPDM STRIP-IN FLASHING</p> <p>1-1/2"</p> <p>1-1/2"</p> <p>4"</p> <p>APPROVED SEALANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>NEW 6" WIDE TREATED WOOD BLOCKING TO MATCH HEIGHT OF ROOF INSULATION - FASTEN @ 12" O.C.</p> <p>(E) EXTERIOR WALL</p> <p>(E) STRUCTURAL DECK</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>RAISED CURB</p> <p>WOOD NAILER</p> <p>8" MINIMUM FLASHING HEIGHT</p> <p>SEALING MATERIAL</p> <p>ROOFTOP EQUIPMENT FRAME</p> <p>GASKETED FASTENERS MIN. TWO FASTENERS PER SIDE</p> <p>REMOVABLE SHEET-METAL COUNTERFLASHING</p> <p>ADHERED MEMBRANE FLASHING</p> <p>BONDING ADHESIVE</p> <p>PREMOLDED CORNER</p> <p>SEALANT (IF REQUIRED FOR THE SPECIFIC CURB)</p> <p>EPDM MEMBRANE</p> <p>SEAM PLATES AND FASTENERS</p> <p>TAPERED CANT</p> <p>THERMAL INSULATION SEE SCHEDULE</p> <p>STRUCTURAL DECK</p> <p>OPTION:</p> <p>MECHANICAL UNIT, HOOD, ETC.</p> <p>BASE OF UNIT EXTENDS 1/2" MINIMUM BEYOND TOP OF CURB</p> <p>MINIMUM 1" BELOW TOP OF CURB</p> <p>FLASHING RECEIVER</p> <p>FASTENERS</p> <p>COUNTERFLASHING</p> <p>FLASHING MEMBRANE</p> <p>WOOD CURB</p> <p><b>NOTES:</b></p> <p>1. THE CURB, TOP WOOD NAILER AND SEAL STRIP ARE TO BE SUPPLIED BY THE CURB MANUFACTURER.</p> <p>2. WHEN POSSIBLE, THE MECHANICAL UNITS SHOULD NOT BE SET UNTIL THE ROOF MEMBRANE AND FLASHING HAVE BEEN INSTALLED.</p> <p>3. WHERE THE SKYLIGHT, SCUPPER OR SMOKE VENT FRAME OVERLAPS THE BASE FLASHING AT LEAST 1 INCHES, THE REMOVABLE SHEET-METAL COUNTERFLASHING IS NOT REQUIRED.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>(E) NON-REMOVABLE UNIT</p> <p>POLYURETHANE SEALANT</p> <p>#12 STAINLESS STEEL SCREWS WITH EPDM BACKED S.S. WASHERS @ 12" O.C.</p> <p>METAL COUNTERFLASHING - SEE NOTES 1 AND 2</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - TUCK FLASHING UP AND BEHIND BOTTOM OF UNIT SKIRT</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>(E) CURB</p> <p><b>NOTE 1:</b> WHEN BASE OF UNIT PROVIDES LESS THAN 4" COVERAGE OVER TOP OF FLASHING, INSTALL SEPARATE COUNTERFLASHING AS SHOWN.</p> <p><b>NOTE 2:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL, 24 GAGE PREFINISHED GALVANIZED STEEL, .032" MILL FINISHED ALUMINUM OR 26 GAGE STAINLESS STEEL. SEE SCHEDULE(S) ON THE ROOF PLAN(S) FOR SPECIFIC TYPE OF METAL REQUIRED IN EACH ROOF AREA.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>(E) SHEET METAL GUTTER AND DOWNSPOUTS</p> <p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>BASE OF WALL OR CURB</p> <p>SELF-FLASHING UNIT</p> <p>1-1/2" x 1/2" NEOPRENE FOAM SEALING STRIP</p> <p>ADDITIONAL WOOD BLOCKING IF REQUIRED TO ACHIEVE MINIMUM 8" FLASHING HEIGHT</p> <p>#12 WOOD SCREWS @ 12" O.C.</p> <p>FASTEN FLASHING 8" O.C. WITH ROOFING NAILS</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF CURB</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>(E) CURB</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>BASE OF WALL OR CURB</p> <p>1-1/2" x 1/2" NEOPRENE FOAM SEALING STRIP</p> <p>TREATED WOOD BLOCKING TO RAISE CURB TO 8" ABOVE THE ROOF SURFACE (IF REQUIRED)</p> <p>#12 WOOD SCREWS @ 12" O.C.</p> <p>FASTEN VENTILATOR BASE TO CURB WITH #12 STAINLESS STEEL FASTENERS WITH EPDM BACKED S.S. WASHERS @ 18" O.C. - MINIMUM 1 PER SIDE</p> <p>FASTEN FLASHING 8" O.C. WITH ROOFING NAILS</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF CURB</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>(E) CURB</p> <p>WeatherTech © Date: Rev 3/15</p>
<p>DRAIN SUMP-A SCALE: N.T.S.</p> <p>1.13</p>	<p>THRU-WALL OVERFLOW SCUPPER SCALE: N.T.S.</p> <p>1.14</p>	<p>NON REMOVABLE PREFABRICATED METAL CURB SCALE: N.T.S.</p> <p>1.15</p>	<p>NON REMOVABLE UNIT CURB FLASHING SCALE: N.T.S.</p> <p>1.16</p>	<p>REMOVABLE UNIT CURB FLASHING SCALE: N.T.S.</p> <p>1.17</p>	<p>REMOVABLE VENTILATOR CURB FLASHING SCALE: N.T.S.</p> <p>1.18</p>

DATE	DESCRIPTION
10/27/17	50% Review Set
11/08/17	90% Review Set
11/10/17	OTB

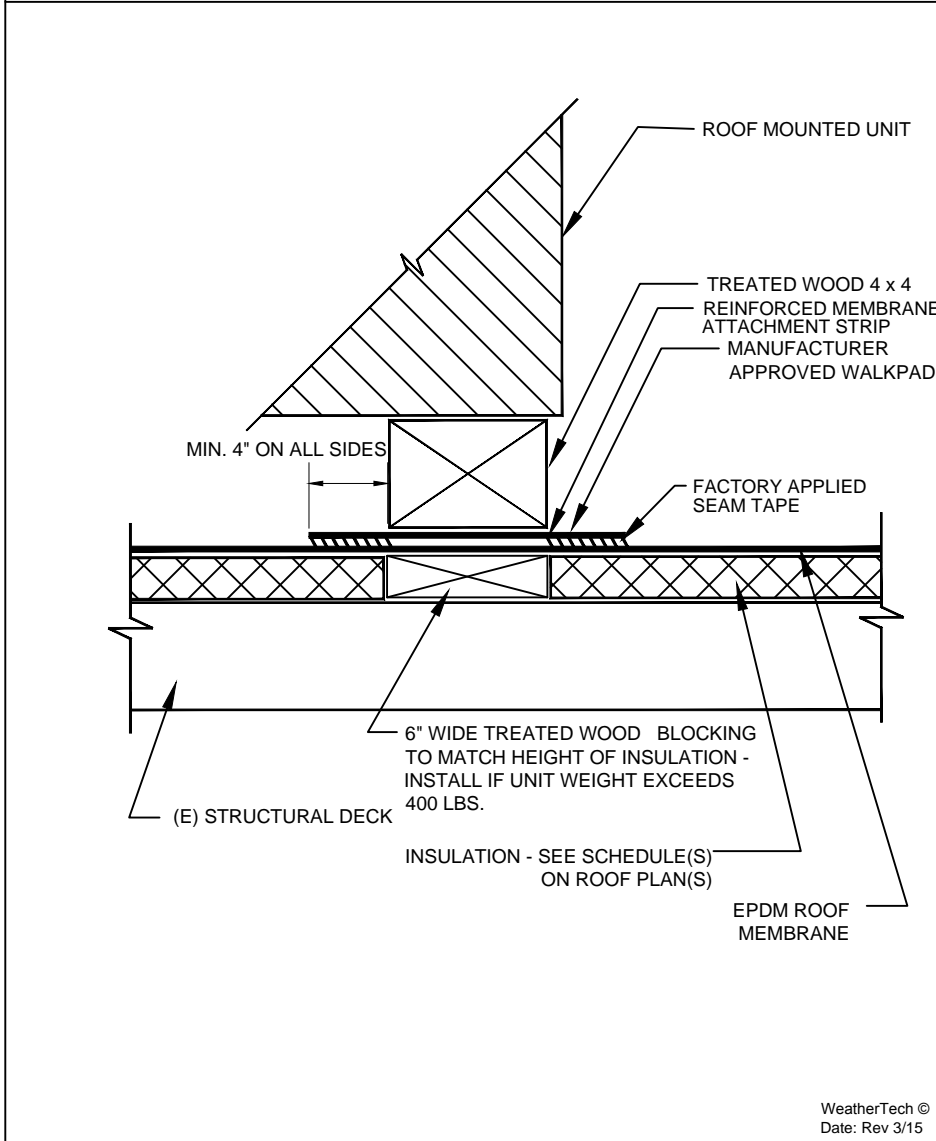




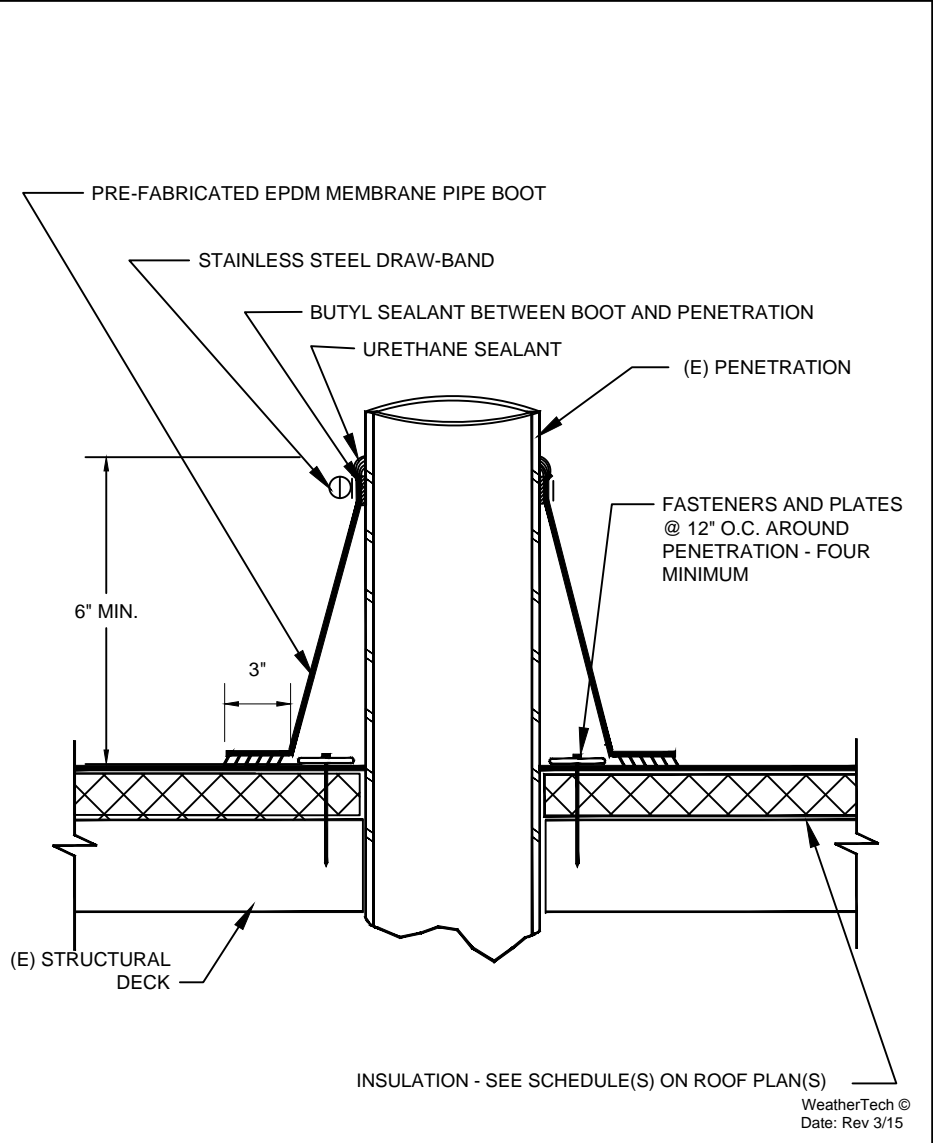
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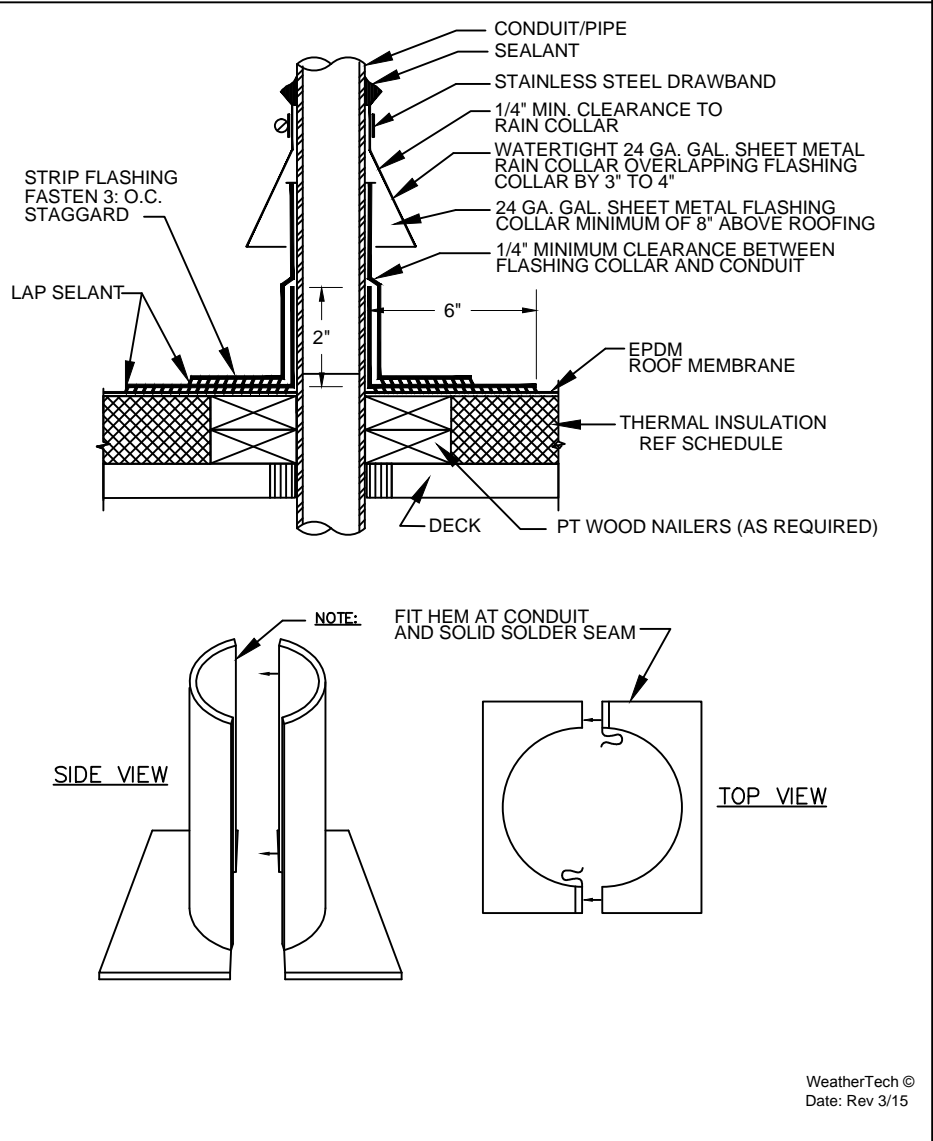
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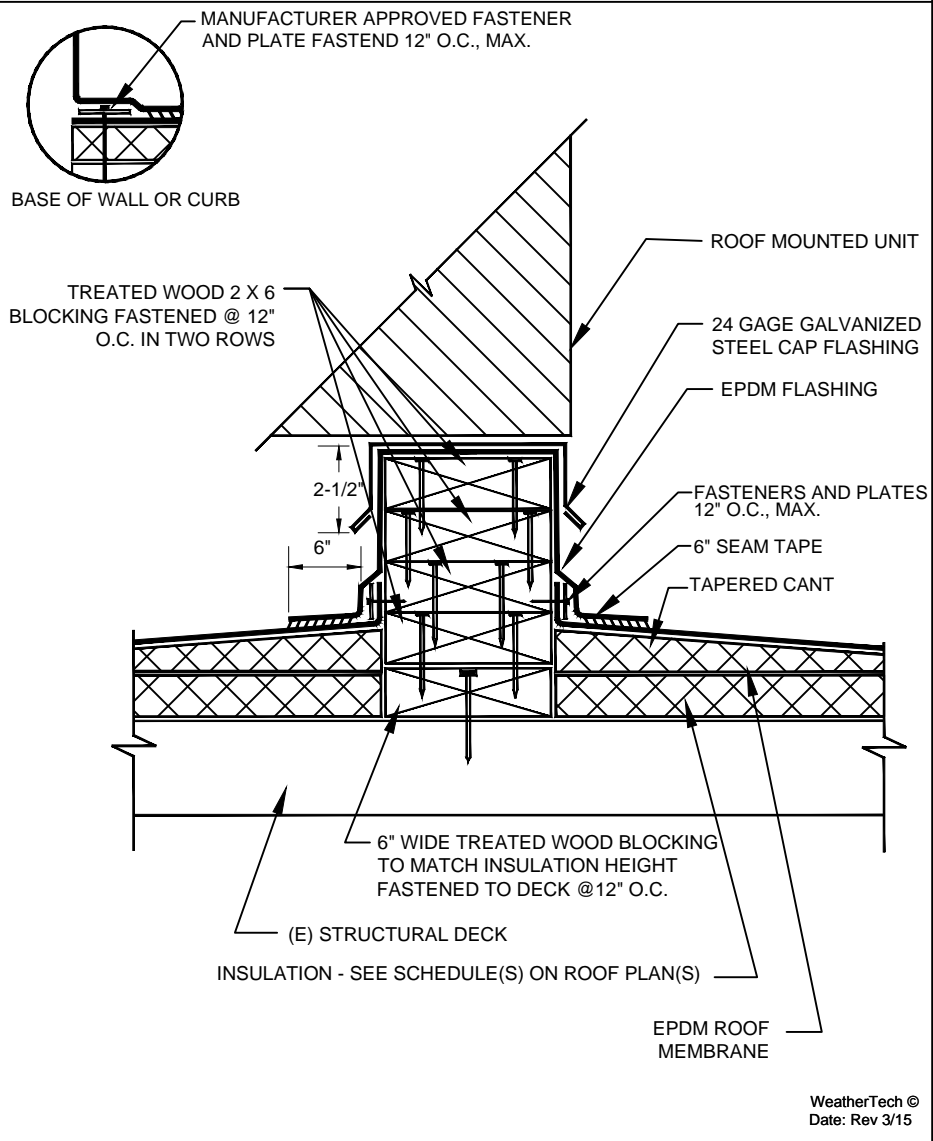
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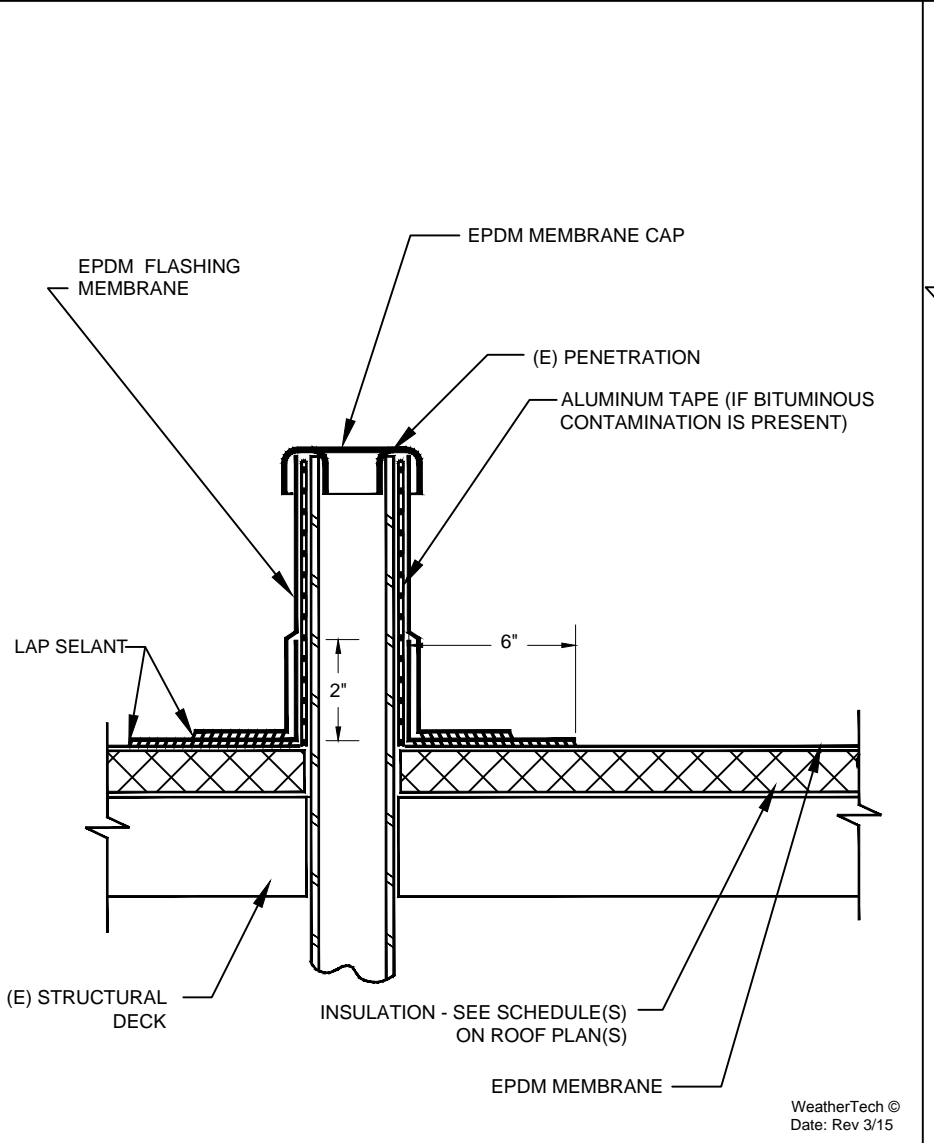
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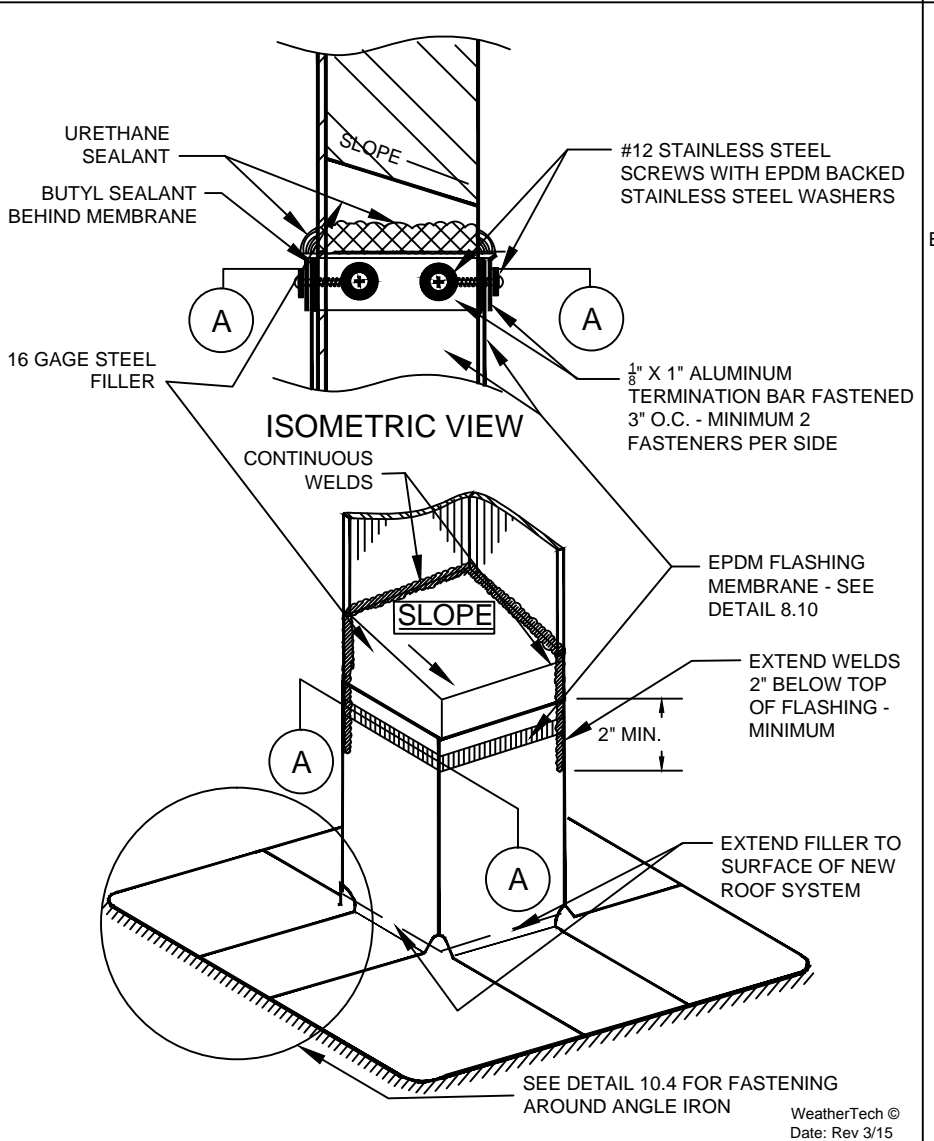
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FLASHING - 2 PC COLLAR  
SCALE: N.T.S.



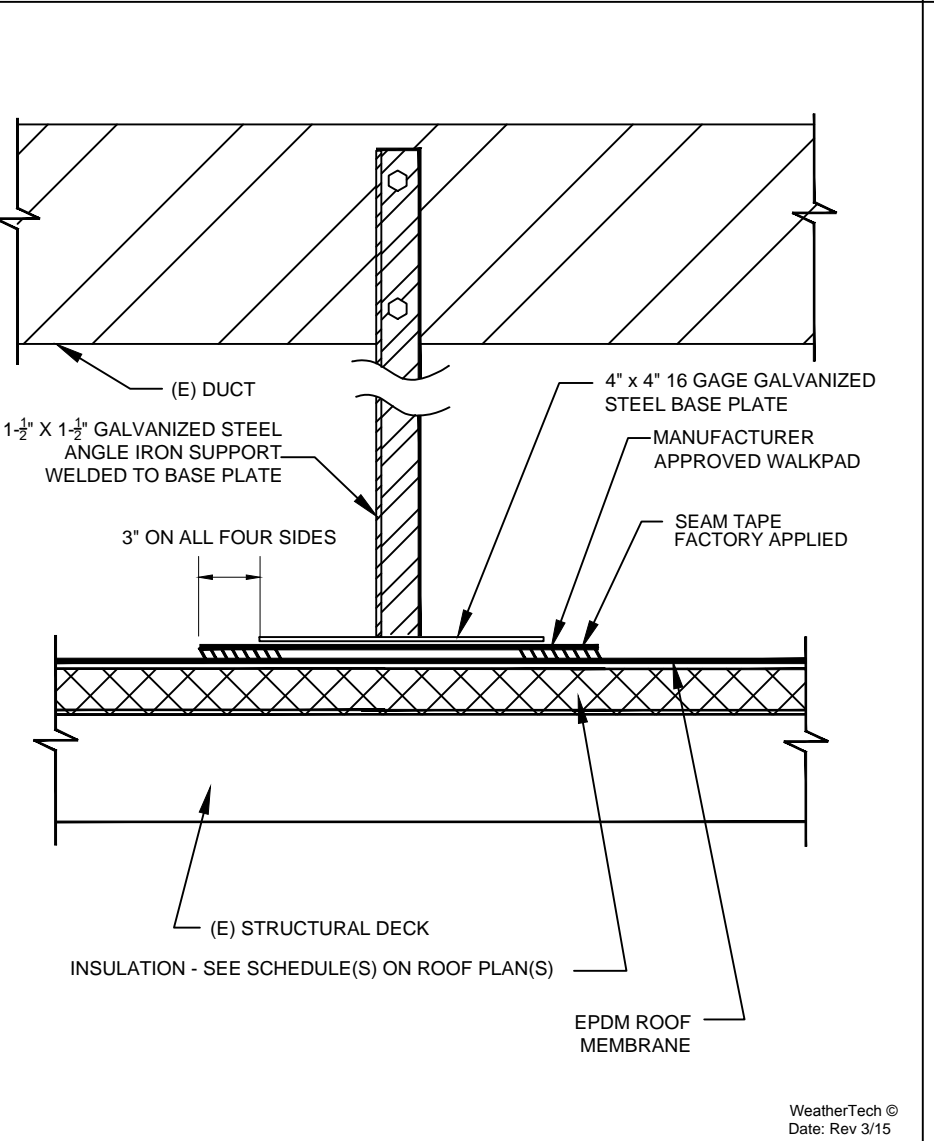
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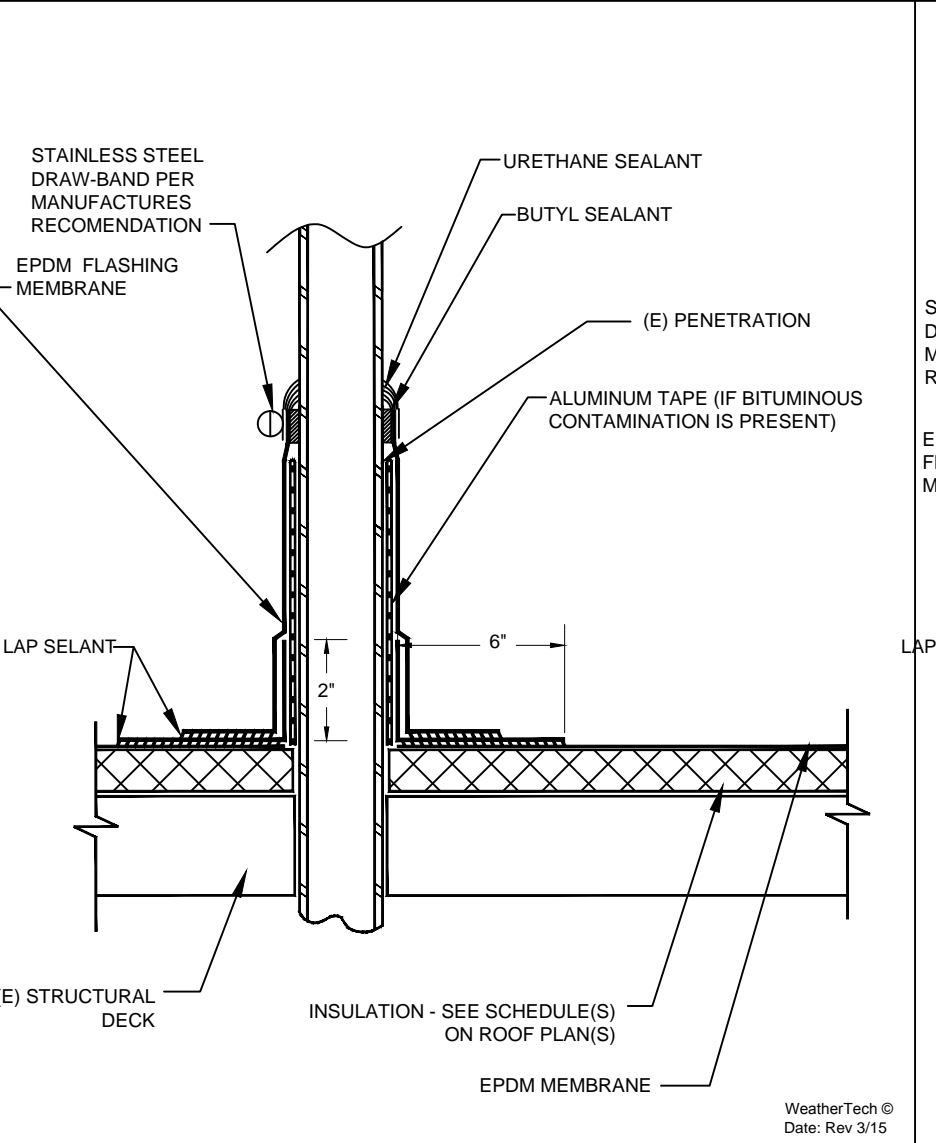
ANGLE IRON SUPPORT FLASHING  
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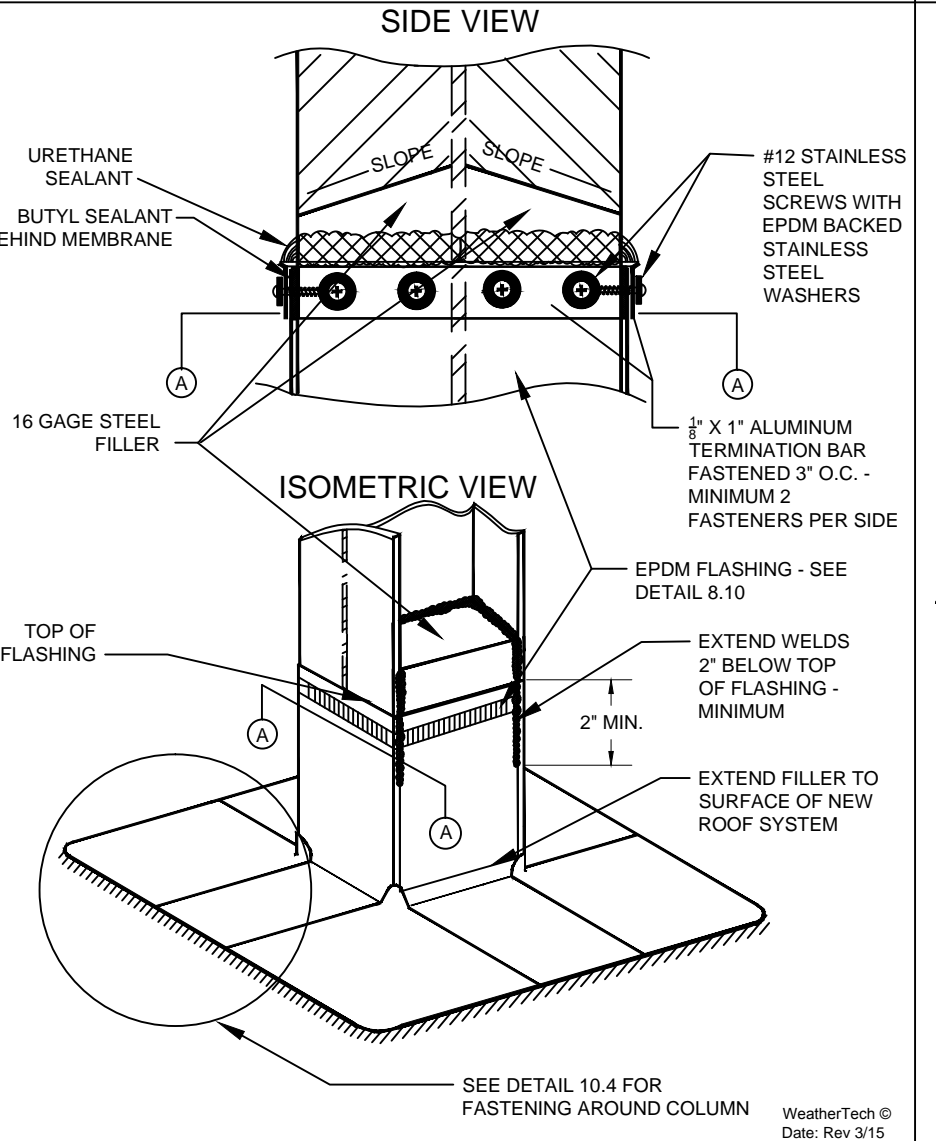
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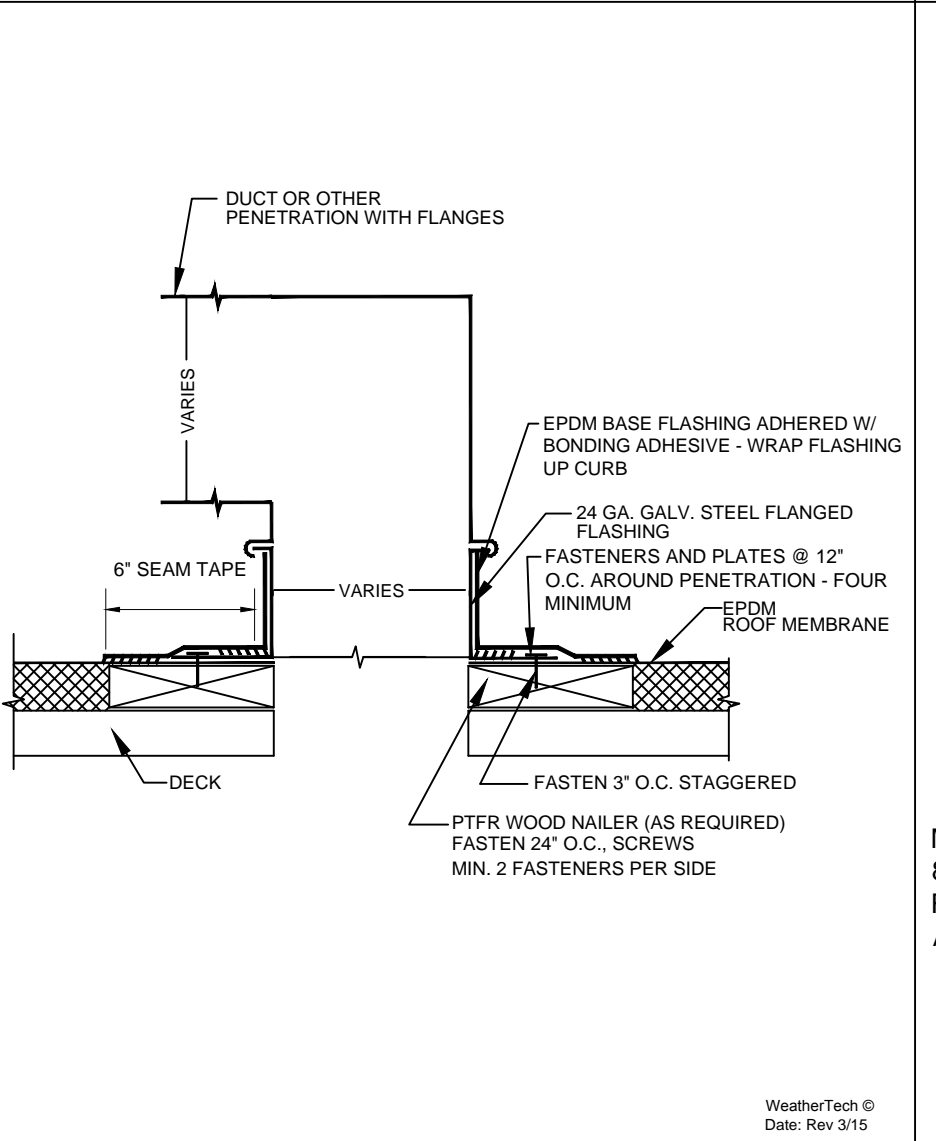
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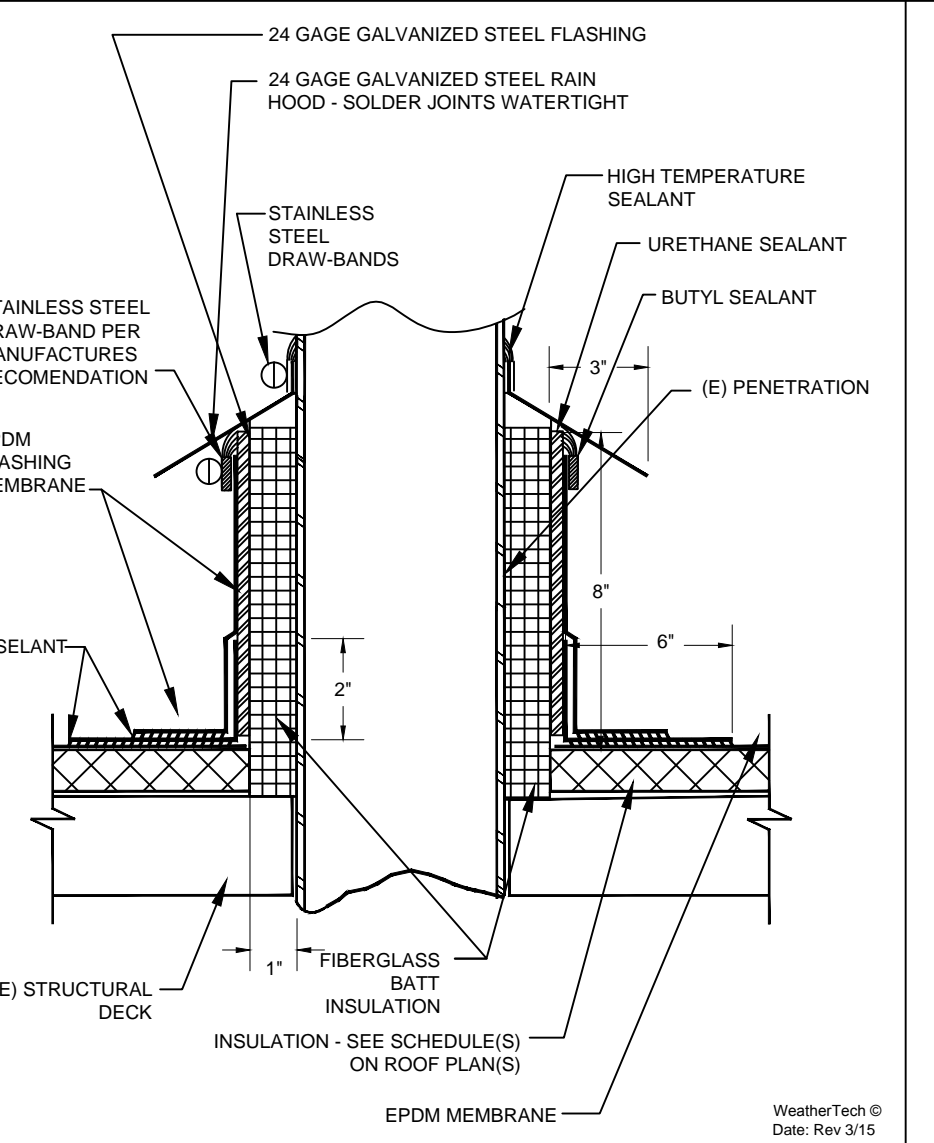
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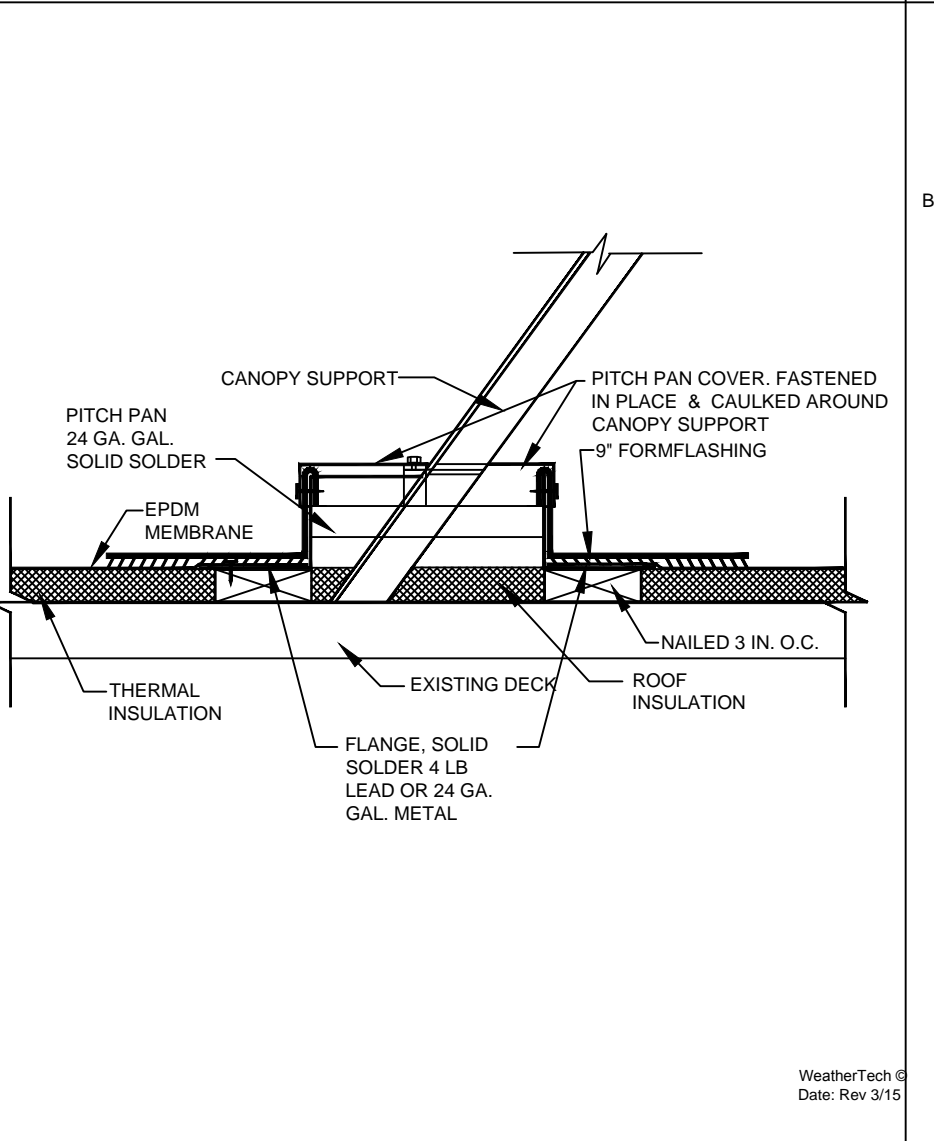
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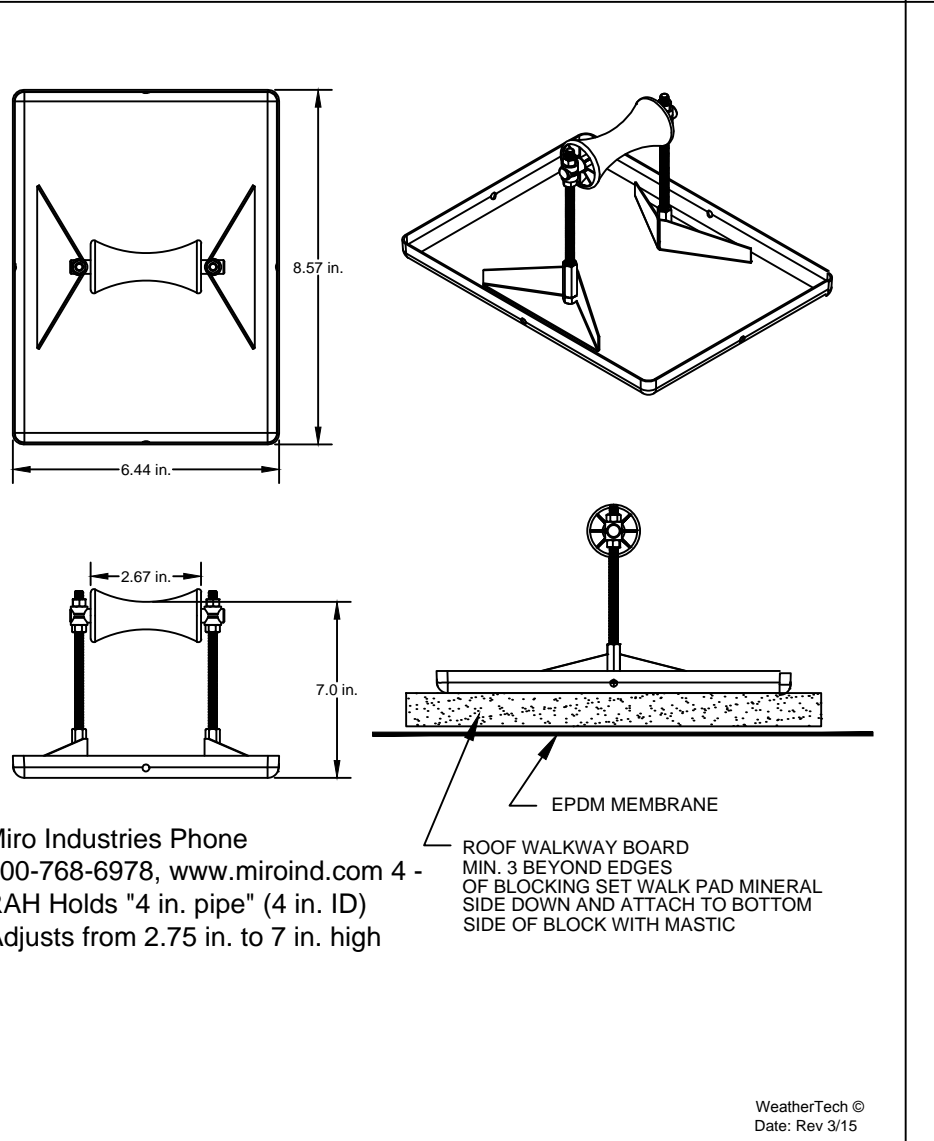
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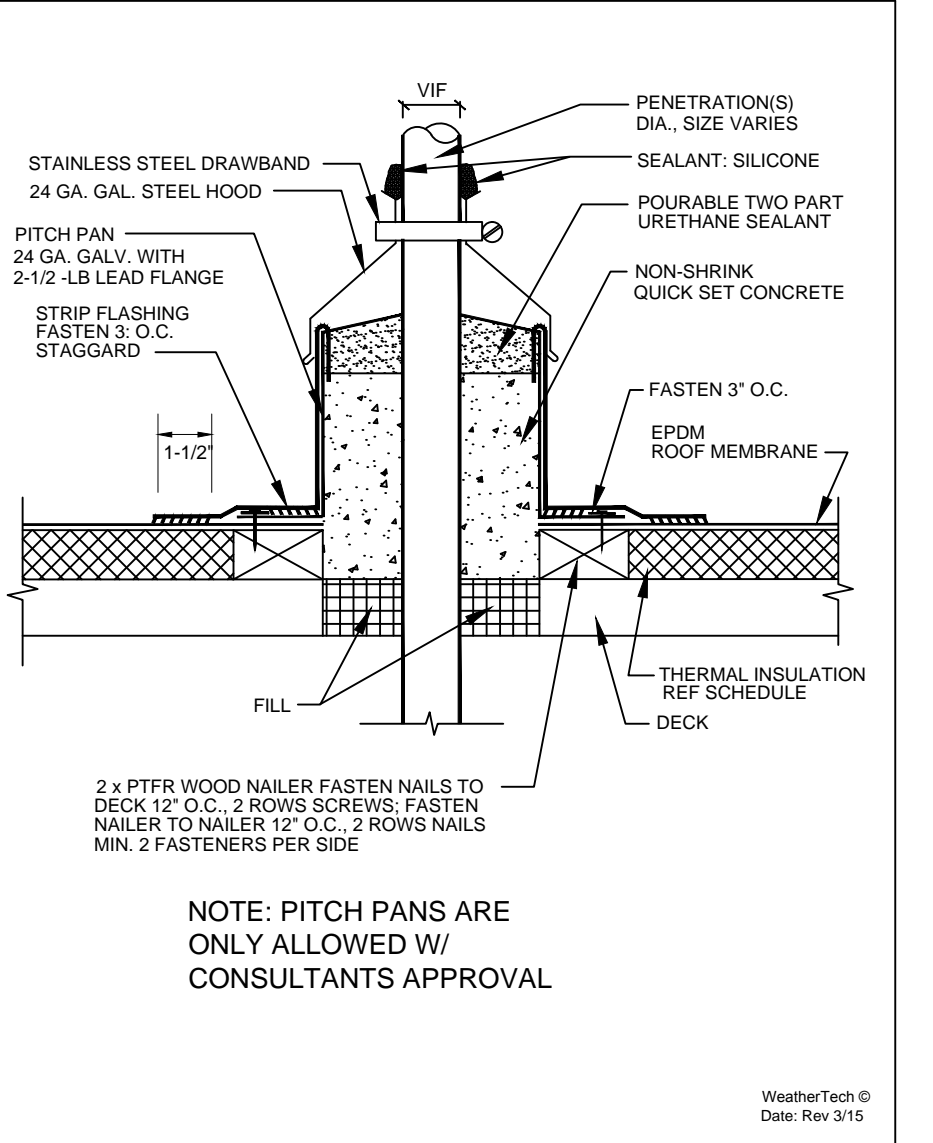
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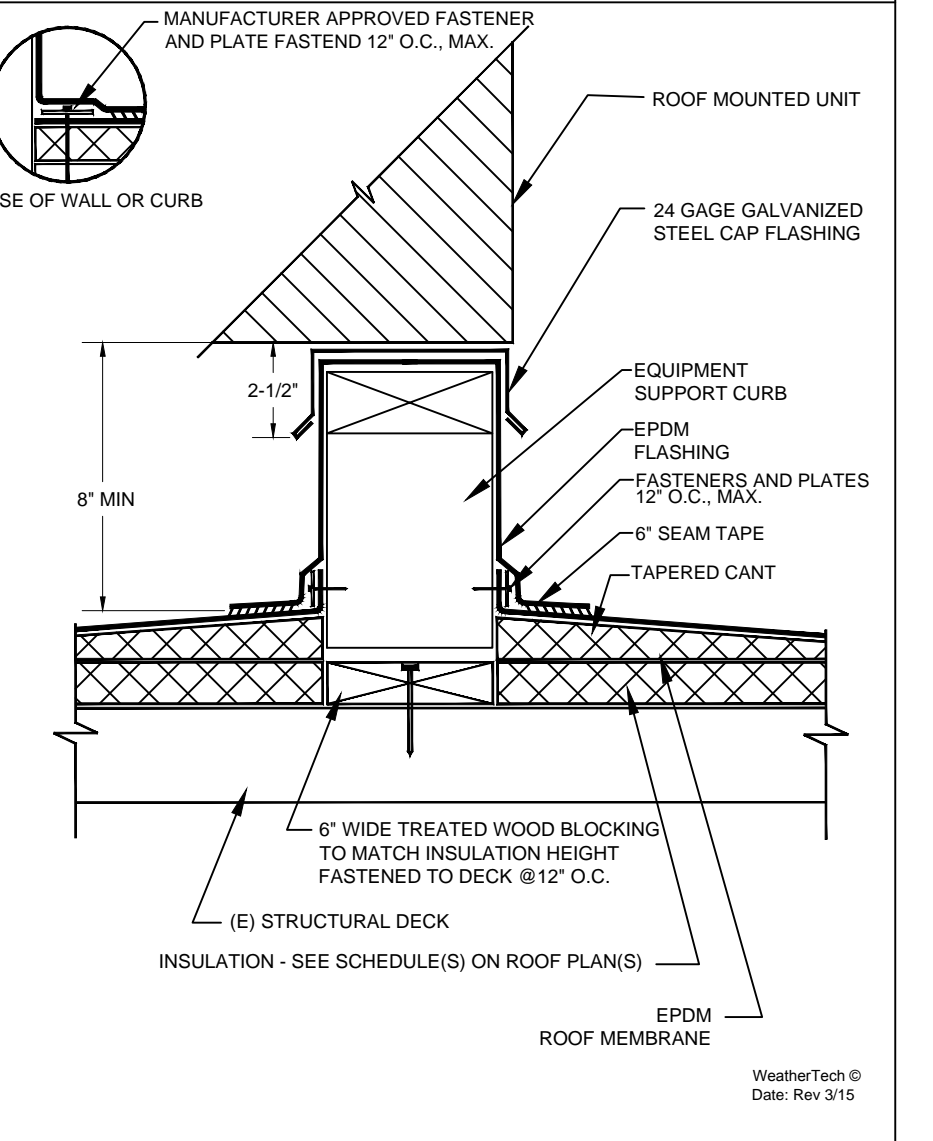
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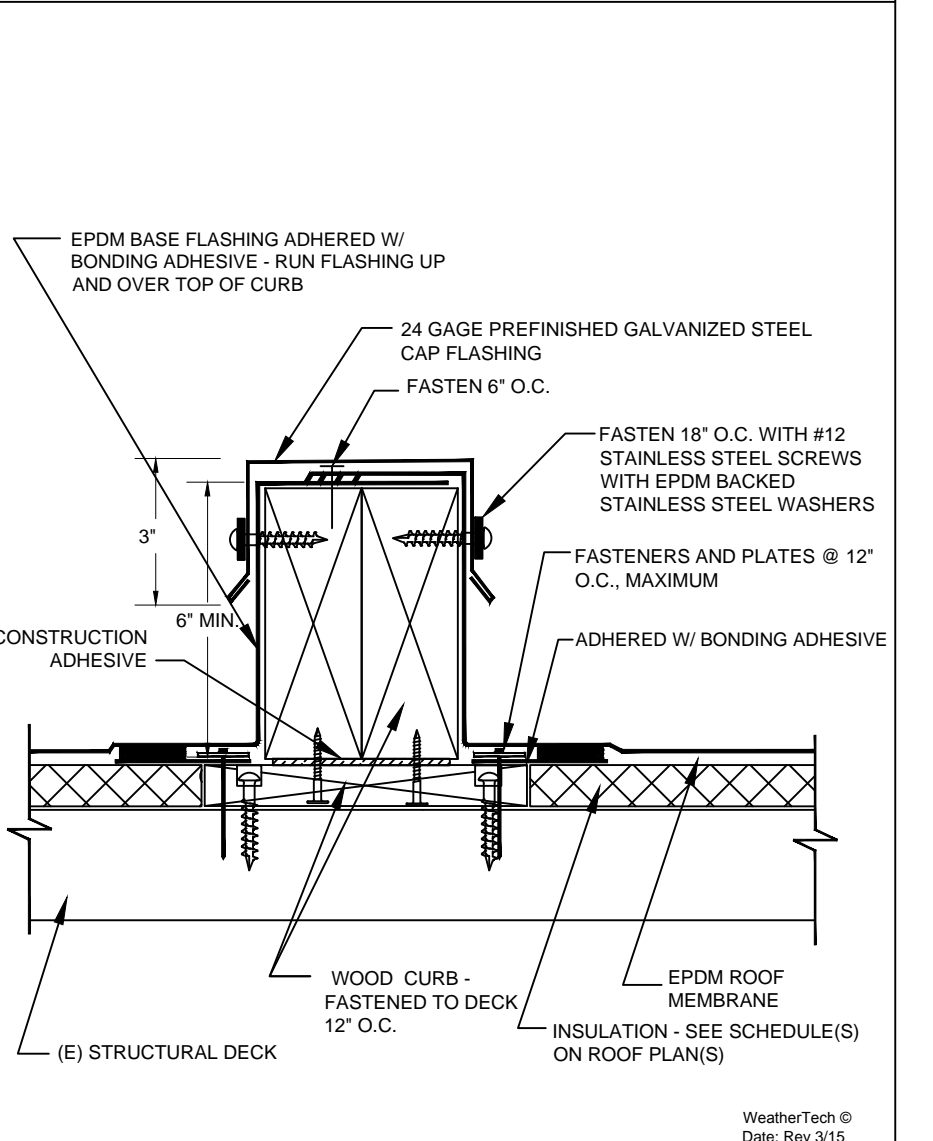
FLANGED DUCTS  
SCALE: N.T.S.



AREA DIVIDER/CONTROL JOINT  
SCALE: N.T.S.



AREA DIVIDER/CONTROL JOINT  
SCALE: N.T.S.



AREA DIVIDER/CONTROL JOINT  
SCALE: N.T.S.

## PROFESSIONAL



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Troy, MI 48098

## PROJECT:

Troy School District

**BID 9848**

2018 Roofing Program

WTPProject No:  
TSR-102-18

## ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/08/17	90% Review Set
11/10/17	OTB

File Name: A8.0 - Detail Page

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## SHEET TITLE

Detail Page

# A8.1





WeatherTech

Roofing/Waterproofing Consultants  
Consulting Group, Inc.

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Utica, MI 48317

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EMAIL: [weathertech@wtcg.net](mailto:weathertech@wtcg.net)  
WEB SITE: [www.wtcg.net](http://www.wtcg.net)

CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Troy School District  
**BID 9848**  
2018 Roofing Program

WTPProject No:  
TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/08/17	90% Review Set
11/10/17	OTB

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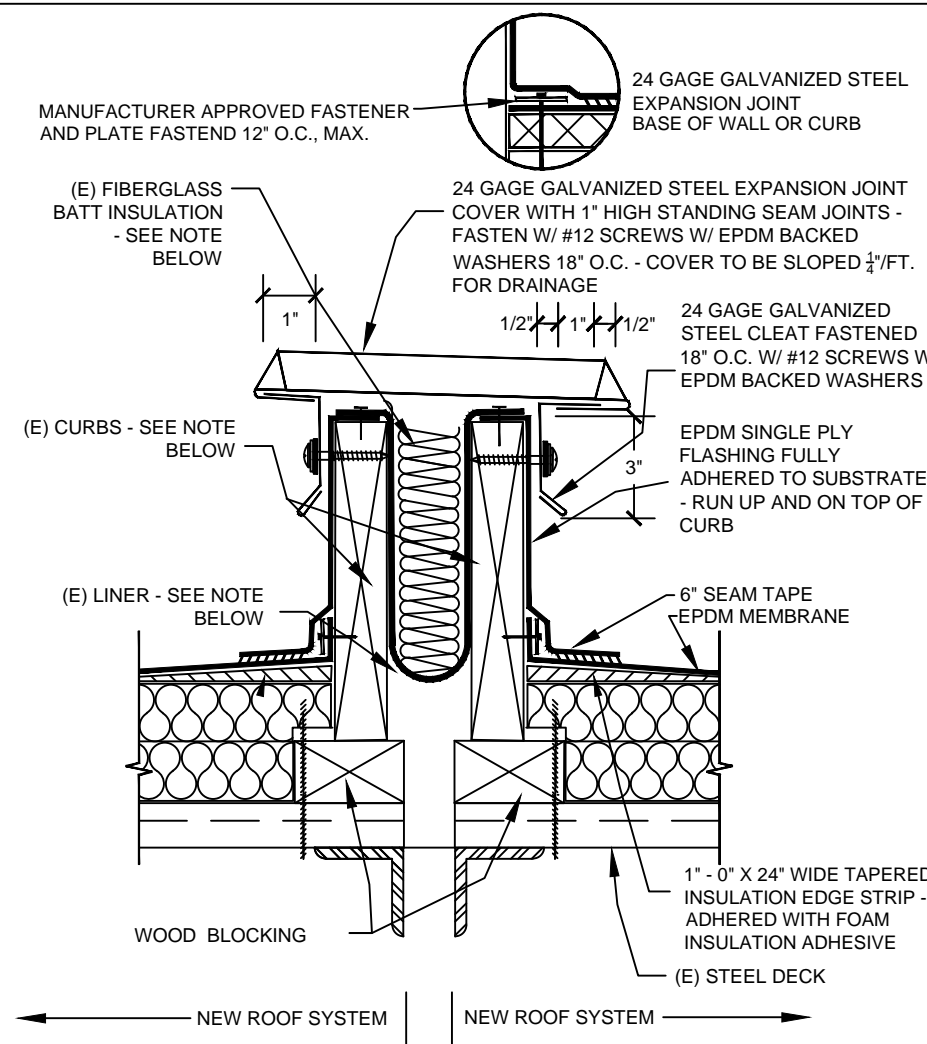
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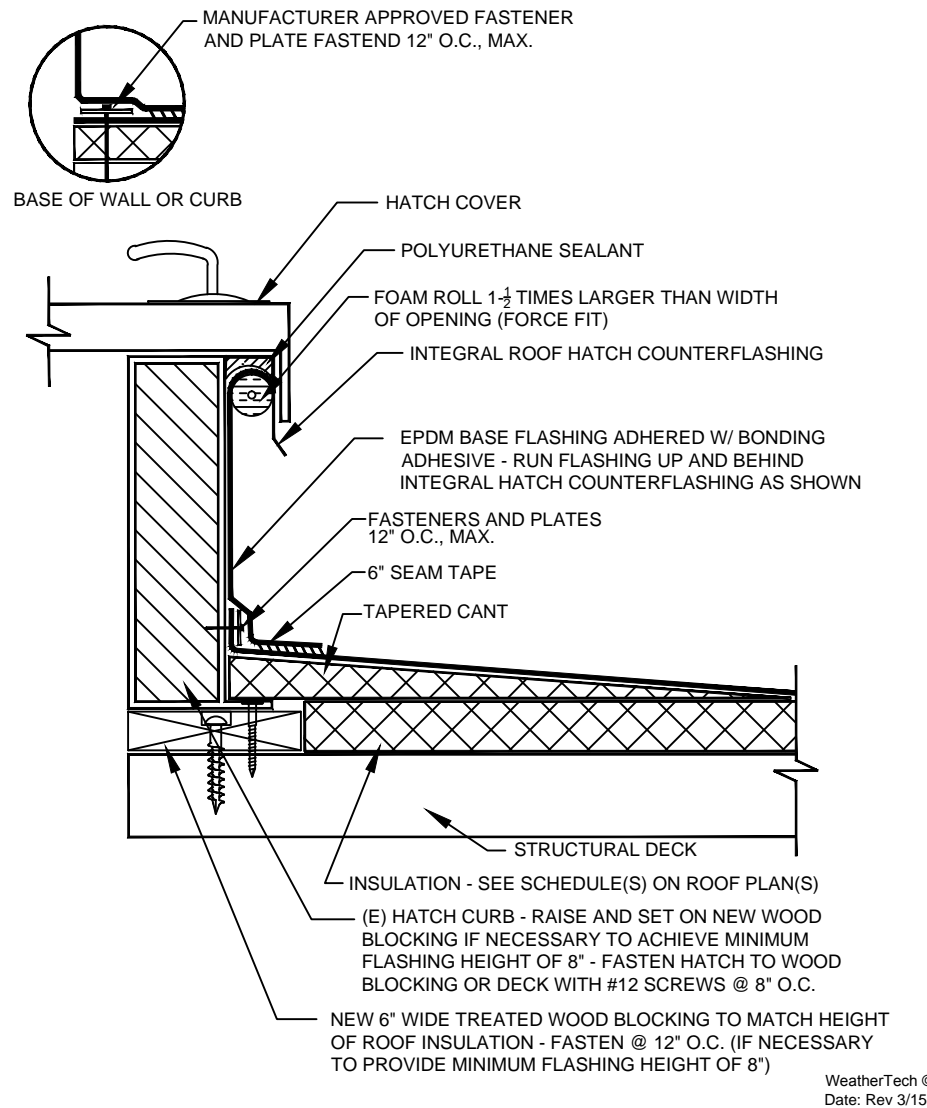
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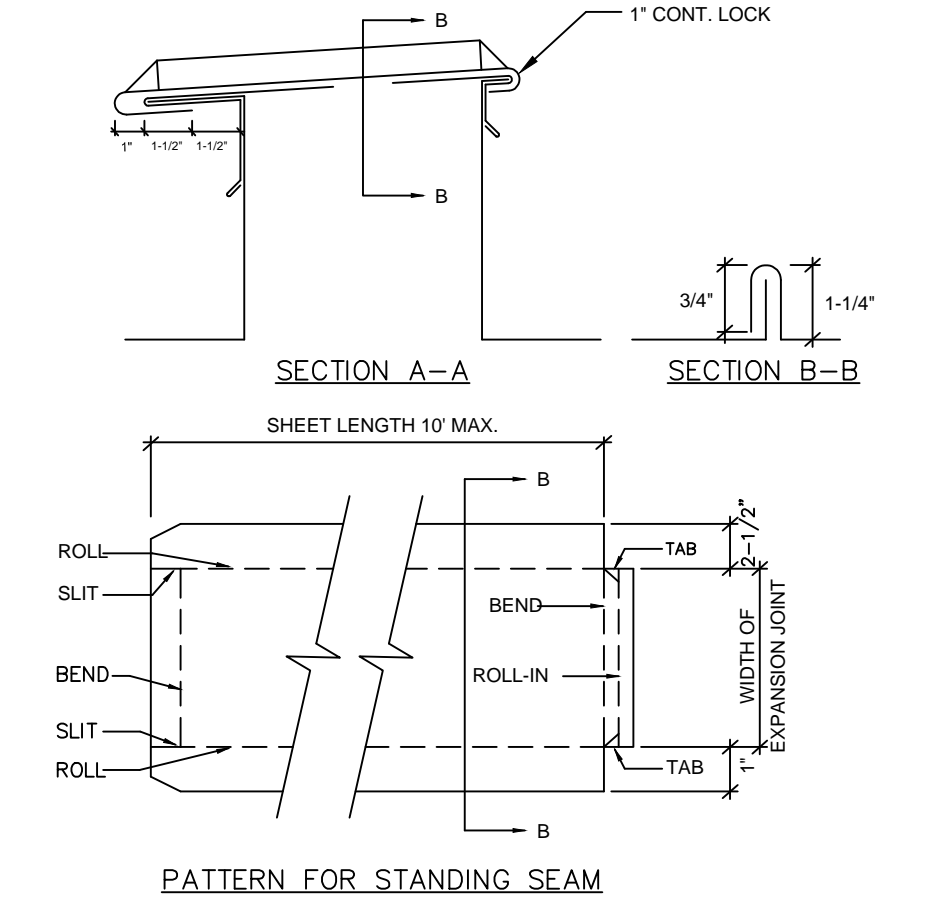


NOTE - REPLACE OR REPAIR LINER AND/OR FIBERGLASS INSULATION IF MISSING OR DAMAGED. SHIM TOP OF ONE CURB TO PROVIDE 1/2" SLOPE IN SHEET METAL EXPANSION JOINT COVER IF NECESSARY.

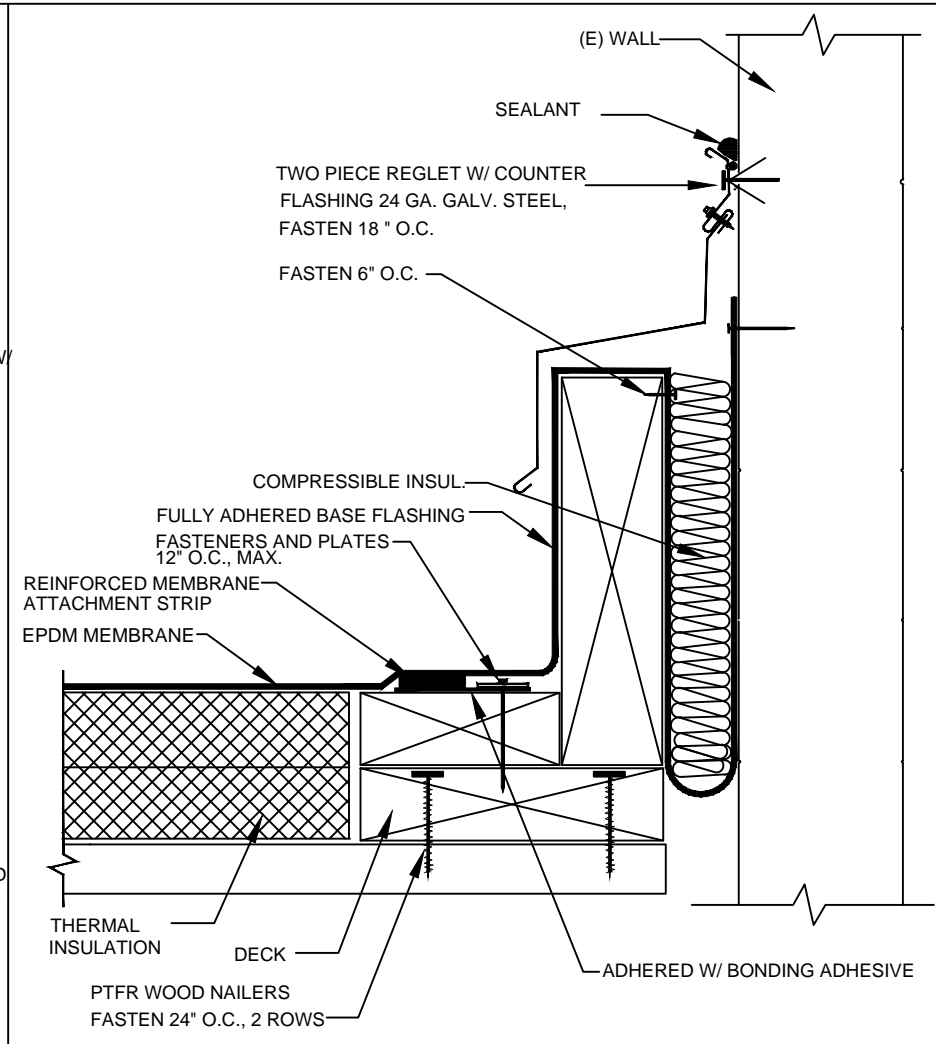
ROOF MOUNTED EXPANSION JOINT @ NEW CURB  
SCALE: N.T.S.



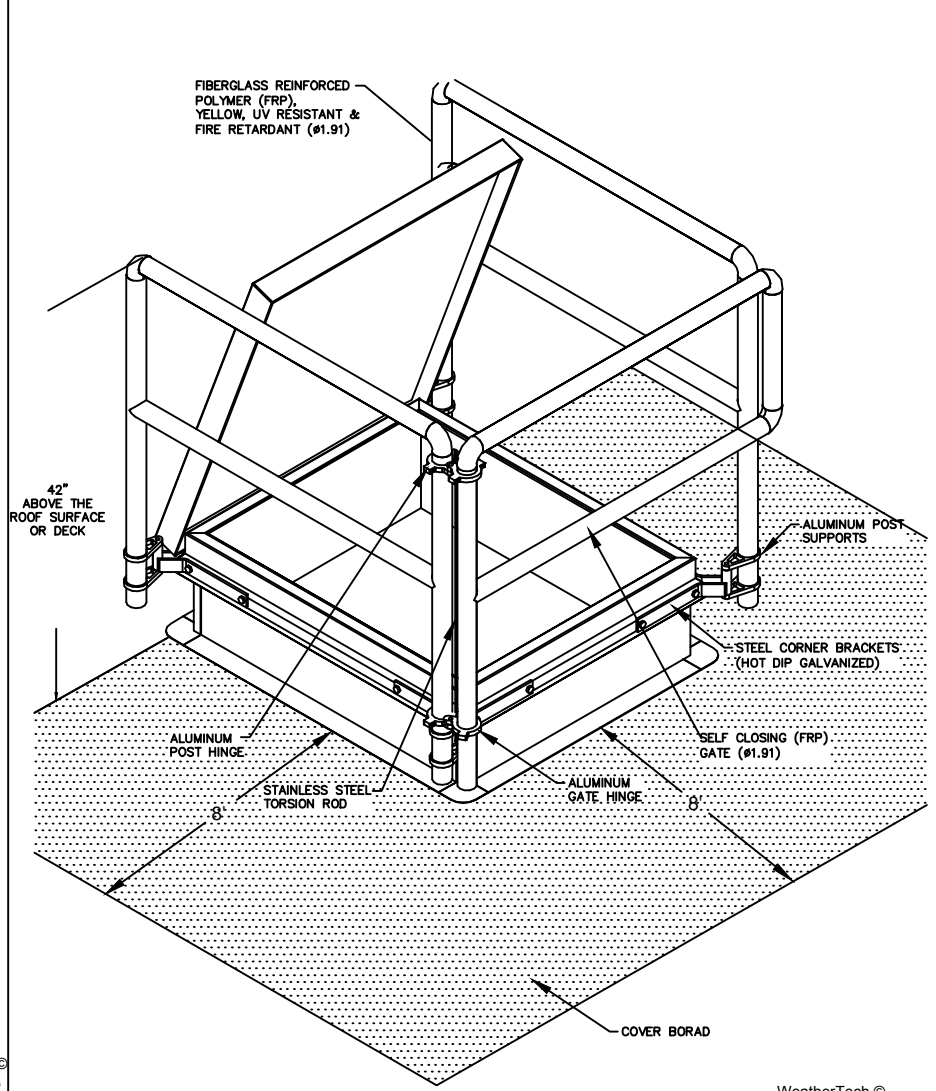
ROOF HATCH FLASHING (NON REMOVABLE)  
SCALE: N.T.S.



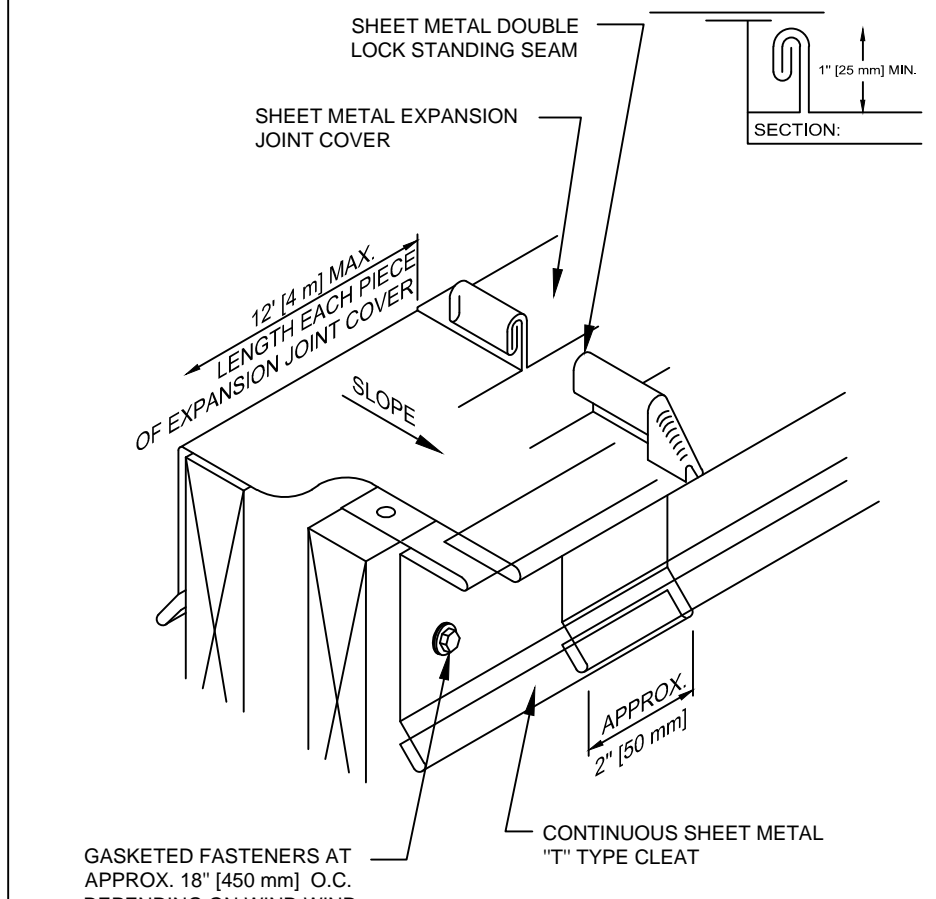
EXPANSION JOINT CAP  
FABRICATION  
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ROOF TO WALL EXPANSION JOINT  
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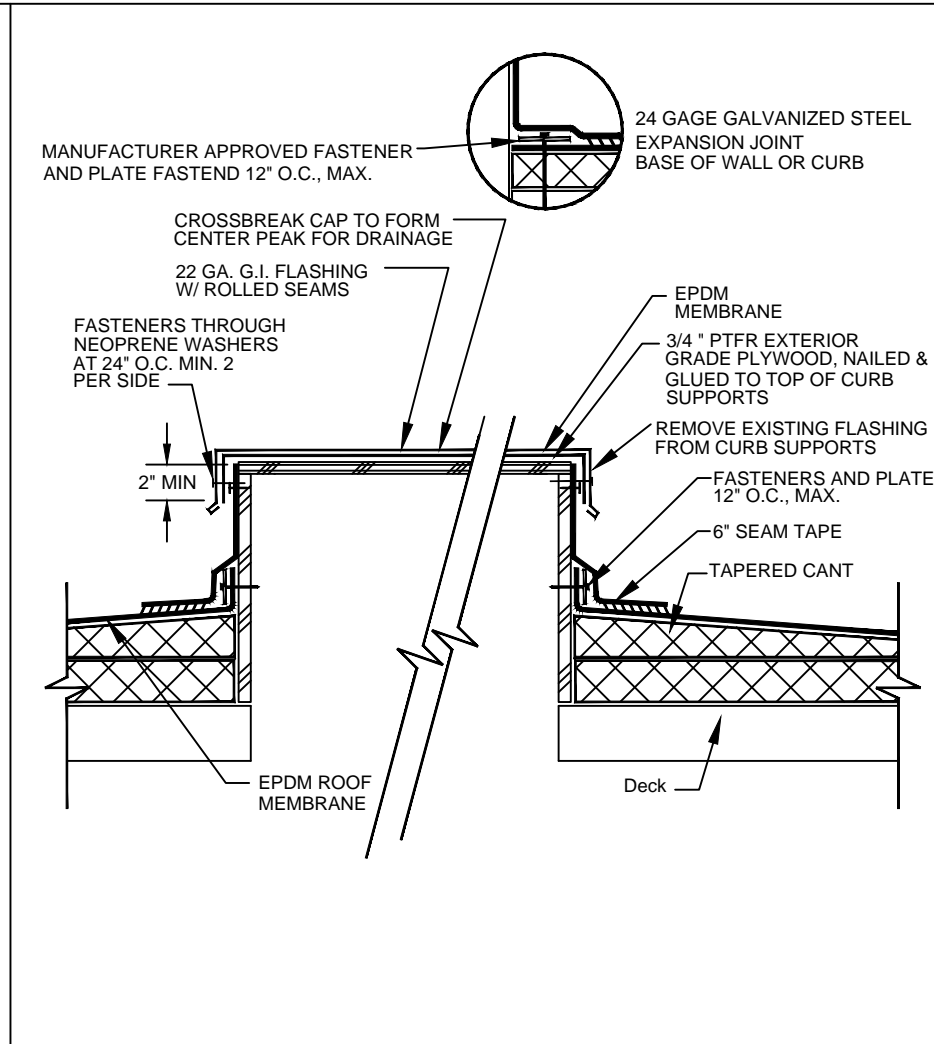


BILCO BIL-GUARD TYPE S E F  
HATCH RAIL SYSTEM  
SINGLE LEAF ROOF SCUTTLE

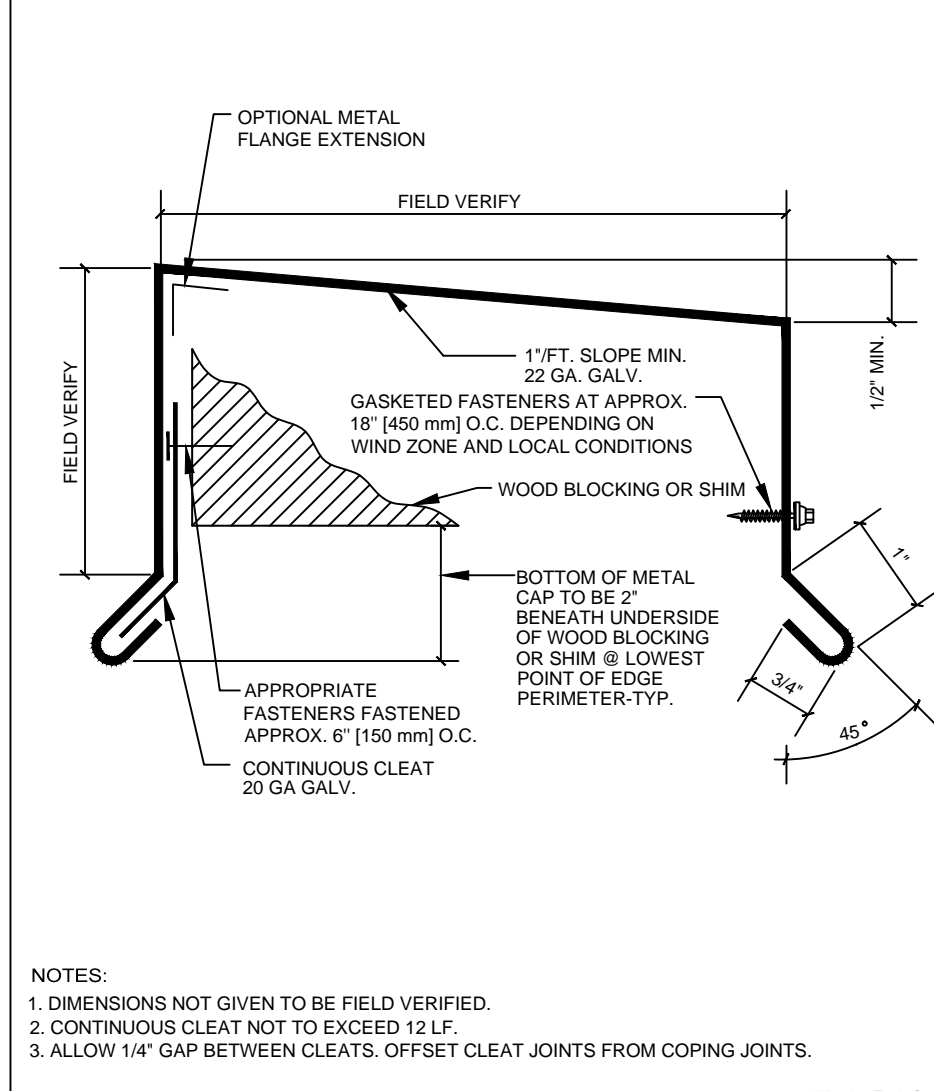


EXPANSION JOINT COVER WITH STANDING SEAM  
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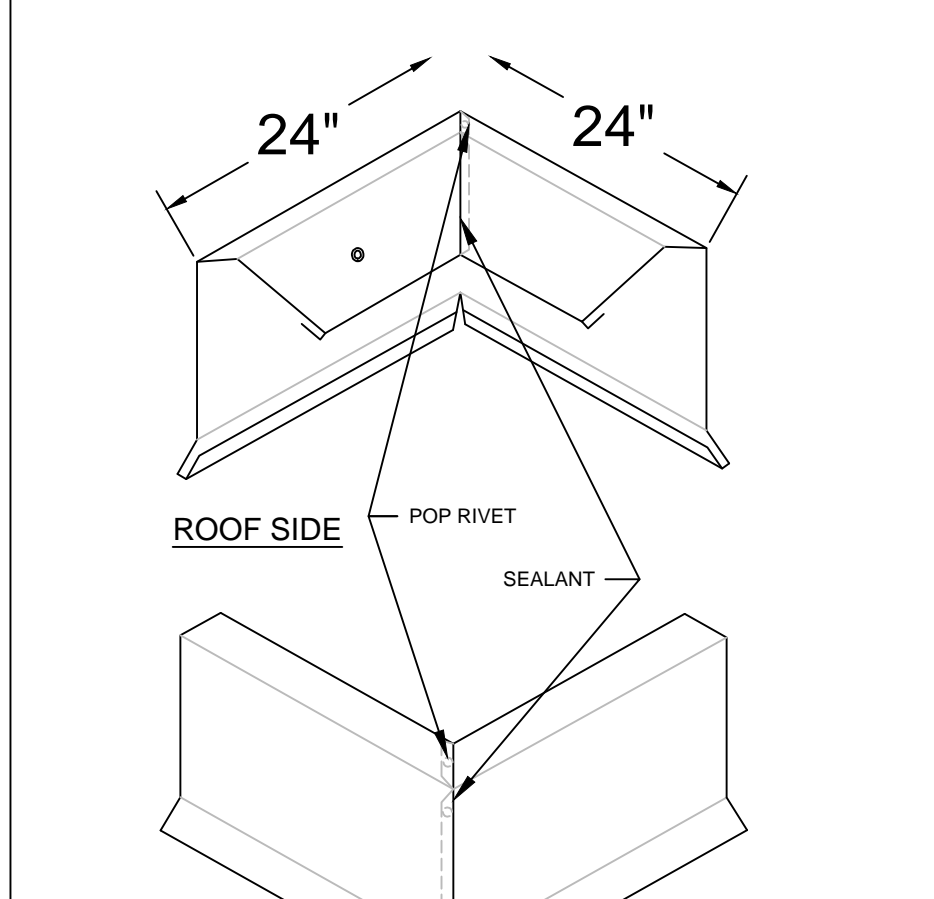
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ABANDONED CURB OPENING  
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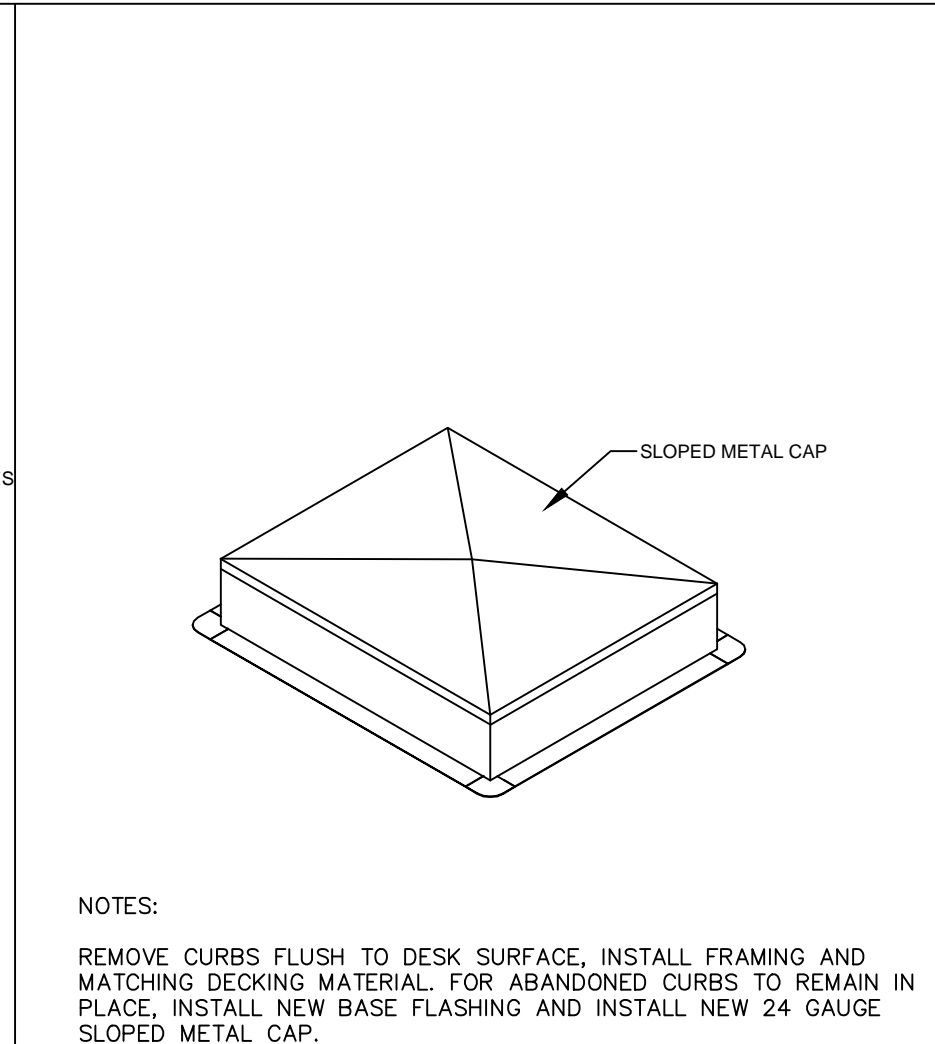


TYPICAL PARAPET/COPING CAP  
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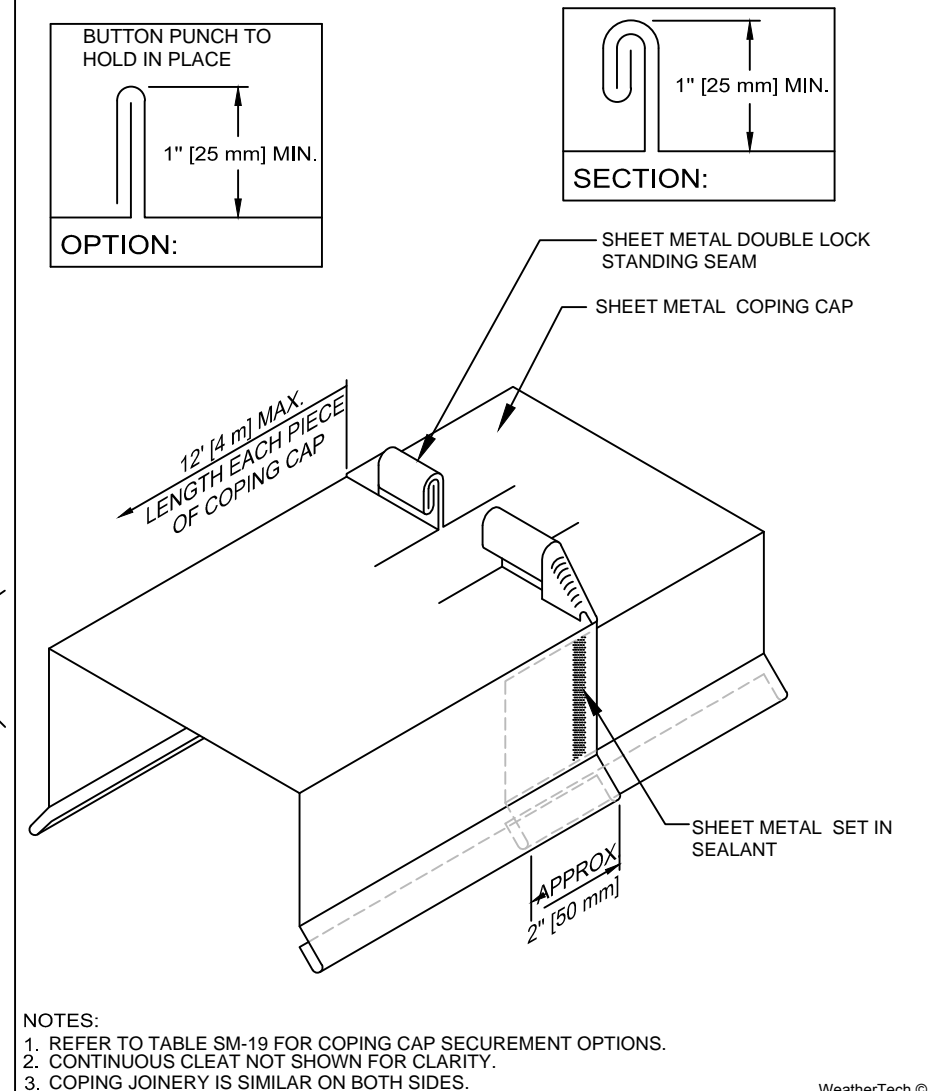


RAISED PERIMETER EDGE METAL  
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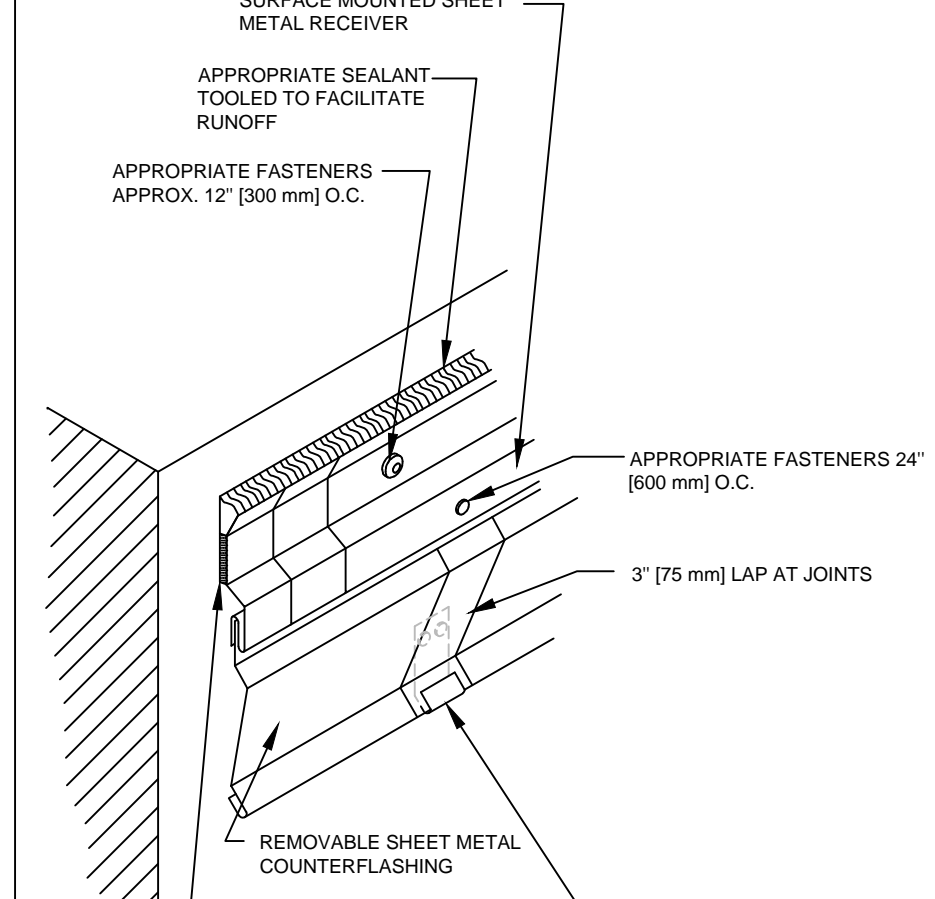
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ABANDONED CURBS  
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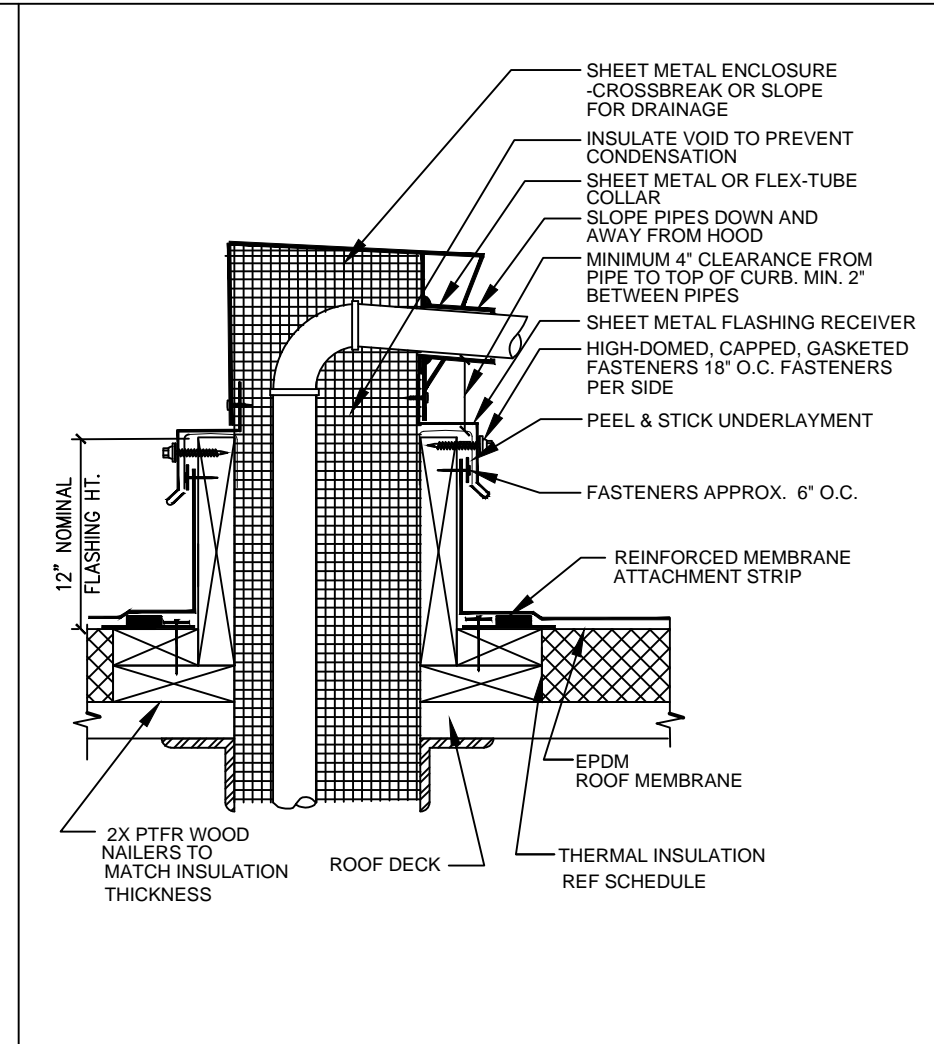


COPING CAP WITH DOUBLE LOCK  
STANDING SEAM

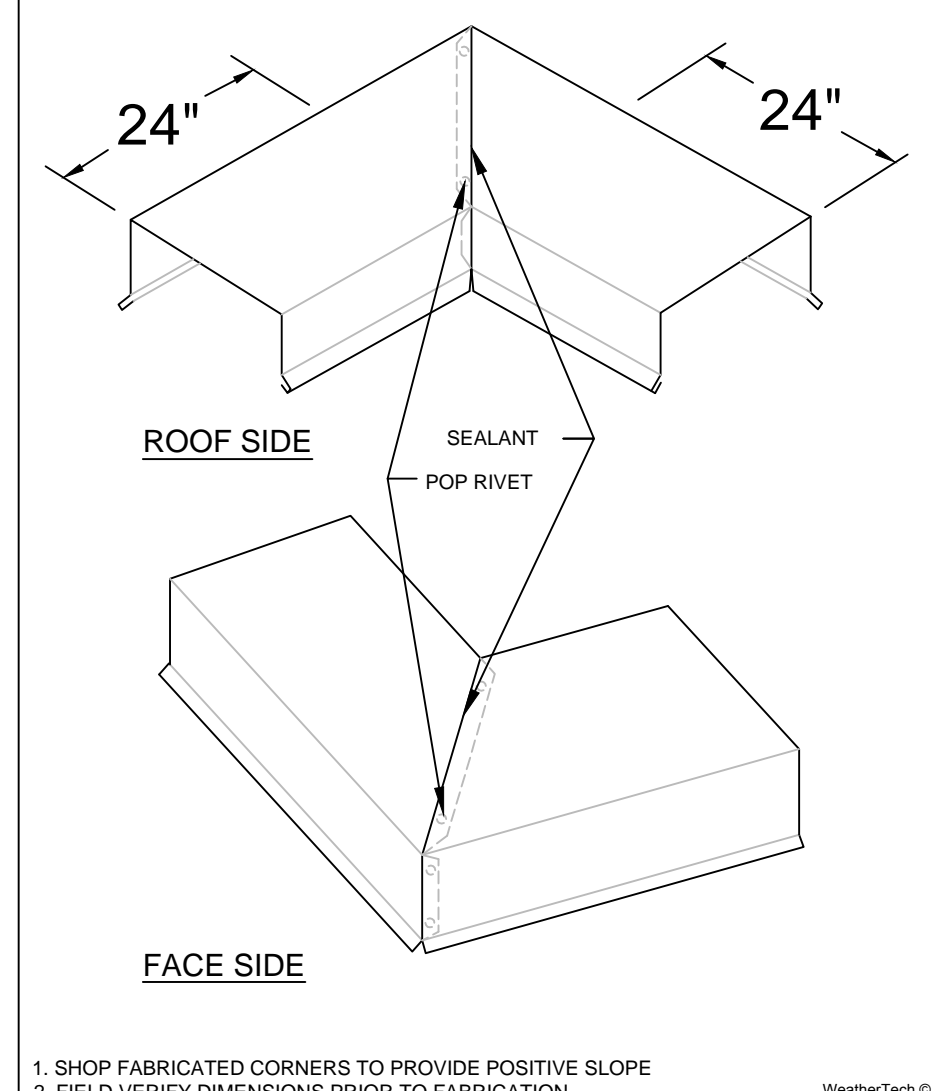


TWO PIECE SURFACE MOUNTED REGLET AND  
COUNTERFLASHING WITH OVERLAP JOINT  
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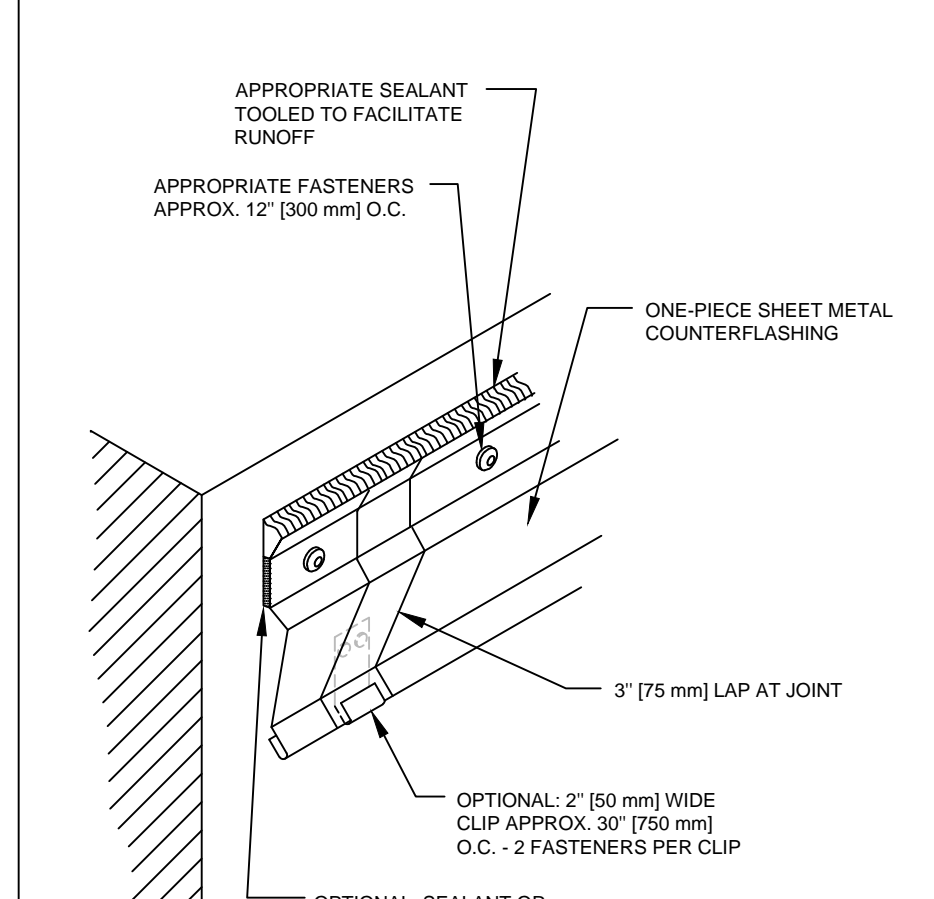
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MULTIPLE PENETRATION CLOSURE  
BOX W/ WD. CURBED OPENING  
SCALE: N.T.S.



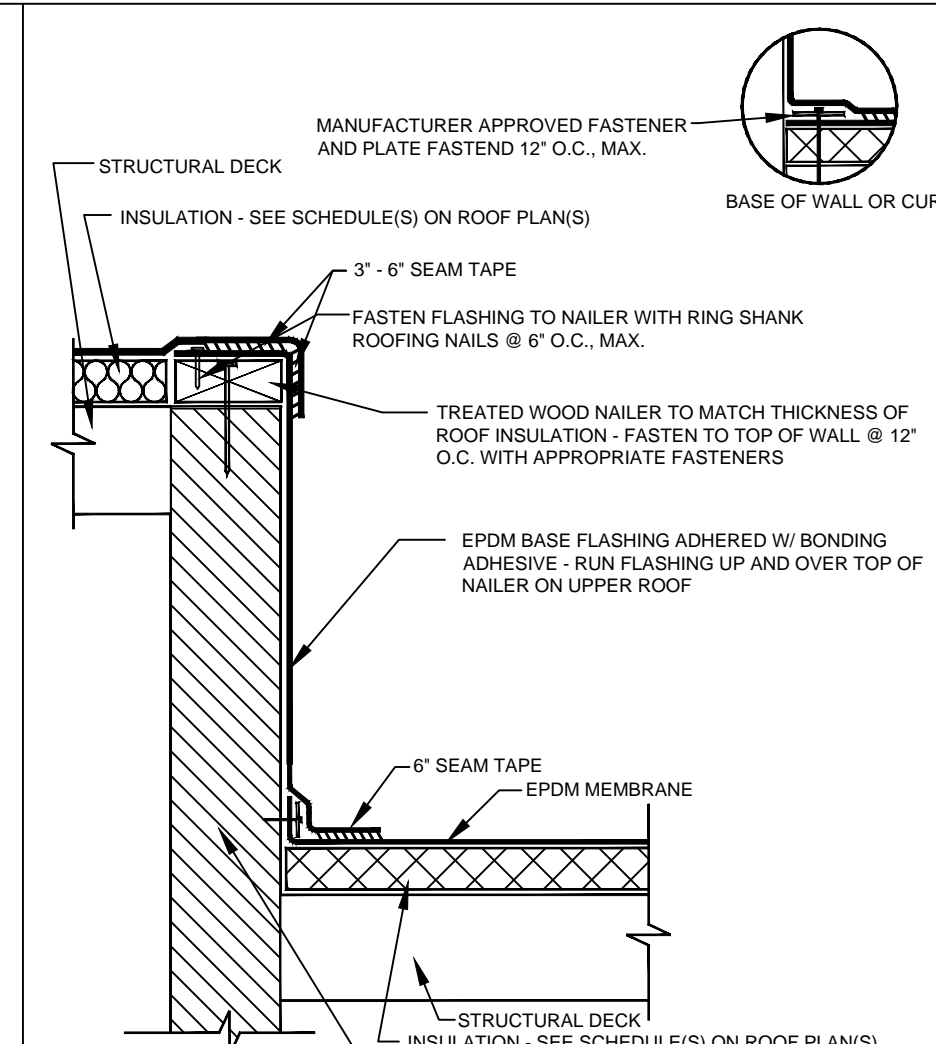
PARAPET COPING CAP CORNERS  
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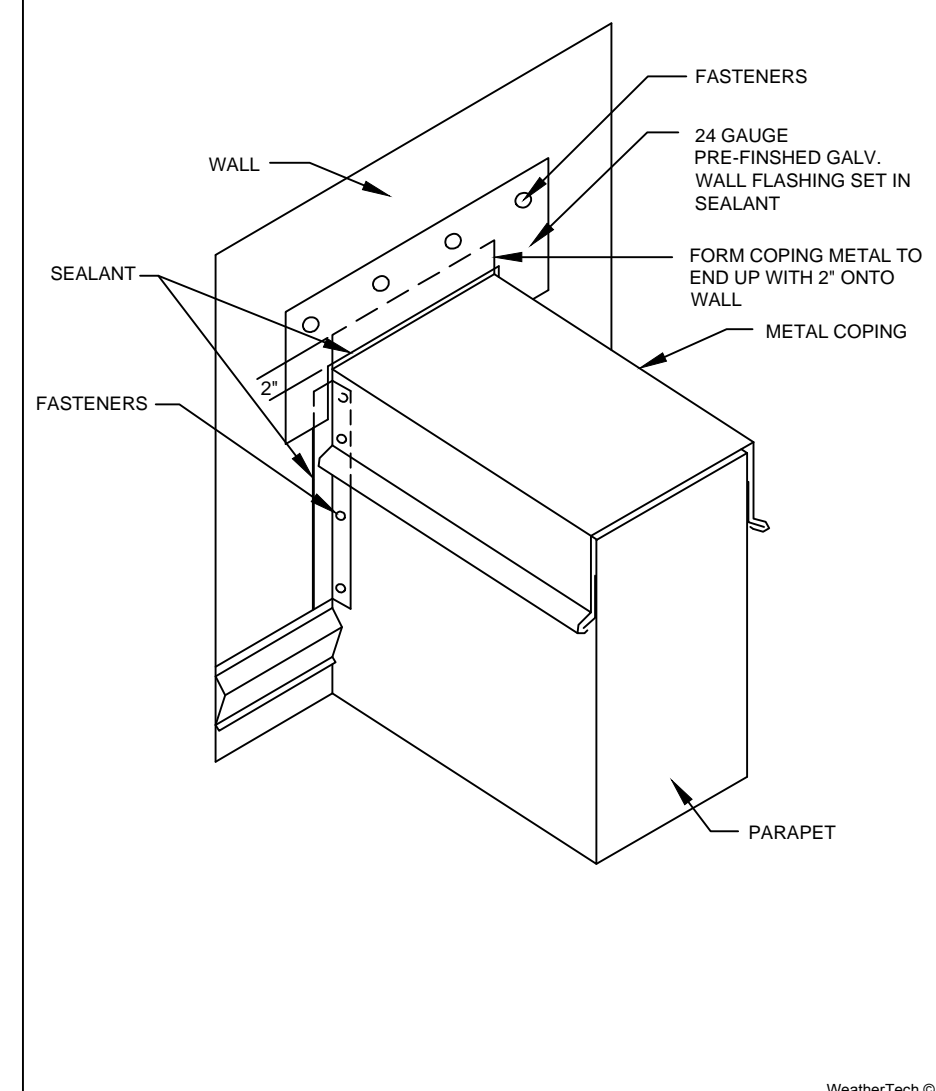
ONLY USE THIS DETAIL WHEN  
APPROVED BY CONSULTANT

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COUNTERFLASHING WITH OVERLAP JOINT  
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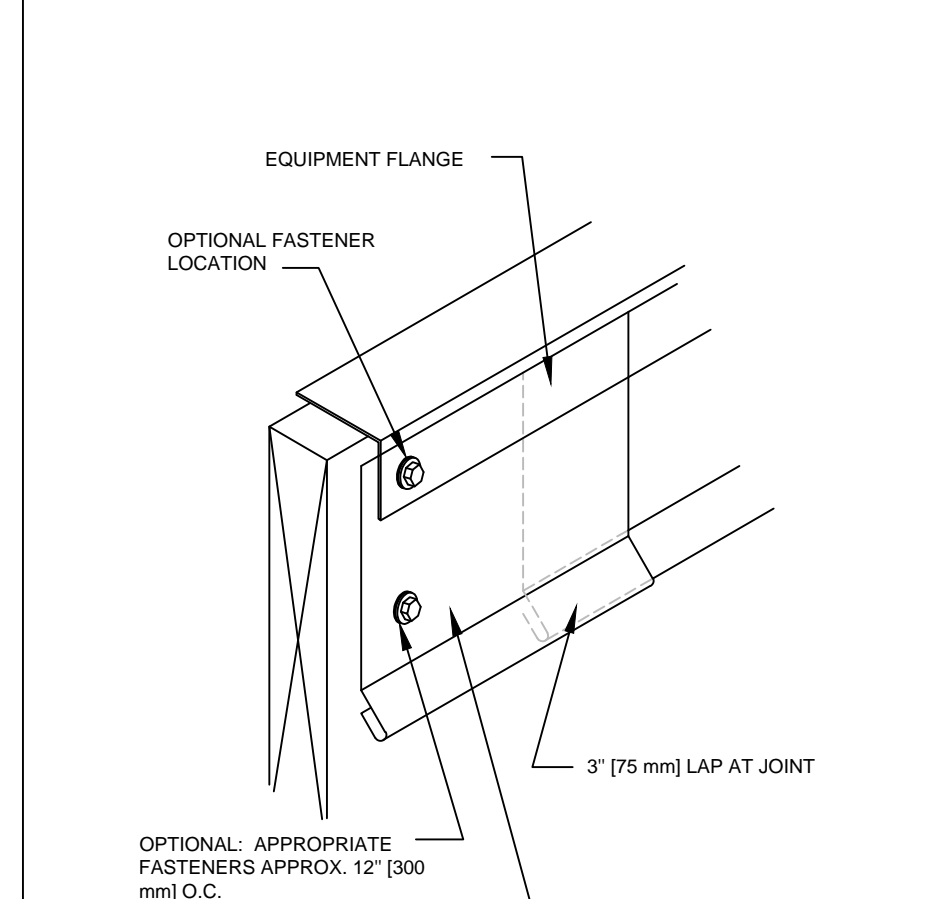
ONE-PIECE SURFACE MOUNTED  
COUNTERFLASHING WITH OVERLAP JOINT  
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WALL TRANSITION  
SCALE: N.T.S.



WALL TERMINATION  
SCALE: N.T.S.



CURB COUNTERFLASHING  
(SKIRT FLASHING)  
SCALE: N.T.S.

CURB COUNTERFLASHING  
(SKIRT FLASHING)  
SCALE: N.T.S.



