

Summit County
538 East South St.
Akron, OH 44311

08/2014

15-257

SECTION 075323 – ETHYLENE PROPYLENE DIENE MONOMER (EPDM) MEMBRANE ROOFING

These specifications apply only to Roof Areas A and F as these are the only roofs to be replaced at this time.

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. EPDM Adhered membrane roofing system.
- B. Cover board.
- C. Roof insulation.
- D. Rubber Coating.
- E. Perimeter Metal.
- F. Wood Nailer on Roof area A, plus unit price for replacement at areas C and F
- G. Drains and Scuppers.

1.2 RELATED SECTIONS:

- A. All Divisions are included here.

1.3 REFERENCES

- A. Roofing Terminology: Refer to the following publications for definitions of roofing work related terms used in this Section:
 - 1. ASTM D 1079 "Terminology Relating to Roofing and Waterproofing."
 - 2. Glossary of NRCA's "The NRCA Roofing and Waterproofing Manual."
 - 3. Roof Consultants Institute "Glossary of Roofing Terms."
- B. Sheet Metal Terminology and Techniques: SMACNA Architectural Sheet Metal Manual.

1.4 DESIGN CRITERIA

- A. General: Installed roofing membrane systems shall remain watertight; and resist specified wind uplift pressures, thermally induced movement, and exposure to weather without failure.
- B. Material Compatibility: Roofing materials shall be compatible with one another under conditions of service and application required, as demonstrated by roofing system manufacturer based on testing and field experience.

- C. Wind Uplift Performance: Roofing system shall be identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist wind uplift pressure calculated in accordance with ASCE-7.

1.5 SUBMITTALS

- A. Product Data: Manufacturer's data sheets for each product to be provided.
- B. Detail Drawings: Provide roofing system plans, elevations, sections, details, and details of attachment to other Work, including:
 - 1. Base flashings, cants, and membrane terminations.
 - 2. Crickets, saddles, and tapered edge strips, including slopes.
 - 3. Insulation fastening patterns.
- C. Verification Samples: Provide for each product specified.
- D. Maintenance Data: Refer to Johns Manville's latest published documents on www.specJM.com.
- E. Guarantees: Special guarantees specified in this Section.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and is eligible to receive the specified manufacturer's guarantee.
- B. Manufacturer Qualifications: Qualified manufacturer that has UL listing for roofing system identical to that used for this Project.
- C. Testing Agency Qualifications: Independent testing agency with the experience and capability to conduct the testing indicated, as documented in accordance with ASTM E 548.
- D. Test Reports:
 - 1. Roof drain and leader test or submit plumber's verification.
 - 2. Core cut (if requested).
 - 3. Roof deck fastener pullout test.
- E. Moisture Survey:
 - 1. Submit prior to installation, results of a non-destructive moisture test of roof system completed by approved third party. Utilize one of the approved methods:
 - a. Infrared Thermography

- F. Source Limitations: Obtain all components from the single source roofing system manufacturer guaranteeing the roofing system. All products used in the system must be labeled by the single source roofing system manufacturer issuing the guarantee.
- G. Fire-Test-Response Characteristics: Roofing materials shall comply with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
 - 1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and roof slopes indicated.
 - 2. Fire-Resistance Ratings: ASTM E 119, for fire-resistance-rated roof assemblies of which roofing system is a part.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storage.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.8 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when current and forecasted weather conditions permit roofing system to be installed in accordance with manufacturer's written instructions and guarantee requirements.

1.9 GUARANTEES

- A. Provide manufacturer's system guarantee equal to Johns Manville's Peak Advantage No Dollar Limit Roofing System Guarantee.
 - 1. Single-Source special guarantee includes roofing plies, base flashings, liquid applied flashing, roofing membrane accessories, roof insulation, fasteners, cover board, walkway products, manufacturer's edge metal products, and other single-source components of roofing system marketed by the manufacturer.
 - 2. Guarantee Period: 20 years from date of Substantial Completion.