Roofing/Waterproofing Consultants  
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Troy School District  
4400 Livernois  
Troy, MI 48098

Troy School District  
**BID 9848**  
2018 Roofing Program

## ISSUE

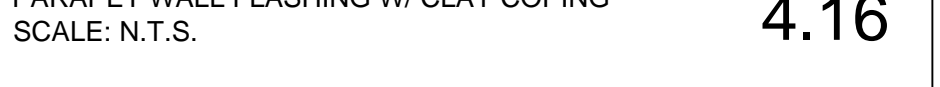
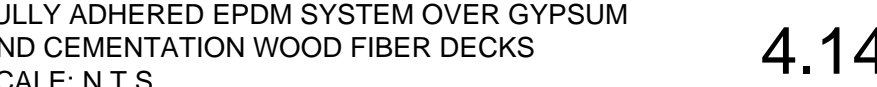
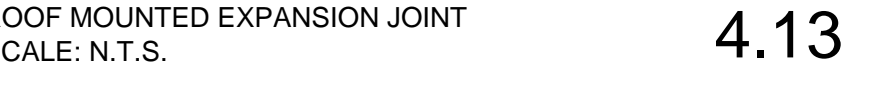
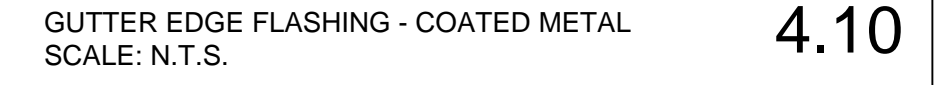
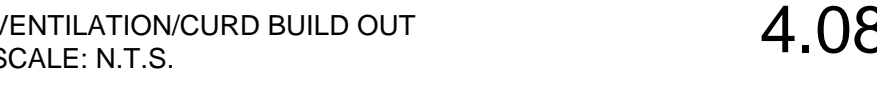
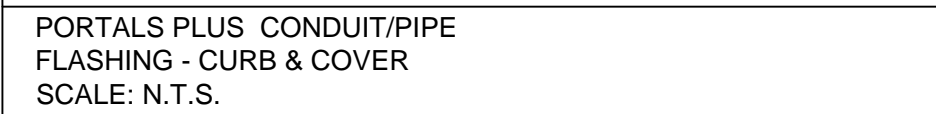
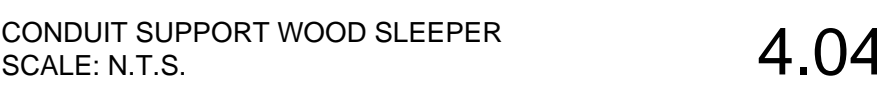
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## Detail Page

## A8.3

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PPROJECT SUMMARY

SUMMARY OF WORK: ref. Section 00 02 00

General: Troy School District (TSD) 2018 Roof Program work for five (5) schools and one (1) District building covering approximately 145,925 sq. ft. Roofing work includes roof replacement and restoration required to remediate all work identified in the specifications and drawings inclusive of all Bid Documents requirements.

Schedules: Ref. "PROJECT WORK SCHEDULE" on this Sheet A1.0 - Cover Page.

BID SUMMARY:

- Contractor proposal and two copies will be submitted only on the forms provided and will be enclosed in a sealed envelope marked with the name of the bidder, the title of the work, the time, place and date due and must be hand delivered or delivered by courier no later than 10:00 A.M., Wednesday, November 29, 2017, Administrative Building, Troy School District, 4400 Livernois, Troy, Michigan 48098, at which time all bids will be publicly opened and read aloud immediately thereafter. Bid proposals received after this time will not be considered or accepted. Oral, telephone, fax or electronic mail bids are invalid and will not receive consideration.  
a. Bid Bond: Submit with bid five percent (5%) bid bond or certified check.
- Pre-Bid Conference: A mandatory pre-bid conference will be held at Administration Building, 4400 Livernois, Troy, MI 48098, on Monday, November 20, 2017 at 10:00 am Local Time. The roofing contractors will have access to walk the roofs on Wednesday, November 22, 2017. (Between 8am-4pm)
- Bid Form Section 000300: Bid Form to contain Base Bid including all work as specified in Bid Documents including performance (Section 000300) and payment bond (Section 000304) fees, number work days to complete work, square footages are required on Bid Form found in Section 000300.  
a. Allowance expenditures shall be documented and compensated on a unit pricing basis per the Unit Pricing Bid Form (Section 000301) values provided.
- Allowances Section 012100: Allowances will be defined on individual school roof plans under "Allowances" and are to be included in Base Bid value found in Section 000300.  
a. Allowance expenditures shall be documented and compensated on a unit pricing basis per the Unit Pricing Bid Form (Section 000301) values provided.
- Unit Pricing Section 004322: Unit Pricing for unit work is defined on the Unit Price Bid Form in Section 000301. Unit Pricing bid values are entered by unit price individually on form.
- Alternates Section 012300: Alternates are individually listed on school roof plans and bids for Alternates. Alternated bid value are to be entered on Bid Form (Section 000300) as enumerated.
- TSD reserves the right to issue contracts to multiple contractors.
- Any questions regarding bid specifications must be received noon, Monday, November 27, 2017. Questions must be submitted in writing on the WTT website using the online RFI form at [www.wtcgproject.net](http://www.wtcgproject.net) any questions on how to use the RFI form contact Ann Crispen at (586) 731-3095 x10 or Geof Garabedian at (586) 731-3095 x12. No response will be made to oral questions.

EXISTING ROOF SYSTEM CONSTRUCTION: ref. Roof Plans

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions.

REPLACEMENT ROOF ASSEMBLY SUMMARY:

- Roof System: Ref. Roof Plan Schedules  
a. Roof Membrane: EPDM, 60 mil, unreinforced and fully adhered;  
b. Insulation: Min. R20, min. two layers. Top layer must be adhered.  
c. Underlayment: Modified base sheet, mechanically fasten. Reference Individual Roof Plans.  
d. Deck: Multiple types Reference individual Roof Plans.  
e. Warranty:  
1) Roof replacement: 20 yr. Materials manufacturer, No Dollar Limit materials and installation;  
2) Restoration: 2 yr No leak warranty, contractor.
- Roof System Performance: Ref. Roof Plan Schedules  
a. Wind : FM Global (FM): FM Standard 4470 Meets - Windstorm Classification FMG 90  
b. Fire: Underwriters Laboratory External Fire Resistance - Class "A".  
c. Energy: Michigan Uniform Energy Code: Insulation R-value: R20.  
d. Drainage: Drainage Performance Acknowledgement"

RESTORATION:

Ref. School Sheet(s), RepairRestoration Manuals

- Troy Union only applies to this work.  
a. Drawings of each roof area with defect locations marked on plan using 10 ft. x 10 ft.  
b. All defect to be repair by designated code number for BUR NRCA manual for TSD Restoration work as revised and amended by WeatherTech Consulting Group, Inc. for completion of restoration work:  
1) BUR Manual  
2) Thermoplastic Repair Manual  
3) Thermoset Repair Manual

GENERAL SHEET NOTES

- All work shall be executed with accordance with the appropriate document of the Contract Documents.
- Any conflicts between specifications and drawings shall be brought to the attention of the Owner and Consultant immediately. In all situations the more restrictive and higher quality shall govern.
- All dimensions to, of, and in existing building and roof shall be verified in the field by contractor. Field measure existing conditions to verify material quantities and dimensions prior to fabrication on component material.
- Details shown are typical. Similar details apply to similar conditions unless otherwise indicated.
- The drawings herein are related to an alteration/ restoration to an existing structure. The specified work was based upon as much observation, destructive testing, etc. as circumstances permitted.

GENERAL CONSTRUCTION DETAIL NOTES

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Flashing Heights: Perimeters, curbs, penetrations shall be raised as necessary to meet the new insulation heights, tapered edge strip and tapered insulation height to meet typical industry standard of 8 in. base flashing height.
- Drains Existing: Remove existing drain flashings. Furnish and install ½ inch per foot sloped tapered insulation sump area as detailed. Clean and reuse existing drains and accessories, replace all damaged, nonfunctional, incompatible, missing and broken drain components. All replacement bowls, strainers, and clamping rings shall be cast iron. All nonmetallic drains strainers shall be replaced with fitted Refer to Details 1.10 and 1.12. Overflow drains same requirements as noted above. Refer to Details 1.11 and 1.13.
- Drains New: Furnish and install new drains as indicated on drawing. New drains to tie into existing primary drain. Size to match existing up 3 in. dia. (Use 3 in. dia for bidding). Contractor to provide all drains, leaders and hook ups as necessary for fully functional drains.
- Tapered Insulation: Furnish and install new tapered insulation, crickets, saddles and kick-backs as designated on roof plan to provide a finished slope of 1/4 in/ ft slope and a min length to width ratio of 3:1. All equipment w/ curb size greater than 24 in. shall have cricket install on up slope side. Contractor responsible for identifying and notifying Consultant and Owner all existing tapered insulation not called out on plans for determination of unit costing. Verify in Pre-bid Conference additional ponded areas identified on the roof and install as noted.
- Curbs - Movable Equipment: Lift equipment from curbs; run new fully adhered membrane flashing up and over top of curb; install continuous sealing material over top of curb. Reset equipment and mechanically fasten to curb. Coordinate with Owner prior to installing equipment. Install new flashings. Metal equipment flashing and/or counter flashing must extend a minimum of 3 in. past the termination of the base flashing; add metal counter flashing as required. Refer to Details 1.17 and 1.18.
- Curbs - Non-Movable Equipment: Terminate new fully adhered membrane flashing at unit framing member. Metal equipment flashing and/or counter flashing must extend a minimum of 3 in. past the termination of the base flashing; add metal counter flashing as required. Refer to Details 1.15 and 1.16.
- Equipment on Support Curbs - Non-Movable Equipment: Cut corners of metal flashing cap, terminate new adhered membrane flashing to curb nailer. Reposition metal; install new shop fabricated corner metal, welded and set in sealant. Wire brush and apply rust inhibitive paint to rusted cap metal. Refer to Details 3.04 and 3.18.
- Equipment on Support Curbs - Movable Equipment: Raise or move equipment to furnish and install new metal cap on curb. Refer to Details 2.12.
- Round penetrations: All penetrations shall be cleaned down to surface where any sealant will contact; install new prefabricated pipe boots or field wrap with membrane. Install draw band and sealant. Refer to Details 2.01, 2.02, 2.03 and 2.04.
- Heat Stacks: Reuse existing metal jacks and storm collars. Clean surfaces and apply new field wrapped EPDM flashing. Reattach and reseal storm collars. Refer to Detail 2.05.
- Steel Support Posts: Install split pipe boot or field wrap flashing with membrane. Terminate with draw band and sealant. Refer to Details 2.06, 2.08, 2.09, 2.10 and 2.11.
- Prefabricated Pipe Chase Cover: Reuse existing pipe cover. Replace any damaged or missing clamping bands or sealants. Refer to Detail 3.05.
- Gas line and conduit support blocks: Reuse existing wood supports and sleepers. Install pads under all wood supports. Replace any damaged wood with matching wood or rubber support blocking. Refer to Details 2.17 and 4.04.
- Condensate Drain Lines: Reuse, repair or replace all damaged or unusable drain lines. Add additional drain line to extend minimum 4 ft from equipment or to any drains within 20 ft. Provide manufacturer's approved splash pan/pad/block where condensate drainage water would contact the roof membrane.
- Abandoned Curbs & Penetrations: Existing abandoned equipment curbs flash according to General Note C. Owner will mark all equipment to be removed and the curb capped. Remove all equipment and curbs as designated by owner and identified at the prebid conference. Where directed, remove curbs flush to deck surface, install framing and matching decking material. For abandoned curbs to remain in place, install new base flashing and install new 24 gauge sloped metal cap. Provide interior protection when removing any equipment or penetration. All small round abandoned penetrations that have no utility service as confirmed by Owner and licensed contractor shall be removed to deck patched according to deck type. Refer to Details 3.03 and 3.04.
- Pitch pans: Pitch pans can only be used when approved by Consultant. In the event they are to be used furnish and install new pitch pans, clean all penetrations down to original surface, blocking required at all pitch pans. Ref. Details 2.06 and 2.07.
- Satellite Dish Ballasted Stand: Prior to moving any satellite dish coordinate with Owner and use Owner approved communications contractor to move, reset and recalibrate satellite stand. When repositioning over the new membrane. Furnish and install new pads under satellite stand strong enough to distribute satellite weight without crushing insulation.
- Base Flashing Surface Mounted Two - Piece: Two piece is the standard for surface. Furnish and install new termination bar to match existing locations and conditions. Refer to Details 1.06 and 3.16.
- Parapet w/ Metal Cap Flashing: Furnish and install new prefinished metal coping, color as selected by Owner. For base flashings extending above 18 inches install 2-piece base and wall flashing. Ref. Details 1.05, 3.09, 3.10, 3.11 and 3.12.
- Base Flashing w/ Metal Wall Siding: Loosen and/or remove existing metal siding flashing. Install base flashing w/ term bar and sealant. Furnish and install new (or reuse functional existing) flashing metal panel and fasten siding w/ new gasketed fastener. Ref. Detail 1.09.
- Base Flashing w/ Thru-Wall Flashing: Confirm if through wall flashing has weep holes do not cover any weep holes. Reuse existing thru-wall metal flashing. Furnish and install new metal counterflashing. Repair and repoint all coping stone and mortar joints to assure watertight condition. Ref. Detail 1.07.
- Base Flashing w/ Existing Reglet: Remove existing reglet/ Furnish and install new prefinished metal coping, color as selected by Owner. Extend base flashings up and over coping. For base flashings extending above 18 inches install 2-piece base and wall flashing. Ref. Detail 1.08.
- Door Threshold: Remove threshold plate and carry flashing up over and set in water block. Before resetting threshold mechanically attach termination bar, fasten min. 6 in. o.c. Door Threshold: Remove and dispose of existing counter flashing. Roof flashing to extend up and under existing threshold plate. Furnish and install new metal counter flashing and sealant.
- Area Divider: Furnish and install new cap metal, replace damaged wood nailers. Ref. Detail 2.18. Consultant approved low profile for areas divider for separating two different types of roof systems. Ref Detail 4.13.
- Abandoned Lightning Protection: Remove all existing lightning protection cable, attachment cleats, air terminals and penetrations. Identify salvage value on bid form. Seal all holes from fasteners and lightning protection equipment left from demolition on roof top component to be left in place.
- Roof to Wall Expansion Joint: Furnish and install new metal expansion joint. Ref. Detail 3.01, 3.02 and 4.06.

- Non-Standard Roof Transitions: Contractor to provide manufacturer written approved transition shop drawings. Roof Transition: Install new metal edge at transition; install tapered edge strip to reduce ponding at edge. Run base flashings using sheet widths in vertical run. Ref. Detail 3.06.
- Overflow scupper: Furnish and install new through-wall scupper and face frame. Face frame prefinished, size and color to match existing. Ref. Detail 1.14, 4.01, 4.02 and 4.03.
- Metal Edge: Remove existing fascia/ water dam; install new 24 gauge prefinished galvanized metal edging, standard color as selected by Owner, min. 4 in. hemmed flange. Refer to Details 1.03 and 1.04.
- Roof curb building out the sides to match the roof cap base opening: Remove existing fascia/ water dam; install new 24 gauge prefinished galvanized metal edging, standard color as selected by Owner, min. 4 in. hemmed flange. Refer to Details 1.17 and 1.18.

Project Manual

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00 04 01	PARTIAL RELEASE OF LIEN
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SITE WORK

02 41 19	SELECTIVE DEMOLITION
----------	----------------------

ROUGH CARPENTRY

06 10 00	ROUGH CARPENTRY
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THERMAL AND MOISTURE PROTECTION

07 22 50	SINGLE PLY ROOF INSULATION
07 54 00	FULLY ADHERED EPDM ROOFING
07 62 00	SHEET METAL FLASHING AND TRIM
07 90 00	JOINT SEALERS

PLUMBING

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REPAIRS/RESTORATION MANUALS

BUR Manual
THERMOPLASTIC REPAIR MANUAL
THERMOSET REPAIR MANUAL

DRAWINGS - SEE SHEET INDEX

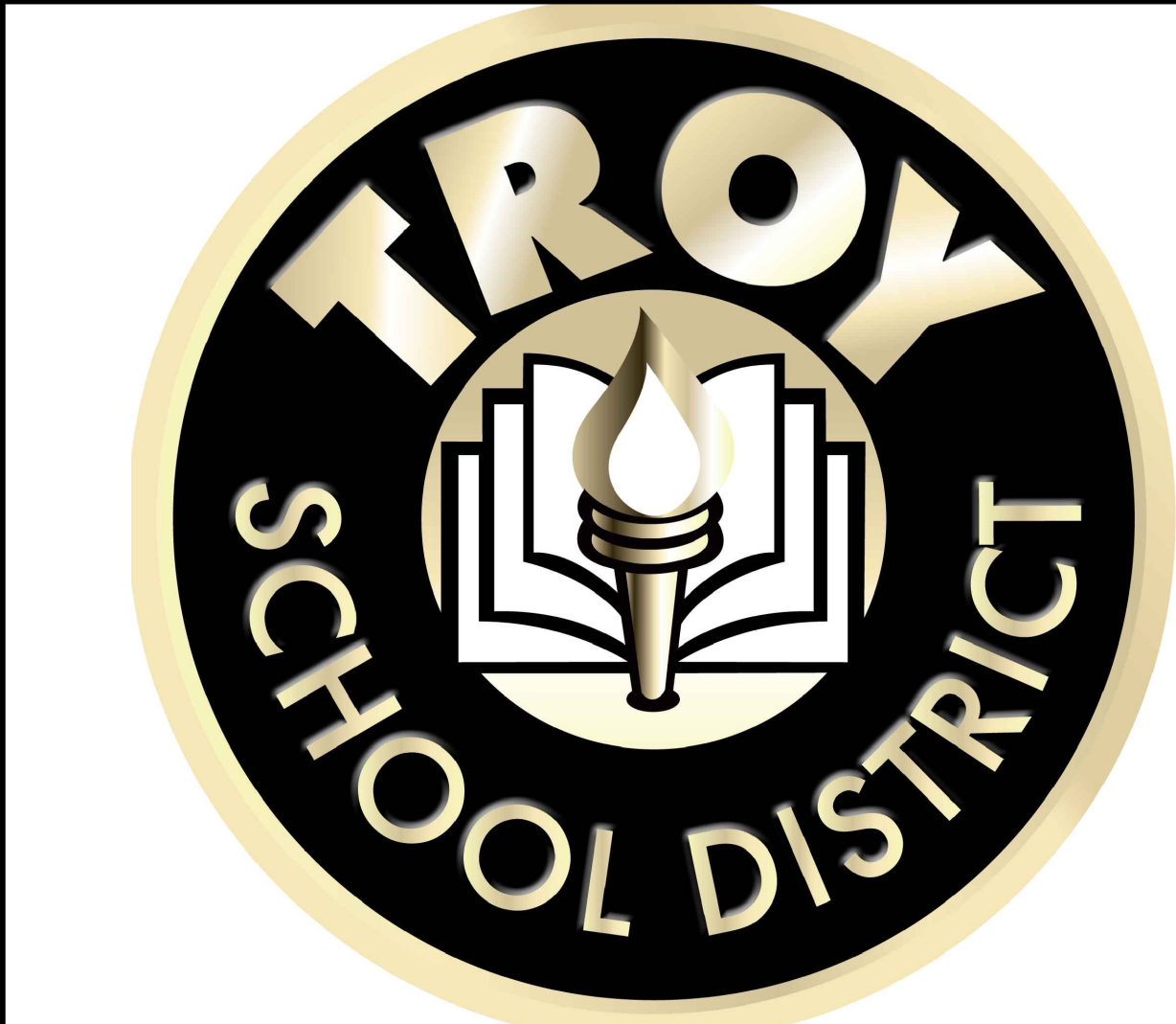
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A2.0	Roof Plan: Athens High School, Area A: Sec. 1, 2, 6
A2.1	Roof Plan: Athens High School, Area C
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A2.5	Logistics Plan: Athens High School
A2.6	Photo Page: Athens High School
A2.7	Photo Page: Athens High School
A3.0	Roof Plan: Morse Elementary School, Roof Area C
A3.1	Photo Page: Morse Elementary School
A4.0	Roof Plan: Niles Community High School, Roof Area G and H
A4.1	Photo Page: Niles Community High School, Roof Areas G and H
A5.0	Roof Plan: Transportation Buildings, Roof Area C
A6.0	Roof Plan: Troy High School Roof Area N2, and P1
A6.1	Photo Page: Troy High School
A7.0	Roof Plan: Troy Union Elementary School, Roof Area A and B
A7.1	Restoration Plan: Troy Union Elementary School, Roof Area E
A7.2	Photo Page: Troy Union Elementary School
A8.0	Detail Page
A8.1	Detail Page
A8.2	Detail Page
A8.3	Detail Page

PROJECT WORK SCHEDULE

School	Reroofing sq. ft.	Restoration sq. ft.	TSD 2018 Roof Work	Project Time Frame
Troy Athens HS	53,200		Roof Area C Roof Area A: Sec. 1, Sec 2, Sec. 6, Roof Area F: Sec. 3, Sec. 4, Roof Area I	6/18/18-8/17/18
Morse Elementary School	15,325		Roof Area C: Sec 1, 2, 3, 4	6/18/18-8/17/18
Niles Community HS	14,650		Roof Area G and H	6/18/18-8/17/18
Transportation Bldg.	1,275		Roof Area C	6/18/18-8/17/18
Troy High School	4,625		Roof Area (s) N2, P1	6/18/18-8/17/18
Troy Union Elementary School	13,100	4,400	Reroof Roof Area (s) A, B; Restoration Roof Area E	6/18/18-8/17/18
Base Bid	102,175	4,400		
Alternate Bid No. 1 Troy Athens HS	43,750		ALT. Bid Reroof Roof Area A Sec. 3, 4, 5, 6, 7, 8, 9, 10, 11	6/18/18-8/17/18
Total Roof Area (sf)	145,925	4,400		

Sheet Index

TITLE	NUMBER
Cover Page	A1.0
Roof Plan: Athens High School Area A: Sec. 1, 2, 6	A2.0
Roof Plan: Athens High School Area C	A2.1
Roof Plan: Athens High School Area F: Sec. 3 & 4	A2.2
Roof Plan: Athens High School Area I	A2.3
Roof Plan: Athens High School, Alt. 1 Roof Area A Sec. 3, 4, 5, 6, 7, 8, 9, 10, 11	A2.4
Logistics Plan: Athens High School	A2.5
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Roof Plan: Morse Elementary School, Roof Area C	A3.0
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Roof Plan: Troy Union Elementary School, Roof Area A and B	A7.0
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Photo Page: Troy Union Elementary School	A7.2
Detail Page	A8.0
Detail Page	A8.1
Detail Page	A8.2
Detail Page	A8.3



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Dir of Operations  
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PROJECT LOCATION:  
See Project List below

Contact:  
Michelle Kern - Bond Rep  
Phone: (248) 921-3929  
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ROOF CONSULTANTS:  
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Utica, Michigan 48317

CONTACT  
Geof Garabedian  
Principal/Project Manager  
Phone (586) 731-3095 ext 12  
Email: ggarabedian@wtcg.net

PROJECT LOCATIONS

Athens High School	4333 John R Rd. Troy, MI 48085
Morse Elementary School	475 Cherry Dr. Troy, MI 48083
Niles Community High School	201 Square Lake Rd, Troy, MI 48098
Transportation Building	120 Hart Dr Troy MI 48098
Troy High School	4777 Northfield Pkwy. Troy, MI 48098
Troy Union Elementary School	1340 E Square Lake Rd, Troy, MI 48085

PROFESSIONAL



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Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Troy School District  
**BID NO. 9848**  
2018 Roofing Program

WTPProject No: TSD-R102-18	
ISSUE	
DATE	DESCRIPTION
10/27/17	50% Review Set
11/06/17	90% Review Set
11/10/17	OTB

File Name: Roof Plan
Drawn By: MD
Checked By: GG, AW, AC

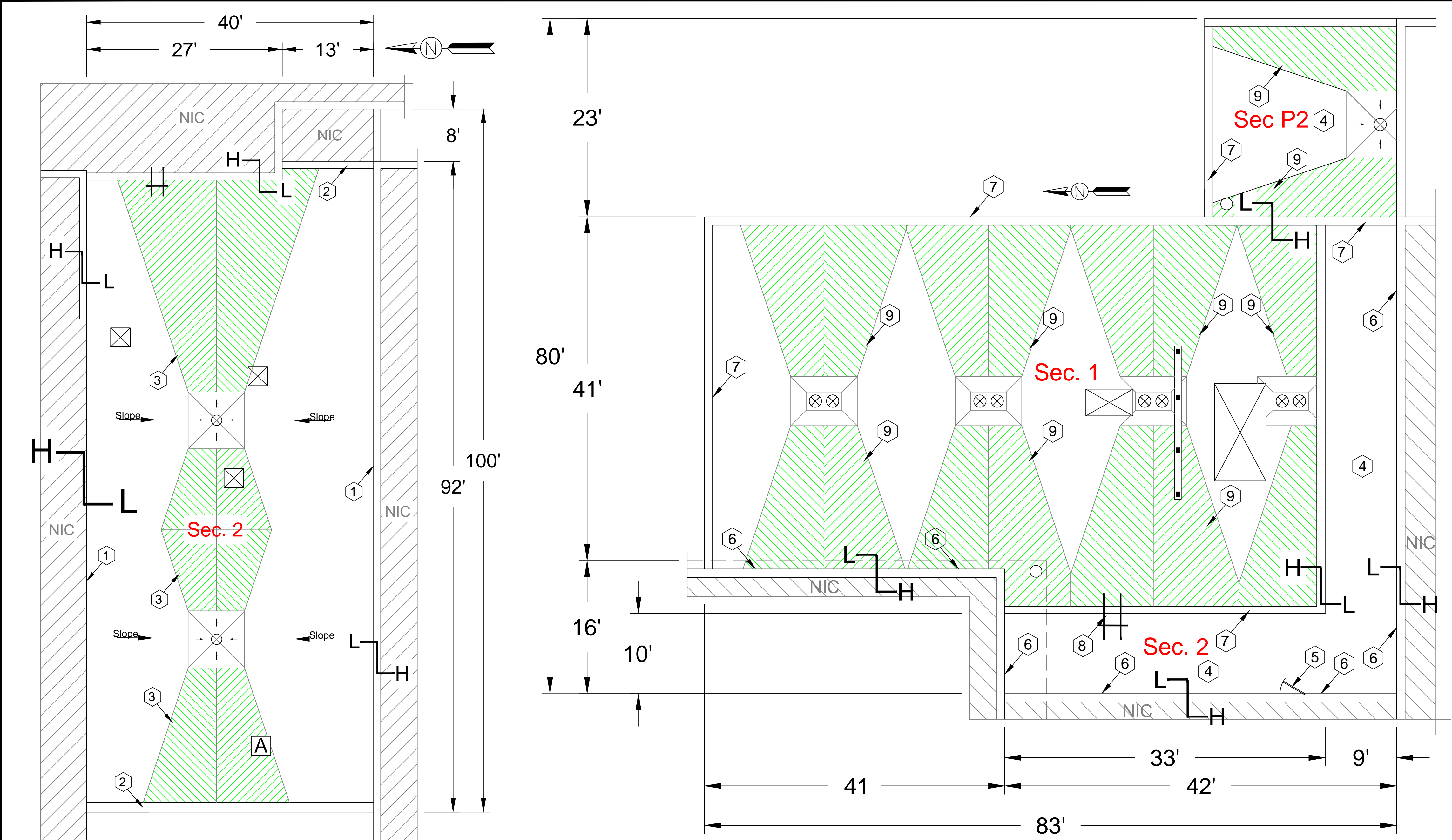
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SHEET TITLE

Cover Page

A1.0

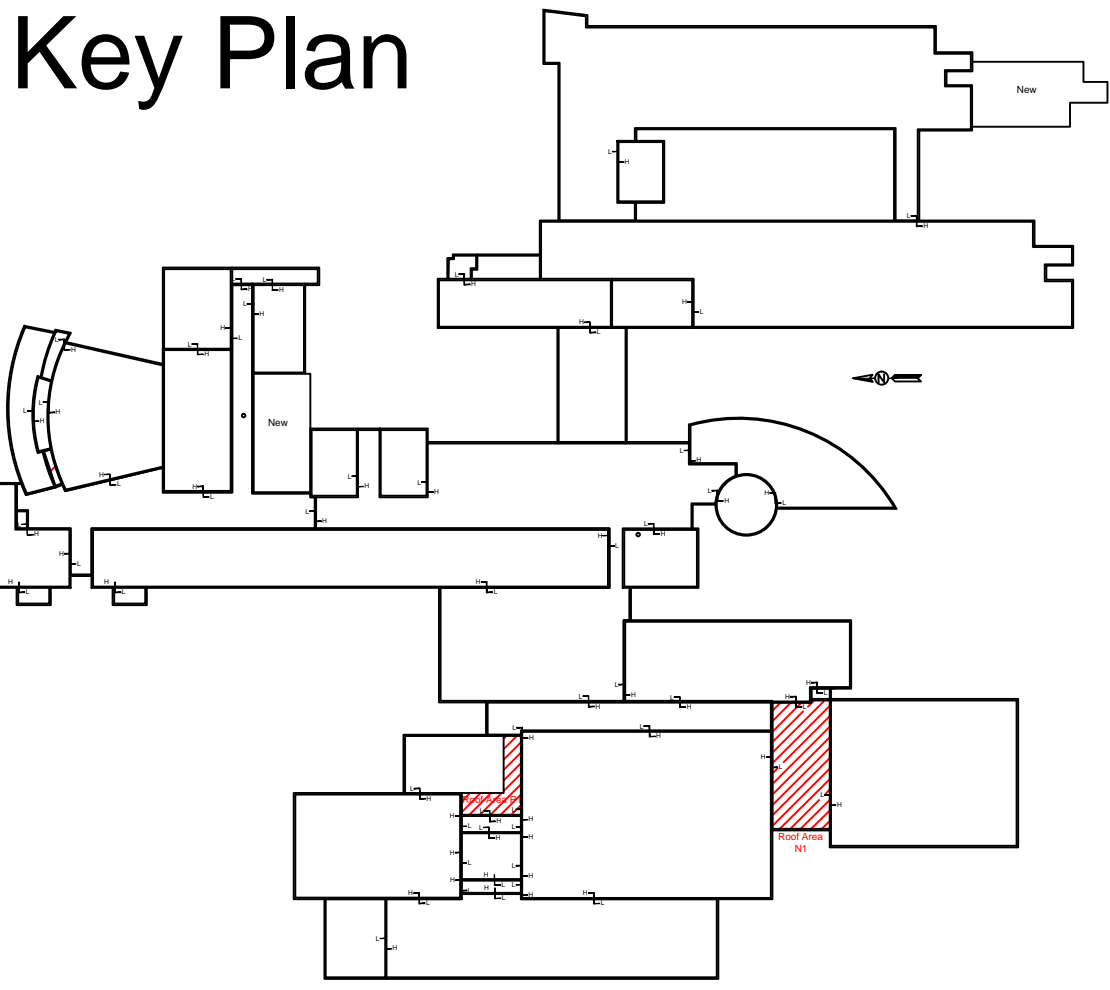




Troy High School  
Roof Plan  
Roof Area N2

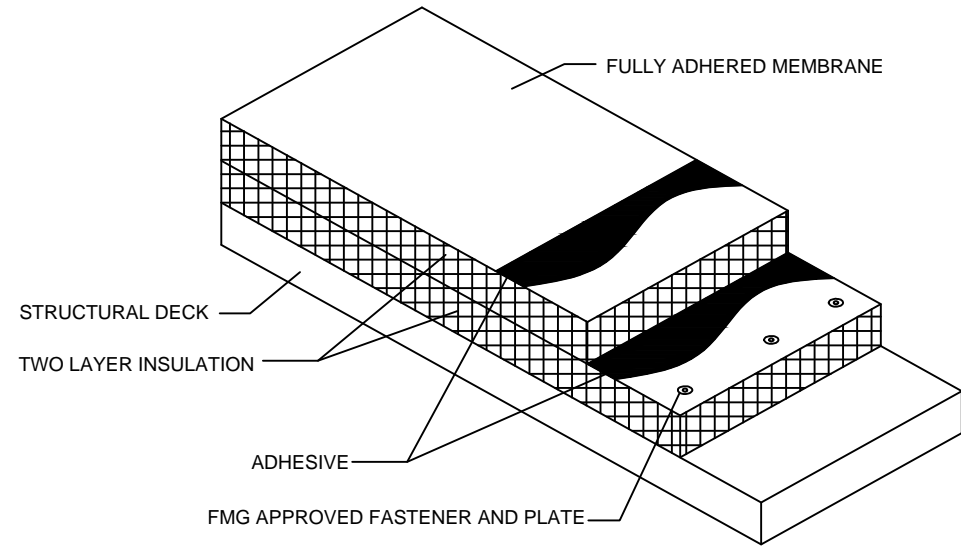
Symbol Key			
SYMBOL	DETAIL	SYMBOL	DETAIL
•	Pipe/Conduit Penetration	H	Roof Hatch
○	Vent Stack	S	Skylight
⊙	Insulated Pipe	A	Abandoned Equipment
⊙	Insulated Stack/Pipe on Curb	⊗	Overflow Drain
•	Screen support stanchion	⊗	Drain
•	Tube/Structural Equipment Support	⊕	New Drain
■	Pitch Pan		Overflow Scupper
■	Equip. on Support		Scupper
■	Equip. on Sleepers/Wood Blocking	—	Expansion Joint
⊗	Equipment Unit on Curb	g g	Gutter
□	Duct or Flanged Equipment	R R	Ridge
—	Area Divider	++++	Pipe/Conduit on Blocks
		⊗	Walk Way
		0' 15'	Elevation Change
		123	Photo Indicator
		01	Key Note
		⌂	Satellite Dish
		⊙	Core out
		△	Revision/ Addendum
		▨	Tapered Insulation
		▨	Metal Roofing
		▨	Shingles
		⊗	Pipe/Conduit Attached to Parapet

Scale:  
5' 5' 10'



Troy High School  
Roof Plan  
Roof Area P1 and P2

Scale:  
5' 5' 10'



NOTE: INSULATION MIN. TWO LAYERS, TOTAL RVALUE MIN. R 20. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.

FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S.

1.01

**Troy High School - Troy School District**  
**Schedule**  
**WORK DESCRIPTION - ROOF REPLACEMENT**  
Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warrantied roof system. Approx. Roof Area N: Sec 2: 22,000 sq. ft. and Roof Area P: Sec. 1: 3,200 sq. ft. and Sec. 2: 800 sq. ft.

- New Roof System.
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer mechanically fasten to deck;
    - Second insulation layer adhere to first layer of insulation;
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Deck: Metal: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.

**Alternate No. 2: Roof Area N: Sec. 2 and Roof Area P Sec. 2 only:** Provide deduct to reuse salvageable insulation, (assume R10 existing and 5% nonsalvagable insulation), salvaged insulation to be mechanically attached to deck. Adhere in adhesive 1 additional layer of 1.8 in. polyisocyanurate or greater to meet minimum R20 insulation requirements. **Note:** Reused insulation shall be flipped if required by manufacturer providing warranty. If not required by manufacturer contractor to provide in writing approval to leave as is. Install roof membrane as specified. **Ref. Alternates Section 012300:** Alternates are individually listed on school roof plans and bids for Alternates. Alternated bid value are to be entered on Bid Form (Section 000300) as enumerated.

- Building Height: Ground to building edge: 20 ft.

**3. EXISTING ROOF SYSTEM CONSTRUCTION**  
**All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:**

**Roof Area P1:**

- Roof Membrane: EPDM roof membrane.
- Insulation: Approx. 4 in. polyisocyanurate insulation.
- Tapered Insulation: Exists in various locations.
- Deck: Metal: Multiple types, contractor to verify.

**Roof Areas N2 and P2:**

- Roof Membrane: Ballasted EPDM roof membrane.
- Insulation: Approx. 2.0 in. polyisocyanurate insulation.
- Tapered Insulation: EPS exists in various locations.
- Deck: Metal: Multiple types, contractor to verify.

- Warranty/Guarantee
  - Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.
- Allowances: Add to base bid \$8,800 for allowances covering Unit Price and contingency items.

**General Construction Details: Ref A1.0**  
**Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.**

**Key Notes:**  
**All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.**

- Roof Area N:**  
**Overview Photo 5483**
- Masonry Reglet: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing.
  - Metal Cap: Furnish and install new metal cap.
  - Tapered insulation: Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights.
- Roof Area P:**
- Roof Section P2: Ref. Alternate No. 2 above to salvage insulation.
  - Door Threshold: If waterproofed as part of roof system furnish and install new base flashings under threshold plate or mechanical termination. If separated from base flashing do not disturb door.
  - Masonry Reglet: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing.
  - Metal Cap: Furnish and install new metal cap.
  - Ladder: Furnish and install new flashings and walk pads at top and bottom.
  - Tapered insulation: Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights.

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Troy, MI 48098

PROJECT:

Troy High School  
4777 Northfield Pkwy.  
Troy, MI 48098  
Troy School District  
BID NO. 9848  
2018 Roof Program

WTPProject No:  
TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/08/17	90% Review Set
11/10/17	OTB

File Name: Roof Plan  
Drawn By: MD  
Checked By: AW, GG, AC

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SHEET TITLE

Troy High School  
Roof Areas N2,  
and P  
Roof Plan

A6.0

Sheet 15 of 23





5483

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2017 Roof Program

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File Name: Photo Page

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SHEET TITLE

Troy High School  
Photo Page

A6.2



<p>SEE NOTE 2</p> <p>TWO LAYER INSULATION</p> <p>ADHESIVE</p> <p>FMG APPROVED FASTENER AND PLATE</p> <p>NAILABLE DECK</p> <p><b>NOTE:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.</p> <p><b>NOTE 2:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>SEE NOTE 2</p> <p>TWO LAYER INSULATION IN ADHESIVE</p> <p>NON NAILABLE DECK</p> <p><b>NOTE 1:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.</p> <p><b>NOTE 2:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>24 GAGE PREFINISHED GALVANIZED STEEL FASCIA COVER</p> <p>22 GAGE GALVANIZED STEEL CANT-DAM WITH CONTINUOUS CLEAT - FASTEN 6" O.C. WITH RING SHANK ROOFING NAILS</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - RUN FLASHING OVER CANT DAM AND DOWN ONTO CLEAT AS SHOWN</p> <p>6" SEAM TAPE</p> <p>EPDM MEMBRANE FULLY ADHERED</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>NEW 6" WIDE TREATED WOOD BLOCKING TO MATCH HEIGHT OF ROOF INSULATION - FASTEN @ 12" O.C.</p> <p>FIELD CRIMP PER</p> <p>(E) EXTERIOR WALL</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>22 GAGE GALVANIZED STEEL CONTINUOUS CLEAT FASTENED 6" O.C. WITH RING SHANK ROOFING NAILS</p> <p>TREATED WOOD 2X BLOCKING ATTACHED TO PARAPET WITH APPROPRIATE FASTENERS @ 12" O.C. - SLOPE TOWARDS ROOF AT A RATE OF 1/4" PER FOOT</p> <p>24 GAGE PREFINISHED GALVANIZED STEEL COPING WITH 1" HIGH STANDING SEAM JOINTS</p> <p>#12 STAINLESS STEEL SCREWS WITH EPDM BACKED S.S. WASHERS @ 18" O.C. MAX.</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF PARAPET</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>NEW 2x6 TREATED WOOD BLOCKING TO MATCH HIGHEST POINT IN TAPERED INSULATION ASSEMBLY - FASTEN @ 6" O.C.</p> <p>(E) EXTERIOR WALL</p> <p>APPROVED SEALANT</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>22 GAGE GALVANIZED STEEL CONTINUOUS CLEAT FASTENED 6" O.C. WITH RING SHANK ROOFING NAILS</p> <p>TREATED WOOD 2X BLOCKING ATTACHED TO PARAPET WITH APPROPRIATE FASTENERS @ 12" O.C. - SLOPE TOWARDS ROOF AT A RATE OF 1/4" PER FOOT</p> <p>24 GAGE PREFINISHED GALVANIZED STEEL COPING WITH 1" HIGH STANDING SEAM JOINTS</p> <p>#12 STAINLESS STEEL SCREWS WITH EPDM BACKED S.S. WASHERS @ 18" O.C. MAX.</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF PARAPET</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>FASTENER AND PLATE 12" (300 mm) O.C. MAXIMUM</p> <p>PARAPET WALL</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>(E) WALL ASSEMBLY</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>22 GA GAL RECEIVER STAINLESS STEEL FASTENERS WITH EPDM BACKED S.S. WASHERS @ 8" O.C. MINIMUM</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>24 GA GAL COUNTER FLASHING STAINLESS STEEL FASTENERS WITH EPDM BACKED S.S. WASHERS @ 8" O.C. MINIMUM</p> <p>EPDM FLASHING MEMBRANE ADHERED W/ BONDING ADHESIVE</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>WeatherTech © Date: Rev 3/15</p>
<p>FULLY ADHERED EPDM SYSTEM NAILABLE DECK SCALE: N.T.S.</p> <p>1.01</p>	<p>FULLY ADHERED EPDM SYSTEM NON-NAILABLE DECK SCALE: N.T.S.</p> <p>1.02</p>	<p>CANT-DAM WITH FASCIA COVER SCALE: N.T.S.</p> <p>1.03</p>	<p>RAISED EDGE FLASHING SCALE: N.T.S.</p> <p>1.04</p>	<p>PARAPET WITH METAL COPING SCALE: N.T.S.</p> <p>1.05</p>	<p>2-PIECE SURFACE MOUNT METAL FLASHING SCALE: N.T.S.</p> <p>1.06</p>
<p>(E) WALL ASSEMBLY</p> <p>(E) THRU-WALL METAL COUNTERFLASHING</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>METAL COUNTERFLASHING INTO EXISTING RECEIVER - SEE NOTE 1</p> <p>EPDM FLASHING MEMBRANE ADHERED W/ BONDING ADHESIVE</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p><b>NOTE 1:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL, 26 GAGE STAINLESS STEEL OR 16 O.Z. COLD ROLLED COPPER AND SHALL MATCH EXISTING TYPE OF THROUGH-WALL REGLET METAL. SECURE NEW COUNTERFLASHING TO EXISTING REGLET WITH POP RIVETS OF SAME TYPE OF METAL @ 12" O.C. MAX.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>NEW OR EXISTING SAW-CUT REGLET</p> <p>LEAD WEDGES @ 12" O.C. MAX.</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>METAL COUNTERFLASHING INTO EXISTING RECEIVER - SEE NOTE 1</p> <p>EPDM FLASHING MEMBRANE ADHERED W/ BONDING ADHESIVE</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p><b>NOTE 1:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL OR PREFINISHED STEEL, 26 GAGE STAINLESS STEEL OR 16 O.Z. COLD ROLLED COPPER. SEE SCHEDULE(S) ON THE ROOF PLAN(S) FOR SPECIFIC REQUIREMENTS FOR EACH ROOF AREA.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>(E) WALL ASSEMBLY</p> <p>(E) METAL SIDING - SEE NOTE 2</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>METAL COUNTERFLASHING - SLIP UP AND BEHIND BASE OF SIDING - SEE NOTE 1</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p><b>NOTE 1:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL OR PREFINISHED STEEL, 26 GAGE STAINLESS STEEL OR .032" (MINIMUM) MILL FINISHED ALUMINUM. SEE SCHEDULE(S) ON ROOF PLAN(S) FOR SPECIFIC REQUIREMENTS FOR EACH ROOF AREA.</p> <p><b>NOTE 2:</b> LOOSEN BOTTOM OF SIDING TO FACILITATE INSTALLATION OF NEW COUNTERFLASHING. RESecure SIDING WITH GROMMETTED SCREWS AS INDICATED.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>(E) DRAIN STRAINER - REPLACE IF MISSING OR BROKEN</p> <p>(E) CLAMPING RING BOLTS - REPLACE IF MISSING OR DAMAGED DURING REMOVAL</p> <p>(E) CLAMPING RING - REMOVE ALL BITUMINOUS MATERIALS - REPLACE IF MISSING OR BROKEN DURING REMOVAL</p> <p>TAPERED INSULATION - MINIMUM 3/4" PER FOOT TAPER</p> <p>12"</p> <p>1" MIN</p> <p>(E) STRUCTURAL DECK</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>EPDM ROOF MEMBRANE</p> <p>MANUFACTURER APPROVED SEALANT - MINIMUM ONE TUBE PER DRAIN</p> <p>(E) DRAIN PIPING</p> <p>(E) DRAIN BOWL</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>THERMAL INSULATION</p> <p>CENTER LINE DRAIN</p> <p>72"</p> <p>24" min.</p> <p>24"</p> <p>OVERFLOW COLLAR</p> <p>DECK</p> <p>EPDM MEMBRANE AND FLASHING</p> <p>ROOF DRAIN</p> <p>LEADER</p> <p>TAPERED EDGE STRIP</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>DRAIN</p> <p>SLOPE</p> <p>TAPERED INSULATION</p> <p>RECEIVER DRAIN</p> <p>SLOPE</p> <p>96"</p> <p>96"</p> <p>WeatherTech © Date: Rev 3/15</p>
<p>BASE FLASHING W/ THRU WALL COUNTERFLASHING SCALE: N.T.S.</p> <p>1.07</p>	<p>BASE FLASHING W/ CUT-IN REGLET@ MASONRY WALL SCALE: N.T.S.</p> <p>1.08</p>	<p>BASE FLASHING AT METAL SIDING SCALE: N.T.S.</p> <p>1.09</p>	<p>DRAIN FLASHING SCALE: N.T.S.</p> <p>1.10</p>	<p>ROOF/OVERFLOW DRAIN SCALE: N.T.S.</p> <p>1.11</p>	<p>DRAIN SUMP-A SCALE: N.T.S.</p> <p>1.12</p>
<p>DRAIN</p> <p>120"</p> <p>TAPERED INSULATION</p> <p>SLOPE</p> <p>OVERFLOW DRAIN</p> <p>24" min.</p> <p>72"</p> <p>24"</p> <p>TAPER. INSUL.</p> <p>SLOPE</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>EPDM FLASHING</p> <p>EPDM STRIP-IN FLASHING</p> <p>APPROVED SEALANT</p> <p>24 GAGE T GALVANIZED STEEL SCUPPER - FASTEN 4" O.C. STAGGERED WITH RING SHANK ROOFING NAILS - SEE NOTE 2</p> <p>EPDM STRIP-IN FLASHING</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>NEW 6" WIDE TREATED WOOD BLOCKING TO MATCH HEIGHT OF ROOF INSULATION - FASTEN @ 12" O.C.</p> <p>(E) EXTERIOR WALL</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>SEALING MATERIAL</p> <p>ROOFTOP EQUIPMENT FRAME</p> <p>GASKETED FASTENERS MIN. TWO FASTENERS PER SIDE</p> <p>REMOVABLE SHEET-METAL COUNTERFLASHING</p> <p>ADHERED MEMBRANE FLASHING</p> <p>BONDING ADHESIVE</p> <p>PREMOLDED CORNER</p> <p>EPDM MEMBRANE</p> <p>SEALANT (IF REQUIRED FOR THE SPECIFIC CURB)</p> <p>EPDM MEMBRANE</p> <p>SEAM PLATES AND FASTENERS</p> <p>TAPERED CANT</p> <p>THERMAL INSULATION</p> <p>SEE SCHEDULE</p> <p>STRUCTURAL DECK</p> <p>OPTION:</p> <p>MECHANICAL UNIT, HOOD, ETC.</p> <p>BASE OF UNIT EXTENDS 1/2" MINIMUM BEYOND TOP OF CURB</p> <p>MINIMUM 1/2" BELOW TOP OF CURB</p> <p>FLASHING RECEIVER</p> <p>FASTENERS</p> <p>COUNTERFLASHING</p> <p>FLASHING MEMBRANE</p> <p>WOOD CURB</p> <p><b>NOTES:</b></p> <p>1. THE CURB, TOP WOOD NAILED AND SEAL STRIP ARE TO BE SUPPLIED BY THE CURB MANUFACTURER.</p> <p>2. WHEN POSSIBLE, THE MECHANICAL UNITS SHOULD NOT BE SET UNTIL THE ROOF MEMBRANE AND FLASHING HAVE BEEN INSTALLED.</p> <p>3. WHERE THE SKYLIGHT, SCUPPER OR SMOKE VENT FRAME OVERLAPS THE BASE FLASHING AT LEAST 1 INCHES, THE REMOVABLE SHEET-METAL COUNTERFLASHING IS NOT REQUIRED.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>(E) NON-REMOVABLE UNIT</p> <p>POLYURETHANE SEALANT</p> <p>#12 STAINLESS STEEL SCREWS WITH EPDM BACKED S.S. WASHERS @ 12" O.C.</p> <p>METAL COUNTERFLASHING - SEE NOTES 1 AND 2</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - TUCK FLASHING UP AND BEHIND BOTTOM OF UNIT SKIRT</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>(E) CURB</p> <p><b>NOTE 1:</b> WHEN BASE OF UNIT PROVIDES LESS THAN 4" COVERAGE OVER TOP OF FLASHING, INSTALL SEPARATE COUNTERFLASHING AS SHOWN.</p> <p><b>NOTE 2:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL, 24 GAGE PREFINISHED GALVANIZED STEEL, .032" MILL FINISHED ALUMINUM OR 26 GAGE STAINLESS STEEL. SEE SCHEDULE(S) ON THE ROOF PLAN(S) FOR SPECIFIC TYPE OF METAL REQUIRED IN EACH ROOF AREA.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>(E) SHEET METAL GUTTER AND DOWNSPOUTS</p> <p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>BASE OF WALL OR CURB</p> <p>SELF-FLASHING UNIT</p> <p>1-1/2" x 1/2" NEOPRENE FOAM SEALING STRIP</p> <p>ADDITIONAL WOOD BLOCKING IF REQUIRED TO ACHIEVE MINIMUM 8" FLASHING HEIGHT</p> <p>#12 WOOD SCREWS @ 12" O.C.</p> <p>FASTEN FLASHING 8" O.C. WITH ROOFING NAILS</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF CURB</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>(E) CURB</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>BASE OF WALL OR CURB</p> <p>1-1/2" x 1/2" NEOPRENE FOAM SEALING STRIP</p> <p>TREATED WOOD BLOCKING TO RAISE CURB TO 8" ABOVE THE ROOF SURFACE (IF REQUIRED)</p> <p>#12 WOOD SCREWS @ 12" O.C.</p> <p>FASTEN VENTILATOR BASE TO CURB WITH #12 STAINLESS STEEL FASTENERS WITH EPDM BACKED S.S. WASHERS @ 18" O.C. - MINIMUM 1 PER SIDE</p> <p>FASTEN FLASHING 8" O.C. WITH ROOFING NAILS</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF CURB</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>(E) CURB</p> <p>WeatherTech © Date: Rev 3/15</p>
<p>DRAIN SUMP-A SCALE: N.T.S.</p> <p>1.13</p>	<p>THRU-WALL OVERFLOW SCUPPER SCALE: N.T.S.</p> <p>1.14</p>	<p>NON REMOVABLE PREFABRICATED METAL CURB SCALE: N.T.S.</p> <p>1.15</p>	<p>NON REMOVABLE UNIT CURB FLASHING SCALE: N.T.S.</p> <p>1.16</p>	<p>REMOVABLE UNIT CURB FLASHING SCALE: N.T.S.</p> <p>1.17</p>	<p>REMOVABLE VENTILATOR CURB FLASHING SCALE: N.T.S.</p> <p>1.18</p>

PROFESSIONAL



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PROJECT:

Troy School District

**BID 9848**

2018 Roofing Program

WTPProject No:  
TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/08/17	90% Review Set
11/10/17	OTB

File Name: A8.0 - Detail Page

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<b>ROOF PENETRATION</b> SCALE: N.T.S. <b>2.01</b>	<b>PRE-FABRICATED PIPE FLASHING</b> SCALE: N.T.S. <b>2.02</b>	<b>FIELD FABRICATED VENT STACK FLASHING</b> SCALE: N.T.S. <b>2.03</b>	<b>FIELD WRAP PENETRATION FLASHING</b> SCALE: N.T.S. <b>2.04</b>	<b>HEATED STACK FLASHING</b> SCALE: N.T.S. <b>2.05</b>	<b>PITCH PAN</b> SCALE: N.T.S. <b>2.06</b>	<b>PITCH POCKET</b> SCALE: N.T.S. <b>2.07</b>	<b>THROUGH ROOF CONDUIT/PIPE FLASHING - 2 PC COLLAR</b> SCALE: N.T.S. <b>2.08</b>	<b>ANGLE IRON SUPPORT FLASHING</b> SCALE: N.T.S. <b>2.09</b>	<b>I-BEAM COLUMN FLASHING</b> SCALE: N.T.S. <b>2.10</b>	<b>PITCH PAN COVER</b> SCALE: N.T.S. <b>2.11</b>	<b>EQUIPMENT SUPPORT</b> SCALE: N.T.S. <b>2.12</b>	<b>EXPOSED WOOD SLEEPER SUPPORT</b> SCALE: N.T.S. <b>2.13</b>	<b>PROTECTED WOOD SLEEPER SUPPORT -</b> SCALE: N.T.S. <b>2.14</b>	<b>DUCT SUPPORT</b> SCALE: N.T.S. <b>2.15</b>	<b>FLANGED DUCTS</b> SCALE: N.T.S. <b>2.16</b>	<b>GAS PIPE SUPPORT</b> SCALE: N.T.S. <b>2.17</b>	<b>AREA DIVIDER/CONTROL JOINT</b> SCALE: N.T.S. <b>2.18</b>



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ISSUE

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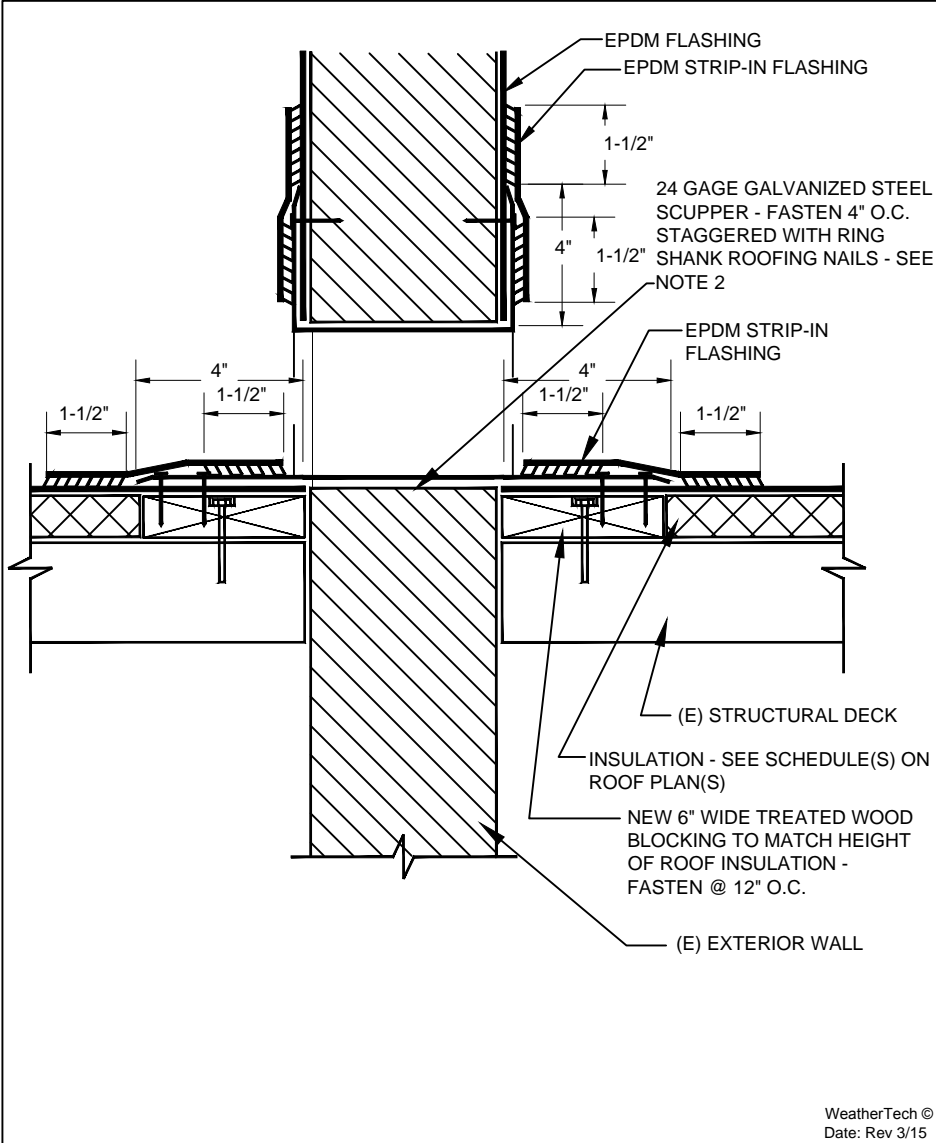
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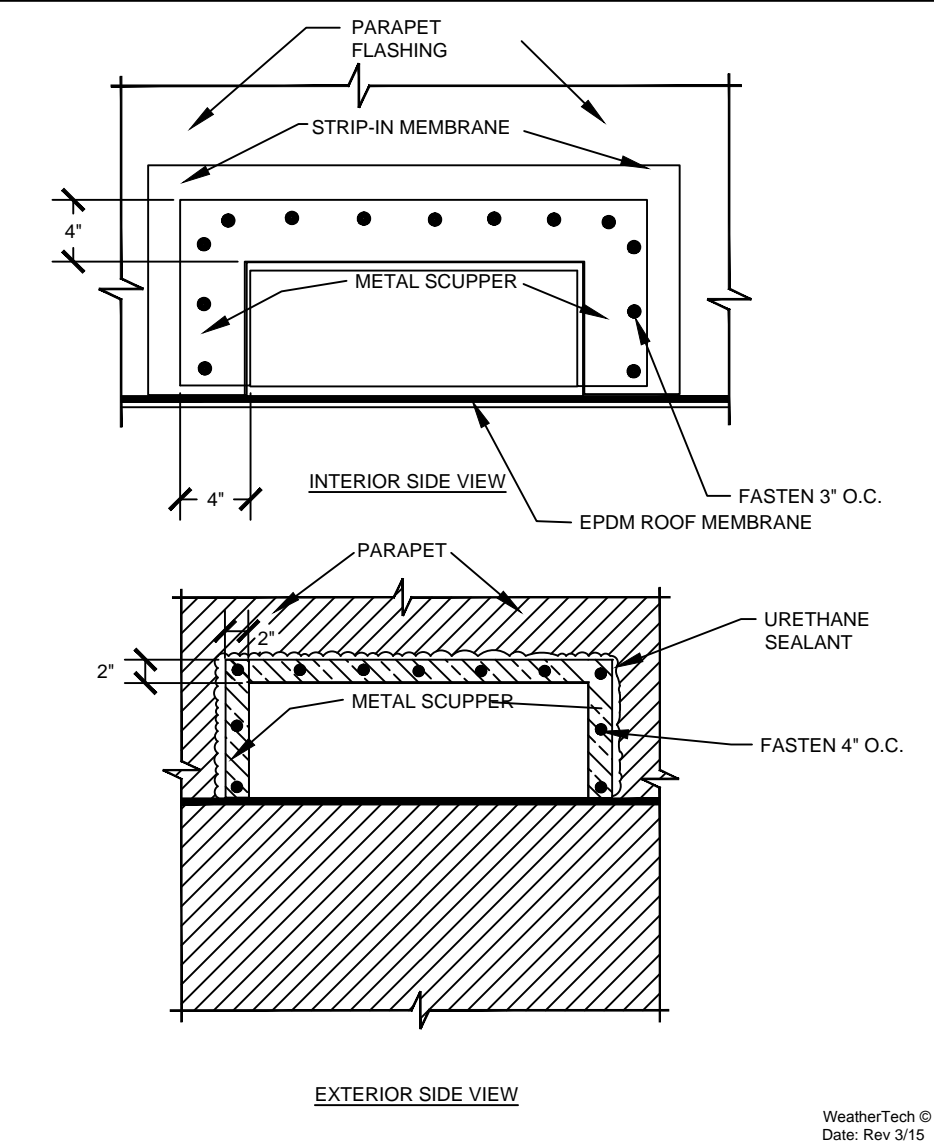
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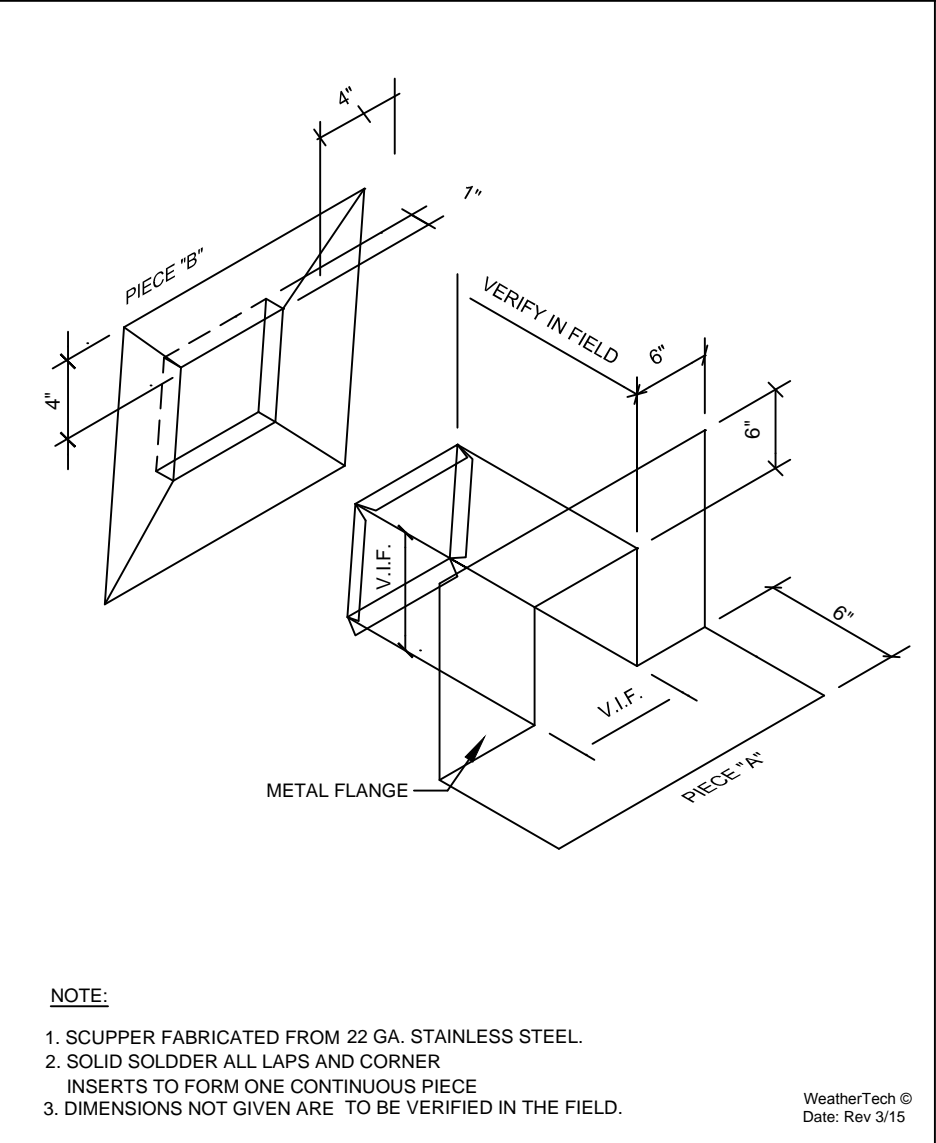
THRU-WALL SCUPPER  
SCALE: N.T.S.

4.01



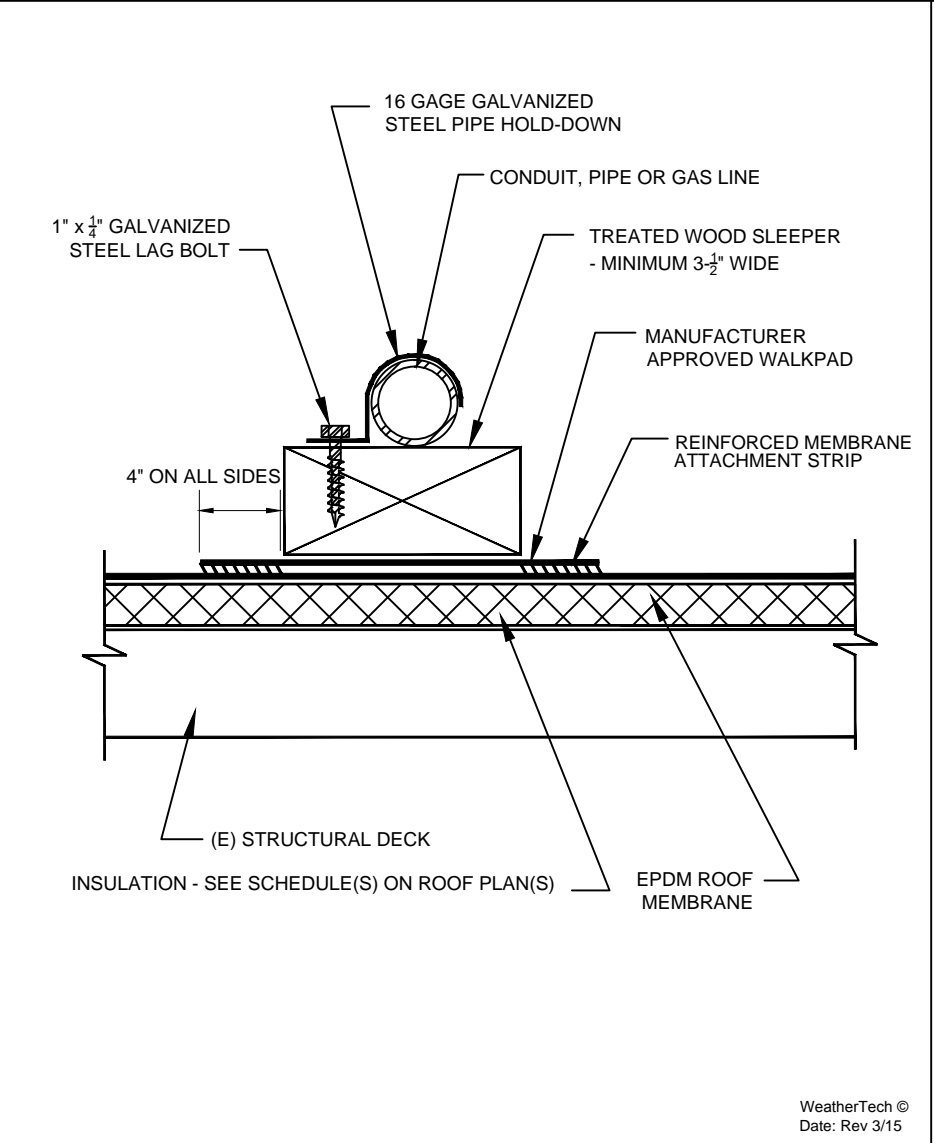
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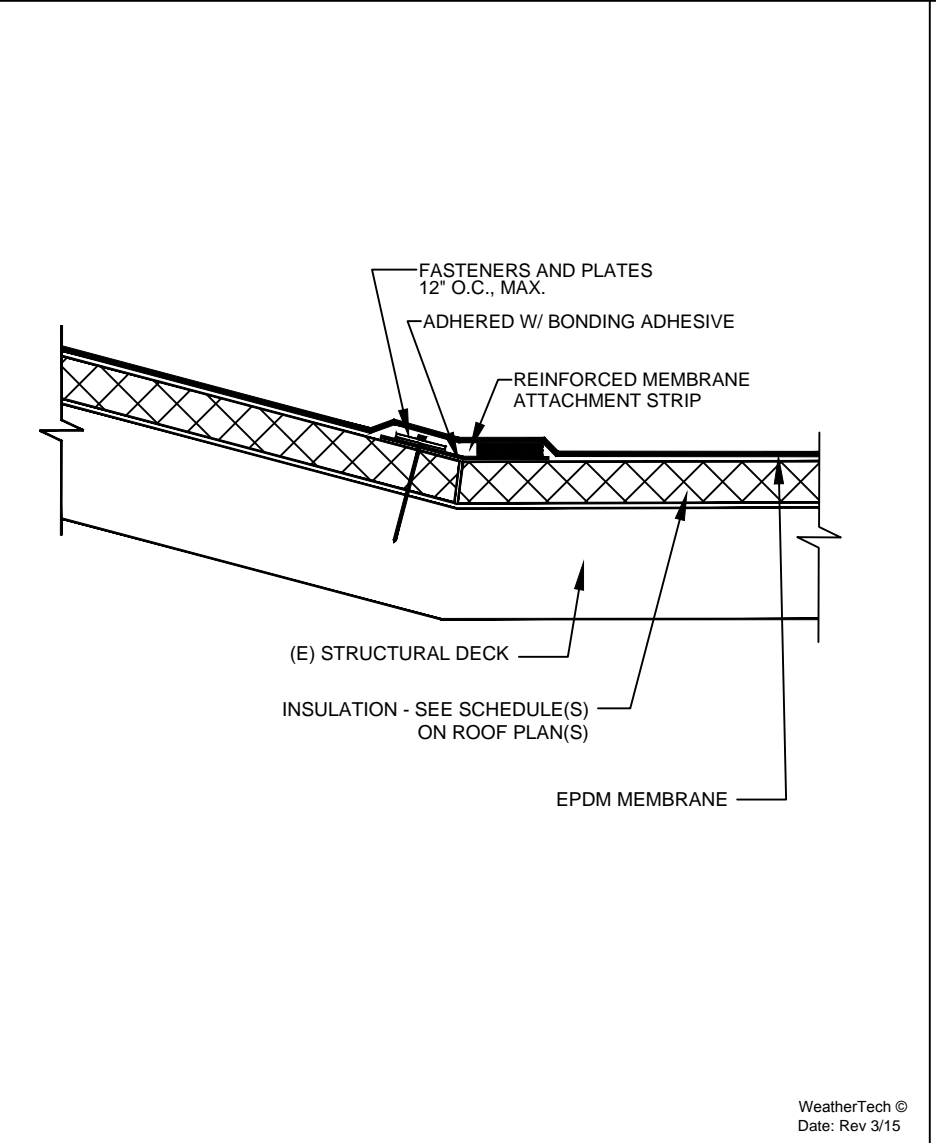
SCUPPER FABRICATION  
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4.03



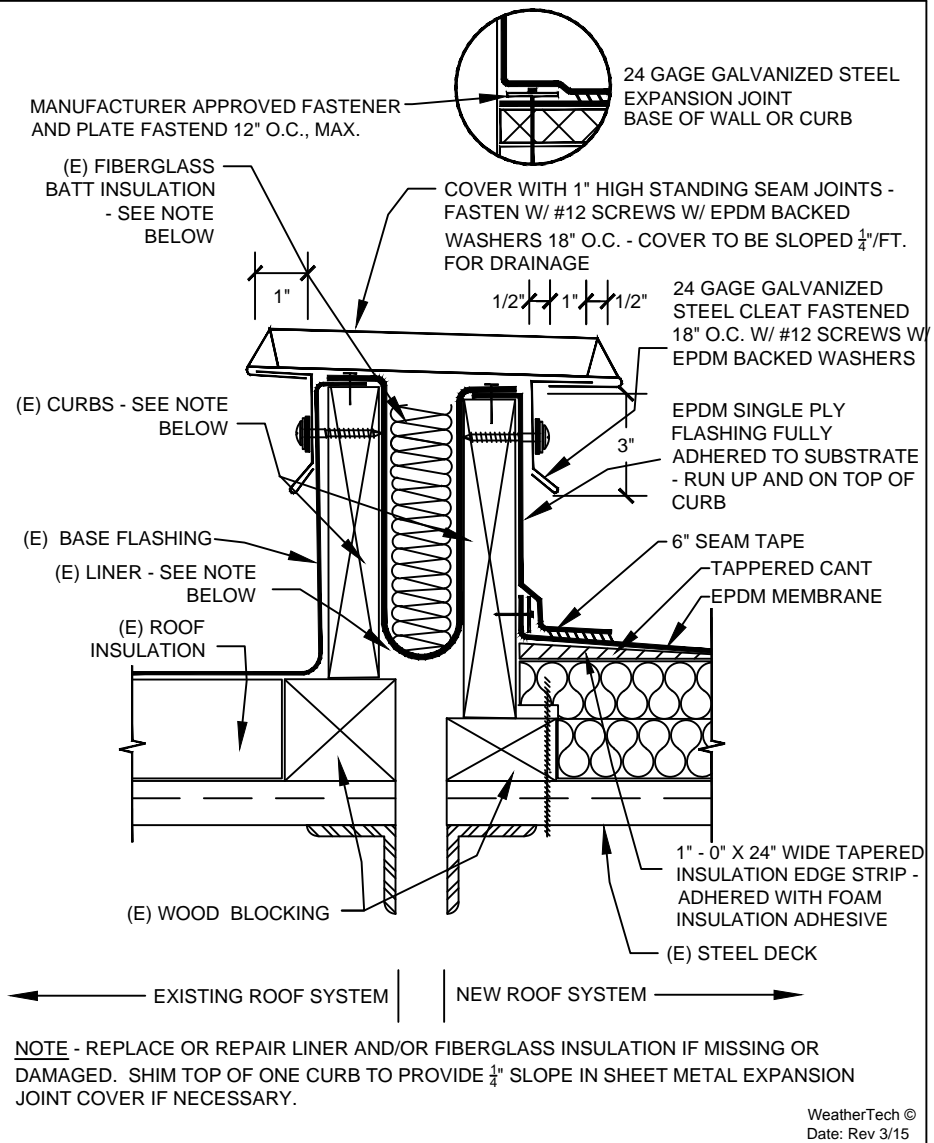
CONDUIT SUPPORT WOOD SLEEPER  
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4.04



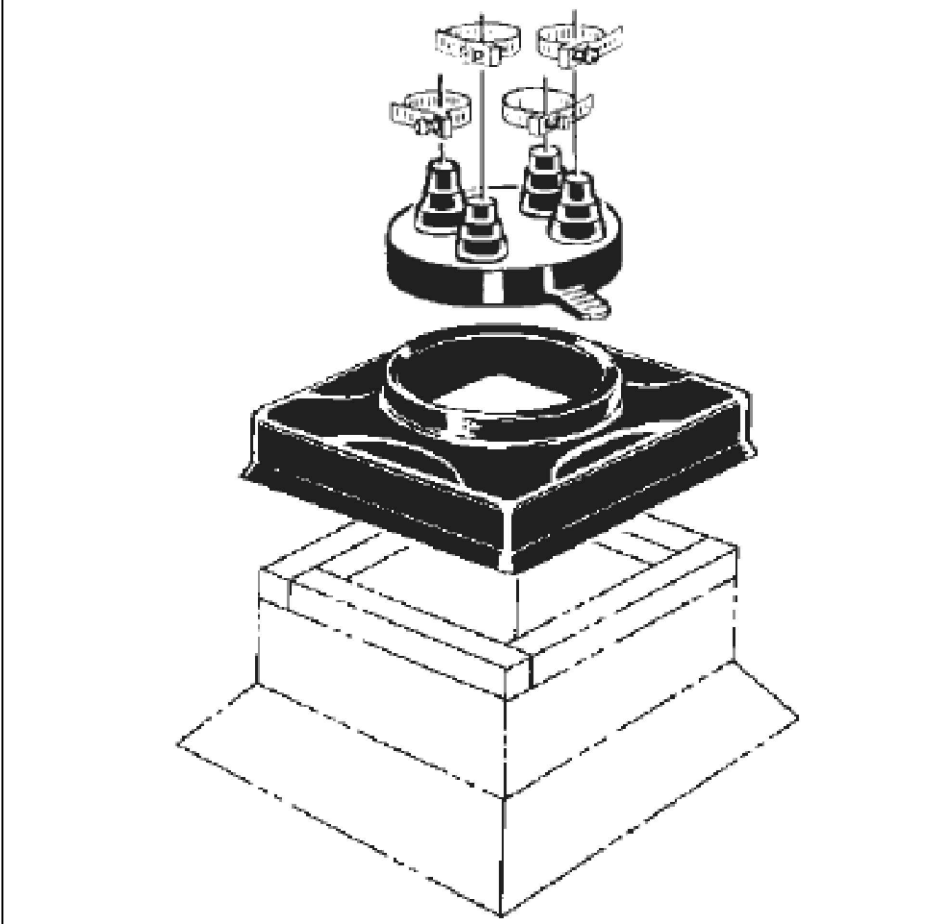
SLOPE TRANSITION  
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4.05

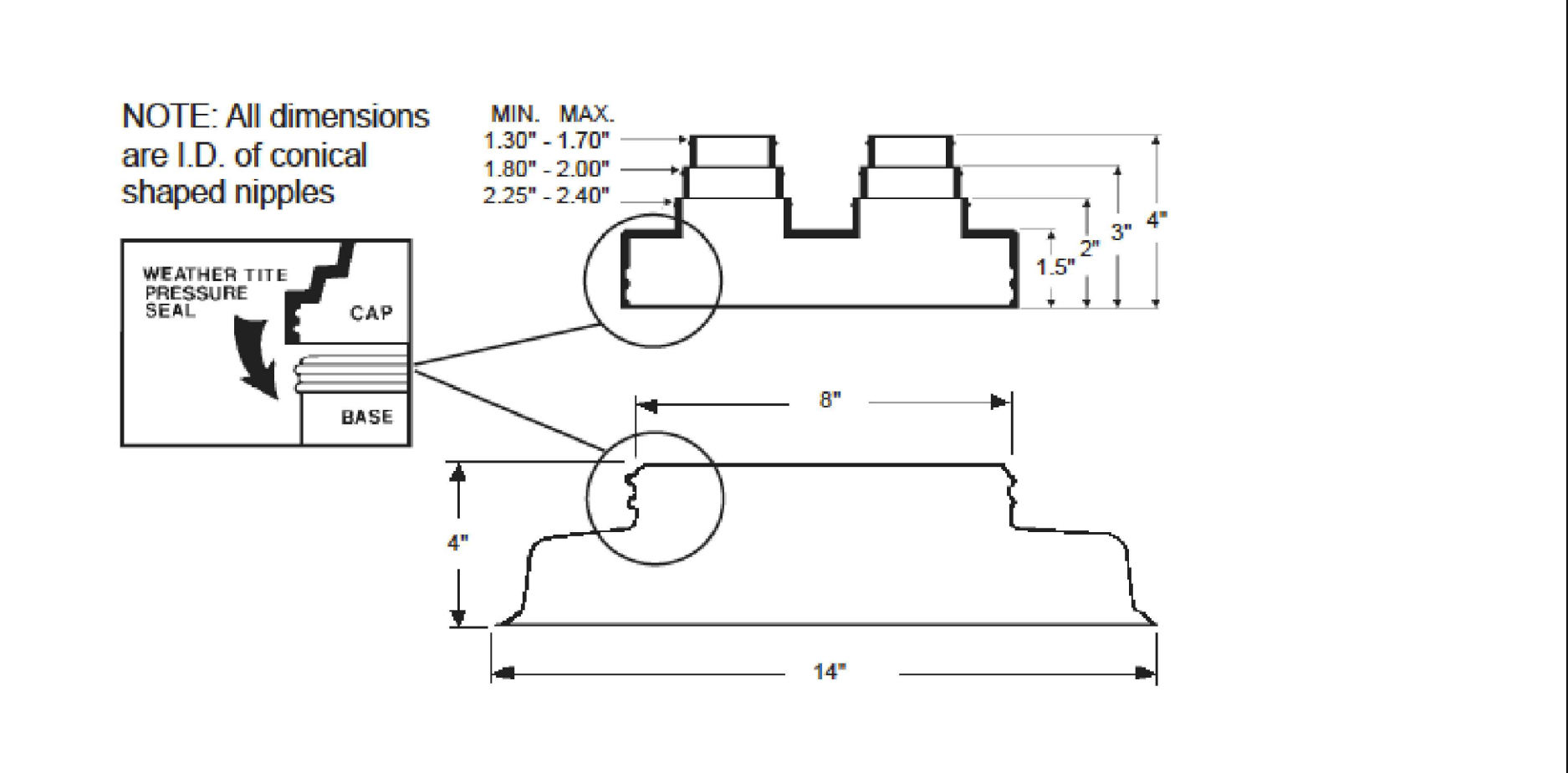


ROOF MOUNTED EXPANSION JOINT @ EXISTING CURB  
SCALE: N.T.S.

4.06

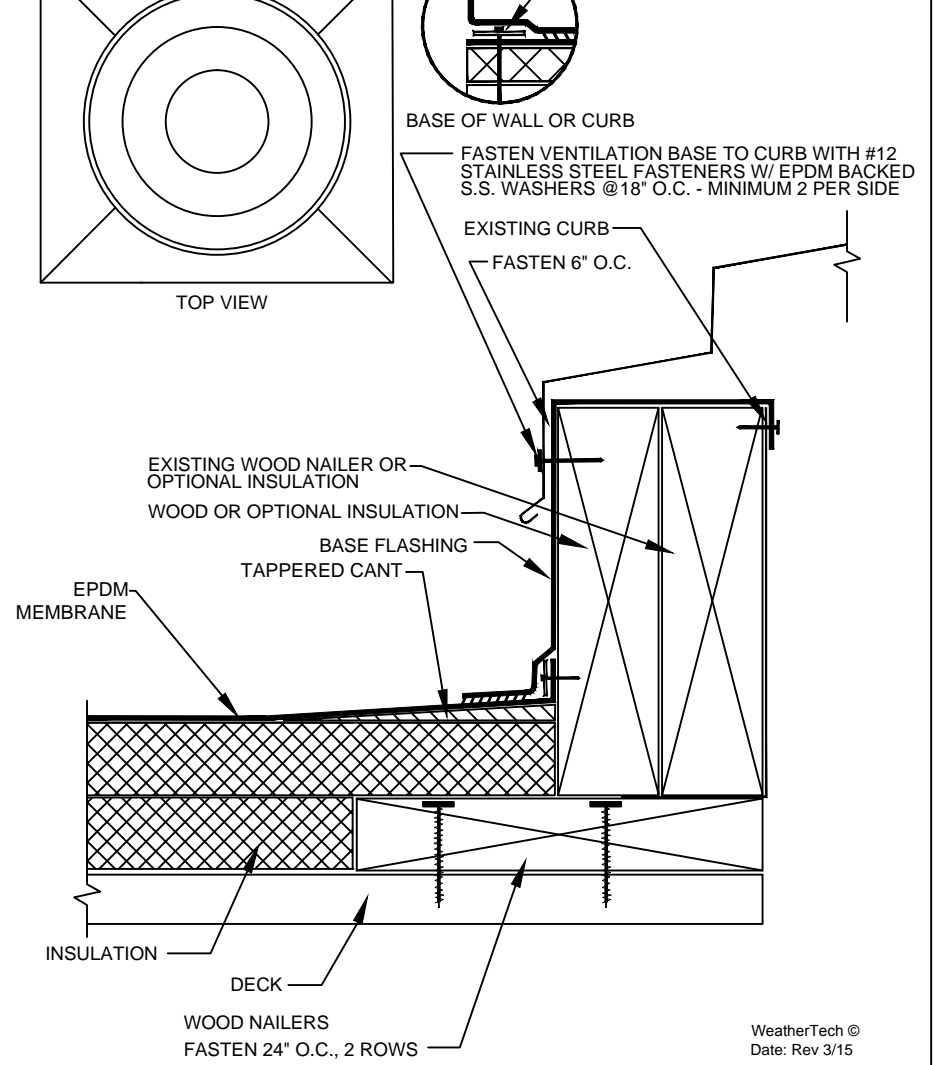


PORTALS PLUS CONDUIT/PIPE  
FLASHING - CURB & COVER  
SCALE: N.T.S.



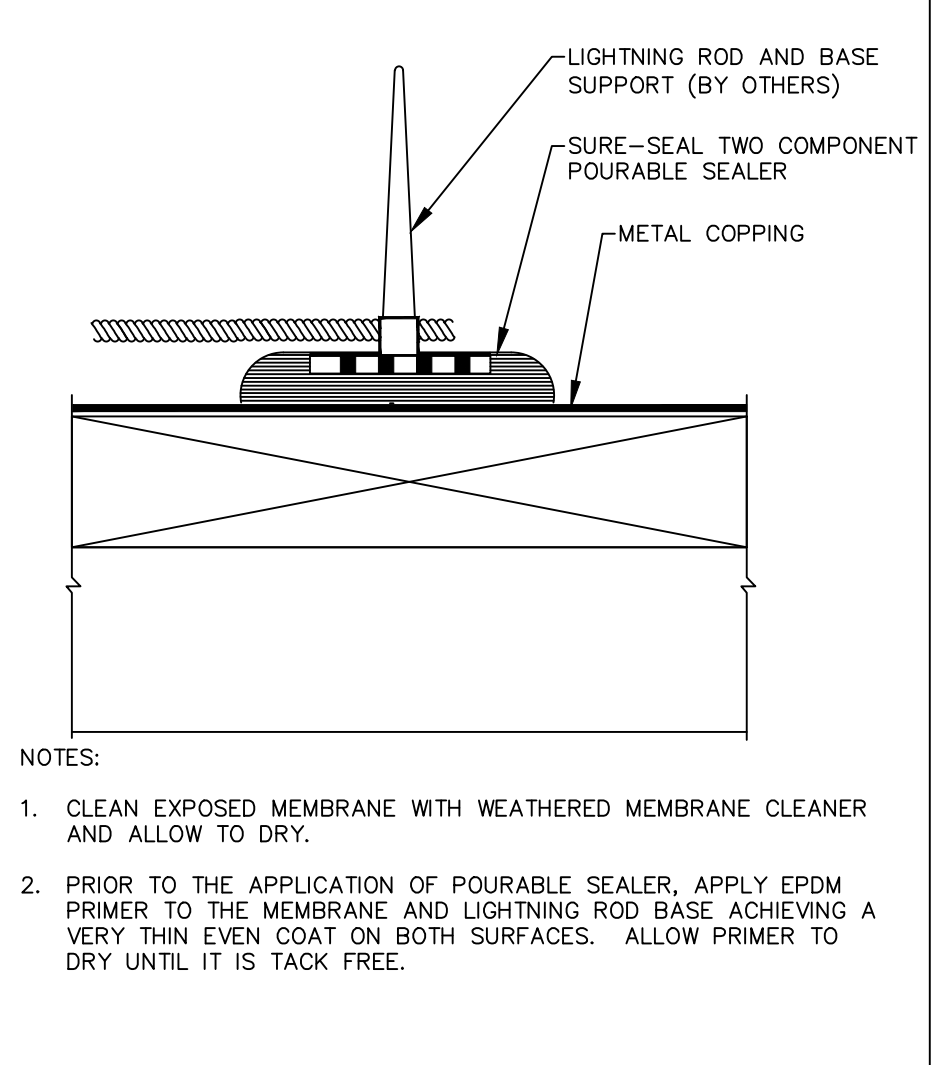
PORTALS PLUS CONDUIT/PIPE  
FLASHING - CURB & COVER  
SCALE: N.T.S.

4.07



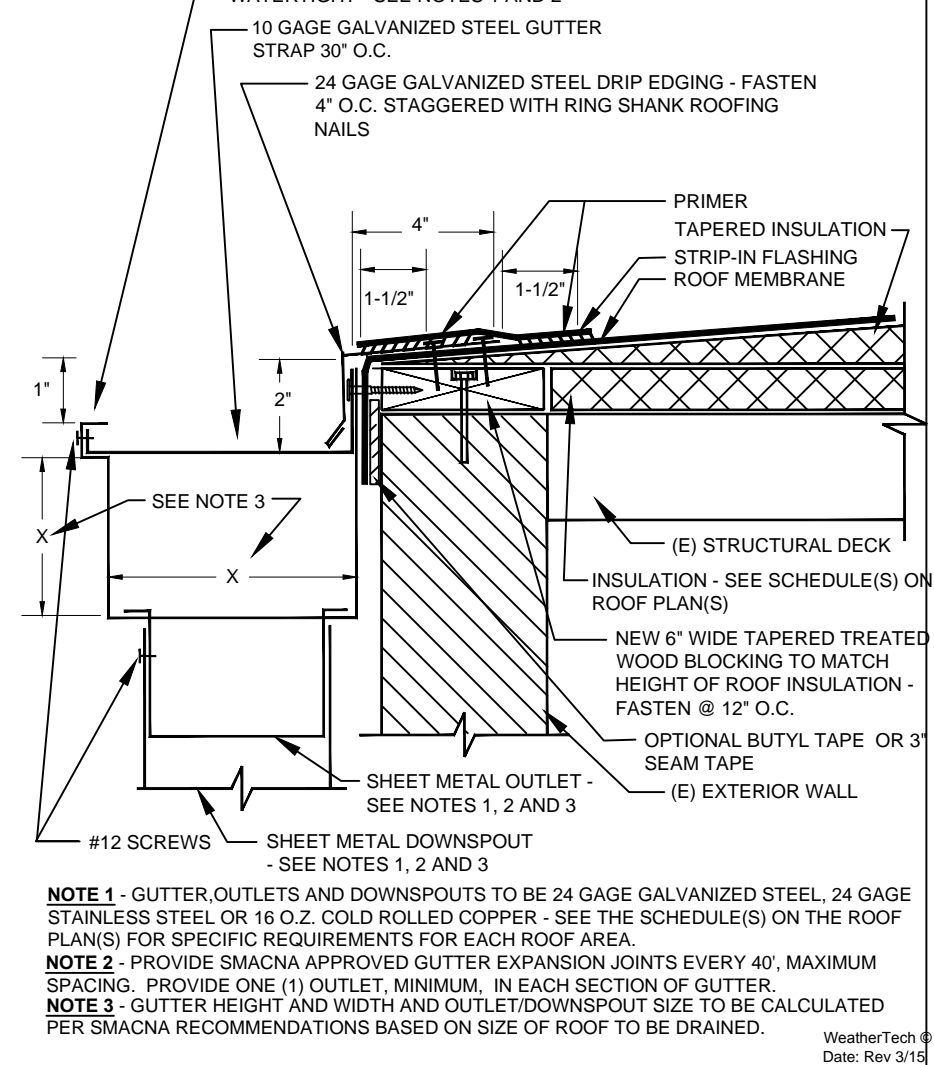
VENTILATION/CURD BUILD OUT  
SCALE: N.T.S.

4.08



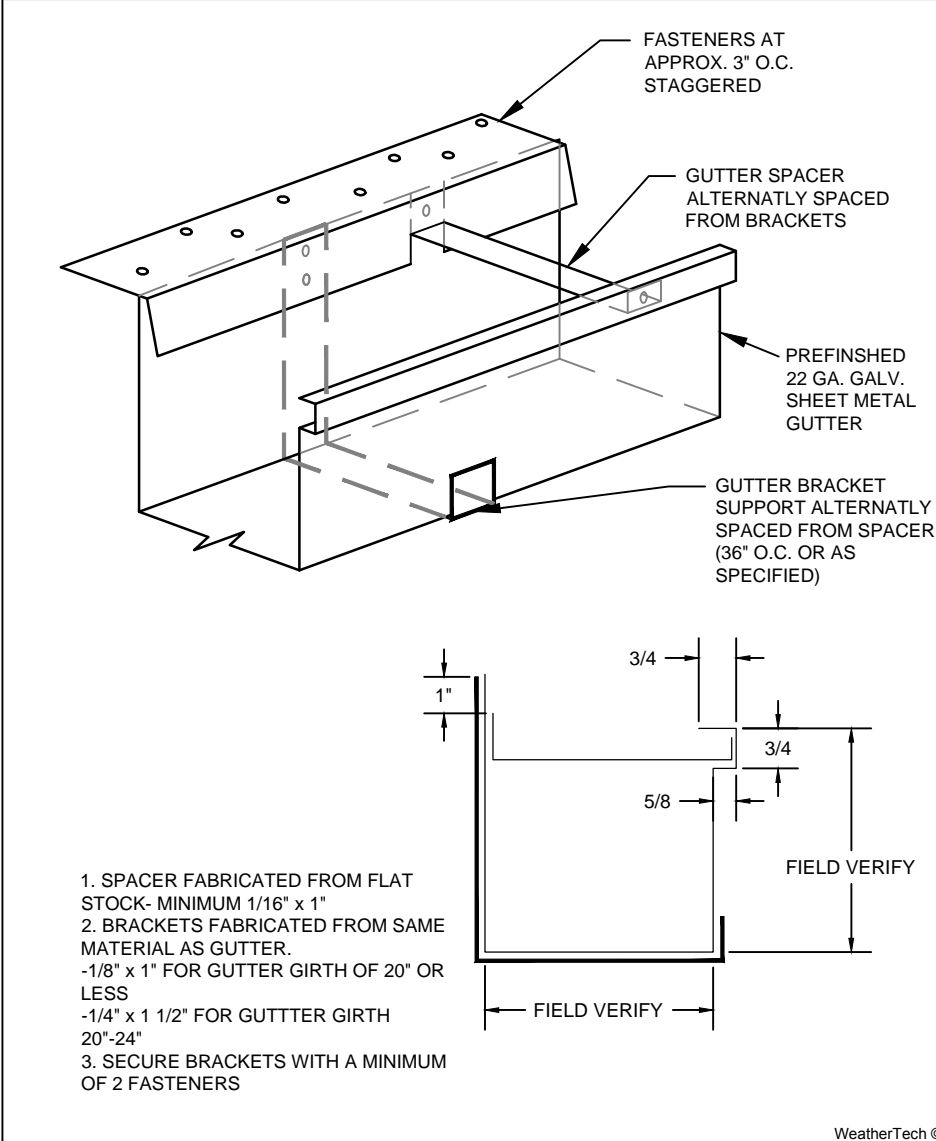
LIGHTNING ROD AT PARAPET WITH  
POURABLE SEALER  
SCALE: N.T.S.

4.09



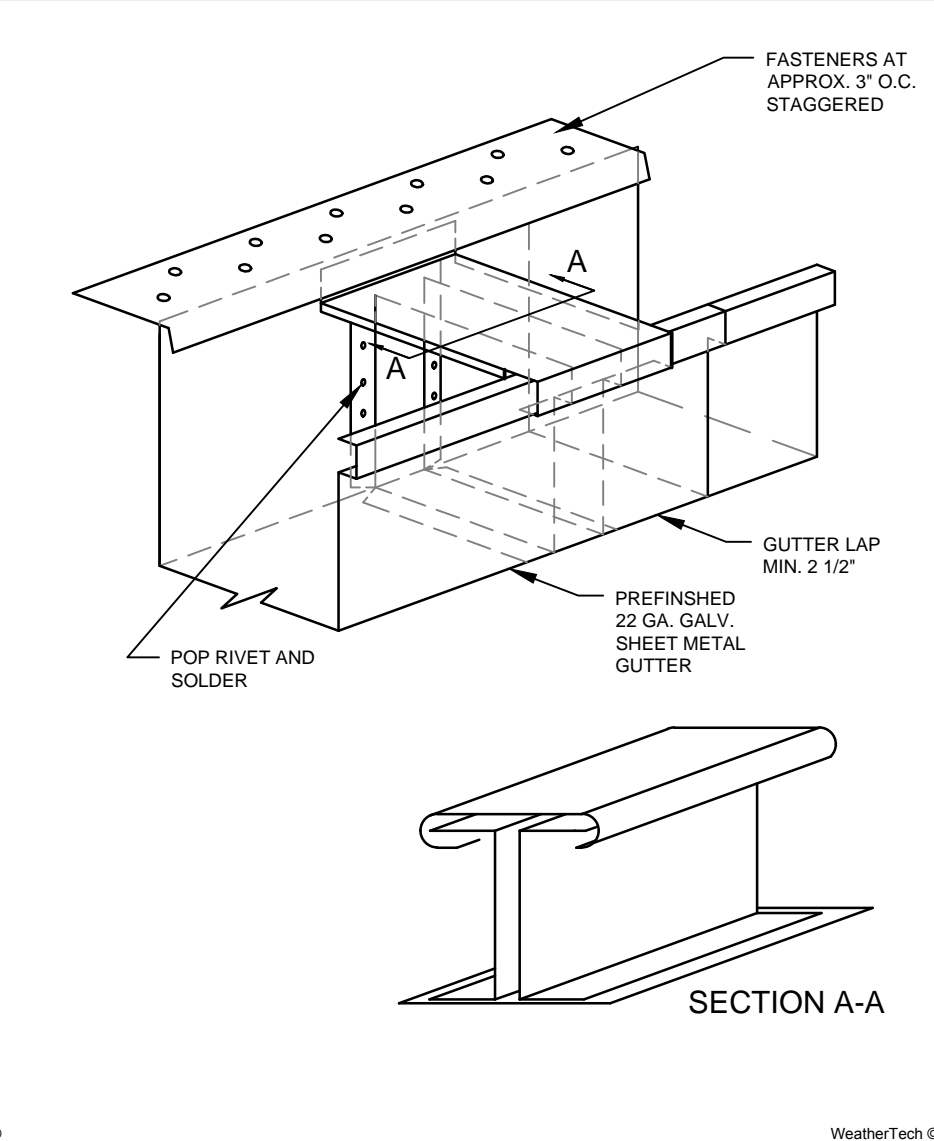
GUTTER EDGE FLASHING - COATED METAL  
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4.10



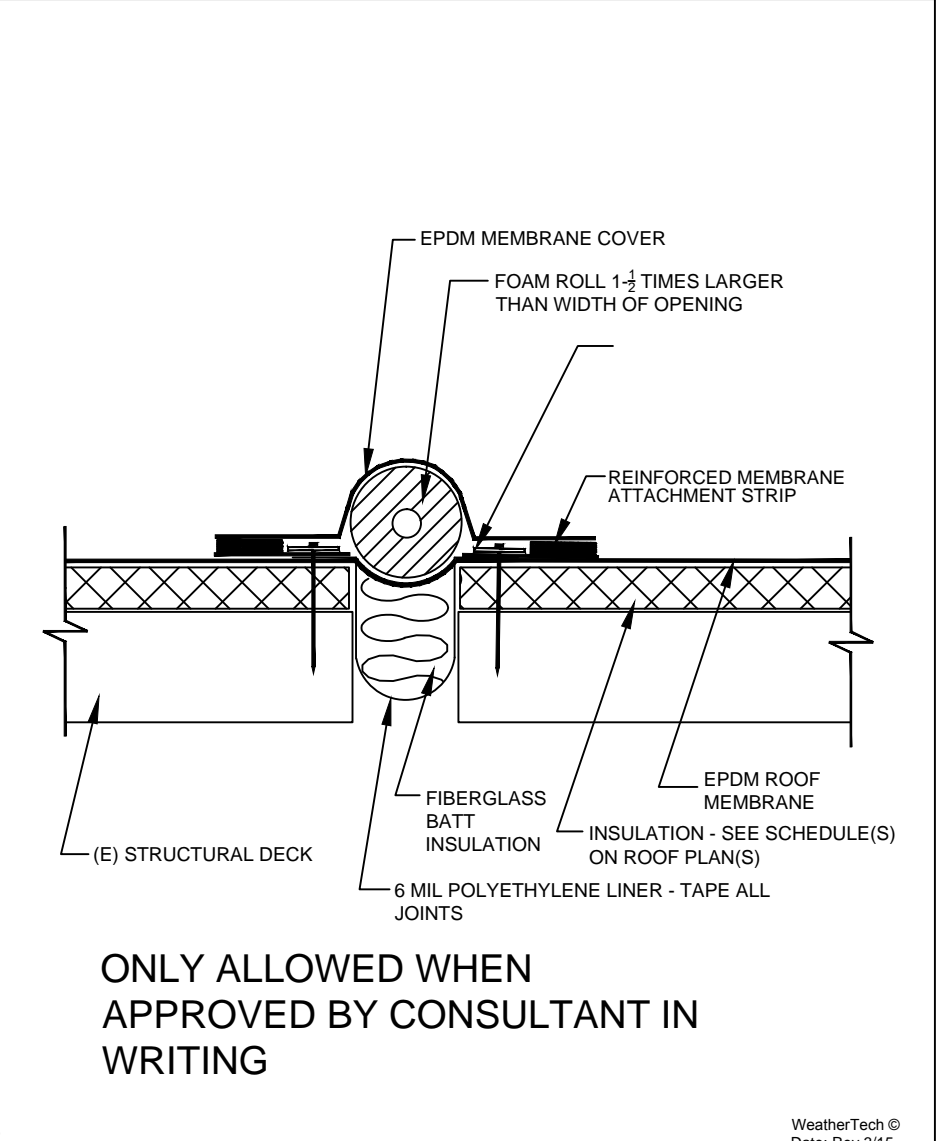
TYPICAL GUTTER  
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4.11



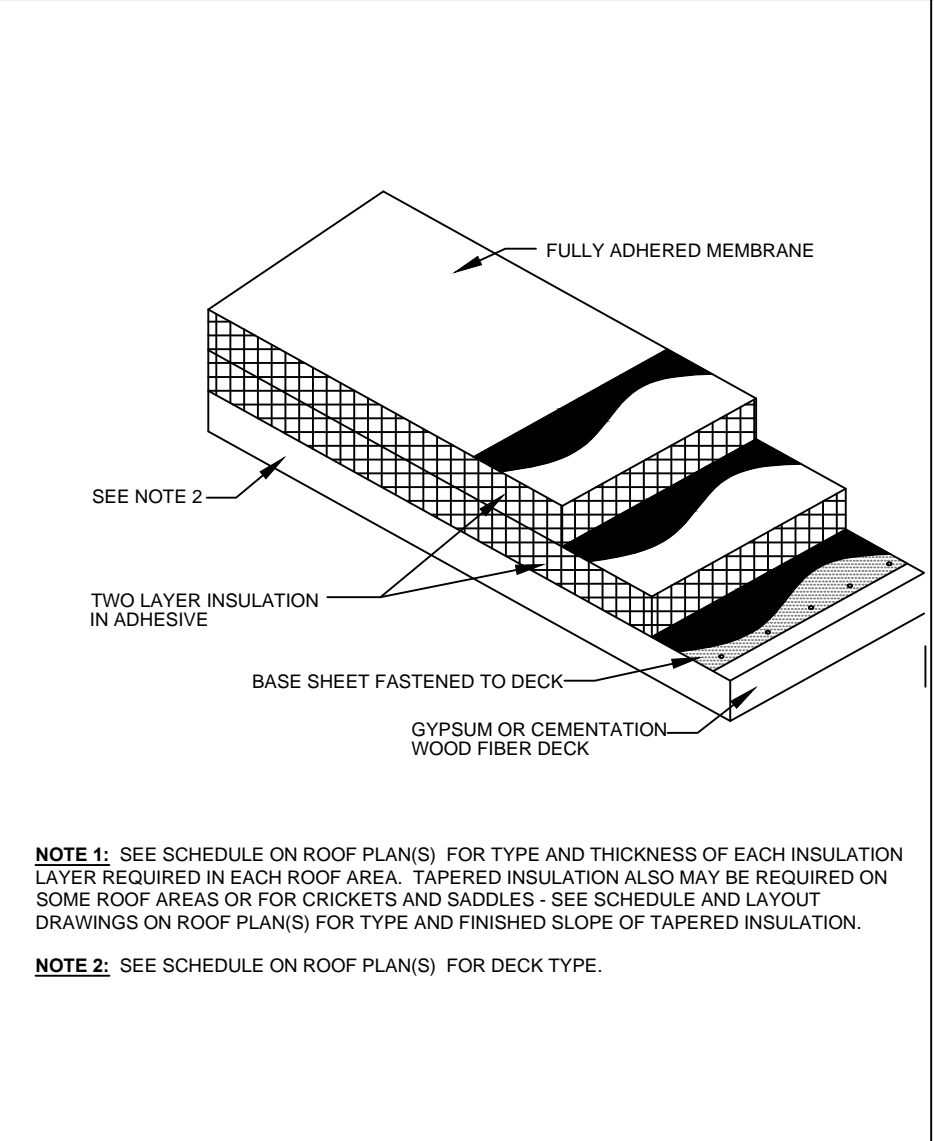
GUTTER EXPANSION JOINT  
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4.12



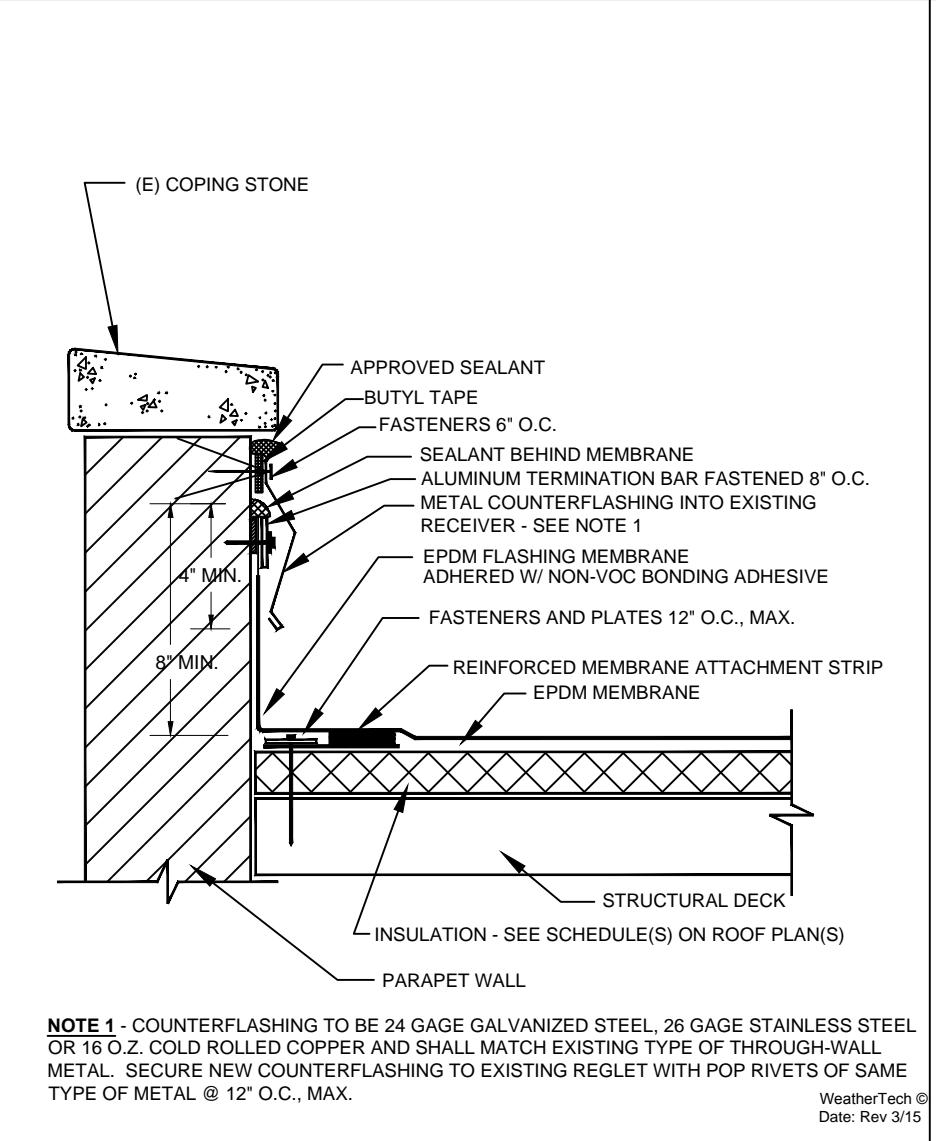
ROOF MOUNTED EXPANSION JOINT  
SCALE: N.T.S.

4.13



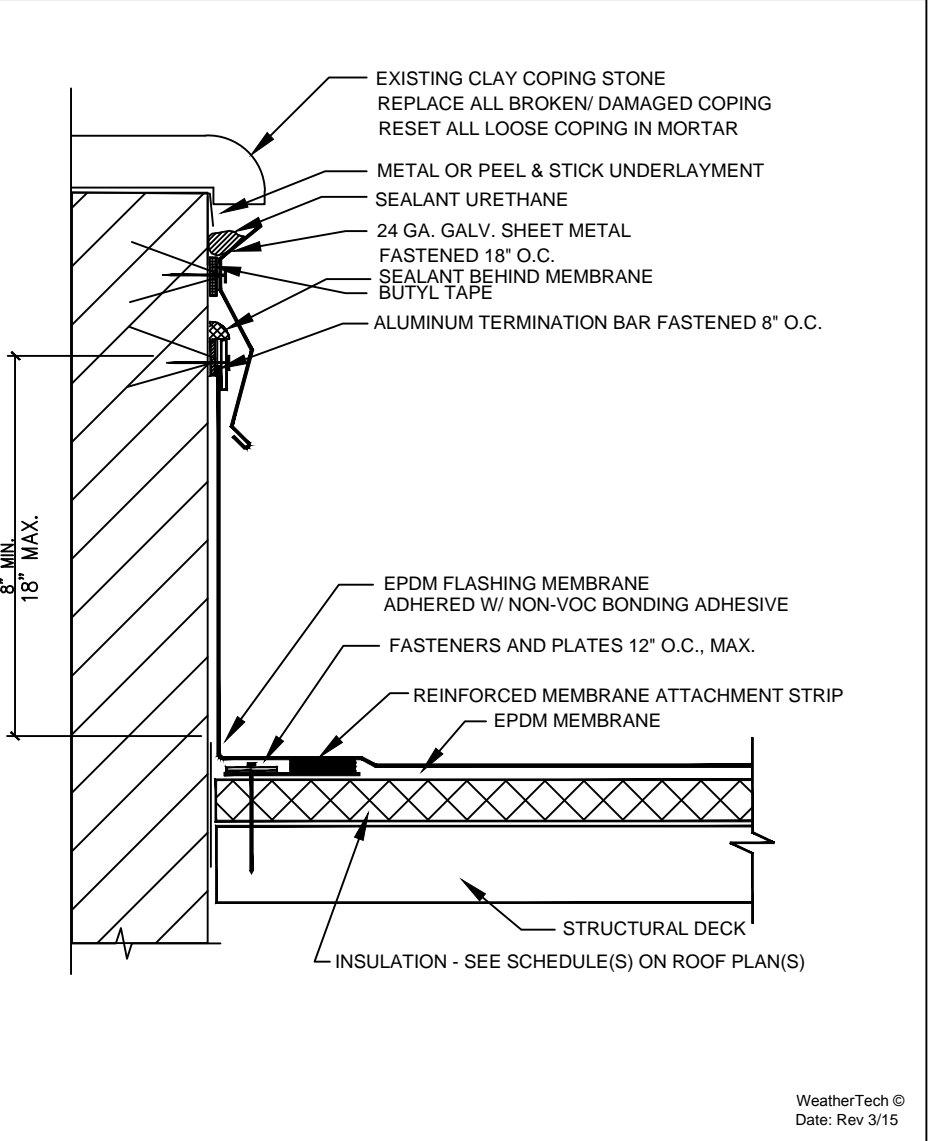
FULLY ADHERED EPDM SYSTEM OVER GYPSUM  
AND CEMENTATION WOOD FIBER DECKS  
SCALE: N.T.S.

4.14



PARAPET WALL W/COPING STONE  
W/ TERMINATION BAR  
SCALE: N.T.S.

4.15



PARAPET WALL FLASHING W/ CLAY COPING  
SCALE: N.T.S.

4.16

PROFESSIONAL



WeatherTech

Roofing/Waterproofing Consultants  
Consulting Group, Inc.

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EMAIL: weathertech@wtcg.net

WEB SITE: www.wtcg.net

CLIENT:

Troy School District

4400 Livernois

Troy, MI 48098

PROJECT:

Troy School District

**BID 9848**

2018 Roofing Program

WTPProject No:  
TSR-102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/08/17	90% Review Set
11/10/17	OTB

File Name: A8.0 - Detail Page  
Drawn By: MD, GG  
Checked By: AW, GG, AC

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SHEET TITLE

Detail Page

A8.3

Sheet 23 of 23



PPROJECT SUMMARY

SUMMARY OF WORK: ref. Section 00 02 00

General: Troy School District (TSD) 2018 Roof Program work for five (5) schools and one (1) District building covering approximately 145,925 sq. ft. Roofing work includes roof replacement and restoration required to remediate all work identified in the specifications and drawings inclusive of all Bid Documents requirements.

Schedules: Ref. "PROJECT WORK SCHEDULE" on this Sheet A1.0 - Cover Page.

BID SUMMARY:

- Contractor proposal and two copies will be submitted only on the forms provided and will be enclosed in a sealed envelope marked with the name of the bidder, the title of the work, the time, place and date due and must be hand delivered or delivered by courier no later than 10:00 A.M., Wednesday, November 29, 2017, Administrative Building, Troy School District, 4400 Livernois, Troy, Michigan 48098, at which time all bids will be publicly opened and read aloud immediately thereafter. Bid proposals received after this time will not be considered or accepted. Oral, telephone, fax or electronic mail bids are invalid and will not receive consideration.  
a. Bid Bond: Submit with bid five percent (5%) bid bond or certified check.
- Pre-Bid Conference: A mandatory pre-bid conference will be held at Administration Building, 4400 Livernois, Troy, MI 48098, on Monday, November 20, 2017 at 10:00 am Local Time. The roofing contractors will have access to walk the roofs on Wednesday, November 22, 2017. (Between 8am-4pm)
- Bid Form Section 000300: Bid Form to contain Base Bid including all work as specified in Bid Documents including performance (Section 000300) and payment bond (Section 000304) fees, number work days to complete work, square footages are required on Bid Form found in Section 000300.  
a. Allowance expenditures shall be documented and compensated on a unit pricing basis per the Unit Pricing Bid Form (Section 000301) values provided.
- Allowances Section 012100: Allowances will be defined on individual school roof plans under "Allowances" and are to be included in Base Bid value found in Section 000300.  
a. Allowance expenditures shall be documented and compensated on a unit pricing basis per the Unit Pricing Bid Form (Section 000301) values provided.
- Unit Pricing Section 004322: Unit Pricing for unit work is defined on the Unit Price Bid Form in Section 000301. Unit Pricing bid values are entered by unit price individually on form.
- Alternates Section 012300: Alternates are individually listed on school roof plans and bids for Alternates. Alternated bid value are to be entered on Bid Form (Section 000300) as enumerated.
- TSD reserves the right to issue contracts to multiple contractors.
- Any questions regarding bid specifications must be received noon, Monday, November 27, 2017. Questions must be submitted in writing on the WTT website using the online RFI form at www.wtcgproject.net any questions on how to use the RFI form contact Ann Crispen at (586) 731-3095 x10 or Geof Garabedian at (586) 731-3095 x12. No response will be made to oral questions.

EXISTING ROOF SYSTEM CONSTRUCTION: ref. Roof Plans

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions.

REPLACEMENT ROOF ASSEMBLY SUMMARY:

- Roof System: Ref. Roof Plan Schedules  
a. Roof Membrane: EPDM, 60 mil, unreinforced and fully adhered;  
b. Insulation: Min. R20, min. two layers. Top layer must be adhered.  
c. Underlayment: Modified base sheet, mechanically fasten. Reference Individual Roof Plans.  
d. Deck: Multiple types Reference individual Roof Plans.  
e. Warranty:  
1) Roof replacement: 20 yr. Materials manufacturer, No Dollar Limit materials and installation;  
2) Restoration: 2 yr No leak warranty, contractor.
- Roof System Performance: Ref. Roof Plan Schedules  
a. Wind : FM Global (FM): FM Standard 4470 Meets - Windstorm Classification FMG 90  
b. Fire: Underwriters Laboratory External Fire Resistance - Class "A".  
c. Energy: Michigan Uniform Energy Code: Insulation R-value: R20.  
d. Drainage: Drainage Performance Acknowledgement"

RESTORATION:

Ref. School Sheet(s), RepairRestoration Manuals

- Troy Union only applies to this work.  
a. Drawings of each roof area with defect locations marked on plan using 10 ft. x 10 ft.  
b. All defect to be repair by designated code number for BUR NRCA manual for TSD Restoration work as revised and amended by WeatherTech Consulting Group, Inc. for completion of restoration work:  
1) BUR Manual  
2) Thermoplastic Repair Manual  
3) Thermoset Repair Manual

GENERAL SHEET NOTES

- All work shall be executed with accordance with the appropriate document of the Contract Documents.
- Any conflicts between specifications and drawings shall be brought to the attention of the Owner and Consultant immediately. In all situations the more restrictive and higher quality shall govern.
- All dimensions to, of, and in existing building and roof shall be verified in the field by contractor. Field measure existing conditions to verify material quantities and dimensions prior to fabrication on component material.
- Details shown are typical. Similar details apply to similar conditions unless otherwise indicated.
- The drawings herein are related to an alteration/ restoration to an existing structure. The specified work was based upon as much observation, destructive testing, etc. as circumstances permitted.

GENERAL CONSTRUCTION DETAIL NOTES

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Flashing Heights: Perimeters, curbs, penetrations shall be raised as necessary to meet the new insulation heights, tapered edge strip and tapered insulation height to meet typical industry standard of 8 in. base flashing height.
- Drains Existing: Remove existing drain flashings. Furnish and install ½ inch per foot sloped tapered insulation sump area as detailed. Clean and reuse existing drains and accessories, replace all damaged, nonfunctional, incompatible, missing and broken drain components. All replacement bowls, strainers, and clamping rings shall be cast iron. All nonmetallic drains strainers shall be replaced with fitted Refer to Details 1.10 and 1.12. Overflow drains same requirements as noted above. Refer to Details 1.11 and 1.13.
- Drains New: Furnish and install new drains as indicated on drawing. New drains to tie into existing primary drain. Size to match existing up 3 in. dia. (Use 3 in. dia for bidding). Contractor to provide all drains, leaders and hook ups as necessary for fully functional drains.
- Tapered Insulation: Furnish and install new tapered insulation, crickets, saddles and kick-backs as designated on roof plan to provide a finished slope of 1/4 in/ ft slope and a min length to width ratio of 3:1. All equipment w/ curb size greater than 24 in. shall have cricket install on up slope side. Contractor responsible for identifying and notifying Consultant and Owner all existing tapered insulation not called out on plans for determination of unit costing. Verify in Pre-bid Conference additional ponded areas identified on the roof and install as noted.
- Curbs - Movable Equipment: Lift equipment from curbs; run new fully adhered membrane flashing up and over top of curb; install continuous sealing material over top of curb. Reset equipment and mechanically fasten to curb. Coordinate with Owner prior to installing equipment. Install new flashings. Metal equipment flashing and/or counter flashing must extend a minimum of 3 in. past the termination of the base flashing; add metal counter flashing as required. Refer to Details 1.17 and 1.18.
- Curbs - Non-Movable Equipment: Terminate new fully adhered membrane flashing at unit framing member. Metal equipment flashing and/or counter flashing must extend a minimum of 3 in. past the termination of the base flashing; add metal counter flashing as required. Refer to Details 1.15 and 1.16.
- Equipment on Support Curbs - Non-Movable Equipment: Cut corners of metal flashing cap, terminate new adhered membrane flashing to curb nailer. Reposition metal; install new shop fabricated corner metal, welded and set in sealant. Wire brush and apply rust inhibitive paint to rusted cap metal. Refer to Details 3.04 and 3.18.
- Equipment on Support Curbs - Movable Equipment: Raise or move equipment to furnish and install new metal cap on curb. Refer to Details 2.12.
- Round penetrations: All penetrations shall be cleaned down to surface where any sealant will contact; install new prefabricated pipe boots or field wrap with membrane. Install draw band and sealant. Refer to Details 2.01, 2.02, 2.03 and 2.04.
- Heat Stacks: Reuse existing metal jacks and storm collars. Clean surfaces and apply new field wrapped EPDM flashing. Reattach and reseal storm collars. Refer to Detail 2.05.
- Steel Support Posts: Install split pipe boot or field wrap flashing with membrane. Terminate with draw band and sealant. Refer to Details 2.06, 2.08, 2.09, 2.10 and 2.11.
- Prefabricated Pipe Chase Cover: Reuse existing pipe cover. Replace any damaged or missing clamping bands or sealants. Refer to Detail 3.05.
- Gas line and conduit support blocks: Reuse existing wood supports and sleepers. Install pads under all wood supports. Replace any damaged wood with matching wood or rubber support blocking. Refer to Details 2.17 and 4.04.
- Condensate Drain Lines: Reuse, repair or replace all damaged or unusable drain lines. Add additional drain line to extend minimum 4 ft from equipment or to any drains within 20 ft. Provide manufacturer's approved splash pan/pad/block where condensate drainage water would contact the roof membrane.
- Abandoned Curbs & Penetrations: Existing abandoned equipment curbs flash according to General Note C. Owner will mark all equipment to be removed and the curb capped. Remove all equipment and curbs as designated by owner and identified at the prebid conference. Where directed, remove curbs flush to deck surface, install framing and matching decking material. For abandoned curbs to remain in place, install new base flashing and install new 24 gauge sloped metal cap. Provide interior protection when removing any equipment or penetration. All small round abandoned penetrations that have no utility service as confirmed by Owner and licensed contractor shall be removed to deck patched according to deck type. Refer to Details 3.03 and 3.04.
- Pitch pans: Pitch pans can only be used when approved by Consultant. In the event they are to be used furnish and install new pitch pans, clean all penetrations down to original surface, blocking required at all pitch pans. Ref. Details 2.06 and 2.07.
- Satellite Dish Ballasted Stand: Prior to moving any satellite dish coordinate with Owner and use Owner approved communications contractor to move, reset and recalibrate satellite stand. When repositioning over the new membrane. Furnish and install new pads under satellite stand strong enough to distribute satellite weight without crushing insulation.
- Base Flashing Surface Mounted Two - Piece: Two piece is the standard for surface. Furnish and install new termination bar to match existing locations and conditions. Refer to Details 1.06 and 3.16.
- Parapet w/ Metal Cap Flashing: Furnish and install new prefinished metal coping, color as selected by Owner. For base flashings extending above 18 inches install 2-piece base and wall flashing. Ref. Details 1.05, 3.09, 3.10, 3.11 and 3.12.
- Base Flashing w/ Metal Wall Siding: Loosen and/or remove existing metal siding flashing. Install base flashing w/ term bar and sealant. Furnish and install new (or reuse functional existing) flashing metal panel and fasten siding w/ new gasketed fastener. Ref. Detail 1.09.
- Base Flashing w/ Thru-Wall Flashing: Confirm if through wall flashing has weep holes do not cover any weep holes. Reuse existing thru-wall metal flashing. Furnish and install new metal counterflashing. Repair and repoint all coping stone and mortar joints to assure watertight condition. Ref. Detail 1.07.
- Base Flashing w/ Existing Reglet: Remove existing reglet/ Furnish and install new prefinished metal coping, color as selected by Owner. Extend base flashings up and over coping. For base flashings extending above 18 inches install 2-piece base and wall flashing. Ref. Detail 1.08.
- Door Threshold: Remove threshold plate and carry flashing up over and set in water block. Before resetting threshold mechanically attach termination bar, fasten min. 6 in. o.c. Door Threshold: Remove and dispose of existing counter flashing. Roof flashing to extend up and under existing threshold plate. Furnish and install new metal counter flashing and sealant.
- Area Divider: Furnish and install new cap metal, replace damaged wood nailers. Ref. Detail 2.18. Consultant approved low profile for areas divider for separating two different types of roof systems. Ref Detail 4.13.
- Abandoned Lightning Protection: Remove all existing lightning protection cable, attachment cleats, air terminals and penetrations. Identify salvage value on bid form. Seal all holes from fasteners and lightning protection equipment left from demolition on roof top component to be left in place.
- Roof to Wall Expansion Joint: Furnish and install new metal expansion joint. Ref. Detail 3.01, 3.02 and 4.06.

- Non-Standard Roof Transitions: Contractor to provide manufacturer written approved transition shop drawings. Roof Transition: Install new metal edge at transition; install tapered edge strip to reduce ponding at edge. Run base flashings using sheet widths in vertical run. Ref. Detail 3.06.
- Overflow scupper: Furnish and install new through-wall scupper and face frame. Face frame prefinished, size and color to match existing. Ref. Detail 1.14, 4.01, 4.02 and 4.03.
- Metal Edge: Remove existing fascia/ water dam; install new 24 gauge prefinished galvanized metal edging, standard color as selected by Owner, min. 4 in. hemmed flange. Refer to Details 1.03 and 1.04.
- Roof curb building out the sides to match the roof cap base opening: Remove existing fascia/ water dam; install new 24 gauge prefinished galvanized metal edging, standard color as selected by Owner, min. 4 in. hemmed flange. Refer to Details 1.17 and 1.18.

Project Manual

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REPAIRS/RESTORATION MANUALS

BUR Manual
THERMOPLASTIC REPAIR MANUAL
THERMOSET REPAIR MANUAL

DRAWINGS - SEE SHEET INDEX

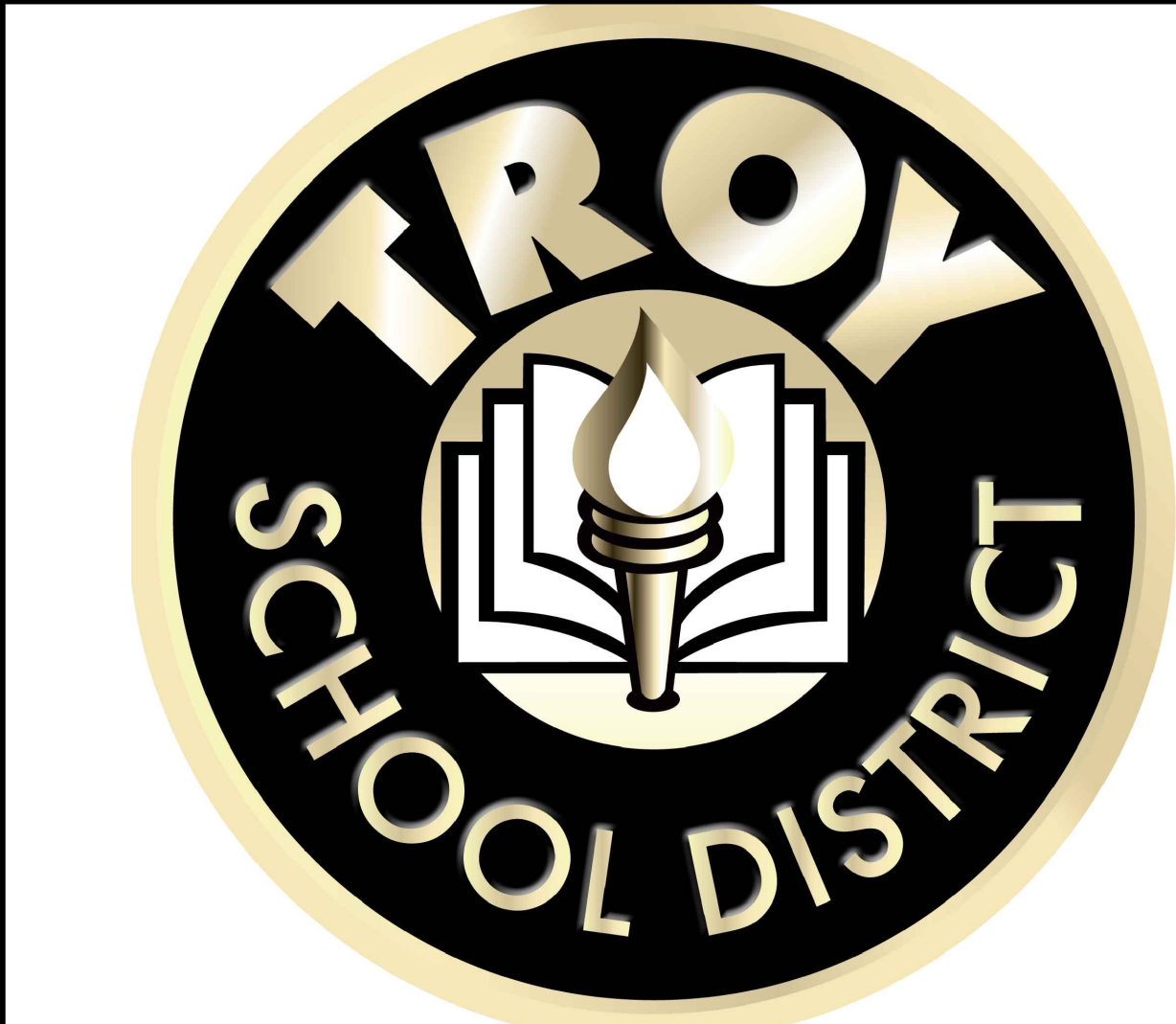
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PROJECT WORK SCHEDULE

School	Reroofing sq. ft.	Restoration sq. ft.	TSD 2018 Roof Work	Project Time Frame
Troy Athens HS	53,200		Roof Area C Roof Area A: Sec. 1, Sec 2, Sec. 6, Roof Area F: Sec. 3, Sec. 4, Roof Area I	6/18/18-8/17/18
Morse Elementary School	15,325		Roof Area C: Sec 1, 2, 3, 4	6/18/18-8/17/18
Niles Community HS	14,650		Roof Area G and H	6/18/18-8/17/18
Transportation Bldg.	1,275		Roof Area C	6/18/18-8/17/18
Troy High School	4,625		Roof Area (s) N2, P1	6/18/18-8/17/18
Troy Union Elementary School	13,100	4,400	Reroof Roof Area (s) A, B; Restoration Roof Area E	6/18/18-8/17/18
Base Bid	102,175	4,400		
Alternate Bid No. 1 Troy Athens HS	43,750		ALT. Bid Reroof Roof Area A Sec. 3, 4, 5, 6, 7, 8, 9, 10, 11	6/18/18-8/17/18
Total Roof Area (sf)	145,925	4,400		

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OWNER:  
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Rob Carson  
Dir of Operations  
Phone: (248) 823-4067  
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See Project List below

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Michelle Kern - Bond Rep  
Phone: (248) 921-3929  
Email: MKerns@troy.k12.mi.us

ROOF CONSULTANTS:  
WeatherTech Consulting Group, Inc.  
7747 Auburn Road  
Utica, Michigan 48317

CONTACT  
Geof Garabedian  
Principal/Project Manager  
Phone (586) 731-3095 ext 12  
Email: ggarabedian@wtcg.net

PROJECT LOCATIONS

Athens High School	4333 John R Rd. Troy, MI 48085
Morse Elementary School	475 Cherry Dr. Troy, MI 48083
Niles Community High School	201 Square Lake Rd, Troy, MI 48098
Transportation Building	120 Hart Dr Troy MI 48098
Troy High School	4777 Northfield Pkwy. Troy, MI 48098
Troy Union Elementary School	1340 E Square Lake Rd, Troy, MI 48085

PROFESSIONAL



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WEB SITE:www.wtcg.net

CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Troy School District  
**BID NO. 9848**  
2018 Roofing Program

WTPProject No: TSD-R102-18	
ISSUE	
DATE	DESCRIPTION
10/27/17	50% Review Set
11/06/17	90% Review Set
11/10/17	OTB

File Name: Roof Plan
Drawn By: MD
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SHEET TITLE

Cover Page

A1.0



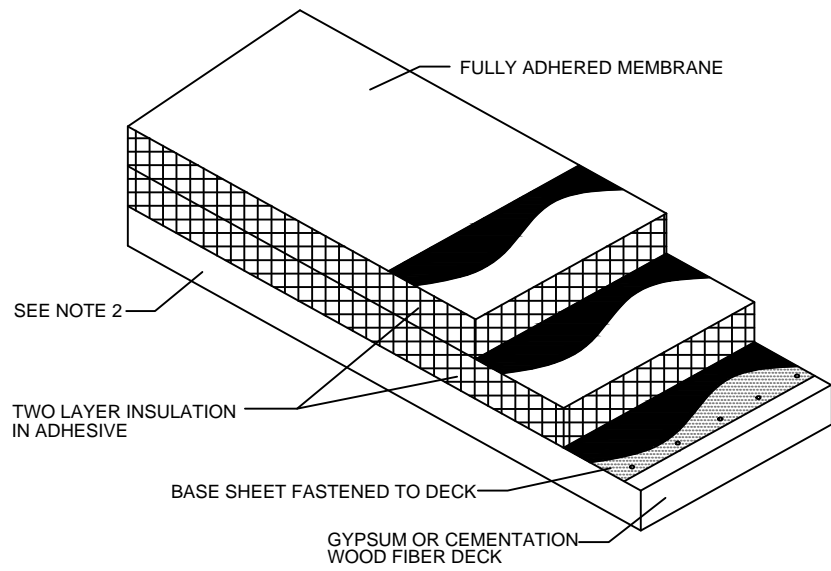
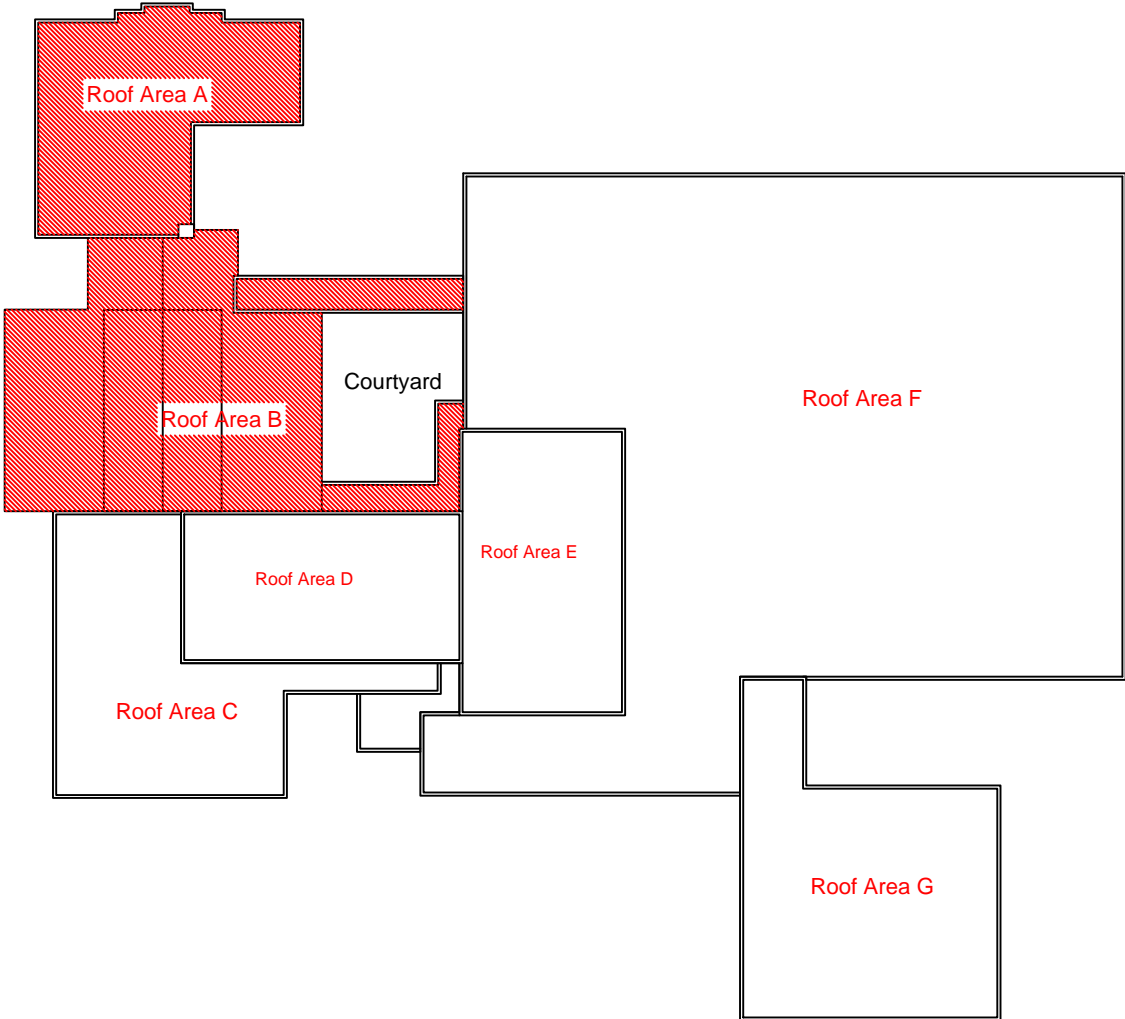
Troy Union Elementary School

Roof Plan  
Roof Areas A and B

Scale: 5' 5' 10'

Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
•	Pipe/Conduit Penetration	[H]	Roof Hatch	[ ] [ ]	Walk Way
○	Vent Stack	[S]	Skylight	0' +15'	Elevation Change
⊙	Insulated Pipe	[A]	Abandoned Equipment	[ ] [ ]	Ladder
⊙	Insulated Stack/Pipe on Curb	⊗	Overflow Drain	①	Photo Indicator
•	Screen support stanchion	⊗	Drain	①	Key Note
•	Tube/Structural Equipment Support	⊕	New Drain	⌒	Satellite Dish
■	Pitch Plan	[ ] [ ]	Overflow Scupper	⊙	Core cut
[ ] [ ]	Equip. on Support	[ ] [ ]	Scupper	⚠	Revision/Addendum
[ ] [ ]	Equip. on Sleepers/Wood Blocking	[ ] [ ]	Expansion Joint	[ ] [ ]	Roof Tile
⊗	Equipment Unit on Curb	G G	Gutter	[ ] [ ]	Metal Roofing
[ ] [ ]	Duct or Flanged Equipment	R R	Ridge	[ ] [ ]	Shingles
[ ] [ ]	Area Divider	+++	Pipe/Conduit on Blocks	[ ] [ ]	Pipe/Conduit attached to Parapet

Key Plan

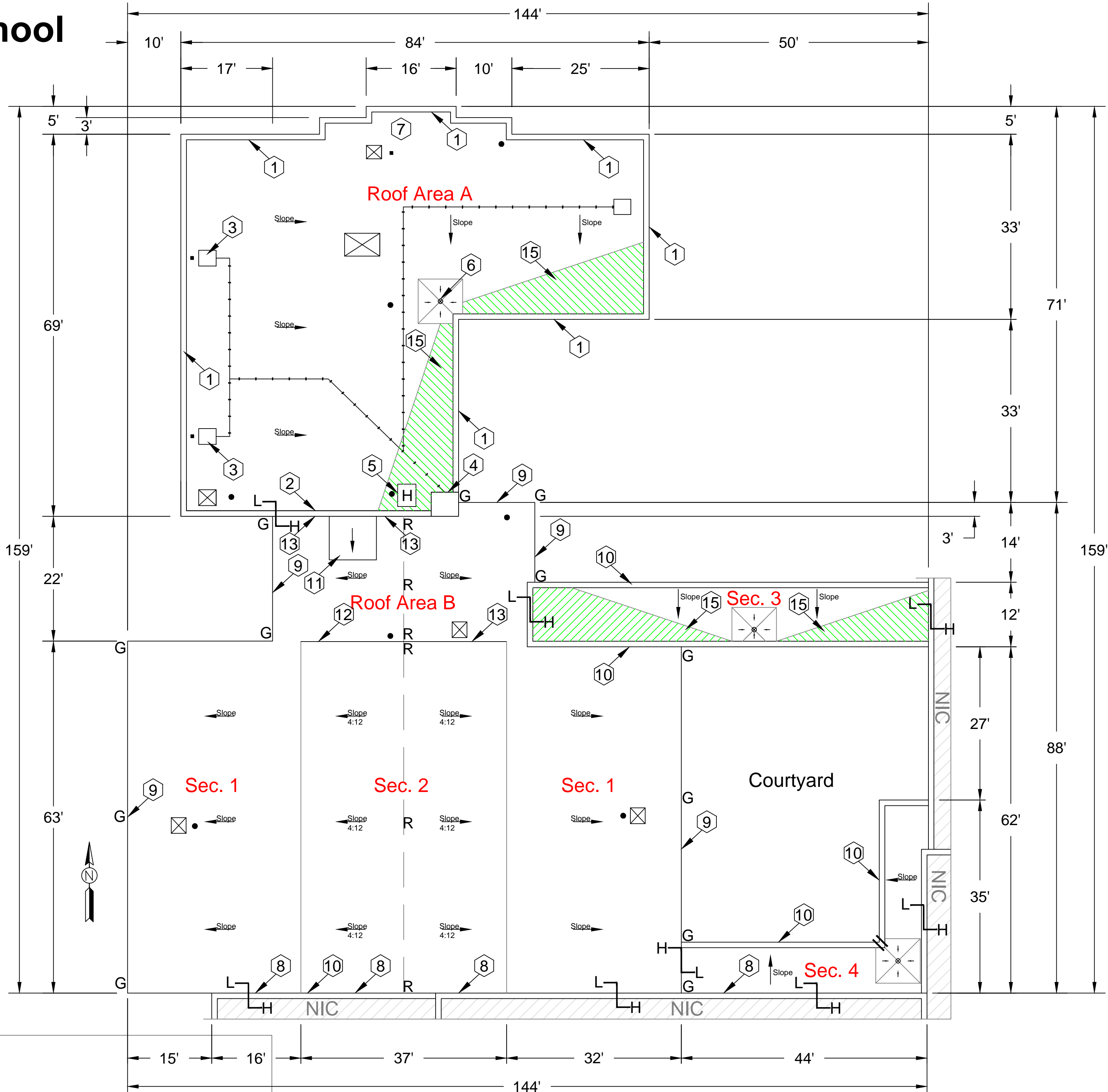


NOTE 1: SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.

NOTE 2: SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.

FULLY ADHERED EPDM SYSTEM OVER GYPSUM AND CEMENTATION WOOD FIBER DECKS  
SCALE: N.T.S.

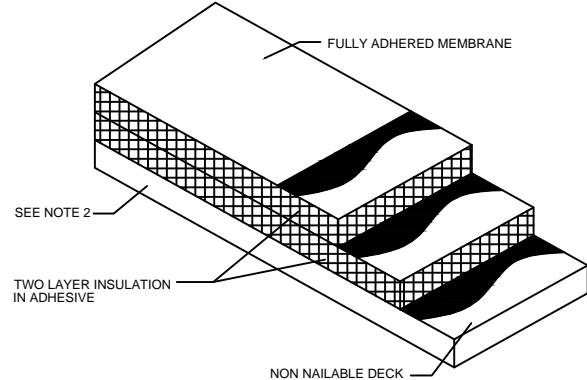
4.14



Troy Union Elementary School - Troy School District  
Sheet Notes: Roof Area A and B  
Schedule

WORK DESCRIPTION - ROOF REPLACEMENT

Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area A: 4,375 sq. ft. and Roof Area B: 8,550 sq. ft.



NOTE 1: SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.

NOTE 2: SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.

FULLY ADHERED EPDM SYSTEM  
NON-NAILABLE DECK  
SCALE: N.T.S.

1.02

3. Building Height:  
a. Roof Area A: Ground to building edge: 35 ft.  
b. Roof Area B: Ground to building edge: 20 ft. Sec 2 Steep Slope.

4. **EXISTING ROOF SYSTEM CONSTRUCTION**  
All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:

Core Sample Results, Roof Area A

- a. Roof Membrane: Gravel surfaced bituminous built-up roof membrane  
b. Insulation: Approx. 1.0 in. Fiberglass insulation.  
c. Tapered Insulation: Exists in various locations.  
d. Deck: Concrete; Multiple types, contractor to verify.

Core Sample Results, Roof Area B: Sec. 1, 3, 4

- a. Roof Membrane: Gravel surfaced bituminous built-up roof membrane  
b. Insulation: Approx. 2.0 in. polyisocyanurate insulation;  
c. Tapered Insulation: Exists in various locations.  
d. Deck: Gypsum; Multiple types, contractor to verify. **Ref Photo 4924**

Roof Area B: Sec. 2: Contractor to confirm Two Roof Systems

- Roof System 1: Attached to deck  
a. Roof Membrane: Mineral Cap built-up roof attached to deck;  
d. Deck: Wood: Contractor to verify.

Roof System 2: Attached to Roof System 1

- a. Roof Membrane: Coated modified bitumen roof membrane

5. Warranty/Guarantee  
a. Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.
6. Allowances: Add to base bid \$18,000 for allowances covering Unit Price and contingency items.

General Construction Details: Ref A1.0

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

Key Notes:

All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

Roof Area A

5. Concrete Coping Stone Parapet: Furnish and install new base flashings and metal counter flashings. Caulk all stone joints and all cracks. **Ref. Photos 4833, 4842, MC2 and Detail 4.15.**
6. Clay Coping Cap Parapet: Furnish and install new base flashings and metal counter flashings. Repair all clay cap gaps w/ mortar repair materials. Caulk all cracks. **Ref. Photos MC1, 4839 and Detail 4.16.**
7. Equipment Support Blocking: Furnish and install wood block supports w/ pads. **Ref. Photo EQ1.**
8. Chimney: Furnish and install new metal counter flashing. **Ref. Photo 4837A**
9. Roof Hatch: Confirm functional flash watertight. **Ref Photo 4837A:** Inspect for water tightness seal w/ caulk necessary.
10. Drain: Furnish and install new drain insert. **Ref. Photos 4855 and 4858.**
11. Vegetation: Trim vegetation back so does not hang over roof. **Ref. Photo DV1.**

Roof Area B

12. Metal Wall Panels: Remove old metal counter flashing for roof base flashing as applicable. Furnish and install new base flashing and new counter flashing. **Ref. Photos DV5, 4804.**
13. Gutters: Furnish and install new gutters. **Ref. Photos 4810, 4816, 4820.**
14. Metal Cap Parapets: Furnish and install new metal cap. **Ref. Photo 4823, 4824.**
15. Tapered insulation: **Applies to Roof Area B and A:** Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights.
16. Metal edge: Sec. 2: Furnish and install new metal edge. **Ref. Photo 4826.**
17. Surface Mounted Metal Counter Flashing: Furnish and install new two-piece surface mounted counter flashing. **Ref. Photos 4826, 4827.**
18. Vegetation: Trim vegetation back so does not hang over roof. Multiple locations.
19. Asphalt Shingles: Remove and dispose of shingles down to deck. Furnish and install new EPDM membrane w/ underlayment over deck. Include new metal edge and reuse existing copper masonry flashing. **Ref. Photo 4827.**

PROFESSIONAL



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Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Troy Union Elementary  
School  
1340 E Square Lake Rd,  
Troy, MI 48085

Troy School District  
BID NO. 9848  
2018 Roof Program

WTProject No:  
TSD-R102-18

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SHEET TITLE

Troy Union  
Elementary School  
Roof Area A and B  
Roof Plan

A7.0

Sheet 17 of 22

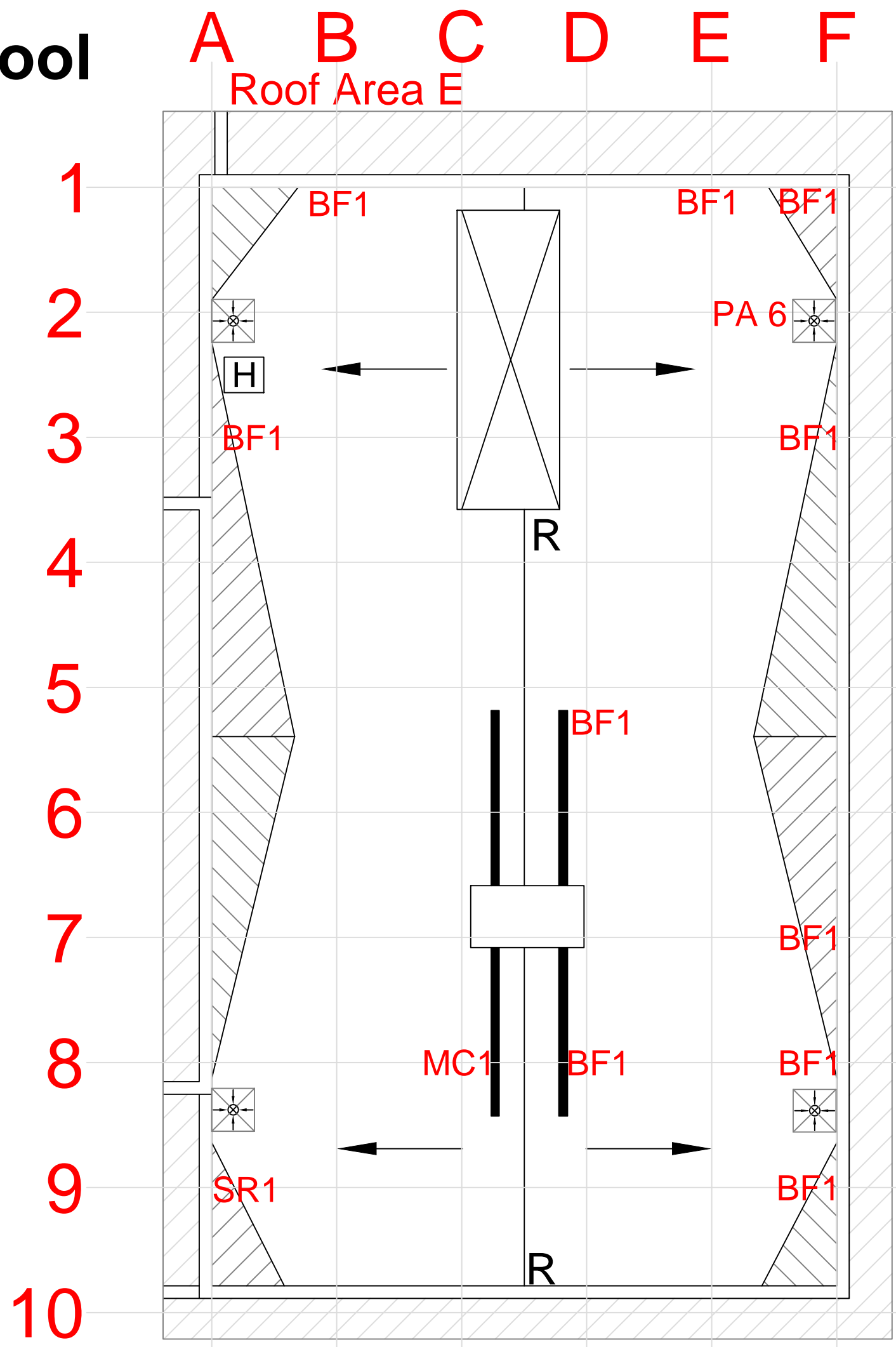


Troy Union Elementary School

Restoration Plan

Roof Area E

Scale:

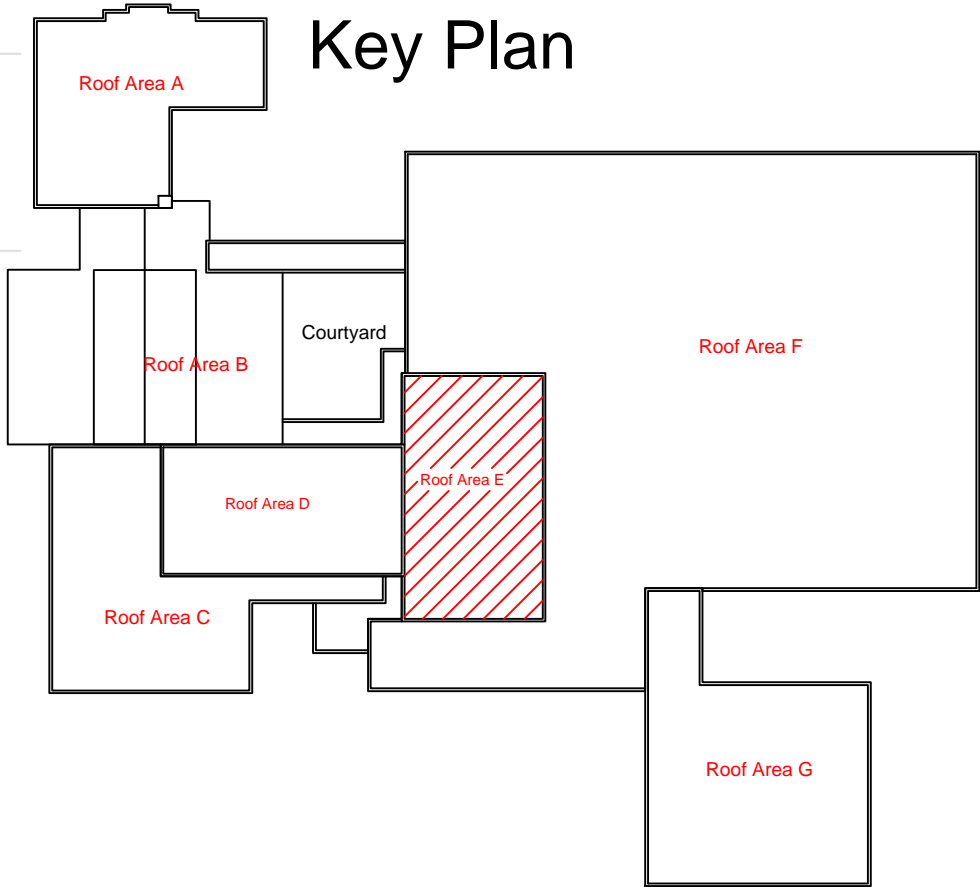


School/Facility Restoration

- Each TSD school/facility in Contract has a drawing with a schedule with the following information to complete the intent of the restoration work:
  - Drawings of each roof area with defect locations marked on plan using 10 ft. x 10 ft.
  - Schedule for each roof area itemizing each defect with the following information:
    - General notation of Defect/Distress Type;
    - Location of defect in roof area;
    - Estimated quantity of defect;
    - Photo reference graphically depicting defect or like defects of the same type.
    - Action Code as designated in TSD RAMP for the defect;
    - Work Scope to be used based on the NRCA Manuals for BUR, Thermoplastic and Thermoset restoration work;
    - Scope Notes to supplement or define defect restoration outside the scope covered the NRCA Manuals.
- Refer to Maintenance Manuals posted online at WT/TSD Website NRCA manuals for BUR, Thermoplastic and Thermoset roof systems as revised and amended by WeatherTech Consulting Group, Inc. for completion of restoration work.

Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
•	Pipe/Conduit Penetration	H	Roof Hatch	□ □ □	Walk Way
○	Vent Stack	S	Skylight	0' ±15'	Elevation Change
⊙	Insulated Pipe	A	Abandoned Equipment		Ladder
⊙	Insulated Stack/Pipe on Curb	⊙	Overflow Drain	①	Photo Indicator
•	Screen support stanchion	⊗	Drain	①	Key Note
•	Tube/Structural Equipment Support	⊕	New Drain	⌒	Satellite Dish
■	Pitch Pan		Overflow Scupper	⊙	Core cut
•	Equip. on Support		Scupper	△	Revision/Addendum
•	Equip. on Sleepers/Wood Blocking	— E —	Expansion Joint	■	Roof Tile
⊗	Equipment Unit on Curb	G	Gutter	■	Metal Roofing
□	Duct or Flanged Equipment	R	Ridge	■	Shingles
— AD —	Area Divider	+++	Pipe/Conduit on Blocks	+++	Pipe/Conduit Attached to Parapet

Key Plan



Troy Union Elementary School - ROOF AREAS						
EXISTING ROOF INFORMATION						
Roof Area	Square Footage	Existing Roof Type	Insulation R-Value (approx)	Roof Deck Type	Year Installed	Warranty
A	4,400	BUR - Gravel	5	Concrete	<2000	No
B	8,700	BUR - Gravel	12	Gypsum	<2000	No
C	5,700	BUR - Gravel	8	Metal	<2000	No
D	4,000	BUR - Gravel	8	Metal	<2000	No
E	4,400	BUR - Gravel	8	Metal	<2000	No
F	3,250	BUR - Gravel	Varies	Metal	<2000	No
G	6,400	BUR - Gravel	No	Metal	2006	No

ROOF AREA E DEFECT SUMMARY AND RECOMMENDATIONS

ITEM	DEFECT/DISTRESS TYPE	LOCATION	QUANTITY	PHOTO REF	ACTION CODE	WORK SCOPE	SCOPE NOTES
1	Base Flashing Open	A3, B1, E1, F1, F3, F7, F8, F9, F9, D8, D5	11	BF1	P - Repair	BUR 17	
2	Loose Metal Cap	C8	12 LF	MC1	P - Repair		
3	Exposed Felts	A9	10 sq. ft.	SR1	P - Repair	BUR 1	
4	Repair not coated w/aluminum	F2	100 sq. ft.	PA6	P -Repair	BUR 27	

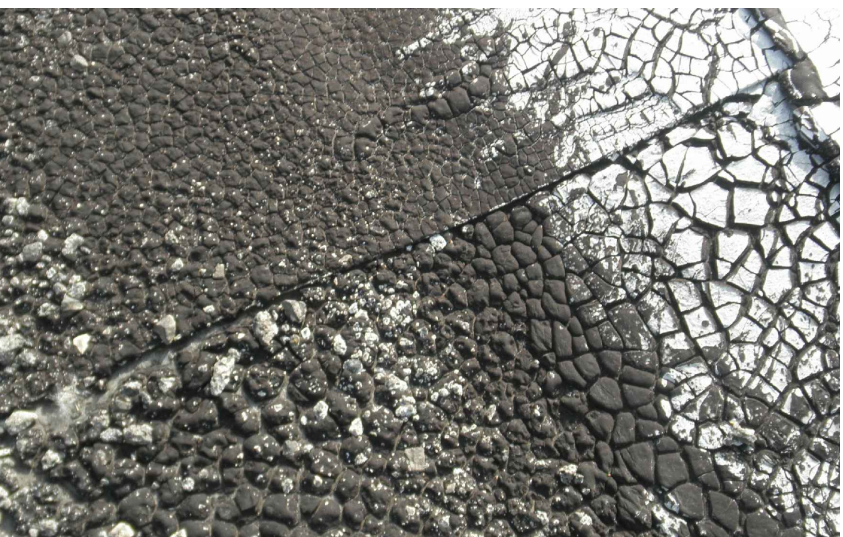
Comments:



BF1



MC1



SR1



PA6

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Troy Union Elementary  
School  
1340 E Square Lake Rd,  
Troy, MI 48085

Troy School District  
BID NO. 9848  
2018 Roof Program

WTProject No:  
TSD-R102-18

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SHEET TITLE

Troy Union  
Elementary School  
Roof Area E  
Restoration Plan

A7.1



Troy Unoin Elementary School - Roof Area A



4833



4824



MC1



4839



EQ1



4837A



4855



4858

Troy Unoin Elementary School - Roof Area B, Sec. 1, 2, 3 and 4



DV5



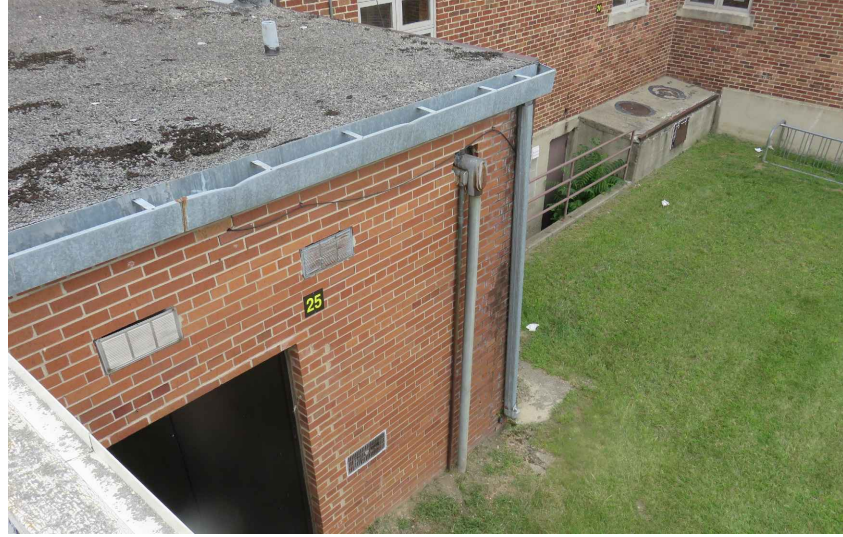
4804



4810



4816



4820



4823



4824



4827



4826

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SHEET TITLE

Troy Unoin Elementary  
School  
Photo Page

A7.2



<p>SEE NOTE 2</p> <p>TWO LAYER INSULATION</p> <p>ADHESIVE</p> <p>FMG APPROVED FASTENER AND PLATE</p> <p>NAILABLE DECK</p> <p><b>NOTE:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.</p> <p><b>NOTE 2:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>SEE NOTE 2</p> <p>TWO LAYER INSULATION IN ADHESIVE</p> <p>NON NAILABLE DECK</p> <p><b>NOTE 1:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.</p> <p><b>NOTE 2:</b> SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>24 GAGE PREFINISHED GALVANIZED STEEL FASCIA COVER</p> <p>22 GAGE GALVANIZED STEEL CANT-DAM WITH CONTINUOUS CLEAT - FASTEN 6" O.C. WITH RING SHANK ROOFING NAILS</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - RUN FLASHING OVER CANT DAM AND DOWN ONTO CLEAT AS SHOWN</p> <p>6" SEAM TAPE</p> <p>EPDM MEMBRANE FULLY ADHERED</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>NEW 6" WIDE TREATED WOOD BLOCKING TO MATCH HEIGHT OF ROOF INSULATION - FASTEN @ 12" O.C.</p> <p>FIELD CRIMP PER</p> <p>(E) EXTERIOR WALL</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>22 GAGE GALVANIZED STEEL CONTINUOUS CLEAT FASTENED 6" O.C. WITH RING SHANK ROOFING NAILS</p> <p>TREATED WOOD 2X BLOCKING ATTACHED TO PARAPET WITH APPROPRIATE FASTENERS @ 12" O.C. - SLOPE TOWARDS ROOF AT A RATE OF 1/4" PER FOOT</p> <p>24 GAGE PREFINISHED GALVANIZED STEEL COPING WITH 1" HIGH STANDING SEAM JOINTS</p> <p>#12 STAINLESS STEEL SCREWS WITH EPDM BACKED S.S. WASHERS @ 18" O.C. MAX.</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF PARAPET</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>NEW 2x6 TREATED WOOD BLOCKING TO MATCH HIGHEST POINT IN TAPERED INSULATION ASSEMBLY - FASTEN @ 6" O.C.</p> <p>(E) EXTERIOR WALL</p> <p>APPROVED SEALANT</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>22 GAGE GALVANIZED STEEL CONTINUOUS CLEAT FASTENED 6" O.C. WITH RING SHANK ROOFING NAILS</p> <p>TREATED WOOD 2X BLOCKING ATTACHED TO PARAPET WITH APPROPRIATE FASTENERS @ 12" O.C. - SLOPE TOWARDS ROOF AT A RATE OF 1/4" PER FOOT</p> <p>24 GAGE PREFINISHED GALVANIZED STEEL COPING WITH 1" HIGH STANDING SEAM JOINTS</p> <p>#12 STAINLESS STEEL SCREWS WITH EPDM BACKED S.S. WASHERS @ 18" O.C. MAX.</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF PARAPET</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>FASTENER AND PLATE 12" (300 mm) O.C. MAXIMUM</p> <p>PARAPET WALL</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>(E) WALL ASSEMBLY</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>22 GA GAL RECEIVER STAINLESS STEEL FASTENERS WITH EPDM BACKED S.S. WASHERS @ 8" O.C. MINIMUM</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>24 GA GAL COUNTER FLASHING STAINLESS STEEL FASTENERS WITH EPDM BACKED S.S. WASHERS @ 8" O.C. MINIMUM</p> <p>EPDM FLASHING MEMBRANE ADHERED W/ BONDING ADHESIVE</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>WeatherTech © Date: Rev 3/15</p>
<p>FULLY ADHERED EPDM SYSTEM NAILABLE DECK SCALE: N.T.S.</p> <p>1.01</p>	<p>FULLY ADHERED EPDM SYSTEM NON-NAILABLE DECK SCALE: N.T.S.</p> <p>1.02</p>	<p>CANT-DAM WITH FASCIA COVER SCALE: N.T.S.</p> <p>1.03</p>	<p>RAISED EDGE FLASHING SCALE: N.T.S.</p> <p>1.04</p>	<p>PARAPET WITH METAL COPING SCALE: N.T.S.</p> <p>1.05</p>	<p>2-PIECE SURFACE MOUNT METAL FLASHING SCALE: N.T.S.</p> <p>1.06</p>
<p>(E) WALL ASSEMBLY</p> <p>(E) THRU-WALL METAL COUNTERFLASHING</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>METAL COUNTERFLASHING INTO EXISTING RECEIVER - SEE NOTE 1</p> <p>EPDM FLASHING MEMBRANE ADHERED W/ BONDING ADHESIVE</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p><b>NOTE 1:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL, 26 GAGE STAINLESS STEEL OR 16 O.Z. COLD ROLLED COPPER AND SHALL MATCH EXISTING TYPE OF THROUGH-WALL REGLET METAL. SECURE NEW COUNTERFLASHING TO EXISTING REGLET WITH POP RIVETS OF SAME TYPE OF METAL @ 12" O.C. MAX.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>NEW OR EXISTING SAW-CUT REGLET</p> <p>LEAD WEDGES @ 12" O.C. MAX.</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>METAL COUNTERFLASHING INTO EXISTING RECEIVER - SEE NOTE 1</p> <p>EPDM FLASHING MEMBRANE ADHERED W/ BONDING ADHESIVE</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>ADHERED W/ BONDING ADHESIVE</p> <p>REINFORCED MEMBRANE ATTACHMENT STRIP</p> <p>EPDM MEMBRANE</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p><b>NOTE 1:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL OR PREFINISHED STEEL, 26 GAGE STAINLESS STEEL OR 16 O.Z. COLD ROLLED COPPER. SEE SCHEDULE(S) ON THE ROOF PLAN(S) FOR SPECIFIC REQUIREMENTS FOR EACH ROOF AREA.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>(E) METAL SIDING - SEE NOTE 2</p> <p>APPROVED SEALANT</p> <p>BUTYL SEALANT BEHIND MEMBRANE</p> <p>ALUMINUM TERMINATION BAR FASTENED 8" O.C.</p> <p>METAL COUNTERFLASHING - SLIP UP AND BEHIND BASE OF SIDING - SEE NOTE 1</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p><b>NOTE 1:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL OR PREFINISHED STEEL, 26 GAGE STAINLESS STEEL OR .032" (MINIMUM) MILL FINISHED ALUMINUM. SEE SCHEDULE(S) ON ROOF PLAN(S) FOR SPECIFIC REQUIREMENTS FOR EACH ROOF AREA.</p> <p><b>NOTE 2:</b> LOOSEN BOTTOM OF SIDING TO FACILITATE INSTALLATION OF NEW COUNTERFLASHING. RESecure SIDING WITH GROMMETTED SCREWS AS INDICATED.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>(E) DRAIN STRAINER - REPLACE IF MISSING OR BROKEN</p> <p>(E) CLAMPING RING BOLTS - REPLACE IF MISSING OR DAMAGED DURING REMOVAL</p> <p>(E) CLAMPING RING - REMOVE ALL BITUMINOUS MATERIALS - REPLACE IF MISSING OR BROKEN DURING REMOVAL</p> <p>TAPERED INSULATION - MINIMUM 3/4" PER FOOT TAPER</p> <p>12"</p> <p>1" MIN</p> <p>(E) STRUCTURAL DECK</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>EPDM ROOF MEMBRANE</p> <p>MANUFACTURER APPROVED SEALANT - MINIMUM ONE TUBE PER DRAIN</p> <p>(E) DRAIN PIPING</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>THERMAL INSULATION</p> <p>CENTER LINE DRAIN</p> <p>72"</p> <p>24"</p> <p>24" MIN</p> <p>CENTER LINE OVERFLOW DRAIN</p> <p>24"</p> <p>OVERFLOW COLLAR</p> <p>TAPERED EDGE STRIP</p> <p>DECK</p> <p>EPDM MEMBRANE AND FLASHING</p> <p>ROOF DRAIN</p> <p>LEADER</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>DRAIN</p> <p>SLOPE</p> <p>TAPERED INSULATION</p> <p>RECEIVER DRAIN</p> <p>SLOPE</p> <p>TAPER. INSUL.</p> <p>SLOPE</p> <p>TAPERED INSULATION</p> <p>SLOPE</p> <p>96"</p> <p>96"</p> <p>WeatherTech © Date: Rev 3/15</p>
<p>BASE FLASHING W/ THRU WALL COUNTERFLASHING SCALE: N.T.S.</p> <p>1.07</p>	<p>BASE FLASHING W/ CUT-IN REGLET@ MASONRY WALL SCALE: N.T.S.</p> <p>1.08</p>	<p>BASE FLASHING AT METAL SIDING SCALE: N.T.S.</p> <p>1.09</p>	<p>DRAIN FLASHING SCALE: N.T.S.</p> <p>1.10</p>	<p>ROOF/OVERFLOW DRAIN SCALE: N.T.S.</p> <p>1.11</p>	<p>DRAIN SUMP-A SCALE: N.T.S.</p> <p>1.12</p>
<p>DRAIN</p> <p>120"</p> <p>RECEIVER DRAIN</p> <p>OVERFLOW DRAIN</p> <p>TAPERED INSULATION</p> <p>SLOPE</p> <p>24" MIN</p> <p>72"</p> <p>FLAT</p> <p>TAPER. INSUL.</p> <p>SLOPE</p> <p>24"</p> <p>TAPERED INSULATION</p> <p>SLOPE</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>EPDM FLASHING</p> <p>EPDM STRIP-IN FLASHING</p> <p>1-1/2"</p> <p>4"</p> <p>1-1/2"</p> <p>APPROVED SEALANT</p> <p>24 GAGE T GALVANIZED STEEL SCUPPER - FASTEN 4" O.C. STAGGERED WITH RING SHANK ROOFING NAILS - SEE NOTE 2</p> <p>EPDM STRIP-IN FLASHING</p> <p>1-1/2"</p> <p>1-1/2"</p> <p>4"</p> <p>APPROVED SEALANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>NEW 6" WIDE TREATED WOOD BLOCKING TO MATCH HEIGHT OF ROOF INSULATION - FASTEN @ 12" O.C.</p> <p>(E) EXTERIOR WALL</p> <p>(E) STRUCTURAL DECK</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>RAISED CURB</p> <p>WOOD NAILER</p> <p>8" MINIMUM FLASHING HEIGHT</p> <p>SEALING MATERIAL</p> <p>ROOFTOP EQUIPMENT FRAME</p> <p>GASKETED FASTENERS MIN. TWO FASTENERS PER SIDE</p> <p>REMOVABLE SHEET-METAL COUNTERFLASHING</p> <p>ADHERED MEMBRANE FLASHING</p> <p>BONDING ADHESIVE</p> <p>PREMOLDED CORNER</p> <p>SEALANT (IF REQUIRED FOR THE SPECIFIC CURB)</p> <p>EPDM MEMBRANE</p> <p>SEAM PLATES AND FASTENERS</p> <p>TAPERED CANT</p> <p>THERMAL INSULATION SEE SCHEDULE</p> <p>STRUCTURAL DECK</p> <p>OPTION:</p> <p>MECHANICAL UNIT, HOOD, ETC.</p> <p>BASE OF UNIT EXTENDS 1/2" MINIMUM BEYOND TOP OF CURB</p> <p>MINIMUM 1" BELOW TOP OF CURB</p> <p>FLASHING RECEIVER</p> <p>FASTENERS</p> <p>COUNTERFLASHING</p> <p>FLASHING MEMBRANE</p> <p>WOOD CURB</p> <p><b>NOTES:</b></p> <p>1. THE CURB, TOP WOOD NAILER AND SEAL STRIP ARE TO BE SUPPLIED BY THE CURB MANUFACTURER.</p> <p>2. WHEN POSSIBLE, THE MECHANICAL UNITS SHOULD NOT BE SET UNTIL THE ROOF MEMBRANE AND FLASHING HAVE BEEN INSTALLED.</p> <p>3. WHERE THE SKYLIGHT, SCUTTLE OR SMOKE VENT FRAME OVERLAPS THE BASE FLASHING AT LEAST 1 INCHES, THE REMOVABLE SHEET-METAL COUNTERFLASHING IS NOT REQUIRED.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>(E) NON-REMOVABLE UNIT</p> <p>POLYURETHANE SEALANT</p> <p>#12 STAINLESS STEEL SCREWS WITH EPDM BACKED S.S. WASHERS @ 12" O.C.</p> <p>METAL COUNTERFLASHING - SEE NOTES 1 AND 2</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - TUCK FLASHING UP AND BEHIND BOTTOM OF UNIT SKIRT</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>(E) CURB</p> <p><b>NOTE 1:</b> WHEN BASE OF UNIT PROVIDES LESS THAN 4" COVERAGE OVER TOP OF FLASHING, INSTALL SEPARATE COUNTERFLASHING AS SHOWN.</p> <p><b>NOTE 2:</b> COUNTERFLASHING TO BE 24 GAGE GALVANIZED STEEL, 24 GAGE PREFINISHED GALVANIZED STEEL, .032" MILL FINISHED ALUMINUM OR 26 GAGE STAINLESS STEEL. SEE SCHEDULE(S) ON THE ROOF PLAN(S) FOR SPECIFIC TYPE OF METAL REQUIRED IN EACH ROOF AREA.</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>(E) SHEET METAL GUTTER AND DOWNSPOUTS</p> <p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>BASE OF WALL OR CURB</p> <p>SELF-FLASHING UNIT</p> <p>1-1/2" x 1/2" NEOPRENE FOAM SEALING STRIP</p> <p>ADDITIONAL WOOD BLOCKING IF REQUIRED TO ACHIEVE MINIMUM 8" FLASHING HEIGHT</p> <p>#12 WOOD SCREWS @ 12" O.C.</p> <p>FASTEN FLASHING 8" O.C. WITH ROOFING NAILS</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF CURB</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>(E) CURB</p> <p>WeatherTech © Date: Rev 3/15</p>	<p>MANUFACTURER APPROVED FASTENER AND PLATE FASTENED 12" O.C. MAX.</p> <p>BASE OF WALL OR CURB</p> <p>1-1/2" x 1/2" NEOPRENE FOAM SEALING STRIP</p> <p>TREATED WOOD BLOCKING TO RAISE CURB TO 8" ABOVE THE ROOF SURFACE (IF REQUIRED)</p> <p>#12 WOOD SCREWS @ 12" O.C.</p> <p>FASTEN VENTILATOR BASE TO CURB WITH #12 STAINLESS STEEL FASTENERS WITH EPDM BACKED S.S. WASHERS @ 18" O.C. - MINIMUM 1 PER SIDE</p> <p>FASTEN FLASHING 8" O.C. WITH ROOFING NAILS</p> <p>EPDM BASE FLASHING ADHERED W/ BONDING ADHESIVE - WRAP FLASHING UP AND OVER TOP OF CURB</p> <p>FASTENERS AND PLATES 12" O.C. MAX.</p> <p>6" SEAM TAPE</p> <p>TAPERED CANT</p> <p>INSULATION - SEE SCHEDULE(S) ON ROOF PLAN(S)</p> <p>STRUCTURAL DECK</p> <p>(E) CURB</p> <p>WeatherTech © Date: Rev 3/15</p>
<p>DRAIN SUMP-A SCALE: N.T.S.</p> <p>1.13</p>	<p>THRU-WALL OVERFLOW SCUPPER SCALE: N.T.S.</p> <p>1.14</p>	<p>NON REMOVABLE PREFABRICATED METAL CURB SCALE: N.T.S.</p> <p>1.15</p>	<p>NON REMOVABLE UNIT CURB FLASHING SCALE: N.T.S.</p> <p>1.16</p>	<p>REMOVABLE UNIT CURB FLASHING SCALE: N.T.S.</p> <p>1.17</p>	<p>REMOVABLE VENTILATOR CURB FLASHING SCALE: N.T.S.</p> <p>1.18</p>

DATE	DESCRIPTION
10/27/17	50% Review Set
11/08/17	90% Review Set
11/10/17	OTB



<b>ROOF PENETRATION</b> SCALE: N.T.S.         2.01	<b>PRE-FABRICATED PIPE FLASHING</b> SCALE: N.T.S.         2.02	<b>FIELD FABRICATED VENT STACK FLASHING</b> SCALE: N.T.S.         2.03	<b>FIELD WRAP PENETRATION FLASHING</b> SCALE: N.T.S.         2.04	<b>HEATED STACK FLASHING</b> SCALE: N.T.S.         2.05	<b>PITCH PAN</b> SCALE: N.T.S.         2.06	<b>PITCH POCKET</b> SCALE: N.T.S.         2.07	<b>THROUGH ROOF CONDUIT/PIPE FLASHING - 2 PC COLLAR</b> SCALE: N.T.S.         2.08	<b>ANGLE IRON SUPPORT FLASHING</b> SCALE: N.T.S.         2.09	<b>I-BEAM COLUMN FLASHING</b> SCALE: N.T.S.         2.10	<b>PITCH PAN COVER</b> SCALE: N.T.S.         2.11	<b>EQUIPMENT SUPPORT</b> SCALE: N.T.S.         2.12	<b>EXPOSED WOOD SLEEPER SUPPORT</b> SCALE: N.T.S.         2.13	<b>PROTECTED WOOD SLEEPER SUPPORT -</b> SCALE: N.T.S.         2.14	<b>DUCT SUPPORT</b> SCALE: N.T.S.         2.15	<b>FLANGED DUCTS</b> SCALE: N.T.S.         2.16	<b>GAS PIPE SUPPORT</b> SCALE: N.T.S.         2.17	<b>AREA DIVIDER/CONTROL JOINT</b> SCALE: N.T.S.         2.18



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PROJECT:

Troy School District  
**BID 9848**  
2018 Roofing Program

WTProject No:  
TSR-102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/08/17	90% Review Set
11/10/17	OTB

File Name: A8.0 - Detail Page

Drawn By: MD, GG

Checked By: AW, GG, AC

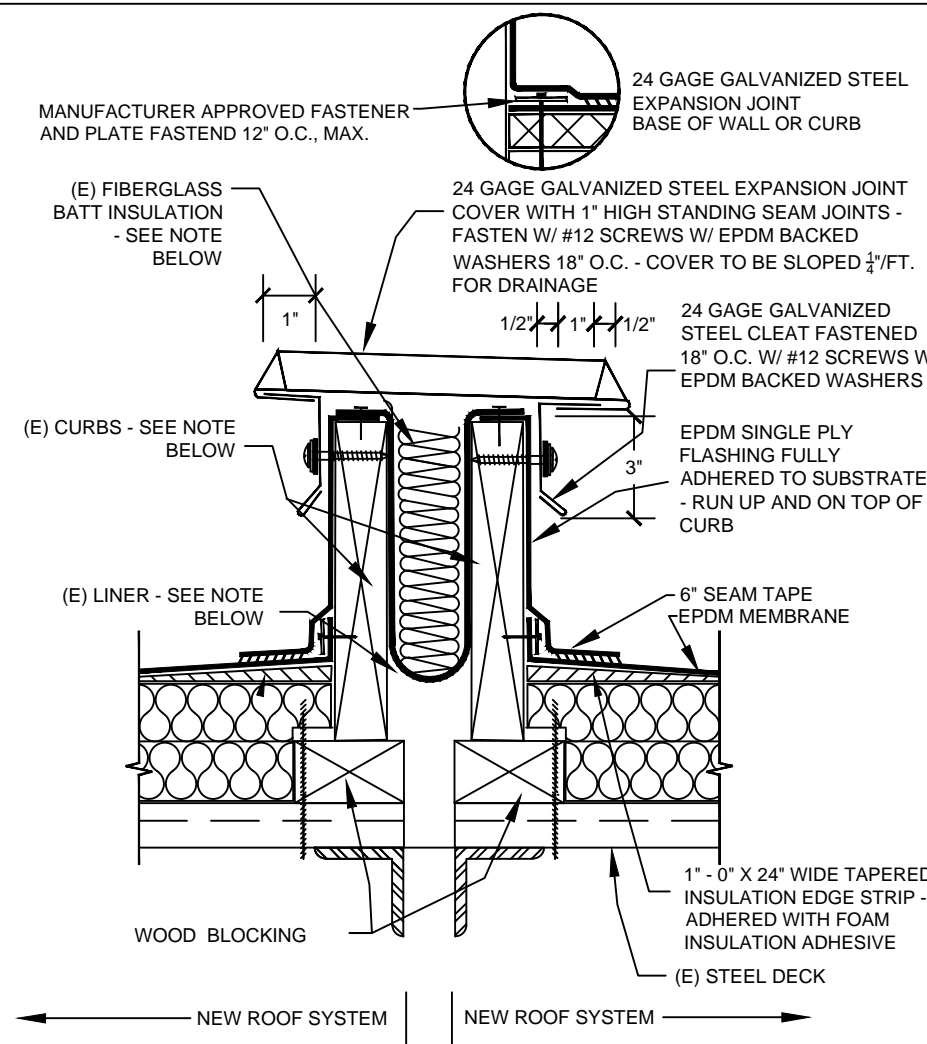
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SHEET TITLE

Detail Page

A8.1



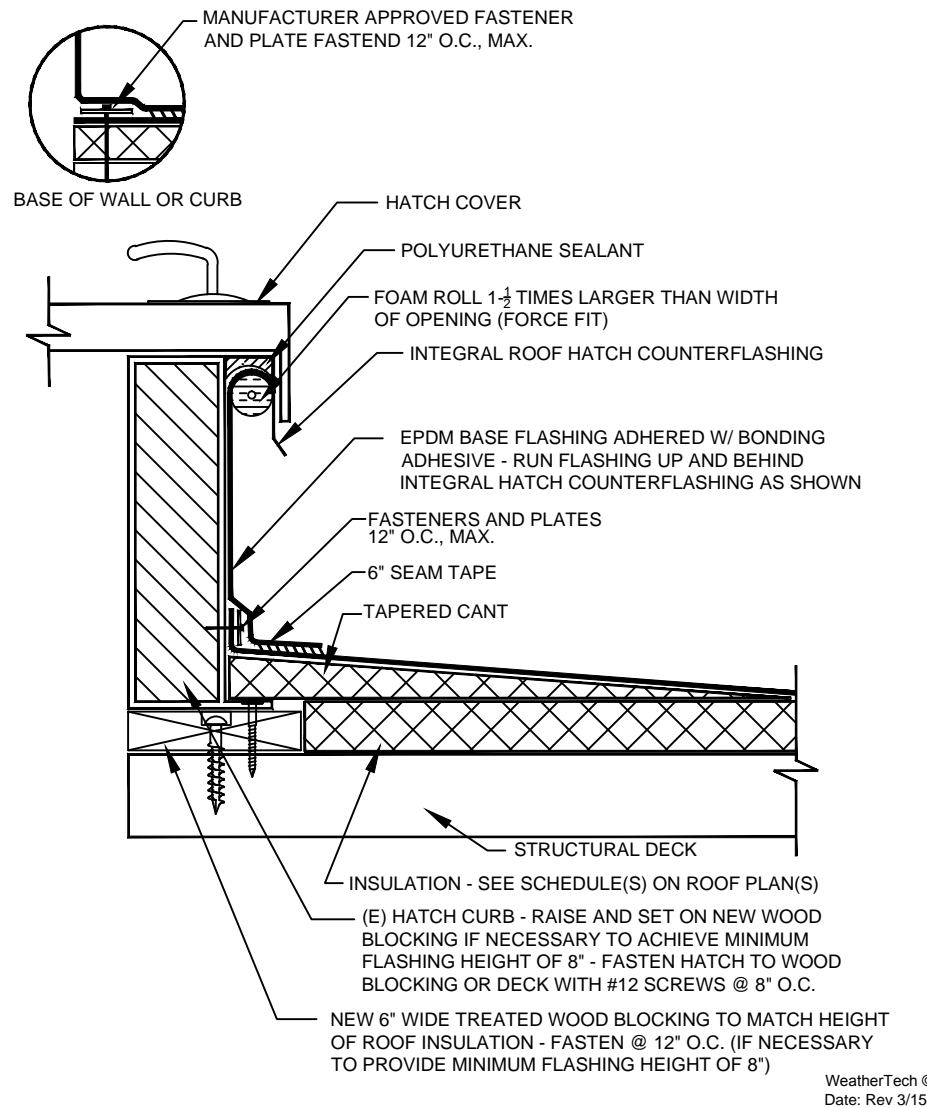


NOTE - REPLACE OR REPAIR LINER AND/OR FIBERGLASS INSULATION IF MISSING OR DAMAGED. SHIM TOP OF ONE CURB TO PROVIDE 1/2" SLOPE IN SHEET METAL EXPANSION JOINT COVER IF NECESSARY.

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3.01

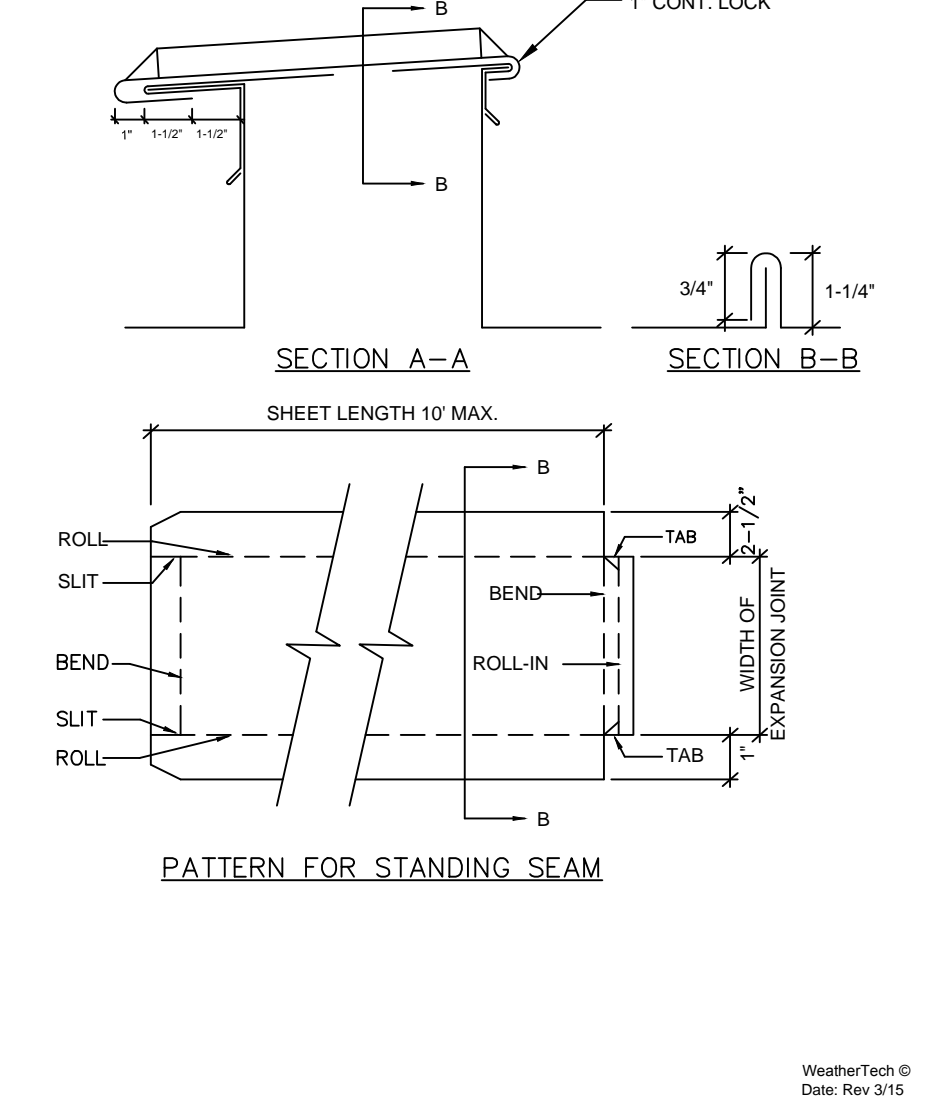
ROOF MOUNTED EXPANSION JOINT @ NEW CURB  
SCALE: N.T.S.



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3.07

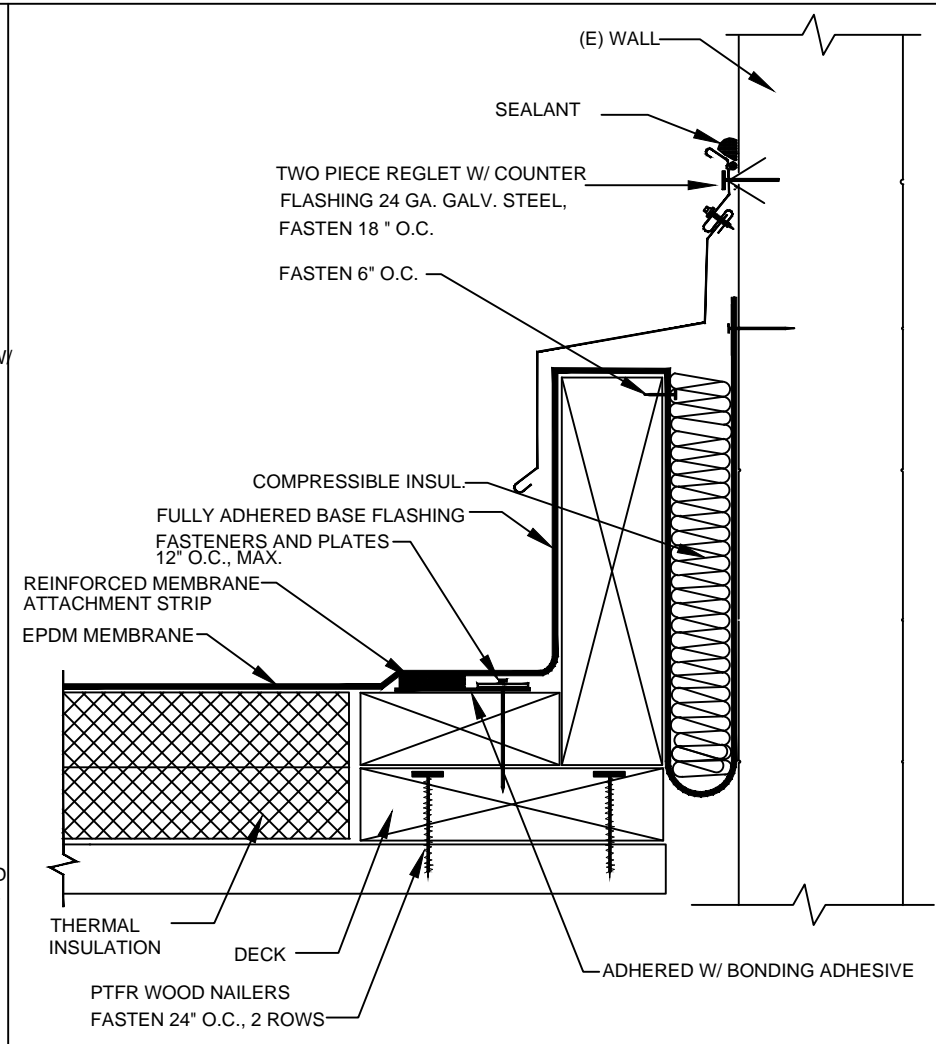
ROOF HATCH FLASHING (NON REMOVABLE)  
SCALE: N.T.S.



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3.13

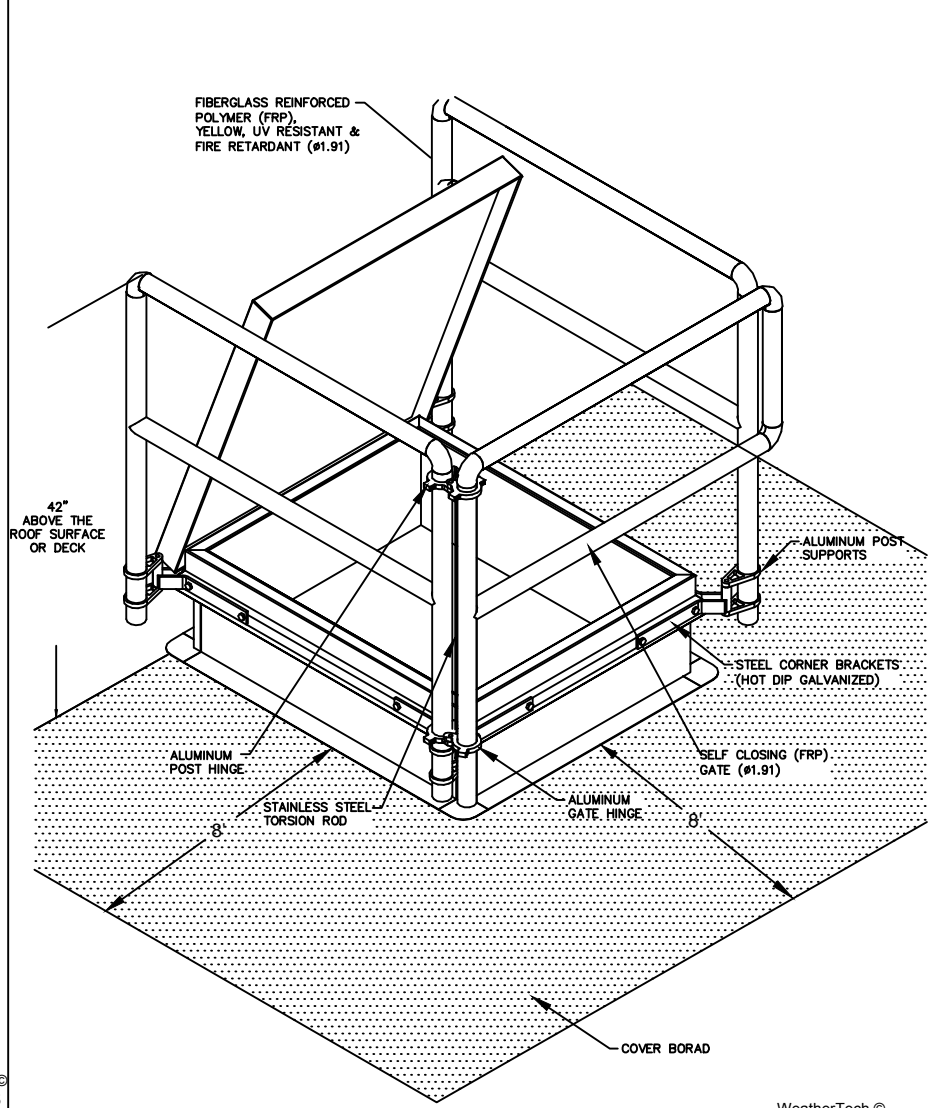
EXPANSION JOINT CAP  
FABRICATION  
SCALE: N.T.S.



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3.02

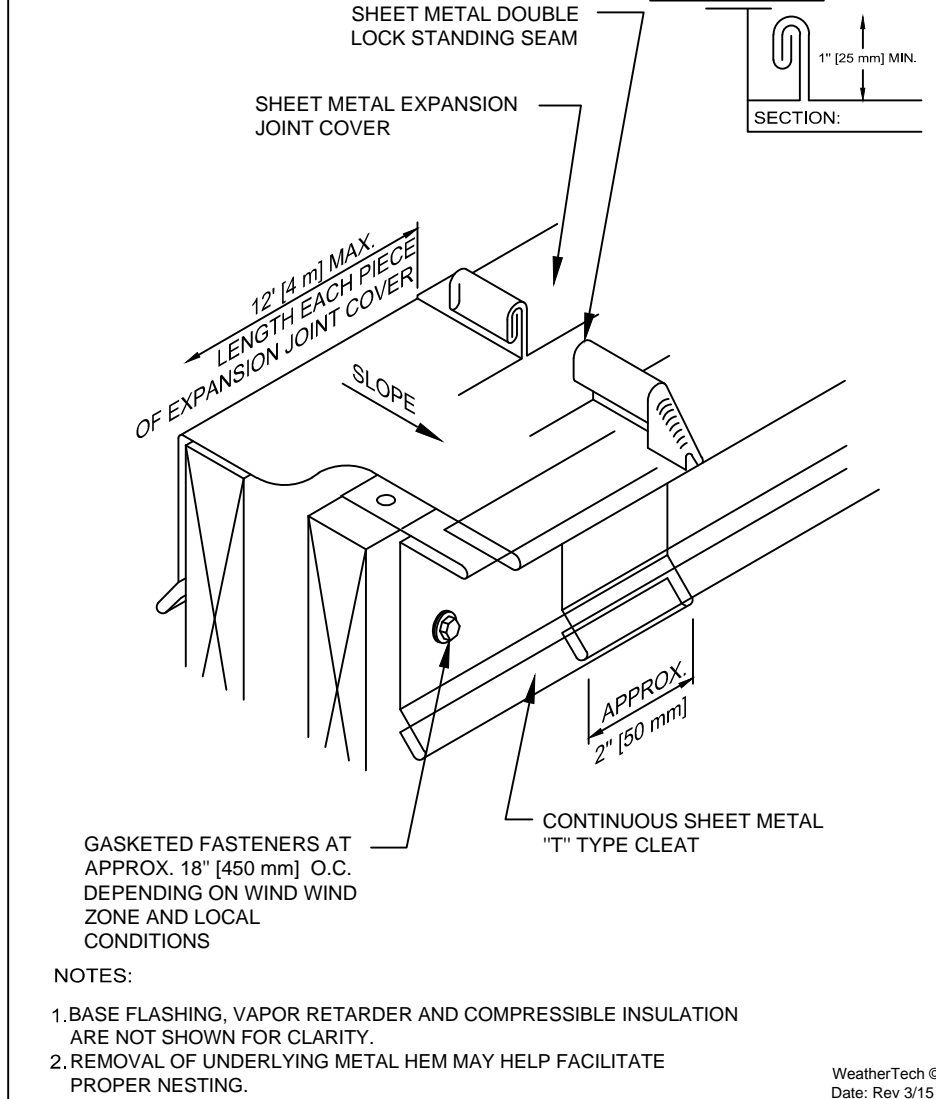
ROOF TO WALL EXPANSION JOINT  
SCALE: N.T.S.



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3.08

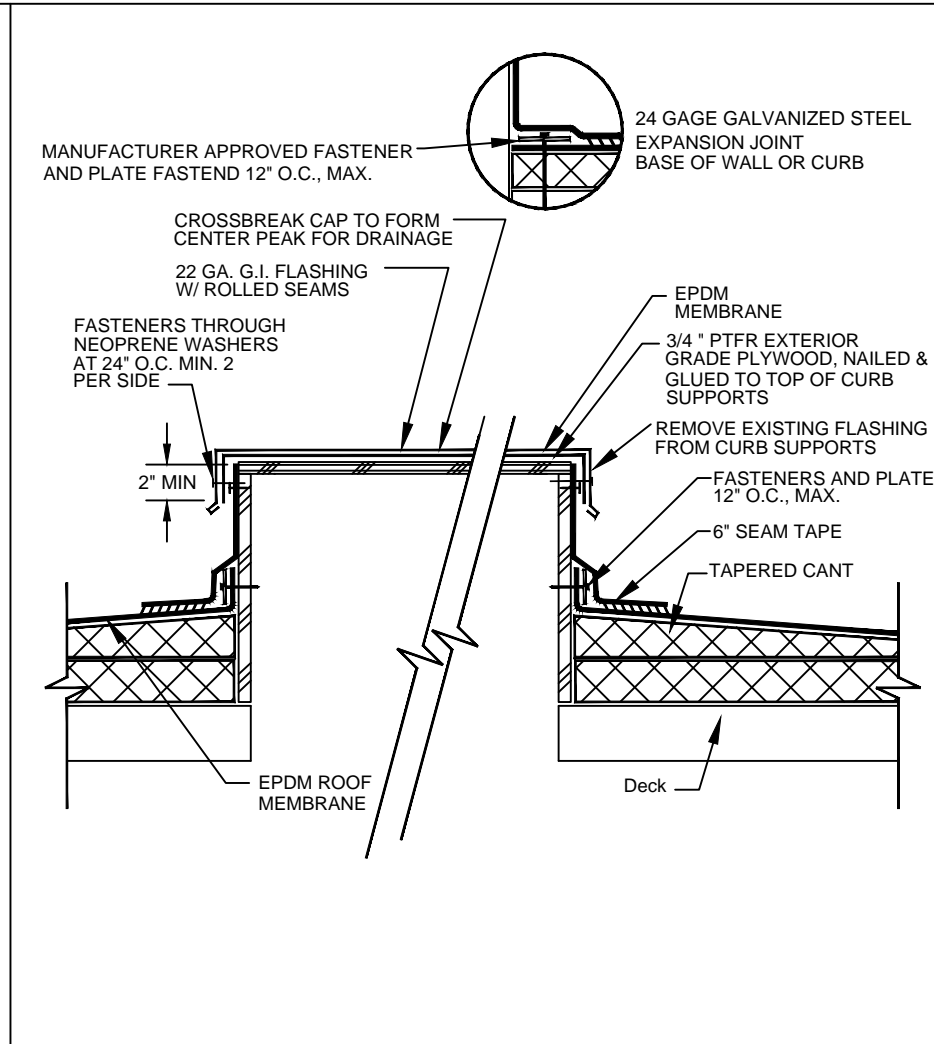
BILCO BIL-GUARD TYPE S E F  
HATCH RAIL SYSTEM  
SINGLE LEAF ROOF SCUTTLE



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Date: Rev 3/15

3.14

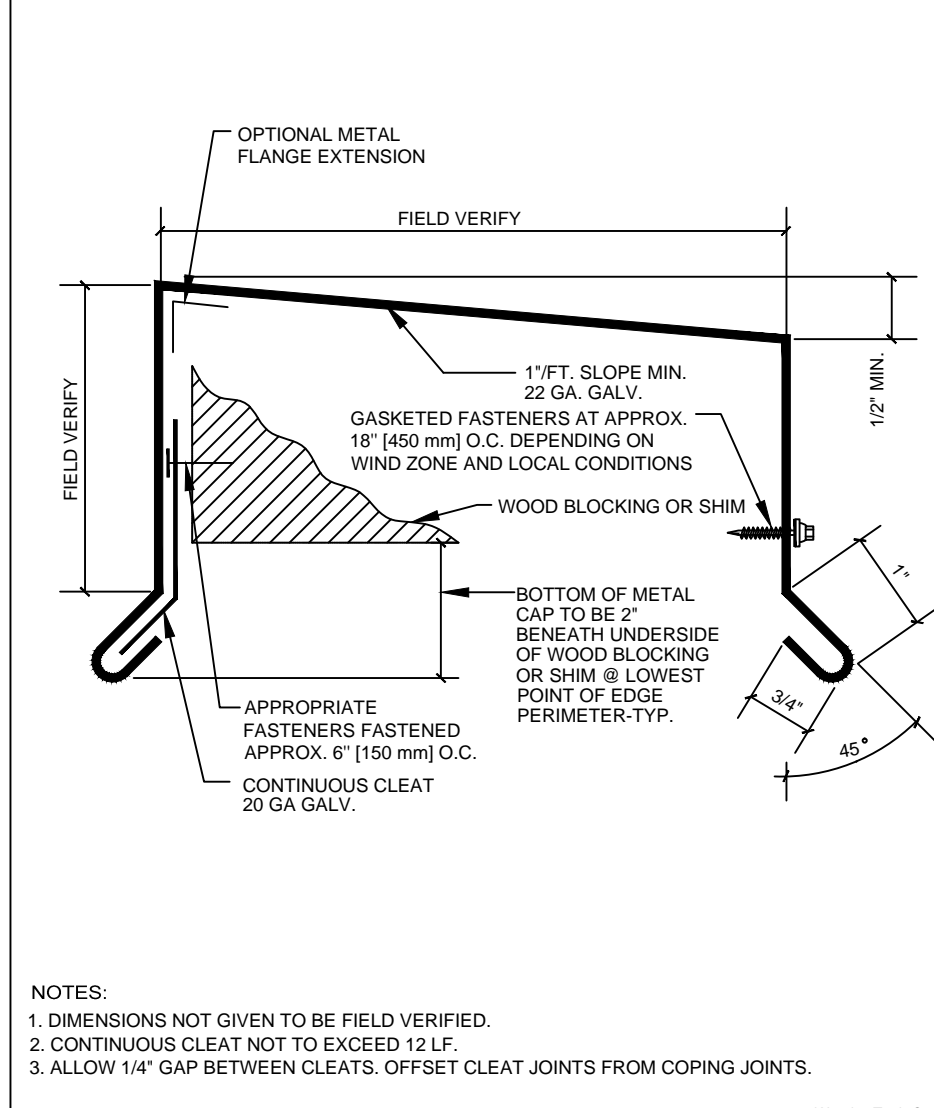
EXPANSION JOINT COVER WITH STANDING SEAM  
SCALE: N.T.S.



WeatherTech ©  
Date: Rev 3/15

3.03

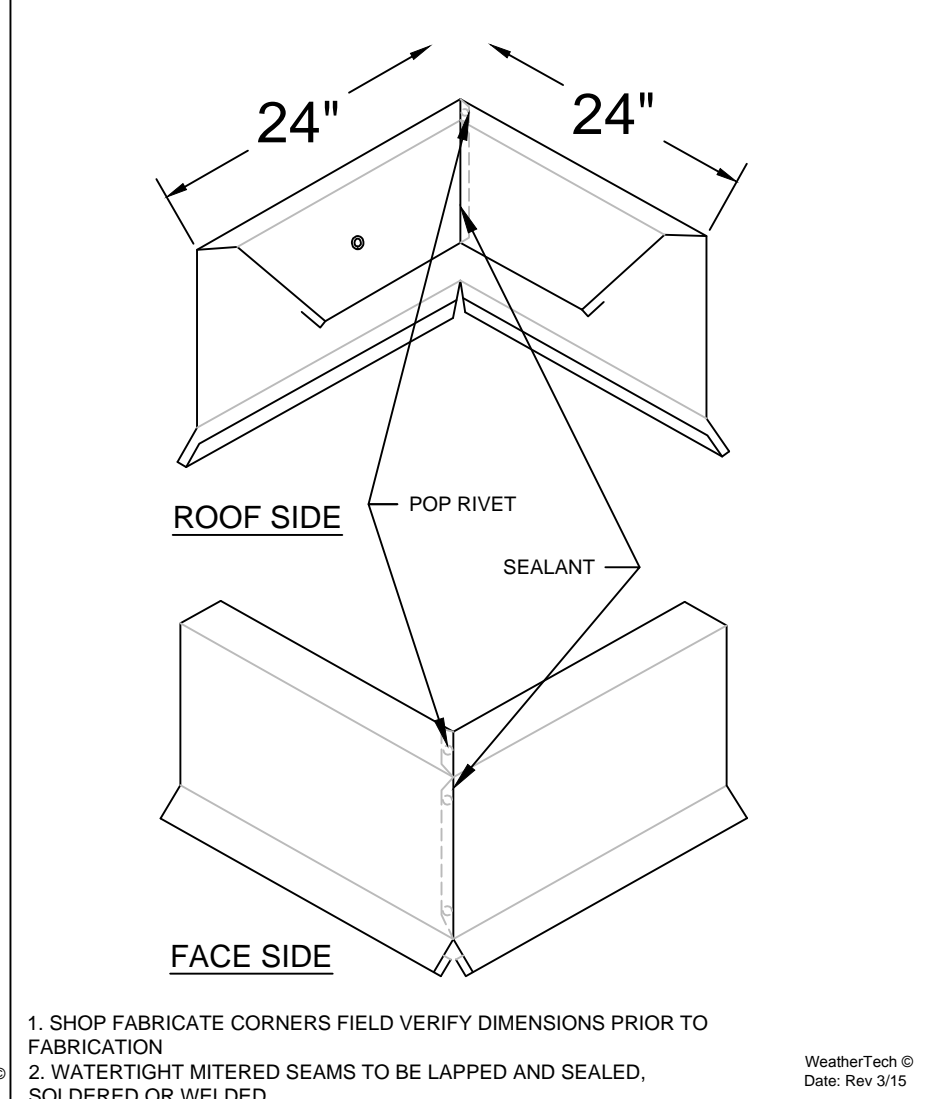
ABANDONED CURB OPENING  
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WeatherTech ©  
Date: Rev 3/15

3.09

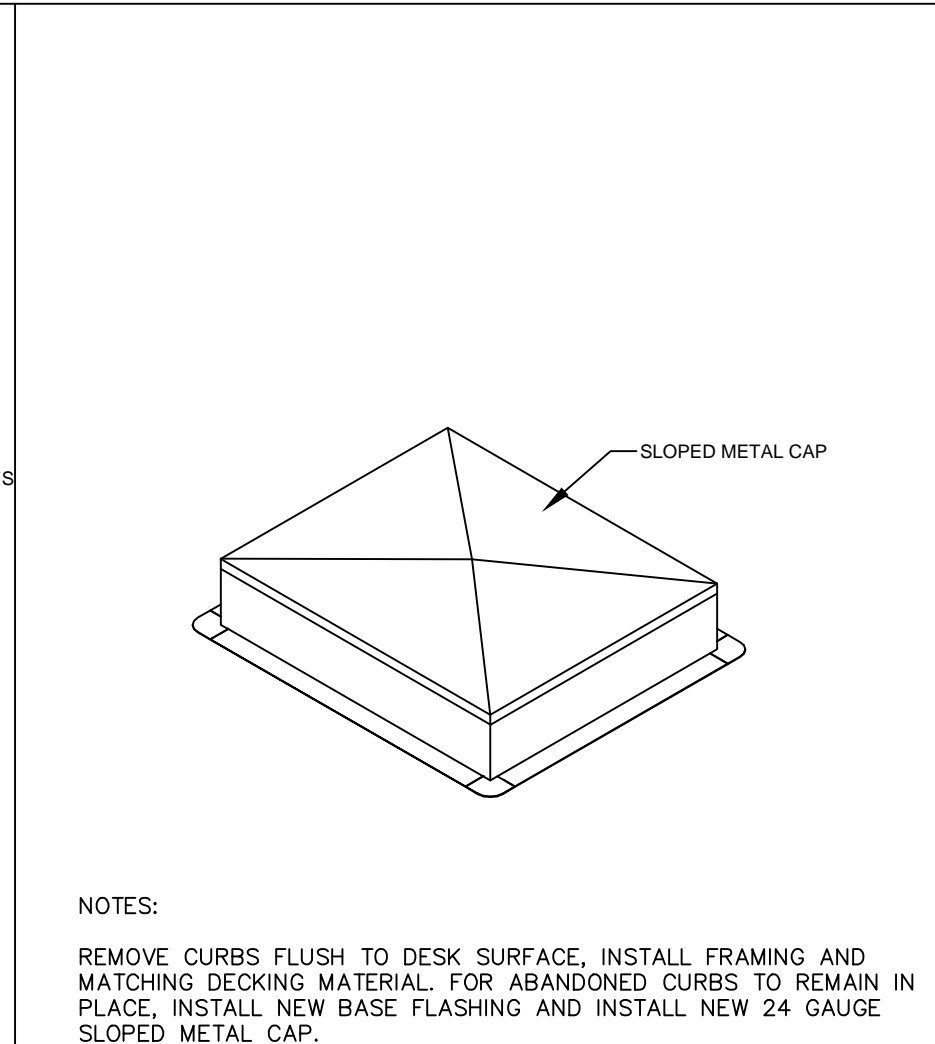
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WeatherTech ©  
Date: Rev 3/15

3.15

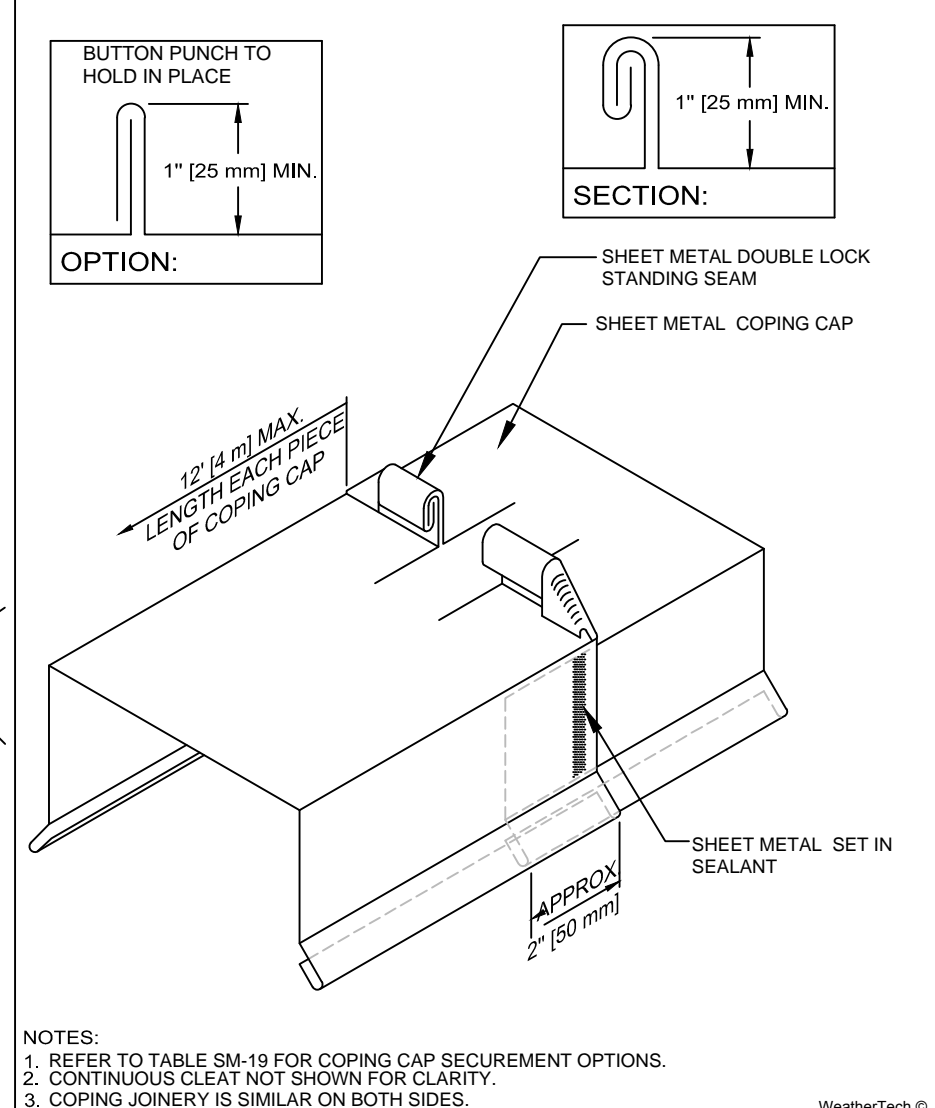
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WeatherTech ©  
Date: Rev 3/15

3.04

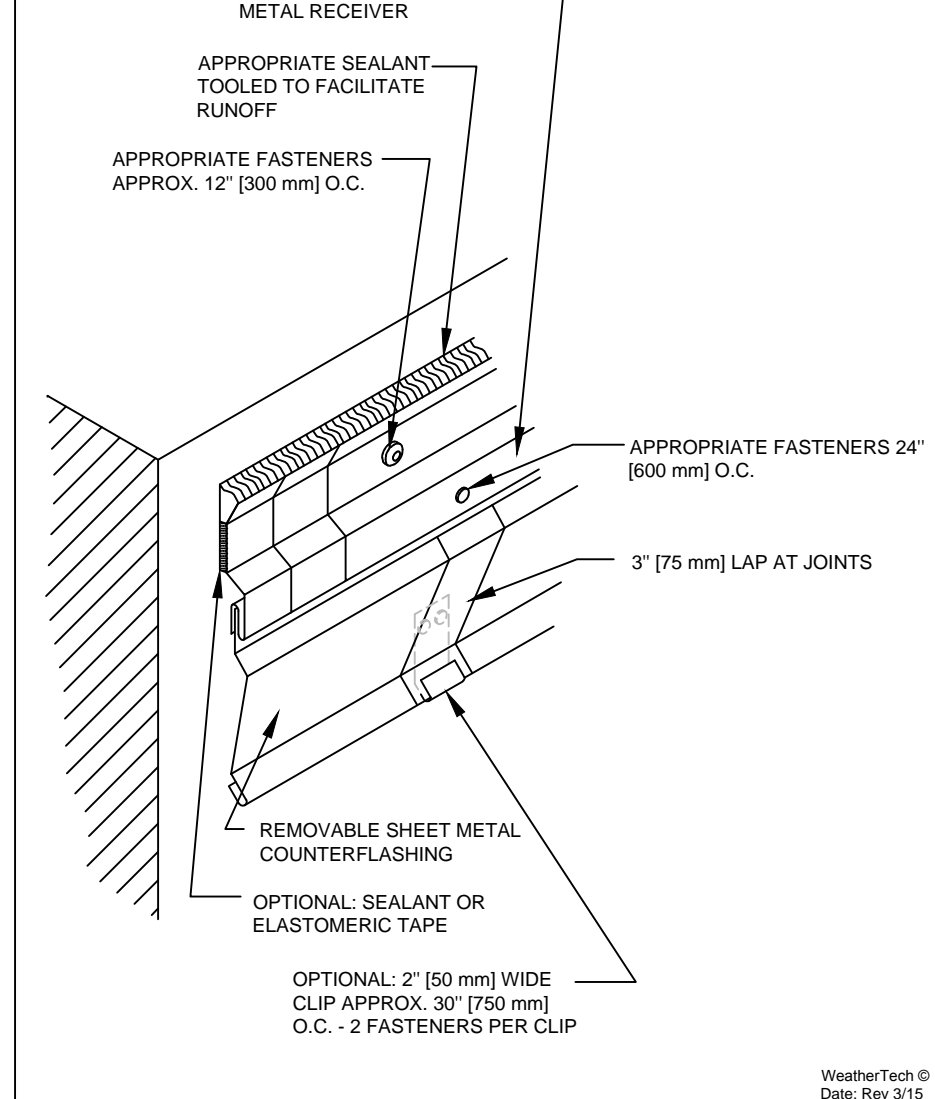
ABANDONED CURBS  
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WeatherTech ©  
Date: Rev 3/15

3.10

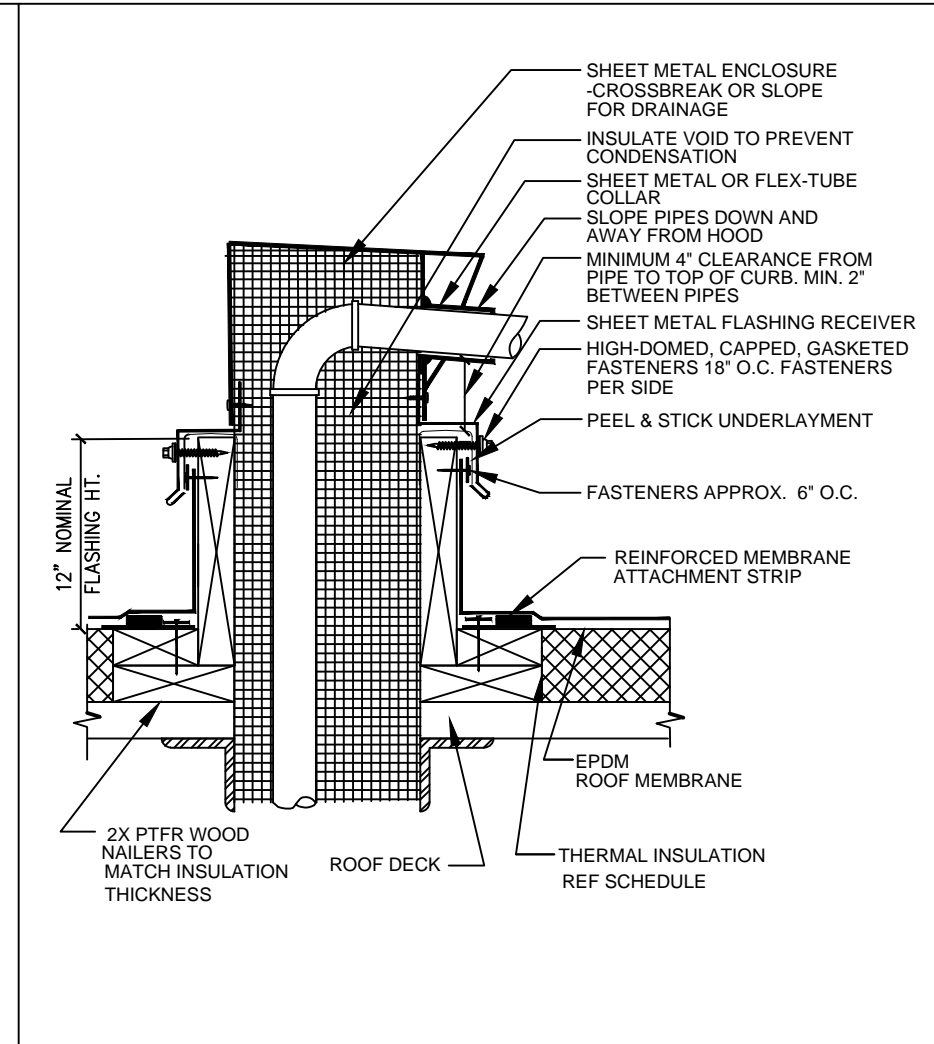
COPING CAP WITH DOUBLE LOCK  
STANDING SEAM



WeatherTech ©  
Date: Rev 3/15

3.16

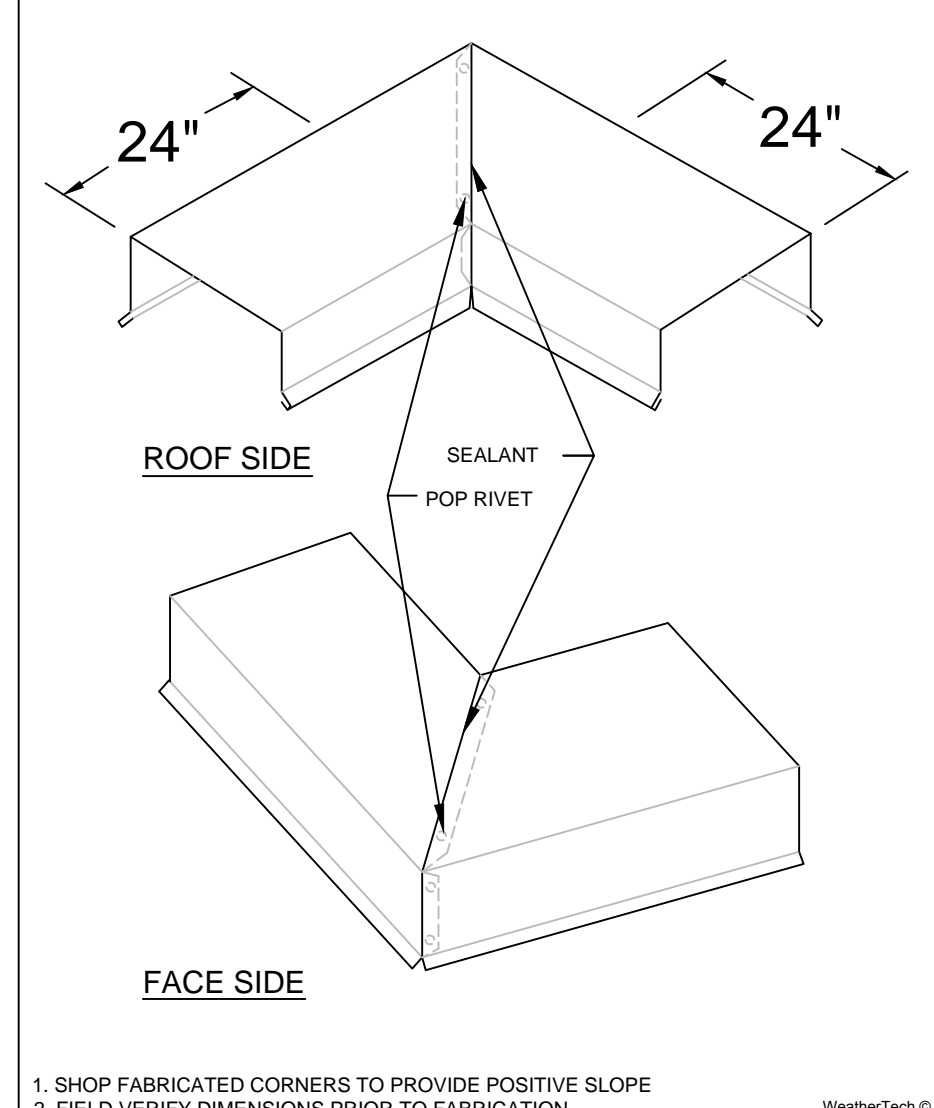
TWO PIECE SURFACE MOUNTED REGLET AND  
COUNTERFLASHING WITH OVERLAP JOINT  
SCALE: N.T.S.



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Date: Rev 3/15

3.05

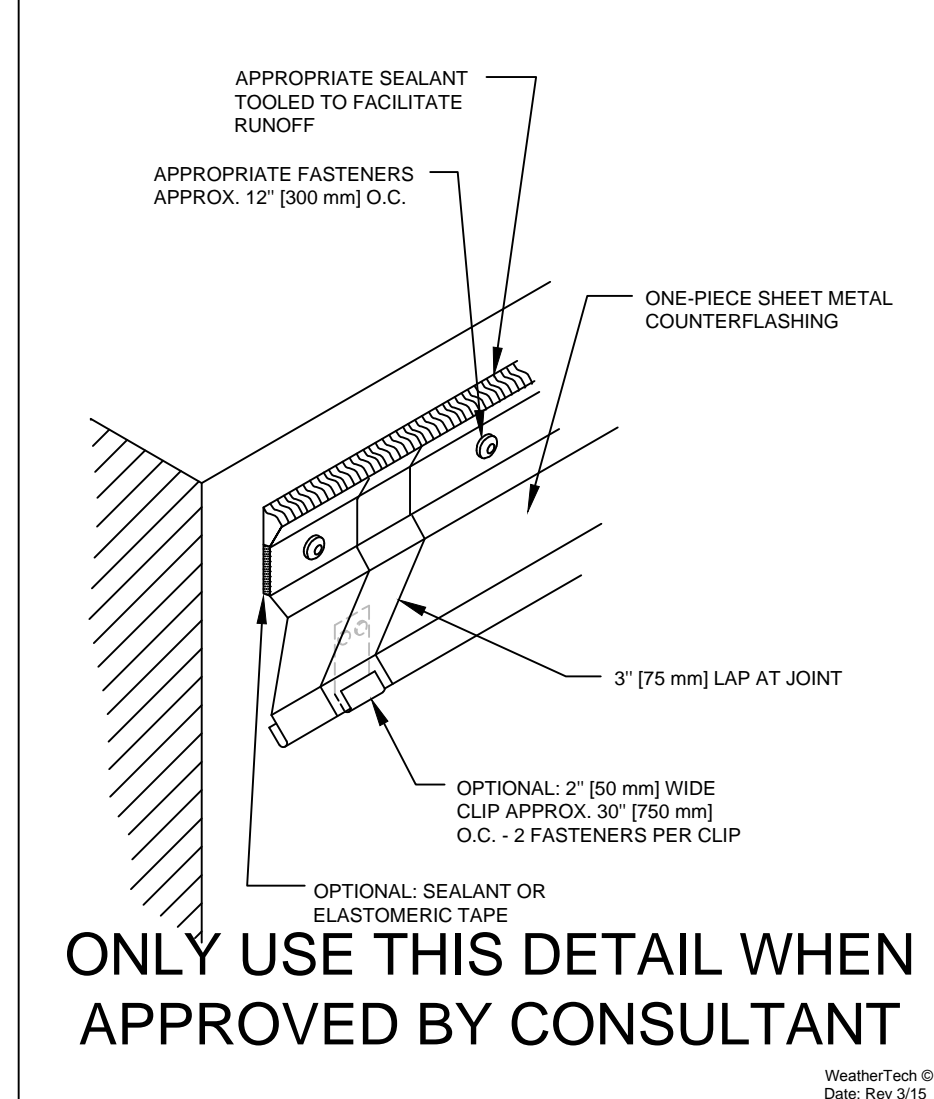
MULTIPLE PENETRATION CLOSURE  
BOX W/ WD. CURBED OPENING  
SCALE: N.T.S.



WeatherTech ©  
Date: Rev 3/15

3.11

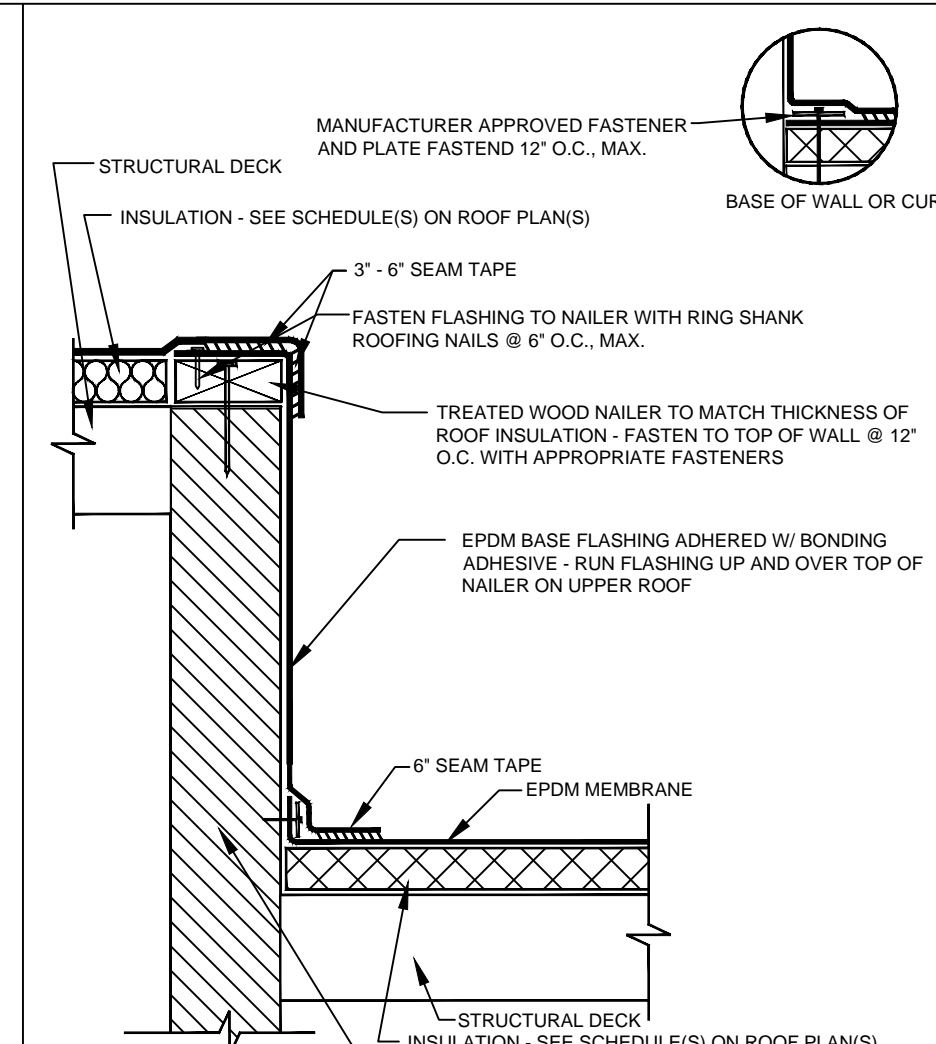
PARAPET COPING CAP CORNERS  
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WeatherTech ©  
Date: Rev 3/15

3.17

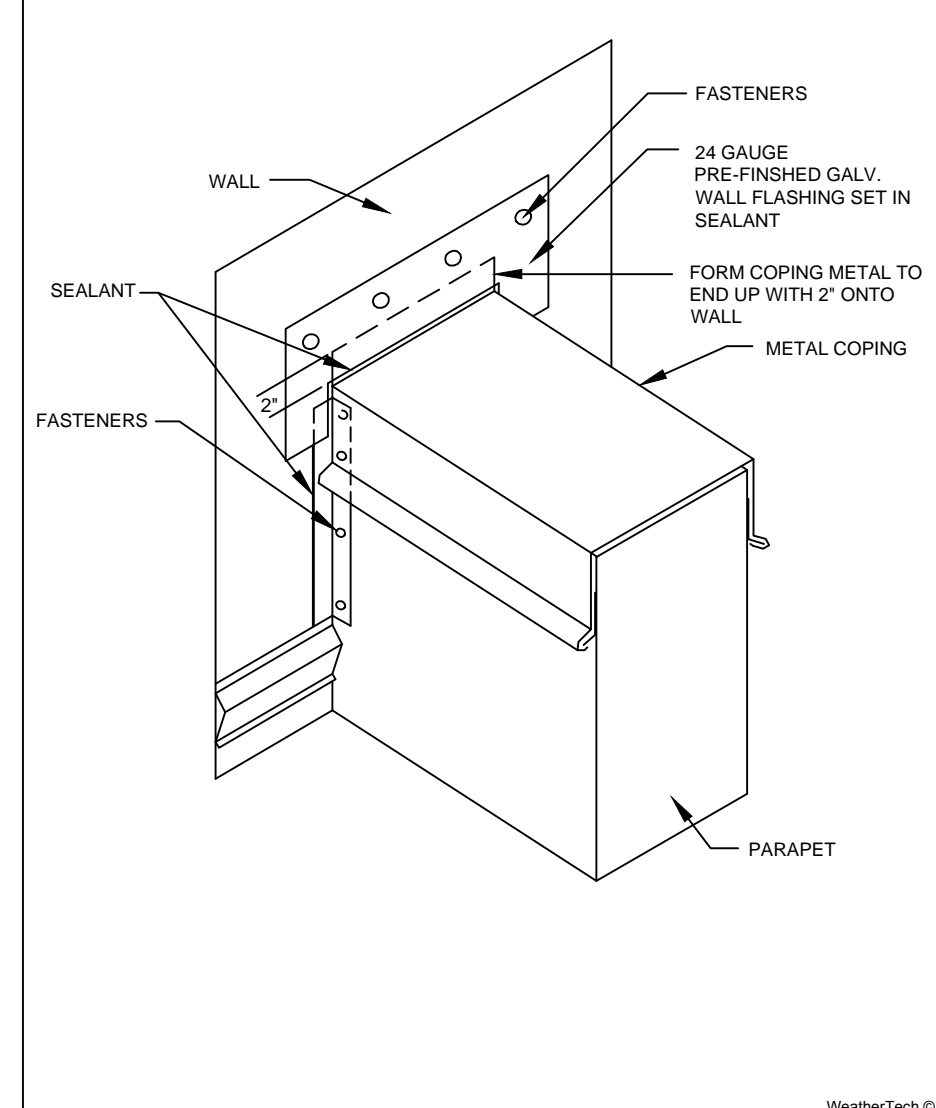
ONE-PIECE SURFACE MOUNTED  
COUNTERFLASHING WITH OVERLAP JOINT  
SCALE: N.T.S.



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Date: Rev 3/15

3.06

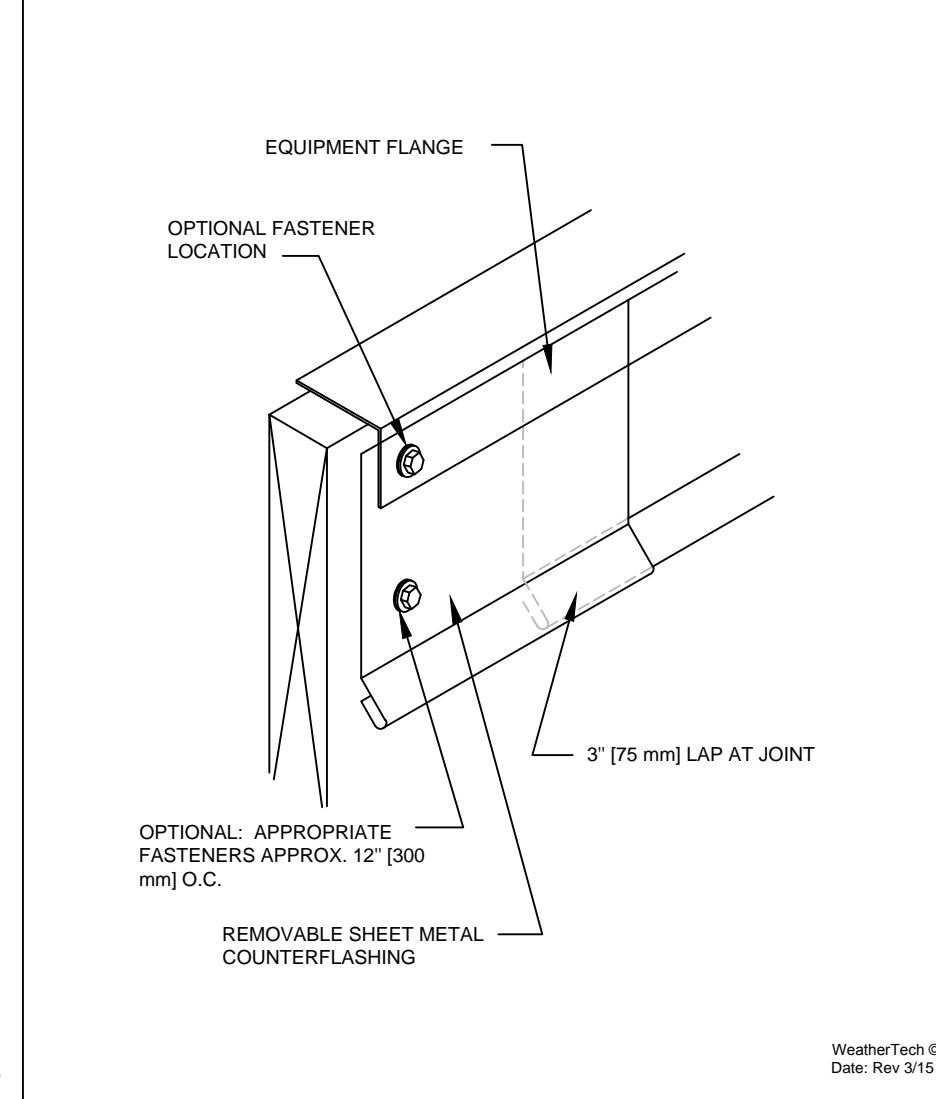
WALL TRANSITION  
SCALE: N.T.S.