- B. Installer's Guarantee: Submit roofing Installer's guarantee signed by Installer, covering Work of this Section, including all components of roofing system for the following guarantee period:
1. Guarantee Period: Two Years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ETHYLENE PROPYLENE DIENE MONOMER ROOFING MEMBRANE - EPDM

- A. Non-reinforced uniform, flexible sheet made from Ethylene Propylene Diene Monomer, ASTM D 4637, Type I. Basis of Design: JM EPDM NR, JM EPDM Nonreinforced
1. Thickness (minimum): 60 mils
 2. Exposed Face Color: **Black**.

2.2 AUXILIARY ROOFING MATERIALS – SINGLE PLY

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.
1. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.
- B. Sheet Flashing: Manufacturer's sheet flashing of same material, type, reinforcement, thickness, and color as sheet membrane. Basis of Design: JM EPDM Peel & Stick Flashing
- C. Primer Material: Manufacturer's standard synthetic-rubber polymer primer. Basis of Design: JM EPDM Tape Primer/Wash
- D. Seaming Material: Manufacturer's standard 3-inch-wide minimum, butyl splice tape with release film. Basis of Design: JM EPDM Seam Tape
- E. Bonding Adhesive: Manufacturer's standard solvent-based bonding adhesive for membrane, and solvent-based bonding adhesive for base flashings. Basis of Design: JM EPDM Bonding Cement (Solvent Based)
- F. Metal Termination Bars: Manufacturer's standard predrilled stainless-steel or aluminum bars, with anchors. Basis of Design: JM Termination Systems
- G. Metal Battens: Manufacturer's standard aluminum-zinc-alloy-coated or zinc-coated steel sheet, prepunched. Basis of Design: Membrane Battens
- H. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer. Basis of Design: Ultrafast Fasteners and Plates
- I. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, termination reglets, cover strips,

sealants and other accessories. Basis of Design: JM EPDM Peel & Stick Flashing, JM EPDM Peel & Stick Inside/Outside Corners, JM EPDM Peel & Stick Pipe Boots, JM EPDM Peel & Stick Pourable Sealer Pockets, JM EPDM Peel & Stick Sealing Strips, JM EPDM Peel & Stick T-Joint Patch, JM EPDM Protective Stone Mat, JM EPDM Reinforced Termination Strip (RTS), and JM Single Ply Caulk s

2.3 AUXILIARY ROOFING SYSTEM COMPONENTS

- A. Coping System: Shop Formed .040 Aluminum Coping with a continuous 24ga raised cleat on the outside edge. Coping finish shall be coil coated Kynar 500. Standard color of owners choice.
- B. Offset Wall Flashing: .040 Standard Kynar with continuous 24ga cleat
- C. Fascia System: Manufacturer's factory fabricated fascia consisting of a base piece and a snap-on cover. Provide product manufactured and marketed by single-source membrane supplier that is included in the No Dollar Limit guarantee. Basis of Design: Presto-Tite Fascia
- D. Spill-Out Scupper: Basis of Design: Presto-Tite Fascia accessory
- E. Downspout:and Kickout Miter: .040 Standard Kynar
- F. Overflow Scuppers: .040 Aluminum, Standard Kynar with Face Plate outside.
- G. Elastikote 100 Coating, White, Elastikote Rust Inhibitive Primer, Elastikote Phosphoric Acid
- H. Wood Nailer: Treated Lumber. Minimum #2 Grade

2.4 WALKWAYS

- A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads sourced from membrane roofing system manufacturer. Place where indicated. Basis of Design: JM EPDM Peel & Stick Walkpads

2.5 COVER BOARD

- A. High-Density Polyisocyanurate: High-density polyisocyanurate technology bonded in-line to mineral-surfaced, fiber glass reinforced facers with greater than 125 lbs of compressive strength. Basis of Design: Invinso Roof Board

2.6 ROOF INSULATION FOR WET AND DAMAGED AREAS

- A. General: Preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Basis of Design: ENRGY 3

2.7 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.
- B. Provide factory preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated. Basis of Design: JM ENRGY 3 tapered Isocyanurate. Area A saddles to be 1/2" per foot slope. Area F add 1/8" per foot slope to existing saddles.
- C. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roof insulation to substrate, and furnished by roofing system manufacturer. Basis of Design: UltraFast Fasteners and Plates.
- D. Urethane Adhesive: Manufacturer's two component urethane adhesive formulated to adhere insulation to substrate. Basis of Design: JM Two-Part Urethane Insulation Adhesive
- E. Wood Nailer Strips: For concealed wood nailers use not less than #2 Grade SPF attached to withstand no less than # force in any direction. For nailer application under full width coping install with top surfaces flat level and true with vertical edges plumb and in line with the wall faces below. Verify that outer coping leg will extend a minimum of 1.5" below the bottom of the nailer

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions for compliance with the requirements affecting performance of roofing system.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean and remove from substrate sharp projections, dust, debris, moisture, and other substances detrimental to roofing installation in accordance with roofing system manufacturer's written instructions.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 RECOVER PREPARATION

- A. Prepare existing roof according to roofing system manufacturer's written instructions, applicable recommendations of the roofing manufacturer, and requirements in this Section.

- B. Tear out all base flashings, counterflashings, pitch pans, pipe flashings, vents and like components necessary for application of new membrane.
- C. "Skin" existing membrane at substrate.
- D. Remove and replace wet, deteriorated or damaged roof insulation and decking as identified in moisture survey.
- E. Remove abandoned equipment curbs, skylights, smoke hatches, and penetrations. Install decking to match existing as directed by Owner's Representative.
- F. Raise, (disconnect by licensed craftsmen, if necessary) all HVAC units and other equipment supported by curbs to conform with the following:
 - 1. Modify curbs as required to provide a minimum 8" base flashing height measured from the surface of the new membrane to the top of the flashing membrane.
 - 2. Nail top of flashing and install new metal counterflashing prior to re-installation of unit.
 - 3. Perimeter nailers must be elevated to match elevation of new roof insulation.
- G. Immediately remove all debris from roof surface. Demolished roof system may not be stored on the roof surface.
- H. Proceed with installation only after unsatisfactory conditions have been corrected.

3.4 INSULATION INSTALLATION FOR WET AND DAMAGED AREAS

- A. Coordinate installation of roof system components so insulation and cover board is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with roofing system manufacturer's written instructions for installation of roof insulation and cover board.
- C. Install tapered insulation in designated areas. Conform to slopes indicated.
- D. Install insulation boards with long joints in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with like material.
- E. Install one or more layers of insulation under area of roofing to achieve required thickness. Where overall thickness is 3 inches or greater, install 2 or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.
- F. Trim surface of insulation boards where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- G. Proceed with installation only after unsatisfactory conditions have been corrected.

3.5 COVER BOARD INSTALLATION

- A. Coordinate installing membrane roofing system components so cover board is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with membrane roofing system manufacturer's written instructions for installing roof cover board.
- C. Install cover board with long joints of cover board in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with cover board.
 - 1. Cut and fit cover board within 1/4 inch of nailers, projections, and penetrations.
- D. Trim surface of cover board where necessary at roof drains so completed surface is flush and does not restrict flow of water.
 - 1. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.
- E. Mechanically Fastened Cover Board: Install each layer of cover board and secure to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof cover board to deck type.
 - 1. Fasten to resist uplift pressure at corners, perimeter, and field of roof.
- F. Proceed with installation only after unsatisfactory conditions have been corrected.

3.6 ROOFING MEMBRANE INSTALLATION, GENERAL

- A. Install roofing membrane in accordance with roofing system manufacturer's written instructions, applicable recommendations of the roofing manufacturer and requirements in this Section.
- B. Start installation of roofing membrane in presence of roofing system manufacturer's technical personnel.
- C. Cooperate with testing and inspecting agencies engaged or required to perform services for installing roofing system.
- D. Coordinate installing roofing system so insulation and other components of the roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is imminent.
 - 1. Provide tie-offs at end of each day's work to cover exposed roofing membrane sheets and insulation.
 - 2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
 - 3. Remove and discard temporary seals before beginning work on adjoining roofing.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.7 ADHERED ROOFING MEMBRANE INSTALLATION