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3.12

WALL TERMINATION  
SCALE: N.T.S.




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3.18

CURB COUNTERFLASHING  
(SKIRT FLASHING)  
SCALE: N.T.S.

PROFESSIONAL



WeatherTech  
Consultants

WeatherTech

Roofing/Waterproofing Consultants  
Consulting Group, Inc.

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CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Troy School District  
**BID 9848**  
2018 Roofing Program

WTPProject No:  
TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/08/17	90% Review Set
11/10/17	OTB

File Name: A8.0 - Detail Page  
Drawn By: MD, GG  
Checked By: AW, GG, AC  
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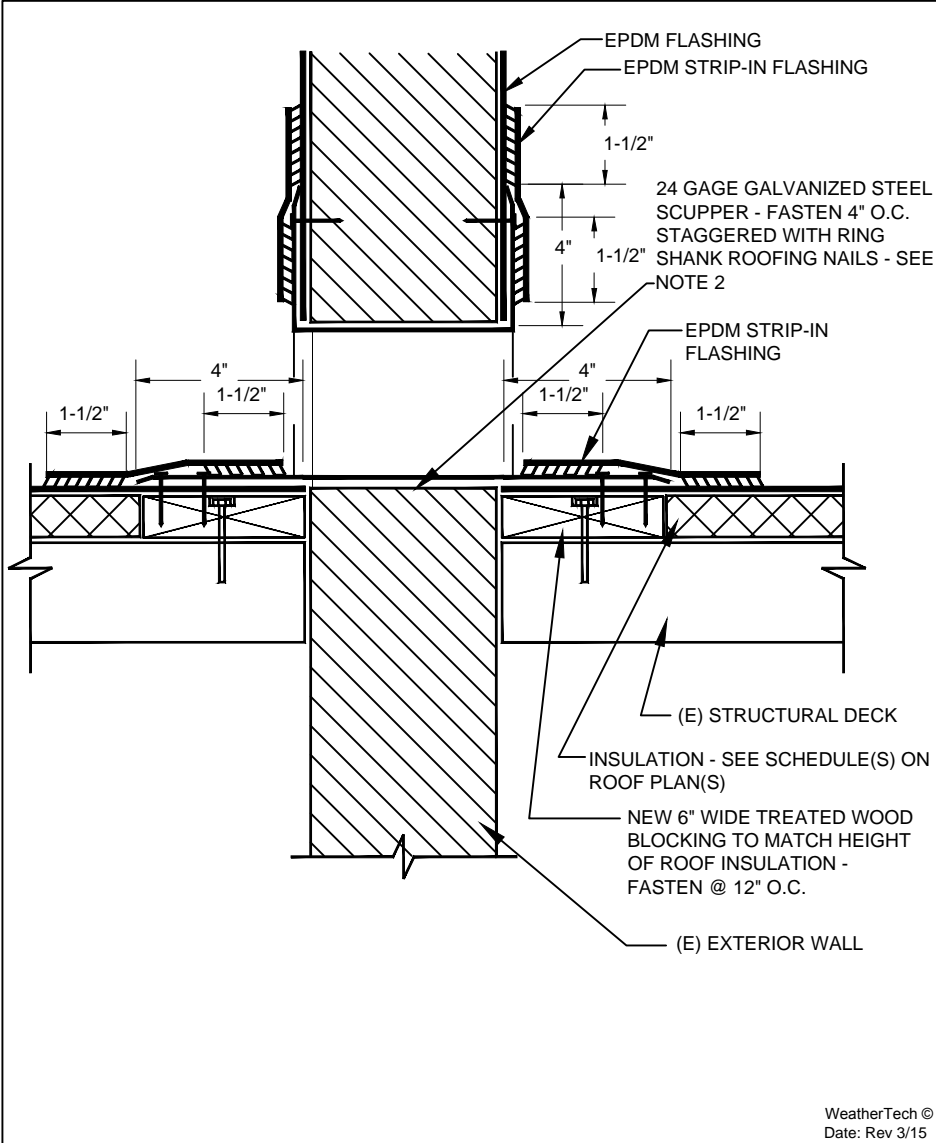
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Detail Page

A8.2

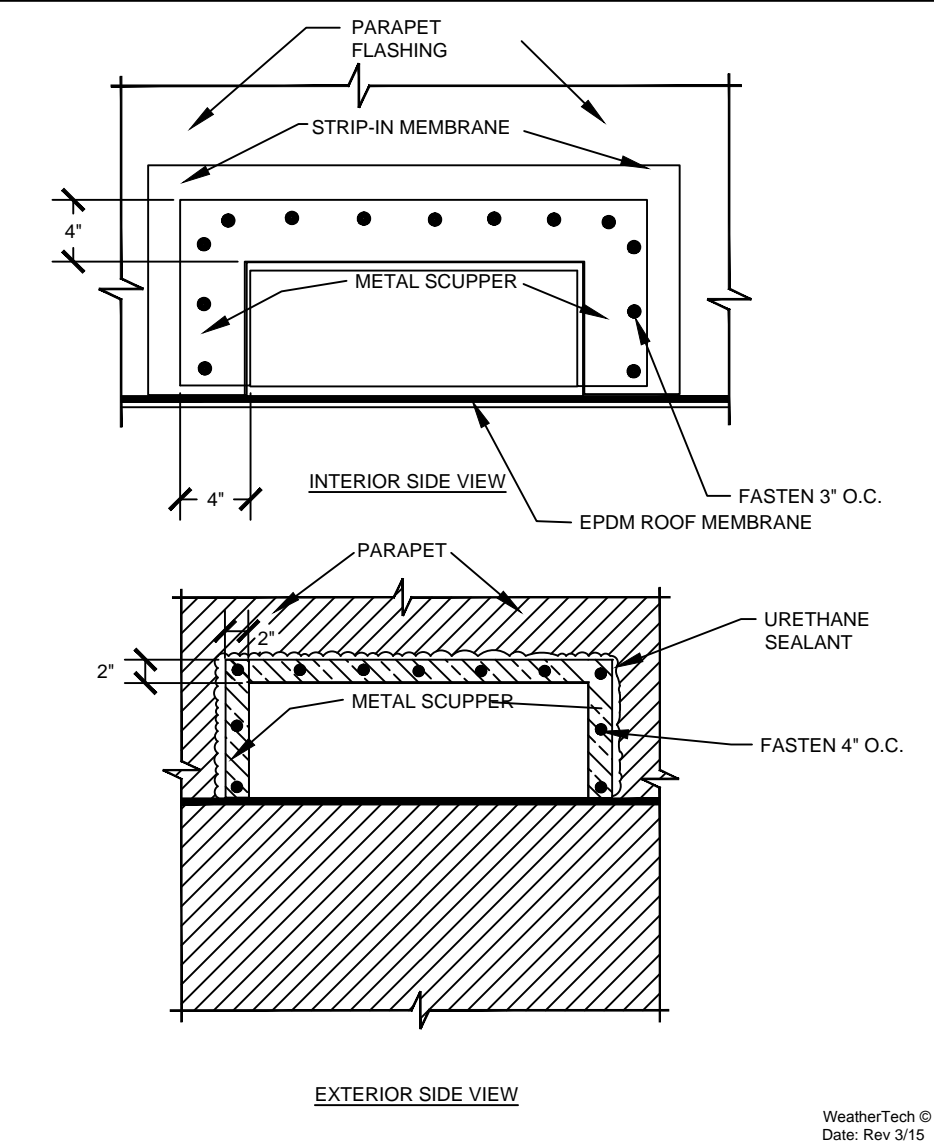
Sheet 22 of 23





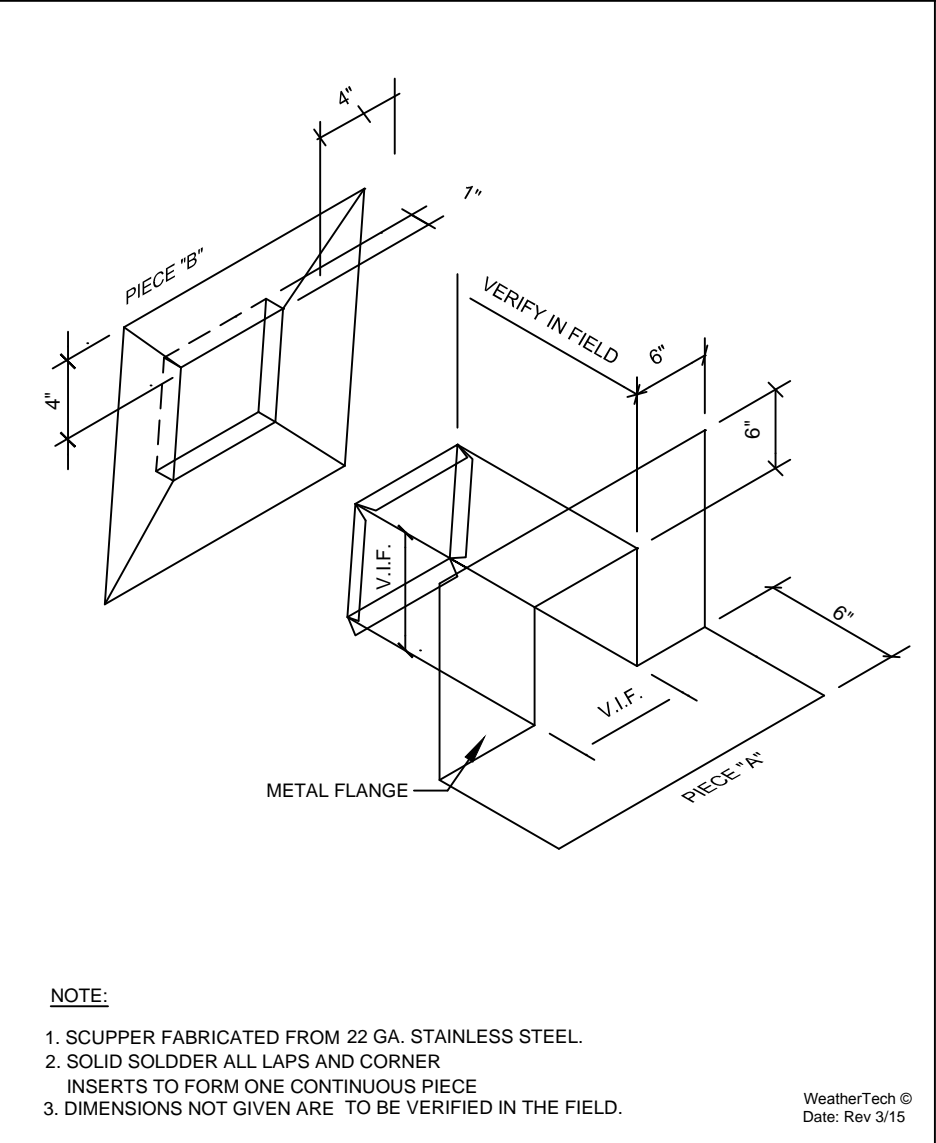
THRU-WALL SCUPPER  
SCALE: N.T.S.

4.01



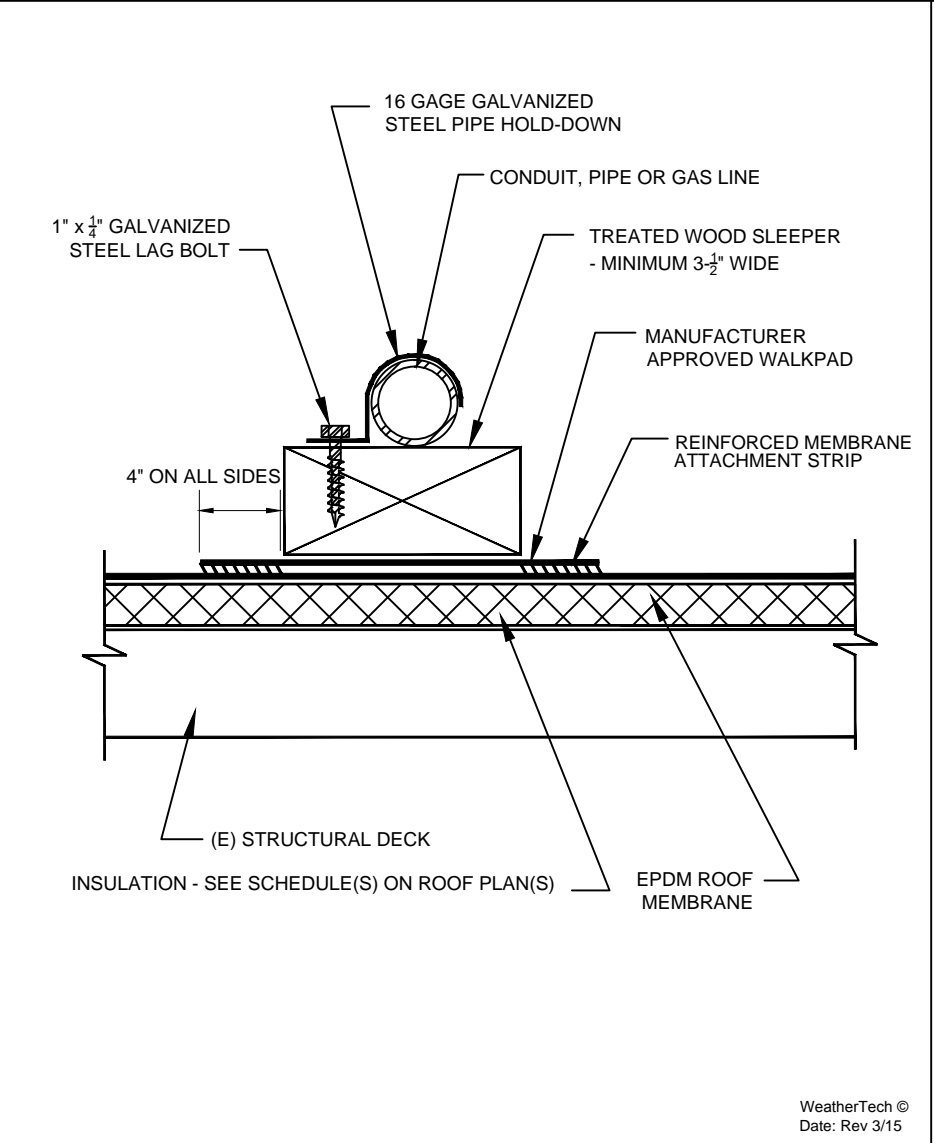
THRU-WALL SCUPPER  
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4.02



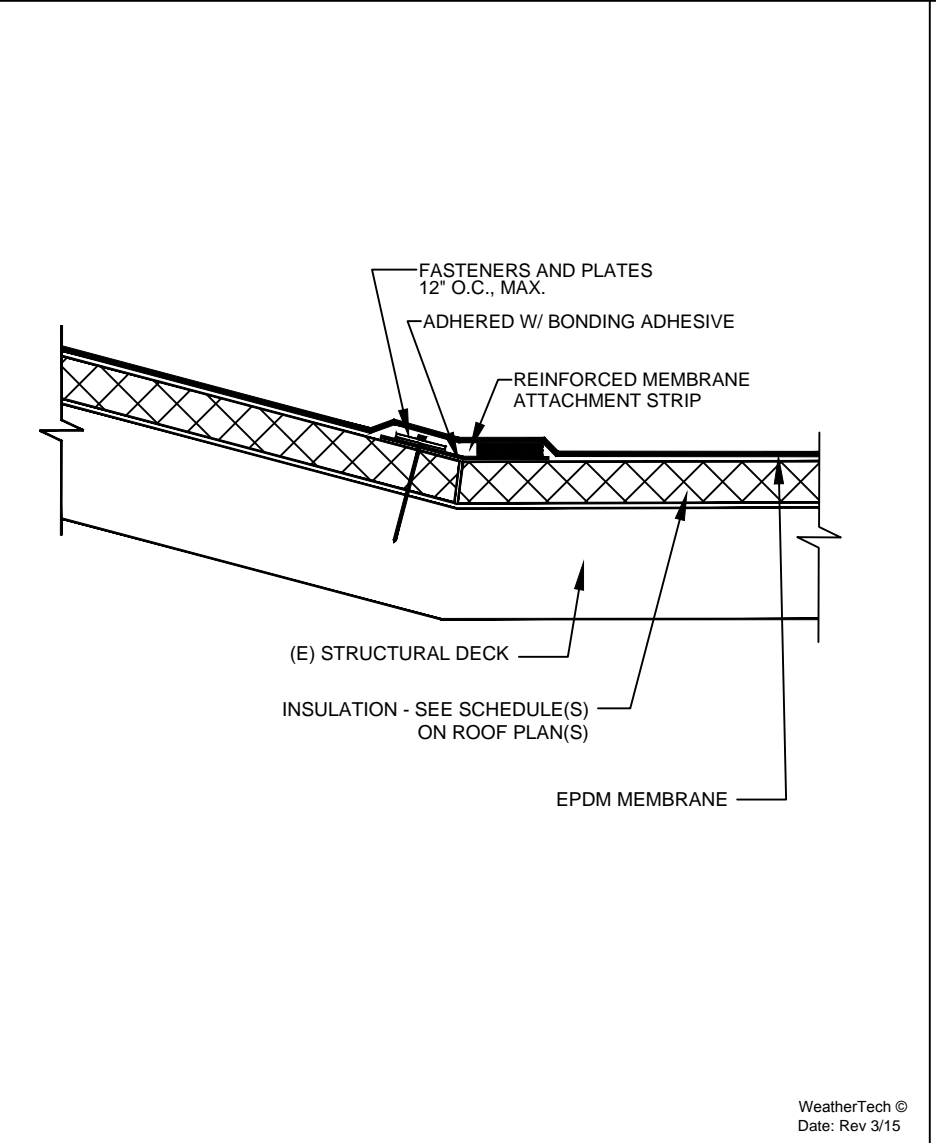
SCUPPER FABRICATION  
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4.03



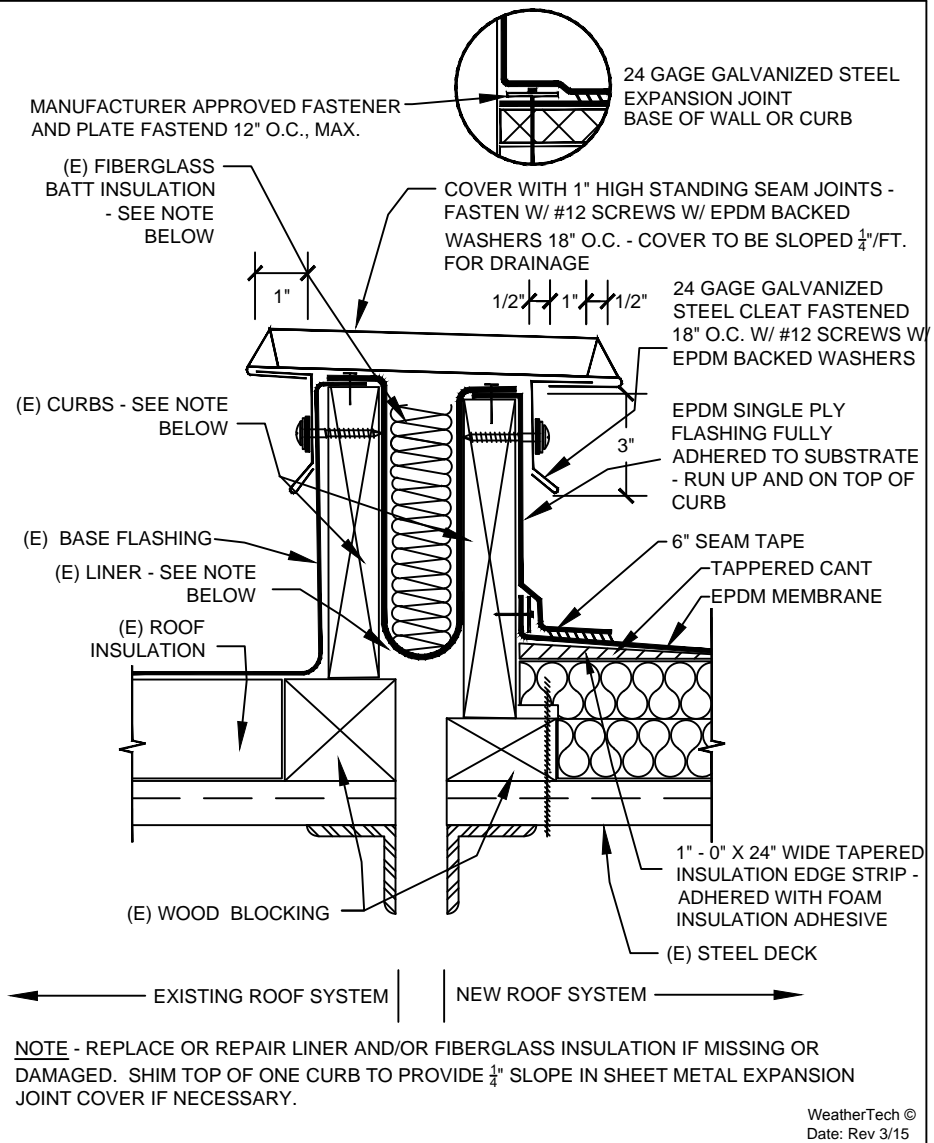
CONDUIT SUPPORT WOOD SLEEPER  
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4.04



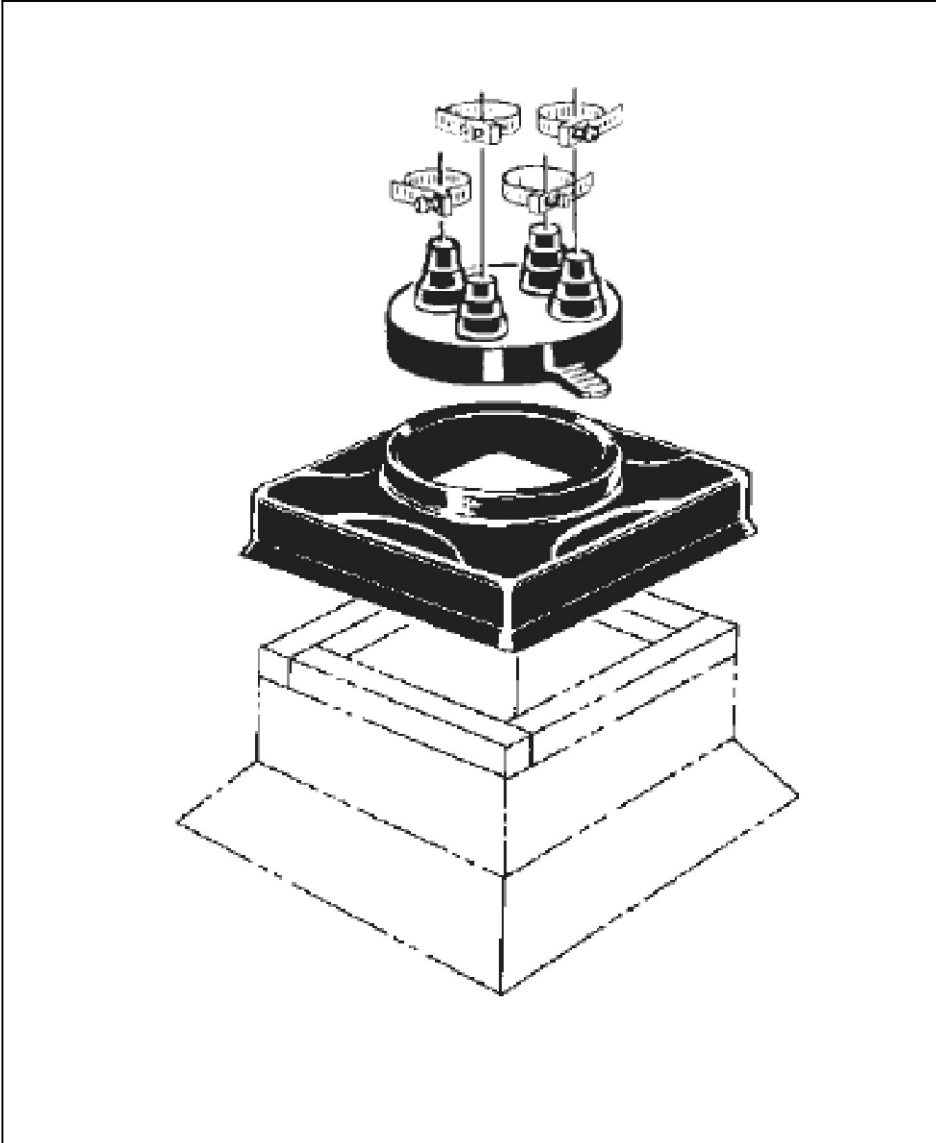
SLOPE TRANSITION  
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4.05



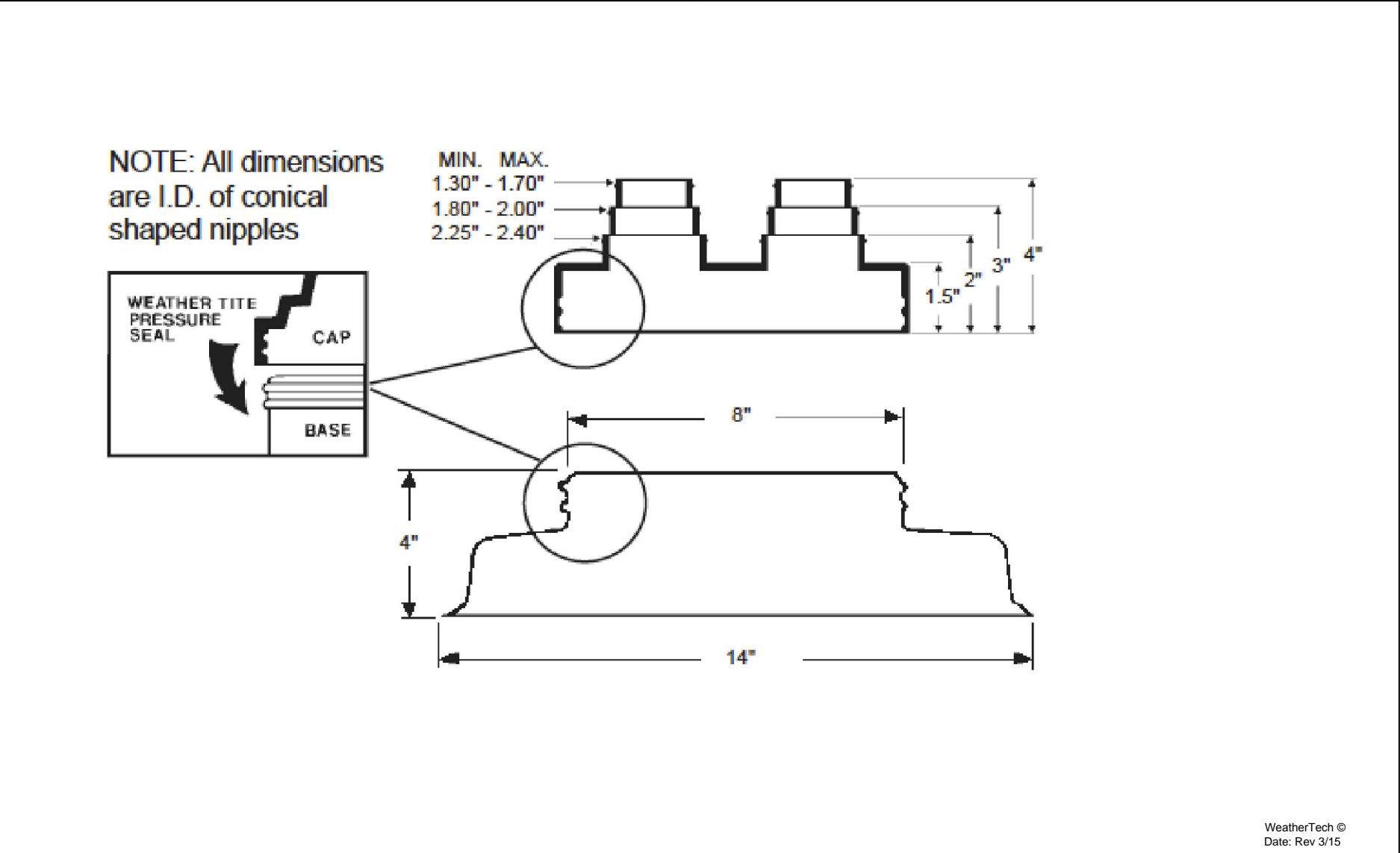
ROOF MOUNTED EXPANSION JOINT @ EXISTING CURB  
SCALE: N.T.S.

4.06



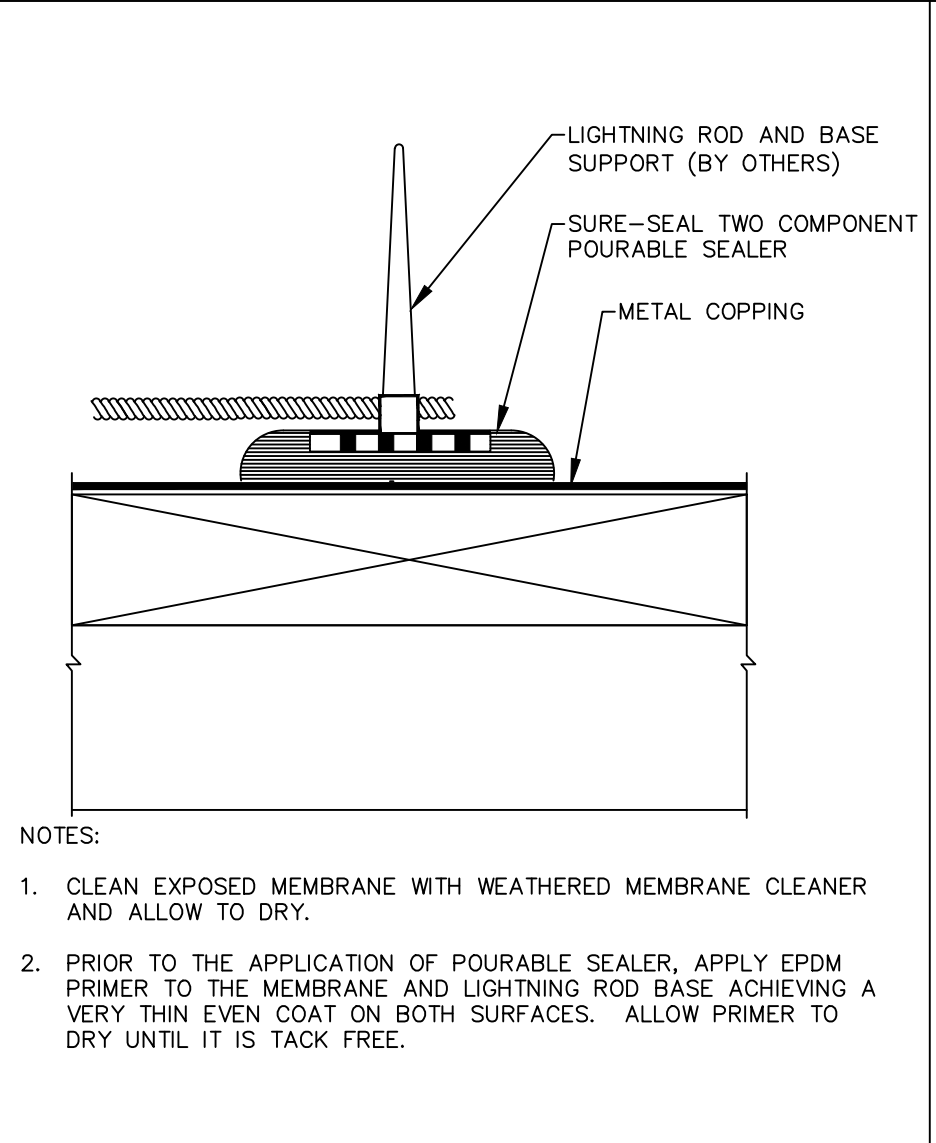
PORTALS PLUS CONDUIT/PIPE  
FLASHING - CURB & COVER  
SCALE: N.T.S.

4.07



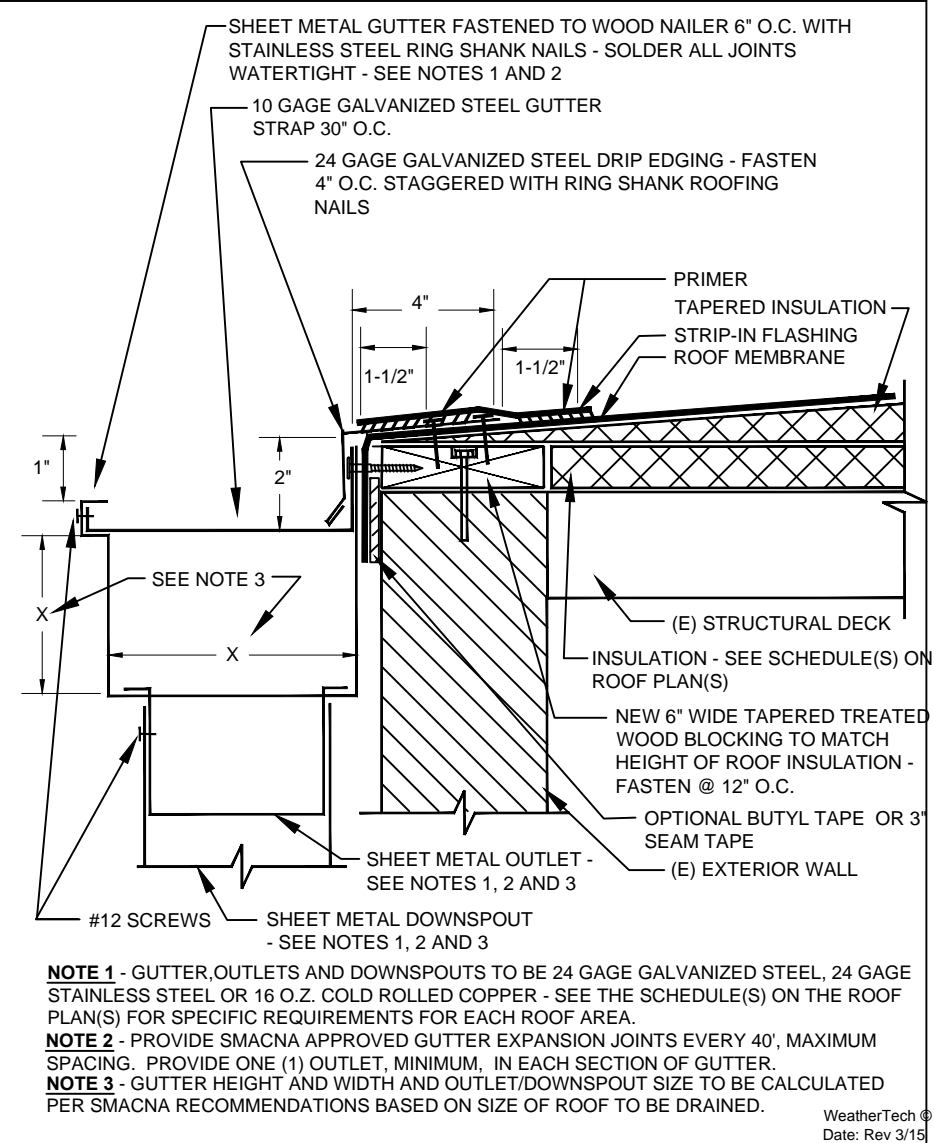
VENTILATION/CURD BUILD OUT  
SCALE: N.T.S.

4.08



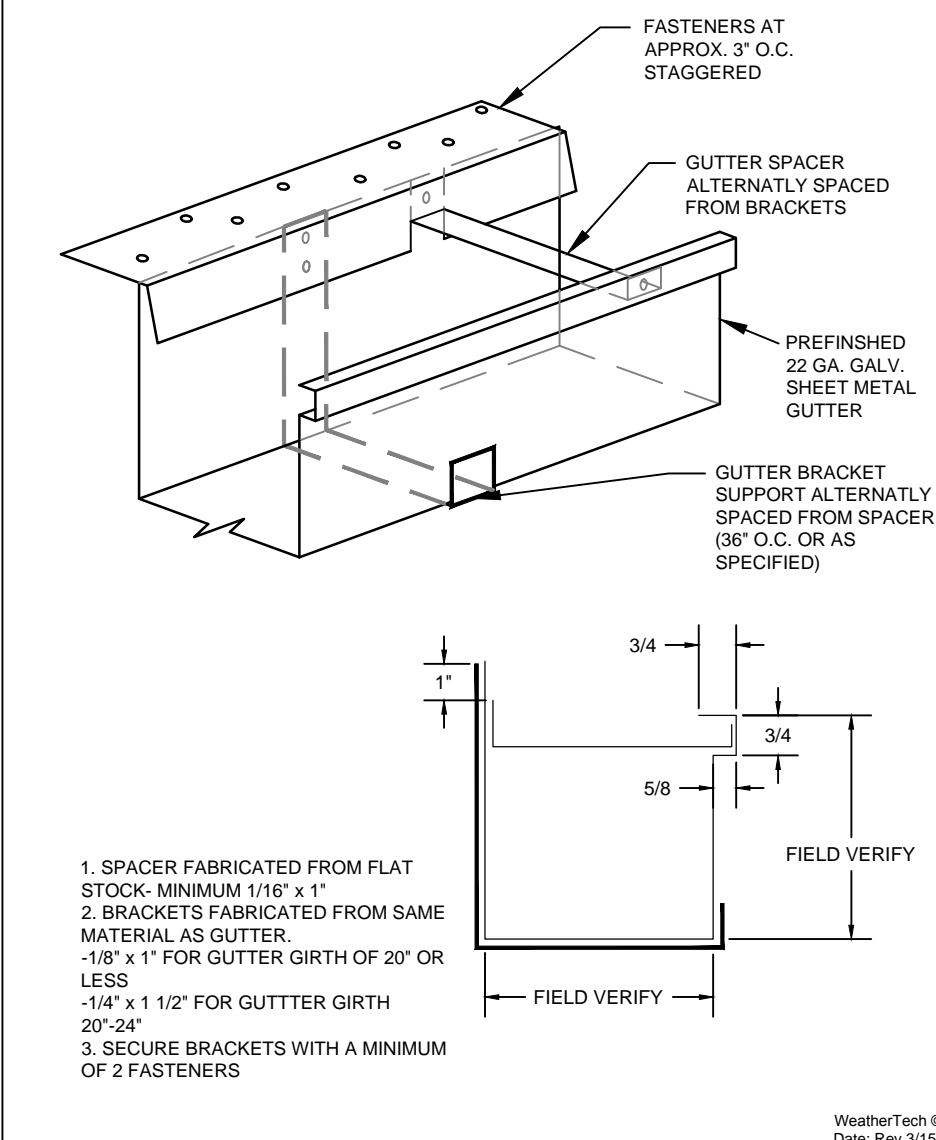
LIGHTNING ROD AT PARAPET WITH  
POURABLE SEALER  
SCALE: N.T.S.

4.09



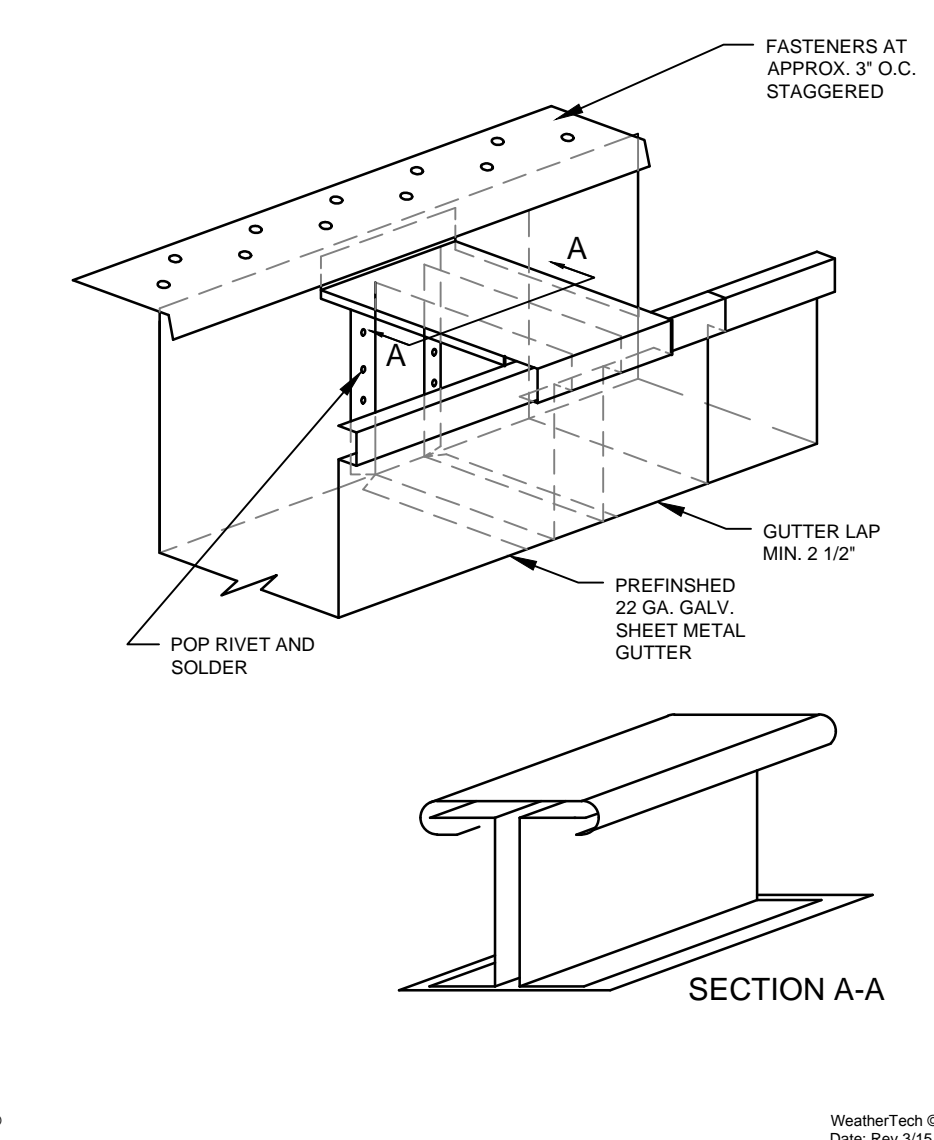
GUTTER EDGE FLASHING - COATED METAL  
SCALE: N.T.S.

4.10



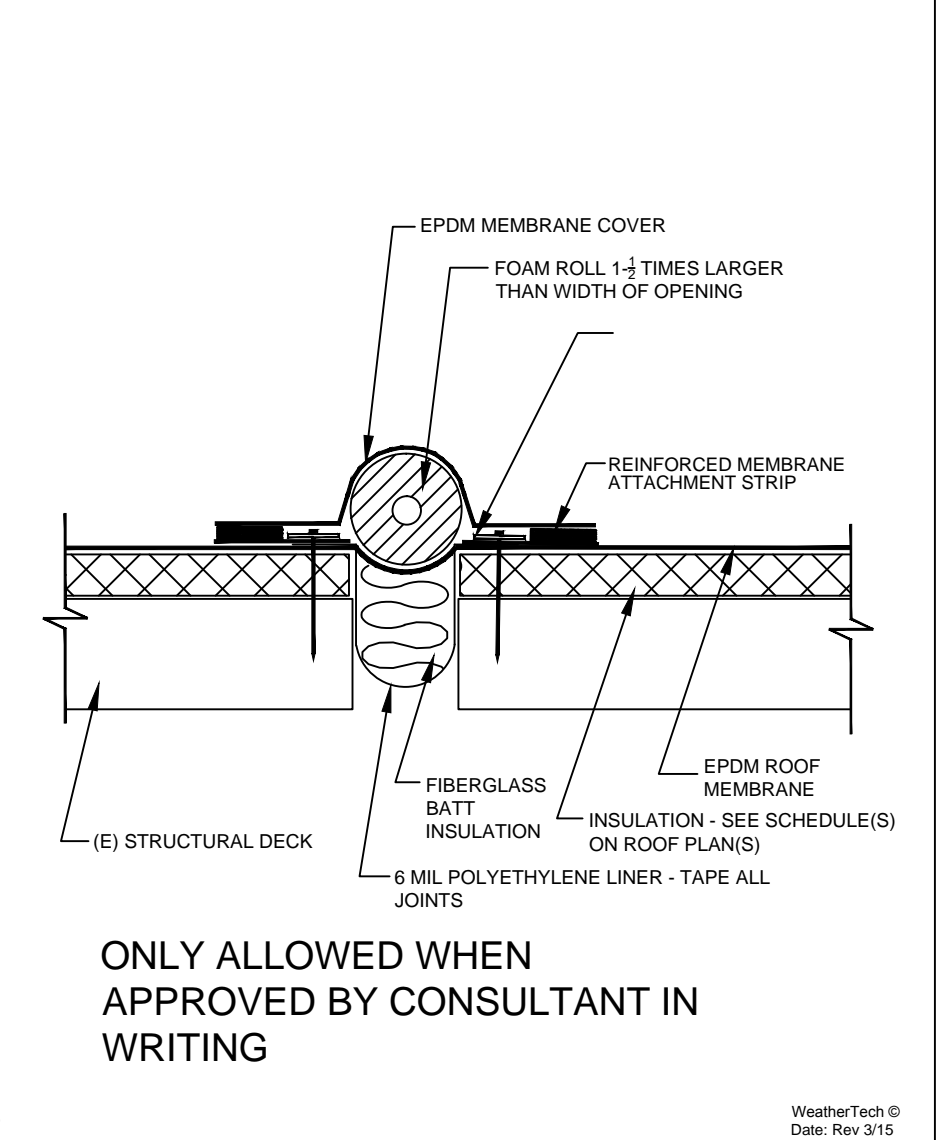
TYPICAL GUTTER  
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4.11



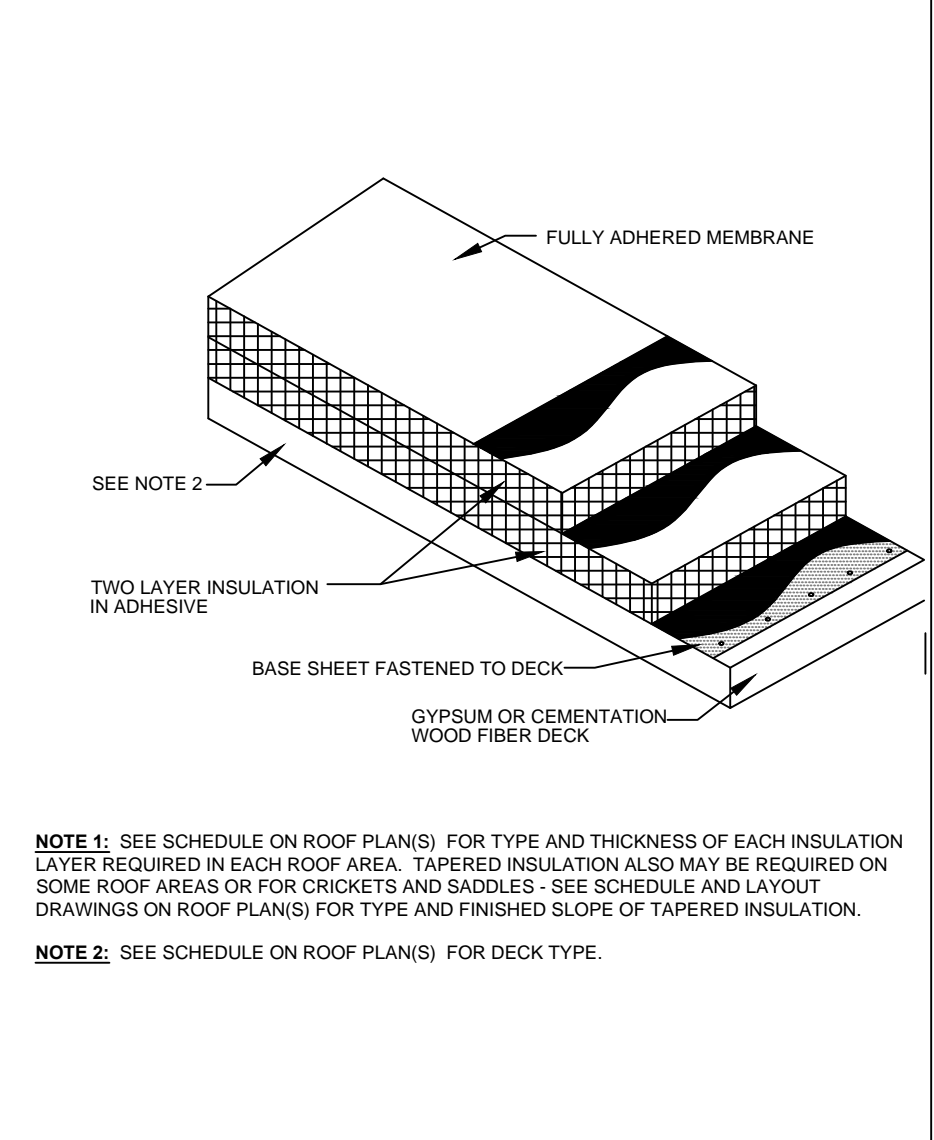
GUTTER EXPANSION JOINT  
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4.12



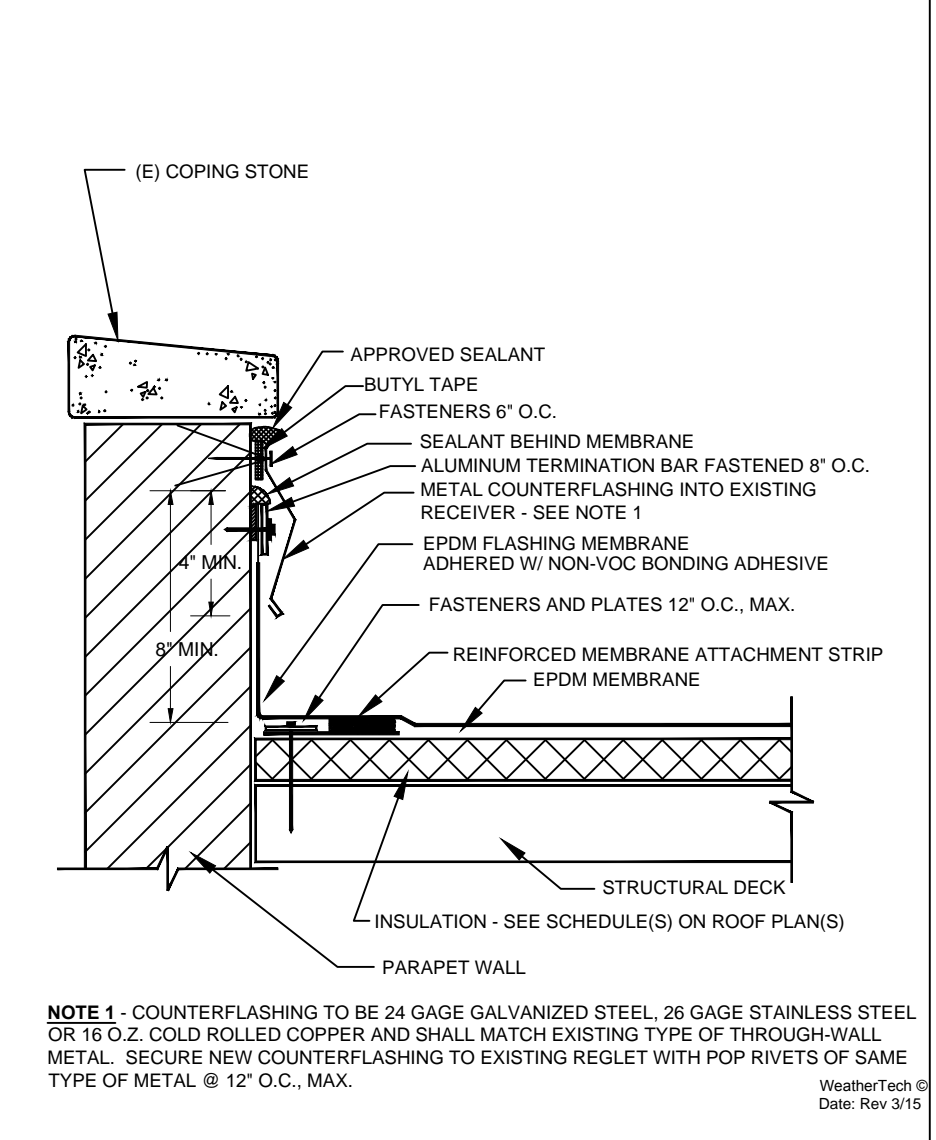
ROOF MOUNTED EXPANSION JOINT  
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4.13



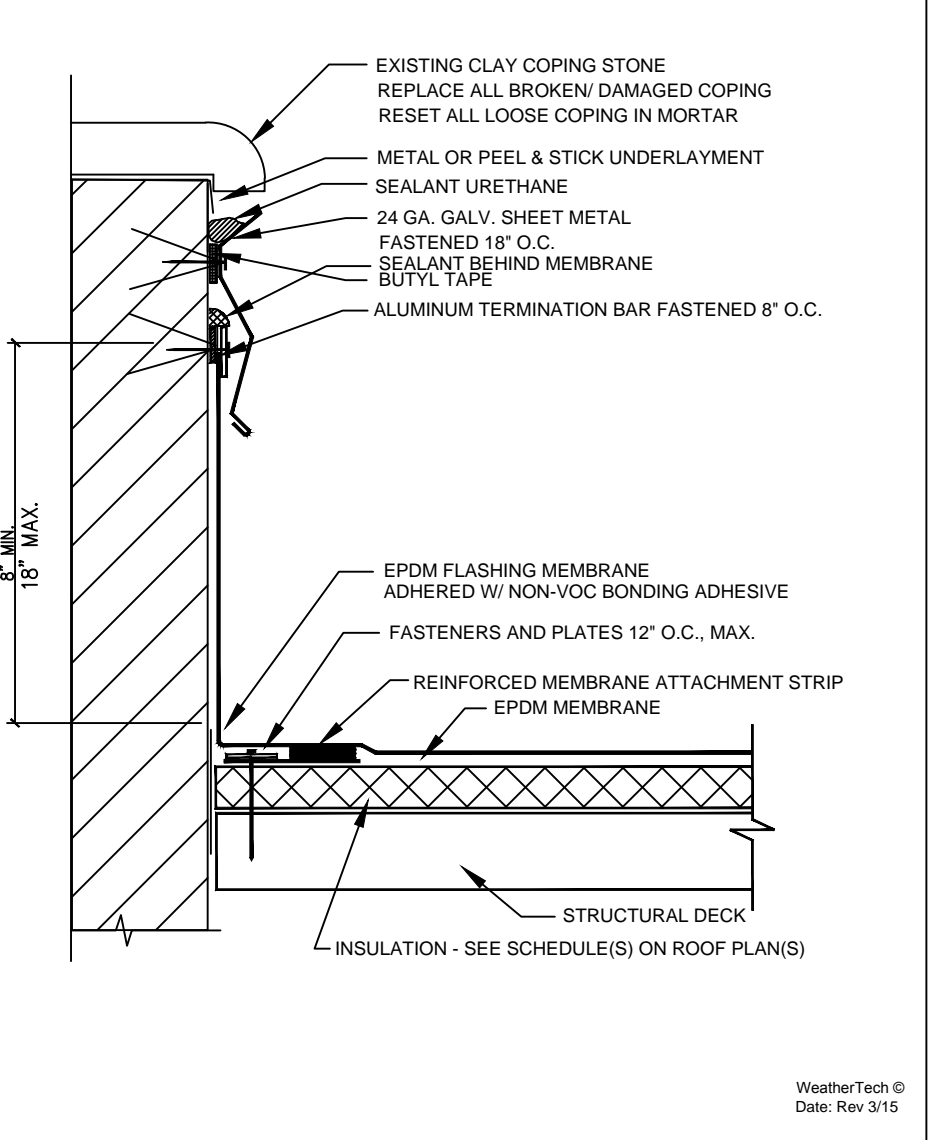
FULLY ADHERED EPDM SYSTEM OVER GYPSUM  
AND CEMENTATION WOOD FIBER DECKS  
SCALE: N.T.S.

4.14



PARAPET WALL W/COPING STONE  
W/ TERMINATION BAR  
SCALE: N.T.S.

4.15



PARAPET WALL FLASHING W/ CLAY COPING  
SCALE: N.T.S.

4.16

PROFESSIONAL



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CLIENT:

Troy School District

4400 Livernois

Troy, MI 48098

PROJECT:

Troy School District

BID 9848

2018 Roofing Program

WTPProject No:  
TSR-102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/08/17	90% Review Set
11/10/17	OTB

File Name: A8.0 - Detail Page

Drawn By: MD, GG

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SHEET TITLE

Detail Page

A8.3

Sheet 23 of 23



# ADDENDUM 1

## BID NO. 9848 Troy School District 2018 Roof Program

ADDENDUM NO.: 1	DATE: 11/20/17
<b>PROJECT IDENTIFICATION</b>	
PROJECT NAME:	<b>BID NO. 9848 Troy School District 2018 Roof Program</b>
SITE ADDRESS:	Multiple School Locations refer to Project Locations on Drawing A1.0 Cover Page
<b>ADDENDUM DESCRIPTION</b>	
<p>The following is a summary of changes to the drawings and Specifications that shall be considered as a part of your Bid. Receipt of this Addendum shall be acknowledged in the Bid submission. This Addendum consists of 9 pages Drawings: A1.0 A2.0, A2.1, A2.2, A2.3, A2.4, A2.6, A3.0, A4.0, A5.0, A6.0, A6.1, A7.0, A8.2; Sections 00300 Bid Form, 072250 Single Ply Roof Insulation.</p> <p><b>Note: Addendum 1 Drawings to be issued as full set includes all drawings for Bid Documents.</b></p>	
<b>SUMMARY OF ADDENDUM:</b>	
Item	Description
1	Troy School District, Drawing A1.0 Cover Page 1. Bid Summary: New Replacement Roof Assemblies Summary, Paragraph 2, c. revise subparagraph to read: c. Energy: Michigan Uniform Energy Code: Insulation above deck: <b>Reference individual Roof Plans</b> ; in lieu of referencing R20 only. 2. General Notes: Z revised; AE and AF New.
2	Roof Plans: A2.0, A2.1, A2.2, A2.3, A2.4, A3.0, A4.0, A5.0, A6.0, A7.0: Add to all Schedules Item paragraphs for Asbestos and Interior Protection.
3	Athens High School, Drawing A2.0, Roof Plan: A. Roof Area A 1. Revise Building Height to 30 ft. 2. Revise Key Note 10 to read Roof-Wall Expansion Joint w/ Masonry Reglet. 3. Revise Key Note 8 to read Roof to Wall Expansion Joint at Metal Wall Panel.
4	Athens High School, Drawing A2.1: Roof Area C, Roof Plan: 1. Revise Key Note 6 to read Masonry Two Piece Surface Mounted Counter Flashing 2. Add Roof D to roof work, 2400 sq. ft. 3. Add Key Note 7: Custom fabricated expansion joint. 4. Add: Existing Roof System Roof Area D info. 5. Add: Key Note: 7, Photos 50 and Key Note 5, Photo 53 to Drawing A2.1 and A2.6 Photo Page.
5	Athens High School, Drawing A2.2 Roof Area F, Roof Plan: 1. Revise New Roof System Paragraph 1. e. to include ref. to Item 7 Interior contents as necessary. Also reference Item 7 under Schedule on drawing. 2. Revise Key Note 4 to include: Increase height to accommodate new tapered insulation in KN 2.
6	Athens High School, Drawing A2.3 Roof Area I, Roof Plan: 1. Revise New Roof System Paragraph 1. e. to include interior protection per Item 7 Interior Protection coordination required to cover interior. 2. Revise Schedule Item 7: Interior protection required over partial interior area in weight roof.
7	Morse Elementary School, Roof Area C: Drawing A3.0, Roof Plan: 1. Revise New Roof System 1: Roof Area C; Section: 3: Metal Deck 2. Revise New Roof System 2: Sections 1, 2, 4: Cementitious Wood Fiber Decks Ref. Detail 4.14; <b>Note: Localized Metal Deck, Ref. Key Notes 10 and 13.</b> 3. Revise Key Note 8 Drains New: Section 4 only all others deleted. 4. Revise Key Note 10 to read: "Uneven Roof System and Deck Variations Section 2: Core cut location identified metal decking, interior inspection identified cementitious wood fiber decking. Confirm structural deck changes or repairs install Roof System 1 over metal decks and Roof System 2 over cementitious wood fiber decks." 5. Add Key Note 13: Core Cut or Interior ceiling inspection identified metal decking.





# ADDENDUM 1

## TSD – 9848 2018 Roofing Program

8	Niles Community High School , Drawing A4.0, Roof Area G, Roof Plan: 1. Revise Insulation R-value for New Roof Systems 1 and 3 to <b>R30</b> in lieu of R20. 2. New Roof System 2: Revise to include metal decking identified over partial Roof Area G Ref. Key Note 11: Metal Decks: <b>Ref Detail 1.01</b> . 3. Add: Key Note: 11. Metal Deck location identified interior inspection.		
9	Transportation; Roof Area C: Drawing A5.0, Roof Plan: 1. Revise Insulation R-value for New Roof Systems 1 and 3 to <b>R30</b> in lieu of R20. 2. Delete Tapered insulation extending from drain to perimeter edge. 3. Revise Roof System to include Vapor Barrier attached to metal deck and adhere all insulation. 4. Revise Core Cut to include vapor barrier. 5. Add: Photo 1986 Overview of building for Roof Area C.		
10	Troy High School Drawing A6.0 Roof Areas P and N: Roof Plan 1. Revise New Roof System subparagraph to read: e. Interior Ceiling: 1) Revise R-values: Roof Area P: R30 and Roof Area N remains R20 2) Roof Area P. Section 1: Interior protection: Foam acoustical tiles. Remove tiles, hang interior protection from ceiling. Reinstall acoustical tiles. 3) Roof Area P, Section 2: Drop Ceiling. 4) Roof Area N: Interior protection: Exposed ceiling over locker rooms, clean all debris on interior broom clean and cover all TSD requested items. 2. Roof Area P: Revise all Key Note numbering on call outs on drawing 3. Roof Area P, Sect 2. Include two existing drains on roof plan. 4. Roof Area P, Section 2: Add Key Notes 10, 11, 12 and 13. 5. Roof Area N2: Add Key Note 4A for new ladder, OSHA compliant, style to match Photo 76 on Drawing A6.1 Photos. 6. Roof Area N2: Add extension of roof area 25 ft. x 10' at SE corner of Drawing.		
11	Troy High School Drawing A6.1 Photo Page Roof Areas P and N: 1. Revise Drawing No. A6.2 to read A6.1. 2. Roof Area P, Sections 1 and 2: Add Photos 58, 62, 72, 75 and 76. 3. Roof Area N2: Add Photos: 89, 97and 104; Delete Photo 5483.		
12	Troy Union, Drawing 7.0 Roof Plan 1. Delete tapered insulation for Roof Area A only Key Note 15. 2. Roof Area A: Revise Key Note 5. Remove and dispose old roof hatch and interior access ladder. Fill deck with metal deck and insulation fill to match existing deck height. 3. Roof Area B, Sections 3, 4 revise to metal deck and install new roof system per detail 1.01, Sheet A8.0. 4. Roof Area B, Section 2 and partial Sec 1: Interior Protection: Exposed ceilings add Interior Protection hung from ceiling, approx. 7,000 sq. ft. contractor to confirm. 5. Roof Area A: Revise Key Note 2 to read: Clay Coping Cap Parapet: Remove clay coping cap and dispose, furnish and install 2x wood blocking, new base flashings and metal cap coping. Ref. Photos MC1, 4839. 6. Asbestos Report: Appendix 1: ACM report. Negative for ACM in project area.		
13	Spec. Section 07 22 50 Added to the Project Manual.		
14	Drawing A8.2 Details: Detail 3.02 revised to reglet mounted in lieu of surface mounted.		
15	Section: 00300 Bid Form: Revise Base Bid to include Athens Roof Area D as part of Bid Item 1.		
DESIGN TEAM LEAD:			
COMPANY:	WeatherTech Consulting Group, Inc.		
NAME:	Geof Garabedian		
ADDRESS:	7747 Auburn Road		
	Utica, MI 48317		
TELEPHONE:	(586) 731-3095	FAX:	(586) 731-6863
E-MAIL:	ggarabedian@wtcg.net		

## ADDENDUM 2

### BID NO. 9848 Troy School District 2018 Roof Program

ADDENDUM NO.: 2	DATE: 11/27/17
<b>PROJECT IDENTIFICATION</b>	
PROJECT NAME:	BID NO. 9848 Troy School District 2018 Roof Program
SITE ADDRESS:	Multiple School Locations refer to Project Locations on Drawing A1.0 Cover Page
<b>ADDENDUM DESCRIPTION</b>	
<p>The following is a summary of changes to the drawings and Specifications that shall be considered as a part of your Bid. Receipt of this Addendum shall be acknowledged in the Bid submission. This Addendum consists of 9 pages Drawings: A2.0, A6.0; Section 00300 Bid Form.</p> <p><b>Note: Addendum 1 Drawings to be issued as full set includes all drawings for Bid Documents.</b></p>	
<b>SUMMARY OF ADDENDUM:</b>	
Item	Description
1	Clarification: RFI 1: Spec. Section 07 22 50 Added to the Project Manual as noted in Addendum 1.
2	Clarification: RFI 3: Clarifying only two contractors max. will be awarded the work for the 2018 roof projects. Troy School District wanted to make clear scales of economy can be used by contractors when submitting their bids.
3	Clarification: RFI 4: Add Drawing A2.0 left out of Addendum 1
4	RFI 5: Delete: Section 000300 Bid Form: Delete: <b>Alternate No. 1</b> Athens Roof Area A, Sec. 6 from Bid description; and Delete: Alternate No. 1d from Bid
5	RFI 6: Revise Troy High School, Roof Area P, Section 1: Add additional tapered insulation as detailed in red on Drawing A6.0.
6	RFI 7: Section 000300: Revise <b>Alternate No. 2</b> language to read: Roof Area N: Sec. 2 and Roof Area P Sec. 2 only: Provide deduct to reuse salvageable insulation, (assume R10 existing and 5% nonsalvageable insulation), salvaged insulation to be mechanically attached to deck. Adhere in adhesive 1 additional layer of 1.8 in. polyisocyanurate or greater to meet minimum R20 insulation requirements. Salvage existing polyisocyanurate.
7	<p><b>The bid due date has been extended to Monday, December 4<sup>th</sup> @ 10am.</b></p> <p><i>Your proposal, and two copies, marked "<b>BID 9848 – TSD 2018 ROOFING PROGRAM</b>" must be delivered no later than 10:00 A.M., Monday, December 4, 2017, Administrative Building Troy School District, 4400 Livernois Road, Troy, Michigan 48098, at which time all bids will be publicly opened and read aloud immediately thereafter. Bid proposals received after this time will not be considered or accepted.</i></p>
8	<b>RFI due date has been extended to Wednesday, November 29<sup>th</sup> @ 10 am.</b>
9	Delete: Section 000300: Warranty: Delete Item 1: Performance Agreement.
10	Post Bid meeting with potential awarded Roofing contractors will be on Wednesday, December 6 <sup>th</sup> @ 8am and 9am. These times are unable to be changed.
DESIGN TEAM LEAD:	
COMPANY:	WeatherTech Consulting Group, Inc.
NAME:	Geof Garabedian
ADDRESS:	7747 Auburn Road
	Utica, MI 48317
TELEPHONE:	(586) 731-3095
FAX:	(586) 731-6863
E-MAIL:	ggarabedian@wtcg.net





PPROJECT SUMMARY

SUMMARY OF WORK: ref. Section 00 02 00

General: Troy School District (TSD) 2018 Roof Program work for five (5) schools and one (1) District building covering approximately 145,925 sq. ft. Roofing work includes roof replacement and restoration required to remediate all work identified in the specifications and drawings inclusive of all Bid Documents requirements.

Schedules: Ref. "PROJECT WORK SCHEDULE" on this Sheet A1.0 - Cover Page.

BID SUMMARY:

- Contractor proposal and two copies will be submitted only on the forms provided and will be enclosed in a sealed envelope marked with the name of the bidder, the title of the work, the time, place and date due and must be hand delivered or delivered by courier no later than 10:00 A.M., Wednesday, November 29, 2017, Administrative Building, Troy School District, 4400 Livernois, Troy, Michigan 48098, at which time all bids will be publicly opened and read aloud immediately thereafter. Bid proposals received after this time will not be considered or accepted. Oral, telephone, fax or electronic mail bids are invalid and will not receive consideration.
  - Bid Bond: Submit with bid five percent (5%) bid bond or certified check.
- Pre-Bid Conference: A mandatory pre-bid conference will be held at Administration Building, 4400 Livernois, Troy, MI 48098, on Monday, November 20, 2017 at 10:00 am Local Time. The roofing contractors will have access to walk the roofs on Wednesday, November 22, 2017. (Between 8am-4pm)
- Bid Form Section 000300: Bid Form to contain Base Bid including all work as specified in Bid Documents including performance (Section 000300) and payment bond (Section 000304) fees, number work days to complete work, square footages are required on Bid Form found in Section 000300.
  - Allowance expenditures shall be documented and compensated on a unit pricing basis per the Unit Pricing Bid Form (Section 000301) values provided.
- Allowances Section 012100: Allowances will be defined on individual school roof plans under "Allowances" and are to be included in Base Bid values found in Section 000300.
  - Allowance expenditures shall be documented and compensated on a unit pricing basis per the Unit Pricing Bid Form (Section 000301) values provided.
- Unit Pricing Section 004322: Unit Pricing for unit work is defined on the Unit Price Bid Form in Section 000301. Unit Pricing bid values are entered by unit price individually on form.
- Alternates Section 012300: Alternates are individually listed on school roof plans and bids for Alternates. Alternated bid value are to be entered on Bid Form (Section 000300) as enumerated.
- TSD reserves the right to issue contracts to multiple contractors.
- Any questions regarding bid specifications must be received noon, Monday, November 27, 2017. Questions must be submitted in writing on the WTC website using the online RFI form at [www.wtcgproject.net](http://www.wtcgproject.net) any questions on how to use the RFI form contact Ann Crispen at (586) 731-3095 x10 or Geof Garabedian at (586) 731-3095 x12. No response will be made to oral questions.

EXISTING ROOF SYSTEM CONSTRUCTION: ref. Roof Plans

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions.

NEW REPLACEMENT ROOF ASSEMBLY SUMMARY:

- Roof System: Ref. Roof Plan Schedules
  - Roof Membrane: EPDM, 60 mil, unreinforced and fully adhered;
  - Insulation: Min. R20, min. two layers. Top layer must be adhered.
  - Underlayment: Modified base sheet, mechanically fasten. Reference Individual Roof Plans.
  - Deck: Multiple types Reference individual Roof Plans.
  - Warranty:
    - Roof replacement: 20 yr. Materials manufacturer, No Dollar Limit materials and installation;
    - Restoration: 2 yr No leak warranty, contractor.

- Roof System Performance: Ref. Roof Plan Schedules
  - Wind : FM Global (FM): FM Standard 4470 Meets - Windstorm Classification FMG 90
  - Fire: Underwriters Laboratory External Fire Resistance - Class 1A.
  - Energy: Michigan Uniform Energy Code: Insulation above deck: Reference Individual Roof Plans.
  - Drainage: Drainage Performance Acknowledgement

RESTORATION:

Ref. School Sheet(s), RepairRestoration Manuals

- Troy Union only applies to this work.
  - Drawings of each roof area with defect locations marked on plan using 10 ft. x 10 ft.
  - All defect to be repair by designated code number for BUR NRCA manual for TSD Restoration work as revised and amended by WeatherTech Consulting Group, Inc. for completion of restoration work:
    - BUR Manual
    - Thermoplastic Repair Manual
    - Thermoset Repair Manual

GENERAL SHEET NOTES

- All work shall be executed with accordance with the appropriate document of the Contract Documents.
- Any conflicts between specifications and drawings shall be brought to the attention of the Owner and Consultant immediately. In all situations the more restrictive and higher quality shall govern.
- All dimensions to, of, and in existing building and roof shall be verified in the field by contractor. Field measure existing conditions to verify material quantities and dimensions prior to fabrication on component material.
- Details shown are typical. Similar details apply to similar conditions unless otherwise indicated.
- The drawings herein are related to an alteration/ restoration to an existing structure. The specified work was based upon as much observation, destructive testing, etc. as circumstances permitted.

GENERAL CONSTRUCTION DETAIL NOTES

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Flashing Heights: Perimeters, curbs, penetrations shall be raised as necessary to meet the new insulation heights, tapered edge strip and tapered insulation height to meet typical industry standard of 8 in. base flashing height.
- Drains Existing: Remove existing drain flashings. Furnish and install ½ inch per foot sloped tapered insulation sump area as detailed. Clean and reuse existing drains and accessories, replace all damaged, nonfunctional, incompatible, missing and broken drain components. All replacement bowls, strainers, and clamping rings shall be cast iron. All nonmetallic drains strainers shall be replaced with fitted Refer to Details 1.10 and 1.12. Overflow drains same requirements as noted above. Refer to Details 1.11 and 1.13.
- Drains New: Furnish and install new drains as indicated on drawing. New drains to tie into existing primary drain. Size to match existing up 3 in. dia. (Use 3 in. dia for bidding). Contractor to provide all drains, leaders and hook ups as necessary for fully functional drains.
- Tapered Insulation: Furnish and install new tapered insulation, crickets, saddles and kick-backs as designated on roof plan to provide a finished slope of 1/4 in/ ft slope and a min length to width ratio of 3:1. All equipment w/ curb size greater than 24 in. shall have cricket install on up slope side. Contractor responsible for identifying and notifying Consultant and Owner all existing tapered insulation not called out on plans for determination of unit costing. Verify in Pre-bid Conference additional ponded areas identified on the roof and install as noted.
- Curbs - Movable Equipment: Lift equipment from curbs; run new fully adhered membrane flashing up and over top of curb; install continuous sealing material over top of curb. Reset equipment and mechanically fasten to curb. Coordinate with Owner prior to installing equipment. Install new flashings. Metal equipment flashing and/or counter flashing must extend a minimum of 3 in. past the termination of the base flashing; add metal counter flashing as required. Refer to Details 1.17 and 1.18.
- Curbs - Non-Movable Equipment: Terminate new fully adhered membrane flashing at unit framing member. Metal equipment flashing and/or counter flashing must extend a minimum of 3 in. past the termination of the base flashing; add metal counter flashing as required. Refer to Details 1.15 and 1.16.
- Equipment on Support Curbs - Non-Movable Equipment: Cut corners of metal flashing cap, terminate new adhered membrane flashing to curb nailer. Reposition metal; install new shop fabricated corner metal, welded and set in sealant. Wire brush and apply rust inhibitive paint to rusted cap metal. Refer to Details 3.04 and 3.18.
- Equipment on Support Curbs - Movable Equipment: Raise or move equipment to furnish and install new metal cap on curb. Refer to Details 2.12.
- Round penetrations: All penetrations shall be cleaned down to surface where any sealant will contact; install new prefabricated pipe boots or field wrap with membrane. Install draw band and sealant Refer to Details 2.01, 2.02, 2.03 and 2.04.
- Heat Stacks: Reuse existing metal jacks and storm collars. Clean surfaces and apply new field wrapped EPDM flashing. Reattach and reseal storm collars. Refer to Detail 2.05.
- Steel Support Posts: Install split pipe boot or field wrap flashing with membrane. Terminate with draw band and sealant Refer to Details 2.06, 2.08, 2.09, 2.10 and 2.11.
- Prefabricated Pipe Chase Cover: Reuse existing pipe cover. Replace any damaged or missing clamping bands or sealants. Refer to Detail 3.05.
- M. Gage line and conduit support blocks: Reuse existing wood supports and sleepers. Install pads under all wood supports. Replace any damaged wood with matching wood or rubber support blocking Refer to Details 2.17 and 4.04.
- Condensate Drain Lines: Reuse, repair or replace all damaged or unusable drain lines. Add additional drain line to extend minimum 4 ft from equipment or to any drains within 20 ft. Provide manufacturer's approved splash pan/padblock where condensate drainage water would contact the roof membrane.
- Abandoned Curbs & Penetrations: Existing abandoned equipment curbs flash according to General Note C. Owner will mark all equipment to be removed and the curb capped. Remove all equipment and curbs as designated by owner and identified at the prebid conference. Where directed, remove curbs flush to deck surface, install framing and matching decking material. For abandoned curbs to remain in place, install new base flashing and install new 24 gauge sloped metal cap. Provide rain protection when removing any equipment or penetration. All small round abandoned penetrations that have no utility service as confirmed by Owner and licensed contractor shall be removed to deck patched according to deck type. Refer to Details 3.03 and 3.04.
- Pitch pans: Pitch pans can only be used when approved by Consultant. In the event they are to used furnish and install new pitch pans, clean all penetrations down to original surface, blocking required at all pitch pans. Ref. Details 2.06 and 2.07.
- Satellite Dish Ballasted Stand: Prior to moving any satellite dish coordinate with Owner and use Owner approved communications contractor to move, reset and recalibrate satellite stand. When repositioning over the new membrane. Furnish and install new pads to support satellite stand strong enough to distribute satellite weight without crushing insulation.
- Base Flashing Surface Mounted Two - Piece: Two piece is the standard for surface. Furnish and install new termination bar to match existing locations and conditions. Refer to Details 1.06 and 3.16.
- Parapet w/ Metal Cap Flashing: Furnish and install new prefinished metal coping, color as selected by Owner. For base flashings extending above 18 inches install 2-piece base and wall flashing. Ref. Details 1.05, 3.09, 3.10, 3.11 and 3.12.
- Base Flashing w/ Metal Wall Siding: Loosen and/or remove existing metal siding flashing. Install base flashing w/ term bar and sealant. Furnish and install new (or reuse functional existing) flashing metal panel and fasten siding w/ new gasketed fastener. Ref. Detail 1.09.
- Base Flashing w/ Thru-Wall Flashing: Confirm if through wall flashing has weep holes do not cover any weep holes. Reuse existing thru-wall metal flashing. Furnish and install new metal counterflashing. Repair and repaint all coping stone and mortar joints to assure watertight condition. Ref. Detail 1.07.
- Base Flashing w/ Existing Reglet: Remove existing reglet/ Furnish and install new prefinished metal coping, color as selected by Owner. Extend base flashings up and over coping. For base flashings extending above 18 inches install 2-piece base and wall flashing. Ref. Detail 1.08.
- Door Threshold: Remove threshold plate and carry flashing up over and set in water block. Before resetting threshold mechanically attach termination bar, fasten min. 6 in. o.c. Door Threshold: Remove and dispose of existing counter flashing. Roof flashing to extend up and under existing threshold plate. Furnish and install new metal counter flashing and sealant.
- Area Divider: Furnish and install new cap metal, replace damaged wood nailers. Ref. Detail 2.18. Consultant approved low profile for areas divider for separating two different types of roof systems. Ref Detail 4.13.
- Abandoned Lightning Protection: Remove all existing lightning protection cable, attachment cleats, air terminals and penetrations. Identify salvage value on bid form. Seal all holes from fasteners and lightning protection equipment left from demolition on roof top component to be left in place.
- Roof to Wall Expansion Joint: Furnish and install new metal expansion joint. Ref. Detail 3.02.
- Non-Standard Roof Transitions: Contractor to provide manufacturer written approved transition shop drawings. Roof Transition: Install new metal edge at transition; install tapered edge strip to reduce ponding at edge. Run base flashings using sheet widths in vertical run. Ref. Detail 3.06.
- Overflow scupper: Furnish and install new through-wall scupper and face frame. Face frame prefinished, size and color to match existing. Ref. Detail 1.14, 4.01, 4.02 and 4.03.
- Metal Edge: Remove existing fascia/ water dam; install new 24 gauge prefinished galvanized metal edging, standard color as selected by Owner, min. 4 in. hemmed flange. Refer to Details 1.03 and 1.04.
- Roof curb building out the sides to match the roof cap base opening: Remove existing fascia/ water dam; install new 24 gauge prefinished galvanized metal edging, standard color as selected by Owner, min. 4 in. hemmed flange. Refer to Details 1.17 and 1.18.
- Roof System Expansion Joint. Furnish and install expansion joint between different roof systems Ref. Detail 4.06
- Expansion Joint: Furnish and install new expansion Ref Detail 3.01

Project Manual

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BUR Manual
THERMOPLASTIC REPAIR MANUAL
THERMOSET REPAIR MANUAL

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PROJECT WORK SCHEDULE

School	Reroofing sq. ft.	Restoration sq. ft.	TSD 2018 Roof Work	Project Time Frame
Troy Athens HS	53,200		Roof Area C Roof Area A: Sec. 1, Sec 2, Sec. 6, Roof Area F: Sec. 3, Sec. 4, Roof Area I	6/18/18-8/17/18
Morse Elementary School	15,325		Roof Area C: Sec 1, 2, 3, 4	6/18/18-8/17/18
Niles Center	14,650		Roof Area G and H	6/18/18-8/17/18
Transportation Bldg.	1,275		Roof Area C	6/18/18-8/17/18
Troy High School	4,625		Roof Area (s) N2, P1	6/18/18-8/17/18
Troy Union Elementary School	13,100	4,400	Reroof Roof Area (s) A, B; Restoration Roof Area E	6/18/18-8/17/18
Base Bid	102,175	4,400		
Alternate Bid No. 1 Troy Athens HS	43,750		ALT. Bid Reroof Roof Area A Sec. 3, 4, 5, 6, 7, 8, 9, 10, 11	6/18/18-8/17/18
Total Roof Area (sf)	145,925	4,400		

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DIRECTORY

OWNER:  
Troy School District  
4400 Livernois  
Troy, MI 48098

CONTACT:  
Rob Carson  
Dir of Operations  
Phone: (248) 823-4067  
Email:RCarson@troy.k12.mi.us

PROJECT LOCATION:

See Project List below

Contact:  
Michelle Kern - Bond Rep  
Phone: (248) 921-3929  
Email: MKerns@troy.k12.mi.us

ROOF CONSULTANTS:  
WeatherTech Consulting Group, Inc.  
7747 Auburn Road  
Utica, Michigan 48317

CONTACT  
Geof Garabedian  
Principal/Project Manager  
Phone (586) 731-3095 ext 12  
Email: ggarabedian@wtcg.net

PROJECT LOCATIONS

Athens High School	4333 John R Rd. Troy, MI 48085
Morse Elementary School	475 Cherry Dr. Troy, MI 48083
Niles Center	201 Square Lake Rd, Troy, MI 48098
Transportation Building	120 Hart Dr Troy MI 48098
Troy High School	4777 Northfield Pkwy. Troy, MI 48098
Troy Union Elementary School	1340 E Square Lake Rd, Troy, MI 48085

PROFESSIONAL



WeatherTech

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Consulting Group, Inc.

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7747 Auburn Road  
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WEB SITE:www.wtcg.net

CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Troy School District  
**BID NO. 9848**  
2018 Roofing Program

WTProject No:

TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/06/17	90% Review Set
11/10/17	OTB
11/20/17	Addendum 1

File Name: Roof Plan

Drawn By: MD

Checked By: GG, AW, AC

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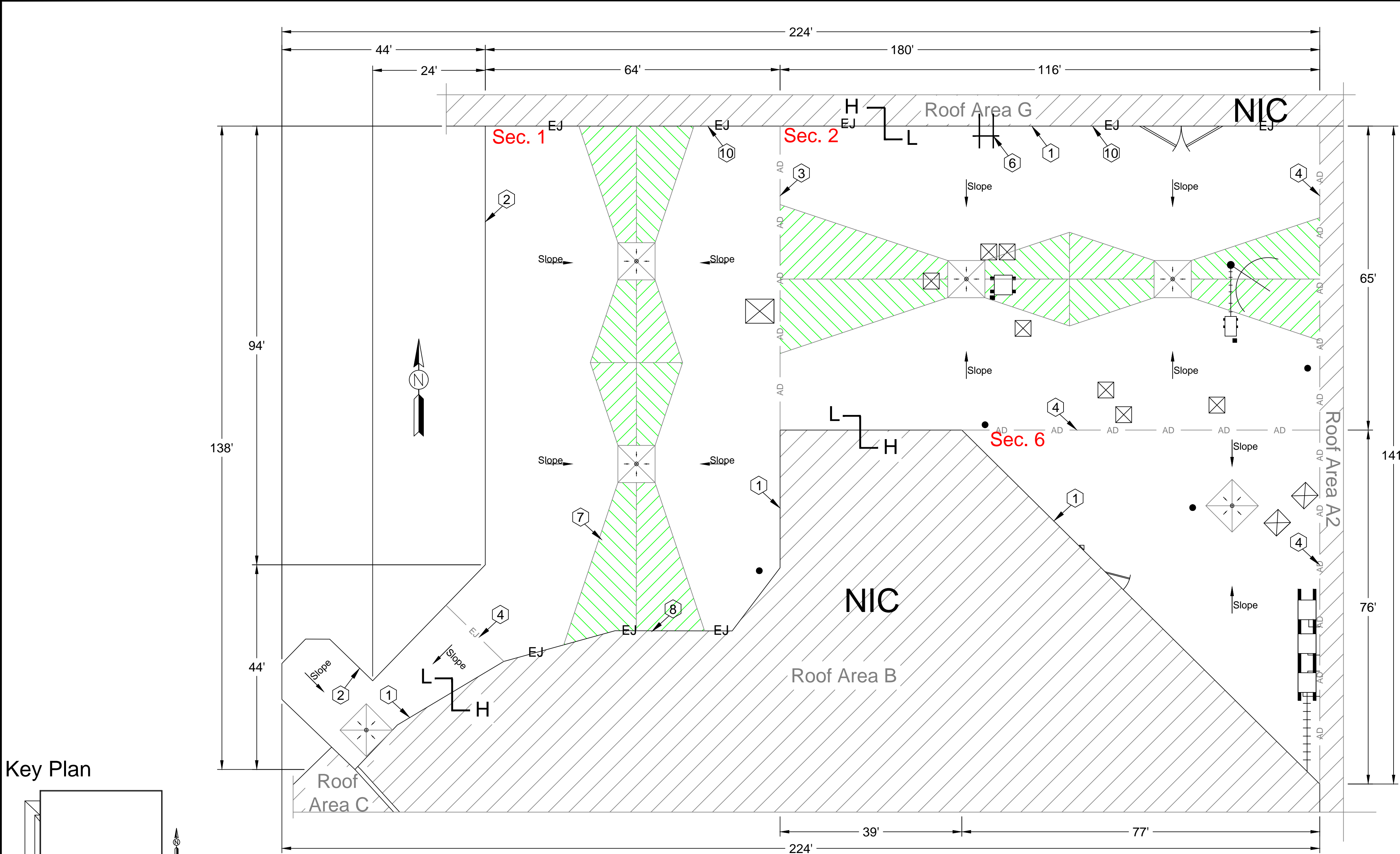
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Cover Page

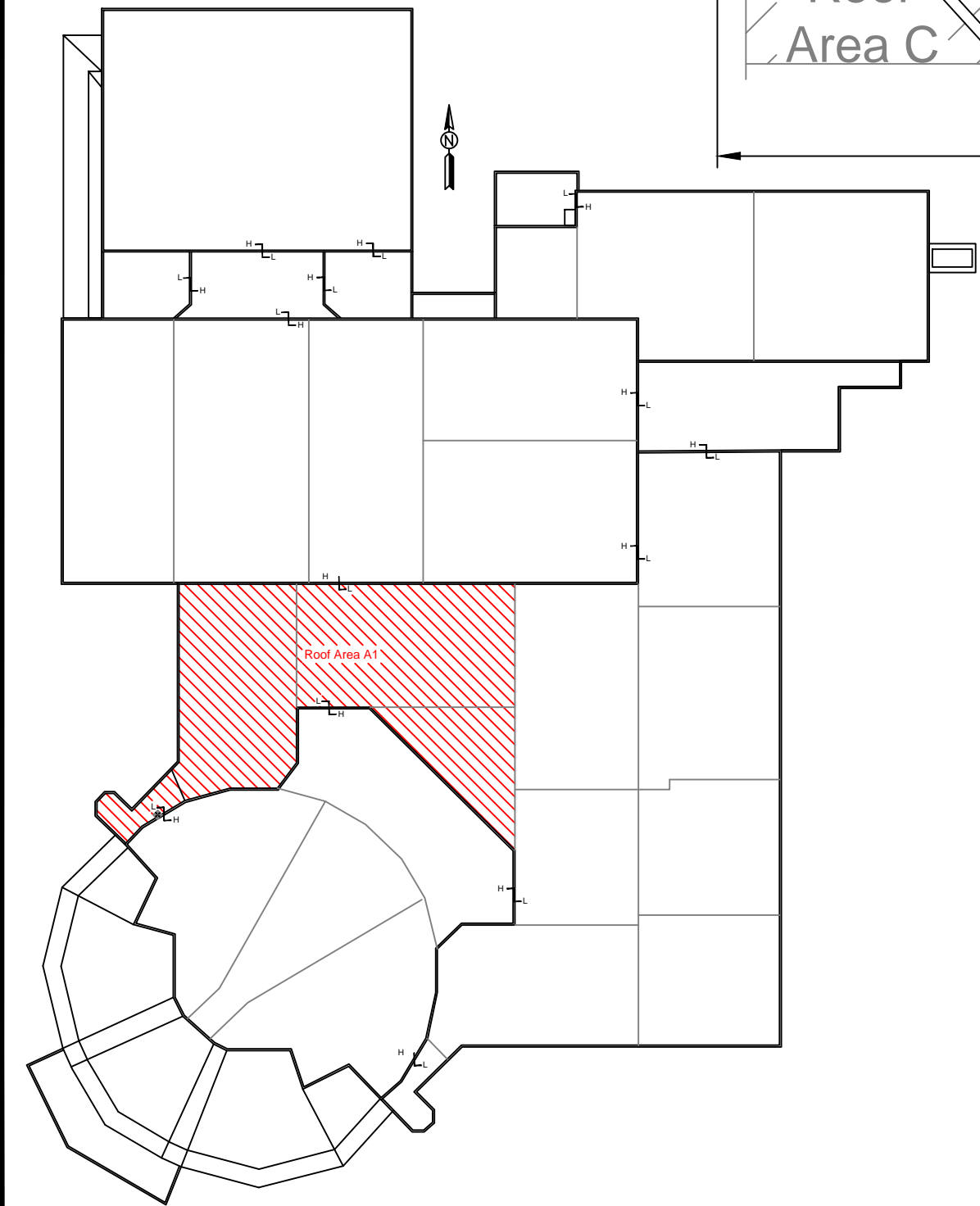
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Key Plan



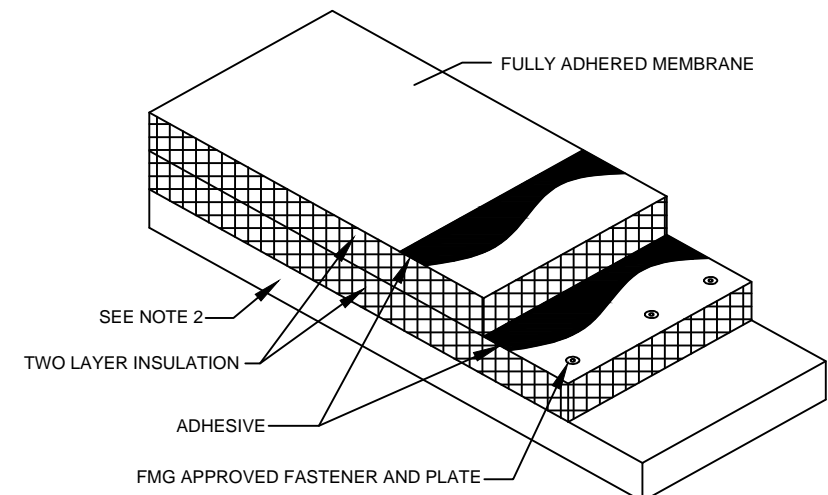
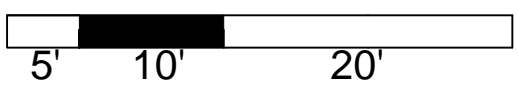
Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	[H]	Roof Hatch	[ ] [ ] [ ]	Walk Way
○	Vent Stack	[S]	Skylight	0' L +15'	Elevation Change
⊙	Insulated Pipe	[A]	Abandoned Equipment	⋈	Ladder
⊙	Insulated Stack/Pipe on Curb	⊗ OF	Overflow Drain	123	Photo Indicator
●	Screen support stanchion	⊗	Drain	01	Key Note
■	Tube/Structural Equipment Support	⊕	New Drain	⌒	Satellite Dish
■	Pitch Pan		Overflow Scupper	⊙	Core cut
■	Equip. on Support		Scupper	△ 02	Revision/Addendum
■	Equip. on Sleepers/Wood Blocking	—	Expansion Joint	▨	Tapered Insulation
⊗	Equipment Unit on Curb	G G	Gutter	[ ] [ ] [ ]	Metal Roofing
□	Duct or Flanged Equipment	R R	Ridge	[ ] [ ] [ ]	Shingles
—	Area Divider	+++	Pipe/ Conduit on Blocks	+++	Pipe/ Conduit Attached to Parapet

## Athens High School

### Roof Plan

Roof Area A, Sections 1, 2, 6

Scale:



NOTE 1: INSULATION MIN. TWO LAYERS, TOTAL RVALUE MIN. R 20. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS (ON ROOF PLANS) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.  
NOTE 2: REFERENCE ROOF PLAN SCHEDULE FOR ROOF DECK TYPE.

FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S.

WeatherTech ©  
Date: Rev 3/15

1.01

## Athens High School - Troy School District

### Sheet Notes: Roof Area A: Sections 1, 2, 6

#### Schedule

##### WORK DESCRIPTION - ROOF REPLACEMENT

Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area A: Sections 1, 2 & 6: 18,250 sq. ft.

- New Roof System
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer mechanically fasten to deck;
    - Second insulation layer adhere to first layer of insulation;
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Deck: Metal: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.

- Building Height: Ground to building edge; 30+ ft.

- EXISTING ROOF SYSTEM CONSTRUCTION**  
**All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:**

##### Core Sample Results

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
- Insulation:
  - First insulation layer Approx. 1.0 in. polyisocyanurate insulation;
  - Second insulation layer ½ in. wood fiber insulation
- Tapered Insulation: Exists in various locations.
- Deck: Metal: Multiple types, contractor to verify.

- Warranty/Guarantee
  - Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.

- Allowances: Add to base bid \$14,000 for allowances covering Unit Price and contingency items.

- ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1. Refer to Appendix 1 for asbestos testing results. No ACM

- INTERIOR PROTECTION: General:** IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.

#### General Construction Details: Ref A1.0

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

#### Key Notes:

All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Metal Walls: Remove old metal counter flashing for roof base flashing as applicable. Furnish and install new base flashing and new counter flashing. Ref. Photos 2947, 2959, BF3.
- Raised Perimeter Edge: Furnish and install new metal edge detail. Ref Photo 2940, EM3.
- Area Dividers: Furnish and install new low profile area dividers as needed to accommodate tapered insulation specified as noted on Plan. Ref. Photo 2957.
- Expansion Joint: Furnish and install new expansion joint separating Secs 2, 6 from Sec. 3, 7 (NIC). Ref. Photo P2956, BF7.
- Area Divider: Between sections 2 and 6: Ref. Photo 2957. Contractor to confirm no structural deck issues that would require area divider or Expansion joint, if not required, remove existing area divider and roof over.
- Ladders: Furnish and install new wall mounted OSHA compliant ladder;
- Tapered insulation: Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights. Ref. Photos 2947 and 2982.
- Roof to Metal Wall Panel Expansion Joint: Furnish and install new expansion joint and metal counter flashing.
- Satellite: Do not disturb position, disconnect or rotate satellite, Ref. Photo 2972.
- Roof to Wall Expansion Joint w/ Masonry Reglet: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing. Ref. Photo 2982.

## PROFESSIONAL



## WeatherTech

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FAX: 586-731-6863

EMAIL: weathertech@wtcg.net

WEB SITE: www.wtcg.net

## CLIENT:

Troy School District

4400 Livernois

Troy, MI 48098

## PROJECT:

Athens High School

4333 John R Rd.

Troy, MI 48085

Troy School District

BID NO. 9848

2018 Roofing Program

WTProject No:

TSD-R102-18

## ISSUE

DATE	DESCRIPTION
10/27/17	50%Review Set
11/06/17	90%Review Set
11/10/17	OTB
11/20/17	Addendum 1

File Name: Roof Plan

Drawn By: MD

Checked By: AW, GG, AC

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## SHEET TITLE

Athens High School,

Roof Area A, Sec 1, 2,

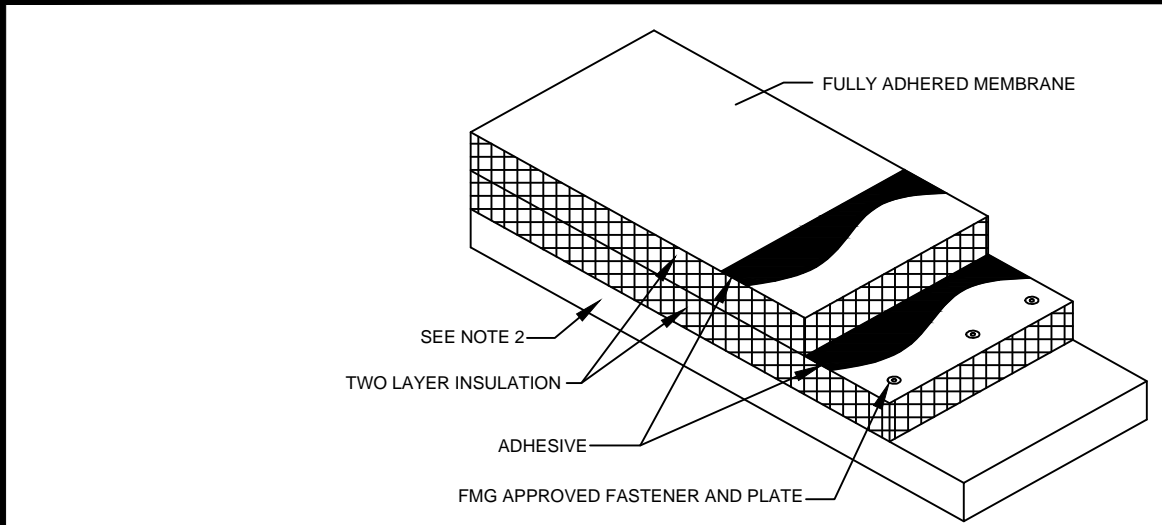
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Roof Plan

# A2.0

Sheet 2 of 23



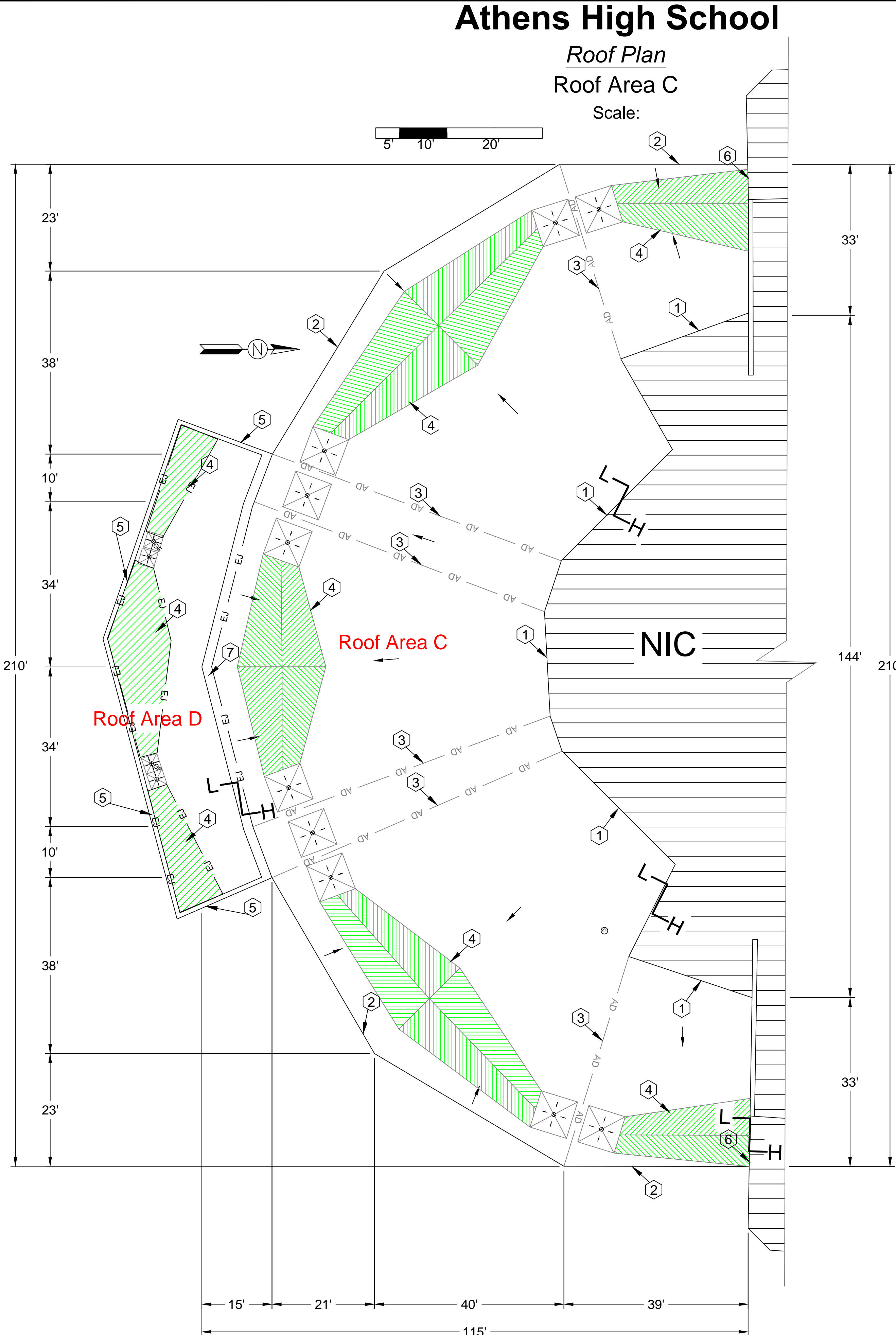
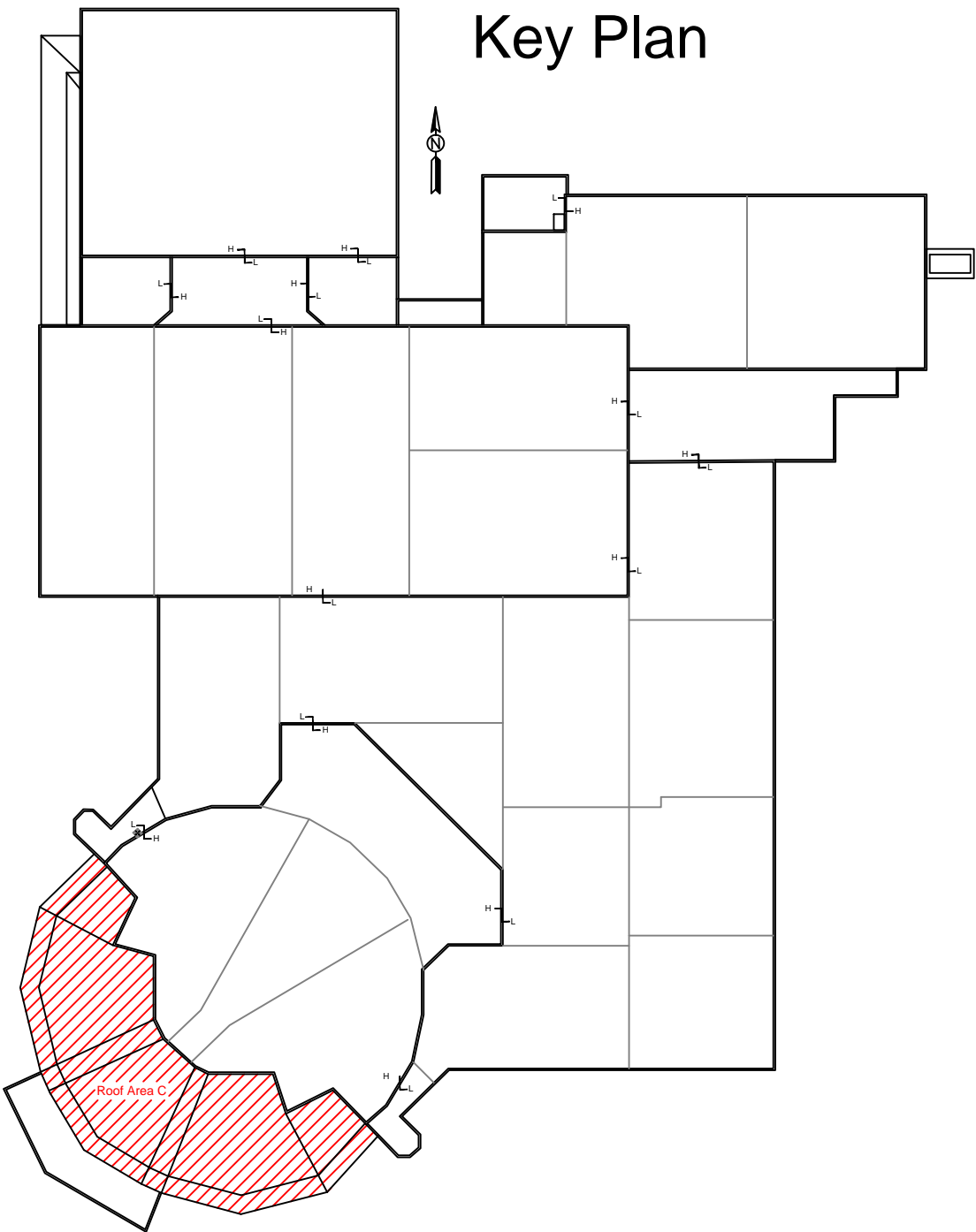


NOTE 1: INSULATION MIN. TWO LAYERS, TOTAL RVALUE MIN. R 20. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.  
NOTE 2: REFERENCE ROOF PLAN SCHEDULE FOR ROOF DECK TYPE.

FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S.

1.01

Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	H	Roof Hatch	0' 0" 15'	Walk Way
○	Vent Stack	S	Skylight	0' 0" 15'	Elevation Change
⊙	Insulated Pipe	A	Abandoned Equipment	⊕	Ladder
⊙	Insulated Stack/Pipe on Curb	⊗	Overflow Drain	123	Photo Indicator
●	Screen support stanchion	⊗	Drain	01	Key Note
■	Tube/Structural Equipment Support	⊕	New Drain	⊕	Satellite Dish
■	Pitch Pan		Overflow Scupper	⊙	Core cut
■	Equip. on Support		Scupper	02	Revision/ Addendum
■	Equip. on Sleepers/Wood Blocking	—	Expansion Joint	▨	Tapered Insulation
■	Equipment Unit on Curb	G G	Gutter		Metal Roofing
■	Duct or Flanged Equipment	R R	Ridge		Shingles
—	Area Divider	+++	Pipe/ Conduit on Blocks	+++	Pipe/ Conduit Attached to Parapet



## Athens High School - Troy School District

### Sheet Notes: Roof Area C and D

**Schedule**  
**WORK DESCRIPTION - ROOF REPLACEMENT**  
Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area C: 14,875 sq. ft. and Roof Area D: 2,400 sq. ft.

- New Roof System
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer mechanically fasten to deck;
    - Second insulation layer adhere to first layer of insulation;
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Deck: Metal: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.
- Building Height: Ground to building edge: 20+ ft.
- EXISTING ROOF SYSTEM CONSTRUCTION**  
**All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:**

Roof Area C: Core Sample Results: Two existing roofs in place  
Roof System 1: Attached to deck

- Roof Membrane: Bituminous built-up roof membrane, gravel noted.
- Insulation: variable ½ - 1 in. fiber glass insulation;
- Tapered Insulation: Exists in various locations.
- Deck: Metal: Multiple types, contractor to verify.

Roof System 2: Attached to Roof System 1

- Roof Membrane: Modified Bituminous two ply roof membrane
- Insulation: ½ fiber glass insulation.
- Tapered Insulation: Exists in various locations.

Deck: Metal: Multiple types, contractor to verify.

Roof Area D:

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
- Insulation:
  - First insulation layer Approx. 1.0 in. polyisocyanurate insulation;
  - Second insulation layer ½ in. wood fiber insulation
- Tapered Insulation: Exists in various locations.

Deck: Metal: Multiple types, contractor to verify.

- Warranty/Guarantee
  - Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.
- Allowances: Add to base bid \$14,000 for allowances covering Unit Price and contingency items.
- ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1. Refer to Appendix 1 for asbestos testing results. No ACM
- INTERIOR PROTECTION: **General:** IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.

**General Construction Details: Ref A1.0**  
Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

**Key Notes:**  
All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Metal Walls: Furnish and install new base flashing and new counter flashing, loosen wall panels to remove old counter flashing. **Ref. Photos BF2, BL2.**
- Raised Perimeter Edge: Furnish and install new metal edge detail. **Ref Photo PD1 and PD2.**
- Area Dividers: Furnish and install new low profile area dividers as needed to accommodate tapered insulation specified as noted on Plan. **Ref. Photos BF1, SR2.**
- Tapered Insulation: Furnish and install new tapered insulation between drains as detailed on plan, **Ref. Photos PD1, PD3, PD4.** Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights.
- Metal Coping: Furnish and install new base flashings and metal cap. **Ref. Photo 53**
- Masonry Two piece Surface Mounted Counter Flashing: Furnish and install new tw-piece counter flashing **Ref, Photo PD1.**
- Expansion Joint: Furnish and install custom fabrication metal cover, provide shop drawings. **Ref. Photo 50**

## PROFESSIONAL



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## CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

## PROJECT:

Athens High School  
4333 John R Rd.  
Troy, MI 48085  
  
Troy School District  
BID NO. 9848  
2018 Roofing Program

WTProject No:  
TSD-R102-18

ISSUE	
DATE	DESCRIPTION
10/27/17	50%Review Set
11/06/17	90%Review Set
11/10/17	OTB
11/20/17	Addendum 1

File Name: Roof Plan  
Drawn By: MD  
Checked By: AW, GG, AC

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## SHEET TITLE

Athens High School,  
Roof Area C,  
Roof Plan

A2.1

Sheet 3 of 23



Athens High School - Troy School District  
Sheet Notes: Roof Area F: Sections 3 & 4  
Schedule  
WORK DESCRIPTION - ROOF REPLACEMENT  
Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area A: Sections 3: 8,600 sq. ft. & Section 4: 9,275 sq. ft.

1. New Roof System  
a. Roof Membrane: EPDM, 60 mil, adhered to insulation.  
b. Insulation: R20:  
1) First insulation layer mechanically fasten to deck.  
2) Second insulation layer adhere to first layer of insulation.  
c. Tapered Insulation: Exists in various locations, see roof plan and details.  
d. Deck: Metal: Repair as necessary to comply w/ building codes.  
e. Interior Ceiling: Exposed decking coordinate daily roof work w/ school personnel to cover interior items w/ protective covering.
2. Building Height: Ground to building edge: 20+ ft.
3. EXISTING ROOF SYSTEM CONSTRUCTION  
All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:
- Core Sample Results  
a. Roof Membrane: Gravel surfaced bituminous built-up roof membrane  
b. Insulation:  
1) First insulation layer Approx. 1.0 in. polyisocyanurate insulation.  
2) Second insulation layer ½ in. wood fiber insulation  
c. Tapered Insulation: Exists in various locations.  
d. Deck: Metal: Multiple types, contractor to verify.
4. Warranty/Guarantee  
a. Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.
5. Allowances: Add to base bid \$15,000 for allowances covering Unit Price and contingency items.
6. ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1. Refer to Appendix 1 for asbestos testing results. No ACM
7. INTERIOR PROTECTION: **General:** IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.  
a. Interior protection may be required over sensitive equipment and interior contents, contractor to coordinate daily to provide interior protection as needed.

General Construction Details: Ref A1.0  
Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Key Notes:  
All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.
1. Roof to Wall Expansion Joint: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing. Ref. Detail 3.02 and Photo 3139, 3140.
2. Tapered Insulation: Furnish and install in tapered insulation as detailed; Raise Area Divider heights at existing area dividers to accommodate height as necessary. Confirm height at roof edge of Sec 4. Ref. Photos 3271, 3128.
3. Cable Penetration: Furnish and install prefab flashing detail. Ref. Photo 3126.
4. Perimeter Raised Edge. Furnish and install new metal edge detail. Ref. Photo 3133A. Increase height to accommodate new tapered insulation in KN 2.
5. Stack Penetration: Furnish and install new metal stack flashing and storm collar. Ref. Photo 3125.
6. Abandon Curbs: Confirm Owner approval to remove and marked in orange paint Remove and repair deck. Ref. Photo 3122 .
7. Ladder down to RA E: Furnish and install new OSHA compliant ladder.
8. Area Divider Tie-in Sections 3 and 2: Furnish and install new area divider, increase height to accommodate new tapered insulation in KN 2.