- A. Install roofing membrane over area to receive roofing in accordance with membrane roofing system manufacturer's written instructions. Unroll roofing membrane and allow to relax before installing.
 - 1. Install sheet in accordance with ASTM D 5036 and roofing system manufacturer's written instructions.
- B. Start installation of roofing membrane in presence of membrane roofing system manufacturer's technical representative.
- C. Accurately align roofing membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- D. Bonding Adhesive: Apply solvent-based bonding adhesive to substrate and underside of roofing membrane at rate required by manufacturer and allow to partially dry before installing roofing membrane. Do not apply bonding adhesive to splice area of roofing membrane.
- E. Membrane shall be continuous up and over walls and extend a minimum of 3" down the outside of the wall
- F. Mechanically fasten roofing membrane securely at terminations, penetrations, and perimeter of roofing.
- G. Apply roofing membrane with side laps shingled with slope of roof deck where possible.
- H. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape, and firmly roll side and end laps of overlapping roofing membranes according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of roofing membrane terminations.
- I. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal roofing membrane in place with clamping ring.
- J. Install roofing membrane and auxiliary materials to tie in to existing roofing.
- K. Proceed with installation only after unsatisfactory conditions have been corrected.

3.8 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates in accordance with membrane roofing system manufacturer's written instructions.
- B. Apply solvent-based bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with sheet flashing.
- D. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

- E. Clean seam areas and overlap and firmly roll sheet flashings into the adhesive.
 - F. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.
 - G. Proceed with installation only after unsatisfactory conditions have been corrected.
- 3.9 DRAIN WORK
- A. Replace any and all broken or missing drain parts with the same or compatible after market parts.
- 3.10 WOOD NAILER
- A. Install flush with inside and outside edges of wall. May be installed in one single width board or two boards to facilitate alignment with wall edges. Use appropriate fasteners to obtain adequate holding strength to withstand 100# of pressure in any direction. Stagger fasteners in rows. Dimensional stability of the lumber must be considered when placing fasteners.
- 3.11 PERIMETER METAL
- A. Install coping, gravel stop, wall flashing and counterflashing at all areas indicated on the drawing. Install straight and true and watertight. Extra care is to be taken where EIFS is trimmed and mortised in preparation for new wall flashing. This line MUST be crisp and straight to have a neat appearance after the sealant is applied.
- 3.12 OVERFLOW SCUPPERS - 5 UNITS
- A. Size and location to be determined by the owner. Install and flash according to roofing manufacturer's details.
- 3.13 WALKWAY INSTALLATION
- A. Flexible Walkways: Install walkway products in locations indicated. Adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions. – EPDM
 - B. Roof-Paver Walkways: Install walkway roof pavers according to manufacturer's written instructions in locations indicated, to form walkways. Leave 3 inches (75 mm) of space between adjacent roof pavers.
 - C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.14 PENTHOUSE WALLS

- A. Coating: Prepare surfaces and apply Elastikote products as directed in the attached "Elastikote Restoration Protocol-Metal". Contrary to the Protocol, the application will be at the rate of 1gal/sq per coat with a finished thickness of approx. 21dry mills.

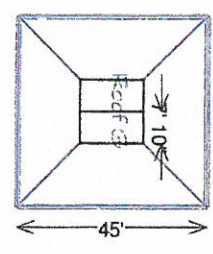
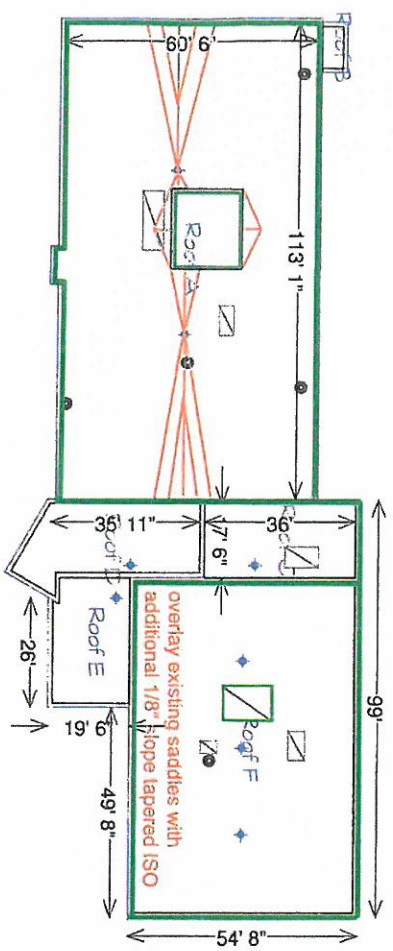
3.15 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform roof tests and inspections and to prepare test reports.
- B. Final Roof Inspection: Arrange for roofing system manufacturer's Registered Roof Observer (RRO) to inspect roofing installation on completion and submit report to Architect.
- C. Repair or remove and replace components of roofing system where test results or inspections indicate that they do not comply with specified requirements.