PROFESSIONAL



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Troy School District  
BID NO. 9848  
2018 Roofing Program

WTProject No:  
TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50%Review Set
11/06/17	90%Review Set
11/10/17	OTB
11/20/17	Addendum 1

File Name: Roof Plan

Drawn By: MD

Checked By: AW, GG, AC

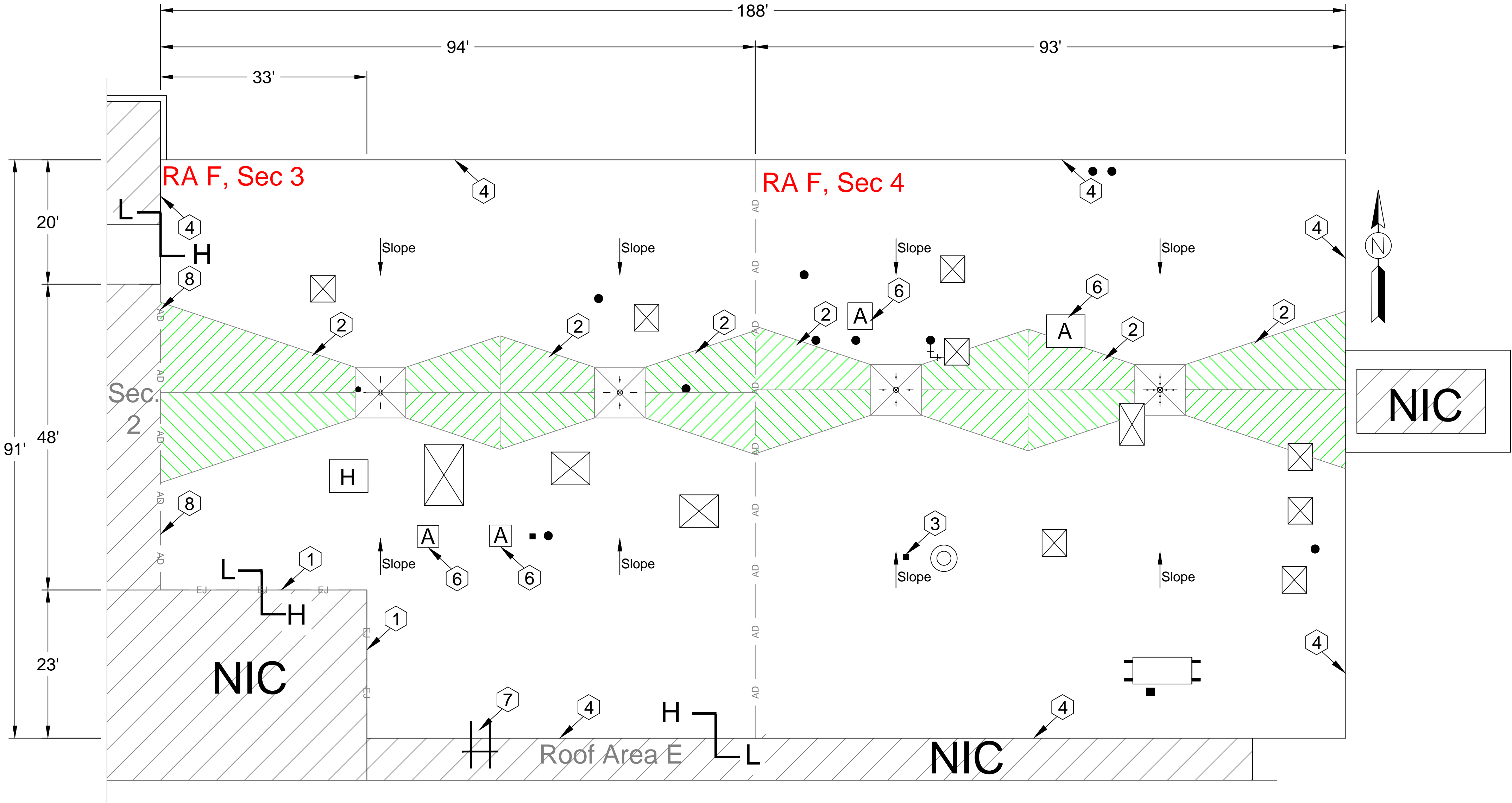
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SHEET TITLE

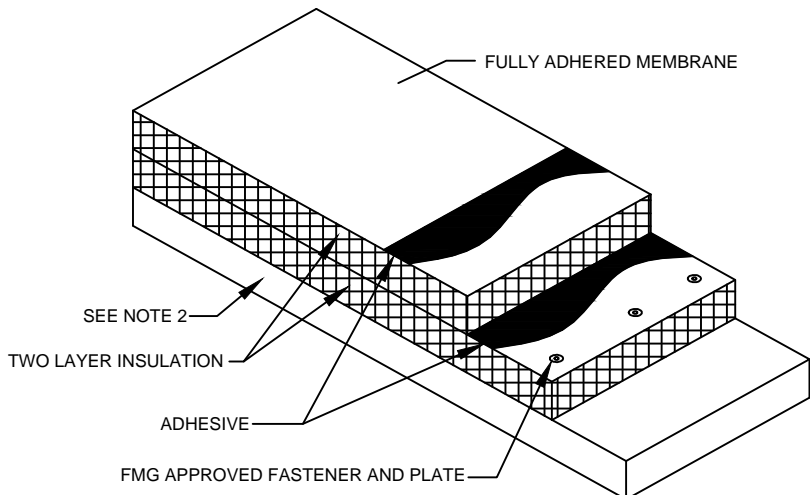
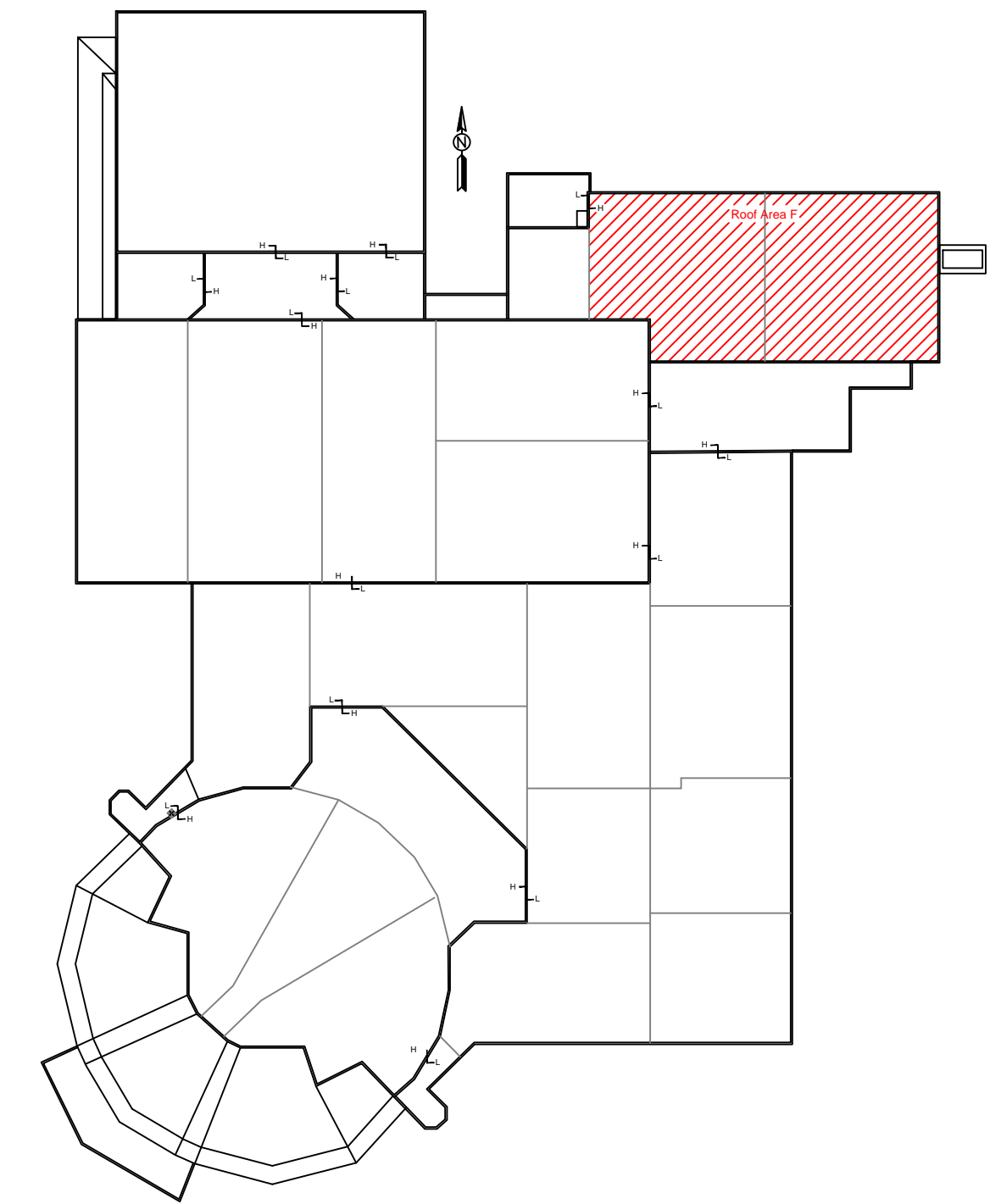
Athens High School,  
Roof Area F: Sec 3  
and 4,  
Roof Plan

A2.2

Sheet 4 of 23



Key Plan



NOTE 1: INSULATION MIN. TWO LAYERS, TOTAL R-VALUE MIN. R 20. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.  
NOTE 2: REFERENCE ROOF PLAN SCHEDULE FOR ROOF DECK TYPE.

FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S.

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Date: Rev 3/15

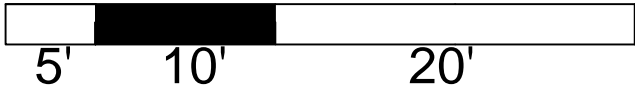
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Athens High School

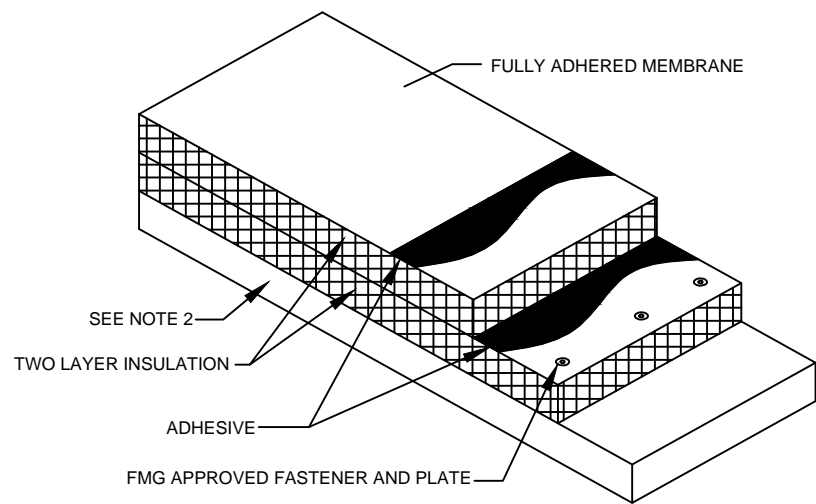
Roof Plan

Roof Area F: Sec 3 and 4

Scale:







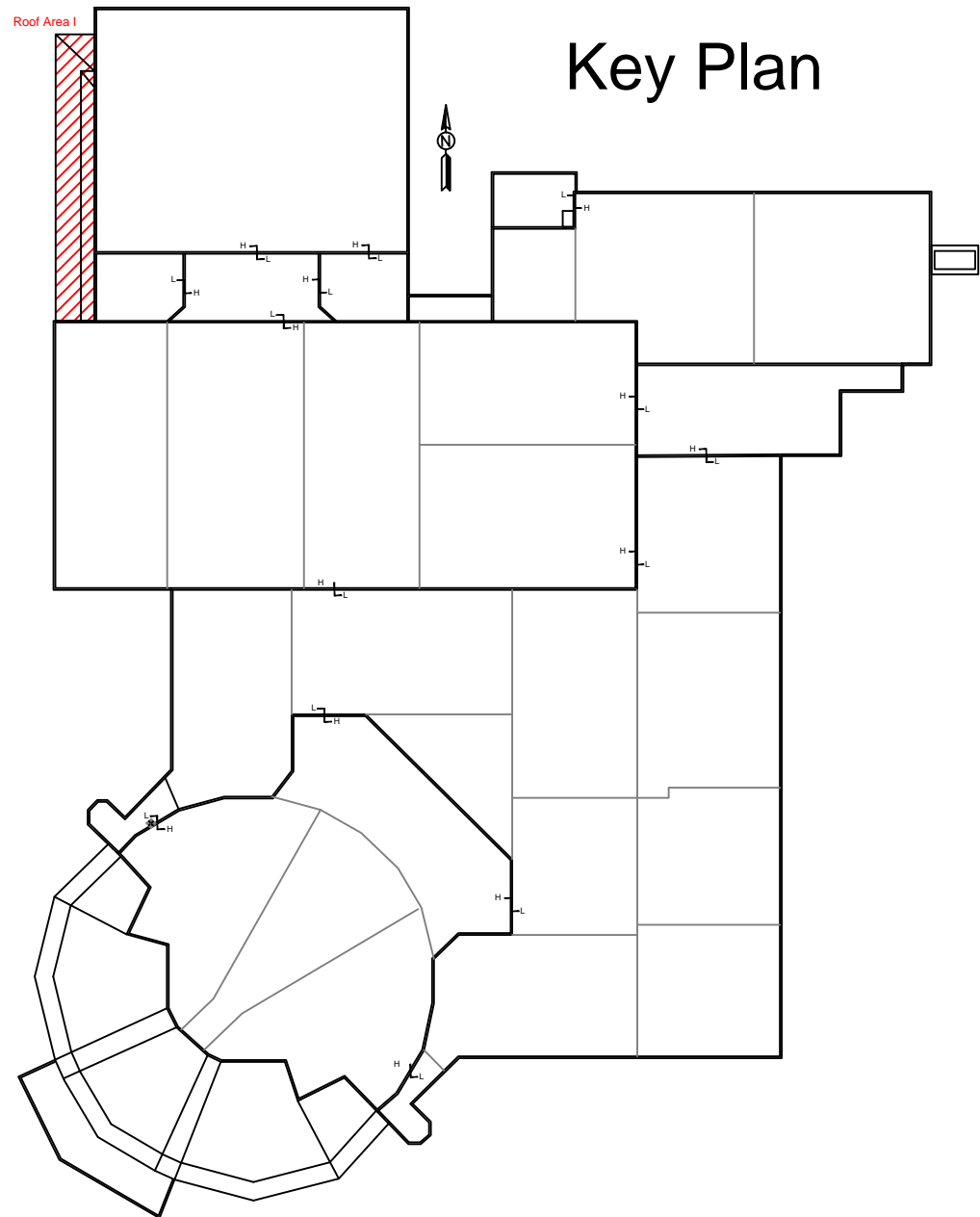
**NOTE 1:** INSULATION MIN. TWO LAYERS; TOTAL R-VALUE MIN. R-20. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.  
**NOTE 2:** REFERENCE ROOF PLAN SCHEDULE FOR ROOF DECK TYPE.

WeatherTech ©  
Date: Rev 3/15

FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S.

1.01

Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	H	Roof Hatch	▤ ▥ ▦	Walk Way
○	Vent Stack	S	Skylight	0' ↗ +15'	Elevation Change
⊙	Insulated Pipe	A	Abandoned Equipment	⋈	Ladder
⊙	Insulated Stack/Pipe on Curb	⊗ OF	Overflow Drain	123	Photo Indicator
●	Screen support stanchion	⊗	Drain	01	Key Note
■	Tube/Structural Equipment Support	⊕	New Drain	↻	Satellite Dish
■	Pitch Pan		Overflow Scupper	©	Core cut
■	Equip. on Support		Scupper	△ 02	Revision/ Addendum
■	Equip. on Sleepers/Wood Blocking	—	Expansion Joint	▨	Tapered Insulation
⊗	Equipment Unit on Curb	G G	Gutter	▤ ▥ ▦	Metal Roofing
□	Duct or Flanged Equipment	R R	Ridge	▤ ▥ ▦	Shingles
—	Area Divider	+++	Pipe/ Conduit on Blocks	ttt	Pipe/ Conduit Attached to Parapet

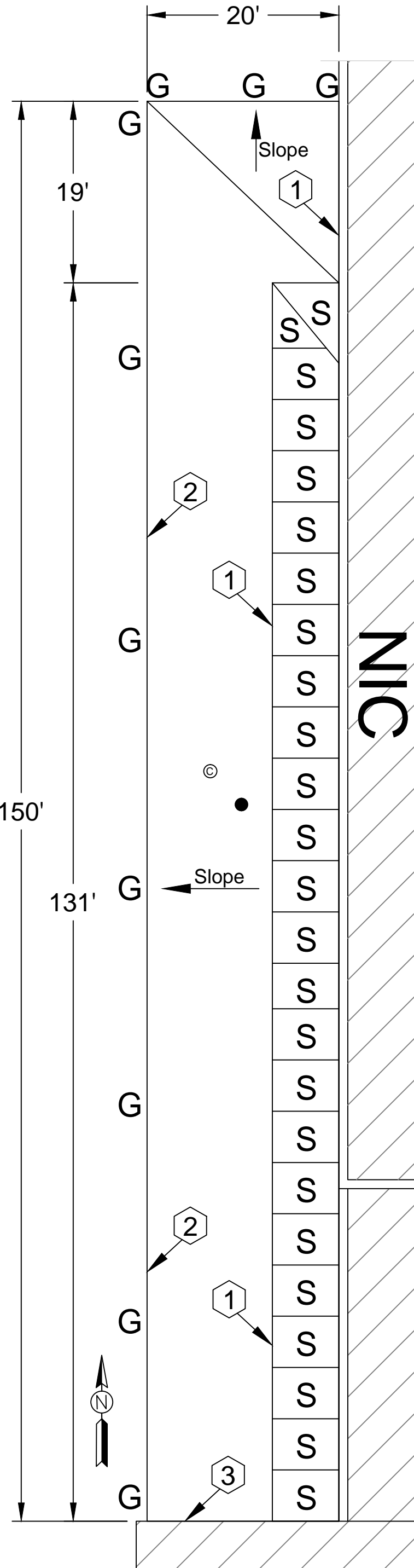


## Athens High School

### Roof Plan

#### Roof Area I

Scale:



### Athens High School - Troy School District

#### Sheet Notes: Roof Area I

##### Schedule

###### WORK DESCRIPTION - ROOF REPLACEMENT

Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warrantied roof system. Approx. Roof Area I: 3,000 sq. ft.

- New Roof System
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer mechanically fasten to deck;
    - Second insulation layer adhere to first layer of insulation;
  - Tapered Insulation: Exists in various locations; see roof plan and details.
  - Deck: Metal: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Exposed and drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist. Ref. Item 7 on Schedule for Interior Protection requirements.

- Building Height: Ground to building edge: 20 ft.

###### EXISTING ROOF SYSTEM CONSTRUCTION

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:

- Core Sample Results: Two existing roofs in place  
Roof System 1: Attached to deck
- Roof Membrane: Gravel surfaced bituminous built-up roof membrane, gravel noted.
  - Insulation:
    - First insulation layer Approx. 1.0 in. polyisocyanurate insulation.
    - Second insulation layer ½ in. wood fiber insulation.
  - Tapered Insulation: Exists in various locations.
  - Deck: Metal: Multiple types, contractor to verify.

###### Roof System 2: Attached to Roof System 1

- Roof Membrane: Modified Bituminous two ply roof membrane
- Insulation: ½ fiber glass insulation.
- Tapered Insulation: Exists in various locations.

- Warranty/Guarantee
  - Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.

- Allowances: Add to base bid \$9,000 for allowances covering Unit Price and contingency items.

- ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1. Refer to Appendix 1 for asbestos testing results. No ACM

- INTERIOR PROTECTION: **General:** IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.
  - Partial Exposed Ceiling: Interior protection required, contractor to verify area in weight room and assume interior protection to be hung from ceiling.

#### General Construction Details: Ref A1.0

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

#### Key Notes:

All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

##### A. Overview photo 3305

- Metal Walls: Furnish and install new base flashing and new counter flashing, loosen wall panels to remove old counter flashing. **Photo BF2 and BF3** no fasteners to loosen counter flashing.
- Gutters: Furnish and install new gutters. **Ref. Photo DR1.**
- Masonry Reglet: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing.

## PROFESSIONAL



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## CLIENT:

Troy School District

4400 Livernois

Troy, MI 48098

## PROJECT:

Athens High School

4333 John R Rd.

Troy, MI 48085

Troy School District

BID NO. 9848

2018 Roofing Program

WTPProject No:

TSD-R102-18

## ISSUE

DATE	DESCRIPTION
10/27/17	50%Review Set
11/06/17	90%Review Set
11/10/17	OTB
11/20/17	Addendum 1

File Name: Roof Plan

Drawn By: MD

Checked By: AW, GG, AC

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## SHEET TITLE

Athens High School,

Roof Area I,

Roof Plan

# A2.3

Sheet 5 of 23

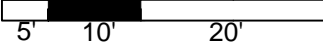


# Athens High School

## Roof Plan

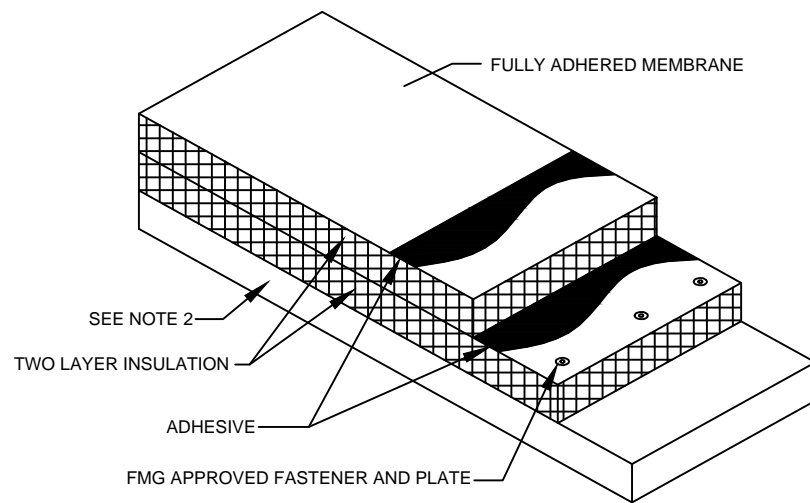
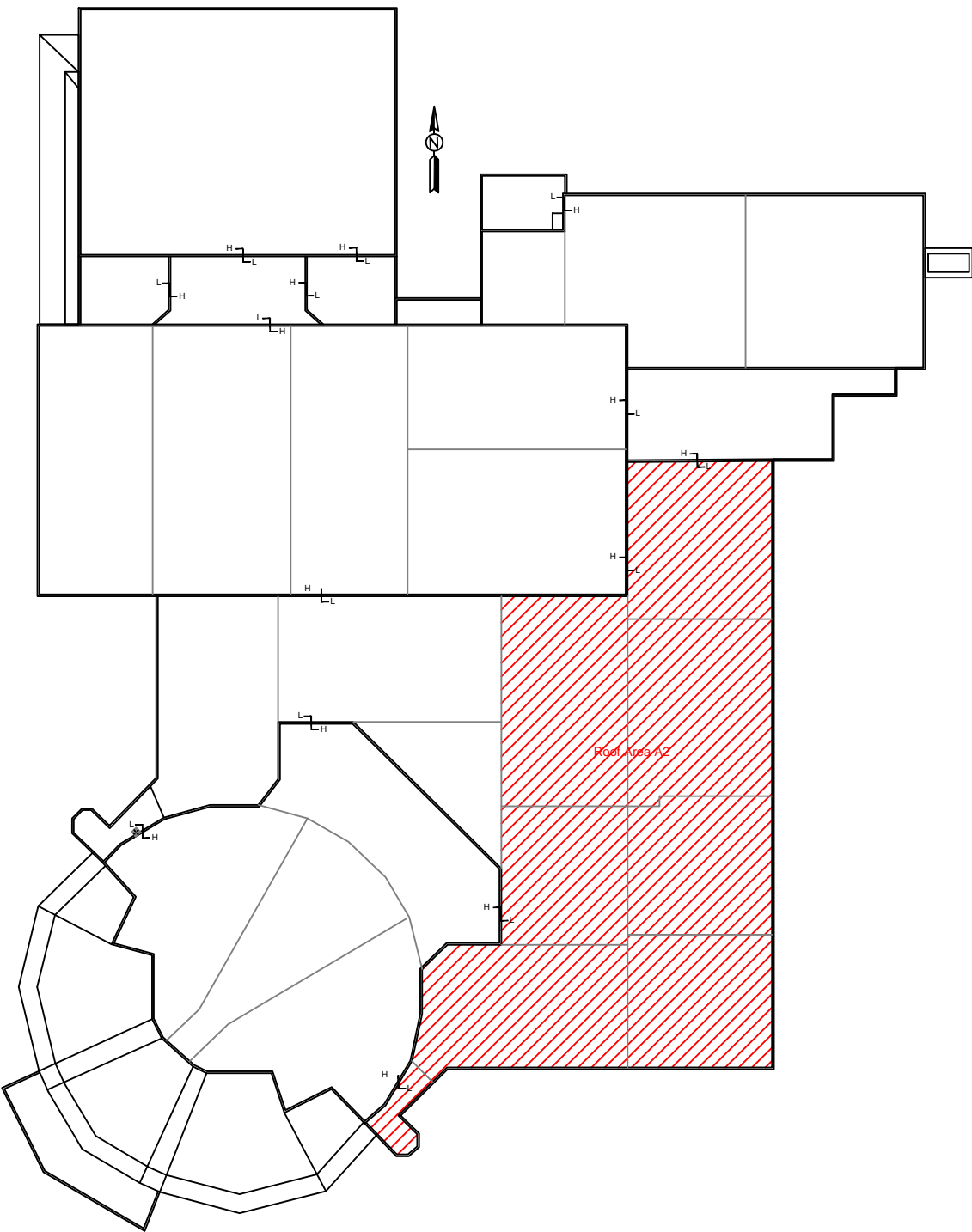
Alternate No. 1: Roof Area A, Sec 3, 4, 5, 7, 8, 9, 10, 11

Scale:



Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	[H]	Roof Hatch	[ ] [ ] [ ]	Walk Way
○	Vent Stack	[S]	Skylight	0' L +15'	Elevation Change
⊙	Insulated Pipe	[A]	Abandoned Equipment	⊢	Ladder
⊙	Insulated Stack/Pipe on Curb	⊗ OF	Overflow Drain	123	Photo Indicator
●	Screen support stanchion	⊗	Drain	01	Key Note
—	Tube/Structural Equipment Support	⊕	New Drain	⌒	Satellite Dish
■	Pitch Pan		Overflow Scupper	⊙	Core cut
[ ]	Equip. on Support		Scupper	△ 02	Revision/ Addendum
[ ]	Equip. on Sleepers/Wood Blocking	—	Expansion Joint	[ ]	Tapered Insulation
⊗	Equipment Unit on Curb	G G	Gutter	[ ]	Metal Roofing
[ ]	Duct or Flanged Equipment	R R	Ridge	[ ]	Shingles
—	Area Divider	+++	Pipe/ Conduit on Blocks	+++	Pipe/ Conduit Attached to Parapet

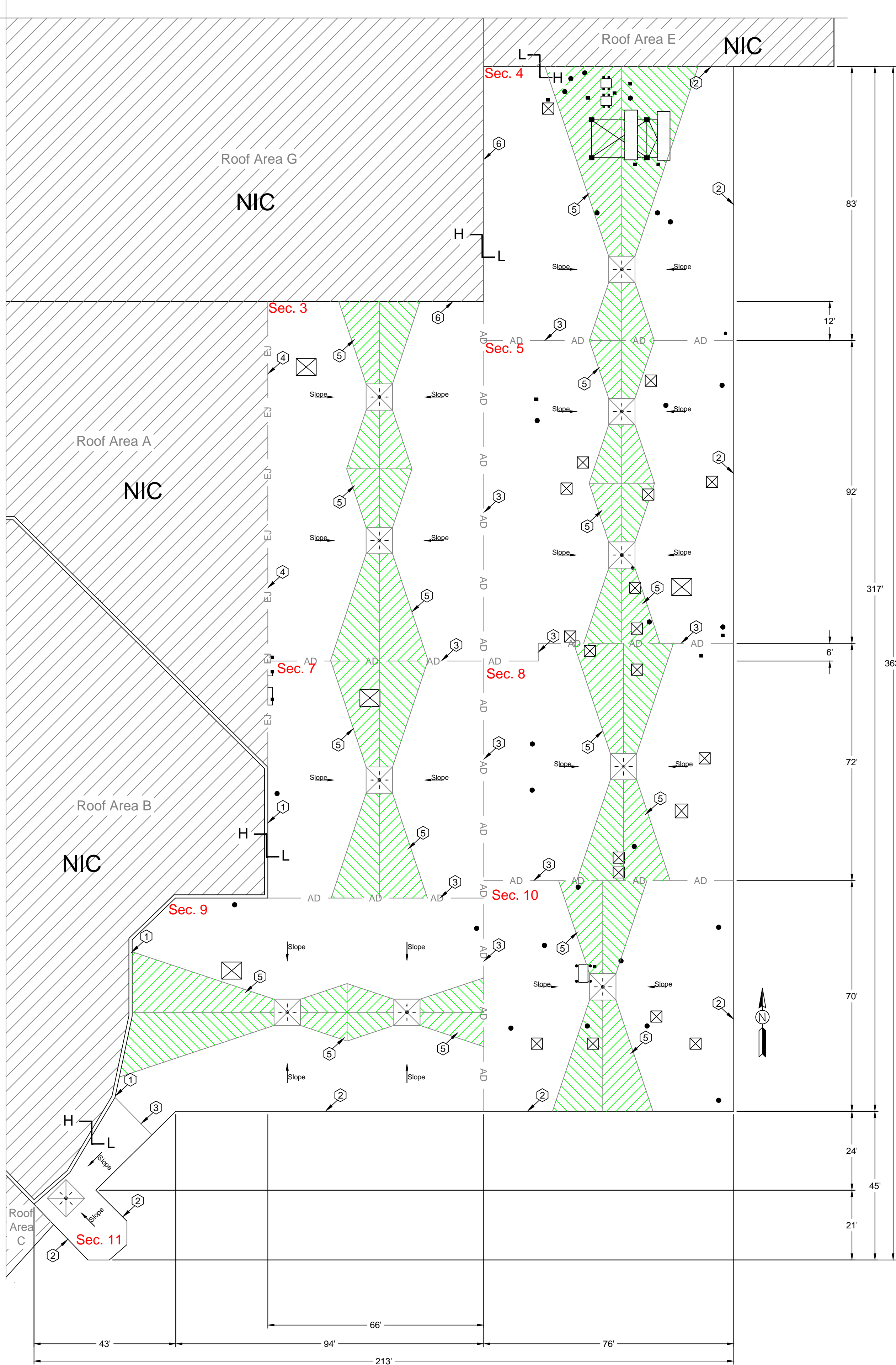
## Key Plan



NOTE 1: INSULATION MIN. TWO LAYERS, TOTAL R-VALUE MIN. R 20. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.  
NOTE 2: REFERENCE ROOF PLAN SCHEDULE FOR ROOF DECK TYPE.

FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S.

1.01



## Athens High School - Troy School District

### Sheet Notes: ALTERNATE NO. 1

#### Roof Area A: Sections 3, 4, 5, 7, 8, 9, 10, 11

#### Schedule

#### WORK DESCRIPTION - ROOF REPLACEMENT ALTERNATE NO.1

Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area A: Sections 3, 4, 5, 7, 8, 9, 10, 11: 43,750 sq. ft.

- New Roof System
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer mechanically fasten to deck.
    - Second insulation layer adhere to first layer of insulation.
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Deck: Metal: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.

- Building Height: Ground to building edge: 16 ft.

#### 3. EXISTING ROOF SYSTEM CONSTRUCTION

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:

#### Core Sample Results

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
- Insulation:
  - First insulation layer Approx. 1.0 in. polyisocyanurate insulation.
  - Second insulation layer ½ in. wood fiber insulation
- Tapered Insulation: Exists in various locations.
- Deck: Metal: Multiple types, contractor to verify.

#### 4. Warranty/Guarantee

- Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.

- Allowances: Add to base bid \$32,000 for allowances covering Unit Price and contingency items.

- ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1. Refer to Appendix 1 for asbestos testing results. No ACM

- INTERIOR PROTECTION: **General:** IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.
  - Interior protection may be required over sensitive equipment and interior contents, contractor to coordinate daily to provide interior protection as needed.

#### General Construction Details: Ref A1.0

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

#### Key Notes:

All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Metal Walls: Remove old metal counter flashing for roof base flashing as applicable. Furnish and install new base flashing and new counter flashing. Ref. Photos 2947, 2959, BF3.
- Raised Perimeter Edge: Furnish and install new metal edge detail. Ref Photo 2940, EM3.
- Area Dividers: Furnish and install new low profile area dividers as needed to accommodate tapered insulation specified as noted on Plan. Ref. Photo 2957.
- Expansion Joint: Furnish and install new expansion joint separating Secs 3, 7 from Sec. 2, 6. Ref. Photo P2956, BF7.
- Tapered insulation: Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights. Ref. Photos 2947 and 2982.
- Masonry Reglet: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing. Ref. Photo 2982.

## PROFESSIONAL



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## CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

## PROJECT:

Athens High School  
4333 John R Rd.  
Troy, MI 48085

Troy School District  
BID NO. 9848  
2018 Roofing Program

WTProject No:  
TSD-R102-18

## ISSUE

DATE	DESCRIPTION
10/27/17	50%Review Set
11/06/17	90%Review Set
11/10/17	OTB

File Name: Roof Plan

Drawn By: MD

Checked By: AW, GG, AC

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## SHEET TITLE

Athens High School,  
Alt No. 1:Roof Area A:  
Sec 3, 4, 5, 7, 8, 9, 10,  
11  
Roof Plan

# A2.4

Sheet 6 of 23



Athens High School - Roof Area A, Sec. 1, 2 and 6



BF3



BF7



EM3



2940



2947



2956



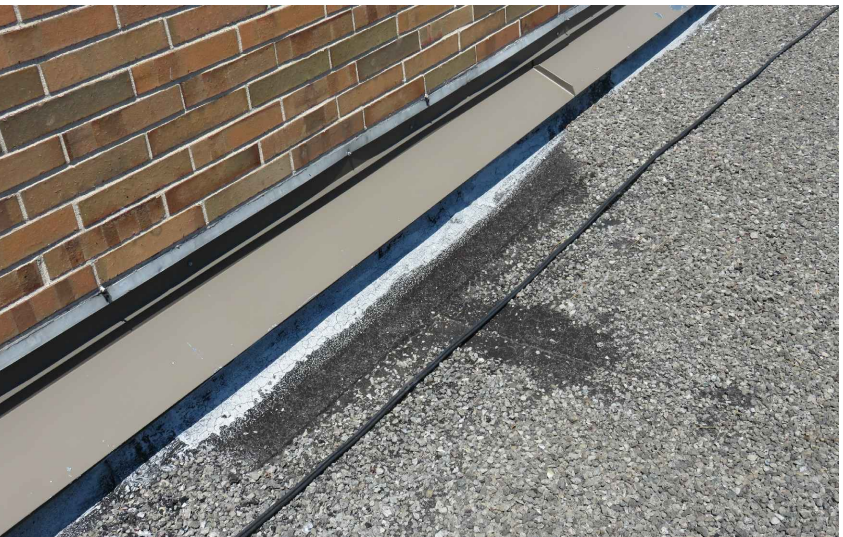
2957



2959



2972



2982

Athens High School - Roof Area C



BF1



BF2



BL2



PD1



PD2



PD3



PD4



SR2

Athens High School - Roof Area D



P50



P53

Athens High School - Roof Area F, Sec 3 and 4



3122



3125



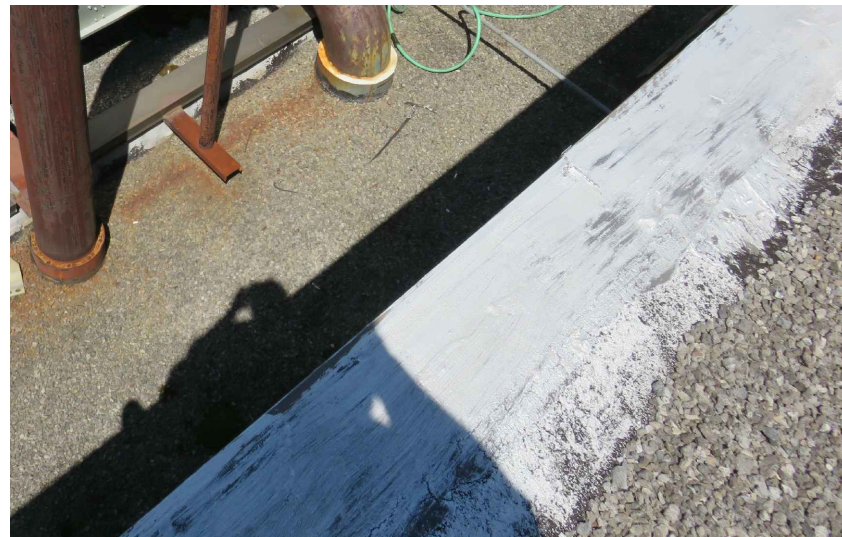
3126



3271



3128



3133A

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Troy, MI 48085

Troy School District  
BID NO. 9848  
2018 Roof Program

WTPProject No:  
TSD-R102-17

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/06/17	90% Review Set
11/10/17	OTB
11/20/17	Addendum 1

File Name: Photo Page

Drawn By: MD

Checked By: GG, AC, AW

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SHEET TITLE

Athens High School  
Photo Page

A2.6

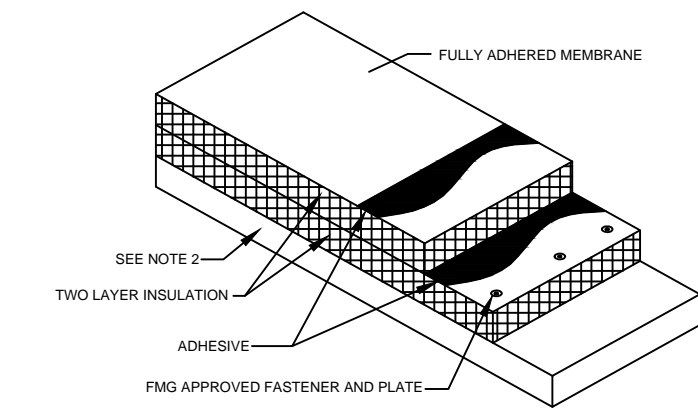


Morse Elementary School

Roof Plan

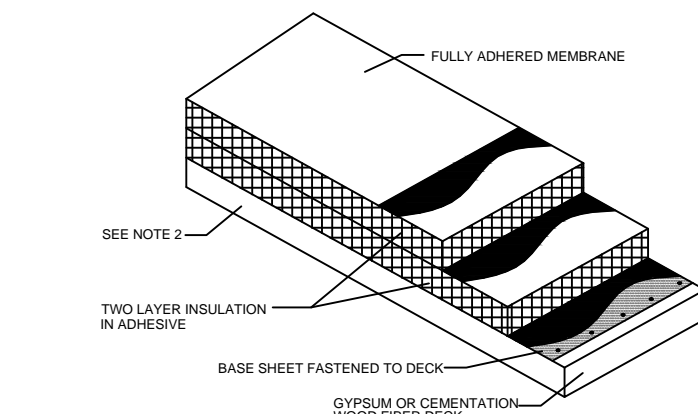
Roof Area C

Scale:



NOTE 1: INSULATION MIN. TWO LAYERS, TOTAL R-VALUE MIN. R-20. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS (ON ROOF PLANS) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.  
NOTE 2: REFERENCE ROOF PLAN SCHEDULE FOR ROOF DECK TYPE.

FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S. 1.01

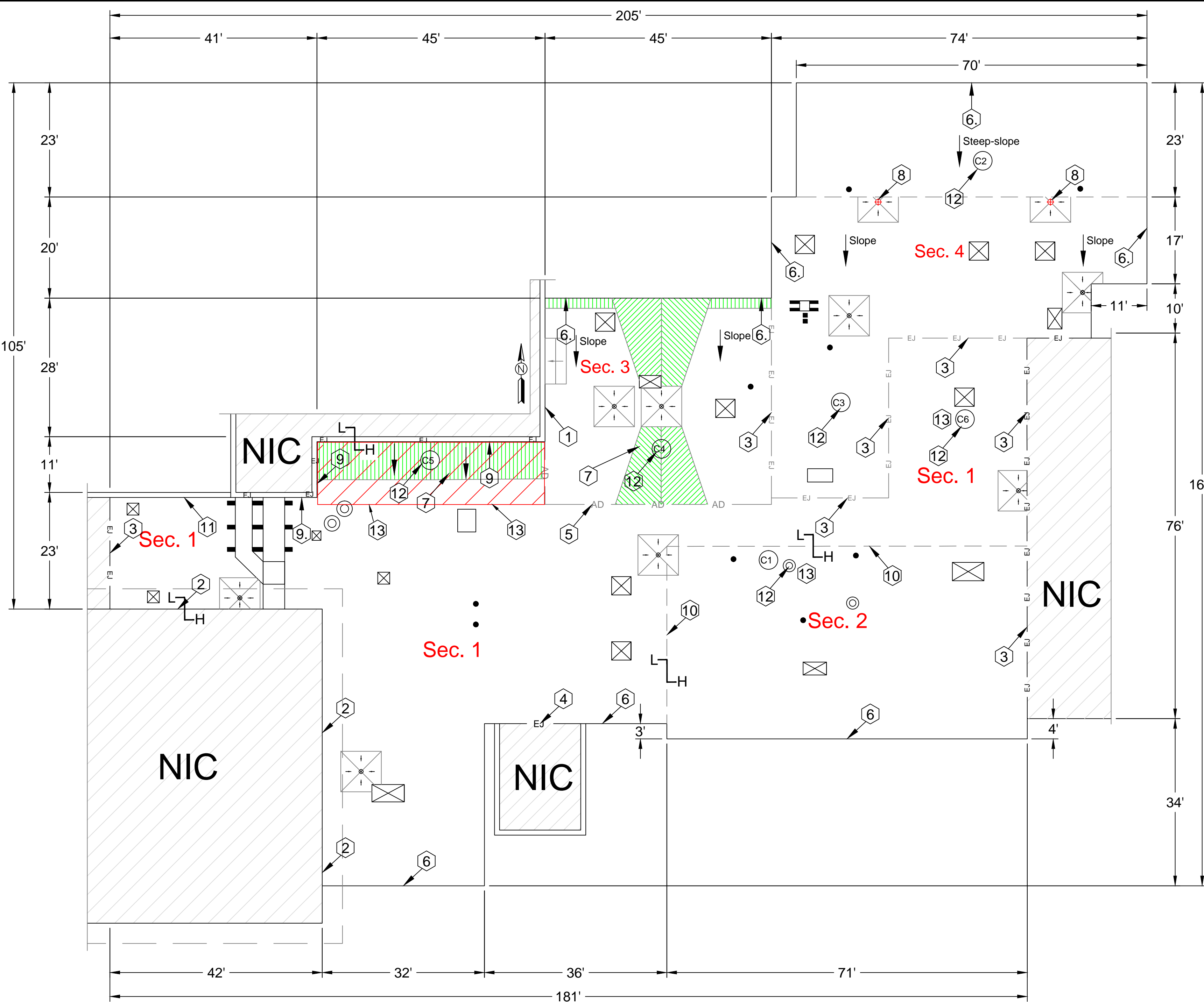
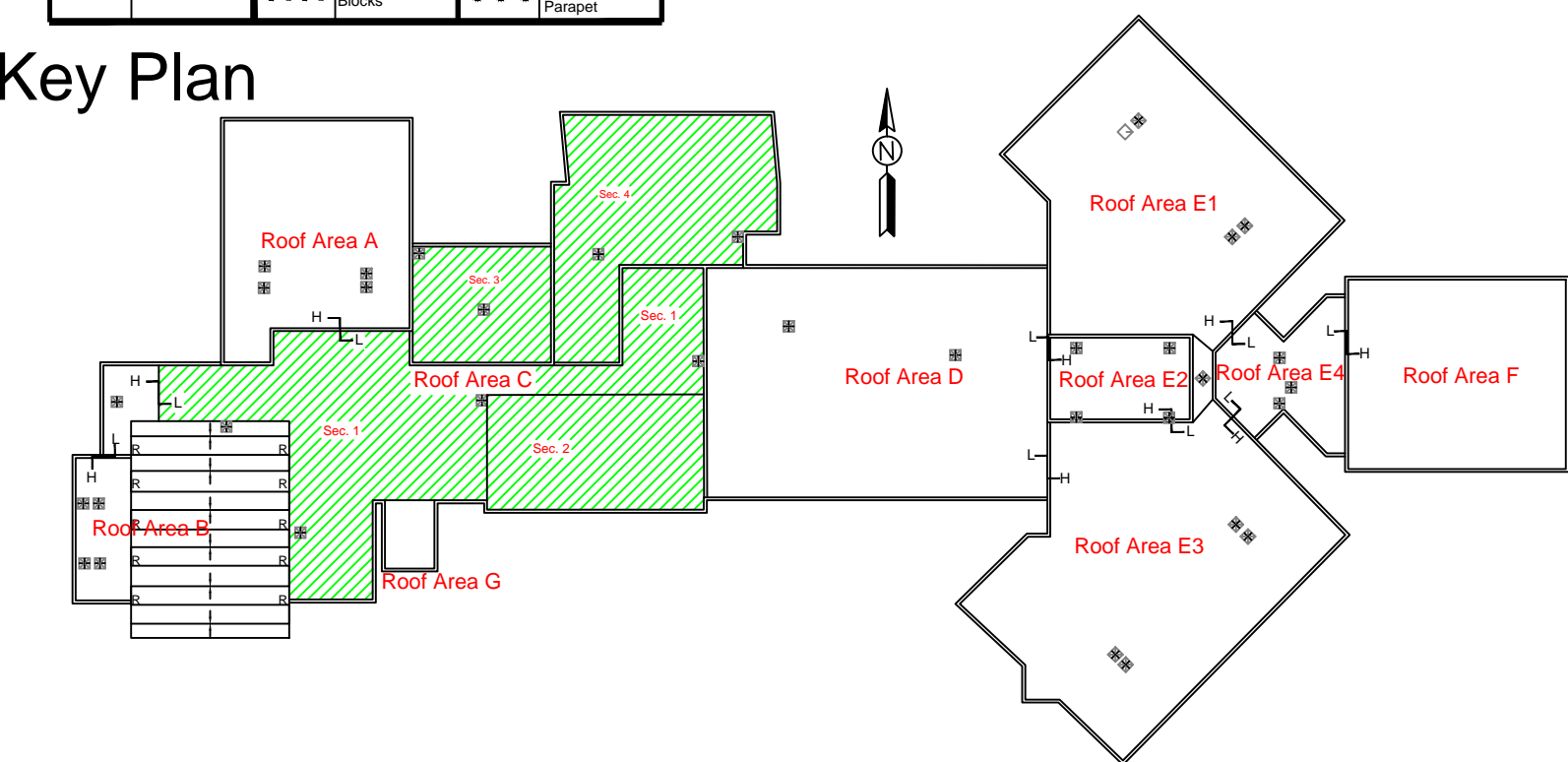


NOTE 1: SEE SCHEDULE ON ROOF PLANS FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLANS FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.  
NOTE 2: SEE SCHEDULE ON ROOF PLANS FOR DECK TYPE.

FULLY ADHERED EPDM SYSTEM OVER GYPSUM AND CEMENTATION WOOD FIBER DECKS  
SCALE: N.T.S. 4.14

Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
•	Pipe/Conduit Penetration	[H]	Roof Hatch	[W]	Walk Way
○	Vent Stack	[S]	Skylight	[E]	Elevation Change
⊙	Insulated Pipe	[A]	Abandoned Equipment	[L]	Ladder
⊗	Insulated Stack/Pipe on Gutter	[X]	Overflow Drain	[P]	Photo Indicator
•	Screen support attachment	[X]	Drain	[K]	Key Note
•	Tube/Structural Equipment Support	[X]	New Drain	[S]	Satellite Dish
■	Pitch Plan	[X]	Overflow Scupper	[C]	Core cut
■	Equip. on Support	[X]	Scupper	[R]	Revision/ Addendum
■	Equip. on Sleepers/Wood Blocking	[X]	Expansion Joint	[T]	Tapered Insulation
■	Equipment Unit on Gutter	[G]	Gutter	[M]	Metal Roofing
■	Duct or Flanged Equipment	[R]	Ridge	[S]	Shingles
---	Area Divider	[P]	Pipe/ Conduit on Blocks	[P]	Pipe/ Conduit Attached to Parapet

Key Plan



Morse Elementary School - Troy School District  
Sheet Notes: Roof Area C: Sec. 1, 2, 3, 4

Schedule

WORK DESCRIPTION - ROOF REPLACEMENT

Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area C: Sec. 1, 2, 3, 4: 15,325 sq. ft.

- New Roof System 1: Roof Area C; Section: 3: Metal Deck: Ref Detail 1.01
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer mechanically fasten to deck.
    - Second insulation layer adhere to first layer of insulation.
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Deck: Metal: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.
- New Roof System 2: Sections 1, 2, 4: Cementitious Wood Fiber Decks Ref. Detail 4.14; Note: Localized Metal Deck, Ref. Key Notes 10 and 13. Contractor to submit FMG RoofNav approved assembly number.
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer adhered to Base Sheet.
    - Second insulation layer adhere to first layer of insulation.

- Tapered Insulation: Exists in various locations, see roof plan and details.
  - Underlayment: Modified Bitumen Base Sheet: Mechanically fasten to deck.
  - Deck: Cementitious wood fiber: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.
- Building Height: Sections 1, 2, 3: Ground to building edge: 20 ft. Section 4: 30 ft.
  - EXISTING ROOF SYSTEM CONSTRUCTION See Core Sample Locations on Roof Plan All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:

Core Sample Results: Section: 1: Location on Roof Plan: C5  
Roof System: Attached to deck

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane, gravel noted;
- Insulation:
  - First insulation layer ½ in. wood fiber insulation;
  - Second insulation layer 1.5 in. polyisocyanurate insulation.
  - Third insulation layer ½ in. wood fiber
- Tapered Insulation: Exists in various locations.
- Deck: Metal: Contractor to verify. Ref. Key Note 10.

Core Sample Results: Section: 1: Location on Roof Plan: C6.  
Roof System: Attached to deck

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane, gravel noted;
- Insulation:
  - First insulation layer ½ in. wood fiber insulation.
  - Second insulation layer 1.5 in. polyisocyanurate insulation.
  - Third insulation layer ½ in. wood fiber

- Tapered Insulation: Exists in various locations.
- Deck: Metal and Cementitious Wood Fiber: Contractor to verify location of decks tie -in. Ref. Key Note 10.

Core Sample Results: Section: 2: Location on Roof Plan: C1  
Roof System: Attached to deck

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane, gravel noted.
- Insulation:
  - First insulation layer ½ in. wood fiber insulation.
  - Second insulation layer 1.5 in. polyisocyanurate insulation.
  - Third insulation layer ½ in. wood fiber.
- Tapered Insulation: Exists in various locations.
- Deck: Metal: Contractor to verify deck. Ref. Key Note 10.

Core Sample Results: Section 3: Location on Roof Plan: C4  
Roof System: Attached to deck

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane, gravel noted.
- Insulation:
  - First insulation layer ½ in. wood fiber insulation.
  - Second insulation layer 1.75 in. polyisocyanurate insulation.
- Tapered Insulation: Exists in various locations.
- Deck: Metal:

Core Sample Results: Section 4: Two existing roofs in place: Location on Roof Plan C2, C3.  
Roof System 1: Attached to deck

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane, gravel noted;
- Deck: Cementitious wood fiber, contractor to verify.

Roof System 2: Attached to Roof System 1

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
- Insulation: ½ fiber glass insulation.

- Warranty/Guarantee
  - Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.
- Allowances: Add to base bid \$24,000 for allowances covering Unit Price and contingency items.
- ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1. Refer to Appendix 1 for asbestos testing results. No ACM
- INTERIOR PROTECTION: General: IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.

General Construction Details: Ref A1.0  
Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

Key Notes:  
All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Metal Walls: Remove old metal counter flashing for roof base flashing as applicable. Furnish and install new base flashing and new counter flashing. Ref. Photos 5000 and BF3.
- Masonry Reglet/Flashing: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing. Ref. Photo 4973, 4971, 4979.
- Expansion Joints: Furnish and install new expansions joints. Ref. Photo MC5
- Expansion Joint at Roof Area G: Contractor to provide shop drawing. Ref Photo SR1.
- Area Dividers: Contractor to confirm no structural deck issues and tapered insulation that would require area divider or expansion joint, if not required, remove existing area divider and roof over. Ref. Photo 4993
- Raised Perimeter Edge: Furnish and install new metal edge detail. Ref Photos BF2, PA3.
- Tapered insulation: Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall, metal wall; Contact consultant if tapered heights exceed existing base flashing heights.
- Drains: New: Section 4: Furnish and install new drains as designated on plan.
- Roof to Wall Expansion Joint: Furnish and install new metal expansion joint. Ref. Detail 3.02 and Photo 4978.
- Uneven Roof System and Deck Variations Section 2: Core cut location identified metal decking, interior inspection identified cementitious wood fiber decking. Confirm structural deck changes or repairs install Roof System 1 over metal decks and Roof System 2 over cementitious wood fiber decks.
- Metal Coping: Furnish and install new metal coping.
- Core Cut Locations: Core samples 1, 2, 3, 4, 5, 6.
- Core Cut and/or interior deck inspection identified localized metal decking.

PROFESSIONAL



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EMAIL: weathertech@wtcg.net  
WEB SITE: www.wtcg.net

CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Morse Elementary School  
475 Cherry Dr  
Troy, MI 48083

Troy School District  
BID NO. 9848  
2018 Roofing Program

WTPProject No:  
TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/28/17	50% Review Set
11/06/17	90% Review Set
11/10/17	OTB
11/20/17	Addendum 1

File Name: Roof Plan  
Drawn By: MD  
Checked By: AW, GG, AC

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SHEET TITLE

Morse Elementary School,  
Roof Area C:  
Sec 1, 2, 3, 4  
Roof Plan  
A3.0



Niles Center - Troy School District  
Sheet Notes: Roof Area G and H

Schedule

WORK DESCRIPTION - ROOF REPLACEMENT

Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area G: 13,600 sq. ft. Roof Area H: 800 sq. ft.

- New Roof System 1: Roof Area G: Cementitious Wood Fiber Decks **Ref. Detail 4.14**; Contractor to submit FMG RoofNav approved assembly number.
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R30:
    - First insulation layer adhered to underlayment;
    - Second insulation layer adhere to first layer of insulation;
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Underlayment: Modified Bitument Base Sheet: Mechanically fasten to deck;
  - Deck: Cementitious wood fiber: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.
- New Roof System 2: Roof Area H and partial Roof Area G Ref. Key Note 11: Metal Decks: **Ref Detail 1.01**
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R30:
    - First insulation layer mechanically fasten to deck;
    - Second insulation layer adhere to first layer of insulation;
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Deck: Metal: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.

- Building Height: Ground to building edge: 20 ft.

EXISTING ROOF SYSTEM CONSTRUCTION

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:

Roof Area G: Core Sample Results: Two existing roofs in place

Roof System 1: Attached to deck

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane,
- Vapor Barrier: Attached to deck.
- Tapered Insulation: Exists in various locations.
- Deck: Cementitious wood fiber

Roof System 2: Attached to Roof System 1

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
- Insulation:
  - First insulation layer Approx. 1.5 in. polyisocyanurate insulation;
  - Second insulation layer ½ in. wood fiber insulation.
- Tapered Insulation: Exists in various locations.

Roof Area H: Core Sample

Roof System 1:

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
- Insulation:
  - First insulation layer Approx. 2.0 in. polyisocyanurate insulation;
  - Second insulation layer ½ in. wood fiber insulation.
- Tapered Insulation: Exists in various locations.
- Deck: Metal

- Warranty/Guarantee
  - Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.

- Allowances: Add to base bid \$14,000 for allowances covering Unit Price and contingency items.

- ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1. Refer to Appendix 1 for asbestos testing results. No ACM
- INTERIOR PROTECTION: **General:** IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.

General Construction Details: Ref A1.0

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

Key Notes:

All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Ladders: Furnish and install new ladder to access. New wall mounted ladder meeting OSHA standards. Pads installed at top and bottom of ladders. **Ref. Photo 3922.**
- Expansion Joint: Roof Transition G to H, **Ref Photo BF1.** Furnish and install in plane Expansion Joint (Cementitious wood fiber to Metal) or step down detail for drainage.
- Vegetation: Trim back all vegetation growing over the roof. Trim back so no vegetation hangs over roof. **Ref. Photo DV1.**
- Gutters: Furnish and install in gutters: **Ref Photos EM5, 3919.** Contractor to confirm all downspout locations and splash blocks.
- Roof Area C: Furnish and install new splash blocks. **Ref. Photo 3922.**
- Tapered insulation: Furnish and install new tapered insulation as detailed on plan. **Ref. Photo 3893.**
- Abandoned Curb: Check interior if exposed otherwise remove dispose and reroof **Ref. Photo 3894.**
- Metal Cap: Furnish and install new metal cap. **Ref. Photo BF3.**
- Masonry Reglet: Reuse cut in metal receiver or one piece reglet/receiver, furnish and install new two-piece counter flashing over new base flashing. **Ref. Photo 3919.**
- Raised Perimeter Edge: Furnish and install new metal edge detail. **Ref Photo 3926.**

- Metal Deck location identified interior inspection.

PROFESSIONAL



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Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Niles Center  
201 Square Lake Rd,  
Troy, MI 48098

Troy School District  
BID NO. 9848  
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WTPProject No:

TSD-R102-18

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File Name: Roof Plan

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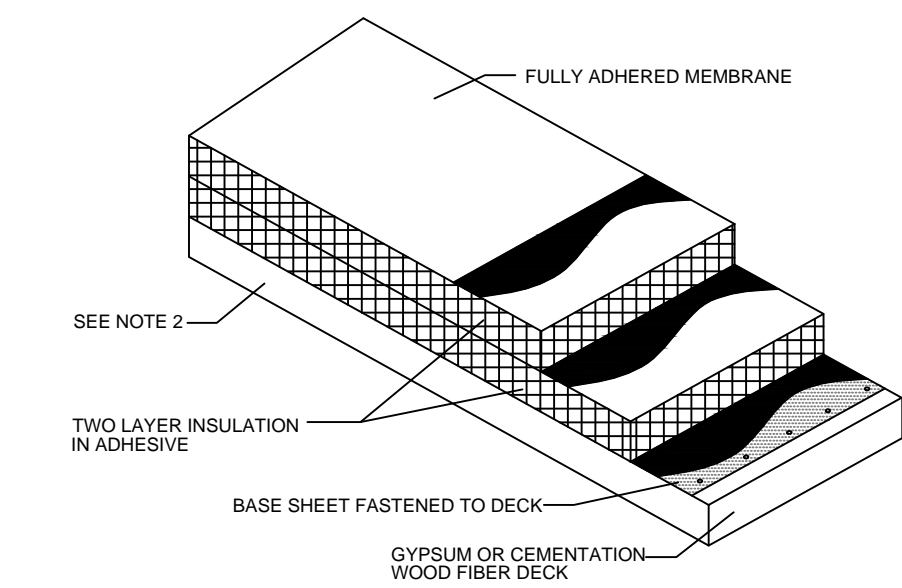
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SHEET TITLE

Niles Center,  
Roof Areas G&H  
Roof Plan

A4.0

Sheet 12 of 23

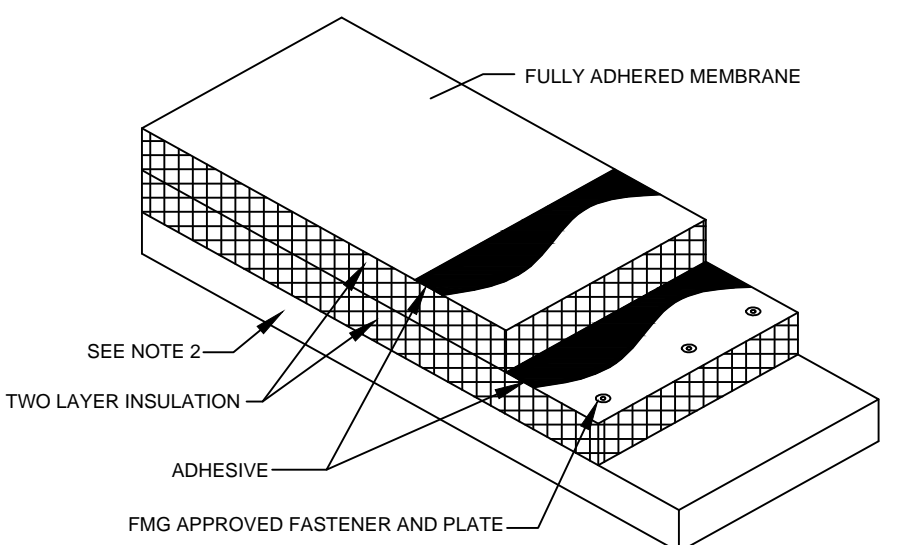


**NOTE 1:** SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.

**NOTE 2:** SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.

FULLY ADHERED EPDM SYSTEM OVER GYPSUM AND CEMENTATION WOOD FIBER DECKS  
SCALE: N.T.S.

4.14



**NOTE 1:** INSULATION MIN. TWO LAYERS, TOTAL RVALUE MIN. R 20. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.

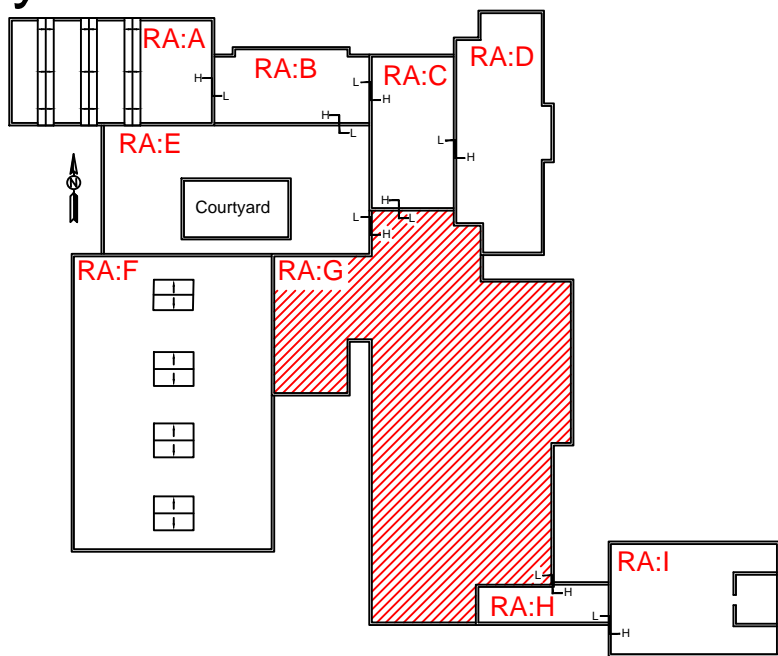
**NOTE 2:** REFERENCE ROOF PLAN SCHEDULE FOR ROOF DECK TYPE.

FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S.

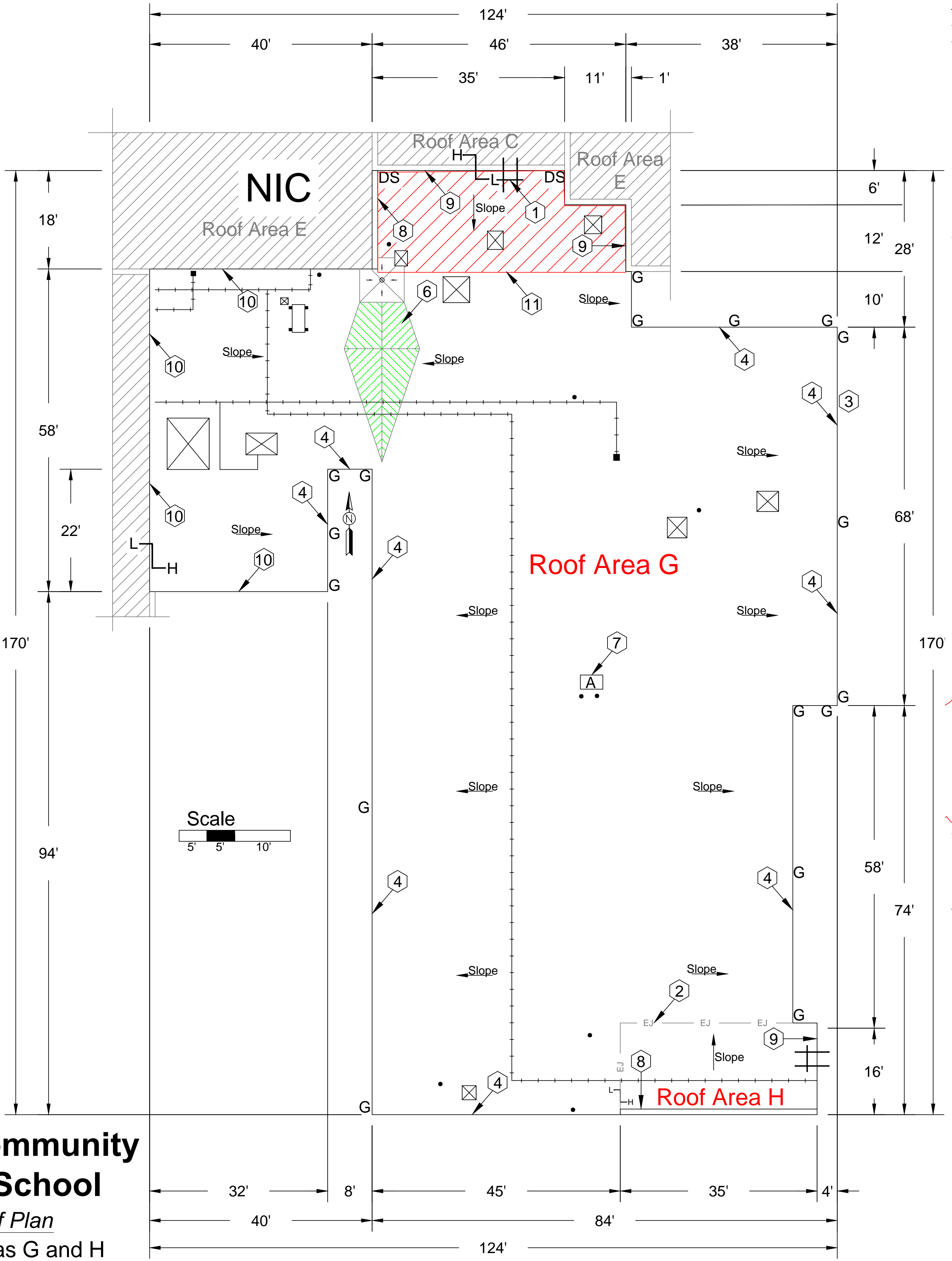
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Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	[H]	Roof Hatch	□ □ □	Walk Way
○	Vent Stack	[S]	Skylight	↑	Elevation Change
⊙	Insulated Pipe	[A]	Abandoned Equipment		Ladder
⊙	Insulated Stack/Pipe on Curb	⊗ OF	Overflow Drain	①	Photo Indicator
●	Screen support stanchion	⊗	Drain	①	Key Note
■	Tube/Structural Equipment Support	⊕	New Drain	⤵	Satellite Dish
■	Pitch Pan		Overflow Scupper	⊙	Core cut
■	Equip. on Support		Scupper	⚠	Revision/ Addendum
■	Equip. on Sleepers/Wood Blocking	—	Expansion Joint	■	Roof Tile
⊗	Equipment Unit on Curb	G G	Gutter		Metal Roofing
□	Duct or Flanged Equipment	R R	Ridge		Shingles
—	Area Divider	+++	Pipe/ Conduit Attached to Parapet		Parapet

Key Plan

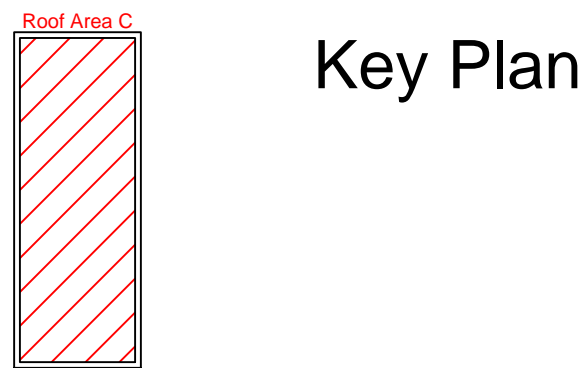
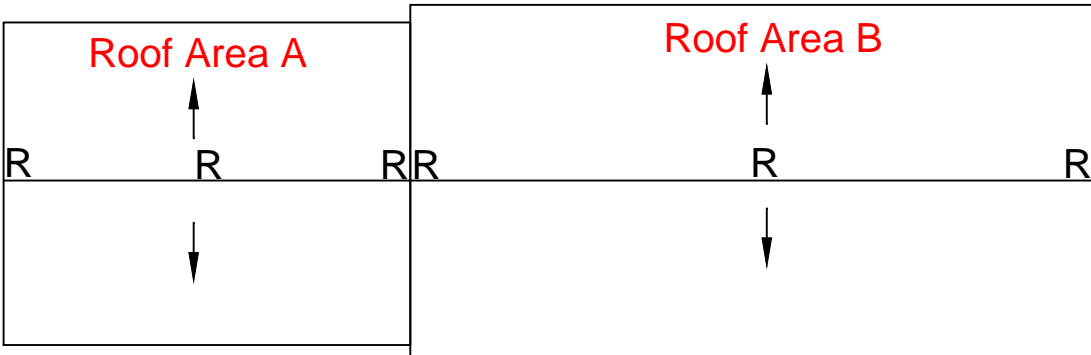


Niles Community  
High School  
Roof Plan  
Roof Areas G and H





Transportation Building  
Roof Plan  
Roof Area C



Key Plan

Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	H	Roof Hatch	Walk Way	
○	Vent Stack	S	Skylight	Elevation Change	
⊙	Insulated Pipe	A	Abandoned Equipment	Ladder	
⊙	Insulated Stack/Pipe on Curb	OF	Overflow Drain	Photo Indicator	
●	Screen support stanchion	⊗	Drain	Key Note	
■	Tube/Structural Equipment Support	⊕	New Drain	Satellite Dish	
■	Pitch Pan		Overflow Scupper	Core cut	
■	Equip. on Support		Scupper	Revision/ Addendum	
■	Equip. on Sleepers/Wood Blocking	—	Expansion Joint	Tapered Insulation	
⊗	Equipment Unit on Curb	G	Gutter	Metal Roofing	
□	Duct or Flanged Equipment	R	Ridge	Shingles	
—	Area Divider	+++	Pipe/ Conduit on Blocks	Pipe/ Conduit Attached to Parapet	



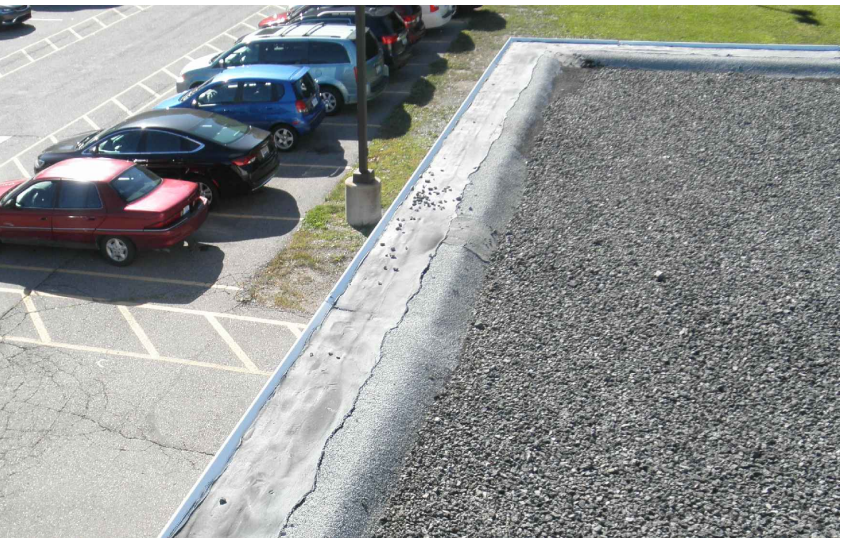
1978



1979



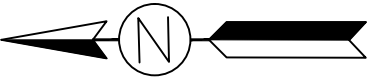
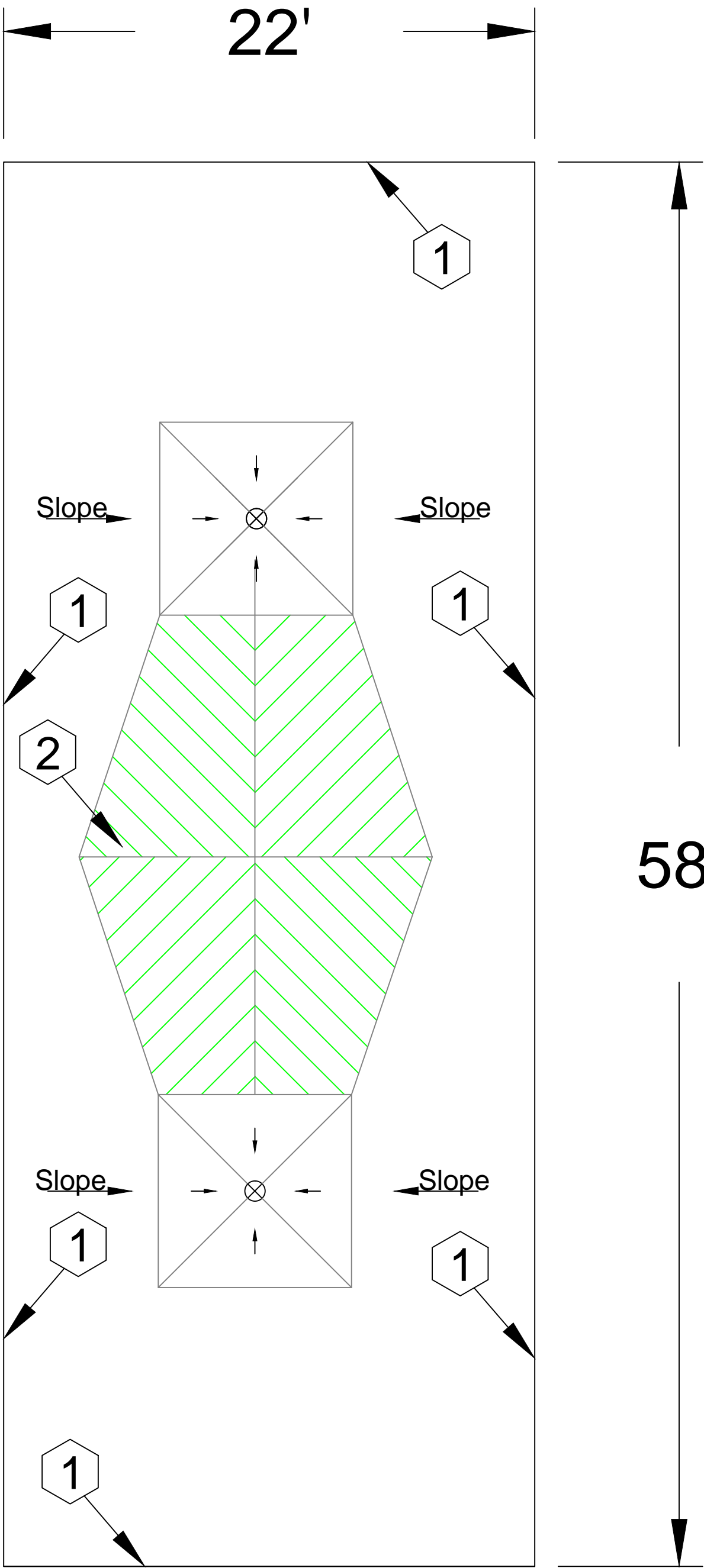
1984



1985



1986



Scale



Transportation Building - Troy School District

Sheet Notes: Roof Area C

Schedule

WORK DESCRIPTION - ROOF REPLACEMENT

Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area C: 1,275 sq. ft.

- New Roof System 1: Roof Area C: **Ref. Detail 4.14;**
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer adhered to underlayment;
    - Second insulation layer adhere to first layer of insulation;
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Vapor Barrier : Modified Bitument Base Sheet: Mechanically fasten to deck;
  - Deck: Metal: **Repair as necessary to comply w/ building codes.**
  - Interior Exposed deck roof deck interior conditions exist.

- Building Height: Ground to building edge: 25 ft.

EXISTING ROOF SYSTEM CONSTRUCTION

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:

- Roof System
- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
  - Insulation:
    - First insulation layer Approx. 1.5 in. polyisocyanurate insulation;
    - Second insulation layer 1 in. wood fiber insulation.
  - Vapor Barrier fastened to deck.
  - Deck: Metal: Repair as necessary to comply w/ building codes.

- Warranty/Guarantee
  - Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.

- Allowances: Add to base bid \$3,800 for allowances covering Unit Price and contingency items.

- ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1. Refer to Appendix 1 for asbestos testing results. No ACM

- INTERIOR PROTECTION: **General:** IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.
  - Interior protection may be required over sensitive equipment and interior contents, contractor to coordinate daily to provide interior protection as needed.

General Construction Details: Ref A1.0

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

Key Notes:

All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

Overview Photos 1978 and 1979

- Raised Perimeter Edge: Furnish and install new metal edge detail. **Ref Photo 1984, 1985.**

- Tapered insulation: Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights. **Ref. Photo 1978.**

PROFESSIONAL



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Troy School District

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Troy, MI 48098

PROJECT:

Transportation Building

120 Hart Dr Troy, MI 48098

Troy School District

BID NO. 9848

2018 Roofing Program

WTPProject No:

TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/28/17	50% Review Set
11/08/17	90% Review Set
11/10/17	OTB
11/20/17	Addendum 1

File Name: Roof Plan

Drawn By: MD

Checked By: AW, GG, AC

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SHEET TITLE

Transportation

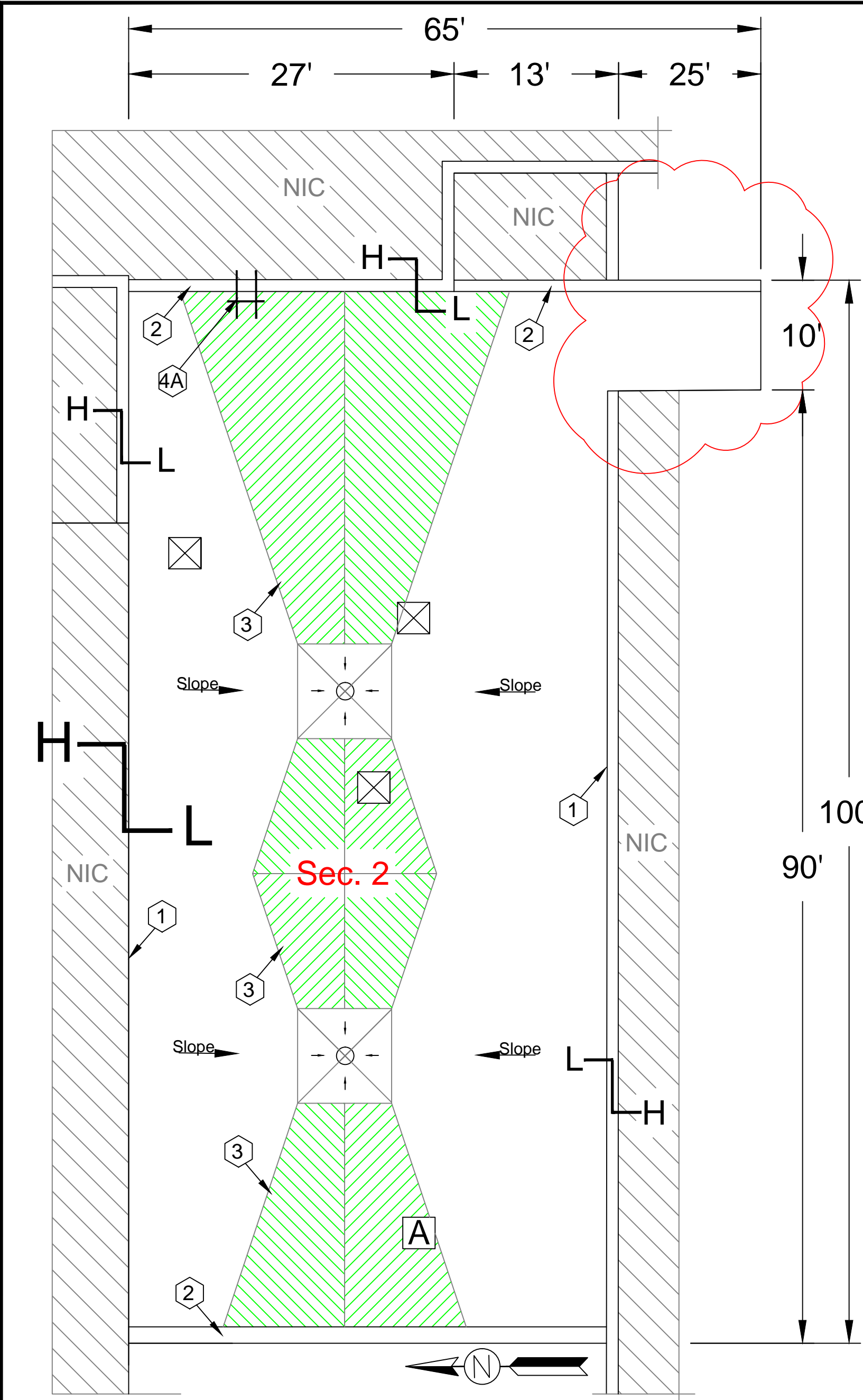
Building,

Roof Area C

Roof Plan

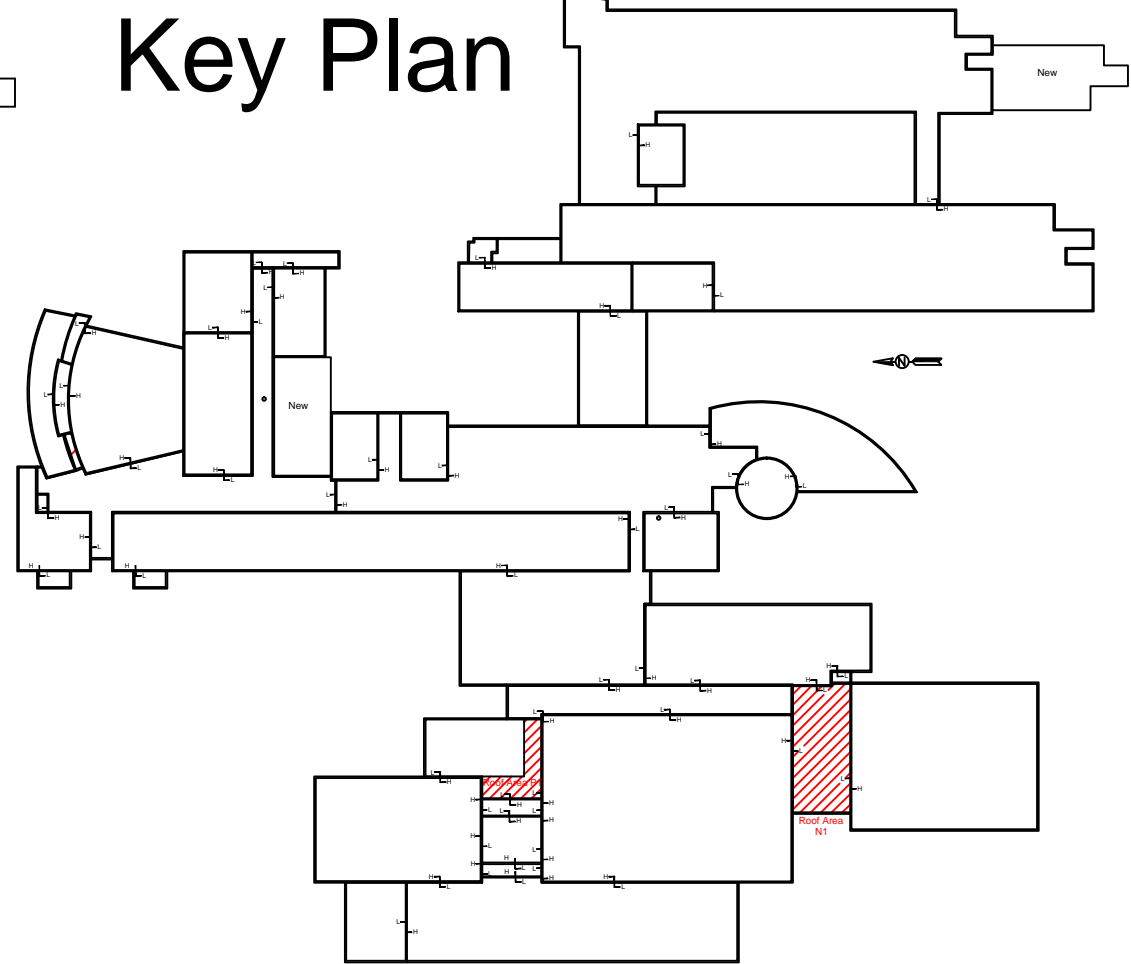
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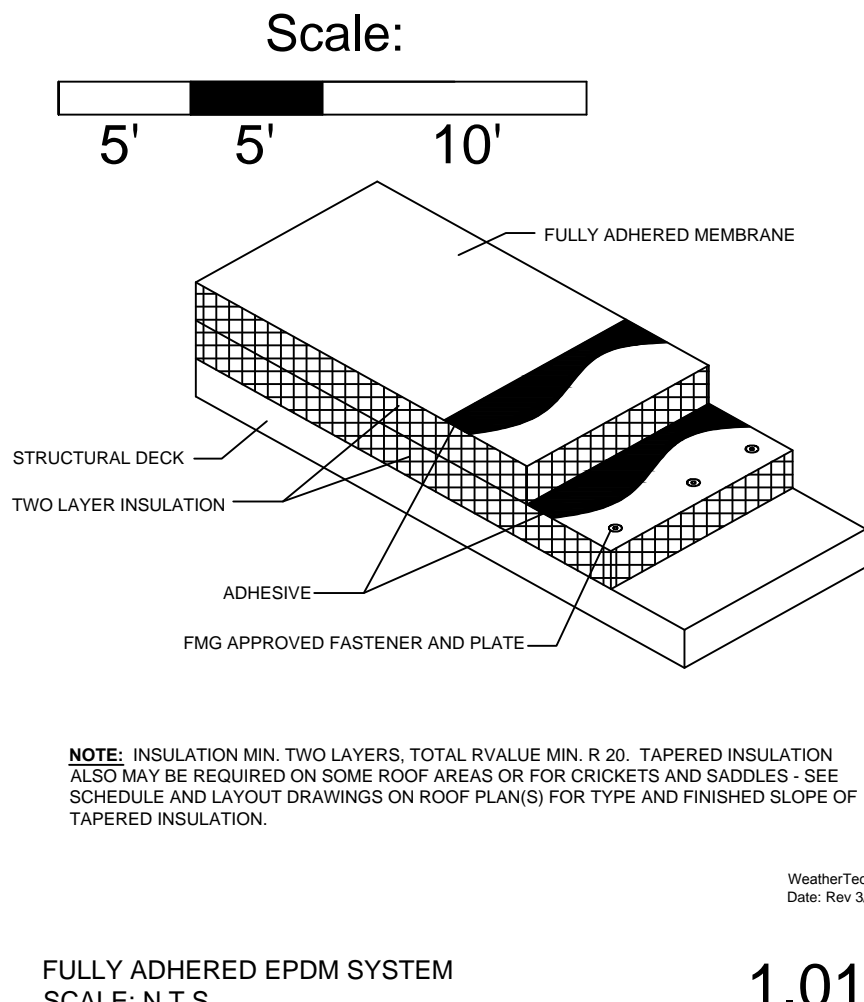


**Troy High School**  
*Roof Plan*  
Roof Area N2  
Scale: 1" = 10'

Symbol Key			
SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	H	Roof Hatch
○	Vent Stack	S	Skylight
⊙	Insulated Pipe	A	Abandoned Equipment
⊙	Insulated Stack/Pipe on Curb	⊗	Overflow Drain
●	Screen support stanchion	⊗	Drain
■	Tube/Structural Equipment Support	⊕	New Drain
■	Pitch Pan		Overflow Scupper
■	Equip. on Support		Scupper
■	Equip. on Steepers/Wood Blocking	—	Expansion Joint
⊗	Equipment Unit on Curb	G	Gutter
□	Duct or Flanged Equipment	R	Ridge
—	Area Divider	+++	Pipe/Conduit on Blocks
		+	Walk Way
		+	Elevation Change
		+	Ladder
		+	Photo Indicator
		+	Key Note
		+	Satellite Dish
		+	Core out
		+	Revision/ Addendum
		+	Tapered Insulation
		+	Metal Roofing
		+	Shingles
		+	Pipe/Conduit Attached to Parapet



**Troy High School**  
*Roof Plan*  
Roof Area P1 and P2  
Scale: 1" = 10'



**Troy High School - Troy School District**  
**Sheet Notes: Roof Area N: Sec. 2, Roof Area P: Sec. 1 and 2**  
**Schedule**  
**WORK DESCRIPTION - ROOF REPLACEMENT**  
Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. *Approx. Roof Area N: Sec 2: 22,000 sq. ft. and Roof Area P: Sec. 1: 3,200 sq. ft. and Sec. 2: 800 sq. ft.*

- New Roof System.
  - Roof Membrane: EPDM, 60 mil. adhered to insulation.
  - Insulation: Roof Area P: R30; Roof Area N R20:
    - First insulation layer mechanically fasten to deck;
    - Second insulation layer adhere to first layer of insulation;
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Deck: Metal: Repair as necessary to comply w/ building codes.
  - Interior Ceiling:
    - Roof Area P, Section 1: Foam acoustical tiles. Remove tiles, hang interior protection from ceiling. Reinstall acoustical tiles.
    - Roof Area P, Section 2: Drop Ceiling.
    - Roof Area N: Exposed ceiling over locker rooms, clean all debris on interior broom clean and cover all TSD requested items.

**Alternate No. 2: Roof Area N: Sec. 2 and Roof Area P Sec. 2 only:** Provide deduct to reuse salvageable insulation, (assume R10 existing and 5% nonsalvageable insulation), salvaged insulation to be mechanically attached to deck. Adhere in adhesive 1 additional layer of 1.8 in. polyisocyanurate or greater to meet minimum R20 insulation requirements. **Note:** Reused insulation shall be flipped if required by manufacturer providing warranty. If not required by manufacturer contractor to provide in writing approval to leave as is. Install roof membrane as specified. **Ref. Alternates Section 012300:** Alternates are individually listed on school roof plans and bids for Alternates. Alternated bid value are to be entered on Bid Form (Section 000300) as enumerated.

- Building Height: Ground to building edge: 20 ft.
- EXISTING ROOF SYSTEM CONSTRUCTION**  
All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:  
**Roof Area P1:**
  - Roof Membrane: EPDM roof membrane.
  - Insulation: Approx. 4 in. polyisocyanurate insulation.
  - Tapered Insulation: Exists in various locations.
  - Deck: Metal: Multiple types, contractor to verify.

- Roof Areas N2 and P2:**
  - Roof Membrane: Ballasted EPDM roof membrane.
  - Insulation: Approx. 2.0 in. polyisocyanurate insulation.
  - Tapered Insulation: EPS exists in various locations.
  - Deck: Metal: Multiple types, contractor to verify.

- Warranty/Guarantee
  - Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.

- Allowances: Add to base bid \$8,800 for allowances covering Unit Price and contingency items.

- ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1. Refer to Appendix 1 for asbestos testing results. No ACM

- INTERIOR PROTECTION: General:** IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.
  - Roof Area P, Section 1: Partial Exposed Ceiling: Interior protection required, contractor to verify area in weight room and assume interior protection to be hung from ceiling. Area requiring interior protection approx. 3,200 sq. ft. to be hung from ceiling
  - Roof Area N2: Locker rooms: Exposed ceiling over locker rooms, clean all debris on interior broom clean and cover all TSD requested items.

**General Construction Details: Ref A1.0**  
Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

**Key Notes:**  
All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Roof Area N:**
  - Masonry Reglet: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing. **Ref. Photo 89.**
  - Metal Cap: Furnish and install new metal cap. **Ref. Photo 97.**
  - Tapered insulation: Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights.

- Roof Access: Exterior reference **Photo 104.**
- 4A. Ladders: Furnish and install new ladder to access from Roof N to Roof Area L. New roof mounted ladder meeting OSHA standards. Pads installed at top and bottom of ladders.

- Roof Area P:**
  - Roof Section P2: Ref. Alternate No. 2 above to salvage insulation.

- Door Threshold: If waterproofed as part of roof system furnish and install new base flashings under threshold plate or mechanical termination. If separated from base flashing not do not disturb door.

- Masonry Reglet: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing.

- Metal Cap: Furnish and install new metal cap.

- Ladder: Furnish and install new flashings and walk pads at top and bottom.

- Tapered insulation: Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights.

- Metal wall panels: Furnish and install new two-piece counter flashing. **Ref. Photo 58.**

- Masonry Wall: Furnish and install new two-piece surface mounted counter flashing. **Ref. Photo 62.**

- Roof Area P, Sec. 2. over entrance. Only accessible from front at door ways. **Ref. Photos 72, 75.**

**PROFESSIONAL**



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**PROJECT:**

**Troy High School**  
4777 Northfield Pkwy.  
Troy, MI 48098

**Troy School District**  
BID NO. 9848  
2018 Roof Program

WTPProject No:  
TSD-R102-18

**ISSUE**

DATE	DESCRIPTION
10/27/17	50% Review Set
11/08/17	90% Review Set
11/10/17	OTB
11/20/17	Addendum 1
11/27/17	Addendum 2

File Name: Roof Plan

Drawn By: MD

Checked By: AW, GG, AC

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**SHEET TITLE**

**Troy High School**  
**Roof Areas N2,**  
**and P**  
**Roof Plan**

**A6.0**

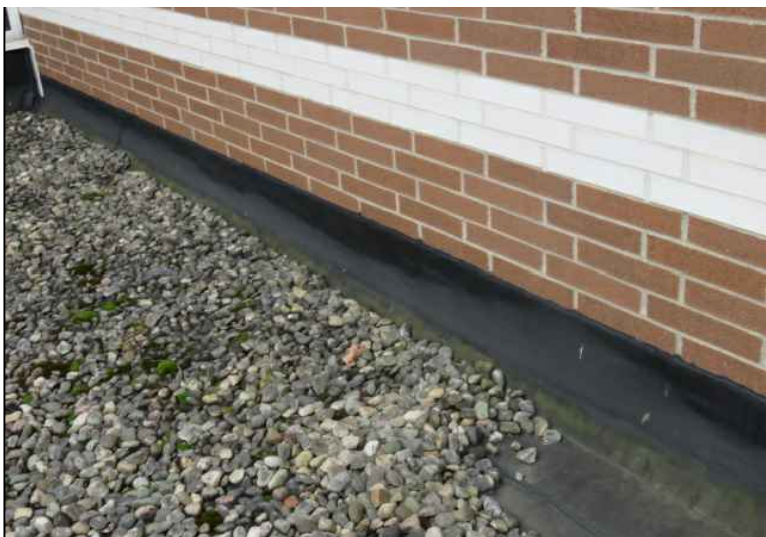
**Sheet 15 of 23**



Troy High School - Roof Area P



P58



P62



P72



P75

Troy High School - Roof Area



P89



P97



P104



P76

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4400 Livernois  
Troy, MI 48098

PROJECT:

Troy High School  
4777 Northfield Pkwy,  
Troy, MI 48098  
Troy School District  
BID NO. 9848  
2017 Roof Program

WTProject No:  
TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/08/17	90% Review Set
11/10/17	OTB
11/20/17	Addendum 1

File Name: Photo Page

Drawn By: MD

Checked By: GG, AC, AW

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SHEET TITLE

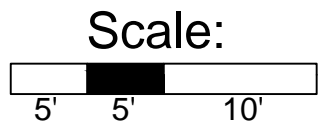
Troy High School  
Photo Page

A6.1



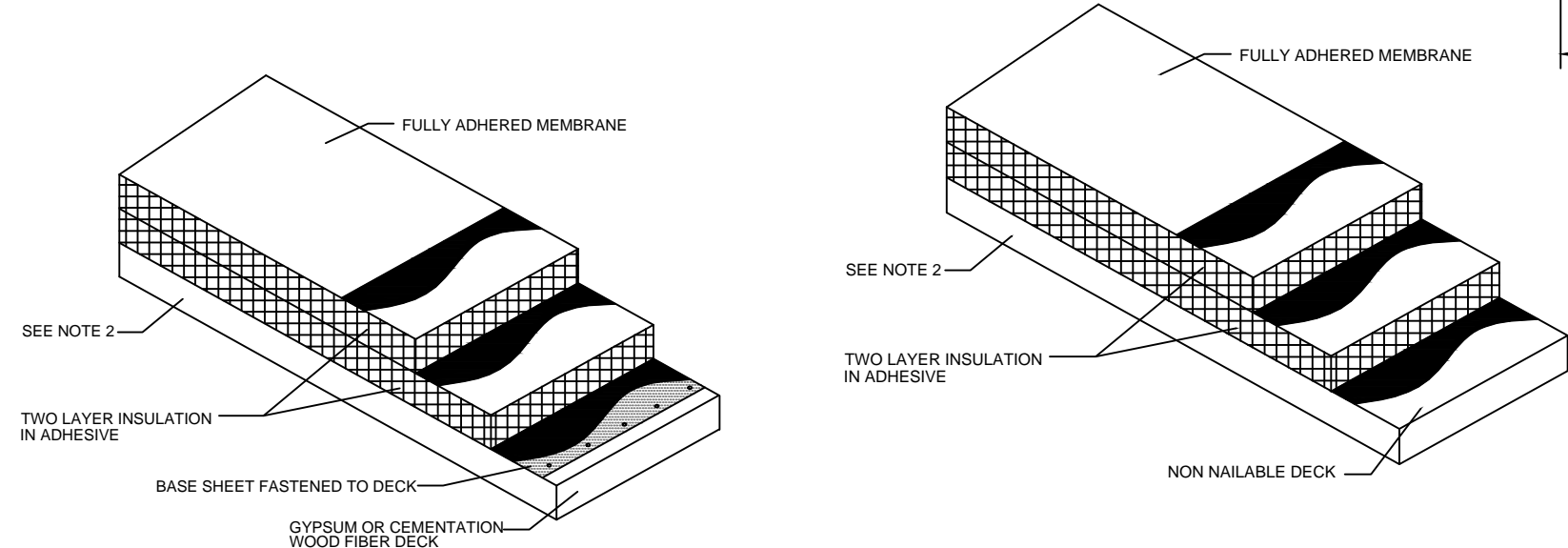
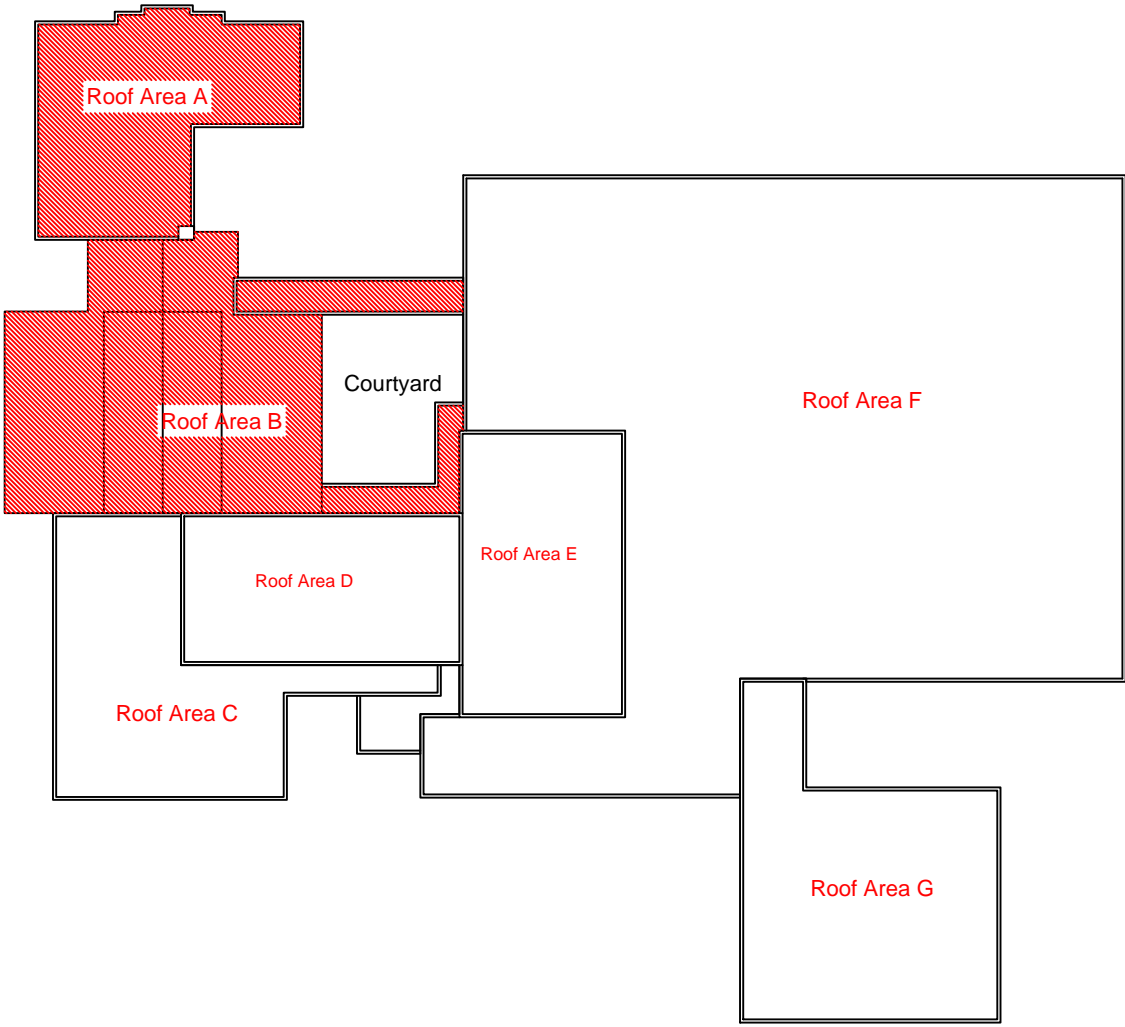
Troy Union Elementary School

Roof Plan  
Roof Areas A and B



Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
•	Pipe/Conduit Penetration	[H]	Roof Hatch	[ ] [ ] [ ]	Walk Way
○	Vent Stack	[S]	Skylight	0' L +15'	Elevation Change
⊙	Insulated Pipe	[A]	Abandoned Equipment	⋈	Ladder
[ ]	Insulated Stack/Pipe on Curb	⊗ OF	Overflow Drain	①	Photo Indicator
•	Screen support stanchion	⊗	Drain	①	Key Note
—	Tube/Structural Equipment Support	⊕	New Drain	⌒	Satellite Dish
■	Pitch Pan		Overflow Scupper	⊙	Core cut
[ ]	Equip. on Support		Scupper	Δ	Revision/ Addendum
[ ]	Equip. on Sleepers/Wood Blocking	—	Expansion Joint	[ ]	Roof Tile
[ ]	Equipment Unit on Curb	G G	Gutter	[ ]	Metal Roofing
[ ]	Duct or Flanged Equipment	R R	Ridge	[ ]	Shingles
—	Area Divider	+++	Pipe/ Conduit on Blocks	+++	Pipe/ Conduit Attached to Parapet

Key Plan



NOTE 1: SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.

NOTE 2: SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.

NOTE 1: SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.

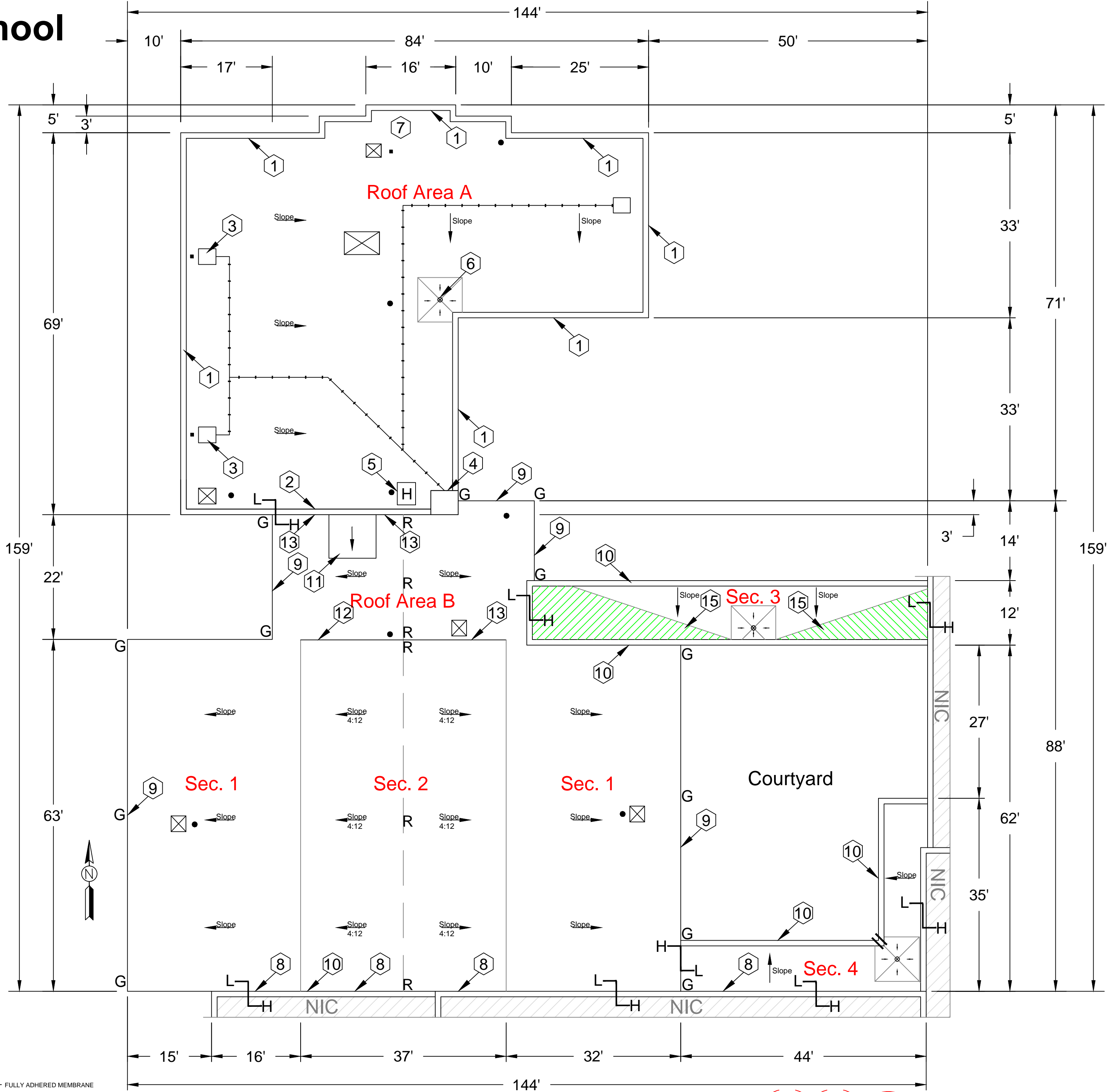
NOTE 2: SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.

FULLY ADHERED EPDM SYSTEM OVER GYPSUM AND CEMENTATION WOOD FIBER DECKS  
SCALE: N.T.S.

4.14

FULLY ADHERED EPDM SYSTEM  
NON-NAILABLE DECK  
SCALE: N.T.S.

1.02



Troy Union Elementary School - Troy School District  
Sheet Notes: Roof Area A and B  
Schedule

WORK DESCRIPTION - ROOF REPLACEMENT

Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area A: 4,375 sq. ft. and Roof Area B: 8,550 sq. ft.

1. Roof Area A: New Roof System: Ref. Detail 1.02

a. Roof Membrane: EPDM, 60 mil, adhered to insulation.

b. Insulation: R20:

1) First insulation layer adhere to deck;

2) Second insulation layer adhere to first layer of insulation;

c. Tapered Insulation: Exists in various locations, see roof plan and details.

d. Deck: Concrete. Repair as necessary to comply w/ building codes.

e. Tapered Insulation: Exists in various locations, see roof plan and details.

f. Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.

2. Roof Area B: New Roof System: Ref. Detail 4.14; Contractor to submit FMC RoofNav approved assembly number.

a. Roof Membrane: EPDM, 60 mil, adhered to insulation.

b. Insulation: R20:

1) First insulation layer adhered to underlayment;

2) Second insulation layer adhere to first layer of insulation;

c. Tapered Insulation: Exists in various locations, see roof plan and details.

d. Underlayment: Modified Bitumen Base Sheet: Mechanically fasten to deck; i.e. Firestone RoofNav #42330-0-0

e. Deck:

1) Sections 1 and 2: Gypsum: Repair as necessary to comply w/ building codes.

2) Sections 3 and 4: Metal Install Roof System per detail 1.01, Sheet 8.0.

f. Interior Protection:

1) Roof Area B: Sections 1 and 2; Hang interior protection from ceiling, approx. area 7,000 sq. ft contractor to confirm.

2) Repairing Roof Area B, Sec 1, 3 and 4: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.

3. Building Height:

a. Roof Area A: Ground to building edge: 35 ft.

b. Roof Area B: Ground to building edge: 20 ft. Sec 2 Steep Slope.

4. EXISTING ROOF SYSTEM CONSTRUCTION

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:

4. EXISTING ROOF SYSTEM CONSTRUCTION

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:

Core Sample Results, Roof Area A

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
- Insulation: Approx. 1.0 in. Fiberglass insulation.
- Tapered Insulation: Exists in various locations.
- Deck: Concrete; Multiple types, contractor to verify.

Core Sample Results, Roof Area B: Sec. 1, 3, 4

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
- Insulation: Approx. 2.0 in. polyisocyanurate insulation;
- Tapered Insulation: Exists in various locations.
- Deck: Gypsum; Multiple types, contractor to verify. Ref Photo 4924

Roof Area B: Sec. 2: Contractor to confirm Two Roof Systems

Roof System 1: Attached to deck

- Roof Membrane: Mineral Cap built-up roof attached to deck;
- Deck: Wood: Contractor to verify.

Roof System 2: Attached to Roof System 1

- Roof Membrane: Coated modified bitumen roof membrane

5. Warranty/Guarantee

- Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.

- Allowances: Add to base bid \$18,000 for allowances covering Unit Price and contingency items.

- ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1. Refer to Appendix 1 for asbestos testing results. No ACM.

- INTERIOR PROTECTION: **General:** IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.
  - Roof Area B, Sections 1 and 2: Approx. 7,000 sq. ft interior protection to be hung from exposed ceiling areas, contractor to verify.

General Construction Details: Ref. A1.0

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

Key Notes:

All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

Roof Area A

- Concrete Coping Stone Parapet: Furnish and install new base flashings and metal counter flashings. Caulk all stone joints and all cracks. Ref. Photos 4833, 4842, MC2 and Detail 4.15.
- Clay Coping Cap Parapet: Remove clay coping cap and dispose, furnish and install 2x wood blocking, new base flashings and metal cap coping. Ref. Photos MC1, 4839.
- Equipment Support Blocking: Furnish and install wood block supports w/ pads. Ref. Photo EQ1.

- Chimney: Furnish and install new metal counter flashing. Ref. Photo 4837A

- Roof Hatch: Remove and dispose of old roof hatch.

- Drain: Furnish and install new drain insert. Ref. Photos 4855 and 4858.

- Vegetation: Trim vegetation back so does not hang over roof. Ref. Photo DV1.

Roof Area B

- Metal Wall Panels: Remove old metal counter flashing for roof base flashing as applicable. Furnish and install new base flashing and new counter flashing. Ref. Photos DV5, 4804.
- Gutters: Furnish and install new gutters. Ref. Photos 4810, 4816, 4820.

- Metal Cap Parapets: Furnish and install new metal cap. Ref. Photo 4823, 4824.

- Tapered insulation: **Roof Area B:** Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights.

- Metal edge: Sec. 2: Furnish and install new metal edge. Ref. Photo 4826.

- Surface Mounted Metal Counter Flashing: Furnish and install new two-piece surface mounted counter flashing. Ref. Photos 4826, 4827.

- Vegetation: Trim vegetation back so does not hang over roof. Multiple locations.

- Asphalt Shingles: Remove and dispose of shingles down to deck. Furnish and install new EPDM membrane w/ underlayment over deck. Include new metal edge and reuse existing copper masonry flashing. Ref. Photo 4827.

- Ladder: Furnish and install new OSHA compliant ladder from Roof Area B to Roof Area A

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CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Troy Union Elementary  
School  
1340 E Square Lake Rd,  
Troy, MI 48085

Troy School District

BID NO. 9848  
2018 Roof Program

WTProject No:

TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/06/17	90% Review Set
11/10/17	OTB
11/20/17	Addendum 1

File Name: Roof Plan

Drawn By: MD

Checked By: AW, GG, AC

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SHEET TITLE

Troy Union  
Elementary School  
Roof Area A and B  
Roof Plan

A7.0

Sheet 17 of 22



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<p>WeatherTech © Date: Rev 3/15</p>	<p>WeatherTech © Date: Rev 3/15</p>	<p>WeatherTech © Date: Rev 3/15</p>	<p>WeatherTech © Date: Rev 3/15</p>	<p>WeatherTech © Date: Rev 3/15</p>	<p>WeatherTech © Date: Rev 3/15</p>
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DATE	DESCRIPTION
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11/10/17	OTB



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CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Troy School District  
**BID 9848**  
2018 Roofing Program

WTPProject No:  
TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/08/17	90% Review Set
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Detail Page

A8.1



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Troy School District  
4400 Livernois  
Troy, MI 48098

Troy School District  
**BID 9848**  
2018 Roofing Program

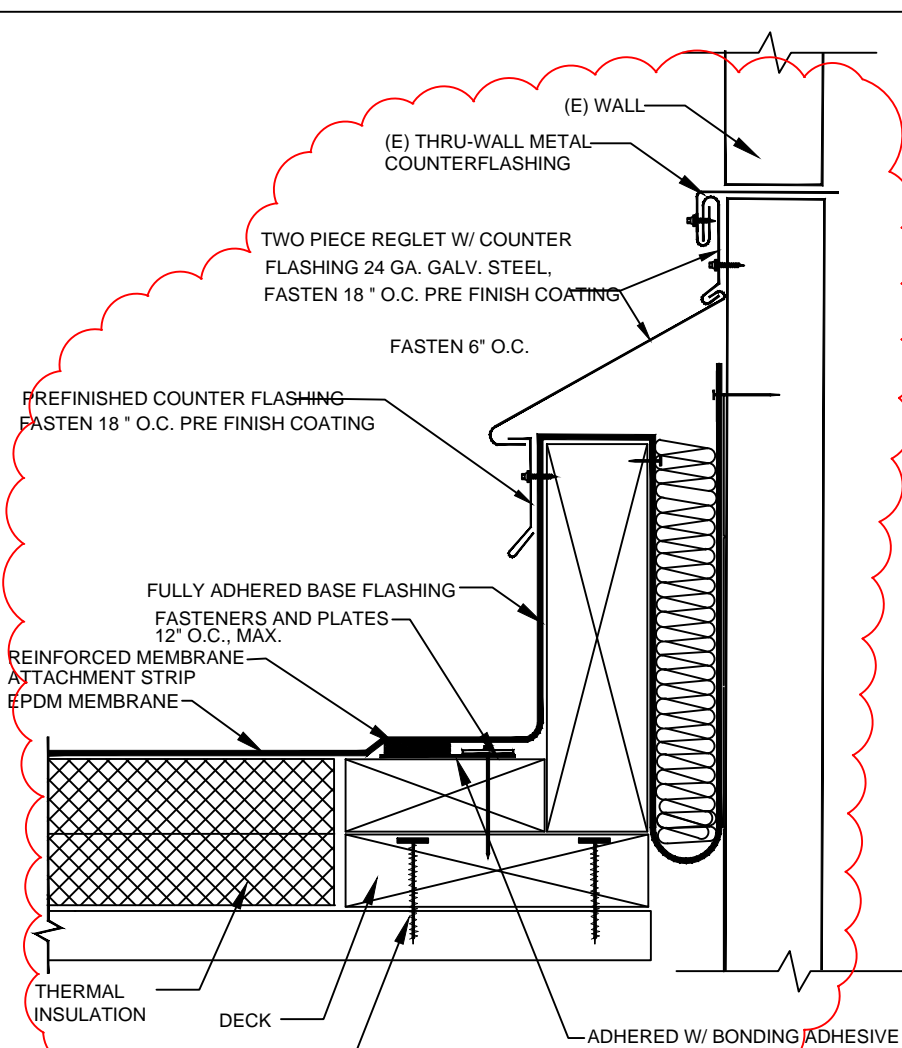
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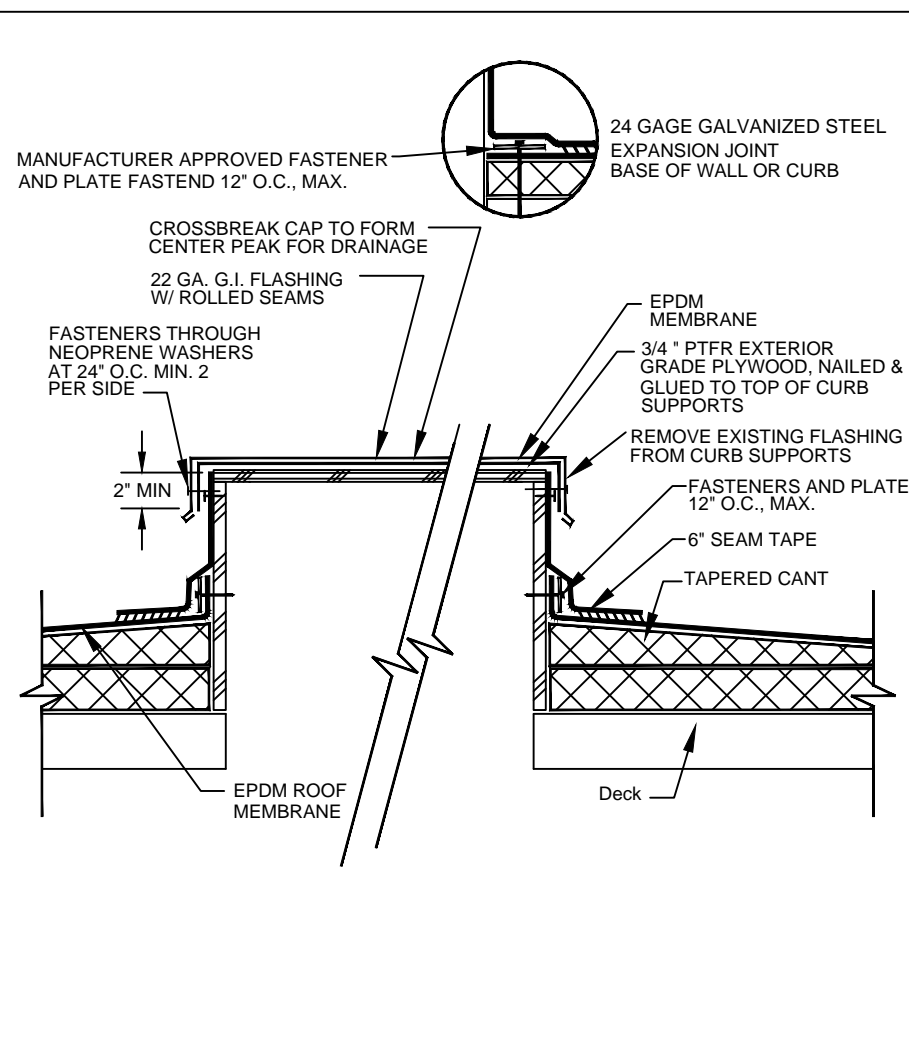
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## A8.2

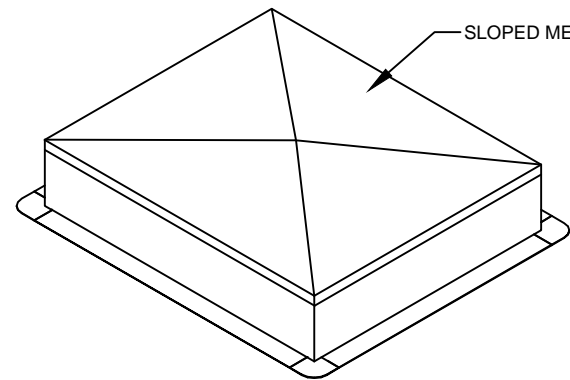
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## 3.02



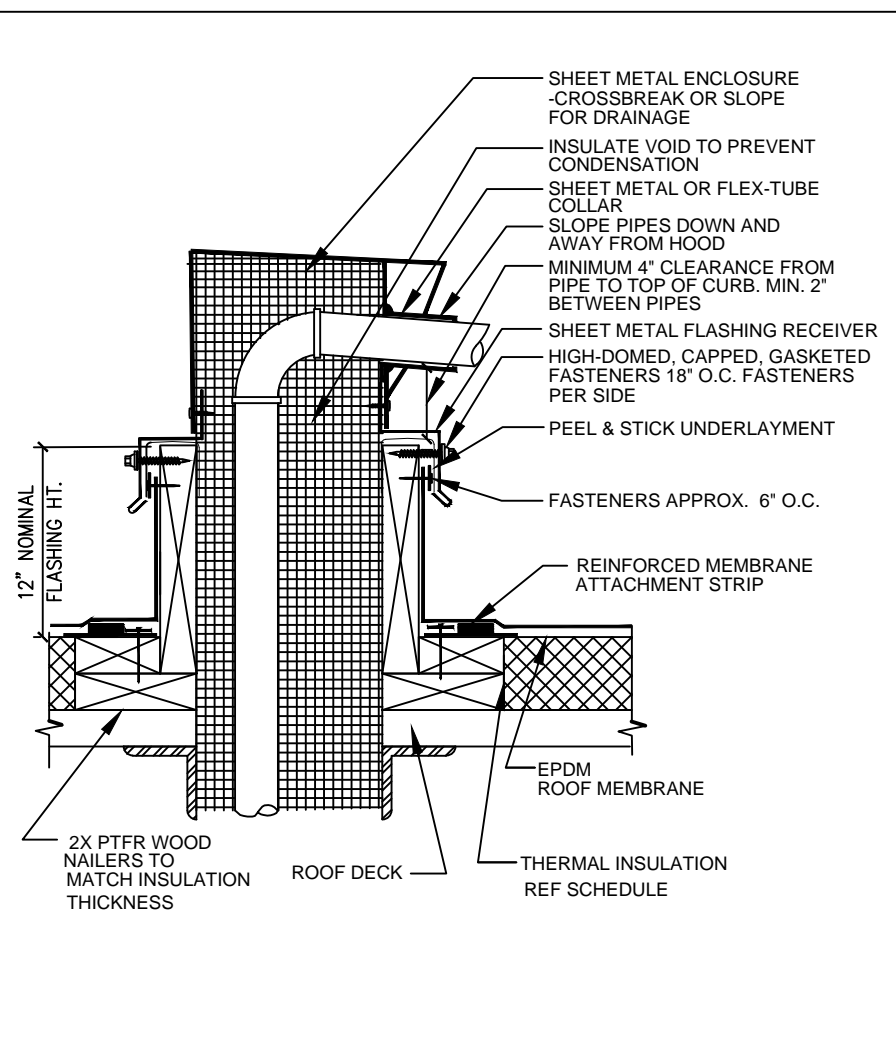
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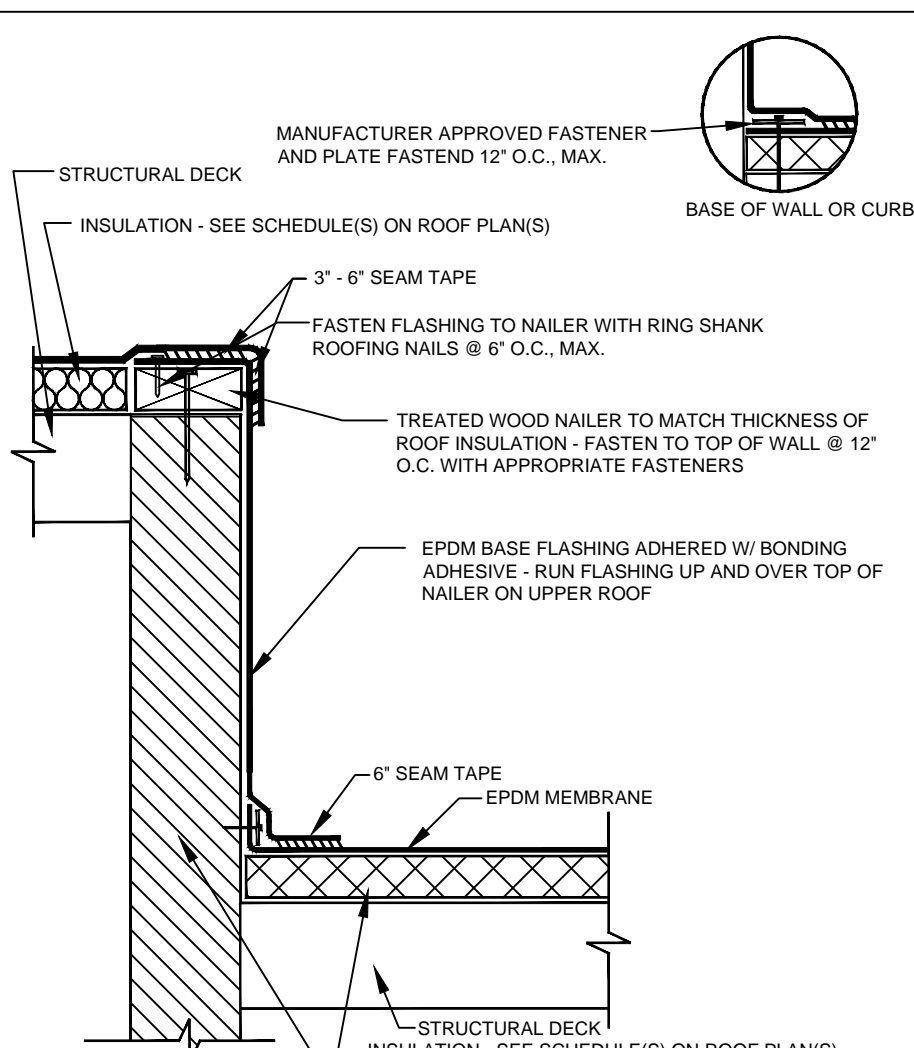
NOTES:

REMOVE CURBS FLUSH TO DESK SURFACE, INSTALL FRAMING AND MATCHING DECKING MATERIAL. FOR ABANDONED CURBS TO REMAIN IN PLACE, INSTALL NEW BASE FLASHING AND INSTALL NEW 24 GAUGE SLOPED METAL CAP.

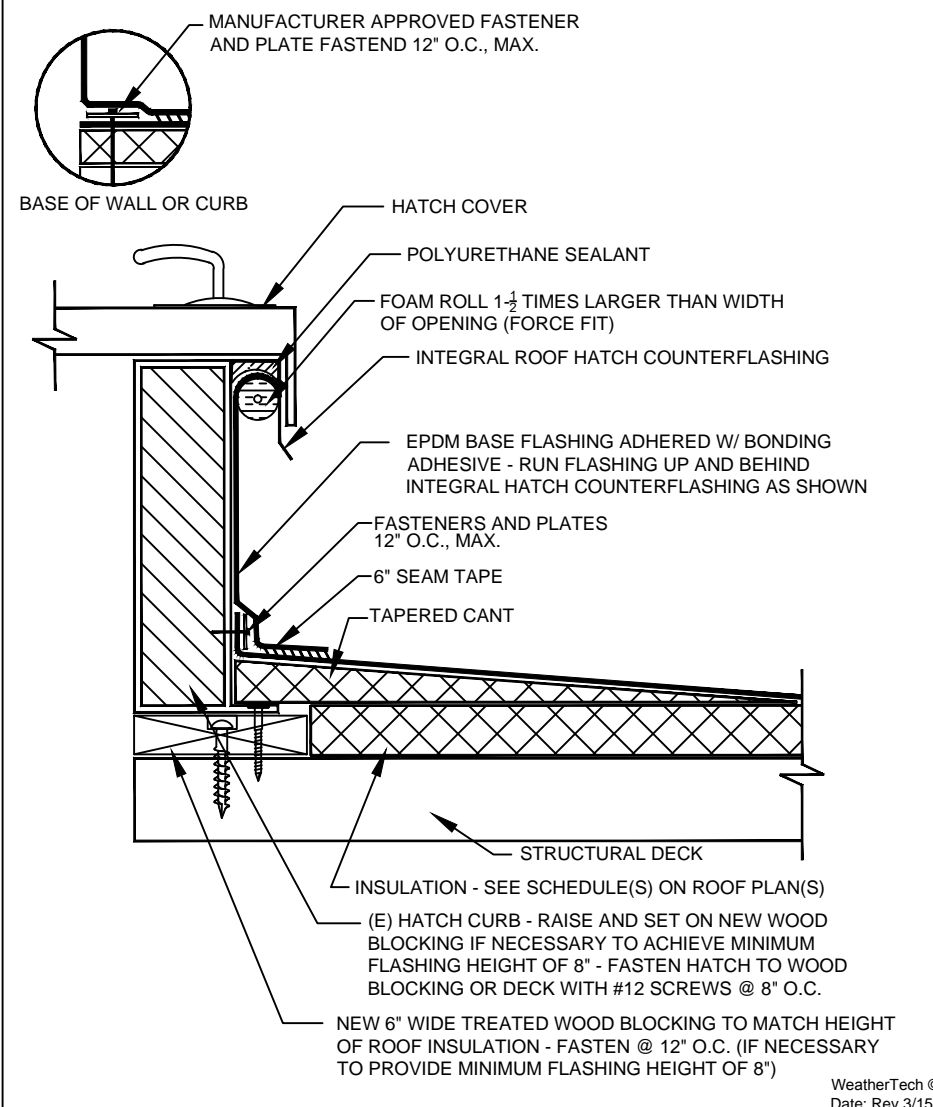
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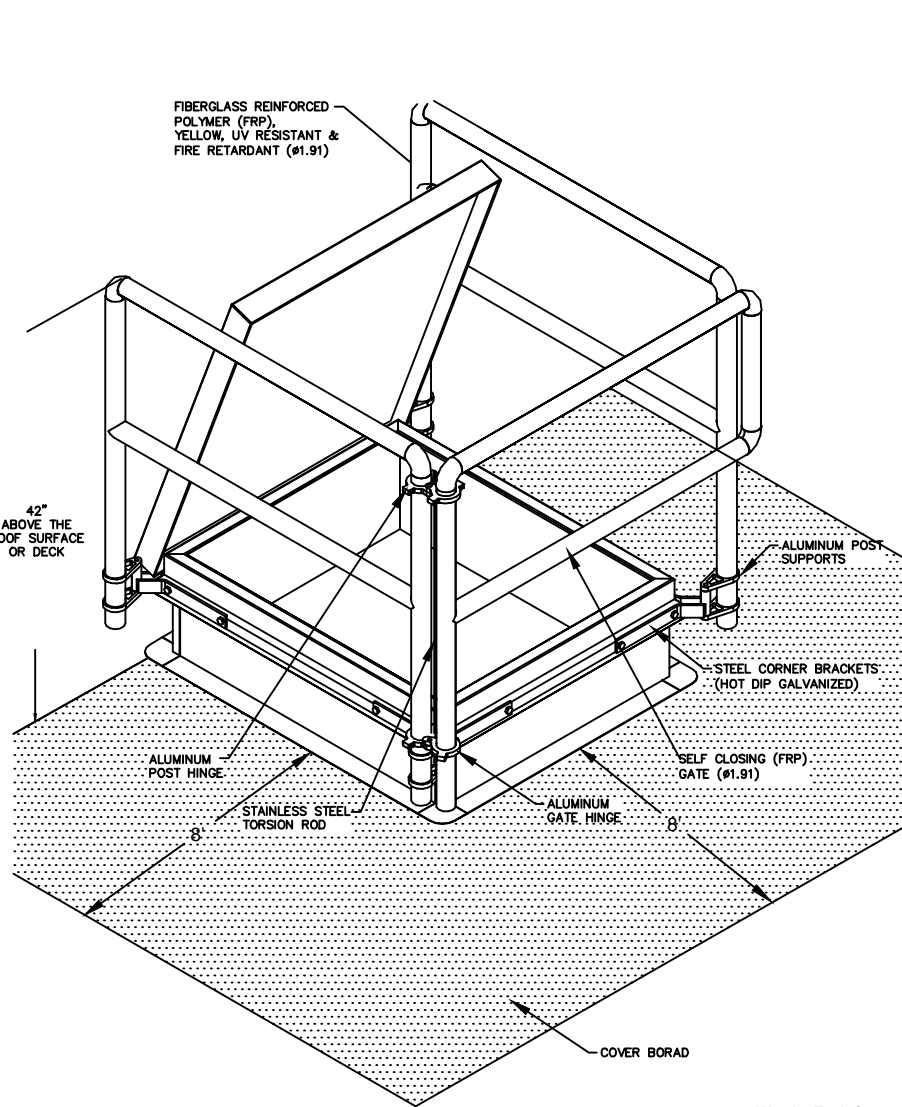
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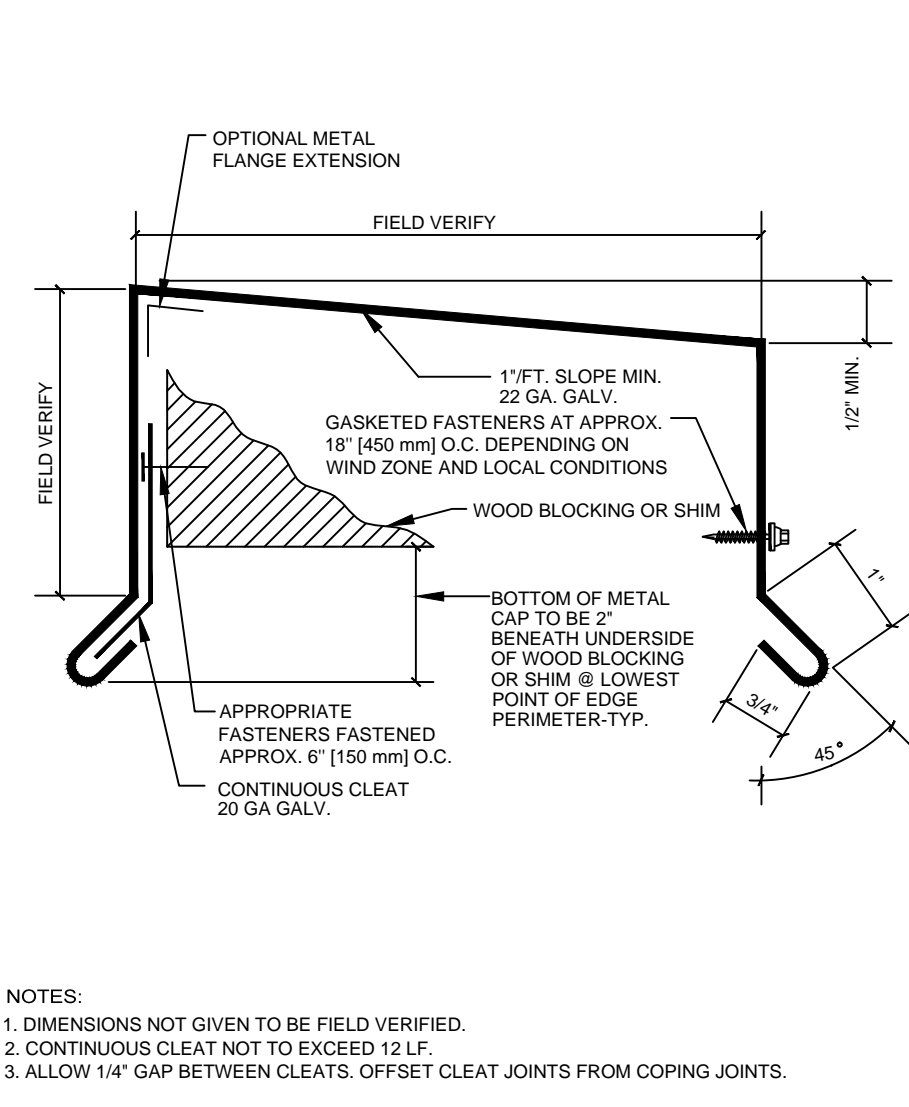
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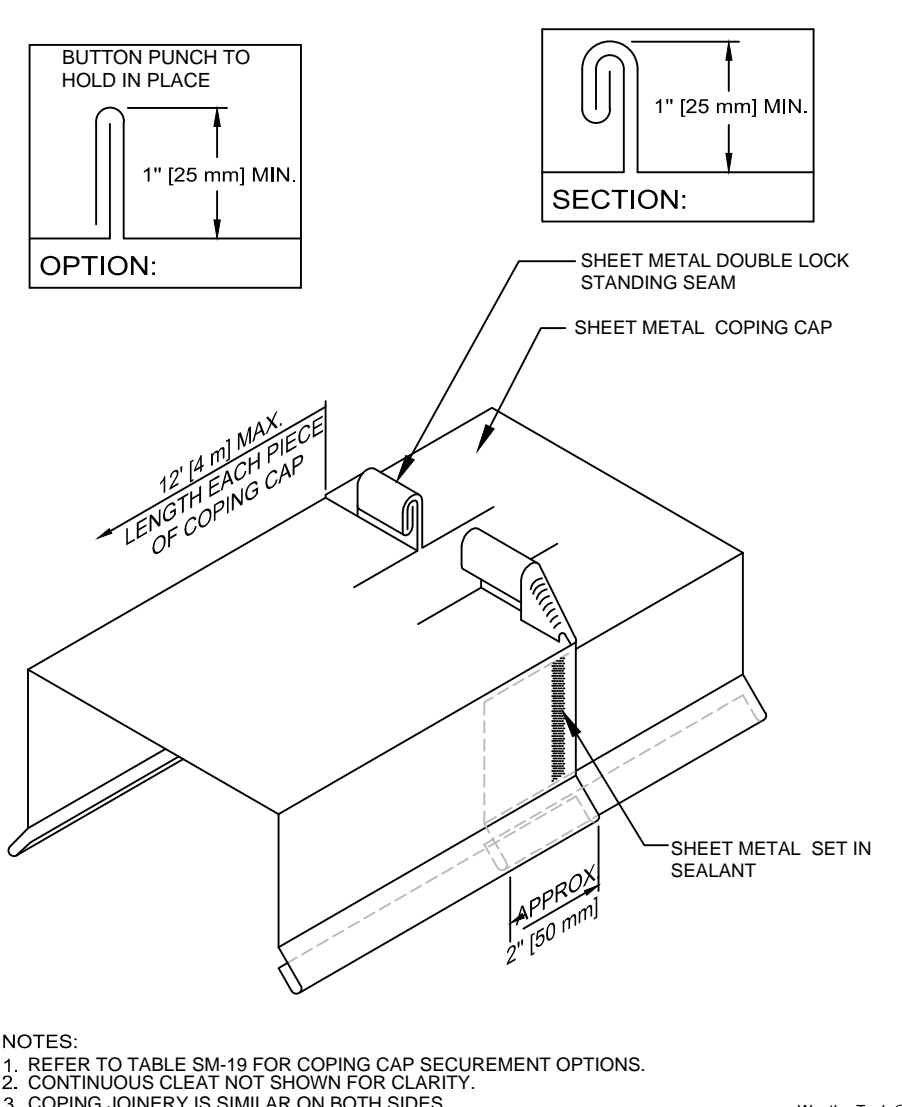
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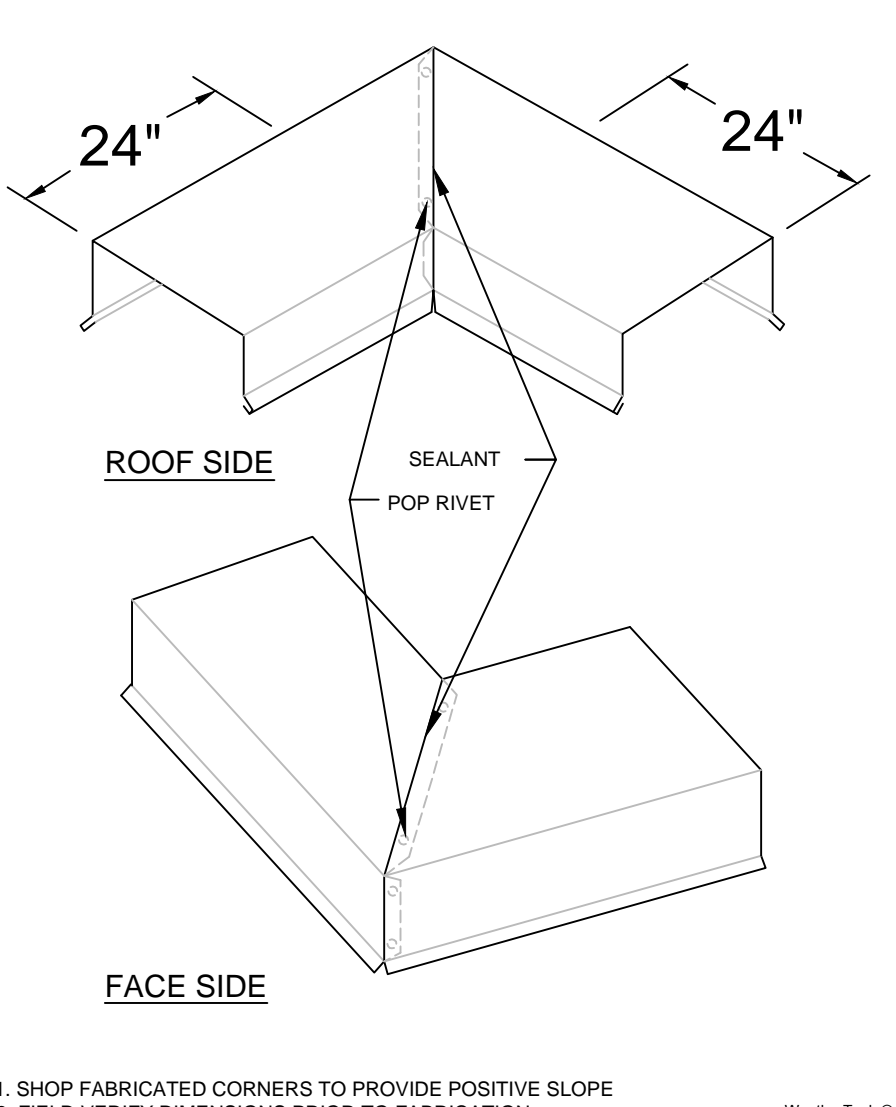
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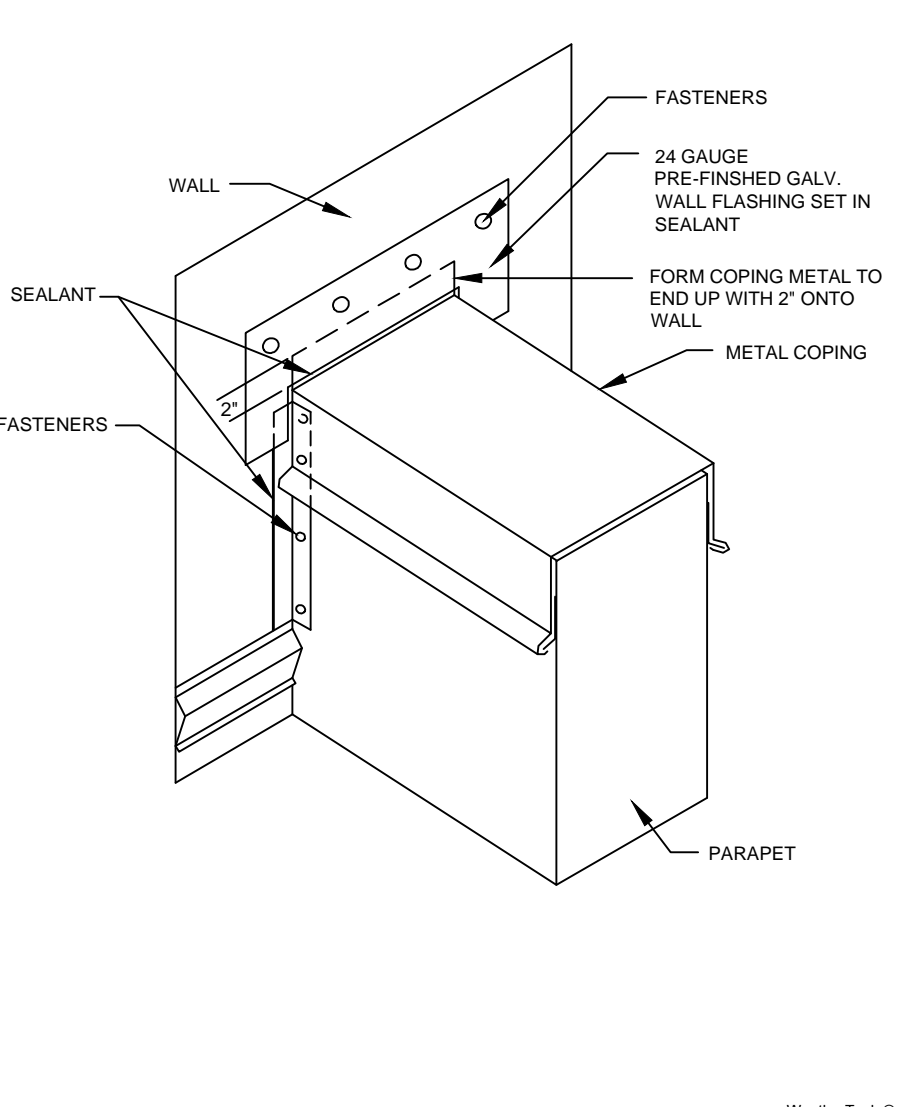
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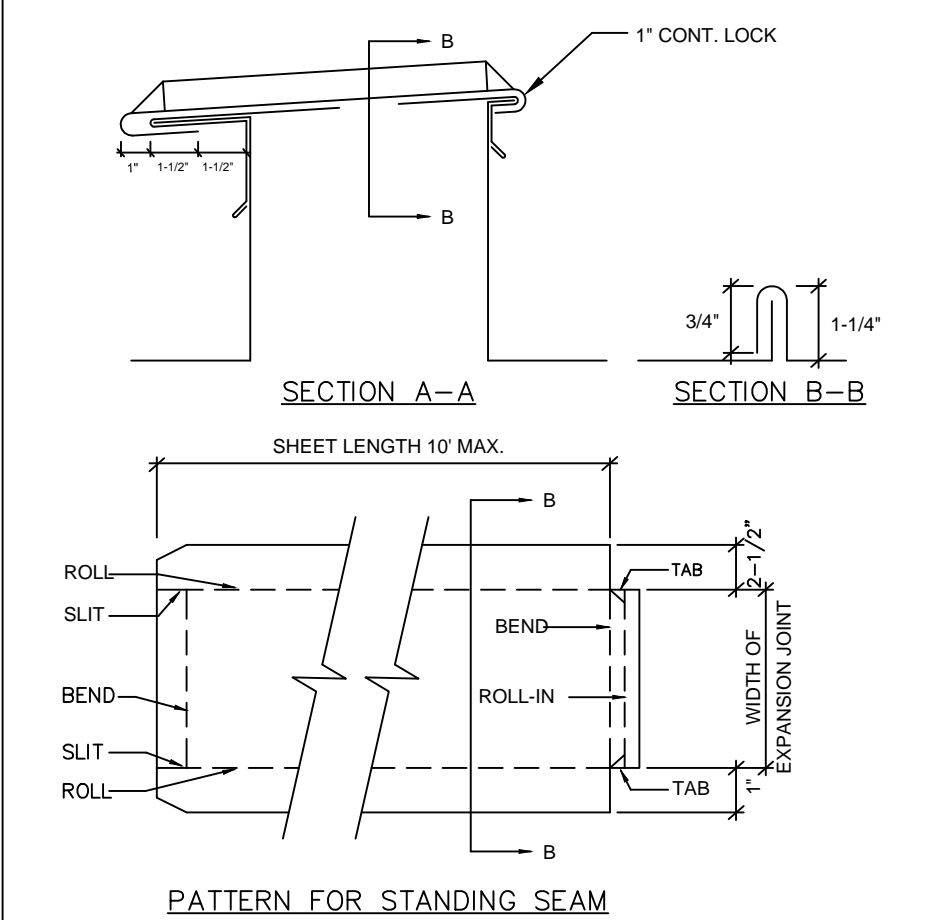
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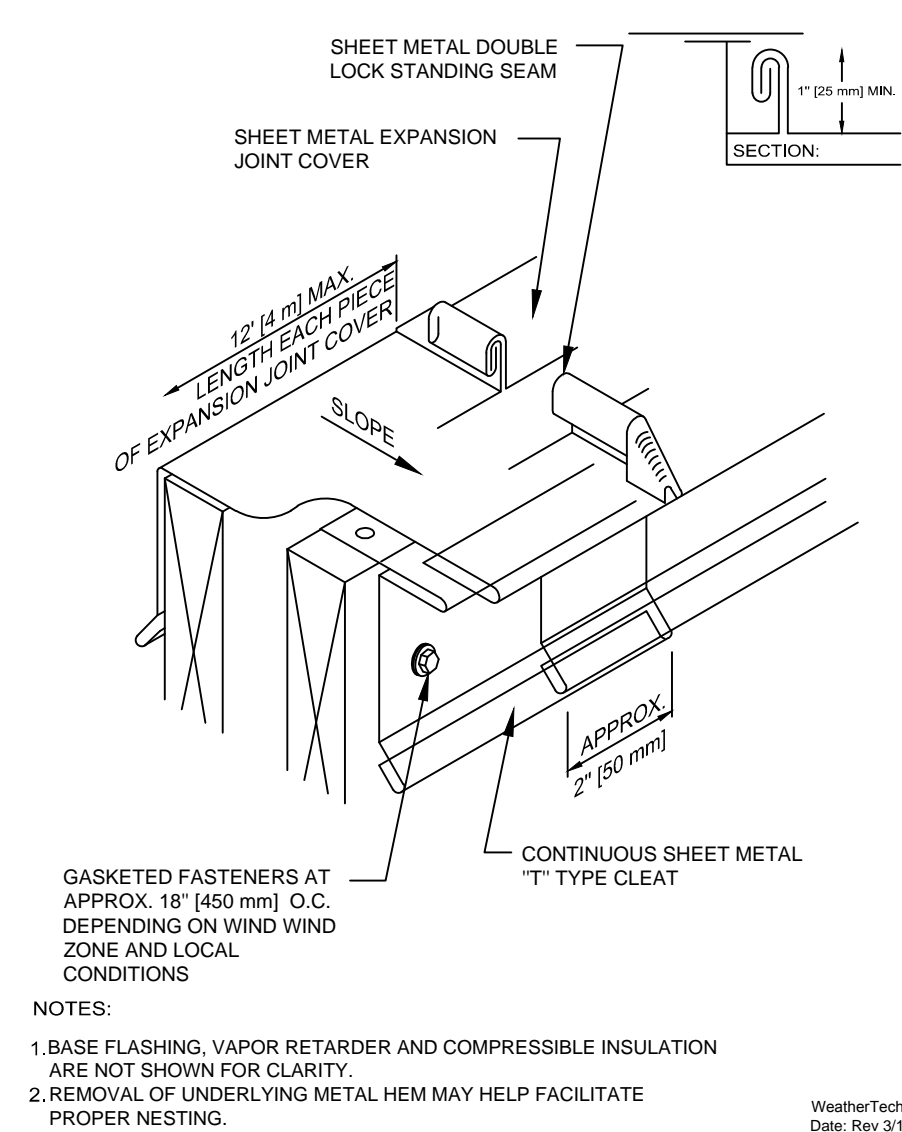
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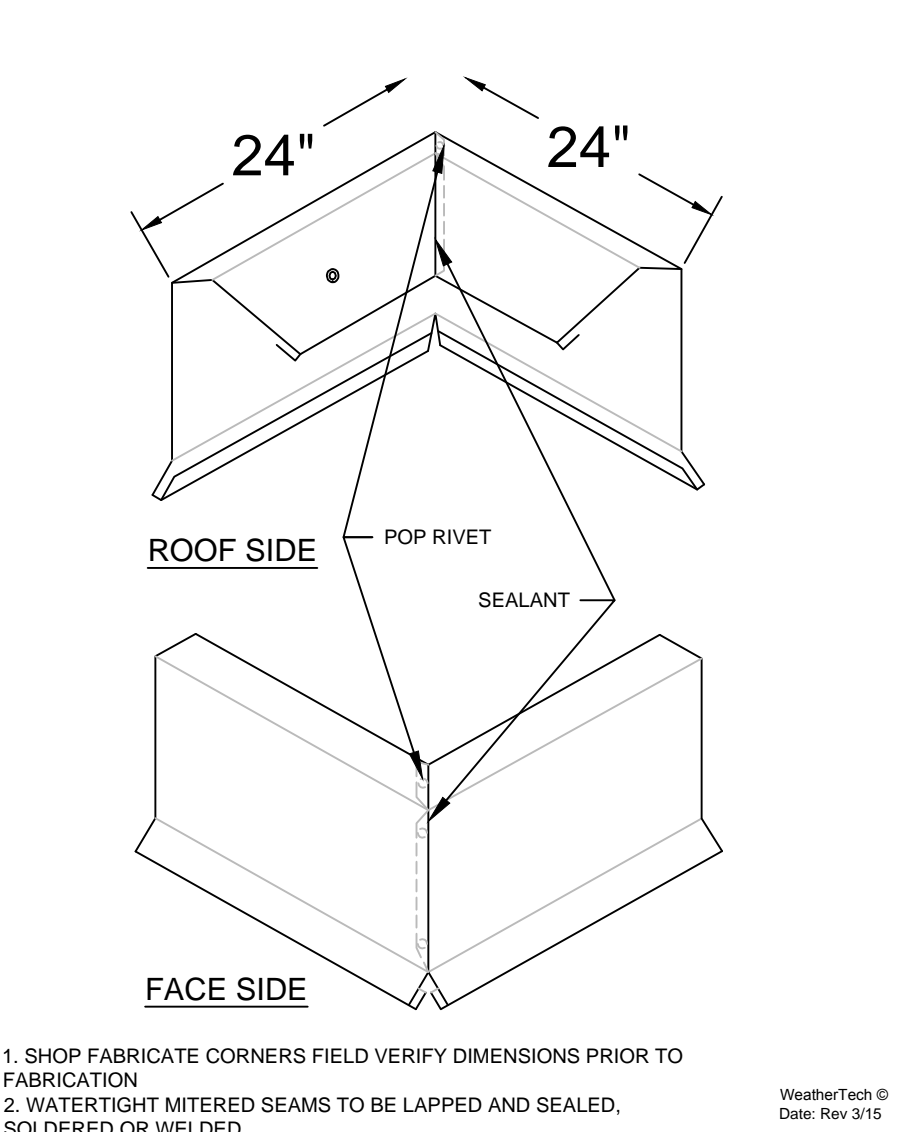
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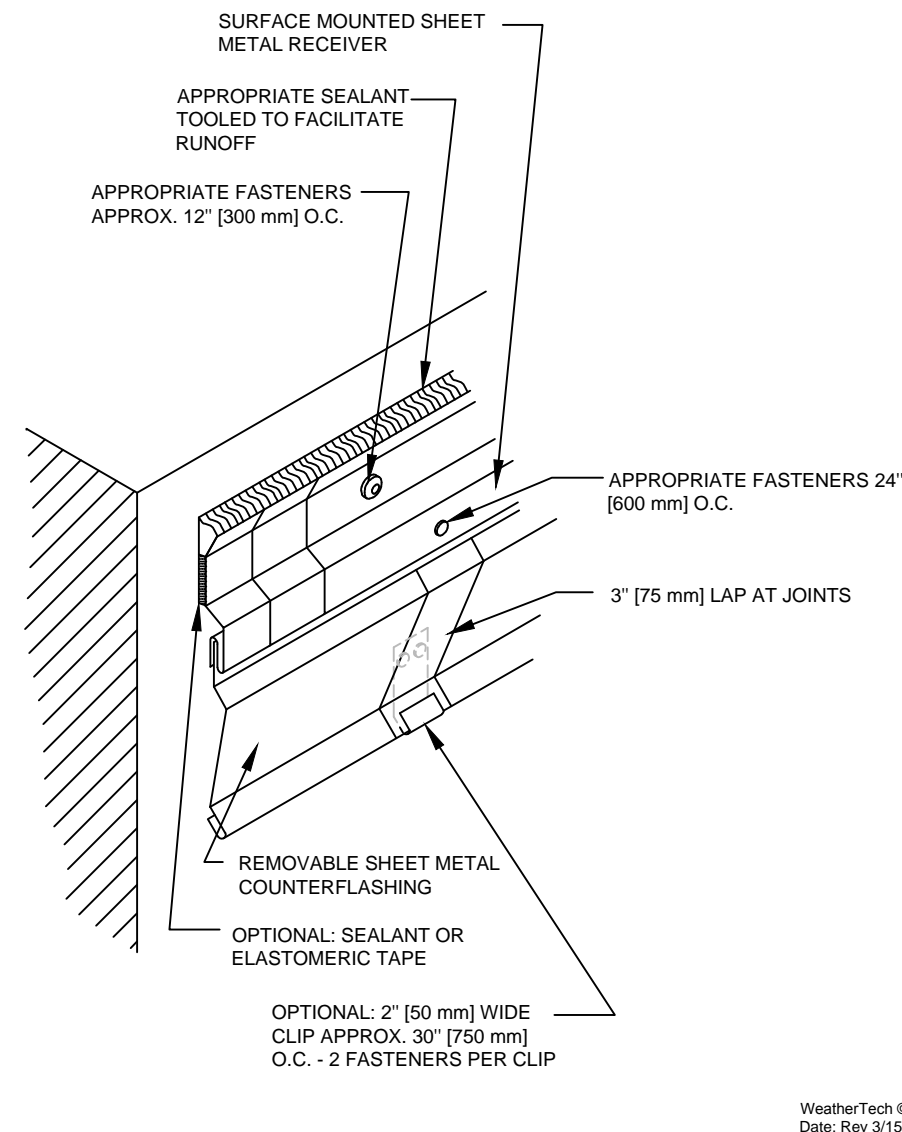
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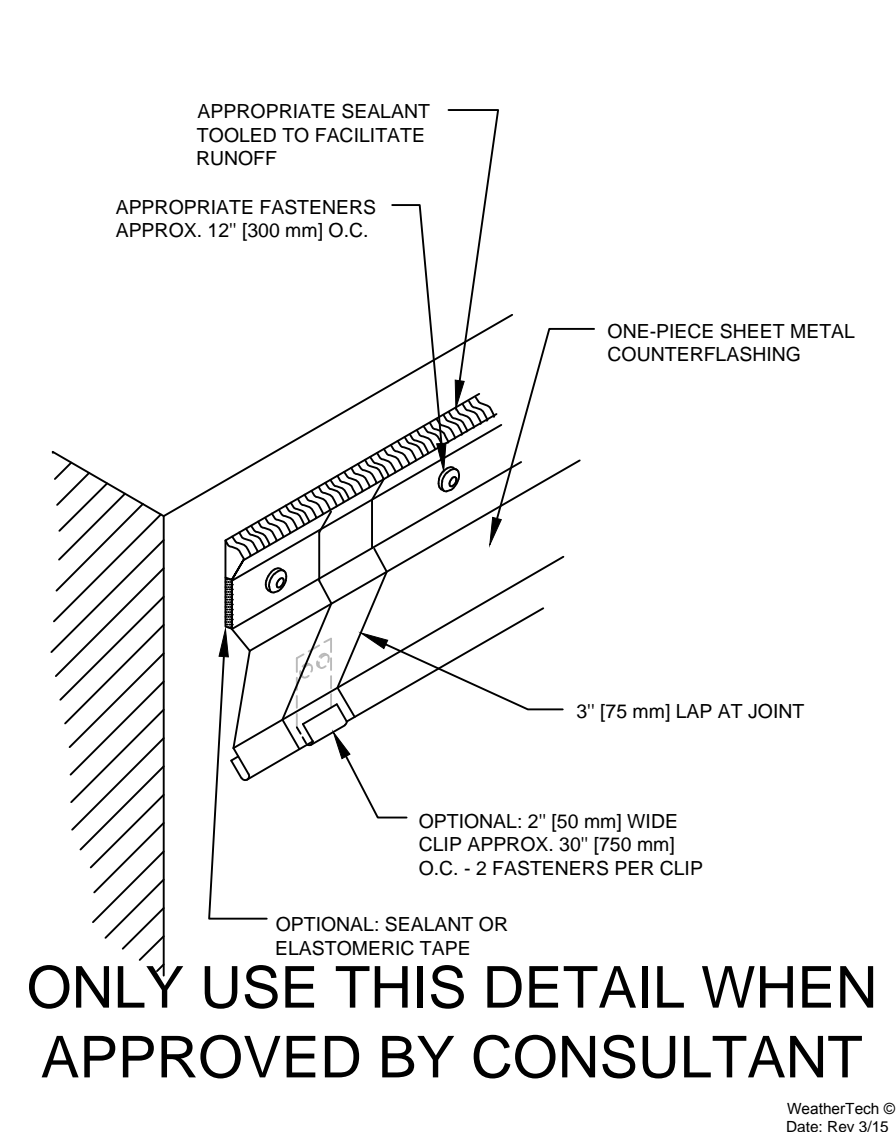
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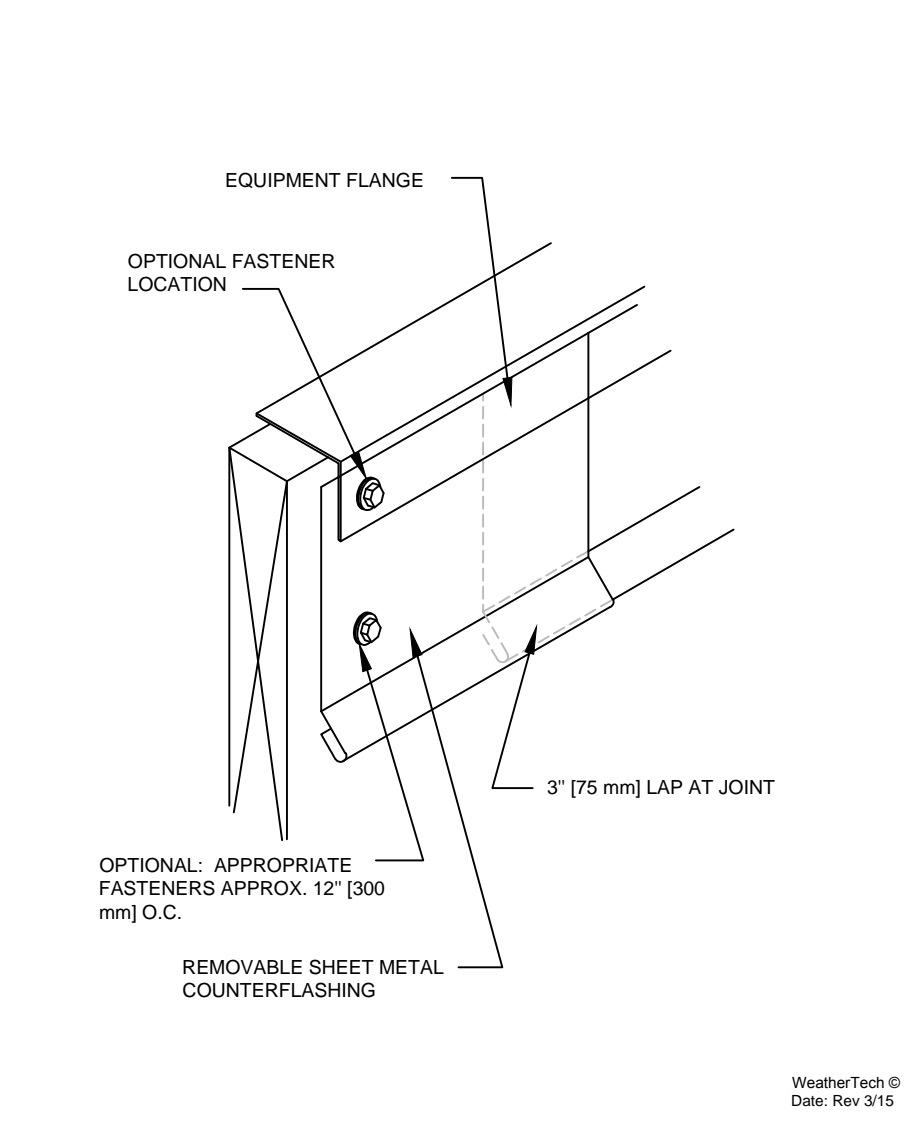
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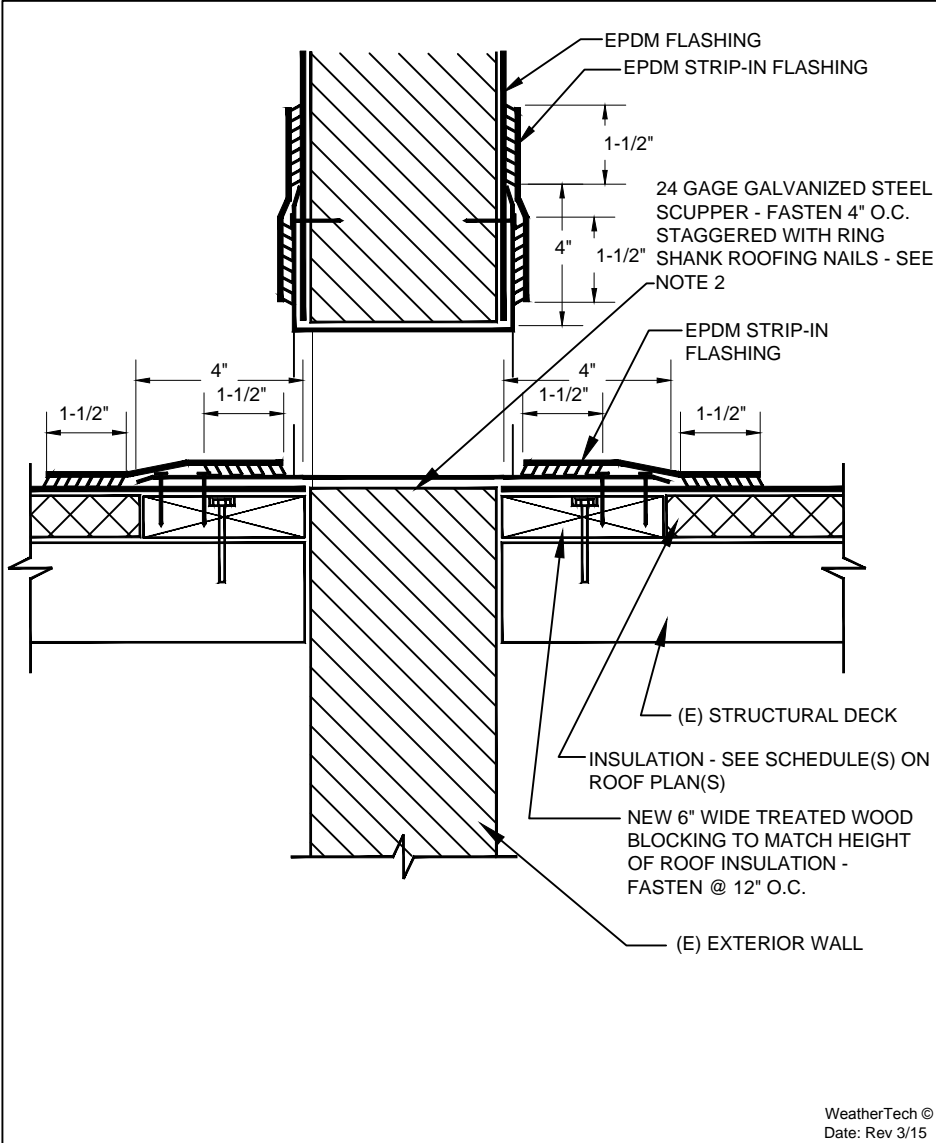


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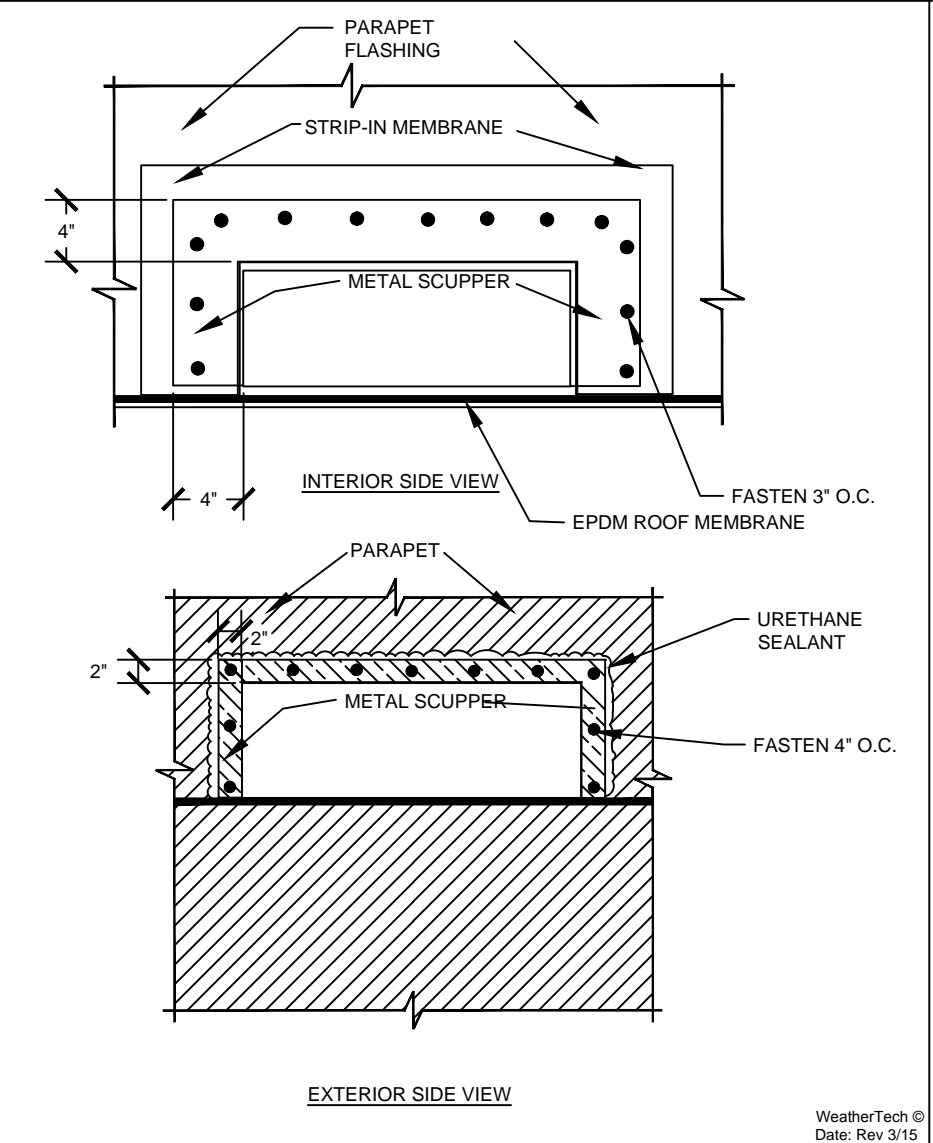
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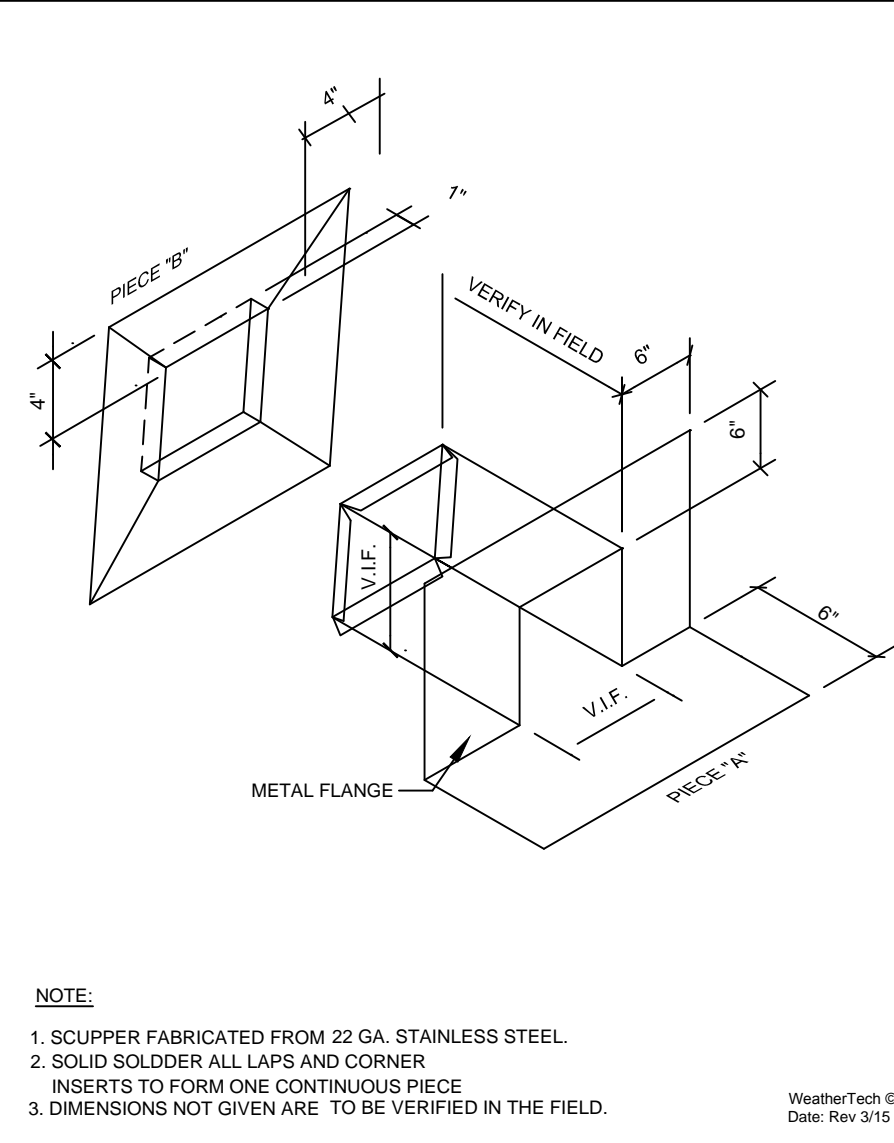
THRU-WALL SCUPPER  
SCALE: N.T.S.

4.01



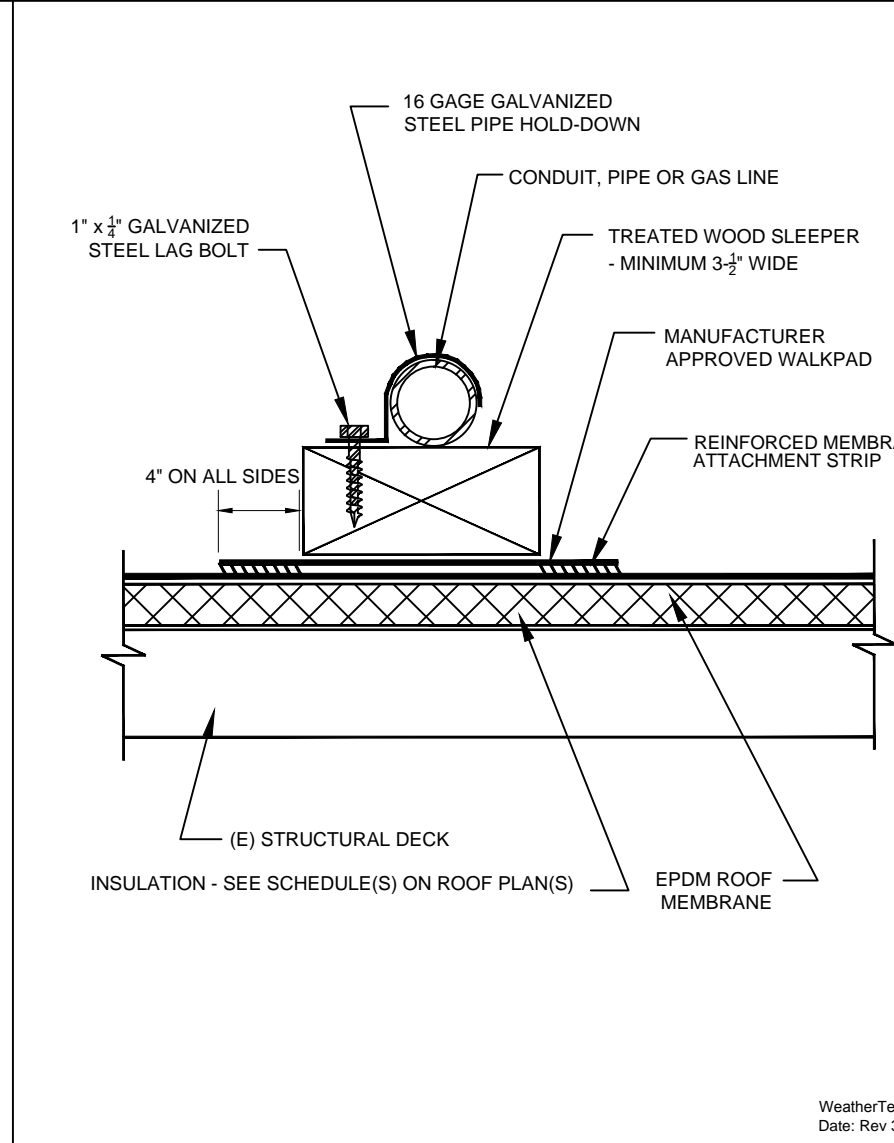
THRU-WALL SCUPPER  
SCALE: N.T.S.

4.02



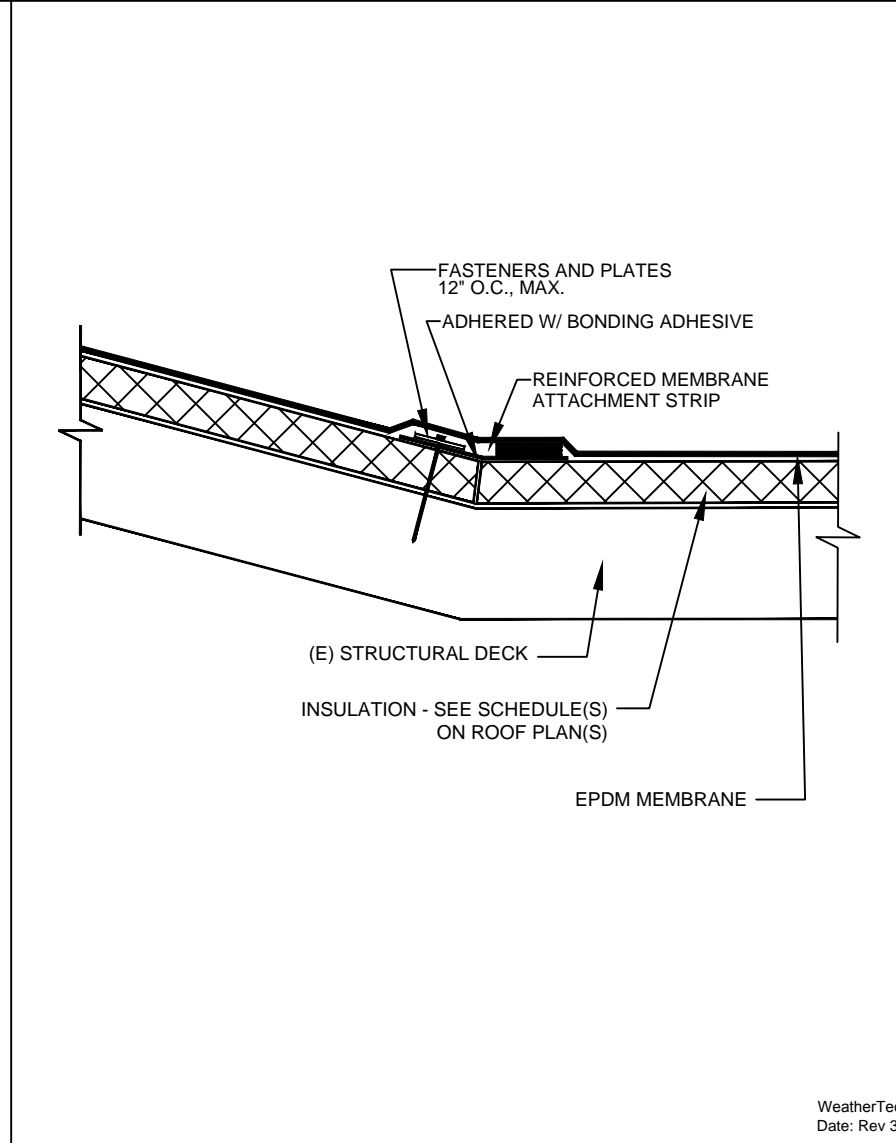
SCUPPER FABRICATION  
SCALE: N.T.S.

4.03



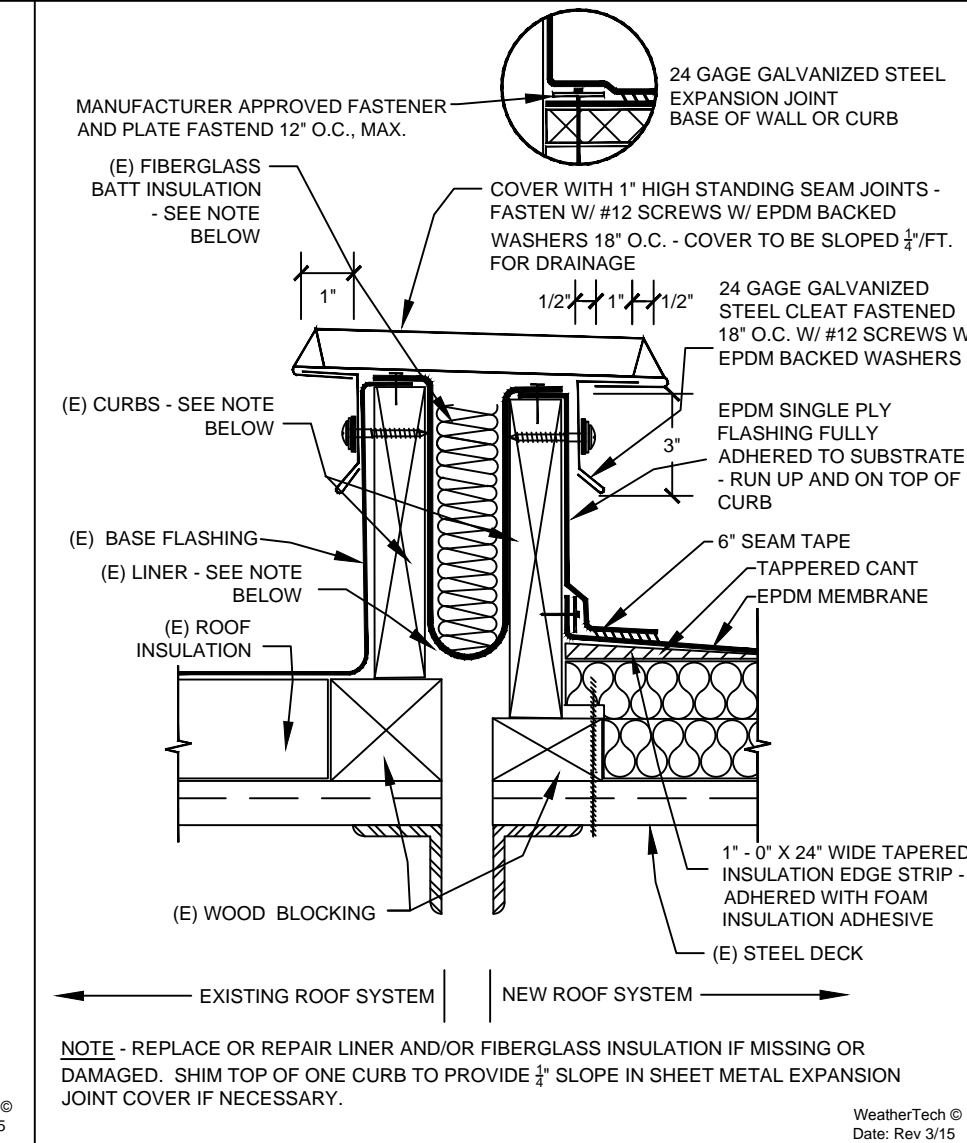
CONDUIT SUPPORT WOOD SLEEPER  
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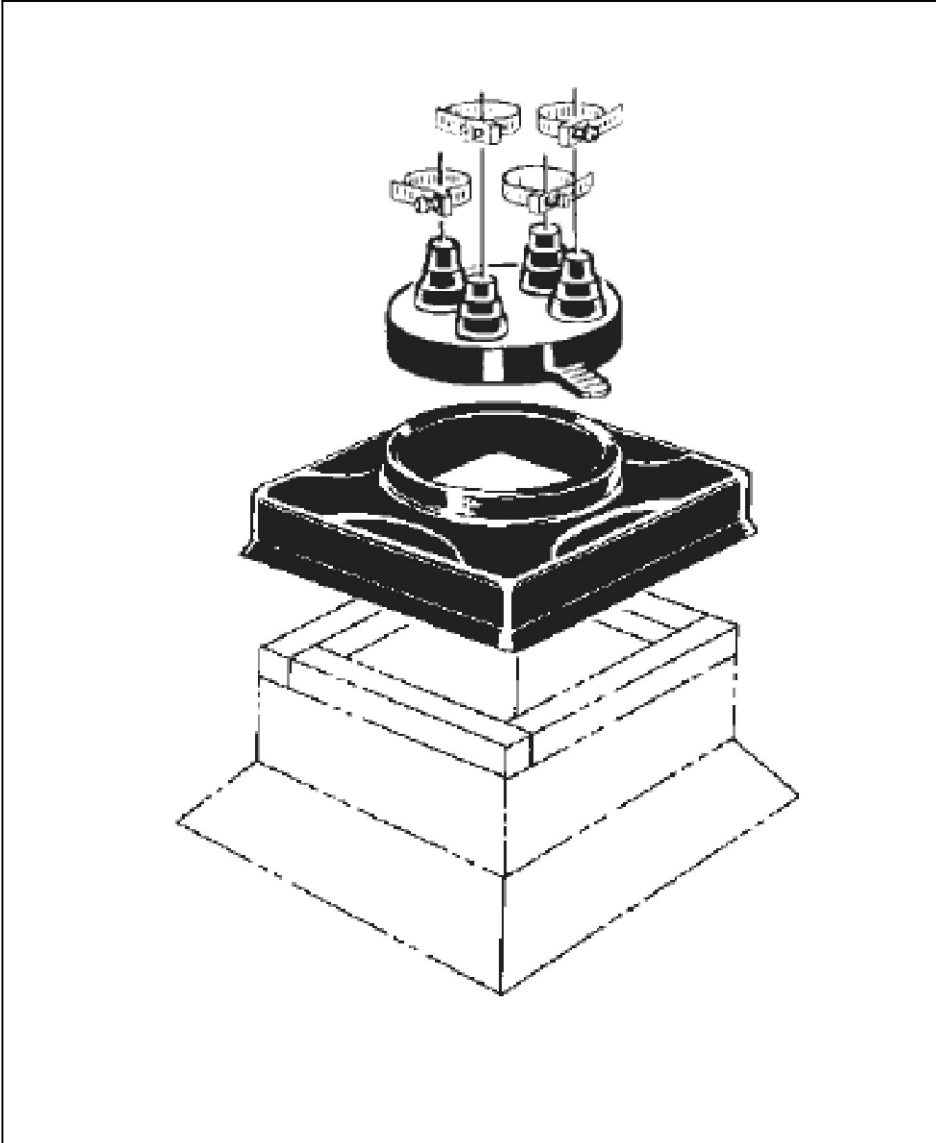
SLOPE TRANSITION  
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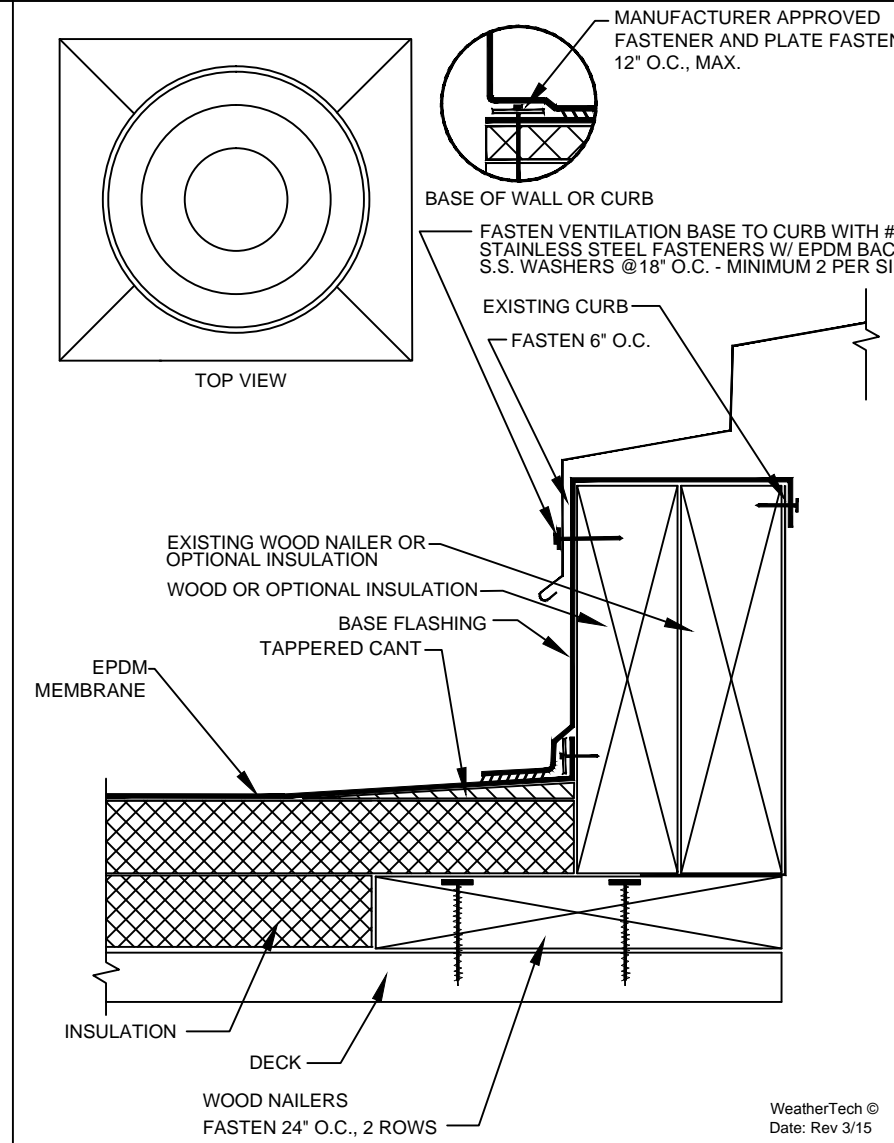
ROOF MOUNTED EXPANSION JOINT @ EXISTING CURB  
SCALE: N.T.S.

4.06



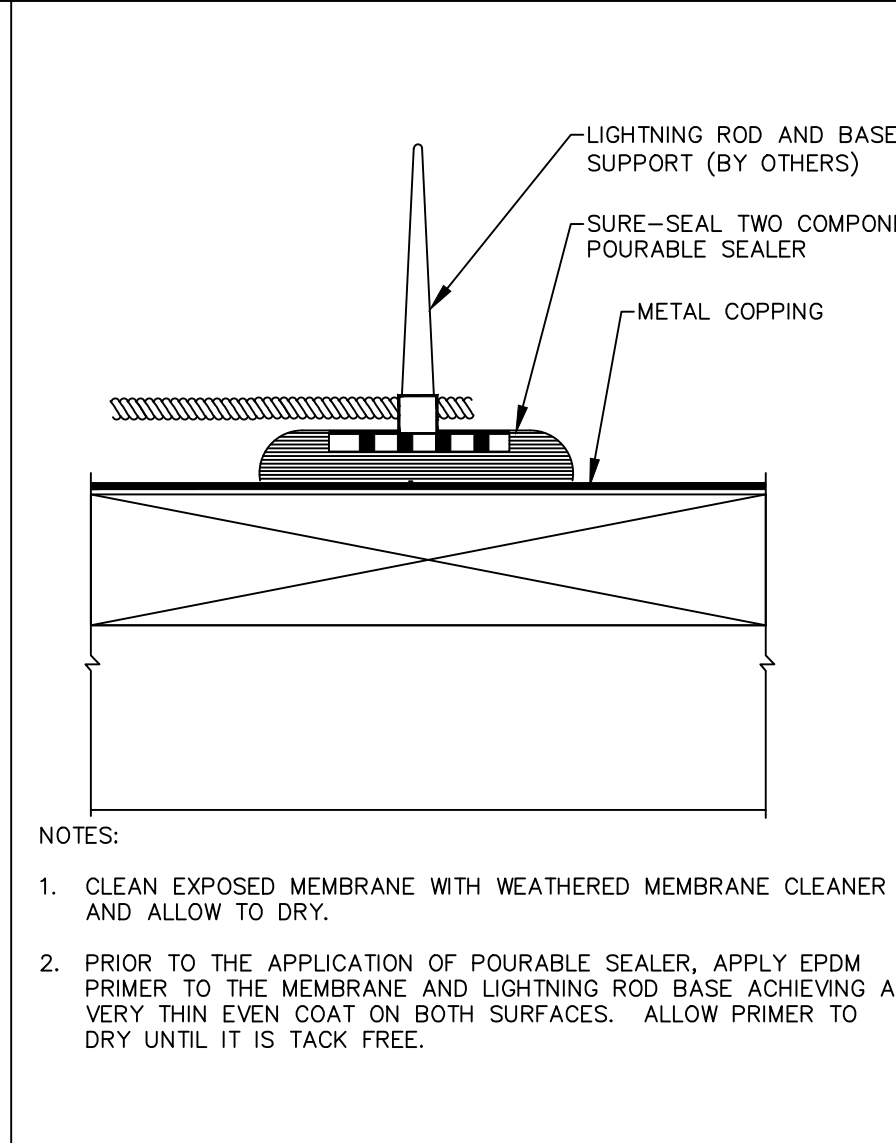
PORTALS PLUS CONDUIT/PIPE  
FLASHING - CURB & COVER  
SCALE: N.T.S.

4.07



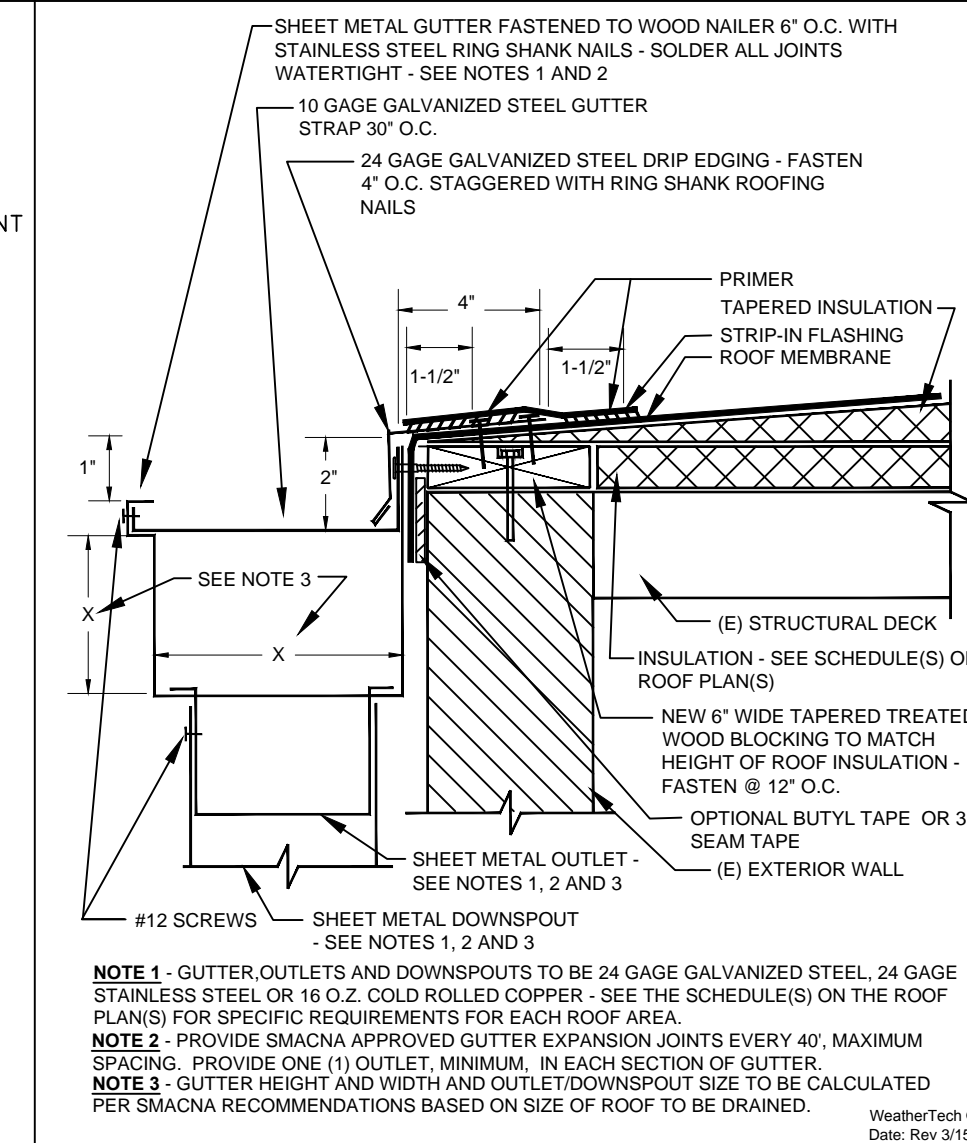
VENTILATION/CURD BUILD OUT  
SCALE: N.T.S.

4.08



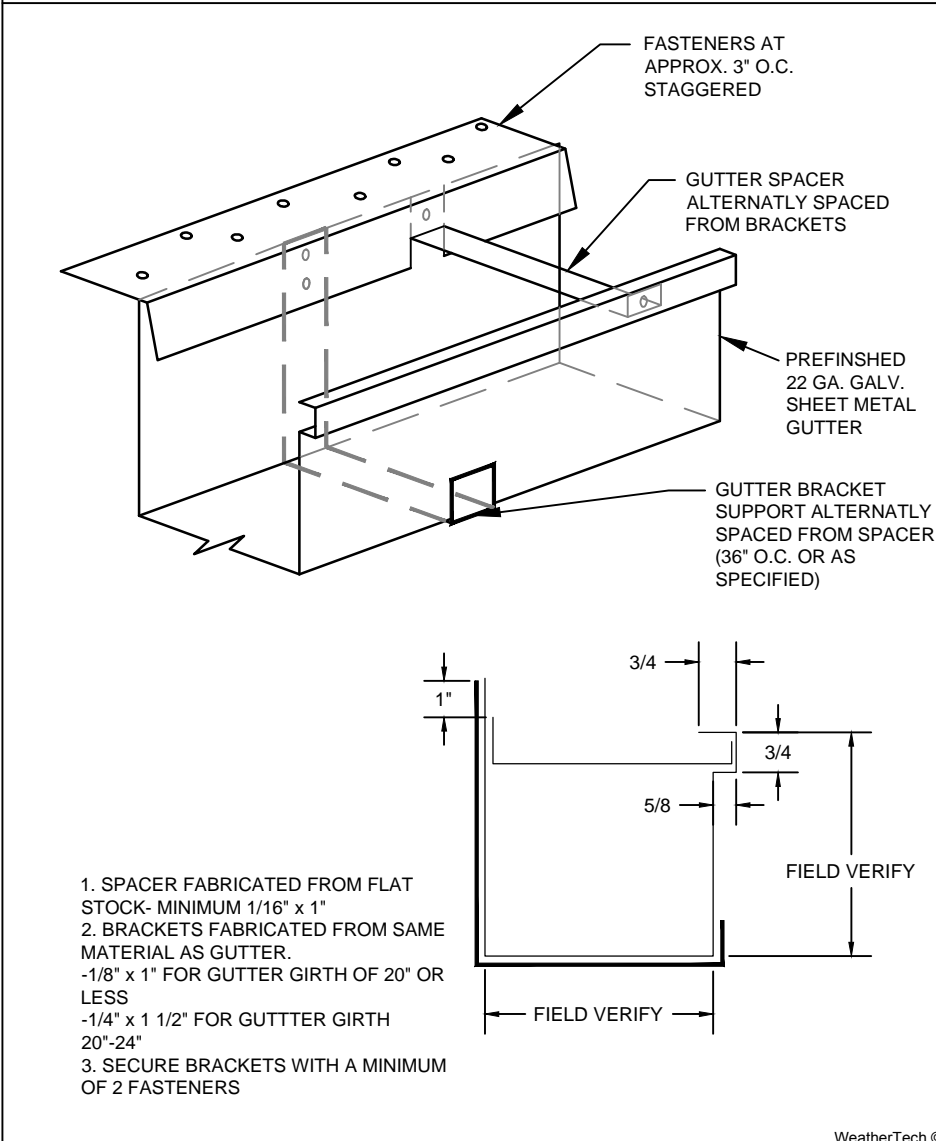
LIGHTNING ROD AT PARAPET WITH  
POURABLE SEALER  
SCALE: N.T.S.

4.09



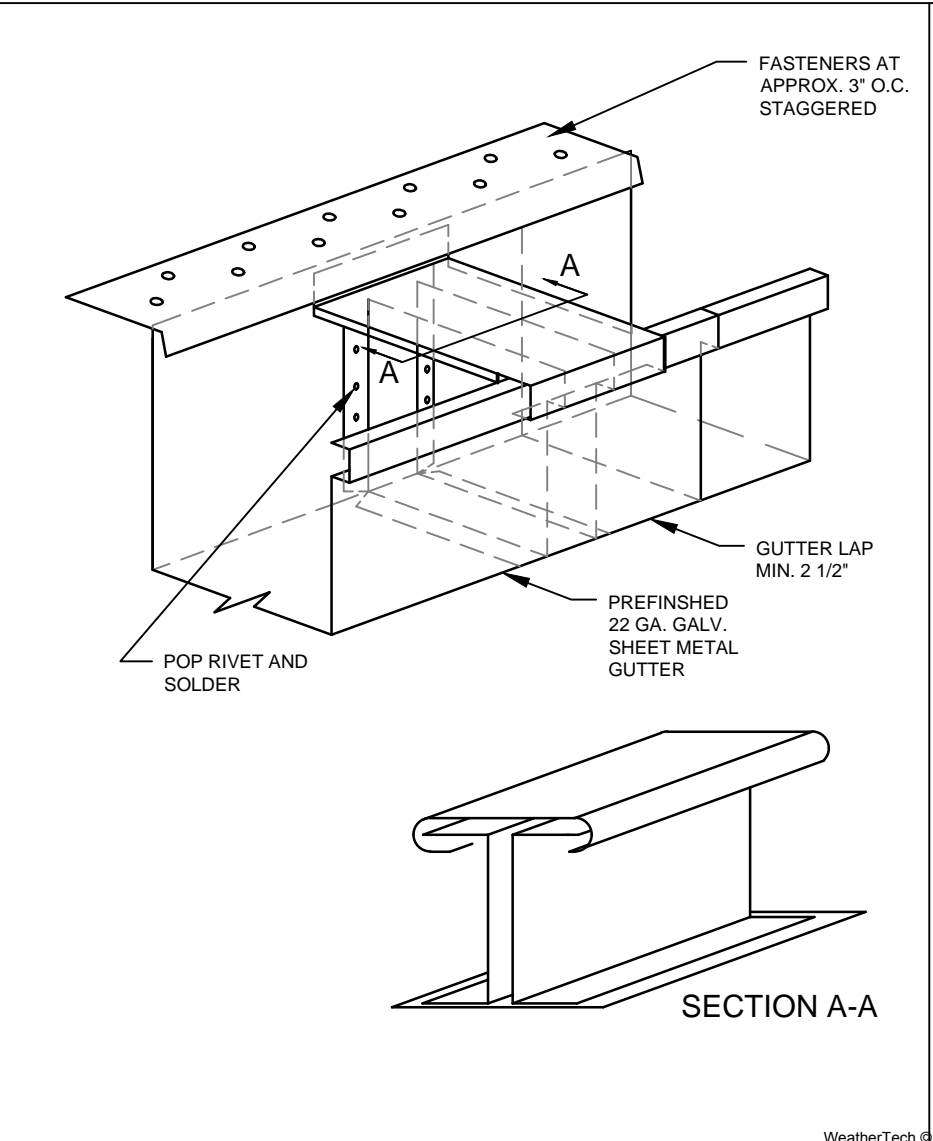
GUTTER EDGE FLASHING - COATED METAL  
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4.10



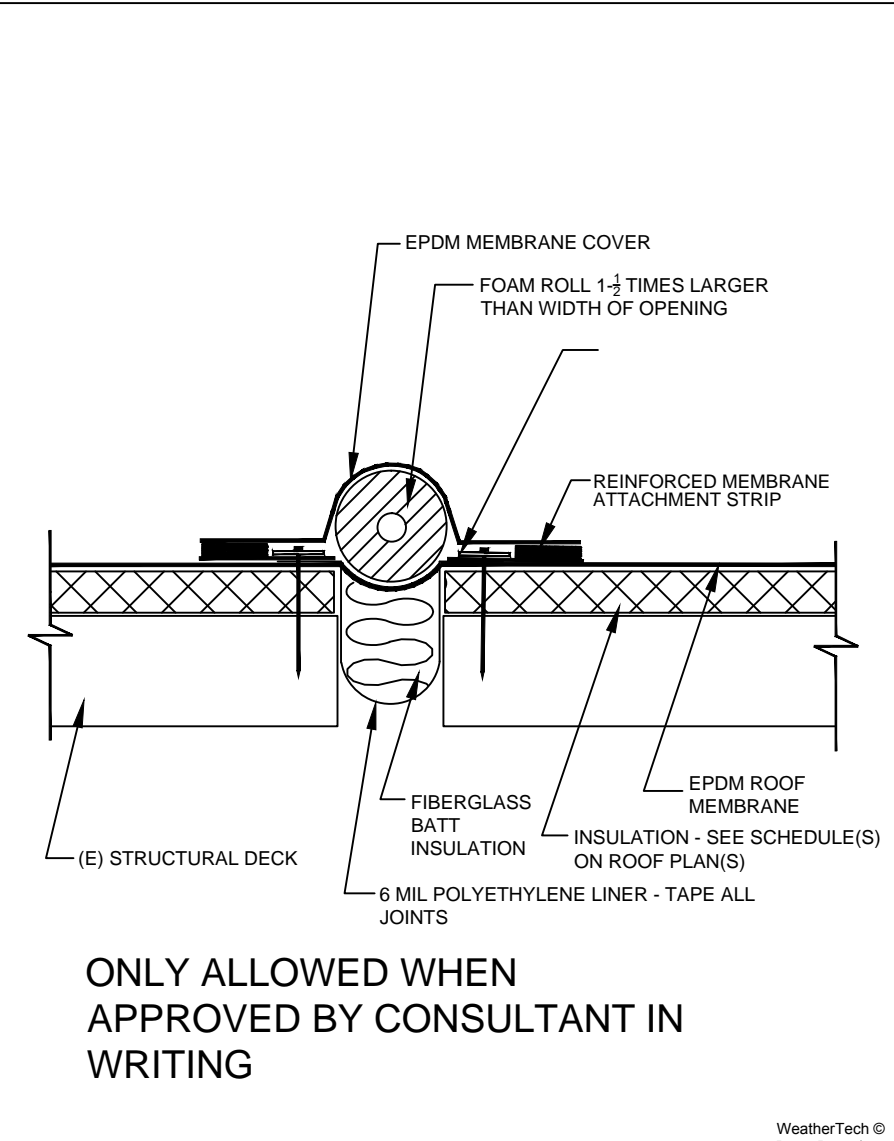
TYPICAL GUTTER  
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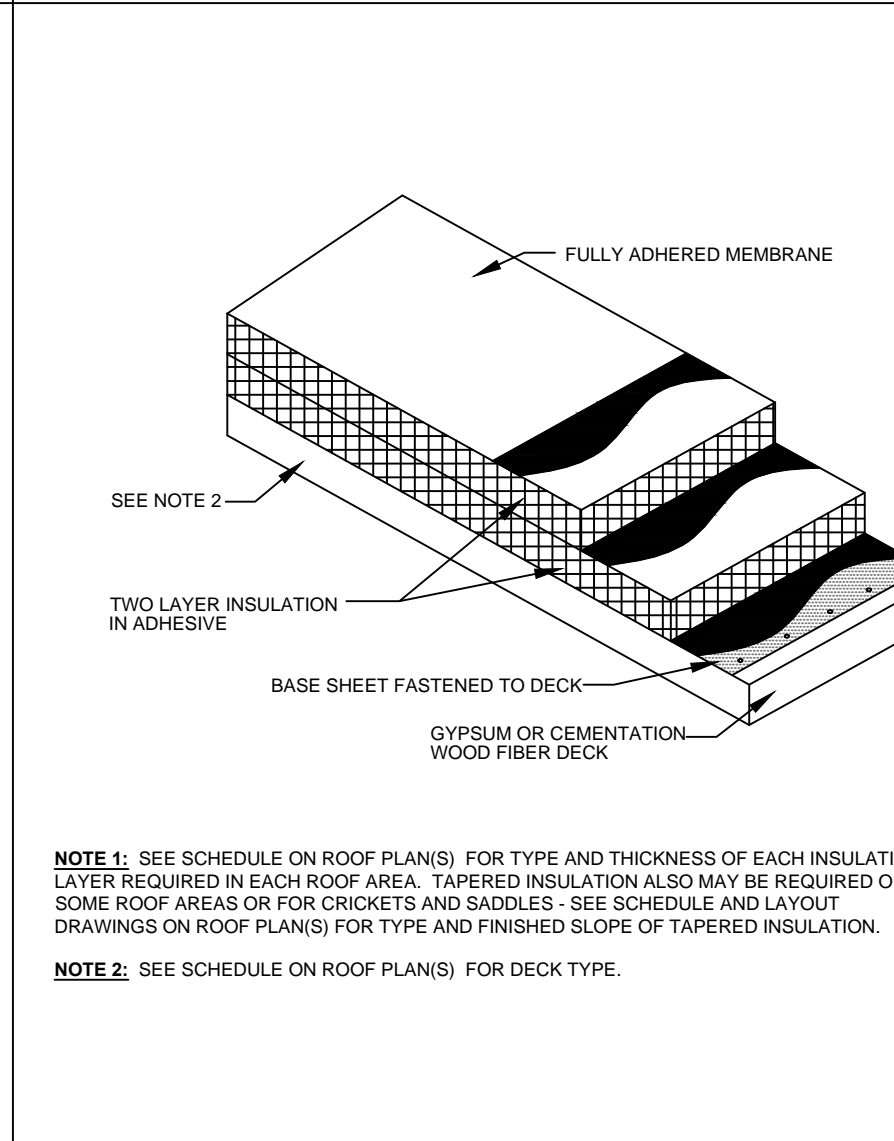
GUTTER EXPANSION JOINT  
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4.12



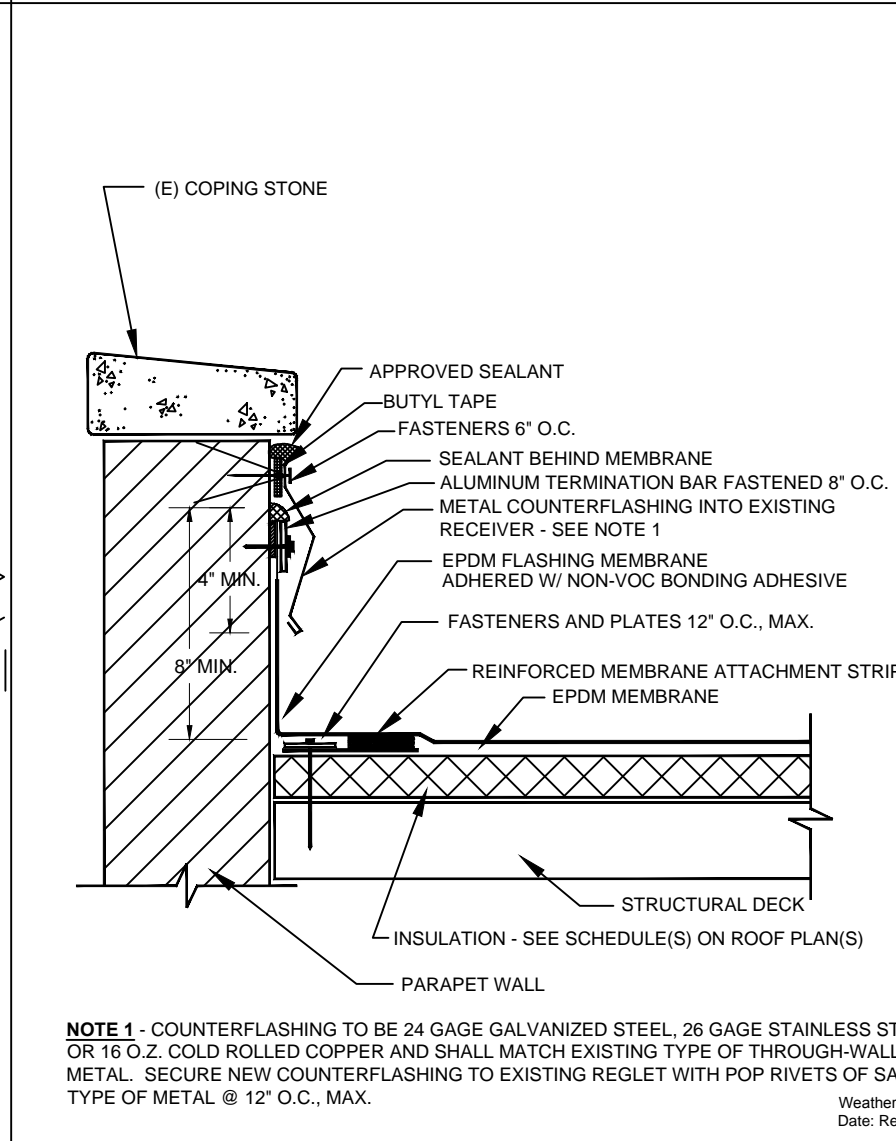
ROOF MOUNTED EXPANSION JOINT  
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4.13



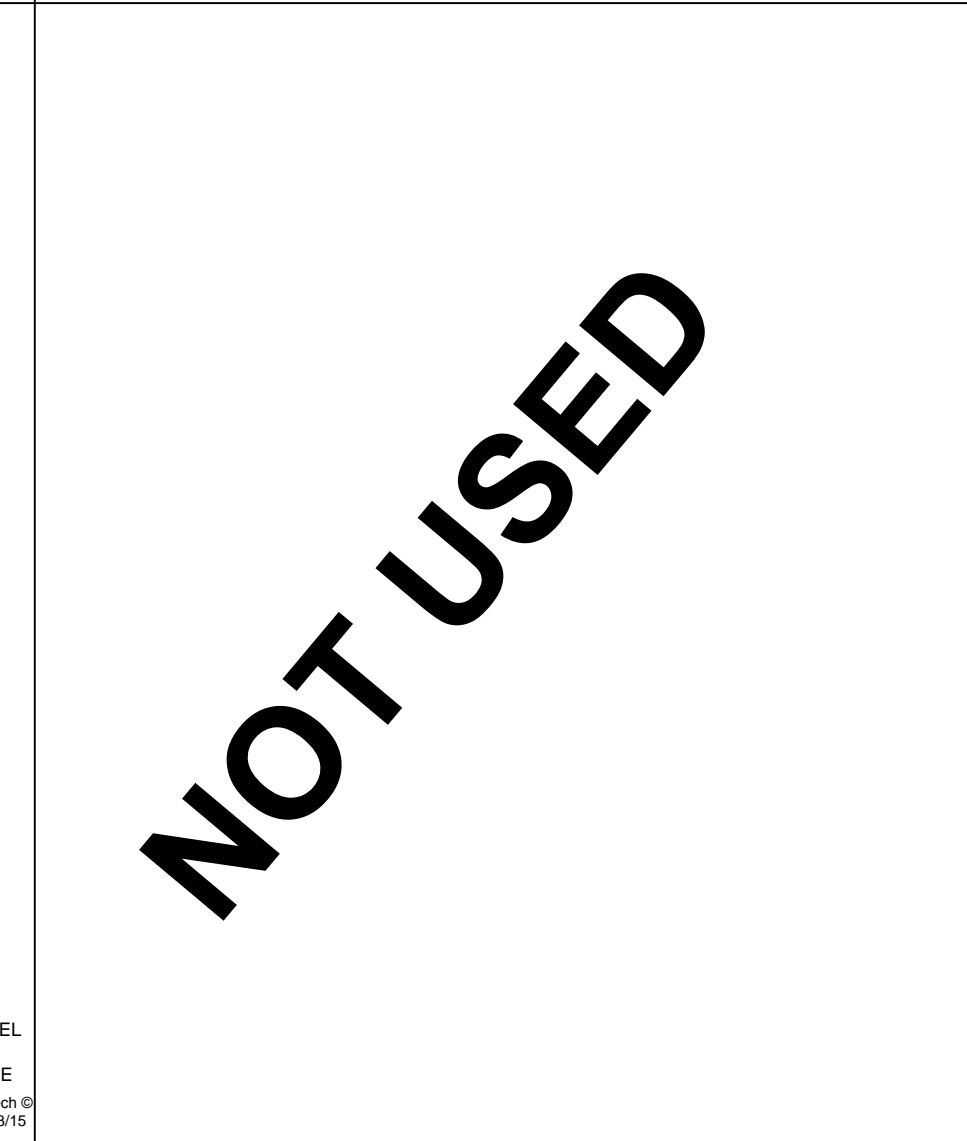
FULLY ADHERED EPDM SYSTEM OVER GYPSUM  
AND CEMENTATION WOOD FIBER DECKS  
SCALE: N.T.S.

4.14



PARAPET WALL W/COPING STONE  
W/ TERMINATION BAR  
SCALE: N.T.S.

4.15



PARAPET WALL W/COPING STONE  
W/ TERMINATION BAR  
SCALE: N.T.S.

4.16

PROFESSIONAL



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WEB SITE: [www.wtcg.net](http://www.wtcg.net)

CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Troy School District  
**BID 9848**  
2018 Roofing Program

WTPProject No:  
TSR-102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/08/17	90% Review Set
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Detail Page

A8.3



PPROJECT SUMMARY

SUMMARY OF WORK: ref. Section 00 02 00

General: Troy School District (TSD) 2018 Roof Program work for five (5) schools and one (1) District building covering approximately 145,925 sq. ft. Roofing work includes roof replacement and restoration required to remediate all work identified in the specifications and drawings inclusive of all Bid Documents requirements.

Schedules: Ref. "PROJECT WORK SCHEDULE" on this Sheet A1.0 - Cover Page.

BID SUMMARY:

- Contractor proposal and two copies will be submitted only on the forms provided and will be enclosed in a sealed envelope marked with the name of the bidder, the title of the work, the time, place and date due and must be hand delivered or delivered by courier no later than 10:00 A.M., Wednesday, November 29, 2017, Administrative Building, Troy School District, 4400 Livernois, Troy, Michigan 48098, at which time all bids will be publicly opened and read aloud immediately thereafter. Bid proposals received after this time will not be considered or accepted. Oral, telephone, fax or electronic mail bids are invalid and will not receive consideration.
  - Bid Bond: Submit with bid five percent (5%) bid bond or certified check.
- Pre-Bid Conference: A mandatory pre-bid conference will be held at Administration Building, 4400 Livernois, Troy, MI 48098, on Monday, November 20, 2017 at 10:00 am Local Time. The roofing contractors will have access to walk the roofs on Wednesday, November 22, 2017. (Between 8am-4pm)
- Bid Form Section 000300: Bid Form to contain Base Bid including all work as specified in Bid Documents including performance (Section 000300) and payment bond (Section 000304) fees, number work days to complete work, square footages are required on Bid Form found in Section 000300.
  - Allowance expenditures shall be documented and compensated on a unit pricing basis per the Unit Pricing Bid Form (Section 000301) values provided.
- Allowances Section 012100: Allowances will be defined on individual school roof plans under "Allowances" and are to be included in Base Bid values found in Section 000300.
  - Allowance expenditures shall be documented and compensated on a unit pricing basis per the Unit Pricing Bid Form (Section 000301) values provided.
- Unit Pricing Section 004322: Unit Pricing for unit work is defined on the Unit Price Bid Form in Section 000301. Unit Pricing bid values are entered by unit price individually on form.
- Alternates Section 012300: Alternates are individually listed on school roof plans and bids for Alternates. Alternated bid value are to be entered on Bid Form (Section 000300) as enumerated.
- TSD reserves the right to issue contracts to multiple contractors.
- Any questions regarding bid specifications must be received noon, Monday, November 27, 2017. Questions must be submitted in writing on the WTC website using the online RFI form at [www.wtcgproject.net](http://www.wtcgproject.net) any questions on how to use the RFI form contact Ann Crispen at (586) 731-3095 x10 or Geof Garabedian at (586) 731-3095 x12. No response will be made to oral questions.

EXISTING ROOF SYSTEM CONSTRUCTION: ref. Roof Plans

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions.

NEW REPLACEMENT ROOF ASSEMBLY SUMMARY:

- Roof System: Ref. Roof Plan Schedules
  - Roof Membrane: EPDM, 60 mil, unreinforced and fully adhered;
  - Insulation: Min. R20, min. two layers. Top layer must be adhered.
  - Underlayment: Modified base sheet, mechanically fasten. Reference Individual Roof Plans.
  - Deck: Multiple types Reference individual Roof Plans.
  - Warranty:
    - Roof replacement: 20 yr. Materials manufacturer, No Dollar Limit materials and installation;
    - Restoration: 2 yr No leak warranty, contractor.

- Roof System Performance: Ref. Roof Plan Schedules
  - Wind : FM Global (FM): FM Standard 4470 Meets - Windstorm Classification FMG 90
  - Fire: Underwriters Laboratory External Fire Resistance - Class 1A.
  - Energy: Michigan Uniform Energy Code: Insulation above deck: Reference Individual Roof Plans.
  - Drainage: Drainage Performance Acknowledgement"

RESTORATION:

Ref. School Sheet(s), RepairRestoration Manuals

- Troy Union only applies to this work.
  - Drawings of each roof area with defect locations marked on plan using 10 ft. x 10 ft.
  - All defect to be repair by designated code number for BUR NRCA manual for TSD Restoration work as revised and amended by WeatherTech Consulting Group, Inc. for completion of restoration work:
    - BUR Manual
    - Thermoplastic Repair Manual
    - Thermoset Repair Manual

GENERAL SHEET NOTES

- All work shall be executed with accordance with the appropriate document of the Contract Documents.
- Any conflicts between specifications and drawings shall be brought to the attention of the Owner and Consultant immediately. In all situations the more restrictive and higher quality shall govern.
- All dimensions to, of, and in existing building and roof shall be verified in the field by contractor. Field measure existing conditions to verify material quantities and dimensions prior to fabrication on component material.
- Details shown are typical. Similar details apply to similar conditions unless otherwise indicated.
- The drawings herein are related to an alteration/ restoration to an existing structure. The specified work was based upon as much observation, destructive testing, etc. as circumstances permitted.

GENERAL CONSTRUCTION DETAIL NOTES

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Flashing Heights: Perimeters, curbs, penetrations shall be raised as necessary to meet the new insulation heights, tapered edge strip and tapered insulation height to meet typical industry standard of 8 in. base flashing height.
- Drains Existing: Remove existing drain flashings. Furnish and install ½ inch per foot sloped tapered insulation sump area as detailed. Clean and reuse existing drains and accessories, replace all damaged, nonfunctional, incompatible, missing and broken drain components. All replacement bowls, strainers, and clamping rings shall be cast iron. All nonmetallic drains strainers shall be replaced with fitted Refer to Details 1.10 and 1.12. Overflow drains same requirements as noted above. Refer to Details 1.11 and 1.13.
- Drains New: Furnish and install new drains as indicated on drawing. New drains to tie into existing primary drain. Size to match existing up 3 in. dia. (Use 3 in. dia for bidding). Contractor to provide all drains, leaders and hook ups as necessary for fully functional drains.
- Tapered Insulation: Furnish and install new tapered insulation, crickets, saddles and kick-backs as designated on roof plan to provide a finished slope of 1/4 in/ ft slope and a min length to width ratio of 3:1. All equipment w/ curb size greater than 24 in. shall have cricket install on up slope side. Contractor responsible for identifying and notifying Consultant and Owner all existing tapered insulation not called out on plans for determination of unit costing. Verify in Pre-bid Conference additional ponded areas identified on the roof and install as noted.
- Curbs - Movable Equipment: Lift equipment from curbs; run new fully adhered membrane flashing up and over top of curb; install continuous sealing material over top of curb. Reset equipment and mechanically fasten to curb. Coordinate with Owner prior to installing equipment. Install new flashings. Metal equipment flashing and/or counter flashing must extend a minimum of 3 in. past the termination of the base flashing; add metal counter flashing as required. Refer to Details 1.17 and 1.18.
- Curbs - Non-Movable Equipment: Terminate new fully adhered membrane flashing at unit framing member. Metal equipment flashing and/or counter flashing must extend a minimum of 3 in. past the termination of the base flashing; add metal counter flashing as required. Refer to Details 1.15 and 1.16.
- Equipment on Support Curbs - Non-Movable Equipment: Cut corners of metal flashing cap, terminate new adhered membrane flashing to curb nailer. Reposition metal; install new shop fabricated corner metal, welded and set in sealant. Wire brush and apply rust inhibitive paint to rusted cap metal. Refer to Details 3.04 and 3.18.
- Equipment on Support Curbs - Movable Equipment: Raise or move equipment to furnish and install new metal cap on curb. Refer to Details 2.12.
- Round penetrations: All penetrations shall be cleaned down to surface where any sealant will contact; install new prefabricated pipe boots or field wrap with membrane. Install draw band and sealant Refer to Details 2.01, 2.02, 2.03 and 2.04.
- Heat Stacks: Reuse existing metal jacks and storm collars. Clean surfaces and apply new field wrapped EPDM flashing. Reattach and reseal storm collars. Refer to Detail 2.05.
- Steel Support Posts: Install split pipe boot or field wrap flashing with membrane. Terminate with draw band and sealant Refer to Details 2.06, 2.08, 2.09, 2.10 and 2.11.
- Prefabricated Pipe Chase Cover: Reuse existing pipe cover. Replace any damaged or missing clamping bands or sealants. Refer to Detail 3.05.
- M. Gage line and conduit support blocks: Reuse existing wood supports and sleepers. Install pads under all wood supports. Replace any damaged wood with matching wood or rubber support blocking Refer to Details 2.17 and 4.04.
- Condensate Drain Lines: Reuse, repair or replace all damaged or unusable drain lines. Add additional drain line to extend minimum 4 ft from equipment or to any drains within 20 ft. Provide manufacturer's approved splash pan/padblock where condensate drainage water would contact the roof membrane.
- Abandoned Curbs & Penetrations: Existing abandoned equipment curbs flash according to General Note C. Owner will mark all equipment to be removed and the curb capped. Remove all equipment and curbs as designated by owner and identified at the prebid conference. Where directed, remove curbs flush to deck surface, install framing and matching decking material. For abandoned curbs to remain in place, install new base flashing and install new 24 gauge sloped metal cap. Provide rain protection when removing any equipment or penetration. All small round abandoned penetrations that have no utility service as confirmed by Owner and licensed contractor shall be removed to deck patched according to deck type. Refer to Details 3.03 and 3.04.
- Pitch pans: Pitch pans can only be used when approved by Consultant. In the event they are to used furnish and install new pitch pans, clean all penetrations down to original surface, blocking required at all pitch pans. Ref. Details 2.06 and 2.07.
- Satellite Dish Ballasted Stand: Prior to moving any satellite dish coordinate with Owner and use Owner approved communications contractor to move, reset and recalibrate satellite stand. When repositioning over the new membrane. Furnish and install new pads to support satellite stand strong enough to distribute satellite weight without crushing insulation.
- Base Flashing Surface Mounted Two - Piece: Two piece is the standard for surface. Furnish and install new termination bar to match existing locations and conditions. Refer to Details 1.06 and 3.16.
- Parapet w/ Metal Cap Flashing: Furnish and install new prefinished metal coping, color as selected by Owner. For base flashings extending above 18 inches install 2-piece base and wall flashing. Ref. Details 1.05, 3.09, 3.10, 3.11 and 3.12.
- Base Flashing w/ Metal Wall Siding: Loosen and/or remove existing metal siding flashing. Install base flashing w/ term bar and sealant. Furnish and install new (or reuse functional existing) flashing metal panel and fasten siding w/ new gasketed fastener. Ref. Detail 1.09.
- Base Flashing w/ Thru-Wall Flashing: Confirm if through wall flashing has weep holes do not cover any weep holes. Reuse existing thru-wall metal flashing. Furnish and install new metal counterflashing. Repair and repaint all coping stone and mortar joints to assure watertight condition. Ref. Detail 1.07.
- Base Flashing w/ Existing Reglet: Remove existing reglet/ Furnish and install new prefinished metal coping, color as selected by Owner. Extend base flashings up and over coping. For base flashings extending above 18 inches install 2-piece base and wall flashing. Ref. Detail 1.08.
- Door Threshold: Remove threshold plate and carry flashing up over and set in water block. Before resetting threshold mechanically attach termination bar, fasten min. 6 in. o.c. Door Threshold: Remove and dispose of existing counter flashing. Roof flashing to extend up and under existing threshold plate. Furnish and install new metal counter flashing and sealant.
- Area Divider: Furnish and install new cap metal, replace damaged wood nailers. Ref. Detail 2.18. Consultant approved low profile for areas divider for separating two different types of roof systems. Ref Detail 4.13.
- Abandoned Lightning Protection: Remove all existing lightning protection cable, attachment cleats, air terminals and penetrations. Identify salvage value on bid form. Seal all holes from fasteners and lightning protection equipment left from demolition on roof top component to be left in place.
- Roof to Wall Expansion Joint: Furnish and install new metal expansion joint. Ref. Detail 3.02.
- Non-Standard Roof Transitions: Contractor to provide manufacturer written approved transition shop drawings. Roof Transition: Install new metal edge at transition; install tapered edge strip to reduce ponding at edge. Run base flashings using sheet widths in vertical run. Ref. Detail 3.06.
- Overflow scupper: Furnish and install new through-wall scupper and face frame. Face frame prefinished, size and color to match existing. Ref. Detail 1.14, 4.01, 4.02 and 4.03.
- Metal Edge: Remove existing fascia/ water dam; install new 24 gauge prefinished galvanized metal edging, standard color as selected by Owner, min. 4 in. hemmed flange. Refer to Details 1.03 and 1.04.
- Roof curb building out the sides to match the roof cap base opening: Remove existing fascia/ water dam; install new 24 gauge prefinished galvanized metal edging, standard color as selected by Owner, min. 4 in. hemmed flange. Refer to Details 1.17 and 1.18.
- Roof System Expansion Joint. Furnish and install expansion joint between different roof systems Ref. Detail 4.06
- Expansion Joint: Furnish and install new expansion Ref Detail 3.01

Project Manual

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BUR Manual
THERMOPLASTIC REPAIR MANUAL
THERMOSET REPAIR MANUAL

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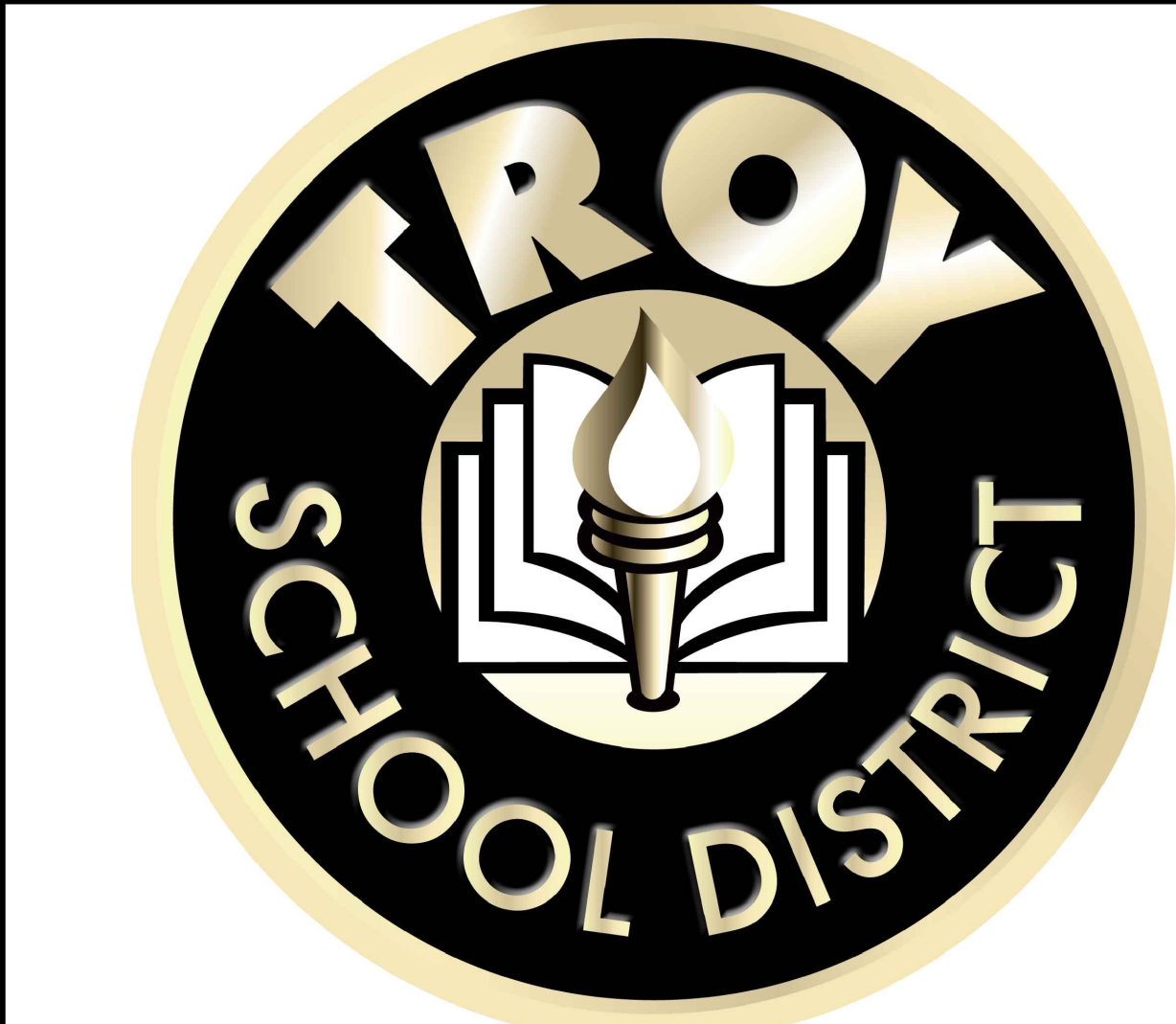
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PROJECT WORK SCHEDULE

School	Reroofing sq. ft.	Restoration sq. ft.	TSD 2018 Roof Work	Project Time Frame
Troy Athens HS	53,200		Roof Area C Roof Area A: Sec. 1, Sec 2, Sec. 6, Roof Area F: Sec. 3, Sec. 4, Roof Area I	6/18/18-8/17/18
Morse Elementary School	15,325		Roof Area C: Sec 1, 2, 3, 4	6/18/18-8/17/18
Niles Center	14,650		Roof Area G and H	6/18/18-8/17/18
Transportation Bldg.	1,275		Roof Area C	6/18/18-8/17/18
Troy High School	4,625		Roof Area (s) N2, P1	6/18/18-8/17/18
Troy Union Elementary School	13,100	4,400	Reroof Roof Area (s) A, B; Restoration Roof Area E	6/18/18-8/17/18
Base Bid	102,175	4,400		
Alternate Bid No. 1 Troy Athens HS	43,750		ALT. Bid Reroof Roof Area A Sec. 3, 4, 5, 6, 7, 8, 9, 10, 11	6/18/18-8/17/18
Total Roof Area (sf)	145,925	4,400		

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DIRECTORY

OWNER:  
Troy School District  
4400 Livernois  
Troy, MI 48098

CONTACT:  
Rob Carson  
Dir of Operations  
Phone: (248) 823-4067  
Email:RCarson@troy.k12.mi.us

PROJECT LOCATION:  
See Project List below

Contact:  
Michelle Kern - Bond Rep  
Phone: (248) 921-3929  
Email: MKerns@troy.k12.mi.us

ROOF CONSULTANTS:  
WeatherTech Consulting Group, Inc.  
7747 Auburn Road  
Utica, Michigan 48317

CONTACT  
Geof Garabedian  
Principal/Project Manager  
Phone (586) 731-3095 ext 12  
Email: ggarabedian@wtcg.net

PROJECT LOCATIONS

Athens High School	4333 John R Rd. Troy, MI 48085
Morse Elementary School	475 Cherry Dr. Troy, MI 48083
Niles Center	201 Square Lake Rd, Troy, MI 48098
Transportation Building	120 Hart Dr Troy MI 48098
Troy High School	4777 Northfield Pkwy. Troy, MI 48098
Troy Union Elementary School	1340 E Square Lake Rd, Troy, MI 48085

PROFESSIONAL



WeatherTech  
Roofing/Waterproofing Consultants  
Consulting Group, Inc.