3.16 PROTECTION AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period.
- B. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 075323



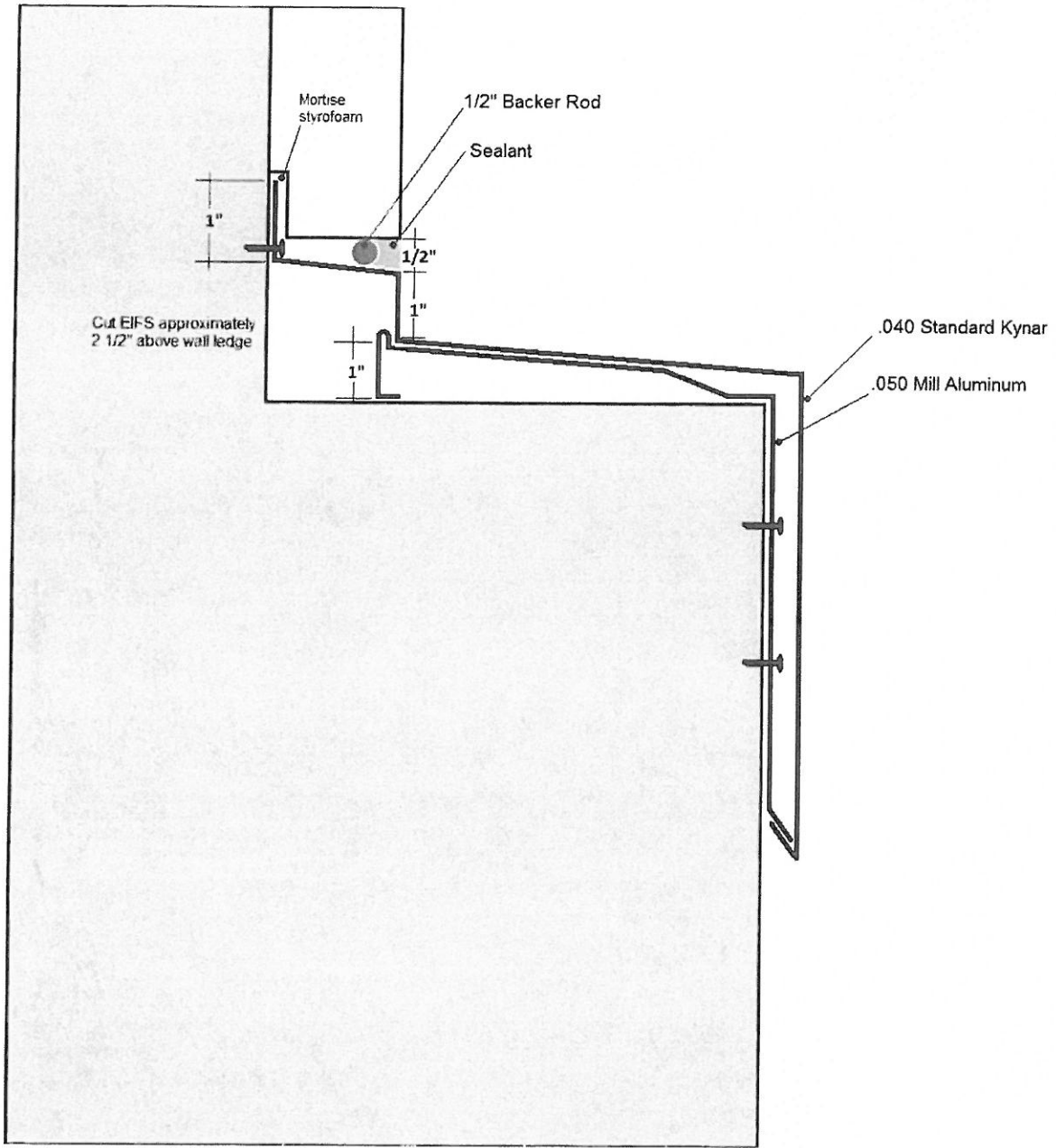
Cappings and Flashings

Legend

- | | |
|---------------------------|--------------------|
| Control Joint | Expansion Joint |
| Roof Top Units | |
| HVAC on Curb | Skylight |
| Roof Hatch | Unit on Curb |
| HVAC on Sleepers | Unit on Sleepers |
| Projections | |
| Purging Stack | Hot Stack |
| Pitch Pan | Micro Sleeve Stack |
| Drain (Existing) | Scupper |
| Drain (New) | |
| Miscellaneous | |
| Gas Line | Crickets |
| Walkway | Roof Level Change |
| Power Walkway | Core Test |
| Problem Indicators | |
| Blister | Ridging |
| Ponding | Bare Spot |
| Flashing Problem | Photo Indicator |
- * Note: -U indicates an unused item

Project: 538 East South St.

Date: August 13, 2014
 Scale: N.T.S.