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7747 Auburn Road  
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FAX: 586-731-6863  
EMAIL: weathertech@wtcg.net  
WEB SITE:www.wtcg.net

CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Troy School District  
BID NO. 9848  
2018 Roofing Program

WTProject No:

TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/06/17	90% Review Set
11/10/17	OTB
11/20/17	Addendum 1

File Name: Roof Plan

Drawn By: MD

Checked By: GG, AW, AC

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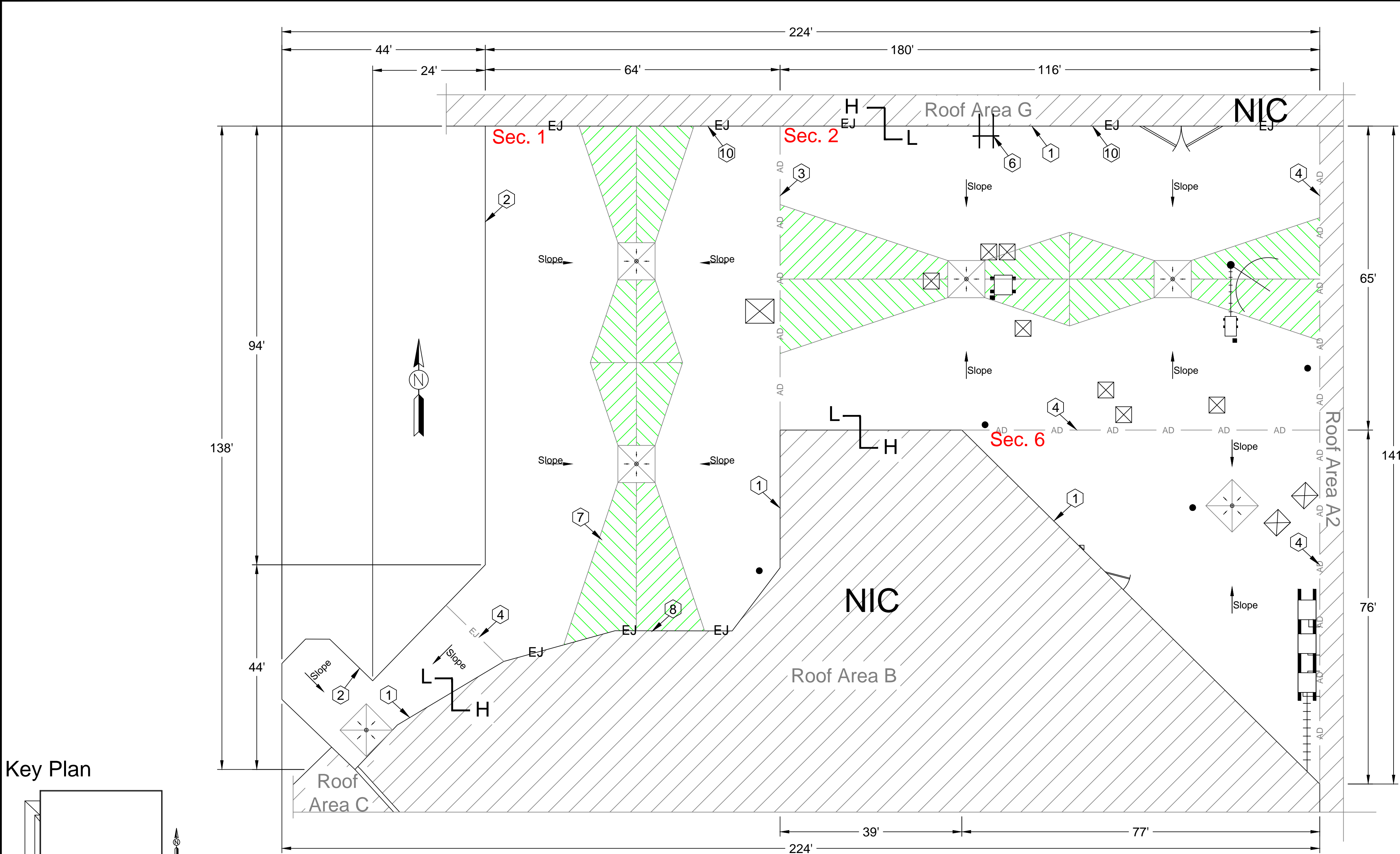
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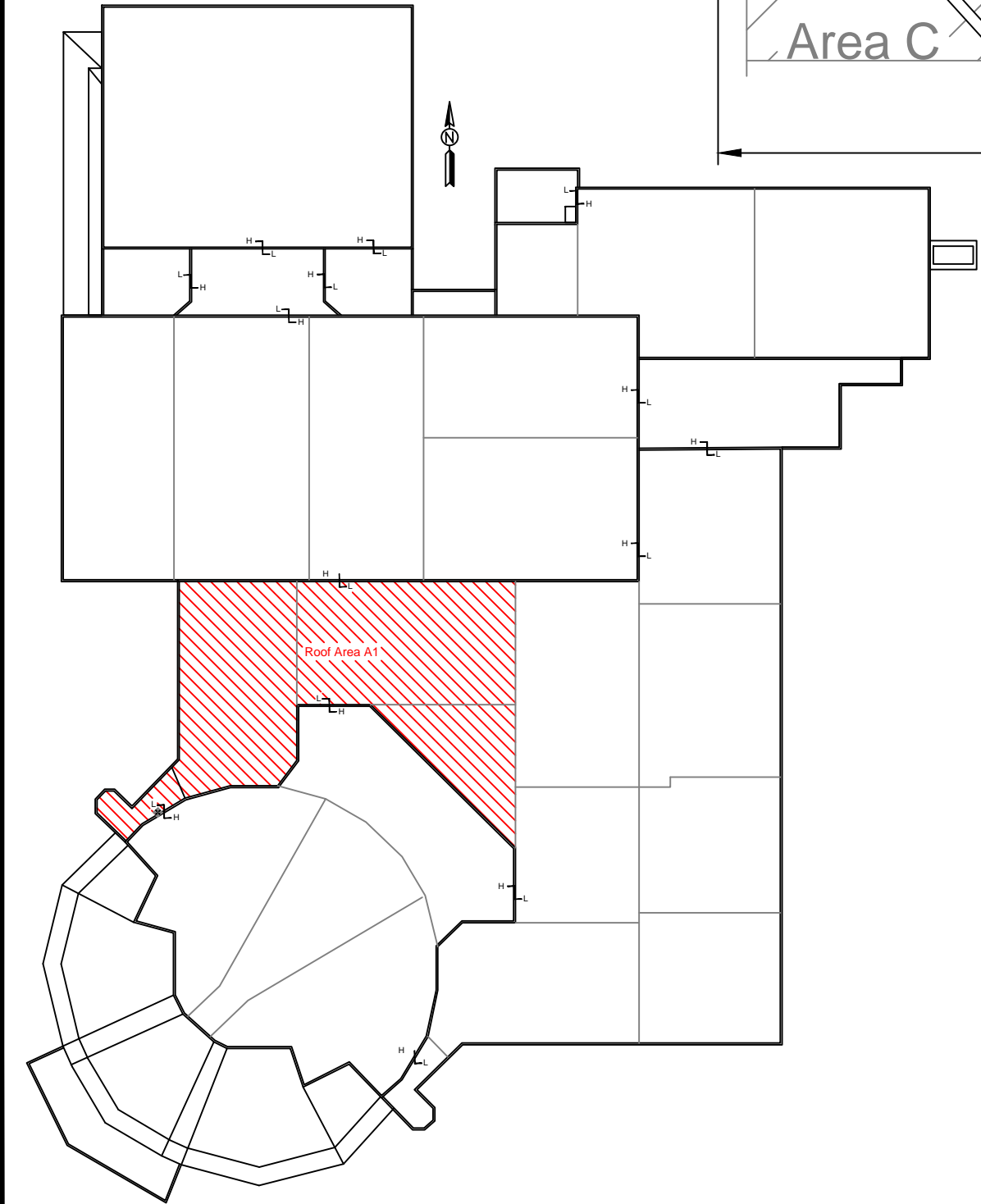
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Key Plan

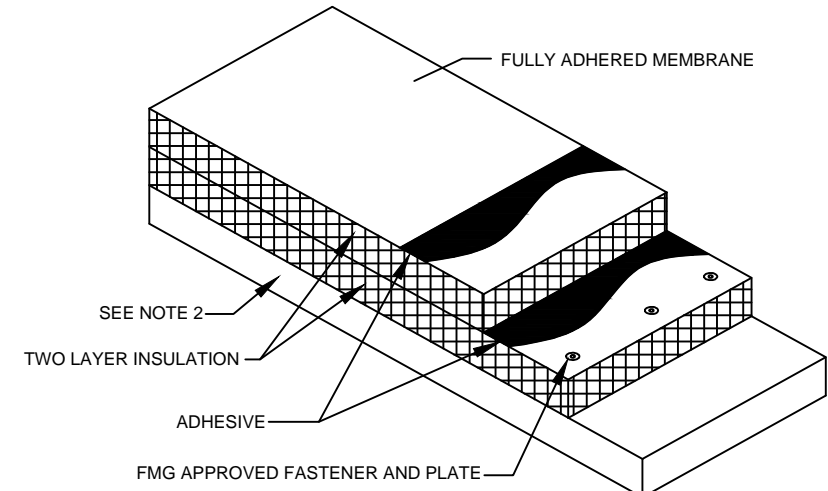
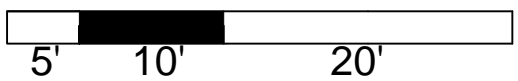


Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	[H]	Roof Hatch	[ ] [ ] [ ]	Walk Way
○	Vent Stack	[S]	Skylight	0' L +15	Elevation Change
⊙	Insulated Pipe	[A]	Abandoned Equipment	⋈	Ladder
⊙	Insulated Stack/Pipe on Curb	⊗ OF	Overflow Drain	123	Photo Indicator
●	Screen support stanchion	⊗	Drain	01	Key Note
■	Tube/Structural Equipment Support	⊕	New Drain	⌒	Satellite Dish
■	Pitch Pan		Overflow Scupper	⊙	Core cut
■	Equip. on Support		Scupper	△ 02	Revision/ Addendum
■	Equip. on Sleepers/Wood Blocking	—	Expansion Joint	[ ] [ ] [ ]	Tapped Insulation
⊗	Equipment Unit on Curb	G G	Gutter	[ ] [ ] [ ]	Metal Roofing
□	Duct or Flanged Equipment	R R	Ridge	[ ] [ ] [ ]	Shingles
—	Area Divider	+++	Pipe/ Conduit on Blocks	+++	Pipe/ Conduit Attached to Parapet

## Athens High School

### Roof Plan Roof Area A, Sections 1, 2, 6

Scale:



NOTE 1: INSULATION MIN. TWO LAYERS, TOTAL RVALUE MIN. R 20. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS (ON ROOF PLANS) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.  
NOTE 2: REFERENCE ROOF PLAN SCHEDULE FOR ROOF DECK TYPE.

FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S.

WeatherTech ©  
Date: Rev 3/15

1.01

## Athens High School - Troy School District

### Sheet Notes: Roof Area A: Sections 1, 2, 6

#### Schedule

##### WORK DESCRIPTION - ROOF REPLACEMENT

Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area A: Sections 1, 2 & 6: 18,250 sq. ft.

- New Roof System
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer mechanically fasten to deck;
    - Second insulation layer adhere to first layer of insulation;
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Deck: Metal: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.

- Building Height: Ground to building edge; 30+ ft.

- EXISTING ROOF SYSTEM CONSTRUCTION**  
**All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:**

##### Core Sample Results

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
- Insulation:
  - First insulation layer Approx. 1.0 in. polyisocyanurate insulation;
  - Second insulation layer ½ in. wood fiber insulation
- Tapered Insulation: Exists in various locations.
- Deck: Metal: Multiple types, contractor to verify.

- Warranty/Guarantee
  - Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.

- Allowances: Add to base bid \$14,000 for allowances covering Unit Price and contingency items.

- ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1. Refer to Appendix 1 for asbestos testing results. No ACM

- INTERIOR PROTECTION: General:** IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.

#### General Construction Details: Ref A1.0

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

#### Key Notes:

All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Metal Walls: Remove old metal counter flashing for roof base flashing as applicable. Furnish and install new base flashing and new counter flashing. Ref. Photos 2947, 2959, BF3.

- Raised Perimeter Edge: Furnish and install new metal edge detail. Ref Photo 2940, EM3.

- Area Dividers: Furnish and install new low profile area dividers as needed to accommodate tapered insulation specified as noted on Plan. Ref. Photo 2957.

- Expansion Joint: Furnish and install new expansion joint separating Secs 2, 6 from Sec. 3, 7 (NIC). Ref. Photo P2956, BF7.

- Area Divider: Between sections 2 and 6: Ref. Photo 2957. Contractor to confirm no structural deck issues that would require area divider or Expansion joint, if not required, remove existing area divider and roof over.

- Ladders: Furnish and install new wall mounted OSHA compliant ladder;
- Tapered insulation: Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights. Ref. Photos 2947 and 2982.

- Roof to Metal Wall Panel Expansion Joint: Furnish and install new expansion joint and metal counter flashing.

- Satellite: Do not disturb position, disconnect or rotate satellite, Ref. Photo 2972.

- Roof to Wall Expansion Joint w/ Masonry Reglet: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing. Ref. Photo 2982.

## PROFESSIONAL



## WeatherTech

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Consulting Group, Inc.

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Utica, MI 48317

PHONE: 586-731-3095  
FAX: 586-731-6863  
EMAIL: weathertech@wtcg.net  
WEB SITE: www.wtcg.net

## CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

## PROJECT:

Athens High School  
4333 John R Rd.  
Troy, MI 48085

Troy School District  
BID NO. 9848  
2018 Roofing Program

WTProject No:  
TSD-R102-18

## ISSUE

DATE	DESCRIPTION
10/27/17	50%Review Set
11/06/17	90%Review Set
11/10/17	OTB
11/20/17	Addendum 1

File Name: Roof Plan

Drawn By: MD

Checked By: AW, GG, AC

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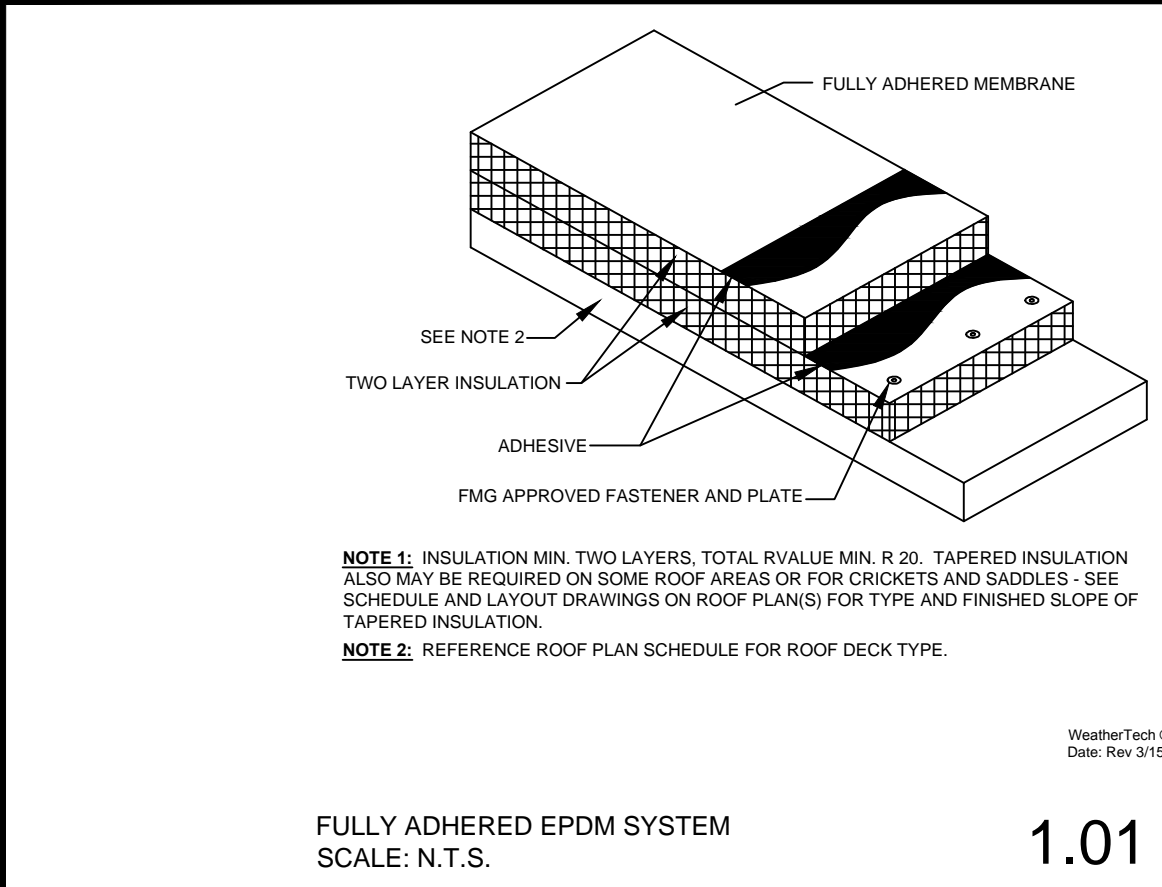
## SHEET TITLE

Athens High School,  
Roof Area A, Sec 1, 2,  
& 6  
Roof Plan

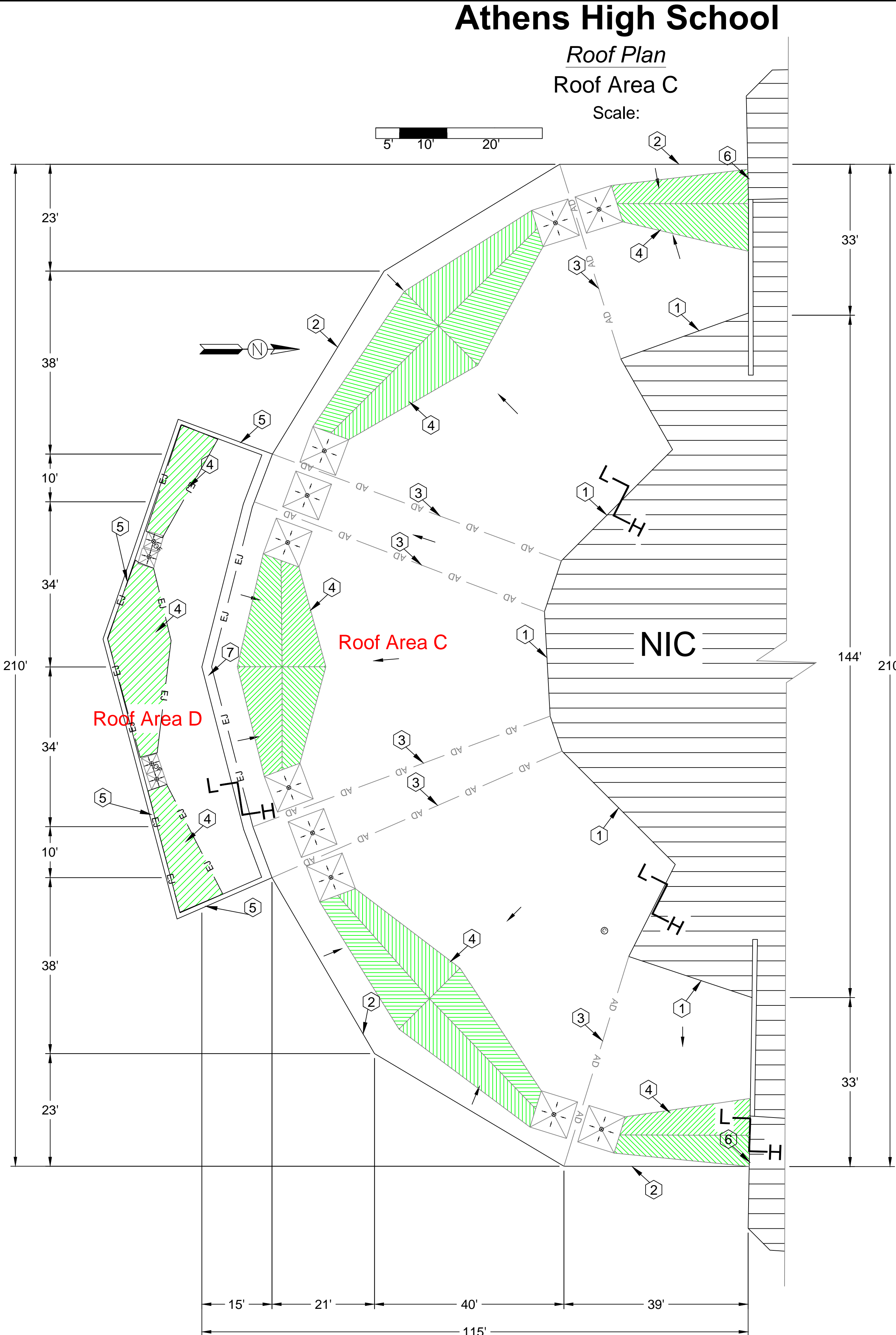
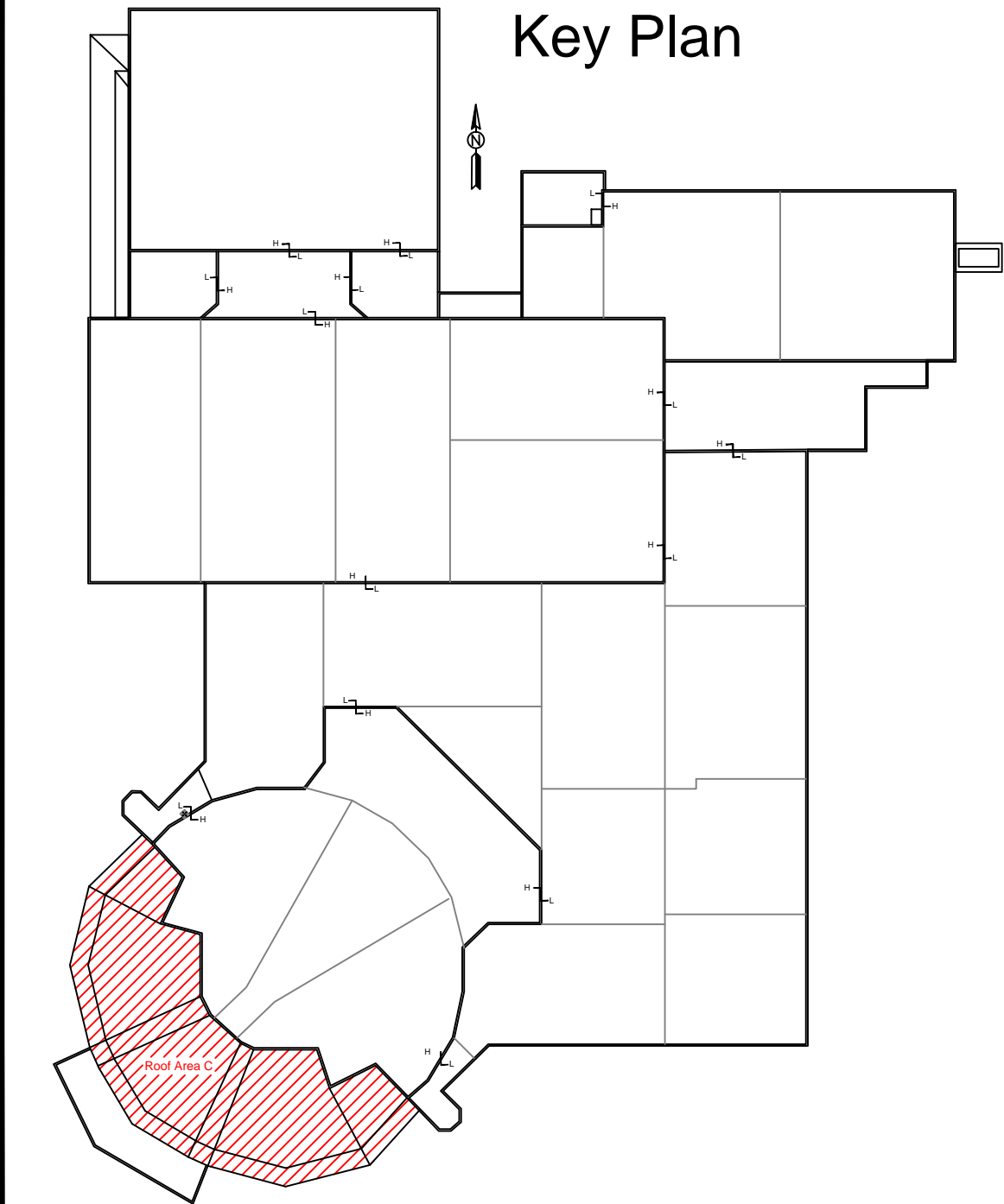
# A2.0

Sheet 2 of 23





Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	H	Roof Hatch	□ □ □	Walk Way
○	Vent Stack	S	Skylight	0' L +15'	Elevation Change
⊙	Insulated Pipe	A	Abandoned Equipment	⋈	Ladder
⊙	Insulated Stack/Pipe on Curb	⊗ OF	Overflow Drain	123	Photo Indicator
●	Screen support stanchion	⊗	Drain	01	Key Note
■	Tube/Structural Equipment Support	⊕	New Drain	⌒	Satellite Dish
■	Pitch Pan		Overflow Scupper	Ⓒ	Core cut
■	Equip. on Support		Scupper	△ 02	Revision/ Addendum
■	Equip. on Sleepers/Wood Blocking	—	Expansion Joint	▨	Tapered Insulation
■	Equipment Unit on Curb	G G	Gutter		Metal Roofing
■	Duct or Flanged Equipment	R R	Ridge	⬮	Shingles
—	Area Divider	+++	Pipe/ Conduit on Blocks	+++	Pipe/ Conduit Attached to Parapet



- Athens High School - Troy School District**  
**Sheet Notes: Roof Area C and D**  
**Schedule**  
**WORK DESCRIPTION - ROOF REPLACEMENT**  
Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area C: 14,875 sq. ft. and Roof Area D: 2,400 sq. ft.
- New Roof System
    - Roof Membrane: EPDM, 60 mil, adhered to insulation.
    - Insulation: R20:
      - First insulation layer mechanically fasten to deck;
      - Second insulation layer adhere to first layer of insulation;
    - Tapered Insulation: Exists in various locations, see roof plan and details.
    - Deck: Metal: Repair as necessary to comply w/ building codes.
    - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.
  - Building Height: Ground to building edge: 20+ ft.
  - EXISTING ROOF SYSTEM CONSTRUCTION**  
**All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:**  
  
Roof Area C: Core Sample Results: Two existing roofs in place  
Roof System 1: Attached to deck
    - Roof Membrane: Bituminous built-up roof membrane, gravel noted.
    - Insulation: variable ½ - 1 in. fiber glass insulation;
    - Tapered Insulation: Exists in various locations.
    - Deck: Metal: Multiple types, contractor to verify.  
Roof System 2: Attached to Roof System 1
    - Roof Membrane: Modified Bituminous two ply roof membrane
    - Insulation: ½ fiber glass insulation.
    - Tapered Insulation: Exists in various locations.  
Roof Area D:
    - Roof Membrane: Gravel surfaced bituminous built-up roof membrane
    - Insulation:
      - First insulation layer Approx. 1.0 in. polyisocyanurate insulation;
      - Second insulation layer ½ in. wood fiber insulation
    - Tapered Insulation: Exists in various locations.  
Deck: Metal: Multiple types, contractor to verify.
  - Warranty/Guarantee
    - Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.
  - Allowances: Add to base bid \$14,000 for allowances covering Unit Price and contingency items.
  - ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1. Refer to Appendix 1 for asbestos testing results. No ACM
  - INTERIOR PROTECTION: **General:** IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.
- General Construction Details: Ref A1.0**  
Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.
- Key Notes:**  
All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.
- Metal Walls: Furnish and install new base flashing and new counter flashing, loosen wall panels to remove old counter flashing. **Ref. Photos BF2, BL2.**
  - Raised Perimeter Edge: Furnish and install new metal edge detail. **Ref Photo PD1 and PD2.**
  - Area Dividers: Furnish and install new low profile area dividers as needed to accommodate tapered insulation specified as noted on Plan. **Ref. Photos BF1, SR2.**
  - Tapered Insulation: Furnish and install new tapered insulation between drains as detailed on plan, **Ref. Photos PD1, PD3, PD4.** Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights.
  - Metal Coping: Furnish and install new base flashings and metal cap. **Ref. Photo 53**
  - Masonry Two piece Surface Mounted Counter Flashing: Furnish and install new tw-piece counter flashing **Ref, Photo PD1.**
  - Expansion Joint: Furnish and install custom fabrication metal cover, provide shop drawings. **Ref. Photo 50**

**PROFESSIONAL**  
  
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Consulting Group, Inc.  
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EMAIL: weathertech@wtcg.net  
WEB SITE: www.wtcg.net

**CLIENT:**  
  
Troy School District  
4400 Livernois  
Troy, MI 48098

**PROJECT:**  
  
Athens High School  
4333 John R Rd.  
Troy, MI 48085  
  
Troy School District  
BID NO. 9848  
2018 Roofing Program

WTProject No:  
TSD-R102-18

**ISSUE**

DATE	DESCRIPTION
10/27/17	50%Review Set
11/06/17	90%Review Set
11/10/17	OTB
11/20/17	Addendum 1

File Name: Roof Plan  
Drawn By: MD  
Checked By: AW, GG, AC

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**SHEET TITLE**  
  
Athens High School,  
Roof Area C,  
Roof Plan  
  
**A2.1**

Sheet 3 of 23



Athens High School - Troy School District  
Sheet Notes: Roof Area F: Sections 3 & 4  
Schedule  
WORK DESCRIPTION - ROOF REPLACEMENT  
Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area A: Sections 3: 8,600 sq. ft. & Section 4: 9,275 sq. ft.

1. New Roof System  
a. Roof Membrane: EPDM, 60 mil, adhered to insulation.  
b. Insulation: R20:  
1) First insulation layer mechanically fasten to deck.  
2) Second insulation layer adhere to first layer of insulation.  
c. Tapered Insulation: Exists in various locations, see roof plan and details.  
d. Deck: Metal: Repair as necessary to comply w/ building codes.  
e. Interior Ceiling: Exposed decking coordinate daily roof work w/ school personnel to cover interior items w/ protective covering.
2. Building Height: Ground to building edge: 20+ ft.
3. EXISTING ROOF SYSTEM CONSTRUCTION  
All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:
- Core Sample Results  
a. Roof Membrane: Gravel surfaced bituminous built-up roof membrane  
b. Insulation:  
1) First insulation layer Approx. 1.0 in. polyisocyanurate insulation.  
2) Second insulation layer ½ in. wood fiber insulation  
c. Tapered Insulation: Exists in various locations.  
d. Deck: Metal: Multiple types, contractor to verify.
4. Warranty/Guarantee  
a. Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.
5. Allowances: Add to base bid \$15,000 for allowances covering Unit Price and contingency items.
6. ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1. Refer to Appendix 1 for asbestos testing results. No ACM
7. INTERIOR PROTECTION: **General:** IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.  
a. Interior protection may be required over sensitive equipment and interior contents, contractor to coordinate daily to provide interior protection as needed.

General Construction Details: Ref A1.0  
Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Key Notes:  
All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.
1. Roof to Wall Expansion Joint: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing. Ref. Detail 3.02 and Photo 3139, 3140.
2. Tapered Insulation: Furnish and install in tapered insulation as detailed; Raise Area Divider heights at existing area dividers to accommodate height as necessary. Confirm height at roof edge of Sec 4. Ref. Photos 3271, 3128.
3. Cable Penetration: Furnish and install prefab flashing detail. Ref. Photo 3126.
4. Perimeter Raised Edge. Furnish and install new metal edge detail. Ref. Photo 3133A. Increase height to accommodate new tapered insulation in KN 2.
5. Stack Penetration: Furnish and install new metal stack flashing and storm collar. Ref. Photo 3125.
6. Abandon Curbs: Confirm Owner approval to remove and marked in orange paint Remove and repair deck. Ref. Photo 3122 .
7. Ladder down to RA E: Furnish and install new OSHA compliant ladder.
8. Area Divider Tie-in Sections 3 and 2: Furnish and install new area divider, increase height to accommodate new tapered insulation in KN 2.

PROFESSIONAL



WeatherTech

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Troy School District  
BID NO. 9848  
2018 Roofing Program

WTProject No:  
TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50%Review Set
11/06/17	90%Review Set
11/10/17	OTB
11/20/17	Addendum 1

File Name: Roof Plan

Drawn By: MD

Checked By: AW, GG, AC

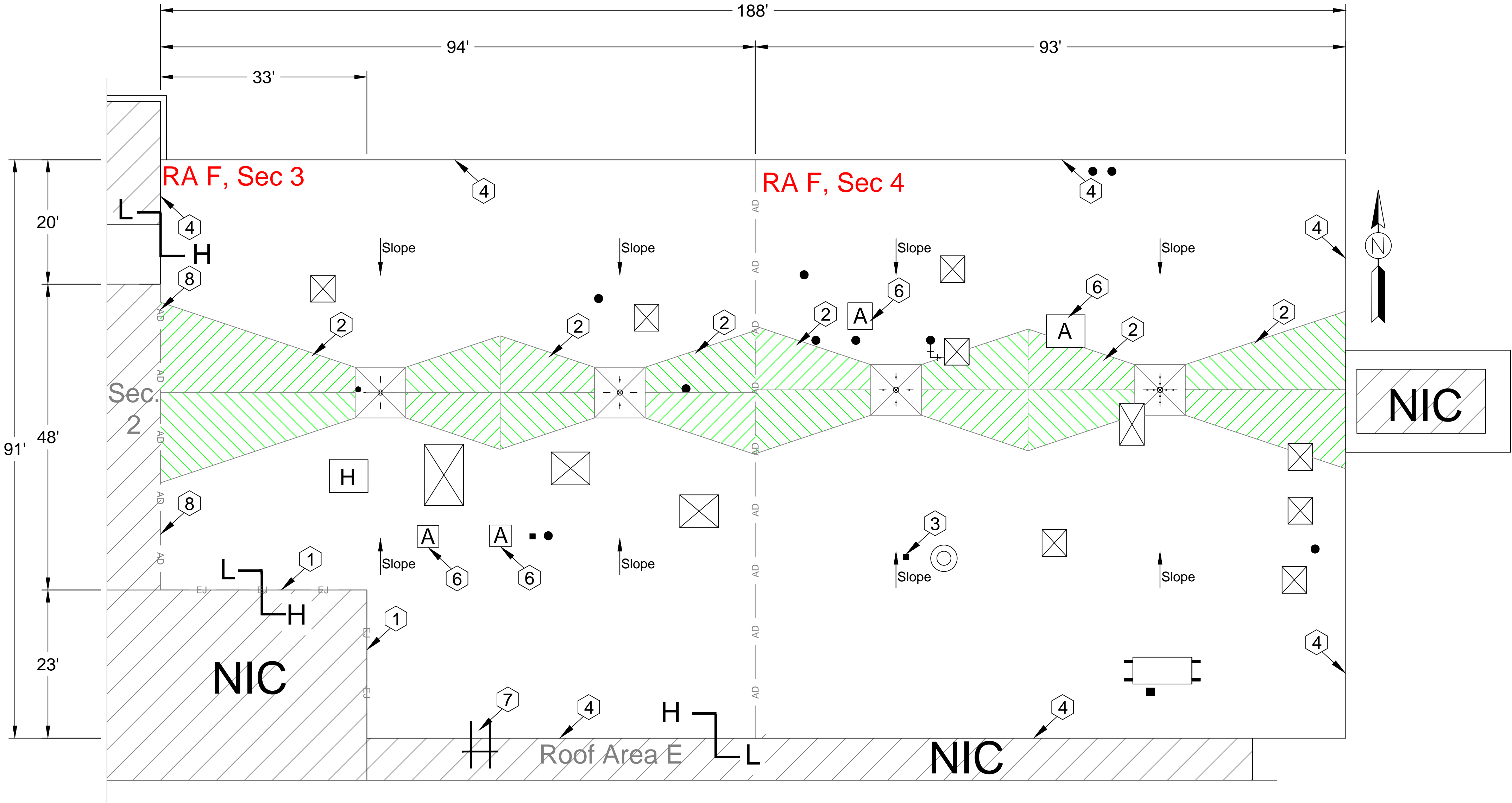
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SHEET TITLE

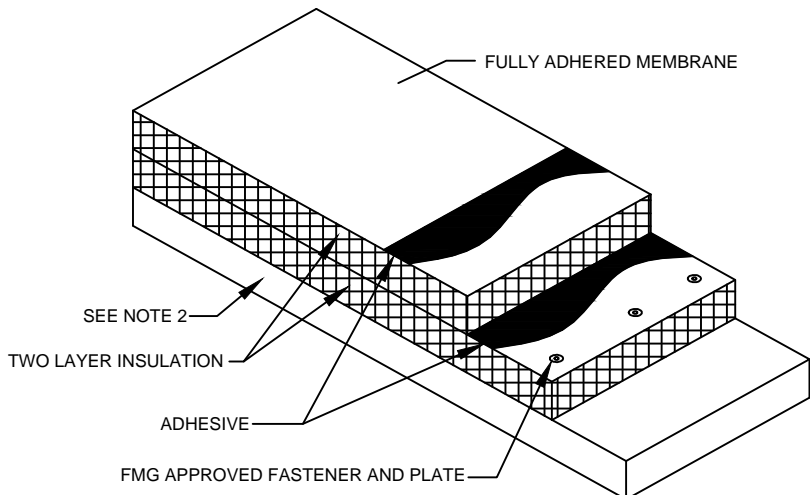
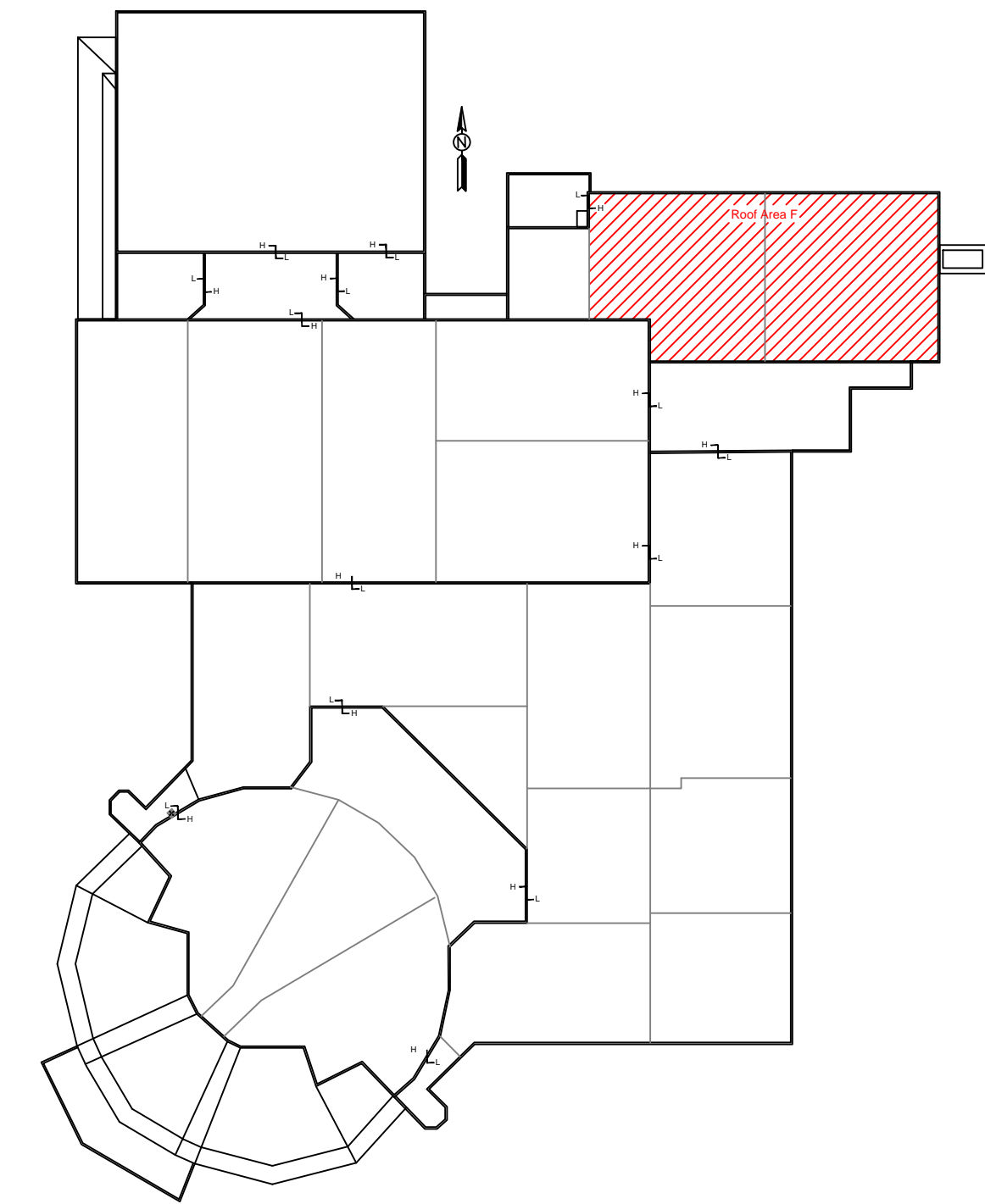
Athens High School,  
Roof Area F: Sec 3  
and 4,  
Roof Plan

A2.2

Sheet 4 of 23



Key Plan



NOTE 1: INSULATION MIN. TWO LAYERS, TOTAL R-VALUE MIN. R 20. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.  
NOTE 2: REFERENCE ROOF PLAN SCHEDULE FOR ROOF DECK TYPE.

FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S.

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Date: Rev 3/15

1.01

Athens High School

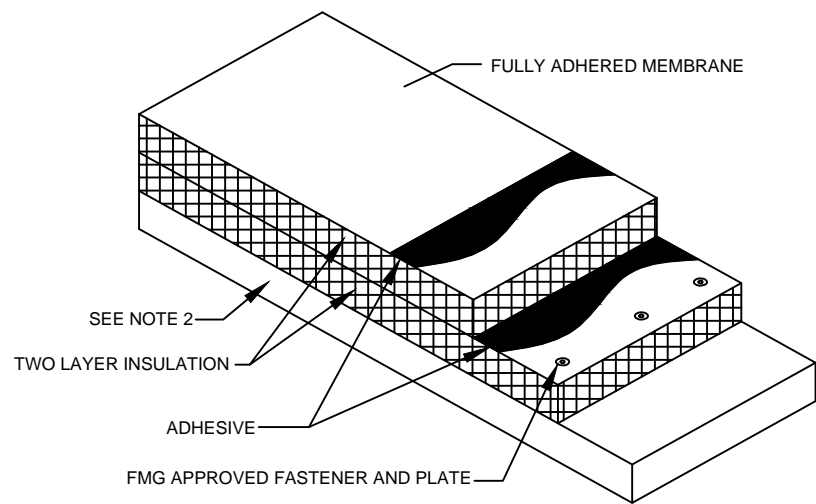
Roof Plan

Roof Area F: Sec 3 and 4

Scale:







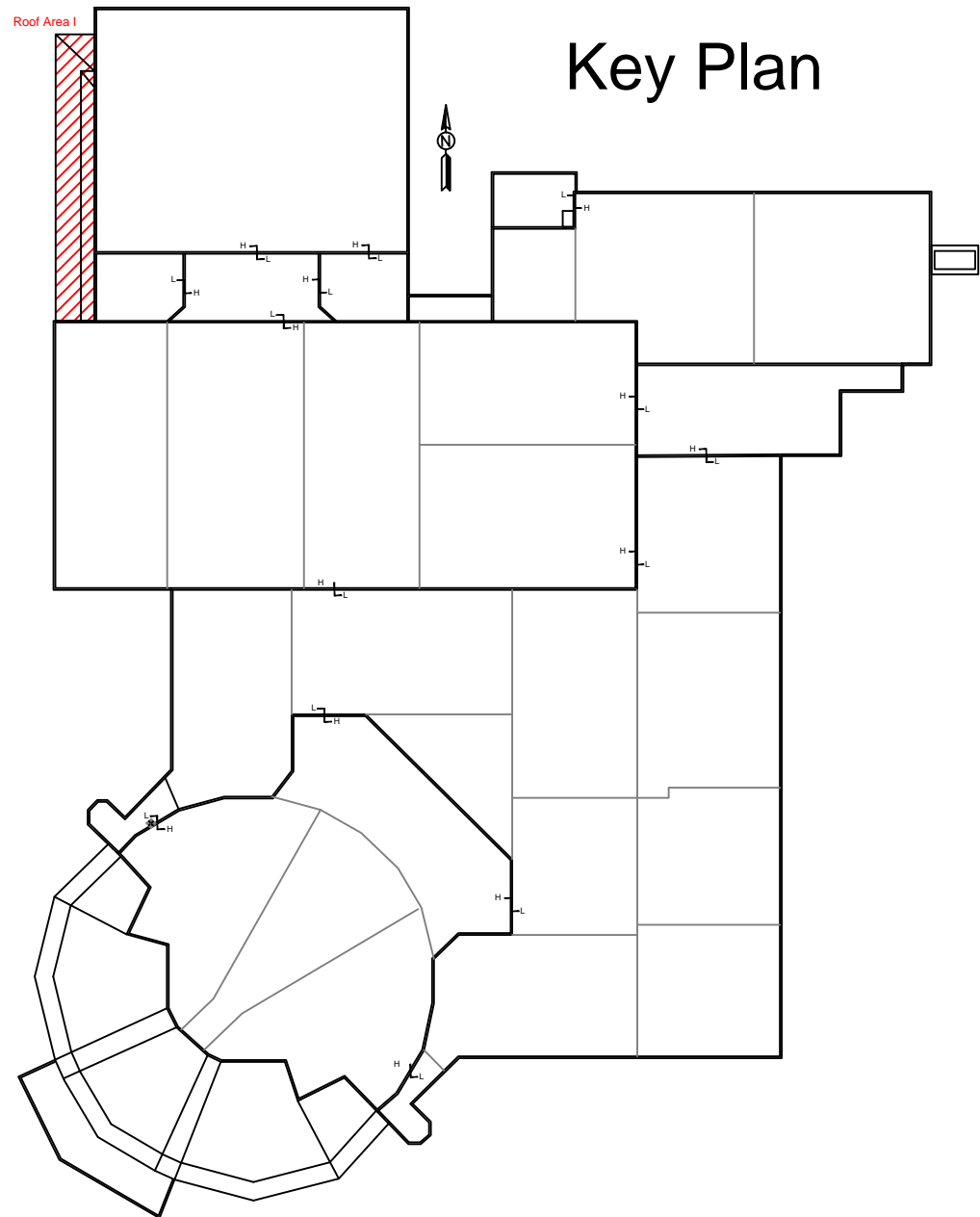
**NOTE 1:** INSULATION MIN. TWO LAYERS; TOTAL R-VALUE MIN. R-20. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.  
**NOTE 2:** REFERENCE ROOF PLAN SCHEDULE FOR ROOF DECK TYPE.

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Date: Rev 3/15

FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S.

1.01

Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	H	Roof Hatch	▤ ▥ ▦	Walk Way
○	Vent Stack	S	Skylight	0' ↗ +15'	Elevation Change
⊙	Insulated Pipe	A	Abandoned Equipment	⋈	Ladder
⊙	Insulated Stack/Pipe on Curb	⊗ OF	Overflow Drain	123	Photo Indicator
●	Screen support stanchion	⊗	Drain	01	Key Note
■	Tube/Structural Equipment Support	⊕	New Drain	↻	Satellite Dish
■	Pitch Pan		Overflow Scupper	©	Core cut
■	Equip. on Support		Scupper	△ 02	Revision/ Addendum
■	Equip. on Sleepers/Wood Blocking	—	Expansion Joint	▨	Tapered Insulation
⊗	Equipment Unit on Curb	G G	Gutter	▤ ▥ ▦	Metal Roofing
□	Duct or Flanged Equipment	R R	Ridge	▤ ▥ ▦	Shingles
—	Area Divider	+++	Pipe/ Conduit on Blocks	ttt	Pipe/ Conduit Attached to Parapet

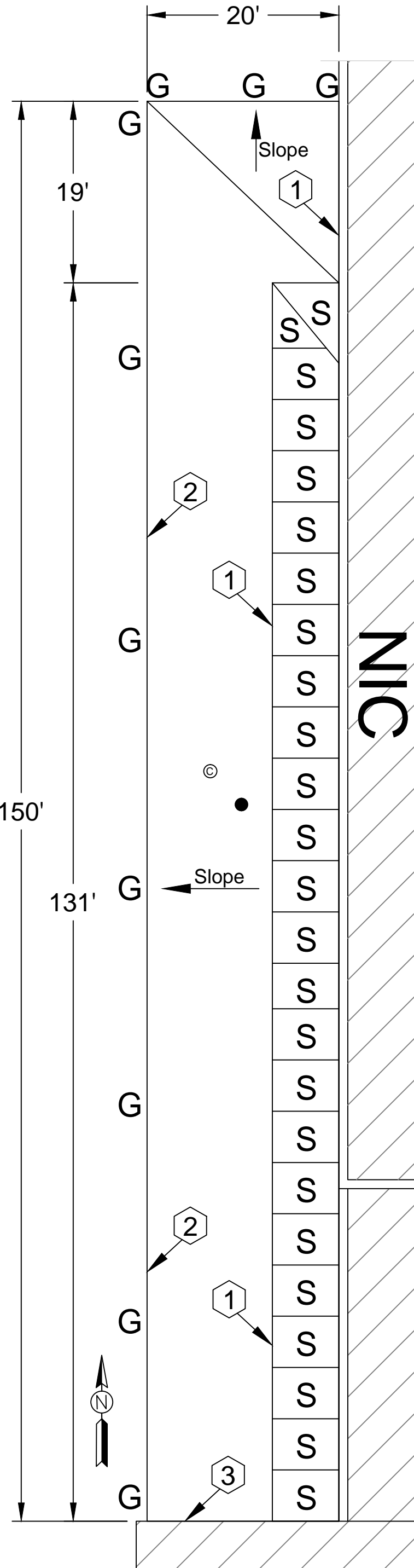


## Athens High School

### Roof Plan

#### Roof Area I

Scale:



### Athens High School - Troy School District

#### Sheet Notes: Roof Area I

##### Schedule

###### WORK DESCRIPTION - ROOF REPLACEMENT

Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warrantied roof system. Approx. Roof Area I: 3,000 sq. ft.

- New Roof System
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer mechanically fasten to deck;
    - Second insulation layer adhere to first layer of insulation;
  - Tapered Insulation: Exists in various locations; see roof plan and details.
  - Deck: Metal: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Exposed and drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist. Ref. Item 7 on Schedule for Interior Protection requirements.

- Building Height: Ground to building edge: 20 ft.

##### EXISTING ROOF SYSTEM CONSTRUCTION

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:

- Core Sample Results: Two existing roofs in place  
Roof System 1: Attached to deck
- Roof Membrane: Gravel surfaced bituminous built-up roof membrane, gravel noted.
  - Insulation:
    - First insulation layer Approx. 1.0 in. polyisocyanurate insulation.
    - Second insulation layer ½ in. wood fiber insulation.
  - Tapered Insulation: Exists in various locations.
  - Deck: Metal: Multiple types, contractor to verify.

##### Roof System 2: Attached to Roof System 1

- Roof Membrane: Modified Bituminous two ply roof membrane
- Insulation: ½ fiber glass insulation.
- Tapered Insulation: Exists in various locations.

- Warranty/Guarantee
  - Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.

- Allowances: Add to base bid \$9,000 for allowances covering Unit Price and contingency items.

- ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1. Refer to Appendix 1 for asbestos testing results. No ACM

- INTERIOR PROTECTION: **General:** IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.
  - Partial Exposed Ceiling: Interior protection required, contractor to verify area in weight room and assume interior protection to be hung from ceiling.

#### General Construction Details: Ref A1.0

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

#### Key Notes:

All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

##### A. Overview photo 3305

- Metal Walls: Furnish and install new base flashing and new counter flashing, loosen wall panels to remove old counter flashing. **Photo BF2 and BF3** no fasteners to loosen counter flashing.
- Gutters: Furnish and install new gutters. **Ref. Photo DR1.**
- Masonry Reglet: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing.

## PROFESSIONAL



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## CLIENT:

Troy School District

4400 Livernois

Troy, MI 48098

## PROJECT:

Athens High School

4333 John R Rd.

Troy, MI 48085

Troy School District

BID NO. 9848

2018 Roofing Program

WTProject No:

TSD-R102-18

## ISSUE

DATE	DESCRIPTION
10/27/17	50%Review Set
11/06/17	90%Review Set
11/10/17	OTB
11/20/17	Addendum 1

File Name: Roof Plan

Drawn By: MD

Checked By: AW, GG, AC

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## SHEET TITLE

Athens High School,

Roof Area I,

Roof Plan

# A2.3

Sheet 5 of 23

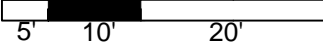


# Athens High School

## Roof Plan

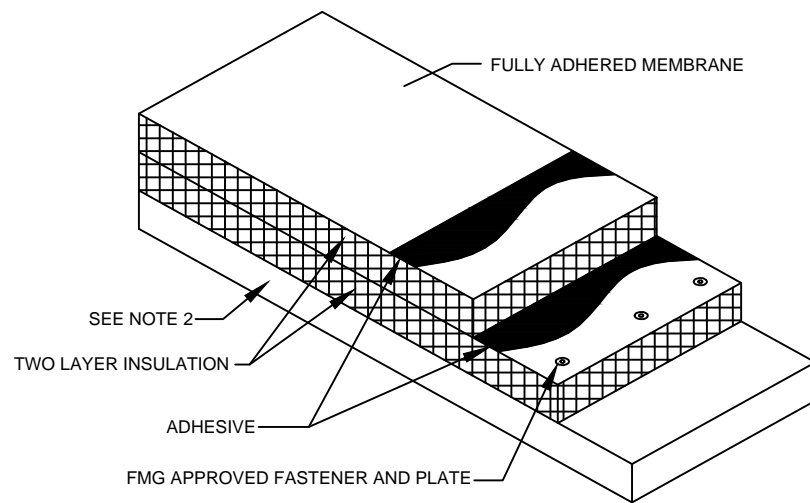
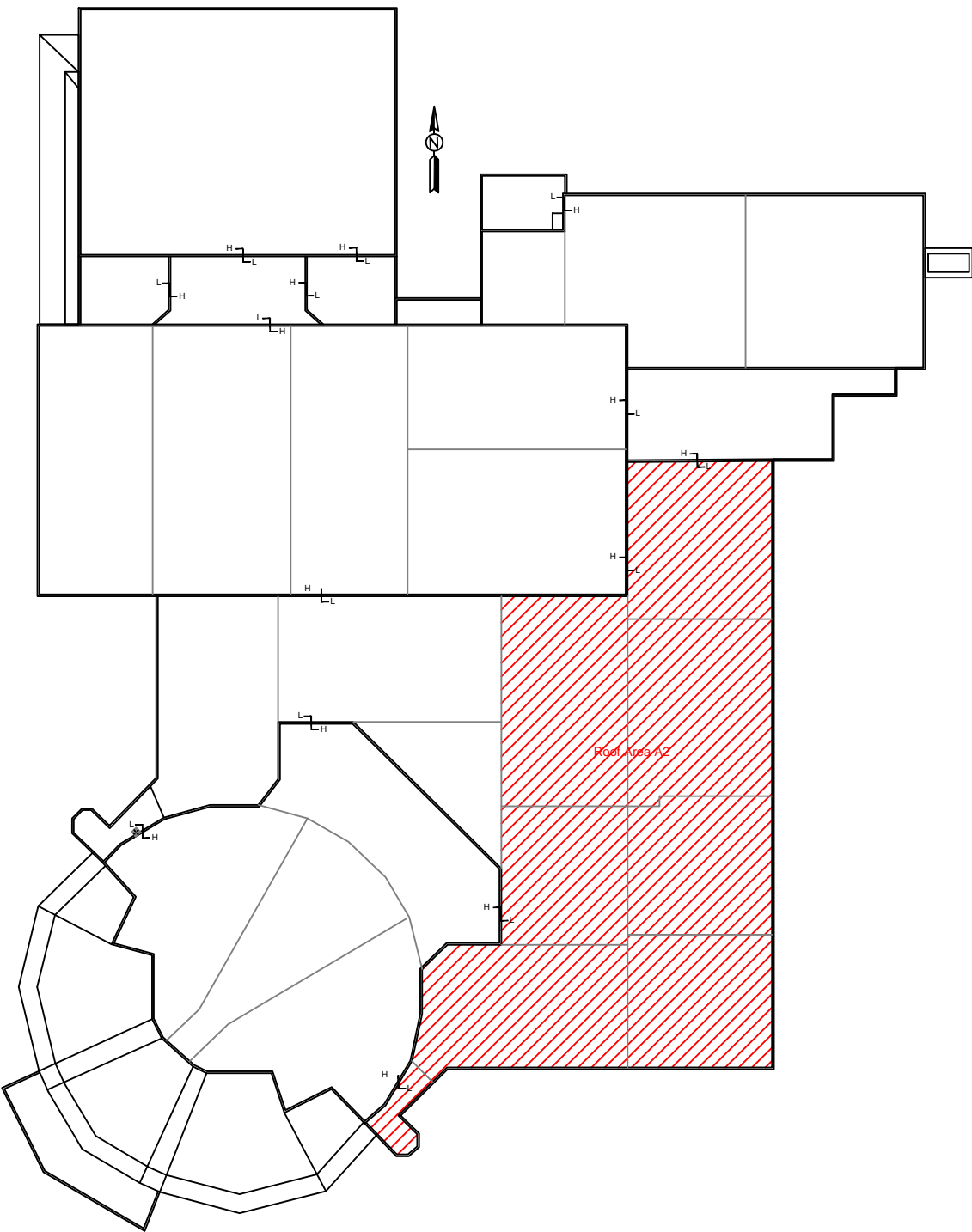
Alternate No. 1: Roof Area A, Sec 3, 4, 5, 7, 8, 9, 10, 11

Scale:



Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	[H]	Roof Hatch	[ ] [ ] [ ]	Walk Way
○	Vent Stack	[S]	Skylight	0' L +15'	Elevation Change
⊙	Insulated Pipe	[A]	Abandoned Equipment	⊢	Ladder
⊙	Insulated Stack/Pipe on Curb	⊗ OF	Overflow Drain	123	Photo Indicator
●	Screen support stanchion	⊗	Drain	01	Key Note
—	Tube/Structural Equipment Support	⊕	New Drain	⌒	Satellite Dish
■	Pitch Pan		Overflow Scupper	⊙	Core cut
[ ]	Equip. on Support		Scupper	△ 02	Revision/ Addendum
[ ]	Equip. on Sleepers/Wood Blocking	—	Expansion Joint	[ ]	Tapered Insulation
⊗	Equipment Unit on Curb	G G	Gutter	[ ]	Metal Roofing
[ ]	Duct or Flanged Equipment	R R	Ridge	[ ]	Shingles
—	Area Divider	+++	Pipe/ Conduit on Blocks	+++	Pipe/ Conduit Attached to Parapet

## Key Plan

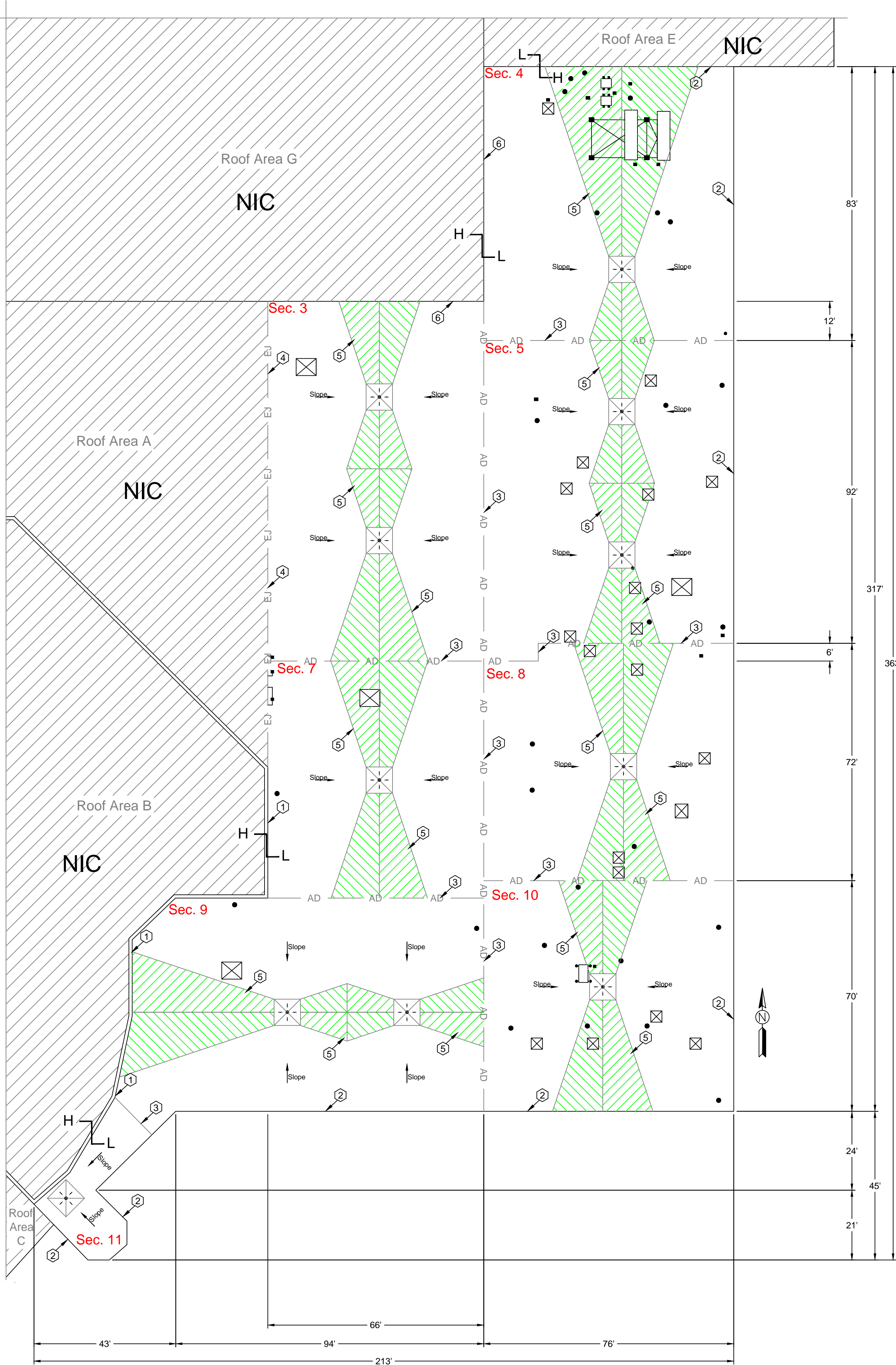


NOTE 1: INSULATION MIN. TWO LAYERS, TOTAL R-VALUE MIN. R 20. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.  
NOTE 2: REFERENCE ROOF PLAN SCHEDULE FOR ROOF DECK TYPE.

FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S.

WeatherTech ©  
Date: Rev 3/15

1.01



## Athens High School - Troy School District

### Sheet Notes: ALTERNATE NO. 1

#### Roof Area A: Sections 3, 4, 5, 7, 8, 9, 10, 11

#### Schedule

##### WORK DESCRIPTION - ROOF REPLACEMENT ALTERNATE NO.1

Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area A: Sections 3, 4, 5, 7, 8, 9, 10 11: 43,750 sq. ft.

- New Roof System
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer mechanically fasten to deck.
    - Second insulation layer adhere to first layer of insulation.
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Deck: Metal: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.

- Building Height: Ground to building edge: 16 ft.

#### EXISTING ROOF SYSTEM CONSTRUCTION

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:

##### Core Sample Results

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
- Insulation:
  - First insulation layer Approx. 1.0 in. polyisocyanurate insulation.
  - Second insulation layer ½ in. wood fiber insulation
- Tapered Insulation: Exists in various locations.
- Deck: Metal: Multiple types, contractor to verify.

#### Warranty/Guarantee

- Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.

- Allowances: Add to base bid \$32,000 for allowances covering Unit Price and contingency items.

- ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1. Refer to Appendix 1 for asbestos testing results. No ACM

- INTERIOR PROTECTION: **General:** IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.
  - Interior protection may be required over sensitive equipment and interior contents, contractor to coordinate daily to provide interior protection as needed.

#### General Construction Details: Ref A1.0

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

#### Key Notes:

All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Metal Walls: Remove old metal counter flashing for roof base flashing as applicable. Furnish and install new base flashing and new counter flashing. Ref. Photos 2947, 2959, BF3.
- Raised Perimeter Edge: Furnish and install new metal edge detail. Ref Photo 2940, EM3.
- Area Dividers: Furnish and install new low profile area dividers as needed to accommodate tapered insulation specified as noted on Plan. Ref. Photo 2957.
- Expansion Joint: Furnish and install new expansion joint separating Secs 3, 7 from Sec. 2, 6. Ref. Photo P2956, BF7.
- Tapered insulation: Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights. Ref. Photos 2947 and 2982.
- Masonry Reglet: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing. Ref. Photo 2982.

## PROFESSIONAL



## WeatherTech

Roofing/Waterproofing Consultants  
Consulting Group, Inc.

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## CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

## PROJECT:

Athens High School  
4333 John R Rd.  
Troy, MI 48085

Troy School District  
BID NO. 9848  
2018 Roofing Program

WTProject No:  
TSD-R102-18

## ISSUE

DATE	DESCRIPTION
10/27/17	50%Review Set
11/06/17	90%Review Set
11/10/17	OTB

File Name: Roof Plan

Drawn By: MD

Checked By: AW, GG, AC

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## SHEET TITLE

Athens High School,  
Alt No. 1:Roof Area A:  
Sec 3, 4, 5, 7, 8, 9, 10,  
11  
Roof Plan

# A2.4

Sheet 6 of 23



Athens High School - Roof Area A, Sec. 1, 2 and 6



BF3



BF7



EM3



2940



2947



2956



2957



2959



2972



2982

Athens High School - Roof Area C



BF1



BF2



BL2



PD1



PD2



PD3



PD4



SR2

Athens High School - Roof Area D



P50



P53

Athens High School - Roof Area F, Sec 3 and 4



3122



3125



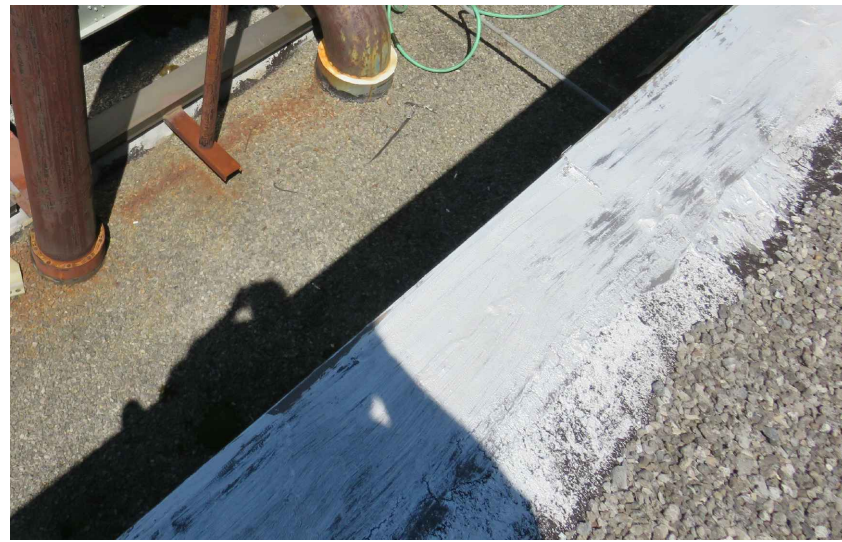
3126



3271



3128



3133A

PROFESSIONAL



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Troy, MI 48085

Troy School District  
BID NO. 9848  
2018 Roof Program

WTPProject No:  
TSD-R102-17

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/06/17	90% Review Set
11/10/17	OTB
11/20/17	Addendum 1

File Name: Photo Page

Drawn By: MD

Checked By: GG, AC, AW

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SHEET TITLE

Athens High School  
Photo Page

A2.6

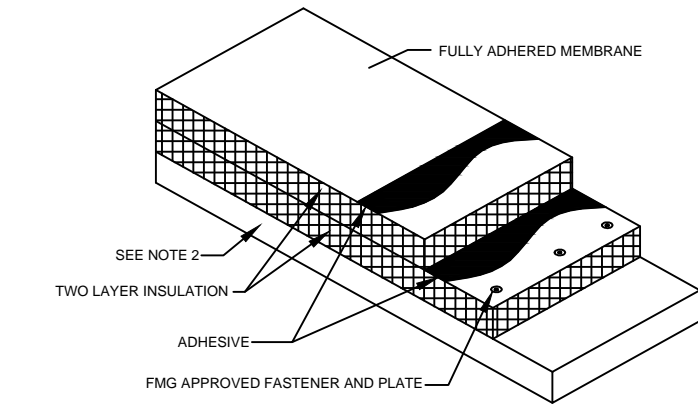


Morse Elementary School

Roof Plan

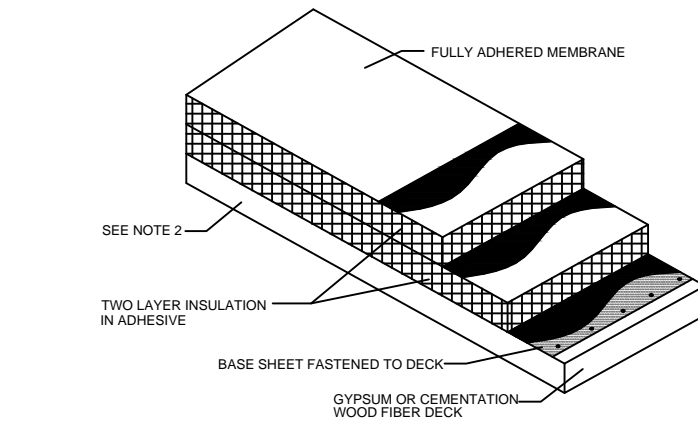
Roof Area C

Scale:



NOTE 1: INSULATION MIN. TWO LAYERS, TOTAL R-VALUE MIN. R-20. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CROCKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS (ON ROOF PLANS) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.  
NOTE 2: REFERENCE ROOF PLAN SCHEDULE FOR ROOF DECK TYPE.

FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S. 1.01

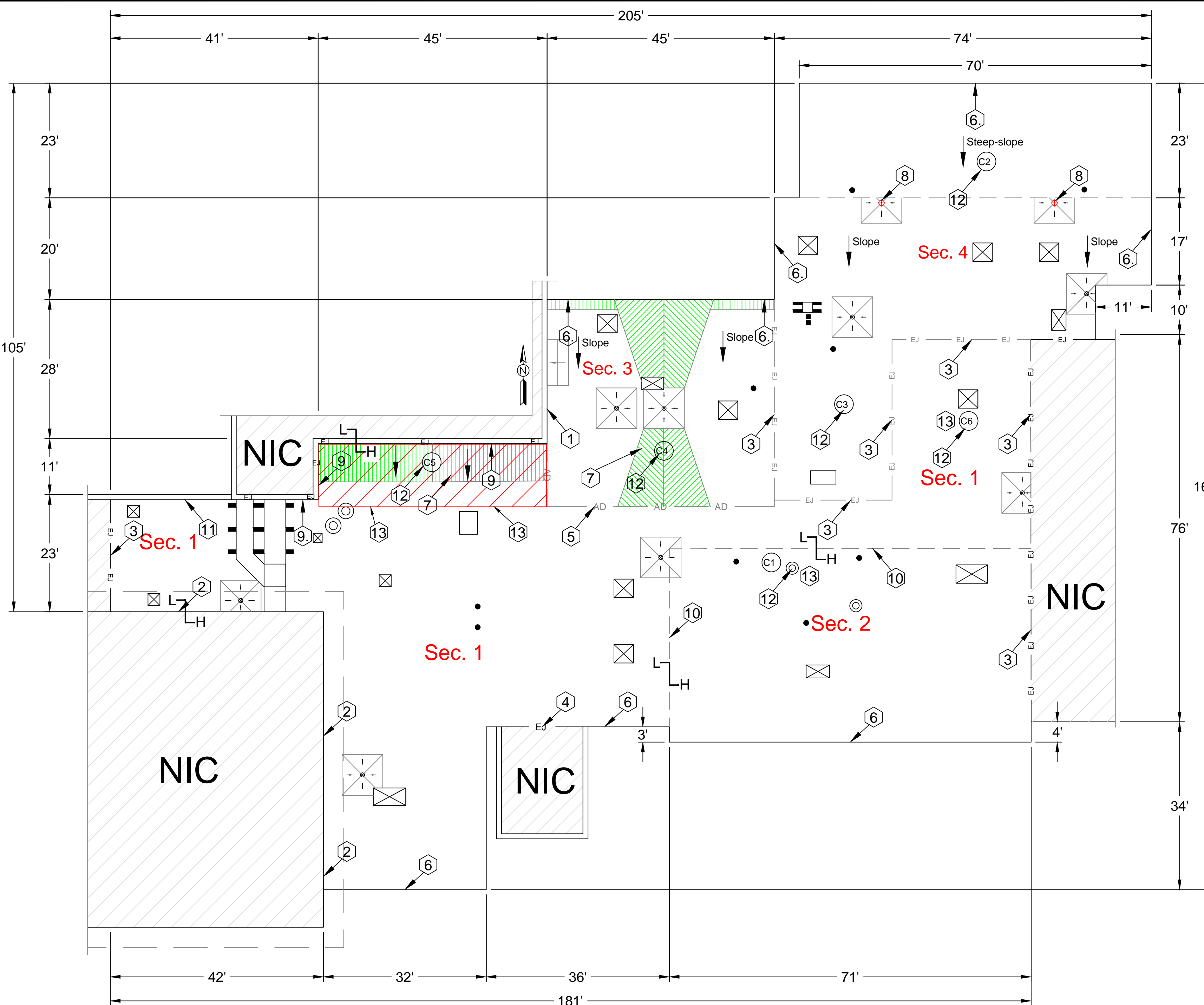
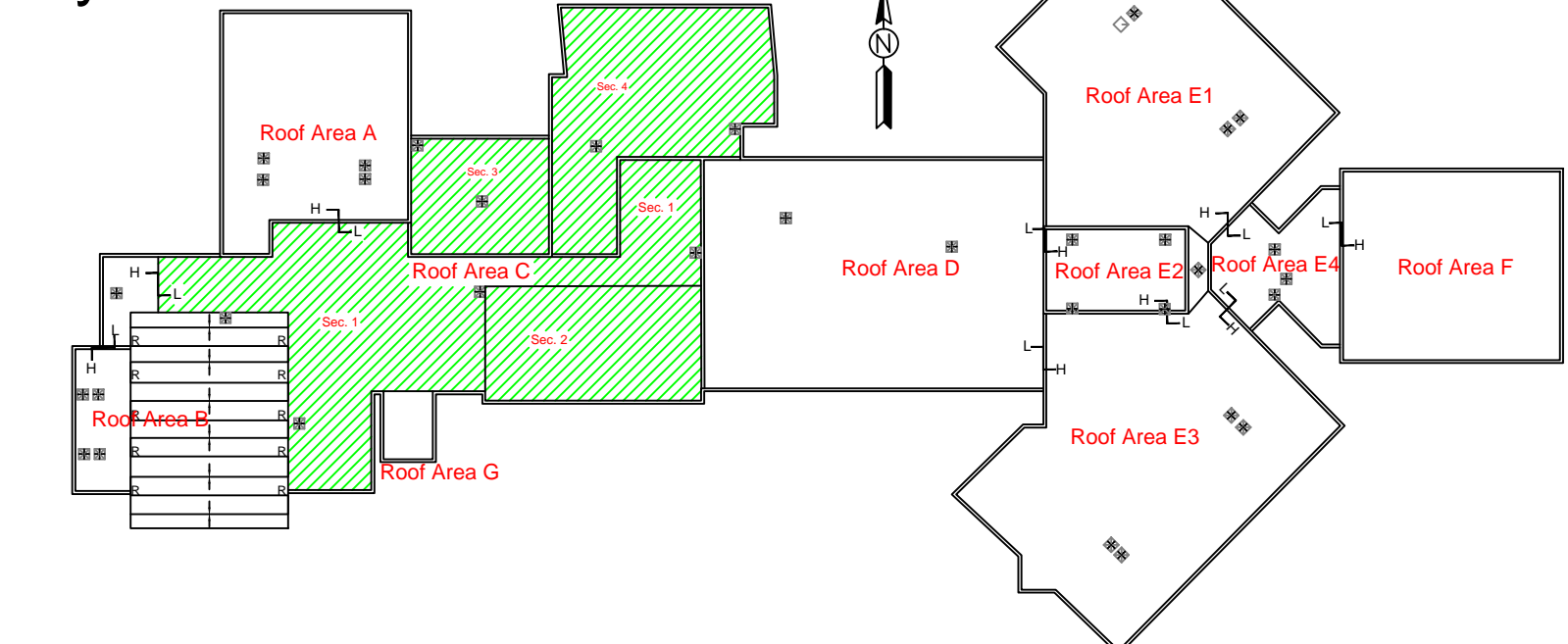


NOTE 1: SEE SCHEDULE ON ROOF PLANS FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CROCKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLANS FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.  
NOTE 2: SEE SCHEDULE ON ROOF PLANS FOR DECK TYPE.

FULLY ADHERED EPDM SYSTEM OVER GYPSUM AND CEMENTATION WOOD FIBER DECKS  
SCALE: N.T.S. 4.14

Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
•	Pipe/Conduit Penetration	[H]	Roof Hatch	[W]	Walk Way
○	Vent Stack	[S]	Skylight	[E]	Elevation Change
⊙	Insulated Pipe	[A]	Abandoned Equipment	[L]	Ladder
⊗	Insulated Stack/Pipe on Gutter	[X]	Overflow Drain	[P]	Photo Indicator
•	Screen support attachment	[D]	Drain	[K]	Key Note
•	Tube/Structural Equipment Support	[N]	New Drain	[S]	Satellite Dish
■	Pitch Plan	[O]	Overflow Scupper	[C]	Core cut
■	Equip. on Support	[S]	Scupper	[R]	Revision/ Addendum
■	Equip. on Sleepers/Wood Blocking	[E]	Expansion Joint	[T]	Tapered Insulation
⊗	Equipment Unit on Gutter	[G]	Gutter	[M]	Metal Roofing
□	Duct or Flanged Equipment	[R]	Ridge	[S]	Shingles
—	Area Divider	[P]	Pipe/ Conduit on Blocks	[P]	Pipe/ Conduit Attached to Parapet

Key Plan



Morse Elementary School - Troy School District  
Sheet Notes: Roof Area C: Sec. 1, 2, 3, 4  
Schedule

WORK DESCRIPTION - ROOF REPLACEMENT  
Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area C: Sec. 1, 2, 3, 4: 15,325 sq. ft.

- New Roof System 1: Roof Area C; Section: 3: Metal Deck: Ref Detail 1.01
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer mechanically fasten to deck.
    - Second insulation layer adhere to first layer of insulation.
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Deck: Metal: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.
- New Roof System 2: Sections 1, 2, 4: Cementitious Wood Fiber Decks Ref. Detail 4.14; Note: Localized Metal Deck, Ref. Key Notes 10 and 13. Contractor to submit FMG RoofNav approved assembly number.
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer adhered to Base Sheet.
    - Second insulation layer adhere to first layer of insulation.

- Tapered Insulation: Exists in various locations, see roof plan and details.
  - Underlayment: Modified Bitumen Base Sheet: Mechanically fasten to deck.
  - Deck: Cementitious wood fiber: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.
- Building Height: Sections 1, 2, 3: Ground to building edge: 20 ft. Section 4: 30 ft.
  - EXISTING ROOF SYSTEM CONSTRUCTION See Core Sample Locations on Roof Plan All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:

Core Sample Results: Section: 1: Location on Roof Plan: C5  
Roof System: Attached to deck

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane, gravel noted;
- Insulation:
  - First insulation layer ½ in. wood fiber insulation;
  - Second insulation layer 1.5 in. polyisocyanurate insulation.
  - Third insulation layer ½ in. wood fiber
- Tapered Insulation: Exists in various locations.
- Deck: Metal: Contractor to verify. Ref. Key Note 10.

Core Sample Results: Section: 1: Location on Roof Plan: C6.  
Roof System: Attached to deck

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane, gravel noted;
- Insulation:
  - First insulation layer ½ in. wood fiber insulation.
  - Second insulation layer 1.5 in. polyisocyanurate insulation.
  - Third insulation layer ½ in. wood fiber

- Tapered Insulation: Exists in various locations.
- Deck: Metal and Cementitious Wood Fiber: Contractor to verify location of decks tie -in. Ref. Key Note 10.

Core Sample Results: Section: 2: Location on Roof Plan: C1  
Roof System: Attached to deck

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane, gravel noted.
- Insulation:
  - First insulation layer ½ in. wood fiber insulation.
  - Second insulation layer 1.5 in. polyisocyanurate insulation.
  - Third insulation layer ½ in. wood fiber.
- Tapered Insulation: Exists in various locations.
- Deck: Metal: Contractor to verify deck. Ref. Key Note 10.

Core Sample Results: Section 3: Location on Roof Plan: C4  
Roof System: Attached to deck

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane, gravel noted.
- Insulation:
  - First insulation layer ½ in. wood fiber insulation.
  - Second insulation layer 1.75 in. polyisocyanurate insulation.
- Tapered Insulation: Exists in various locations.
- Deck: Metal:

Core Sample Results: Section 4: Two existing roofs in place: Location on Roof Plan C2, C3.  
Roof System 1: Attached to deck

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane, gravel noted;
- Deck: Cementitious wood fiber, contractor to verify.

Roof System 2: Attached to Roof System 1

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
- Insulation: ½ fiber glass insulation.

- Warranty/Guarantee
  - Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.

- Allowances: Add to base bid \$24,000 for allowances covering Unit Price and contingency items.

- ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1. Refer to Appendix 1 for asbestos testing results. No ACM

- INTERIOR PROTECTION: General: IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.

General Construction Details: Ref A1.0  
Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

Key Notes:  
All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Metal Walls: Remove old metal counter flashing for roof base flashing as applicable. Furnish and install new base flashing and new counter flashing. Ref. Photos 5000 and BF3.
- Masonry Reglet/Flashing: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing. Ref. Photo 4973, 4971, 4979.
- Expansion Joints: Furnish and install new expansions joints. Ref. Photo MC5
- Expansion Joint at Roof Area G: Contractor to provide shop drawing. Ref Photo SR1.
- Area Dividers: Contractor to confirm no structural deck issues and tapered insulation that would require area divider or expansion joint, if not required, remove existing area divider and roof over. Ref. Photo 4993
- Raised Perimeter Edge: Furnish and install new metal edge detail. Ref Photos BF2, PA3.
- Tapered insulation: Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall, metal wall; Contact consultant if tapered heights exceed existing base flashing heights.
- Drains: New: Section 4: Furnish and install new drains as designated on plan.
- Roof to Wall Expansion Joint: Furnish and install new metal expansion joint. Ref. Detail 3.02 and Photo 4978.
- Uneven Roof System and Deck Variations Section 2: Core cut location identified metal decking, interior inspection identified cementitious wood fiber decking. Confirm structural deck changes or repairs install Roof System 1 over metal decks and Roof System 2 over cementitious wood fiber decks.
- Metal Coping: Furnish and install new metal coping.
- Core Cut Locations: Core samples 1, 2, 3, 4, 5, 6.
- Core Cut and/or interior deck inspection identified localized metal decking.

PROFESSIONAL



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EMAIL: weathertech@wtcg.net  
WEB SITE: www.wtcg.net

CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Morse Elementary School  
475 Cherry Dr  
Troy, MI 48083  
  
Troy School District  
BID NO. 9848  
2018 Roofing Program

WTPProject No:  
TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/28/17	50% Review Set
11/06/17	90% Review Set
11/10/17	OTB
11/20/17	Addendum 1

File Name: Roof Plan  
Drawn By: MD  
Checked By: AW, GG, AC

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SHEET TITLE

Morse Elementary School,  
Roof Area C:  
Sec 1, 2, 3, 4  
Roof Plan  
A3.0



Niles Center - Troy School District  
Sheet Notes: Roof Area G and H

Schedule

WORK DESCRIPTION - ROOF REPLACEMENT

Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area G: 13,600 sq. ft. Roof Area H: 800 sq. ft.

- New Roof System 1: Roof Area G: Cementitious Wood Fiber Decks **Ref. Detail 4.14**; Contractor to submit FMG RoofNav approved assembly number.
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R30:
    - First insulation layer adhered to underlayment;
    - Second insulation layer adhere to first layer of insulation;
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Underlayment: Modified Bitument Base Sheet: Mechanically fasten to deck;
  - Deck: Cementitious wood fiber: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.
- New Roof System 2: Roof Area H and partial Roof Area G Ref. Key Note 11: Metal Decks: **Ref Detail 1.01**
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R30:
    - First insulation layer mechanically fasten to deck;
    - Second insulation layer adhere to first layer of insulation;
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Deck: Metal: Repair as necessary to comply w/ building codes.
  - Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.

- Building Height: Ground to building edge: 20 ft.

4. EXISTING ROOF SYSTEM CONSTRUCTION

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:

Roof Area G: Core Sample Results: Two existing roofs in place

Roof System 1: Attached to deck

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane,
- Vapor Barrier: Attached to deck.
- Tapered Insulation: Exists in various locations.
- Deck: Cementitious wood fiber

Roof System 2: Attached to Roof System 1

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
- Insulation:
  - First insulation layer Approx. 1.5 in. polyisocyanurate insulation;
  - Second insulation layer ½ in. wood fiber insulation.
- Tapered Insulation: Exists in various locations.

Roof Area H: Core Sample

Roof System 1:

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
- Insulation:
  - First insulation layer Approx. 2.0 in. polyisocyanurate insulation;
  - Second insulation layer ½ in. wood fiber insulation.
- Tapered Insulation: Exists in various locations.
- Deck: Metal

5. Warranty/Guarantee

- Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.

6. Allowances: Add to base bid \$14,000 for allowances covering Unit Price and contingency items.

- ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1. Refer to Appendix 1 for asbestos testing results. No ACM
- INTERIOR PROTECTION: **General:** IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.

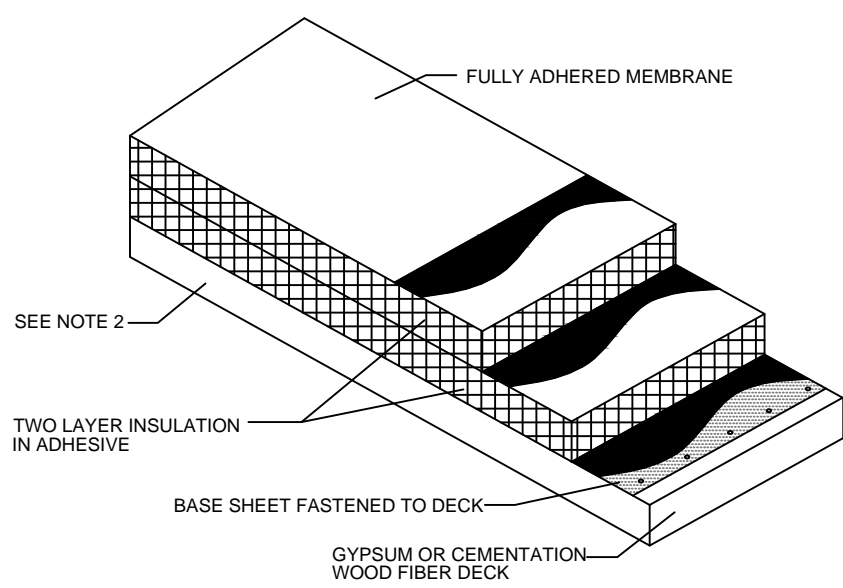
General Construction Details: Ref A1.0

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

Key Notes:

All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

- Ladders: Furnish and install new ladder to access. New wall mounted ladder meeting OSHA standards. Pads installed at top and bottom of ladders. **Ref. Photo 3922.**
- Expansion Joint: Roof Transition G to H, **Ref Photo BF1.** Furnish and install in plane Expansion Joint (Cementitious wood fiber to Metal) or step down detail for drainage.
- Vegetation: Trim back all vegetation growing over the roof. Trim back so no vegetation hangs over roof. **Ref. Photo DV1.**
- Gutters: Furnish and install in gutters: **Ref Photos EM5, 3919.** Contractor to confirm all downspout locations and splash blocks.
- Roof Area C: Furnish and install new splash blocks. **Ref. Photo 3922.**
- Tapered insulation: Furnish and install new tapered insulation as detailed on plan. **Ref. Photo 3893.**
- Abandoned Curb: Check interior if exposed otherwise remove dispose and reroof **Ref. Photo 3894.**
- Metal Cap: Furnish and install new metal cap. **Ref. Photo BF3.**
- Masonry Reglet: Reuse cut in metal receiver or one piece reglet/receiver, furnish and install new two-piece counter flashing over new base flashing. **Ref. Photo 3919.**
- Raised Perimeter Edge: Furnish and install new metal edge detail. **Ref Photo 3926.**
- Metal Deck location identified interior inspection.

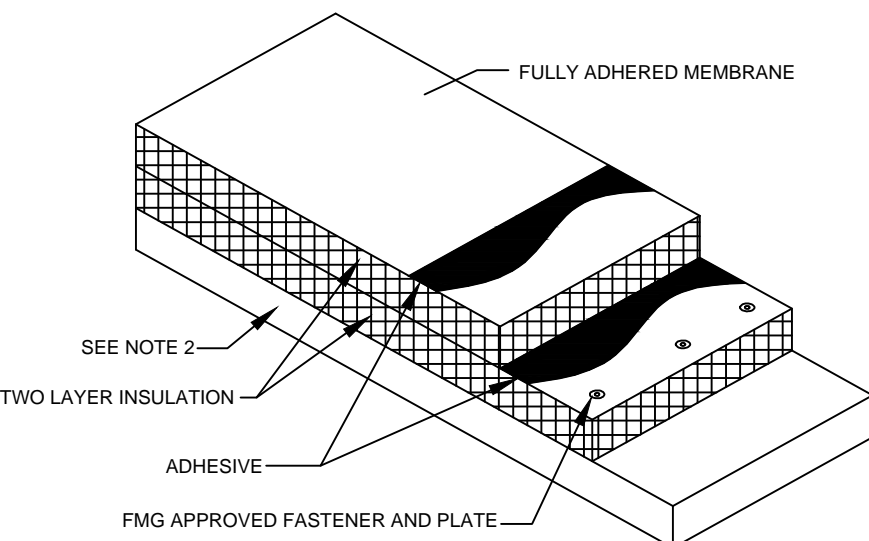


**NOTE 1:** SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.

**NOTE 2:** SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.

FULLY ADHERED EPDM SYSTEM OVER GYPSUM AND CEMENTATION WOOD FIBER DECKS  
SCALE: N.T.S.

4.14



**NOTE 1:** INSULATION MIN. TWO LAYERS, TOTAL RVALUE MIN. R 20. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.

**NOTE 2:** REFERENCE ROOF PLAN SCHEDULE FOR ROOF DECK TYPE.

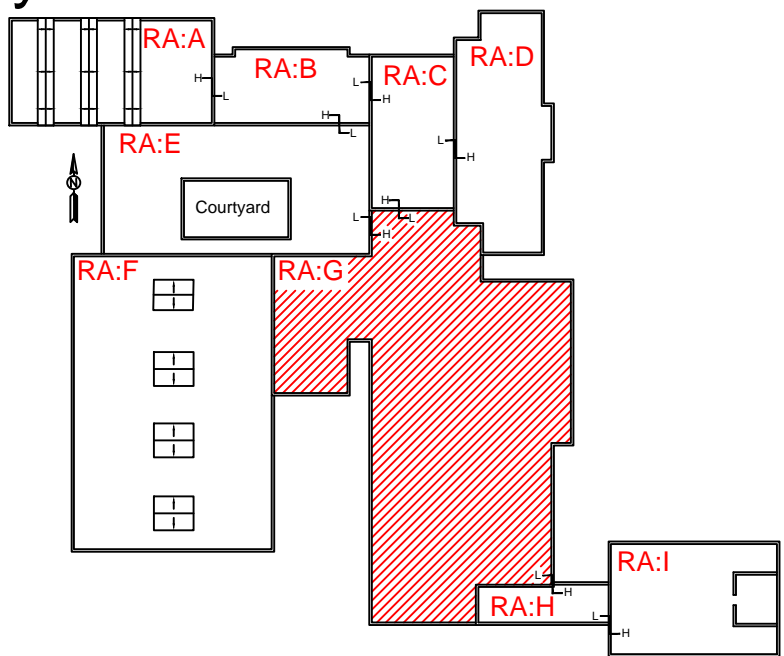
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Date: Rev 3/15

FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S.

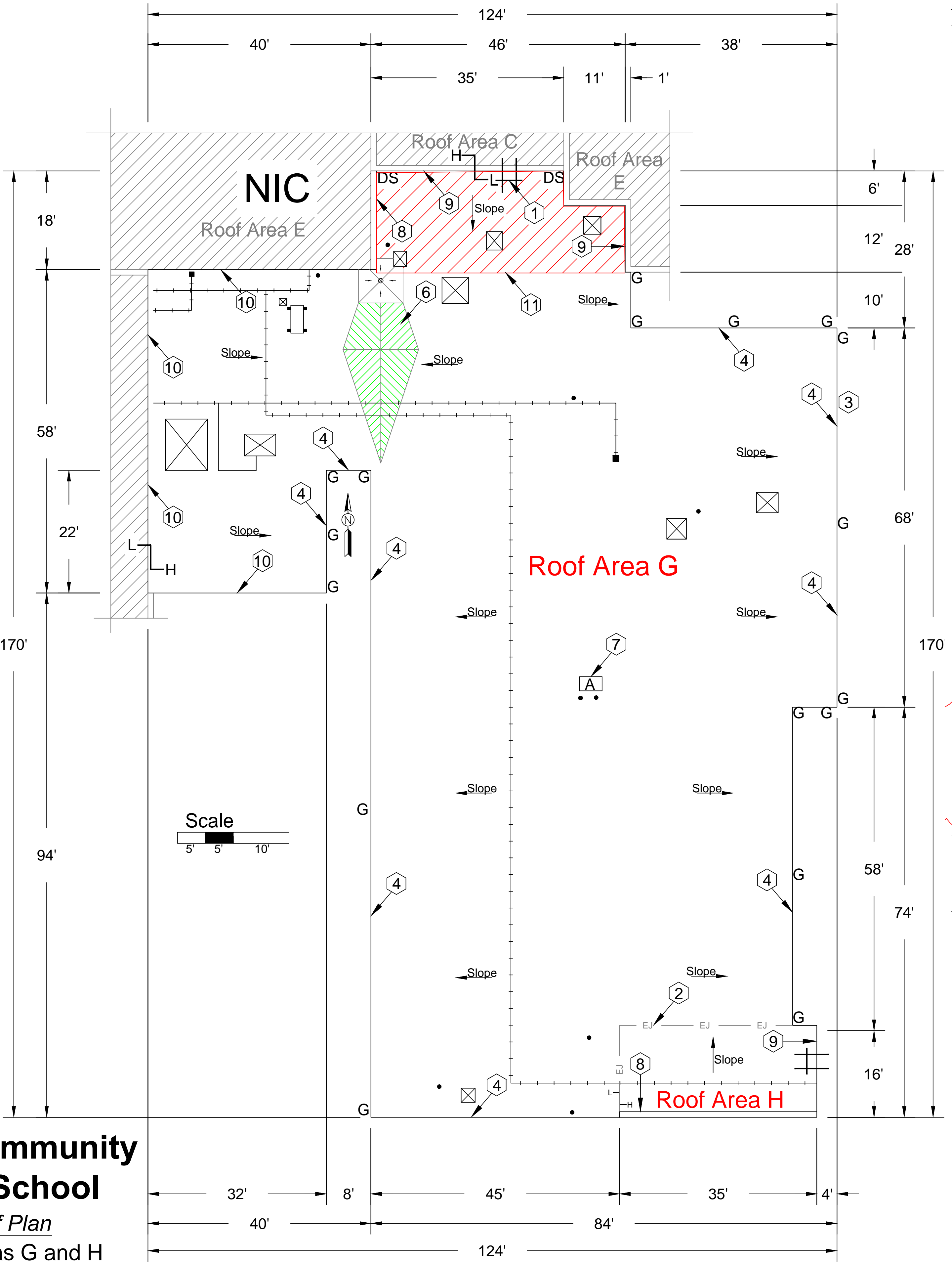
1.01

Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	[H]	Roof Hatch	[ ]	Walk Way
○	Vent Stack	[S]	Skylight	[ ]	Elevation Change
⊙	Insulated Pipe	[A]	Abandoned Equipment	[ ]	Ladder
⊙	Insulated Stack/Pipe on Curb	[X] OF	Overflow Drain	[1]	Photo Indicator
●	Screen support stanchion	[X]	Drain	[01]	Key Note
■	Tube/Structural Equipment Support	[⊕]	New Drain	[ ]	Satellite Dish
■	Pitch Pan	[ ]	Overflow Scupper	[ ]	Core cut
■	Equip. on Support	[ ]	Scupper	[ ]	Revision/ Addendum
■	Equip. on Sleepers/Wood Blocking	[ ]	Expansion Joint	[ ]	Roof Tile
[X]	Equipment Unit on Curb	[G-G]	Gutter	[ ]	Metal Roofing
[ ]	Duct or Flanged Equipment	[R-R]	Ridge	[ ]	Shingles
[ ]	Area Divider	[ ]	Pipe/ Conduit Attached to Parapet	[ ]	

Key Plan



Niles Community High School  
Roof Plan  
Roof Areas G and H



PROFESSIONAL



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CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Niles Center  
201 Square Lake Rd,  
Troy, MI 48098

Troy School District  
BID NO. 9848  
2018 Roofing Program

WTPProject No:

TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/28/17	50% Review Set
11/08/17	90% Review Set
11/10/17	OTB
11/20/17	Addendum 1

File Name: Roof Plan

Drawn By: MD

Checked By: AW, GG, AC

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SHEET TITLE

Niles Center,  
Roof Areas G&H  
Roof Plan

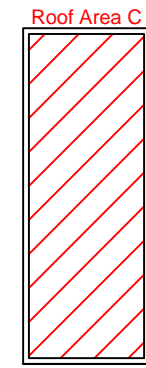
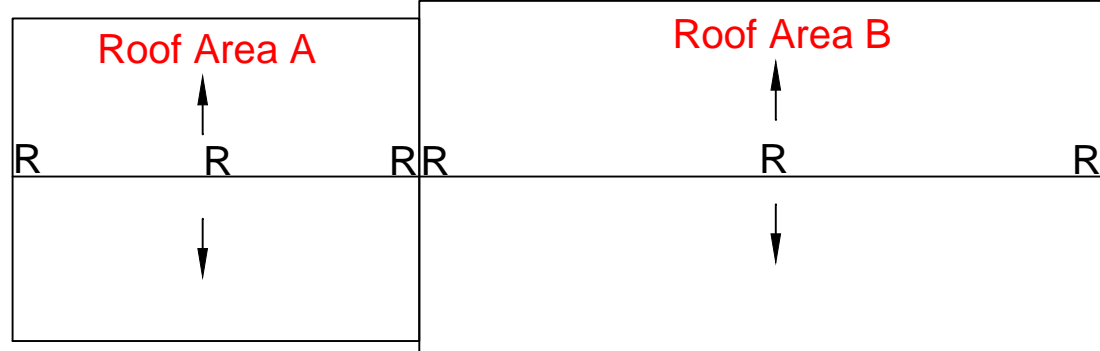
A4.0



Transportation Building

Roof Plan

Roof Area C



Key Plan

Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	H	Roof Hatch	Walk Way	
○	Vent Stack	S	Skylight	0' +15'	Elevation Change
⊙	Insulated Pipe	A	Abandoned Equipment	⋈	Ladder
⊙	Insulated Stack/Pipe on Curb	⊗ OF	Overflow Drain	1	Photo Indicator
●	Screen support stanchion	⊗	Drain	01	Key Note
■	Tube/Structural Equipment Support	⊕	New Drain	⌒	Satellite Dish
■	Pitch Pan		Overflow Scupper	©	Core cut
■	Equip. on Support		Scupper	02	Revision/ Addendum
■	Equip. on Sleepers/Wood Blocking	— sz —	Expansion Joint	Green Hatched	Tapered Insulation
⊗	Equipment Unit on Curb	G G	Gutter		Metal Roofing
□	Duct or Flanged Equipment	R R	Ridge	Shingles	
— ad —	Area Divider	+++	Pipe/ Conduit on Blocks	+++	Pipe/ Conduit Attached to Parapet



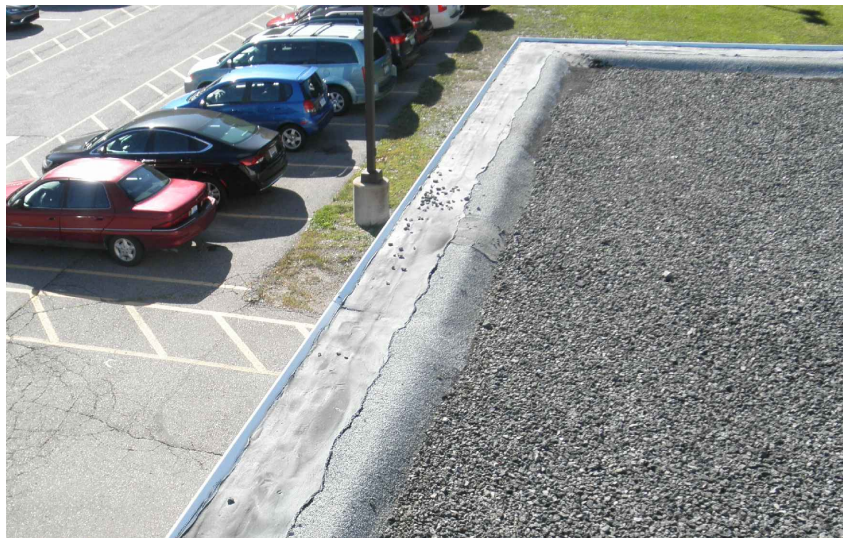
1978



1979



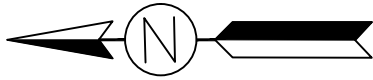
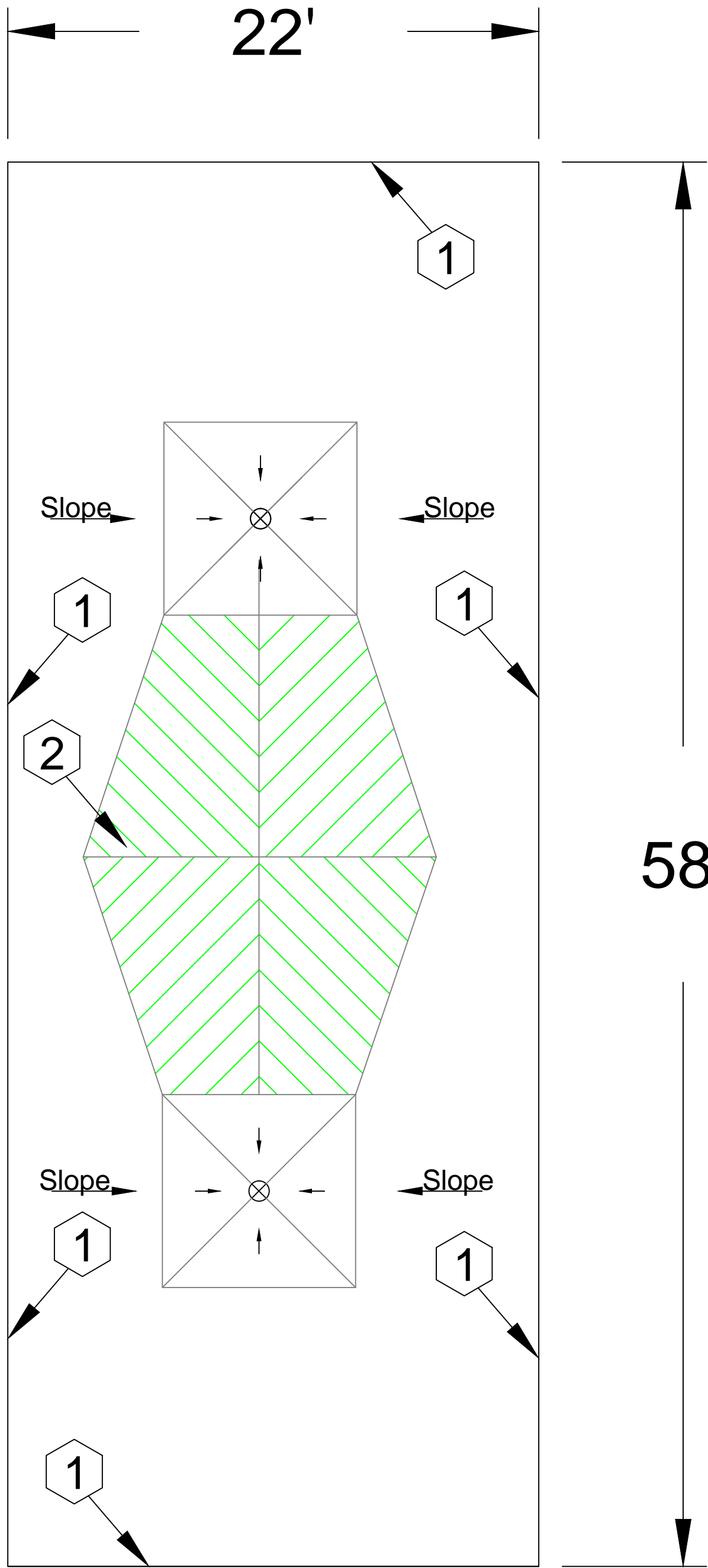
1984



1985



1986



Scale



Transportation Building - Troy School District

Sheet Notes: Roof Area C

Schedule

WORK DESCRIPTION - ROOF REPLACEMENT

Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area C: 1,275 sq. ft.

- New Roof System 1: Roof Area C: **Ref. Detail 4.14;**
  - Roof Membrane: EPDM, 60 mil, adhered to insulation.
  - Insulation: R20:
    - First insulation layer adhered to underlayment;
    - Second insulation layer adhere to first layer of insulation;
  - Tapered Insulation: Exists in various locations, see roof plan and details.
  - Vapor Barrier : Modified Bitument Base Sheet: Mechanically fasten to deck;
  - Deck: Metal: **Repair as necessary to comply w/ building codes.**
  - Interior Exposed deck roof deck interior conditions exist.

- Building Height: Ground to building edge: 25 ft.

EXISTING ROOF SYSTEM CONSTRUCTION

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:

Roof System

- Roof Membrane: Gravel surfaced bituminous built-up roof membrane
- Insulation:
  - First insulation layer Approx. 1.5 in. polyisocyanurate insulation;
  - Second insulation layer 1 in. wood fiber insulation.
- Vapor Barrier fastened to deck.
- Deck: Metal: Repair as necessary to comply w/ building codes.

Warranty/Guarantee

- Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.

- Allowances: Add to base bid \$3,800 for allowances covering Unit Price and contingency items.

- ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1. Refer to Appendix 1 for asbestos testing results. No ACM

- INTERIOR PROTECTION: **General:** IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.
  - Interior protection may be required over sensitive equipment and interior contents, contractor to coordinate daily to provide interior protection as needed.

General Construction Details: Ref A1.0

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

Key Notes:

All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

Overview Photos 1978 and 1979

- Raised Perimeter Edge: Furnish and install new metal edge detail. **Ref Photo 1984, 1985.**

- Tapered insulation: Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights. **Ref. Photo 1978.**

PROFESSIONAL



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CLIENT:

Troy School District

4400 Livernois

Troy, MI 48098

PROJECT:

Transportation Building

120 Hart Dr Troy, MI 48098

Troy School District

BID NO. 9848

2018 Roofing Program

WTPProject No:

TSD-R102-18

ISSUE

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File Name: Roof Plan

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SHEET TITLE

Transportation

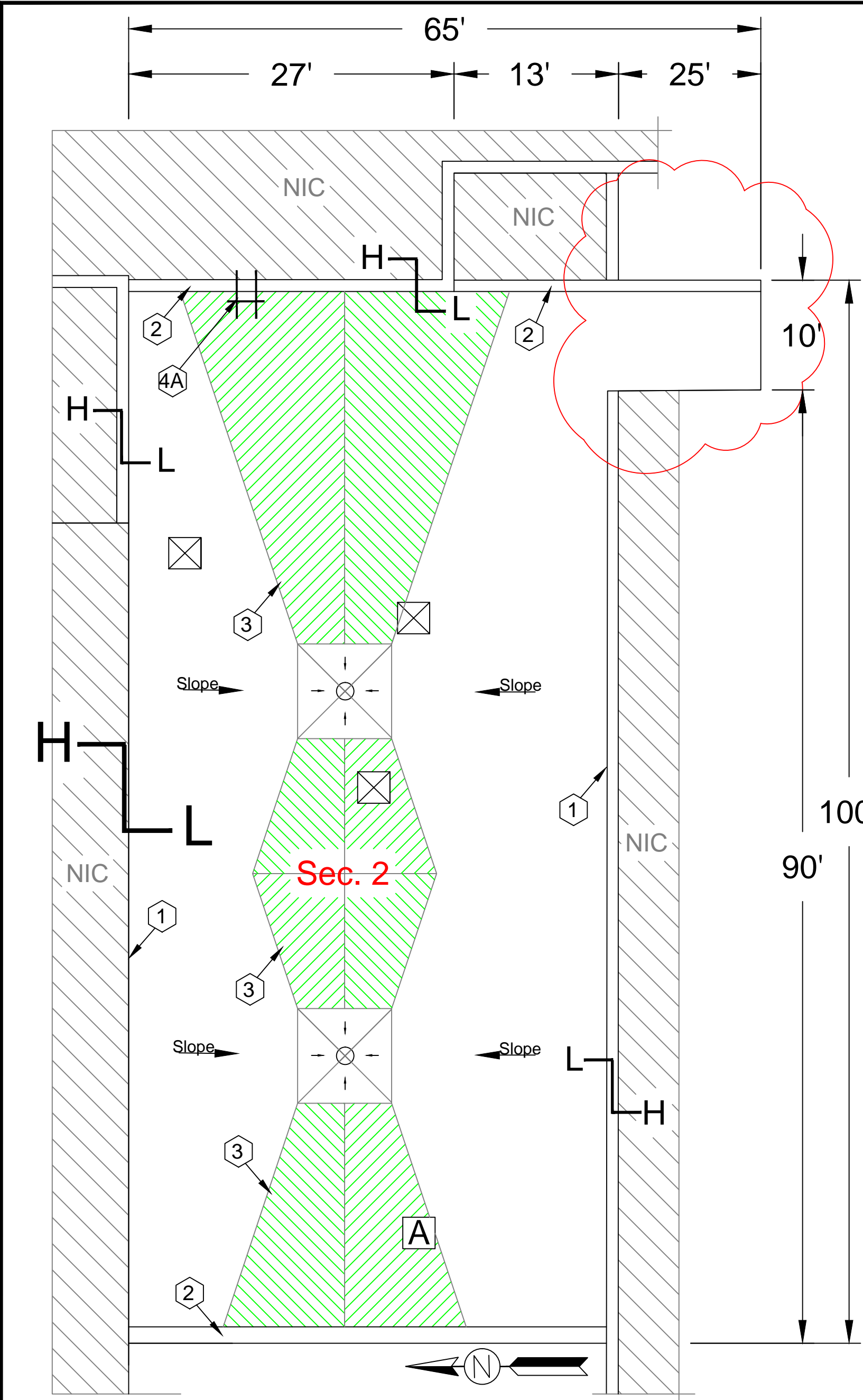
Building,

Roof Area C

Roof Plan

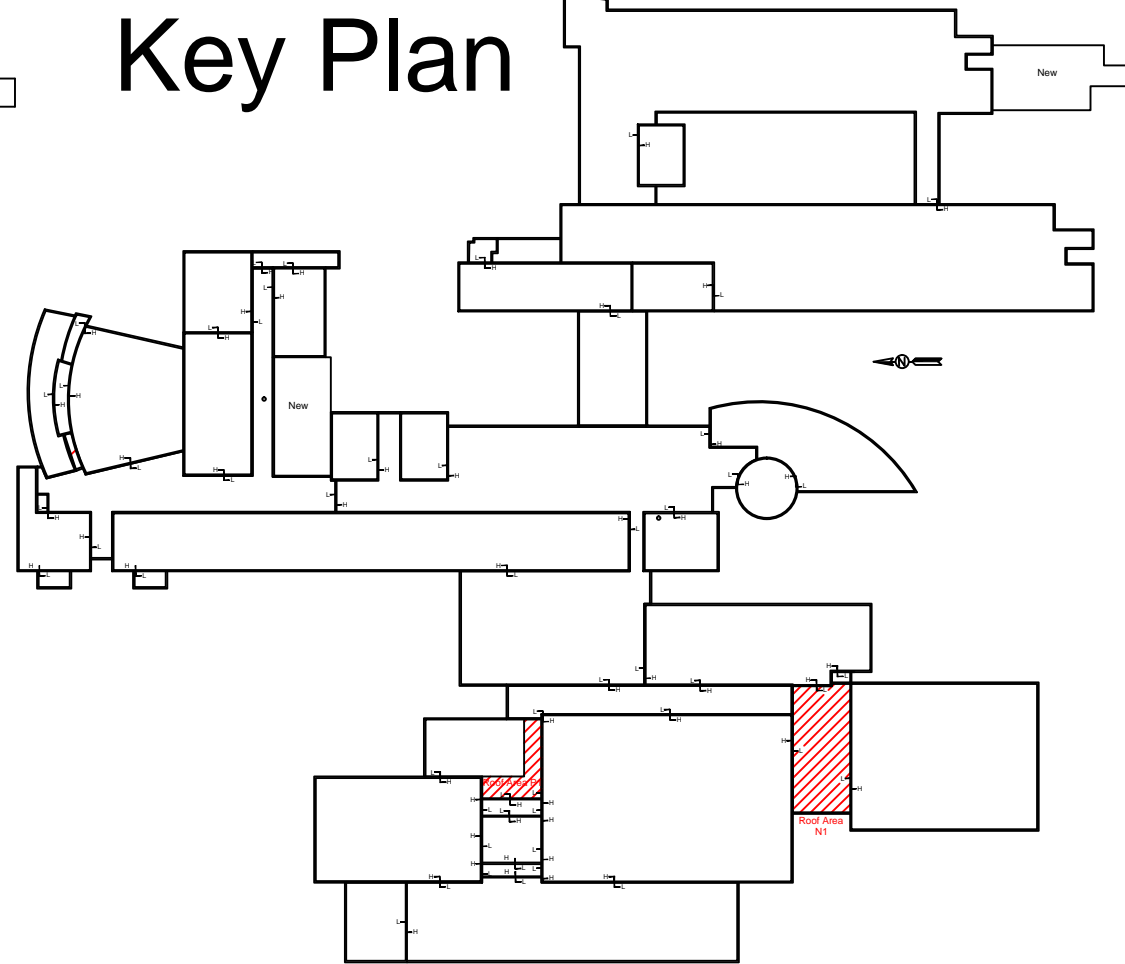
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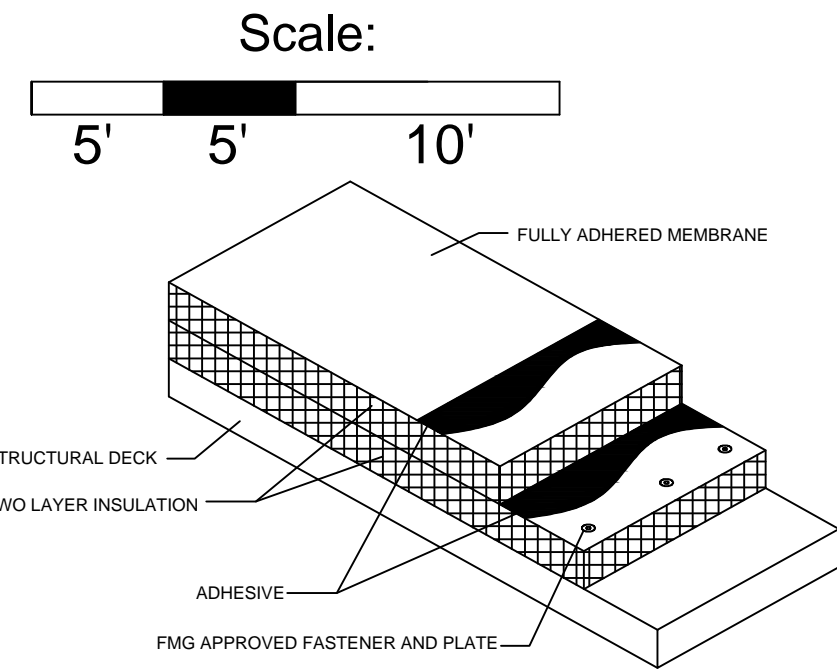


**Troy High School**  
*Roof Plan*  
Roof Area N2  
Scale: 1" = 10'

Symbol Key			
SYMBOL	DETAIL	SYMBOL	DETAIL
●	Pipe/Conduit Penetration	H	Roof Hatch
○	Vent Stack	S	Skylight
⊙	Insulated Pipe	A	Abandoned Equipment
⊙	Insulated Stack/Pipe on Curb	⊗	Overflow Drain
●	Screen support stanchion	⊗	Drain
■	Tube/Structural Equipment Support	⊕	New Drain
■	Pitch Pan		Overflow Scupper
■	Equip. on Support		Scupper
■	Equip. on Steepers/Wood Blocking	—	Expansion Joint
⊗	Equipment Unit on Curb	G	Gutter
□	Duct or Flanged Equipment	R	Ridge
—	Area Divider	+	Pipe/Conduit Attached to Parapet



**Troy High School**  
*Roof Plan*  
Roof Area P1 and P2  
Scale: 1" = 10'



NOTE: INSULATION MIN. TWO LAYERS, TOTAL R VALUE MIN. R 20. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.

FULLY ADHERED EPDM SYSTEM  
SCALE: N.T.S.

1.01

**Troy High School - Troy School District**  
**Sheet Notes: Roof Area N: Sec. 2, Roof Area P: Sec. 1 and 2**  
**Schedule**

**WORK DESCRIPTION - ROOF REPLACEMENT**

Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area N: Sec 2: 22,000 sq. ft. and Roof Area P: Sec. 1: 3,200 sq. ft. and Sec. 2: 800 sq. ft.

**1. New Roof System.**

- Roof Membrane: EPDM, 60 mil. adhered to insulation.
- Insulation: Roof Area P: R30; Roof Area N R20;

- First insulation layer mechanically fasten to deck;
- Second insulation layer adhere to first layer of insulation;
- Tapered Insulation: Exists in various locations, see roof plan and details.
- Deck: Metal: Repair as necessary to comply w/ building codes.

**e. Interior Ceiling:**

- Roof Area P, Section 1: Foam acoustical tiles. Remove tiles, hang interior protection from ceiling. Reinstall acoustical tiles.
- Roof Area P, Section 2: Drop Ceiling.
- Roof Area N: Exposed ceiling over locker rooms, clean all debris on interior broom clean and cover all TSD requested items.

**Alternate No. 2: Roof Area N: Sec. 2 and Roof Area P Sec. 2 only:** Provide deduct to reuse salvageable insulation, (assume R10 existing and 5% nonsalvageable insulation), salvaged insulation to be mechanically attached to deck. Adhere in adhesive 1 additional layer of 1.8 in. polyisocyanurate or greater to meet minimum R20 insulation requirements. Note: Reused insulation shall be flipped if required by manufacturer providing warranty. If not required by manufacturer contractor to provide in writing approval to leave as is. Install roof membrane as specified. Ref. Alternates Section 012300: Alternates are individually listed on school roof plans and bids for Alternates. Alternated bid value are to be entered on Bid Form (Section 000300) as enumerated.

- Building Height: Ground to building edge: 20 ft.

**3. EXISTING ROOF SYSTEM CONSTRUCTION**

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:

**Roof Area P1:**

- Roof Membrane: EPDM roof membrane.
- Insulation: Approx. 4 in. polyisocyanurate insulation.
- Tapered Insulation: Exists in various locations.
- Deck: Metal: Multiple types, contractor to verify.

**Roof Areas N2 and P2:**

- Roof Membrane: Ballasted EPDM roof membrane.
- Insulation: Approx. 2.0 in. polyisocyanurate insulation.
- Tapered Insulation: EPS exists in various locations.
- Deck: Metal: Multiple types, contractor to verify.

**4. Warranty/Guarantee**

- Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.

**5. Allowances: Add to base bid \$8,800 for allowances covering Unit Price and contingency items.**

**6. ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1. Refer to Appendix 1 for asbestos testing results. No ACM**

**7. INTERIOR PROTECTION: General: IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.**

- Roof Area P, Section 1: Partial Exposed Ceiling: Interior protection required, contractor to verify area in weight room and assume interior protection to be hung from ceiling. Area requiring interior protection approx. 3,200 sq. ft. to be hung from ceiling
- Roof Area N2: Locker rooms: Exposed ceiling over locker rooms, clean all debris on interior broom clean and cover all TSD requested items.

**General Construction Details: Ref A1.0**

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

**Key Notes:**

All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

**Roof Area N:**

- Masonry Reglet: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing. Ref. Photo 89.
- Metal Cap: Furnish and install new metal cap. Ref. Photo 97.
- Tapered insulation: Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights.

**4. Roof Access: Exterior reference Photo 104.**

- Ladders: Furnish and install new ladder to access from Roof N to Roof Area L. New roof mounted ladder meeting OSHA standards. Pads installed at top and bottom of ladders.

**Roof Area P:**

- Roof Section P2: Ref. Alternate No. 2 above to salvage insulation.

- Door Threshold: If waterproofed as part of roof system furnish and install new base flashings under threshold plate or mechanical termination. If separated from base flashing not do not disturb door.

- Masonry Reglet: Reuse metal receiver, furnish and install two-piece counter flashing over new base flashing.

- Metal Cap: Furnish and install new metal cap.

- Ladder: Furnish and install new flashings and walk pads at top and bottom.

- Tapered insulation: Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights.

- Metal wall panels: Furnish and install new two-piece counter flashing. Ref. Photo 58.

- Masonry Wall: Furnish and install new two-piece surface mounted counter flashing. Ref. Photo 62.

- Roof Area P, Sec. 2. over entrance. Only accessible from front at door ways. Ref. Photos 72, 75.

**PROFESSIONAL**



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4400 Livernois  
Troy, MI 48098

**PROJECT:**

Troy High School  
4777 Northfield Pkwy.

Troy, MI 48098

Troy School District  
BID NO. 9848  
2018 Roof Program

WTPProject No:  
TSD-R102-18

**ISSUE**

DATE	DESCRIPTION
10/27/17	50% Review Set
11/08/17	90% Review Set
11/10/17	OTB
11/20/17	Addendum 1
11/27/17	Addendum 2

File Name: Roof Plan

Drawn By: MD

Checked By: AW, GG, AC

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**SHEET TITLE**

Troy High School  
Roof Areas N2,  
and P  
Roof Plan

**A6.0**

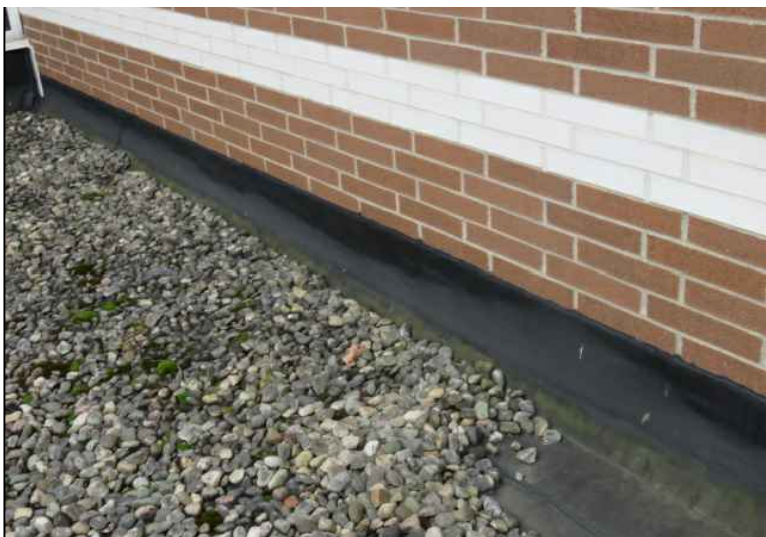
Sheet 15 of 23



Troy High School - Roof Area P



P58



P62



P72



P75

Troy High School - Roof Area



P89



P97



P104



P76

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4400 Livernois  
Troy, MI 48098

PROJECT:

Troy High School  
4777 Northfield Pkwy,  
Troy, MI 48098  
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11/10/17	OTB
11/20/17	Addendum 1

File Name: Photo Page

Drawn By: MD

Checked By: GG, AC, AW

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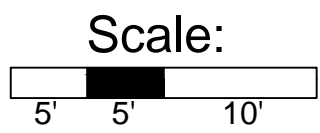
Troy High School  
Photo Page

A6.1



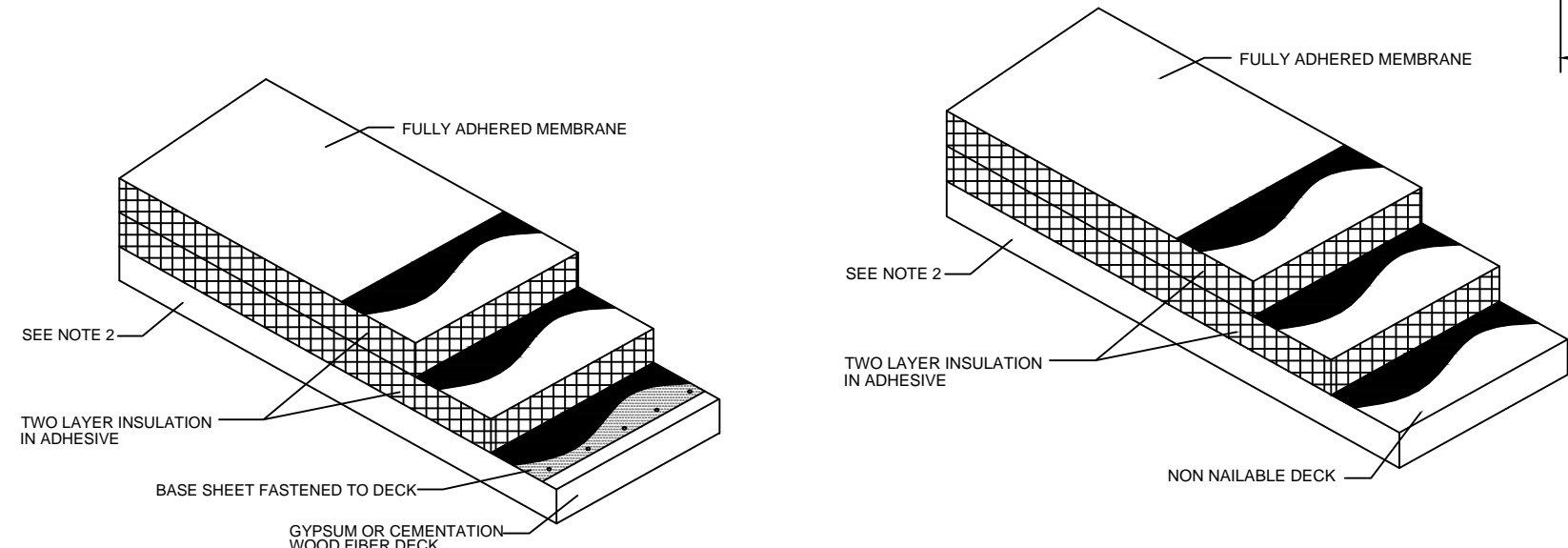
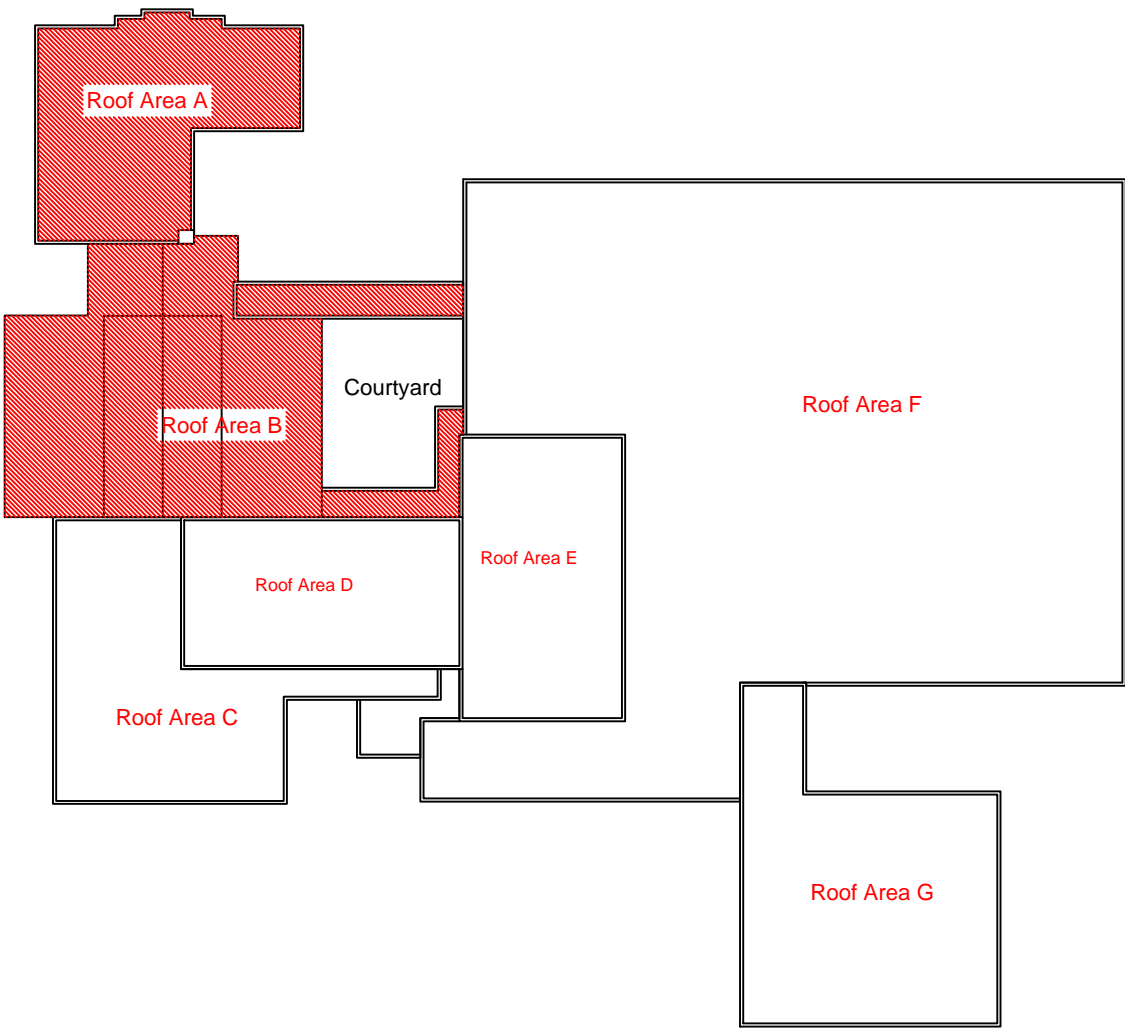
Troy Union Elementary School

Roof Plan  
Roof Areas A and B



Symbol Key					
SYMBOL	DETAIL	SYMBOL	DETAIL	SYMBOL	DETAIL
•	Pipe/Conduit Penetration	[H]	Roof Hatch	[ ]	Walk Way
○	Vent Stack	[S]	Skylight	0' L +15'	Elevation Change
⊙	Insulated Pipe	[A]	Abandoned Equipment	⊥	Ladder
[ ]	Insulated Stack/Pipe on Curb	⊗ OF	Overflow Drain	①	Photo Indicator
•	Screen support stanchion	⊗	Drain	①	Key Note
—	Tube/Structural Equipment Support	⊕	New Drain	⌒	Satellite Dish
■	Pitch Pan		Overflow Scupper	⊙	Core cut
[ ]	Equip. on Support		Scupper	Δ	Revision/ Addendum
[ ]	Equip. on Sleepers/Wood Blocking	—	Expansion Joint	[ ]	Roof Tile
[ ]	Equipment Unit on Curb	G G	Gutter	[ ]	Metal Roofing
[ ]	Duct or Flanged Equipment	R R	Ridge	[ ]	Shingles
—	Area Divider	+++	Pipe/ Conduit on Blocks	+++	Pipe/ Conduit Attached to Parapet

Key Plan



NOTE 1: SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.

NOTE 2: SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.

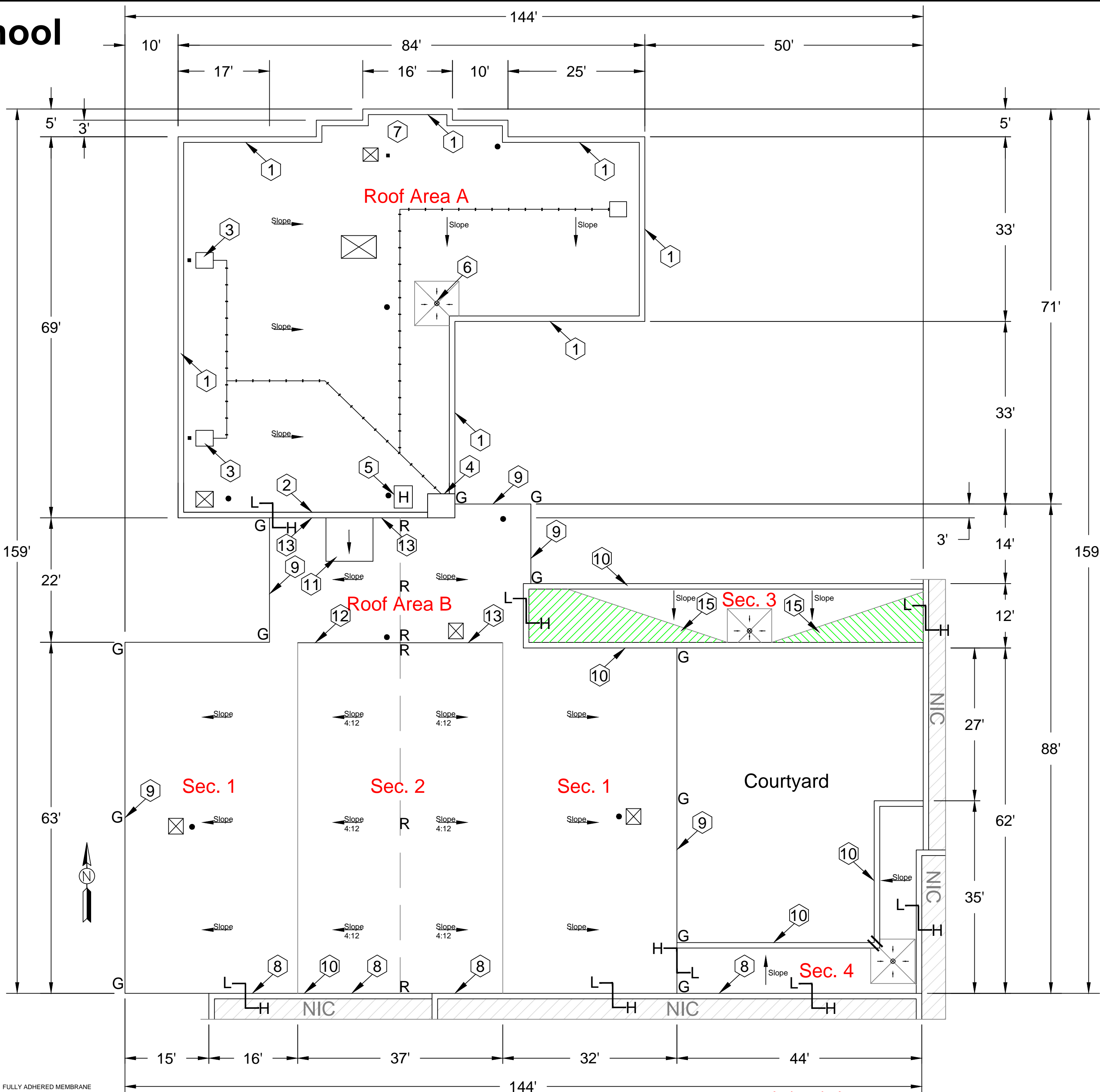
NOTE 1: SEE SCHEDULE ON ROOF PLAN(S) FOR TYPE AND THICKNESS OF EACH INSULATION LAYER REQUIRED IN EACH ROOF AREA. TAPERED INSULATION ALSO MAY BE REQUIRED ON SOME ROOF AREAS OR FOR CRICKETS AND SADDLES - SEE SCHEDULE AND LAYOUT DRAWINGS ON ROOF PLAN(S) FOR TYPE AND FINISHED SLOPE OF TAPERED INSULATION.

NOTE 2: SEE SCHEDULE ON ROOF PLAN(S) FOR DECK TYPE.

FULLY ADHERED EPDM SYSTEM OVER GYPSUM AND CEMENTATION WOOD FIBER DECKS  
SCALE: N.T.S.

4.14

FULLY ADHERED EPDM SYSTEM  
NON-NAILEABLE DECK  
SCALE: N.T.S.



Troy Union Elementary School - Troy School District  
Sheet Notes: Roof Area A and B  
Schedule

WORK DESCRIPTION - ROOF REPLACEMENT

Work includes: Removal and disposal of the existing roofing, insulation, flashing systems and all sheet metal flashings down to the surface of the deck, repair of the decking. Installation of new roof insulation, fully adhered EPDM single ply roof membrane including all flashing, new roof related sheet metal, and accessories as detailed in the specifications and drawings. Completed work shall comply with all Contract Documents and roofing manufacturer's requirements to receive the specified warranted roof system. Approx. Roof Area A: 4,375 sq. ft. and Roof Area B: 8,550 sq. ft.

1. Roof Area A: New Roof System: Ref. Detail 1.02

- a. Roof Membrane: EPDM, 60 mil, adhered to insulation.  
b. Insulation: R20:

- 1) First insulation layer adhere to deck;  
2) Second insulation layer adhere to first layer of insulation;

c. Tapered Insulation: Exists in various locations, see roof plan and details.

d. Deck: Concrete. Repair as necessary to comply w/ building codes.

e. Tapered Insulation: Exists in various locations, see roof plan and details.

f. Interior Ceiling: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.

2. Roof Area B: New Roof System: Ref. Detail 4.14; Contractor to submit FMC RoofNav approved assembly number.

- a. Roof Membrane: EPDM, 60 mil, adhered to insulation.

b. Insulation: R20:

- 1) First insulation layer adhered to underlayment;  
2) Second insulation layer adhere to first layer of insulation;

c. Tapered Insulation: Exists in various locations, see roof plan and details.

d. Underlayment: Modified Bitumen Base Sheet: Mechanically fasten to deck; i.e. Firestone RoofNav #42330-0-0

e. Deck:

- 1) Sections 1 and 2: Gypsum: Repair as necessary to comply w/ building codes.  
2) Sections 3 and 4: Metal Install Roof System per detail 1.01, Sheet 8.0.

f. Interior Protection:

- 1) Roof Area B: Sections 1 and 2; Hang interior protection from ceiling, approx. area 7,000 sq. ft contractor to confirm.  
2) Repairing Roof Area B, Sec 1, 3 and 4: Drop ceiling, may be some small areas of exposed deck roof deck interior conditions exist.

3. Building Height:

- a. Roof Area A: Ground to building edge: 35 ft.  
b. Roof Area B: Ground to building edge: 20 ft. Sec 2 Steep Slope.

4. EXISTING ROOF SYSTEM CONSTRUCTION

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:

4. EXISTING ROOF SYSTEM CONSTRUCTION

All existing roof system constructions were determined by test cuts and observation; conditions may vary. Contractor responsible for confirming all existing roof system constructions and conditions:

Core Sample Results, Roof Area A

- a. Roof Membrane: Gravel surfaced bituminous built-up roof membrane  
b. Insulation: Approx. 1.0 in. Fiberglass insulation.  
c. Tapered Insulation: Exists in various locations.  
d. Deck: Concrete; Multiple types, contractor to verify.

Core Sample Results, Roof Area B: Sec. 1, 3, 4

- a. Roof Membrane: Gravel surfaced bituminous built-up roof membrane  
b. Insulation: Approx. 2.0 in. polyisocyanurate insulation;  
c. Tapered Insulation: Exists in various locations.  
d. Deck: Gypsum; Multiple types, contractor to verify. Ref Photo 4924

Roof Area B: Sec. 2: Contractor to confirm Two Roof Systems

Roof System 1: Attached to deck

- a. Roof Membrane: Mineral Cap built-up roof attached to deck;  
d. Deck: Wood: Contractor to verify.

Roof System 2: Attached to Roof System 1

- a. Roof Membrane: Coated modified bitumen roof membrane

5. Warranty/Guarantee

- a. Manufacturer to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system, flashings and manufacturer's accessories.

6. Allowances: Add to base bid \$18,000 for allowances covering Unit Price and contingency items.

7. ASBESTOS: Refer to Section 024119 and Appendix 1: Asbestos testing results to be supplied by TSD selected 3rd party firm and will be incorporated into Appendix 1. Refer to Appendix 1 for asbestos testing results. No ACM.

8. INTERIOR PROTECTION: **General:** IP required under all deck replacement. The contractor shall provide interior protection consisting of a (minimum) 7 mil reinforced polyethylene sheet hung from ceiling along with a dedicated interior monitor during any deck removal. The cost associated with all interior protection required for deck repair or replacement is to be included in the respective unit price for that work. Interior protection requested by facility personnel that is outside deck repair/replacement areas will be charged on a unit price basis.  
a. Roof Area B, Sections 1 and 2: Approx. 7,000 sq. ft interior protection to be hung from exposed ceiling areas, contractor to verify.

General Construction Details: Ref. A1.0

Use the General Construction Details on Sheet A1.0 for detail construction description as applicable when any detail is not specifically called out in Key Notes for the applicable Roof Area and Section. Detail drawings called out in General Construction Details can be found on Sheets 8.0, 8.1, 8.2 and 8.3. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

Key Notes:

All detail references in Key Notes are considered typical and applicable to like conditions except as specifically amended on this Sheet. Refer to Sheet A1.0 General Construction Detail Notes for applicable construction detail descriptions and Sheets 8.0, 8.1, 8.2 and 8.3 for construction detail drawings. Contractor to provide Shop Drawing as necessary for field conditions not directly identified in Contract Documents.

Roof Area A

1. Concrete Coping Stone Parapet: Furnish and install new base flashings and metal counter flashings. Caulk all stone joints and all cracks. Ref. Photos 4833, 4842, MC2 and Detail 4.15.  
2. Clay Coping Cap Parapet: Remove clay coping cap and dispose, furnish and install 2x wood blocking, new base flashings and metal cap coping. Ref. Photos MC1, 4839.  
3. Equipment Support Blocking: Furnish and install wood block supports w/ pads. Ref. Photo EQ1.

4. Chimney: Furnish and install new metal counter flashing. Ref. Photo 4837A

5. Roof Hatch: Remove and dispose of old roof hatch.

6. Drain: Furnish and install new drain insert. Ref. Photos 4855 and 4858.

7. Vegetation: Trim vegetation back so does not hang over roof. Ref. Photo DV1.

Roof Area B

8. Metal Wall Panels: Remove old metal counter flashing for roof base flashing as applicable. Furnish and install new base flashing and new counter flashing. Ref. Photos DV5, 4804.  
9. Gutters: Furnish and install new gutters. Ref. Photos 4810, 4816, 4820.

10. Metal Cap Parapets: Furnish and install new metal cap. Ref. Photo 4823, 4824.

11. Tapered insulation: **Roof Area B:** Furnish and install new tapered insulation as detailed on plan. Confirm final tapered heights at masonry wall and metal wall; Contact consultant if tapered heights exceed existing base flashing heights.

12. Metal edge: Sec. 2: Furnish and install new metal edge. Ref. Photo 4826.

13. Surface Mounted Metal Counter Flashing: Furnish and install new two-piece surface mounted counter flashing. Ref. Photos 4826, 4827.

14. Vegetation: Trim vegetation back so does not hang over roof. Multiple locations.

15. Asphalt Shingles: Remove and dispose of shingles down to deck. Furnish and install new EPDM membrane w/ underlayment over deck. Include new metal edge and reuse existing copper masonry flashing. Ref. Photo 4827.

16. Ladder: Furnish and install new OSHA compliant ladder from Roof Area B to Roof Area A

PROFESSIONAL



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EMAIL: weathertech@wtcg.net

WEB SITE: www.wtcg.net

CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Troy Union Elementary  
School  
1340 E Square Lake Rd,  
Troy, MI 48085

Troy School District

BID NO. 9848

2018 Roof Program

WTProject No:

TSD-R102-18

ISSUE

DATE	DESCRIPTION
10/27/17	50% Review Set
11/06/17	90% Review Set
11/10/17	OTB
11/20/17	Addendum 1

File Name: Roof Plan

Drawn By: MD

Checked By: AW, GG, AC

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SHEET TITLE

Troy Union  
Elementary School  
Roof Area A and B  
Roof Plan

A7.0



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<p>FULLY ADHERED EPDM SYSTEM NAILABLE DECK SCALE: N.T.S. 1.01</p>	<p>FULLY ADHERED EPDM SYSTEM NON-NAILABLE DECK SCALE: N.T.S. 1.02</p>	<p>CANT-DAM WITH FASCIA COVER SCALE: N.T.S. 1.03</p>	<p>RAISED EDGE FLASHING SCALE: N.T.S. 1.04</p>	<p>PARAPET WITH METAL COPING SCALE: N.T.S. 1.05</p>	<p>2-PIECE SURFACE MOUNT METAL FLASHING SCALE: N.T.S. 1.06</p>
<p>WeatherTech © Date: Rev 3/15</p>	<p>WeatherTech © Date: Rev 3/15</p>	<p>WeatherTech © Date: Rev 3/15</p>	<p>WeatherTech © Date: Rev 3/15</p>	<p>WeatherTech © Date: Rev 3/15</p>	<p>WeatherTech © Date: Rev 3/15</p>
<p>BASE FLASHING W/ THRU WALL COUNTERFLASHING SCALE: N.T.S. 1.07</p>	<p>BASE FLASHING W/ CUT-IN REGLET@ MASONRY WALL SCALE: N.T.S. 1.08</p>	<p>BASE FLASHING AT METAL SIDING SCALE: N.T.S. 1.09</p>	<p>DRAIN FLASHING SCALE: N.T.S. 1.10</p>	<p>ROOF/OVERFLOW DRAIN SCALE: N.T.S. 1.11</p>	<p>DRAIN SUMP-A SCALE: N.T.S. 1.12</p>
<p>WeatherTech © Date: Rev 3/15</p>	<p>WeatherTech © Date: Rev 3/15</p>	<p>WeatherTech © Date: Rev 3/15</p>	<p>WeatherTech © Date: Rev 3/15</p>	<p>WeatherTech © Date: Rev 3/15</p>	<p>WeatherTech © Date: Rev 3/15</p>
<p>DRAIN SUMP-A SCALE: N.T.S. 1.13</p>	<p>THRU-WALL OVERFLOW SCUPPER SCALE: N.T.S. 1.14</p>	<p>NON REMOVABLE PREFABRICATED METAL CURB SCALE: N.T.S. 1.15</p>	<p>NON REMOVABLE UNIT CURB FLASHING SCALE: N.T.S. 1.16</p>	<p>REMOVABLE UNIT CURB FLASHING SCALE: N.T.S. 1.17</p>	<p>REMOVABLE VENTILATOR CURB FLASHING SCALE: N.T.S. 1.18</p>

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11/10/17	OTB



<b>ROOF PENETRATION</b> SCALE: N.T.S.         2.01	<b>PRE-FABRICATED PIPE FLASHING</b> SCALE: N.T.S.         2.02	<b>FIELD FABRICATED VENT STACK FLASHING</b> SCALE: N.T.S.         2.03	<b>FIELD WRAP PENETRATION FLASHING</b> SCALE: N.T.S.         2.04	<b>HEATED STACK FLASHING</b> SCALE: N.T.S.         2.05	<b>PITCH PAN</b> SCALE: N.T.S.         2.06	<b>PITCH POCKET</b> SCALE: N.T.S.         2.07	<b>THROUGH ROOF CONDUIT/PIPE FLASHING - 2 PC COLLAR</b> SCALE: N.T.S.         2.08	<b>ANGLE IRON SUPPORT FLASHING</b> SCALE: N.T.S.         2.09	<b>I-BEAM COLUMN FLASHING</b> SCALE: N.T.S.         2.10	<b>PITCH PAN COVER</b> SCALE: N.T.S.         2.11	<b>EQUIPMENT SUPPORT</b> SCALE: N.T.S.         2.12	<b>EXPOSED WOOD SLEEPER SUPPORT</b> SCALE: N.T.S.         2.13	<b>PROTECTED WOOD SLEEPER SUPPORT -</b> SCALE: N.T.S.         2.14	<b>DUCT SUPPORT</b> SCALE: N.T.S.         2.15	<b>FLANGED DUCTS</b> SCALE: N.T.S.         2.16	<b>GAS PIPE SUPPORT</b> SCALE: N.T.S.         2.17	<b>AREA DIVIDER/CONTROL JOINT</b> SCALE: N.T.S.         2.18



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EMAIL: weathertech@wtcg.net

WEB SITE:www.wtcg.net

CLIENT:

Troy School District

4400 Livernois

Troy, MI 48098

PROJECT:

Troy School District

**BID 9848**

2018 Roofing Program

WTPProject No:  
TSR-R102-18

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11/08/17	90% Review Set
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A8.1



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Troy School District  
4400 Livernois  
Troy, MI 48098

Troy School District  
**BID 9848**  
2018 Roofing Program

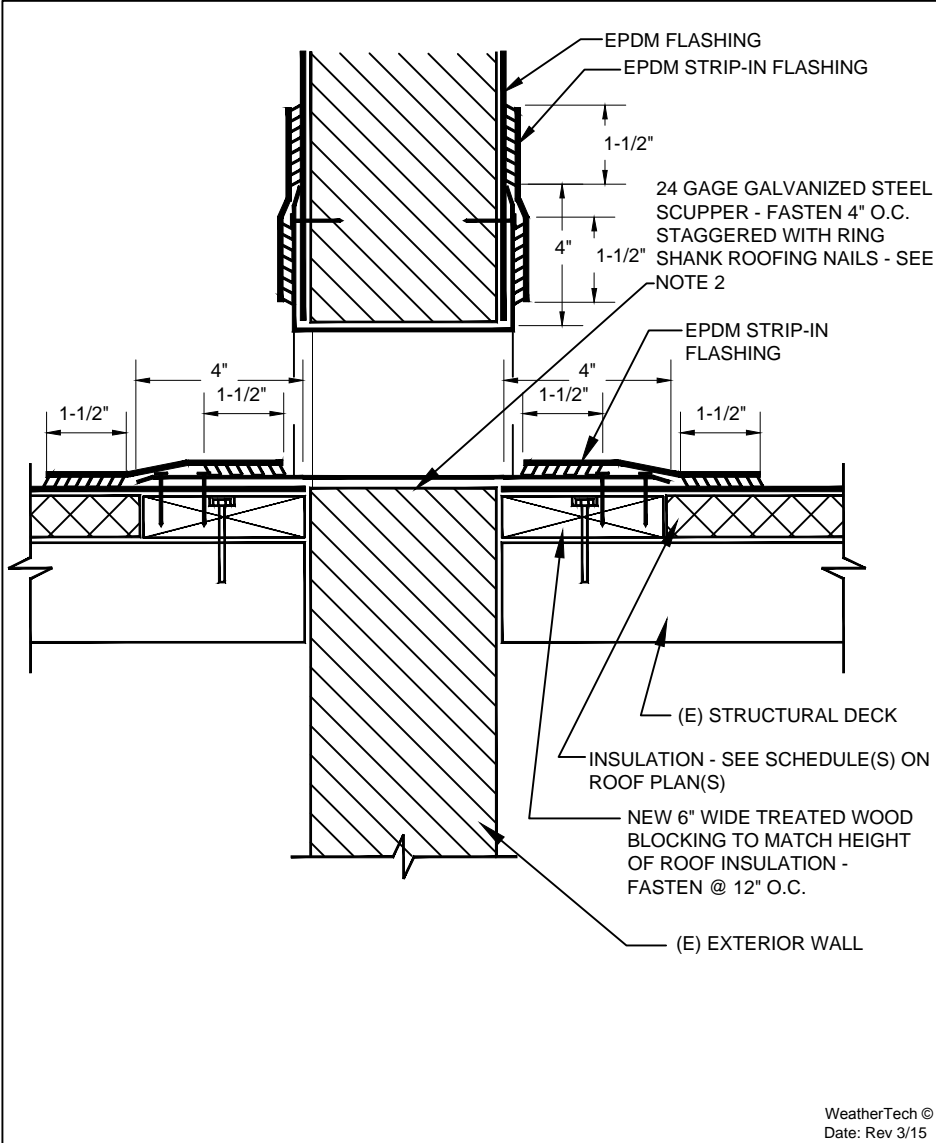
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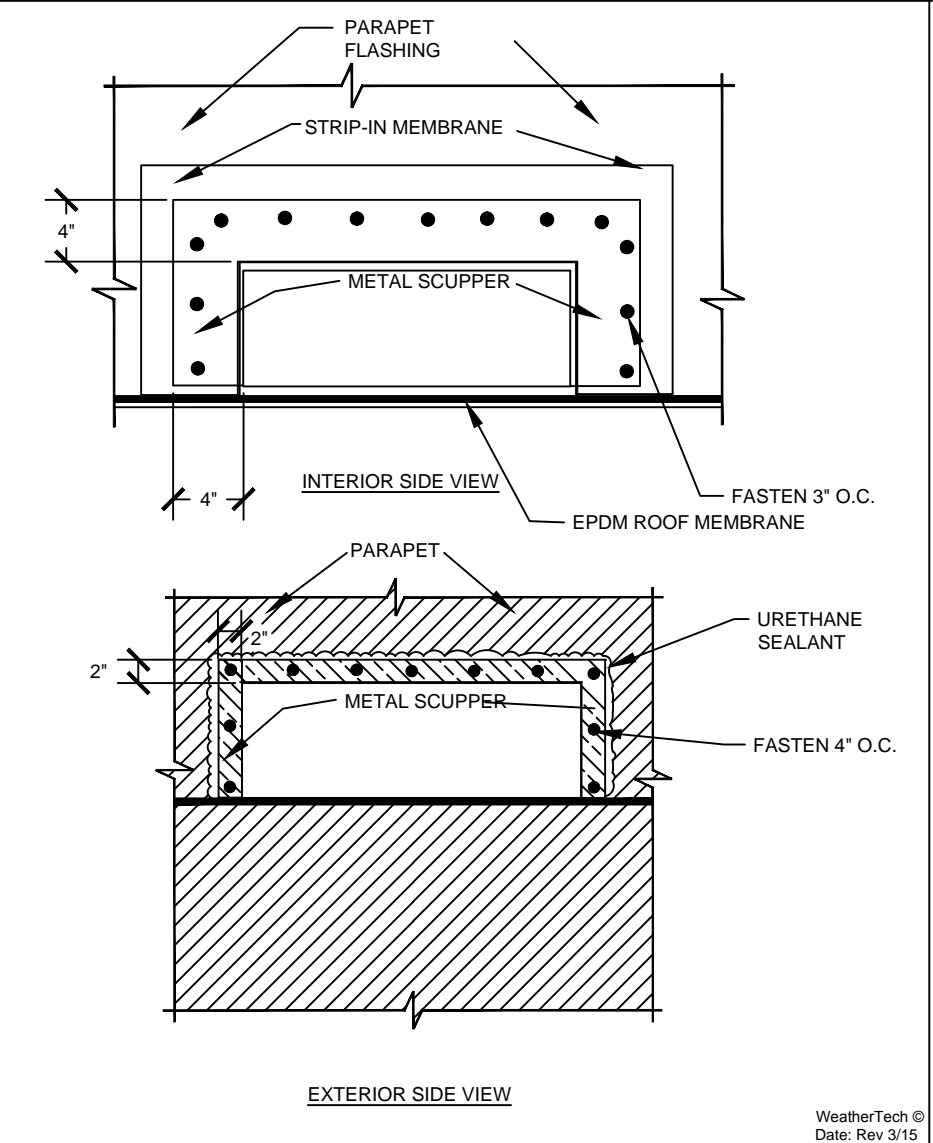
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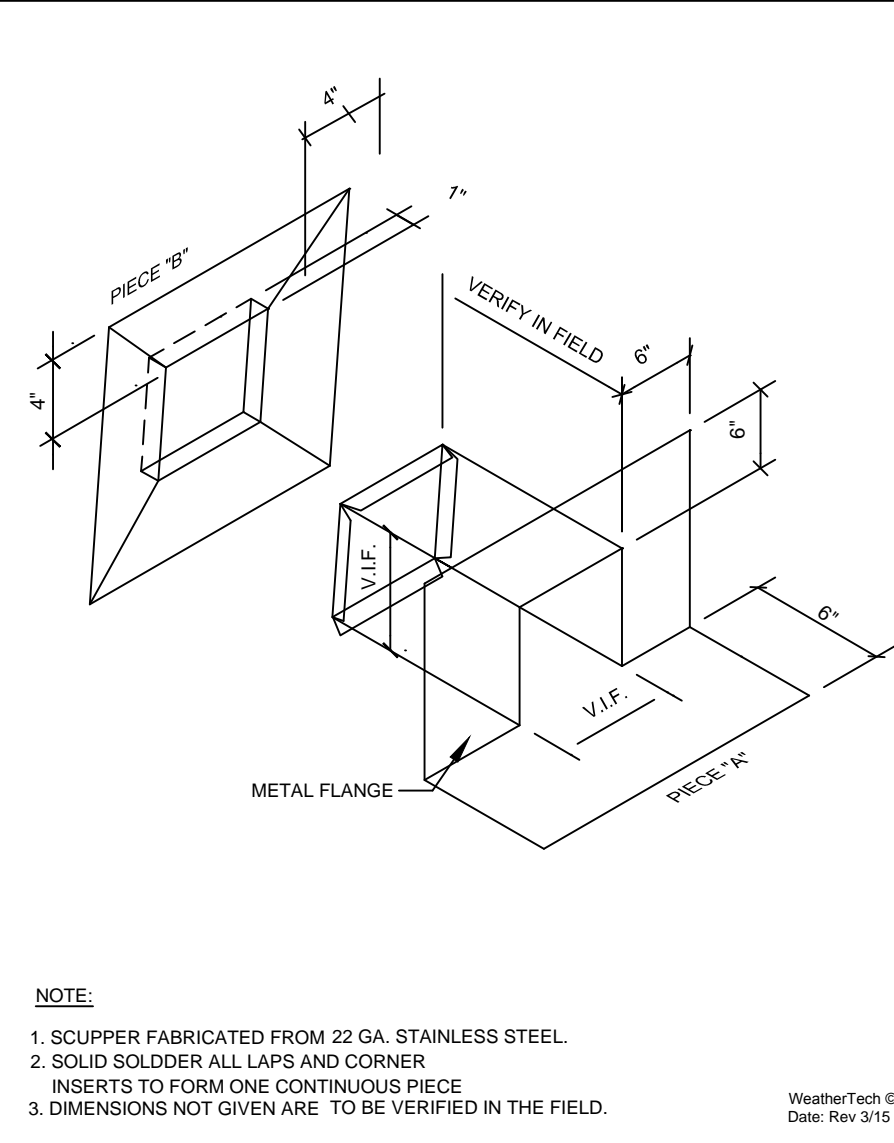
THRU-WALL SCUPPER  
SCALE: N.T.S.

4.01



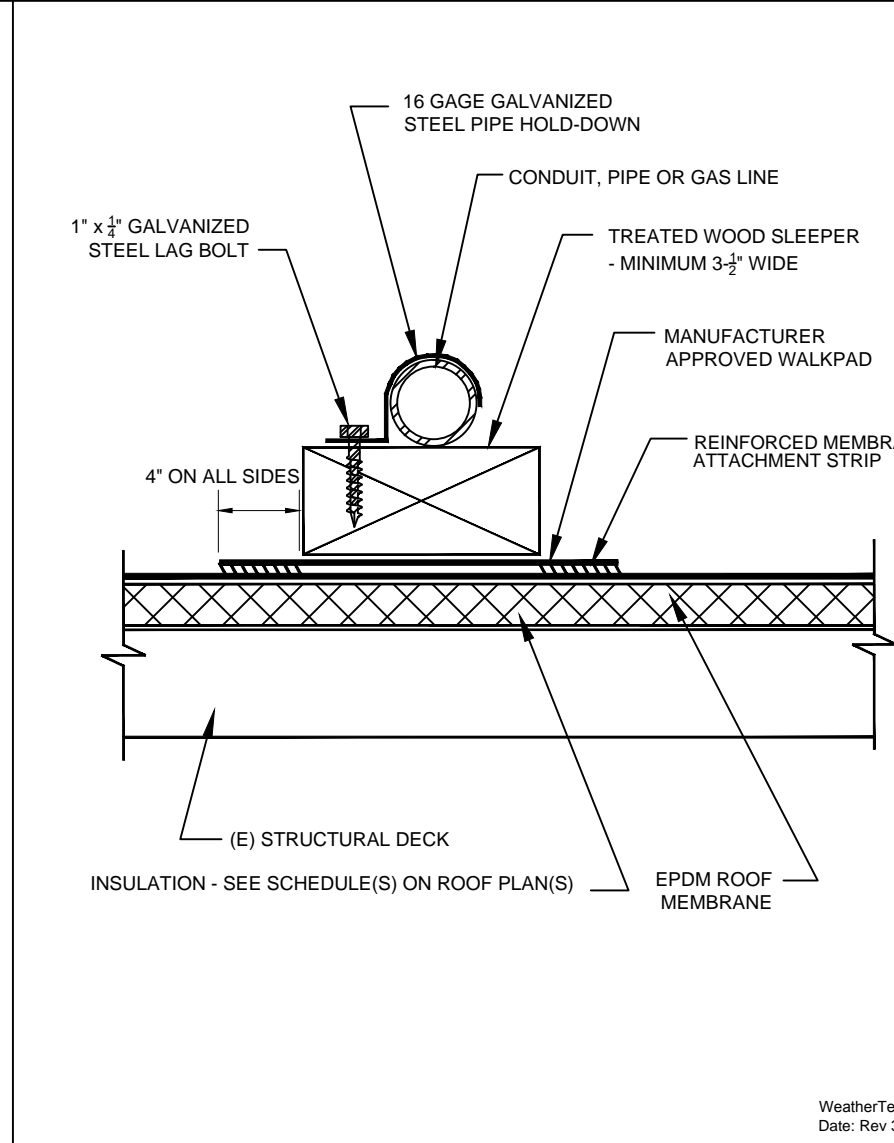
THRU-WALL SCUPPER  
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4.02



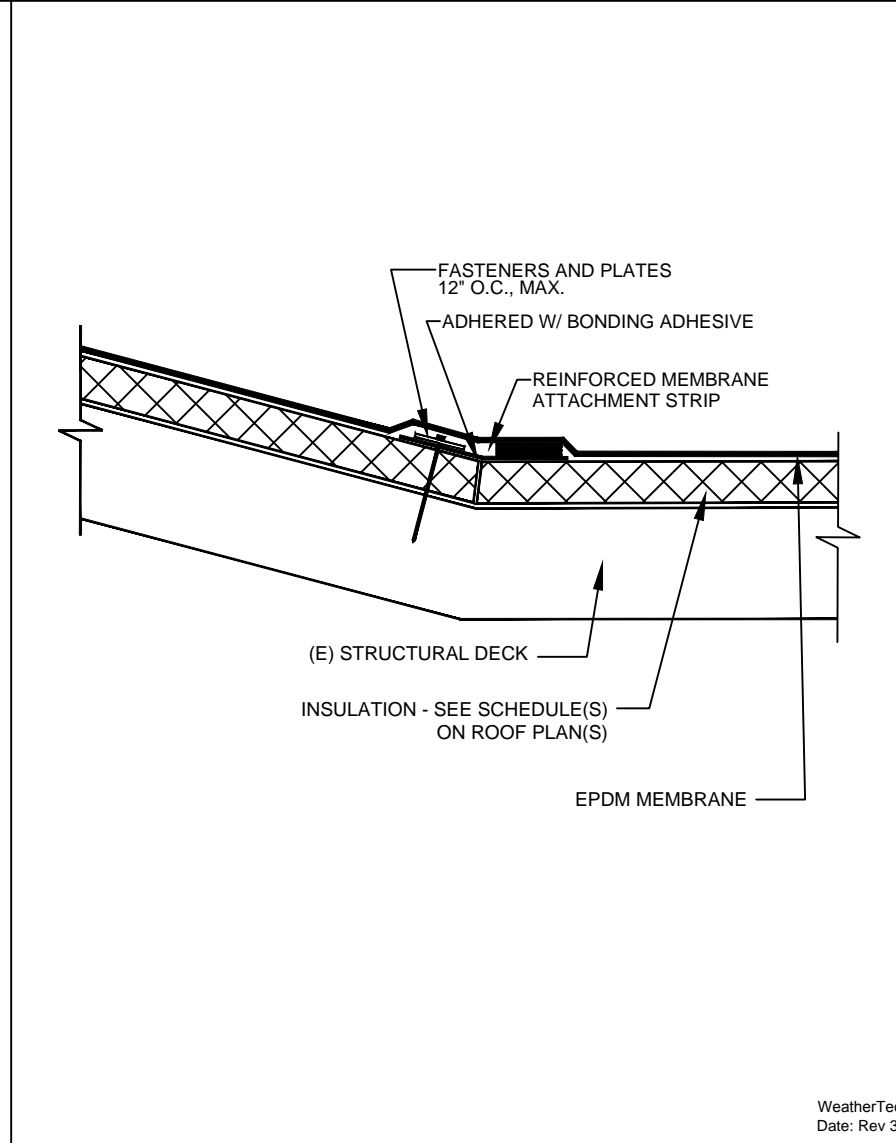
SCUPPER FABRICATION  
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4.03



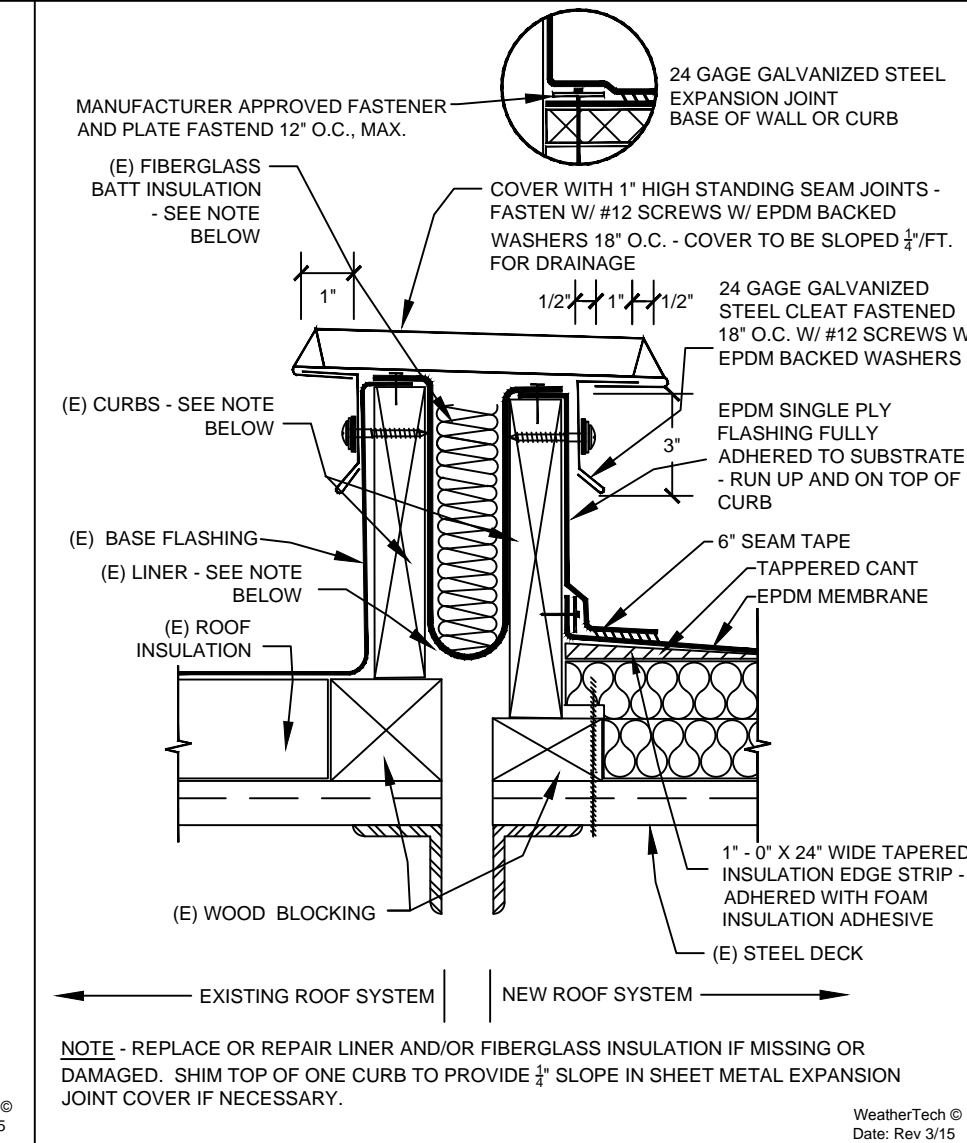
CONDUIT SUPPORT WOOD SLEEPER  
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4.04



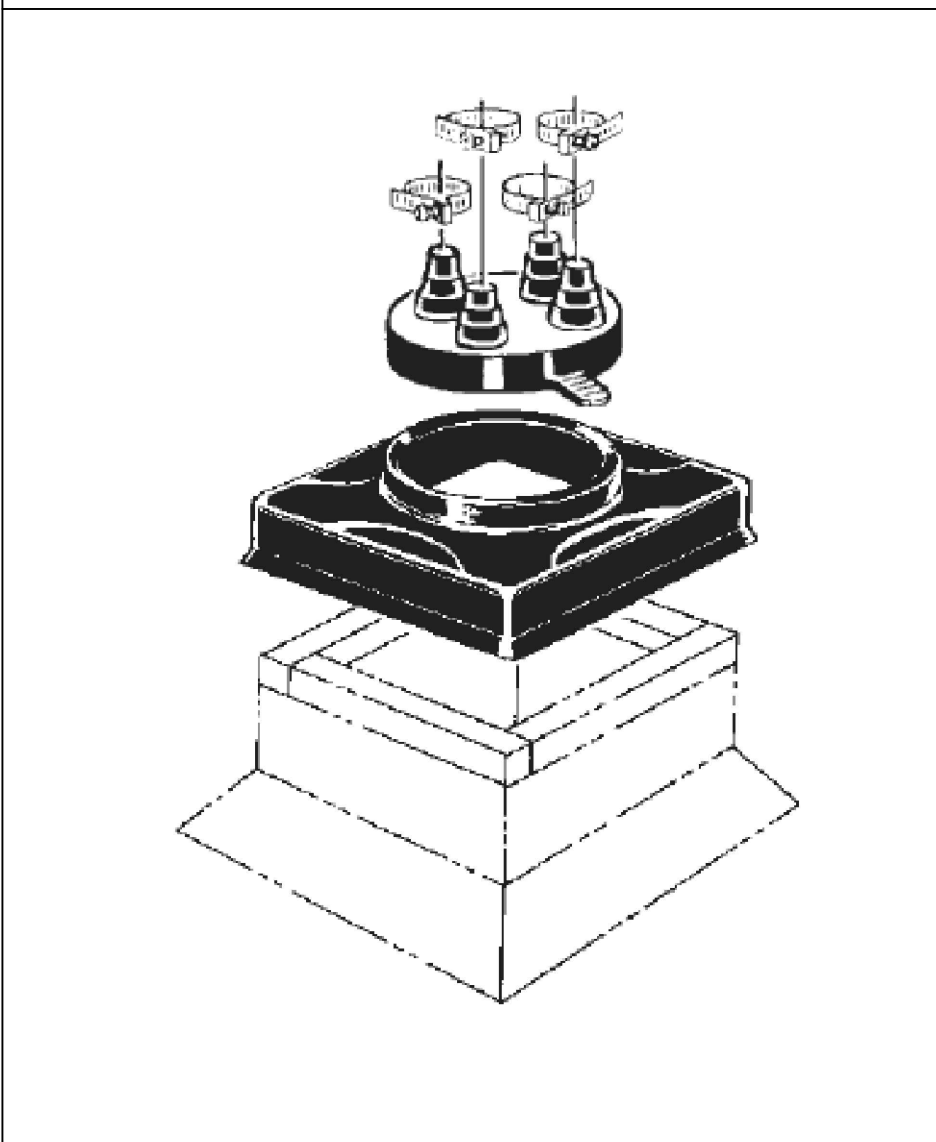
SLOPE TRANSITION  
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4.05



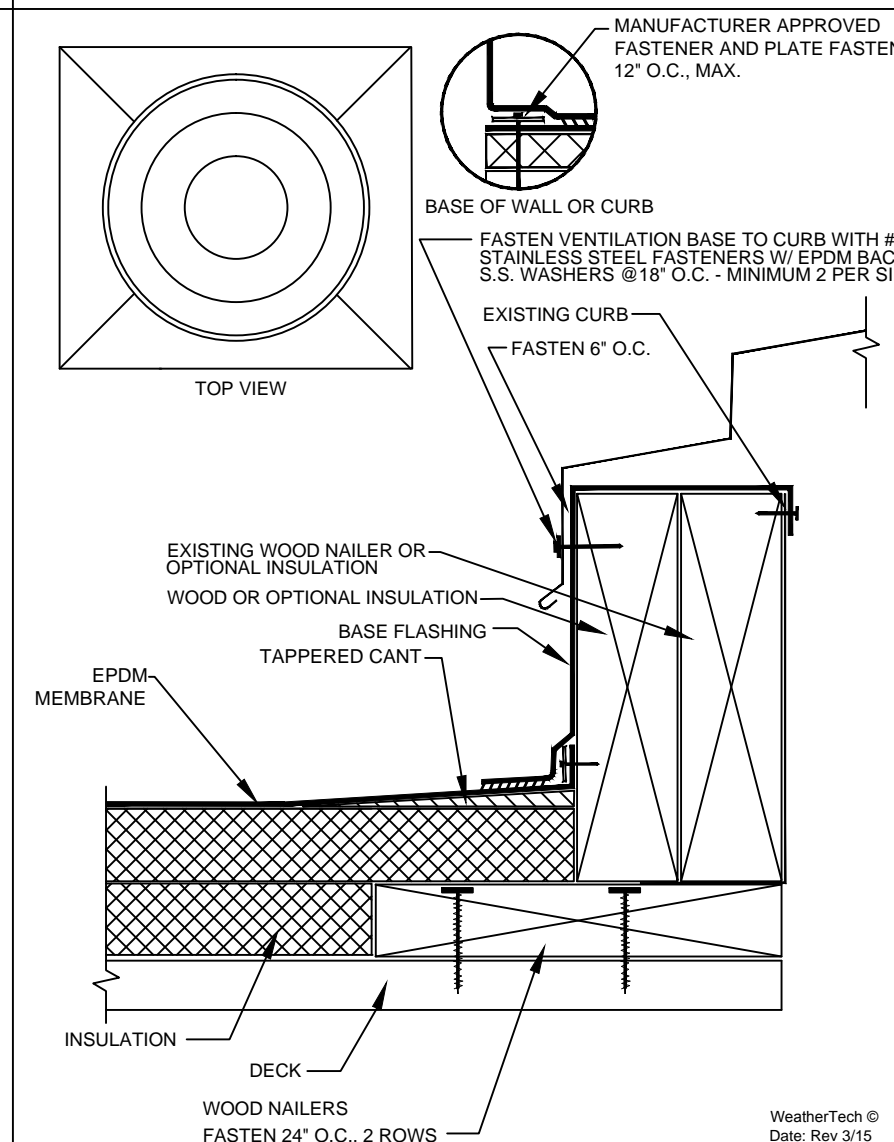
ROOF MOUNTED EXPANSION JOINT @ EXISTING CURB  
SCALE: N.T.S.

4.06



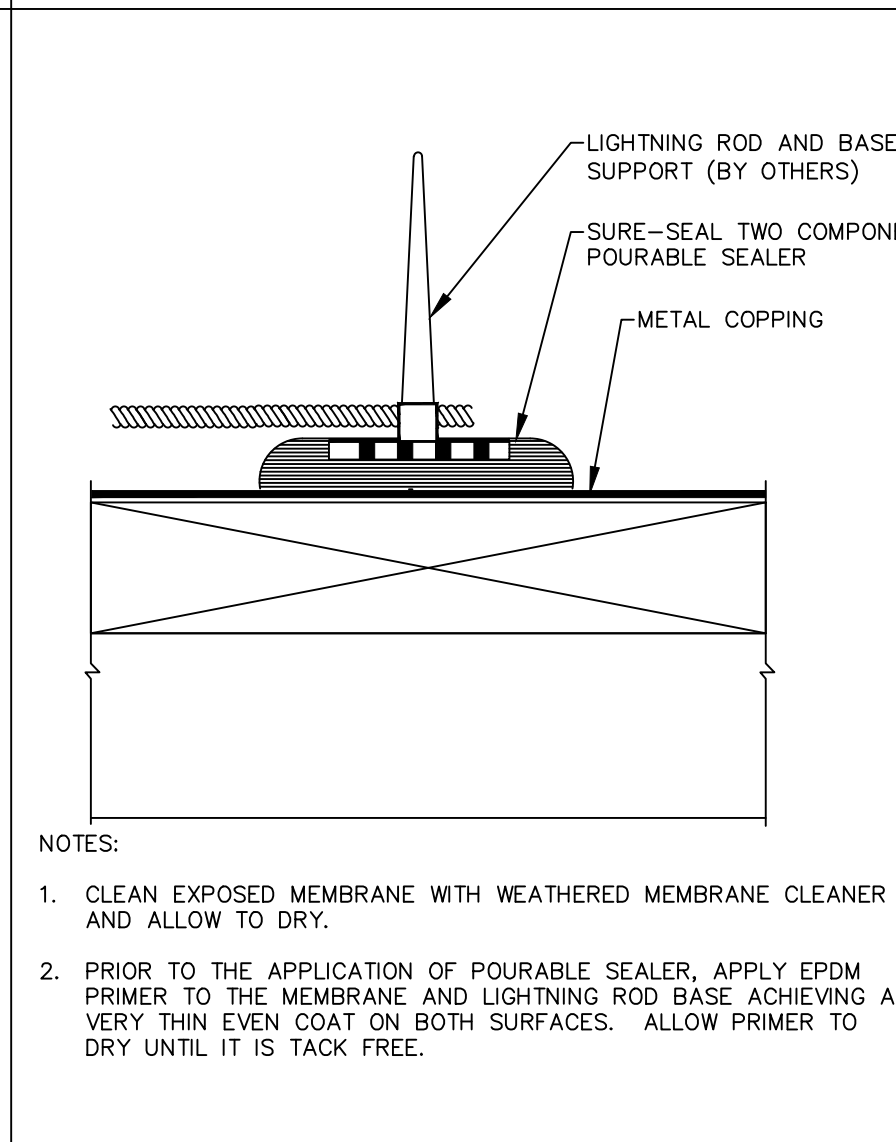
PORTALS PLUS CONDUIT/PIPE  
FLASHING - CURB & COVER  
SCALE: N.T.S.

4.07



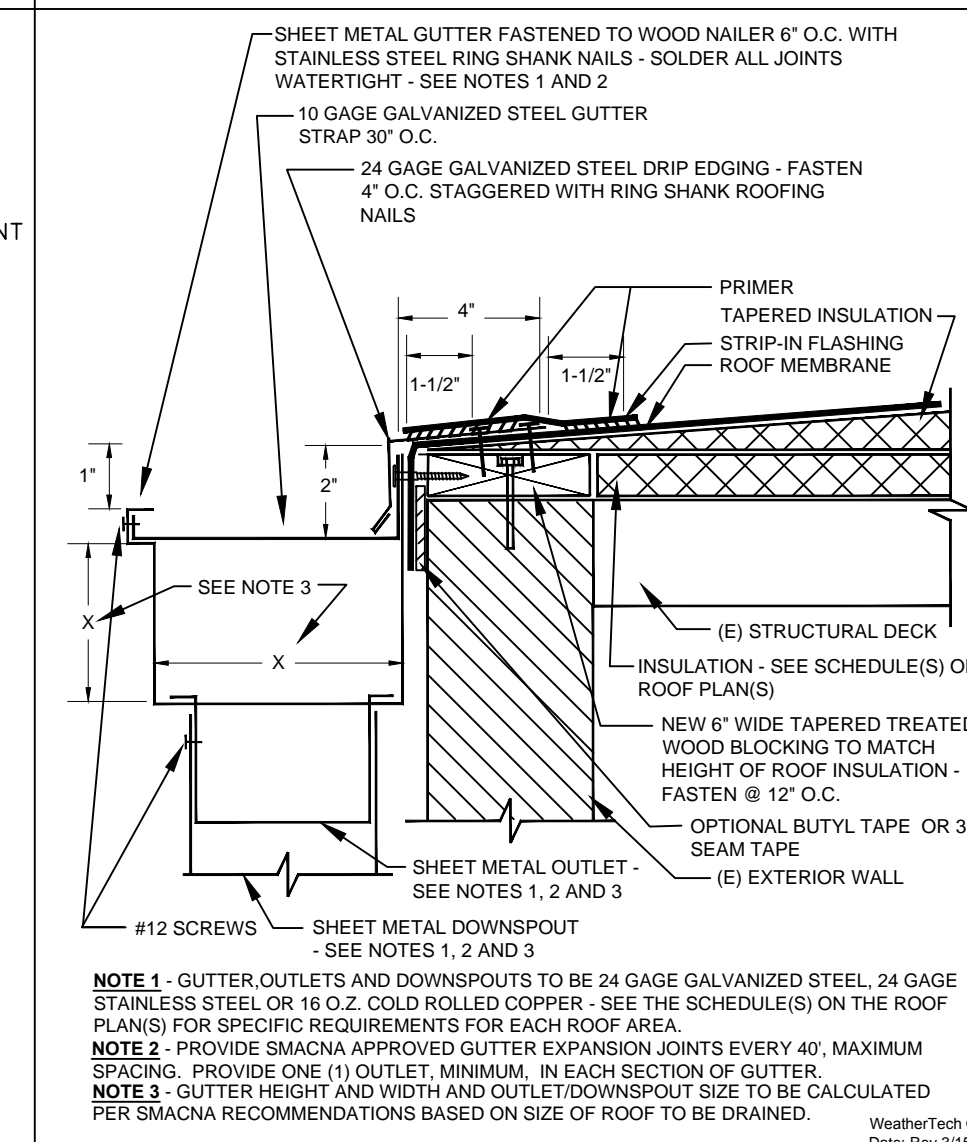
VENTILATION/CURD BUILD OUT  
SCALE: N.T.S.

4.08



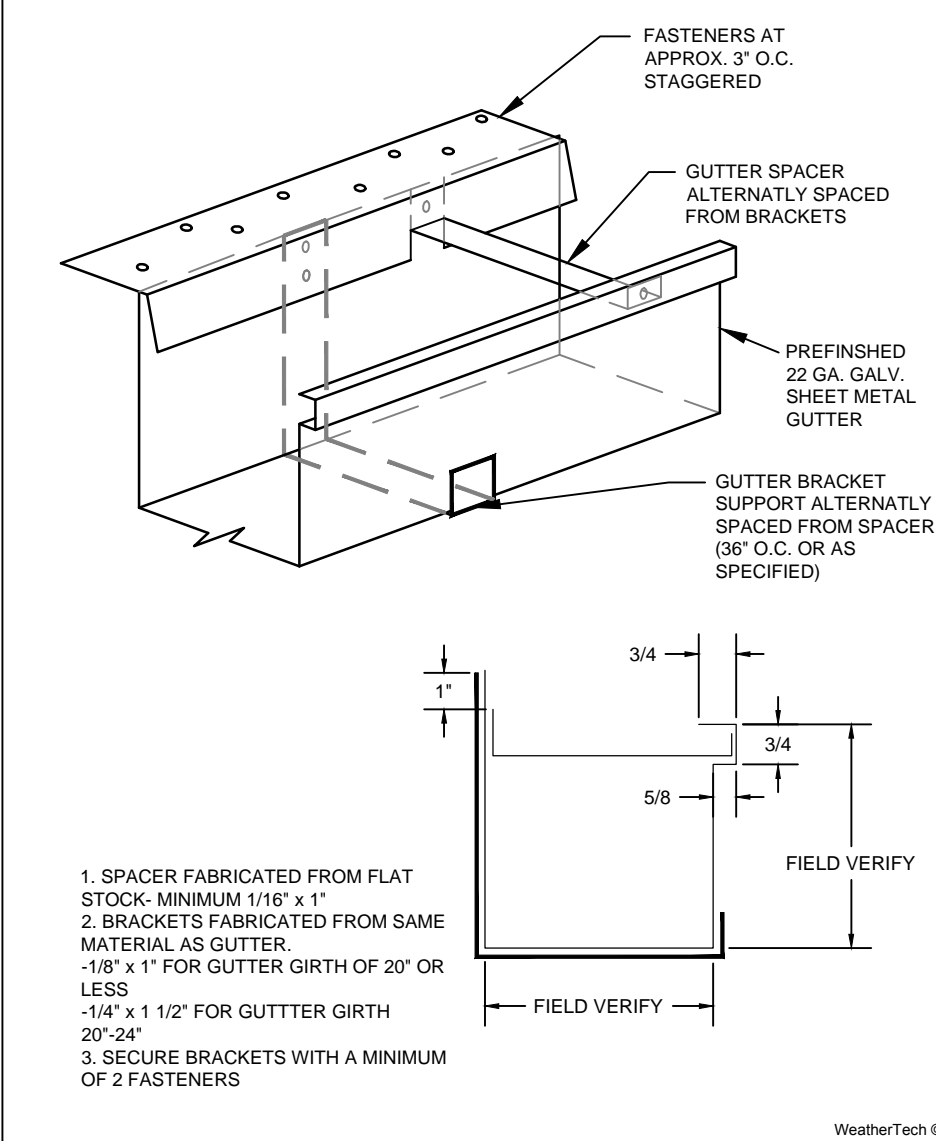
LIGHTNING ROD AT PARAPET WITH  
POURABLE SEALER  
SCALE: N.T.S.

4.09



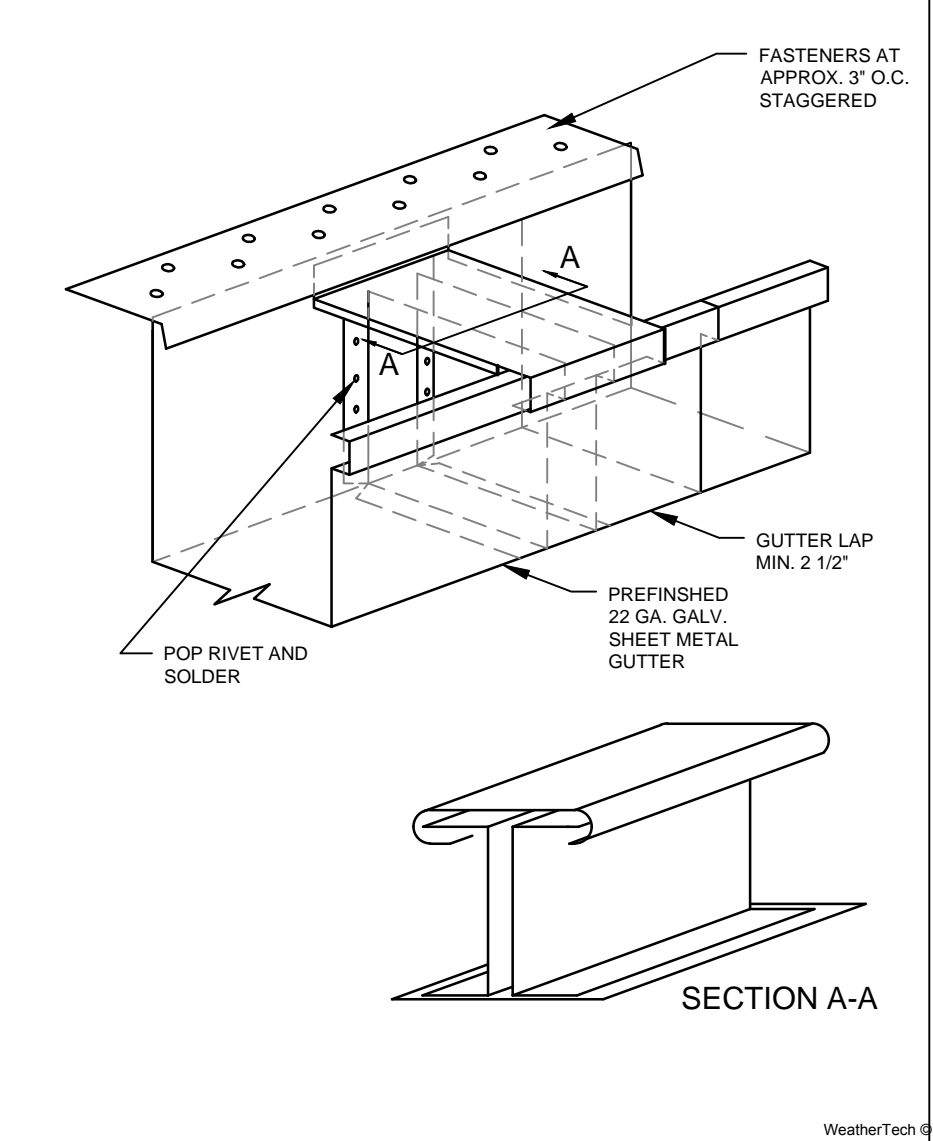
GUTTER EDGE FLASHING - COATED METAL  
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4.10



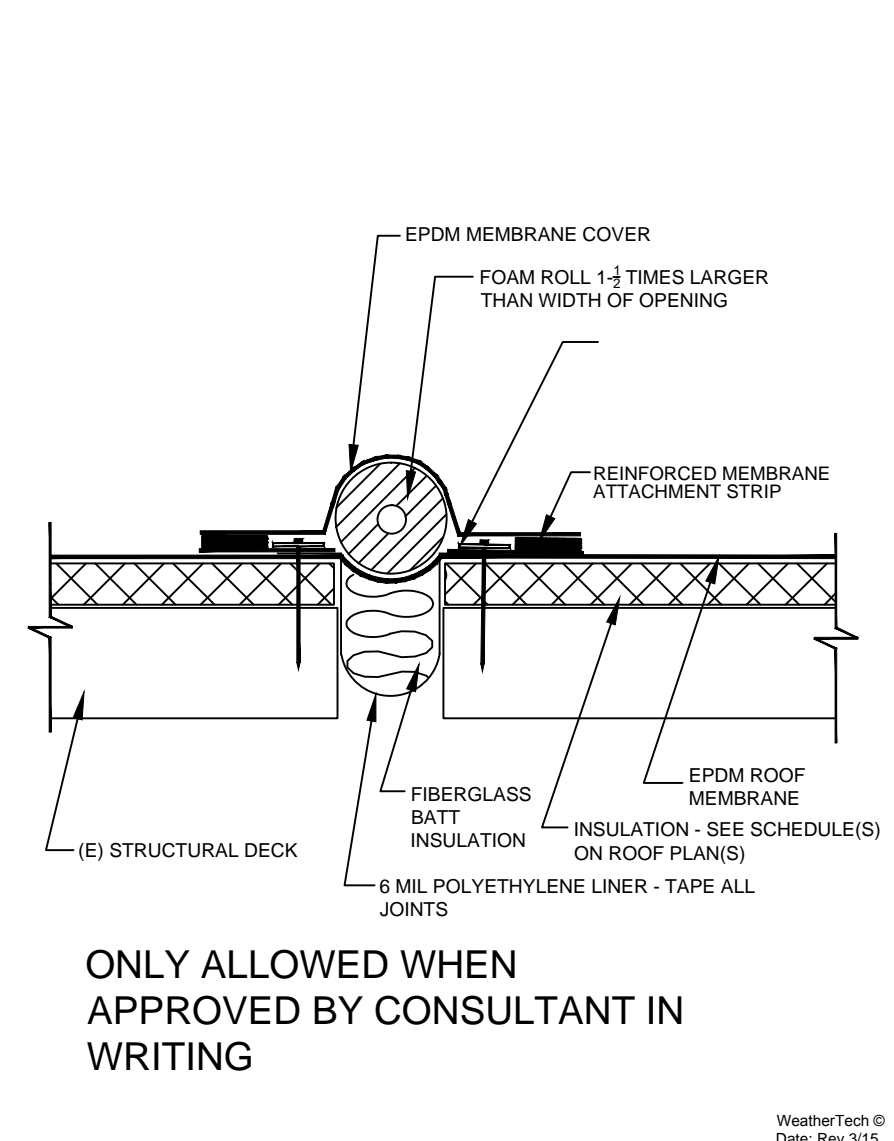
TYPICAL GUTTER  
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4.11



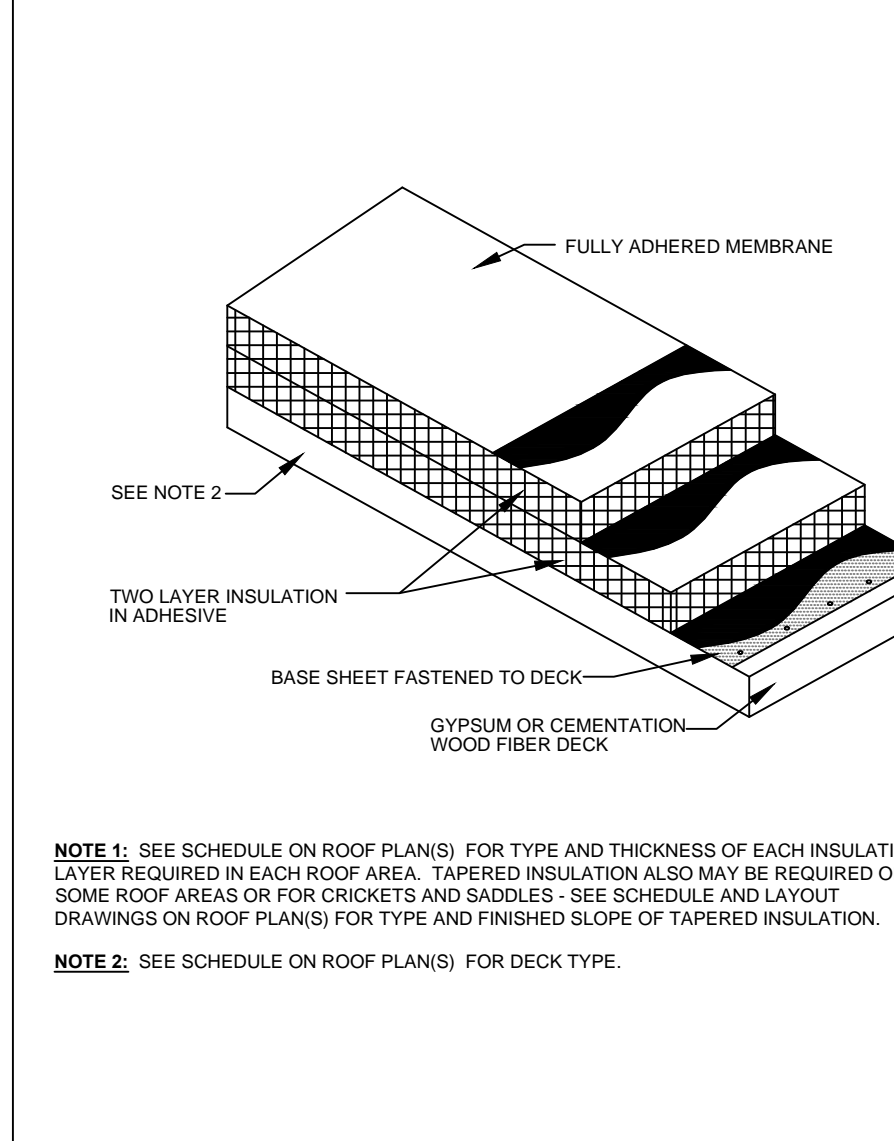
GUTTER EXPANSION JOINT  
SCALE: N.T.S.

4.12



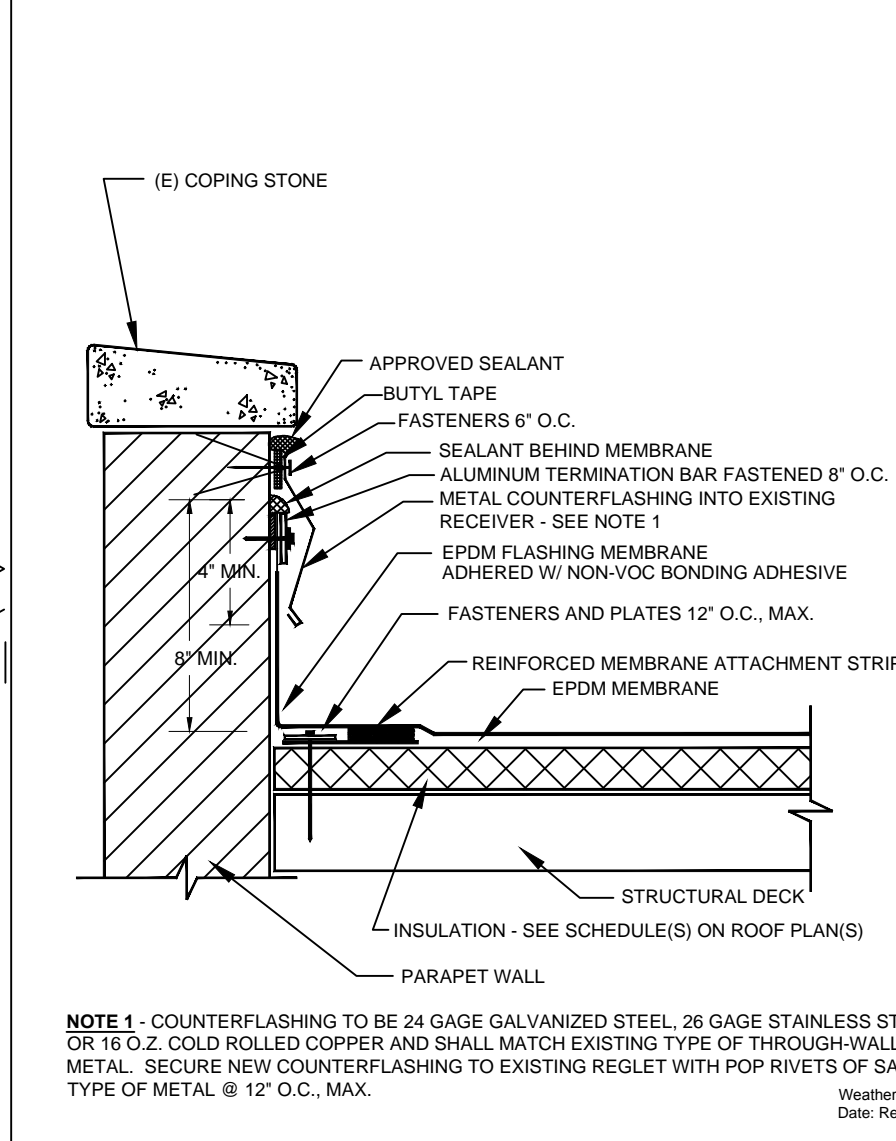
ROOF MOUNTED EXPANSION JOINT  
SCALE: N.T.S.

4.13



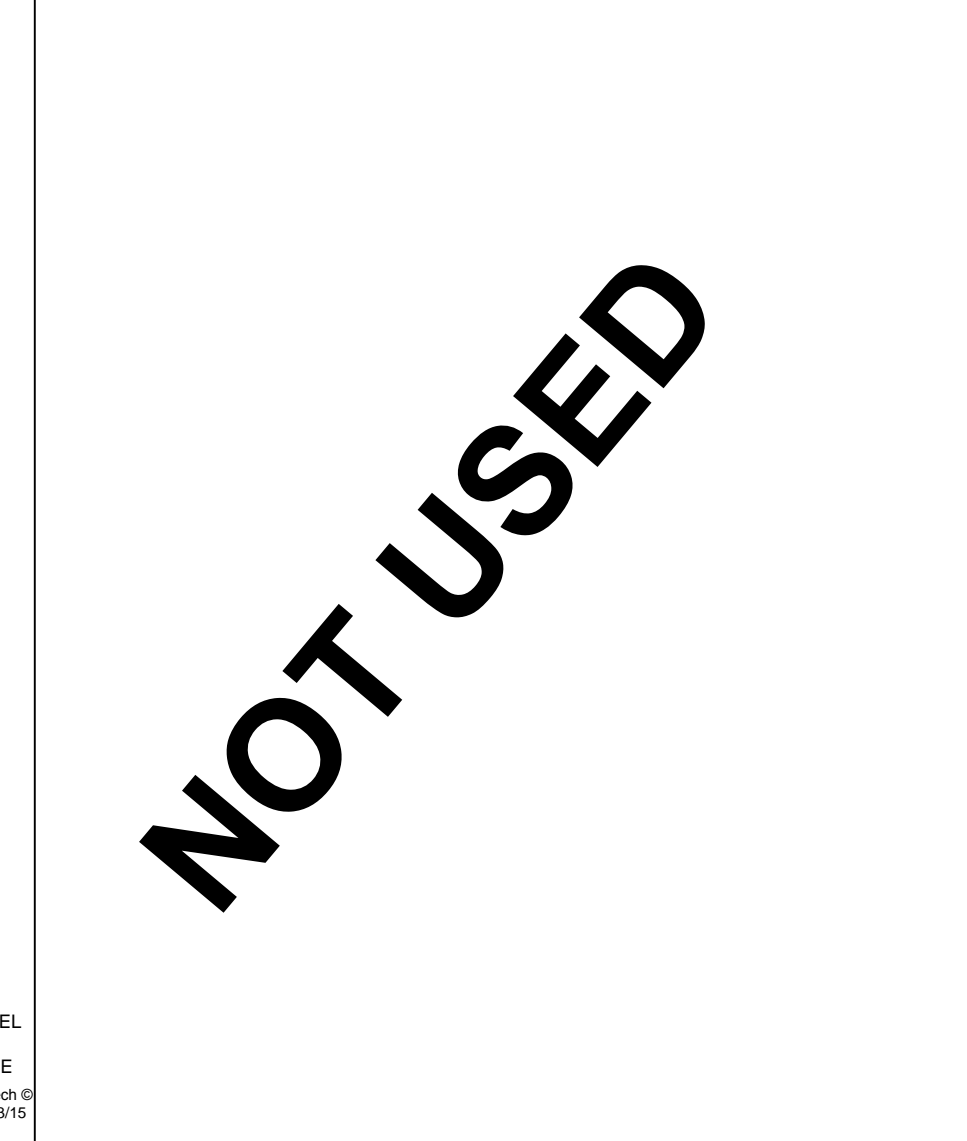
FULLY ADHERED EPDM SYSTEM OVER GYPSUM  
AND CEMENTATION WOOD FIBER DECKS  
SCALE: N.T.S.

4.14



PARAPET WALL W/COPING STONE  
W/ TERMINATION BAR  
SCALE: N.T.S.

4.15



PARAPET WALL W/COPING STONE  
W/ TERMINATION BAR  
SCALE: N.T.S.

4.16

PROFESSIONAL



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WEB SITE: [www.wtcg.net](http://www.wtcg.net)

CLIENT:

Troy School District  
4400 Livernois  
Troy, MI 48098

PROJECT:

Troy School District  
**BID 9848**  
2018 Roofing Program

WTPProject No:  
TSR-102-18

ISSUE

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SHEET TITLE

Detail Page

A8.3

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Section 00 03 00  
Bid Form

**TO:** Troy School District  
4400 Livernois  
Troy, MI 48098

**PROJECT:** Bid No. 9848 Troy School District  
2018 Roof Program

**ATTN:** Todd Hensley  
Purchasing Supervisor

**PROFESSIONAL:** WeatherTech Consulting  
Group, Inc.

**Name of Bidding Co.:**

**Contact Name:**

**Email Address:**

**Business Address:**

**Phone No.**

---

**Base Bid:** The undersigned proposes to furnish all labor and materials and provide all equipment and manpower necessary to perform all work for the various parts of the construction in accordance with the above referenced documents for the considerations of the following amount(s):

Bids for each individual school to include specified Restoration work plus Reroofing work plus specified Allowances.

All bids to include state and local taxes; licensing, allowances, bonds and permitting fees.

**BASE BIDS**

**1. Bid Athens High School Reroof Roof Area (s) Reroof Roof Area C, D & A Sec. 1, Sec.2, Sec. 6; Reroof Roof Area F Sec. 3, Sec. 4 and Reroof Area I.**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

**Work Days:** \_\_\_\_\_

**Reroof Sq. Ft.** \_\_\_\_\_

**2. Bid Morse Elementary School Reroof Roof Area C: Sec 1, 2, 3, 4**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

**Work Days:** \_\_\_\_\_

**Reroof Sq. Ft.** \_\_\_\_\_



---

**3. Bid Niles School Reroof Roof Area G and H:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

Work Days: \_\_\_\_\_

Reroof Sq. Ft. \_\_\_\_\_

**4. Bid Transportation Bldg. Reroof Roof Area C:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

Work Days: \_\_\_\_\_

Reroof Sq. Ft. Roof Area B \_\_\_\_\_

**5. Bid Troy High School Reroof Roof Area N: Sec 2, P: Sect 1, 2**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

Work Days: \_\_\_\_\_

Reroof Sq. Ft. \_\_\_\_\_

**6. Bid Troy Union Elementary School Reroof Roof Area A, B & Restoration E**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

Work Days: \_\_\_\_\_

Restoration Sq. Ft. \_\_\_\_\_

**ALTERNATE BIDS****Alternate Bid No. 1 Athens High School Roof Area A Sec. 3, 4, 5, 7, 8, 9, 10, 11:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

Work Days: \_\_\_\_\_

Reroof Sq. Ft. \_\_\_\_\_

**Alternate Bid No. 1a Athens High School Roof Area A Sec. 3:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

Work Days: \_\_\_\_\_

Reroof Sq. Ft. \_\_\_\_\_

---

**Alternate Bid No. 1b Athens High School Roof Area A Sec. 4:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

**Work Days:** \_\_\_\_\_  
**Reroof Sq. Ft.** \_\_\_\_\_

**Alternate Bid No. 1c Athens High School Roof Area A Sec. 5:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

**Work Days:** \_\_\_\_\_  
**Reroof Sq. Ft.** \_\_\_\_\_

**| Alternate Bid No. 1d Deleted per Addendum 2****Alternate Bid No. 1e Athens High School Roof Area A Sec. 7:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

**Work Days:** \_\_\_\_\_  
**Reroof Sq. Ft.** \_\_\_\_\_

**Alternate Bid No. 1f Athens High School Roof Area A Sec. 8:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

**Work Days:** \_\_\_\_\_  
**Reroof Sq. Ft.** \_\_\_\_\_

**Alternate Bid No. 1g Athens High School Roof Area A Sec. 9:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

**Work Days:** \_\_\_\_\_  
**Reroof Sq. Ft.** \_\_\_\_\_

**Alternate Bid No. 1h Athens High School Roof Area A Sec. 10:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
(use words) (figures)

**Work Days:** \_\_\_\_\_  
**Reroof Sq. Ft.** \_\_\_\_\_



**Alternate Bid No. 1i Athens High School Roof Area A Sec.11:**

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
 (use words) (figures)

Work Days: \_\_\_\_\_  
 Reroof Sq. Ft. \_\_\_\_\_

**Alternate Bid No. 2 Troy High School Roof Area N: Sec. 2 and Roof Area P Sec. 2 only:**

Provide deduct to reuse salvageable insulation, (assume R10 existing and 5% nonsalvageable insulation), salvaged insulation to be mechanically attached to deck. Adhere in adhesive 1 additional layer of 1.8 in. polyisocyanurate or greater to meet minimum R20 insulation requirements. Salvage existing polyisocyanurate.

\_\_\_\_\_ Dollars \$ \_\_\_\_\_  
 (use words) (figures)

Work Days: \_\_\_\_\_  
 Sq. Ft. \_\_\_\_\_

All bid proposals enumerated in this Bid Proposal Form include overhead, profit and all other expenses involved in the execution and completion of the work described in the Contract Documents.

Bid prices in this Bid DO include applicable sales tax.

If awarded a contract, I propose to contract with the following subcontractors for listed work and further agree that subcontractors may not be changed without owners' written consent. See attachment 00 43 36 List of Subcontractors. Subcontractors required to attend Post Award Conference. Named subcontractors must have a reputation of competency in their fields of work. I assume responsibility for quality of work performed by my subcontractors.

**WARRANTY:**

Roof Replacement:

1. Manufacturer of roof membrane to provide a 20 year "No-Dollar-Limit" material and installation warranty covering the roof system including roof membrane, flashings, insulation, prefabricated and other accessories.

Roof Restoration: Contractor shall complete restoration work in a manner detailed in the restoration schedules of each school and provide the Troy School District a contractor's 2 year warranty covering materials and installation for the new restored roof system work only.

Note: All other subcontractors shall be submitted within 21 days of bid due date, if requested.

**TIME OF COMPLETION:**

The undersigned agrees, if awarded the contract, work shall be substantially completed within \_\_\_\_\_ working days commencing when Work at Project Site begins. The Undersigned

further agrees that the owner that work will progress on a continuous basis Monday thru Friday (Saturday as weather make up day) maximum 10 hours per day during the execution of the contract unless delayed due to weather. Definition of weather delays will be agreed to between Troy School District and Contractor prior to start of work.

The undersigned agrees, if awarded the contract, work shall be substantially completed within \_\_\_\_\_ working days of the Owner's written Notice to Proceed. The Undersigned further agrees that the owner may retain, from the compensation otherwise due, the sum of \$800.00 for each calendar working day (Monday through Friday) expiring beyond the fixed time of substantial completion (substantial completion is defined in the Bid Documents), this sum not to be construed as a penalty, but as a fixed, agreed liquidated damages amount which the owner shall sustain in case of failure of the undersigned to substantially complete the work within the time stipulated.

The Contractor shall have five business days to deliver a Payment and Performance Bond in the format detailed.

Receipt of Pre-Bid and Addenda (List by number and date appearing on Addenda):

Pre-Bid Minutes Date: \_\_\_\_\_

Addendum # \_\_\_\_\_ Date: \_\_\_\_\_

Addendum # \_\_\_\_\_ Date: \_\_\_\_\_

Addendum # \_\_\_\_\_ Date: \_\_\_\_\_

#### **EXECUTION OF BID:**

NAME OF BIDDING COMPANY: \_\_\_\_\_

TYPE OF CORPORATE ENTITY: \_\_\_\_\_

EXECUTED BY: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_



**INVITATION TO BID  
BID NO. 9848  
TSD 2018 ROOF PROGRAM**

The Troy Board of Education will receive firm, sealed bids for all labor, materials, equipment and all other services to complete a 2018 Reroof Project (s) Districtwide for Troy School District.

Bid documents are available through WeatherTech Consulting Group, Inc., online by accessing their website at [www.wtcg.net](http://www.wtcg.net) and selecting online programs. Username: [tsdproject2018@wtcg.net](mailto:tsdproject2018@wtcg.net) and Password: TSD2018. If you have WTCG website questions, please contact Ann Crippen at [acrippen@wtcg.net](mailto:acrippen@wtcg.net). *Bid Documents will be posted on Monday, November 13, 2017.*

*Your proposal, and two copies, marked “**BID 9848 – TSD 2018 ROOFING PROGRAM**” must be delivered no later than 10:00 A.M., Monday, December 4, 2017, Administrative Building Troy School District, 4400 Livernois Road, Troy, Michigan 48098, at which time all bids will be publicly opened and read aloud immediately thereafter. Bid proposals received after this time will not be considered or accepted.*

*A **mandatory** pre-bid meeting has been scheduled for 10:00 A.M., Monday, November 20, 2017 at Troy School District Administration Building, 4400 Livernois, Troy, Michigan 48098. The roofing contractors will have access to walk the roofs on Wednesday, November 22, 2017 (8am – 4pm).*

All bidders must provide familial disclosure in compliance with MCL 380.1267 and attach this information to the bid proposal. The bid proposal will be accompanied by a sworn and notarized statement disclosing any familial relationship that exists between the owner or any employee of the bidder and any member of the Troy School Board or the Troy School Districts Superintendent. Also, a sworn and notarized Affidavit of compliance for the Iran Economic Sanctions Act certifying the vendor does and will comply with Public Act 517 of 2012 shall accompany all proposals. Both forms will be enclosed in the specification's booklet that shall be used for this purpose. The District will not accept a bid proposal that does not include these sworn and notarized disclosure statement.

In accordance with Michigan Compiled Laws Section 129.201, successful bidders whose proposals are \$50,000 or more, for any bid category, will be required to furnish a U.S. Treasury Listed Company Performance and Payment Bond in the amount of 100% of their bid. The cost of the Bond shall be identified within each proposal.

Prevailing wage rates are a requirement for this project and are attached; this is a qualified bond.

The Troy Board of Education reserves the right to accept or reject any or all bids, either in whole or in part; to award contract to other than the low bidder; to waive any irregularities and/or informalities; and in general to make awards in any manner deemed to be in the best interest of the owner.

Purchasing Department  
Troy School District  
Troy, MI 48083

## **SECTION 07 22 50**

### **SINGLE PLY ROOF INSULATION**

#### **PART 1 – GENERAL**

##### **1.01 SUMMARY OF WORK**

- A. Provide all materials, equipment, and labor to install roof insulation over the following roof deck substrates:
  - 1. Steel Decks
  - 2. Concrete Decks
  - 3. Gypsum Decks
  - 4. Cementitious Wood Fiber Decks

##### **1.02 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General Conditions and Division 1 specification Sections, apply to this Section.
- B. Related Sections – the following sections contain requirements that relate to this section:
  - 1. Section 07 54 00 – Fully Adhered EPDM Single Ply Roofing

##### **1.03 REFERENCES**

- A. General: All standards refer to the latest edition or revision, unless otherwise noted.
  - 1. ASTM: American Society for Testing and Materials
  - 2. FM: FM Global
  - 3. FS: Federal Specification or Federal Standard
  - 4. UL: Underwriters Laboratories, Incorporated
- B. ASTM E 84 - Test for Surface Burning Characteristics of Building Materials.
- C. ASTM C 1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
- D. ASTM C1278, Standard Specification for Fiber-Reinforced Gypsum Panel
- E. ASTM C 1177 - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing
- F. ICBO ES, International Council of Building Officials Evaluation Service

##### **1.04 REGULATORY REQUIREMENTS**



- A. Underwriters Laboratories, Inc. (UL):
  - 1. Fire Classification Rating: UL 790 Standards: Meets - Class A minimum.
- B. Factory Mutual Global (FMG): FMG Class 1-90 Roof System
  - 1. FM Standard 4470: Class 1 Roof Covers
    - a. Windstorm Classification Rating: 90
    - b. ASTM E108 Fire Class "A"
- C. Building Code:
  - 1. Meet applicable provisions of local, state, and national building codes. This also includes, but is not limited to, agencies regulating safety, environmental protection, transportation, and insurance.

#### 1.05 SUBMITTALS

- A. General:
  - 1. Submit according to Section 01 33 00.
  - 2. Submit requests for all changes in writing.
  - 3. Do not proceed with any changes without written authorization.
  - 4. All substitutions are subject to Owners approval.
  - 5. The roofing contractor is responsible for processing and submitting all specified submittals.
- B. **PRE-CONSTRUCTION SUBMITTALS:** The following submittals must be submitted to WeatherTech and accepted prior to convening a Pre-Construction Conference. Submit 4 copies.
  - 1. *Materials List and Descriptions*" Attachment B of Sections 07 54 00.  
**This Attachment is to be completely filled out.**
  - 2. Copy of insulation manufacturers' literature describing and illustrating the material type and thickness required for a 20-year type system as specified.
  - 3. Copy of insulation fastener manufacturer's literature describing and illustrating the fastener type, length and plate required for a 20-year type system as specified.
  - 4. Copy of the tapered insulation fabricators plan layout for the project.
  - 5. Copy of insulation attachment plan for field, perimeter and corners per FM 90 requirements for the specific building.

#### 1.06 QUALITY ASSURANCE

- A. The quality control procedures shall be conducted as outlined in Section 01 33 26.
- B. Roofing Contractor: Contractors who have attended the Troy School District 2016 Roof Program pre-bid meeting are the only contractors allowed to bid the project.

- C. Roofing contractor quality control duties - See Sections 01 33 26 and 07 54 00.
- D. Work may be audited at any time. Provide the Owner, Owner's Representative and Consultant safe entry to all work areas and all the records and information requested during the audit.

## 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver all materials to the site, except those in quantity with packaging intact and with readable labels. Use those materials having labels that:
  - 1. Identify the material.
  - 2. Indicate conformance with referenced standard applicable to the material in the Contract Documents.
  - 3. Bear UL and FM labels as applicable.
- B. Insulation Materials:
  - 1. Do not expose materials to moisture in any form before, during or after delivery to the site.
  - 2. Store on clean raised platforms at least four inches above the ground or roof surface.
  - 3. Remove manufacturer-supplied plastic covers. Completely cover materials with waterproof tarpaulins to protect from weather and moisture. Arrange covers to prevent condensation from occurring beneath them; do not allow covers to extend onto the ground.
  - 4. Conspicuously mark unprotected materials and permanently remove such materials from the site.
- C. Check all the materials to be sure that they are as specified or as otherwise approved. If materials are found that are not approved or do not meet the specification requirements, mark them as rejected and permanently remove them from the job site. Use spray paint or crayon to mark each piece of rejected material. If materials get wet or damaged, mark them as rejected also. Do not use rejected material.

## 1.08 SCHEDULING

- A. Schedule and supervise work crews so that the area of roofing begun one day is completely finished before leaving the job site that day. Included are; water cut-offs and tie-ins as necessary to protect materials and watertight roof and building.
- B. Installed insulation shall be covered shall be covered with specified roof system each day and never left exposed.

## PART 2 – PRODUCTS

### 2.01 GENERAL



- A. All insulation system materials must be manufactured or approved by the primary roofing manufacturer.
- B. If requested, the Contractor must submit to WeatherTech, for prior approval, a certificate showing that the insulation and "R" value complies with RIC/TIMA bulletin 281-1.
- C. Insulation cross section, thicknesses and specific components shall be as described and outlined on the drawings
- D. The maximum thickness of any one layer of insulation is 2.5".

## 2.02 INSULATION PRODUCTS

- A Polyisocyanurate Board Insulation (Bottom and Top Layer of Insulation) - **SEE SCHEDULE ON COVER PAGE – drawing "CP"**
  - 1. FM Approved, meets FM Standards 4470/4450
  - 2. Meets ASTM C1289, Type II, Class 1, Grade 2.
  - 3. R-value: Total insulation R-value to meet min R20.
  - 4. Maximum Board Size
    - a. Mechanically Attached Applications (Steel, Wood decks) - up to 4 feet by 8 feet.
    - b. Adhered Applications: Board size maximum is 4 feet by 4 feet.
  - 5. Accepted Manufacturers (must be provided by roof membrane manufacturer where so offered):
    - a. Johns Manville
    - b. Atlas
    - c. Hunter
    - d. Versico/Carlisle-Syntec
    - e. Firestone Building Products
- B. Reinforced Gypsum Board (Cover board - SEE SCHEDULE ON COVER PAGE – "CP")
  - 1. Acceptable Types:
    - a. Siliconized or fiber reinforced gypsum board conforming to ASTM C 1177 or ASTM C 1278
      - 1) Approved Products:
        - a) Securock by U.S. Gypsum
        - b) Dens Deck by Georgia-Pacific
      - 2) Thickness: 1/2".
  - 2. Cover board insulation must be FM approved shall meet FM Standards 4470/4450.
  - 3. Board size:
    - a. Mechanically fastened 4 foot by 8 foot, maximum.
    - b. Adhered 4 foot by 4 foot, maximum.

- C. Tapered Insulation and Tapered Edge Strips
  - 1. Tapered Edge Strips:
    - a. Type: Polyisocyanurate ASTM C1289, Type II, Class 1, Grade 2.
    - b. Size at Perimeters: As required by roof conditions to meet specified wood nailer heights.
    - c. Size at Curbs: 0" to 1" X 24" wide (1/2" per foot slope)
  - 2. Tapered Insulation Saddles and Crickets:
    - a. Type: Polyisocyanurate ASTM C1289, Type II, Class 1, Grade 2.
    - b. Slope: 1/2 inch per foot.
    - c. Shall be installed where indicated on the roof plan at all roof mounted equipment or penetrations 24 inches wide or greater on the up slope side of the equipment or penetration.
    - d. Provide tapered insulation layout plan from insulation fabricator for all tapered insulation saddles and crickets.

## 2.03 INSULATION ATTACHMENT PRODUCTS

- A. Mechanical Fasteners for Steel Decks
  - 1. Fasteners for attachment of insulation to deck shall be a plate and screw-type fastener system as supplied as a system by one manufacturer.
  - 2. Fastener must be FM approved for 4470 Windstorm Classification 90 for the roof system specified.
    - a. Submit diagram showing insulation manufacturer's FM 90 fastening pattern using 6 or more fasteners per 4' X 8' board in the field of the roof.
  - 3. Fastener must also be approved for use by the insulation and/or roof membrane manufacturer. Insulation fasteners must be provided by roof membrane manufacturer where so offered.
  - 4. Fastener length and plate size as required and approved by FMG for fastener specified; fastener length as required by the fastener manufacturer for the insulation thickness specified.
- B. Insulation adhesives for adhered insulation layer applications and Concrete Decks
  - 1. Low-Rise Urethane Foam Adhered Applications
    - a. Urethane foam insulation adhesive shall be a FMG approved polyurethane adhesive dispensed from a portable disposable pre-pressurized container requiring no external power source or from a truck mounted spray-foam apparatus for bulk applications.
    - b. Submit diagram showing insulation manufacturer's FM 90 adhesive pattern using per 4' X 4' board in the field of the roof.



- c. Approved Products
  - 1) Insta-Stick by Dow
  - 2) OlyBond 500 by OMG Roofing Products
  - 3) Urethane Insulation Adhesive by Johns Manville
  - 4) Roof manufacturer's approved adhesive for 20 year warranty.
- C. Underlayment: Gypsum, Cementitious Wood Fiber Decks
  - 1. Modified asphalt base sheet: Insulation manufacturers approved for mechanical attachment to applicable deck type and adhesive attachment of insulation on top surface:
    - a. Fasteners: FMG 90 approved for applicable deck;
    - b. FMG RoofNav Assembly approval number required for entire assembly; i.e. Firestone RoofNav #420330-0-0 for gypsum.

## 2.04 OTHER MATERIALS

- A. Repair of voids between installed insulation boards and sealing of deck openings around roof penetrations shall be accomplished using foam-in-place urethane insulation.
  - 1. Approved Products:
    - a. Insta-Foam Productions, Inc. FROTH-PAK: Two component polyurethane foam dispensing system

## 2.05 ROOF MEMBRANE MANUFACTURE'S APPROVAL

- A. All insulation shall be approved in writing by the roof membrane manufacturer as an acceptable substrate to receive their roof system in order to meet specified code requirements and obtain warranties as specified.

## PART 3 – EXECUTION

### 3.01 GENERAL

- A. Do not begin roofing work until all decks, walls, curbs, nailers, accessories, and underlying substrates are ready and acceptable to have roofing materials installed. By beginning roofing work the Contractor acknowledges that such preparatory work is satisfactory and the roof deck will provide a suitable substrate for the application of the roof insulation and roof membrane.
- B. Verification of Conditions:
  - 1. Layout: Verify layout of work before beginning installation.
  - 2. Existing Conditions: Examine substrate before beginning installation. Examine surfaces for inadequate anchorage, drainage, foreign material, moisture, penetration and curb locations, and

- unevenness, which would prevent execution and quality of application of roof system as specified.
  - 3. Verify that work of other trades, which penetrates roof deck, has been completed.
  - 4. Verify heights of curbs, penetrations and perimeter conditions to accommodate minimum 8 in. flashing height, particularly conditions impacted by installation of tapered insulation or crickets.
  - 5. Examine deck slope, equipment placement and tapered insulation layout for positive drainage. No ponding water shall remain on roof deck for greater than 48 hours after the completed roof system is installed.
  - 6. **Conduit and Wiring in Deck Flutes: In some locations there are areas where electrical conduit and cabling run directly under the top surface of the steel deck in the flutes. Contractor shall take precautions not to damage any conduit or wiring during steel deck repair and replacement.**
  - 7. Notification: Notify Owner and roof consultant of unsatisfactory conditions in writing.
- C. Coordination:
- 1. Coordinate Work of this Section with work of other sections and trades.
  - 2. Coordinate the work at perimeters, roof penetrations, equipment curbs and other conditions as required for:
    - a. Roof drains and/or scuppers are located at proper level to drain finished roof and meet code requirements. Contractor responsible to reset before proceeding with installation of roof system.
    - b. Installation of roof membrane, flashing and sheet metal as indicated on drawings or as required to insure water tightness.
- D. Do not install roofing materials during rain, fog, mist, snow, or other inclement weather. One exception is that temporary work may be installed during such weather to protect materials that are already installed. Remove all temporary work and materials that have been exposed to such weather, then install permanent materials as specified.
- 1. Do not apply roofing materials when moisture in any form (such as dew) can be seen or felt on the surface to which those materials will be applied.
- E. Confine equipment, storage of materials and debris, and the operations and movements of workmen within the limits as indicated or as directed by the Owner. Do not load or permit any part of a structure to be loaded with a weight that will endanger safety of personnel or cause damages.



- F. Protect the building, all contents, and the surrounding area from damage and protect building occupants from injury during execution of work. Do this in a manner which will not affect the normal conduct of operations in the building. It is the Contractor's responsibility to determine the nature of these operations and provide the appropriate level of protection. Repair all damage caused by lack of such protection to the Owner's satisfaction.
- G. Remove all debris daily from the roof. Use enclosed chute, crane and bucket, or construction hoist to minimize dust, dirt, and noise.
- H. Where wheeled or other traffic over the partially or fully completed roofing is unavoidable, provide and use adequate plank or plywood protection for the roofing.
- I. Installation of the insulation boards shall meet all FM requirements as required in the latest edition of the FM Global Approval Guide and FM Data Sheet 1-29.
- J. If insulation boards or tapered edge strips can be lifted or moved by hand without board breakage, they are not attached well enough.
- K. Tapered insulation saddles and crickets are to be installed between the base and top layers of insulation where noted on the drawings.

### 3.02 MECHANICALLY ATTACHED INSULATION

- A. On steel decking the insulation shall be mechanically attached to the prepared deck substrate as follows.
- B. Place insulation boards with the long sides forming a continuous line. Once insulation board direction has been established, the direction shall not change of the entire roof area. Systems requiring a coverboard shall have all tapered insulation installed below the coverboard application
- C. Stagger end joints by the maximum dimension possible and make sure the ends and sides touch all along their length. Stagger joints in 2<sup>nd</sup> and subsequent layers from the joints in underlying insulation. Minimum stagger of the joints between rows and between layers shall be 12 inches.
- D. Mechanically fasten through all layers of insulation to the deck.
  - 1. For mechanically attached single ply roof systems minimum fastening in the field of the roof shall be 6 fasteners per board.
  - 2. Some insulation products or insulation combinations may require a greater number of fasteners per 4' X 8' board than the minimums stated above in order to meet the FM 1-90 wind uplift requirements.

- Contractor shall consult the FM approval guide to ensure that the correct number of fasteners are installed.
3. Define the size of corners according to FM Data Sheet 1-28 and 1-29. As a minimum to meet FM 1-90, the corners areas shall be fastened using an increased fastener density of 75% over the fastening pattern used in the field of the roof and the perimeter areas shall be fastened using an increased fastener density of 50% over the fastening pattern used in the field of the roof. Consult FMG's *RoofNAV* program for the actual fastening pattern to be used for the roof membrane/roof insulation combination being installed.
- E. The fasteners must penetrate through the full thickness of the deck by 3/4", minimum, and shall not penetrate through the deck more than 1-1/4". On steel deck installations all fasteners must penetrate through the top flange of the roof deck.
  - F. Insulation is to be installed with all joints staggered and tightly butted. Gaps between insulation boards shall not exceed 1/8". Insulation is to fit tightly around projections. Gaps or joints greater than 1/8" are not acceptable and shall be filled with insulation materials trimmed to fit tightly in the gap or with spray foam urethane insulation trimmed flush with the surface of the surrounding insulation after curing.

### 3.03 ADHESIVE ATTACHED INSULATION AND UNDERLAYMENT

- A. Urethane Foam Adhered Insulation
  1. Foam insulation adhesive shall be applied in accordance with the manufacturer's recommendations. Ensure that additional adhesive is installed in perimeter and corner areas to comply with FMG 1-28, 1-29 and 1-90 requirements.
- B. Insulation boards are to be "stepped in" continuously to assure 100% adhesion. Unadhered insulation shall be removed and replaced at no cost to the owner.
- C. Insulation is to be installed with all joints staggered 12" minimum and tightly butted. Gaps between insulation boards shall not exceed 1/8". Insulation is to fit tightly around projections. Gaps or joints greater than 1/8" are not acceptable and shall be filled with insulation materials trimmed to fit tightly in the gap or with spray foam urethane insulation trimmed flush with the surface of the surrounding insulation after curing..
- D. Joints in top layer(s) of insulation are to be offset from the bottom layer(s) of insulation a minimum of 12".



- E. Insulation is to be installed with full bearing (all four edges) on the underlying substrate.
- F. Underlayments: Mechanically fasten or adhere to meet FMG 90 wind uplift requirements per RoofNav Assembly Number approval (submit to consultant).

### 3.04 TAPERED INSULATION, CANTS AND TAPERED EDGE STRIP APPLICATION

- A. General: Install crickets (saddles) and tapered insulation according to tapered layout shop drawings provided by the approved fabricator over the main roofing insulation field.
- B. Joints shall be staggered from the underlying insulation joints.
- C. Install crickets on the up-slope side at all curbs 24 in. wide and greater.
- D. The tapered insulation installation should be installed so that there is no ponding of water.
- E. Install tapered insulation and tapered insulation crickets and saddles per 3.02 and/or 3.03 above, depending on the type of roof membrane installation method used. Install coverboard over completed tapered system.
- F. Except as modified and supplemented herein, follow all additional requirements of the roof insulation manufacturer and the primary roofing manufacturer that apply to installing insulation.

### 3.05 VERIFICATION

- A. Upon completion of the installation in each area, visually inspect and verify that all components are complete and properly installed. Verify that fasteners are properly located and securely anchored and that all adhered insulation is fully bonded to the underlying substrate.

### END OF SECTION 07 22 50/ SINGLE PLY ROOF INSULATION

<b>Troy School District</b> <b>9848 2018 Roof Program</b> <b>Troy, MI</b>				
Base Bid	JD Candler Roofing	Lutz Roofing	Royal West Roofing	Schena Roofing
<b>Bid Athens High School Reroof Roof Area (s) Reroof Roof Area C, D &amp; A Sec. 1, Sec.2, Sec. 6; Reroof Roof Area F Sec. 3, Sec. 4 and Reroof Area I.</b>				
Bid Amount	\$ 515,000.00	\$ 621,000.00	\$ 529,000.00	No Bid
Reroof Sq. Ft.	60,600	61,300	62,374	
Work Days	20	28	33	
<b>Bid Morse Elementary School Reroof Roof Area C: Sec 1, 2, 3, 4</b>				
Bid Amount	\$ 215,000.00	\$ 219,800.00	\$ 179,000.00	No Bid
Reroof Sq. Ft.	15,600	14,800	15,264	
Work Days	12	9	11	
<b>Bid Niles School Reroof Roof Area G and H:</b>				
Bid Amount	\$ 168,700.00	\$ 172,000.00	\$ 169,750.00	\$ 188,233.00
Reroof Sq. Ft.	14,400	14,400	15,219	14,650
Work Days	10	7	11	30
<b>Bid Transportation Bldg. Reroof Roof Area C:</b>				
Bid Amount	\$ 34,500.00	No Bid	\$ 26,000.00	\$ 19,179.00
Reroof Sq. Ft.	1,300		1,276	1,276
Work Days	3		2	3
<b>Bid Troy High School Reroof Roof Area N: Sec 2, P: Sect 1, 2</b>				
Bid Amount	\$ 125,300.00	No Bid	\$ 115,000.00	No Bid
Reroof Sq. Ft.	8,600		8,792	
Work Days	5		8	
<b>Bid Troy Union Elementary School Reroof Roof Area A, B &amp; Restoration E</b>				
Bid Amount	\$ 215,500.00	\$ 194,000.00	\$ 159,500.00	\$ 185,930.00
Reroof Sq. Ft.	16,200	13,200	17,941	13,100
Work Days	12	9	9	30
<b>Alternates</b>				
<b>Alternate Bid No. 1 Athens High School Roof Area A Sec. 3, 4, 5, 7, 8, 9, 10, 11:</b>				
Bid Amount	\$ 436,400.00	\$ 399,000.00	\$ 432,000.00	No Bid
Reroof Sq. Ft.	47,000	47,200	47,578	
Work Days	20	15	34	
<b>Alternate Bid 1a Athens High School Roof Area A Sec. 3:</b>				
Bid Amount	\$ 67,000.00	\$ 67,000.00	\$ 72,000.00	No Bid
Reroof Sq. Ft.	7,000	8,200	8,120	
Work Days	4	3	9	
<b>Alternate Bid No. 1b Athens High School Roof Area A Sec. 4:</b>				
Bid Amount	\$ 64,200.00	\$ 60,000.00	\$ 61,000.00	No Bid
Reroof Sq. Ft.	67,000	6,600	6,699	
Work Days	4	3	6	
<b>Alternate Bid No. 1c Athens High School Roof Area A Sec. 5:</b>				
Bid Amount	\$ 73,500.00	\$ 61,000.00	\$ 64,000.00	No Bid
Reroof Sq. Ft.	7,700	7,400	7,296	
Work Days	4	3	4	
<b>Alternate Bid No. 1e Athens High School Roof Area A Sec. 7:</b>				
Bid Amount	\$ 52,200.00	\$ 44,000.00	\$ 49,000.00	No Bid
Reroof Sq. Ft.	5,600	5,300	5,180	
Work Days	4	2	3	
<b>Alternate Bid No. 1f Athens High School Roof Area A Sec. 8:</b>				
Bid Amount	\$ 59,500.00	\$ 47,000.00	\$ 52,000.00	No Bid
Reroof Sq. Ft.	6,200	5,600	5,624	
Work Days	4	2	3	
<b>Alternate Bid No.1g Athens High School Roof Area A Sec. 9:</b>				
Bid Amount	\$ 73,500.00	\$ 64,000.00	\$ 67,000.00	No Bid
Reroof Sq. Ft.	7,700	7,800	8,280	
Work Days	4	3	5	
<b>Alternate Bid No. 1h Athens High School Roof Area A Sec. 10:</b>				
Bid Amount	\$ 52,000.00	\$ 45,000.00	\$ 49,250.00	No Bid
Reroof Sq. Ft.	5,400	5,400	5,544	
Work Days	4	2	3	
<b>Alternate Bid No. 1i Athens High School Roof Area A Sec.11:</b>				
Bid Amount	\$ 12,000.00	\$ 18,000.00	\$ 18,000.00	No Bid
Reroof Sq. Ft.	800	900	835	
Work Days	3	1	1	
<b>Alternate Bid No. 2 Troy High School Roof Area N: Sec. 2 and Roof Area P Sec. 2 only: Provide deduct to reuse salvageable insulation, (assume R10 existing and 5% nonsalvagable insulation), salvaged insulation to be mechanically attached to deck. Adhere in adhesive 1 additional layer of 1.8 in. polyisocyanurate or greater to meet minimum R20 insulation requirements. Salvage existing polyisocyanurate.</b>				
Bid Amount	\$ (4,000.00)	No Bid	\$ (6,000.00)	No Bid
Reroof Sq. Ft.	86,000		8,792	
Work Days	1		7	