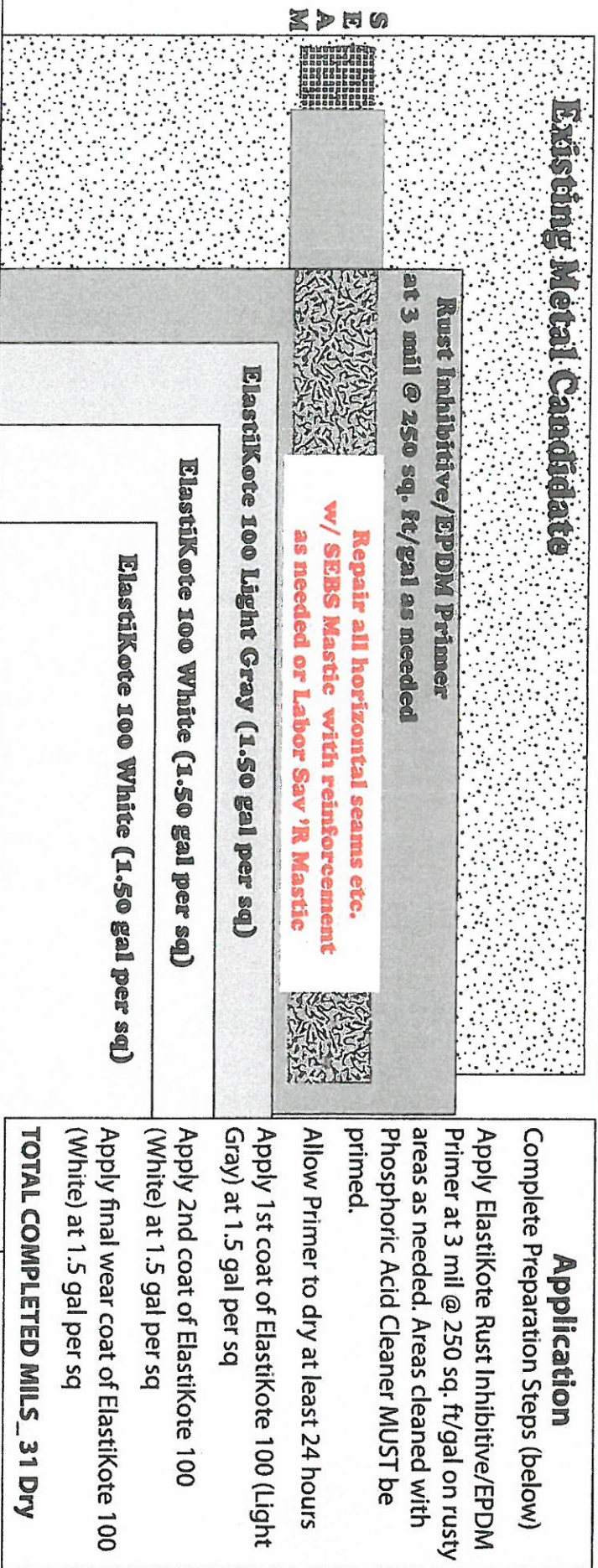
Offset Flashing Detail at Roof Area D

ELASTIKOTE® RESTORATION PROTOCOL: METAL

Elastikote 100

15 Year Warranty

Existing Metal Candidate



Preparation

Utilize a power washer in a range of 3750–4000 psi. Utilize wire brushing to remove loose mill scale, biomass, expended paint or coatings, corrosion or any other loose or foreign particulate.

Clean greasy areas as needed with Elastikote Substrate Cleaner. Use Elastikote Phosphoric Acid Cleaner on any remaining rust.

Surface must be dry, clean, and free from dirt, loose rust and foreign substances.

Any remaining aluminized asphalt or asphalt bitumen coatings are to be coated with Elastikote 100 SB silver @ 1.5 gal per sq.

All vertical seams and/or fasteners must be inspected and sealed with 100 SEBS Mastic or 100 Sprayable mastic. All horizontal seams must be inspected and sealed with SEBS mastic and scrim or Labor Sav 'R' mastic is acceptable for horizontal seams when seam separation does not exceed 3/16 inch.

All penetrations etc. must be inspected, prepared & sealed. For penetrations that are a maximum of 3/16" wide or less, it is acceptable to properly seal such physical details using Elastikote Labor Sav 'R' mastic applied at a minimum thickness of 3/16" and a minimum width of 4" wide

Application

Complete Preparation Steps (below)

Apply Elastikote Rust Inhibitive/EPDM Primer at 3 mil @ 250 sq. ft./gal on rusty areas as needed. Areas cleaned with Phosphoric Acid Cleaner MUST be primed.

Allow Primer to dry at least 24 hours

Apply 1st coat of Elastikote 100 (Light Gray) at 1.5 gal per sq

Apply 2nd coat of Elastikote 100 (White) at 1.5 gal per sq

Apply final wear coat of Elastikote 100 (White) at 1.5 gal per sq

TOTAL COMPLETED MILLS_ 31 DRY



AmeriSeal and Restoration

685 High Grove Blvd
Akron, Ohio 44312
Phone: 330-794-8040
Fax: 330-733-4722

Summit County Engineer
601 East Crosier Street
Akron, Ohio 44311
Attn: Mr. Duane Hawk

February 10, 2015

RE: Stone Coping Repair Procedure

Dear Mr. Hawk,

As directed, we present our recommended repair procedure for the top of wall stone coping detail at the Engineer Offices facility. The work items listed below should be coordinated with the repair/replacement of roof membrane.

- Access the top of wall using scaffolding and/or ladders
- Protection of adjacent structures
- Removal of Joint Sealant from top of stone roof flashing
- Removal and cleaning of Stone for later replacement
- Removal of existing anchors and patching securing backup
- Clean top of exposed brick
- Removal and dispose of Metal Lintel above windows
- Replace Metal Lintel with Galvanized Steel to match existing size
- Install flexible flashing along with drip-edge over backup, lintel and exposed brick
- Installing new stone anchors in back-up concrete block
- Re-set Removed stone and secure to anchors
- Caulk skyward stone joints
- Clean-up work area

To complete the integrity of the building envelope, we recommend that the following items be included during the roof repair/replacement scope of work.

- Cut-out and re-caulk the aluminum window frames to masonry
- Cut-out and re-point damaged and missing mortar joints in selective areas

Please let us know if you require more detailed information.

Respectfully submitted,

A handwritten signature in black ink that reads 'Bob Cailor'.

Bob Cailor
President
Ameriseal Restoration & Sealants