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PRESERVATION
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CERTIFICATE OF APPROPRIATENESS APPLICATION FORM

Incomplete applications will not be processed for Commission review.
Please print legibly.

RECEIVED
MAR 19 2015

1. **HISTORIC NAME OF PROPERTY OR HISTORIC DISTRICT:** (if known)
Trowbridge Street Elementary School

ADDRESS OF PROPERTY:
1943 E. Trowbridge Street

2. **NAME AND ADDRESS OF OWNER:**

Name(s): Milwaukee Public Schools

Address: 1124 N. 11th Street

City: Milwaukee State: WI ZIP: 53233

Email: linnja@milwaukee.k12.wi.us

Telephone number (area code & number) Daytime: (414) 283-4703 Evening: (414) 640-8705

3. **APPLICANT, AGENT OR CONTRACTOR:** (if different from owner)

Name(s): _____

Address: _____

City: _____ State: _____ ZIP Code: _____

Email: _____

Telephone number (area code & number) Daytime: _____ Evening: _____

4. **ATTACHMENTS:** (Because projects can vary in size and scope, please call the HPC Office at 414-286-5712 for submittal requirements)

A. REQUIRED FOR MAJOR PROJECTS:

X Photographs of affected areas & all sides of the building (annotated photos recommended)

X Sketches and Elevation Drawings (1 full size and 1 reduced to 11" x 17" or 8 ½" x 11")
A digital copy of the photos and drawings is also requested.

X Material and Design Specifications (see next page)

B. NEW CONSTRUCTION ALSO REQUIRES:

_____ Floor Plans (1 full size and 1 reduced to a maximum of 11" x 17")

_____ Site Plan showing location of project and adjoining structures and fences

PLEASE NOTE: ***YOUR APPLICATION CANNOT BE PROCESSED UNLESS <u>BOTH PAGES</u> OF THIS FORM ARE PROPERLY COMPLETED AND SIGNED.***

5. DESCRIPTION OF PROJECT:

Tell us what you want to do. Describe all proposed work including materials, design, and dimensions. Additional pages may be attached.

The existing entrance vestibule roof at the west end of the building has a leaking modified bitumen membrane roofing system. The roof system itself is not visible form the street. The existing membrane system, sheet metal roof, and sheet metal cornice materials need to be removed to to the original roof deck and from the adjacent walls. All lead-based painted materials shall be removed in accordance with the current State of Wisconsin DHS 163 standards and be approved in advance by MPS. The existing masonry parapet on the north and south ends of the roof are in poor shape due to moisture penetration, especially at the base due to the leaking roof. The parapets, including the brick and limestone coping, would be removed down to the roof deck prior to the installation of the new roofing system and rebuilt with reused and new material in order to match the existing appearance. The wood framing for the cornice will be replaced and a new copper cornice will be factory fabricated by a metal fabricator to match the existing profile and appearance, including the internal gutter. It will be specifically indicated that shop bending by the roofing/sheet metal contractor will NOT be acceptable. The new roof system will be a fully adhered 75 mil EPDM membrane installed over tapered isocyanurate insulation which will be directly adhered to the existing roof deck. All work for the project will be required to replicate the original brick, stone, cornice and sheet metal construction in all aspects of appearance so as to match the original and surrounding construction.

The technical specifications being provided are as follows:
Section 04900 - Masonry Restoration and Cleaning of Existing Masonry
Section 06100 - Carpentry Work for Reroofing
Section 07050 - Preparation for Reroofing
Section 07220 - Certified Drainage Roof Insulation Systems
Section 07531 - Fully Adhered EPDM
Section 07620 - Sheet Metal Flashing and Trim - Copper

The drawings being provided are as follows:
1/1 Roof Plan
1/R2 West Parapet Plan (East Reversed) & 2/R2 West Parapet Plan (East Reversed)
1/R3 Parapet Section
1/R4 Parapet Section
1/R5 Front Gutter Detail
1/R6 Side Gutter Detail
1/R7 Window Sill Flashing Detail

6. SIGNATURE OF APPLICANT:

Signature

John A. Linn
Please print or type name

03/18/15
Date

This form and all supporting documentation **MUST** arrive by 12:00 noon on the deadline date established to be considered at the next Historic Preservation Commission Meeting. Any information not provided to staff in advance of the meeting will not be considered by the Commission during their deliberation. Please call if you have any questions and staff will assist you.

Hand Deliver or Mail Form to:
Historic Preservation Commission
City Clerk's Office
200 E. Wells St. Room B-4
Milwaukee, WI 53202

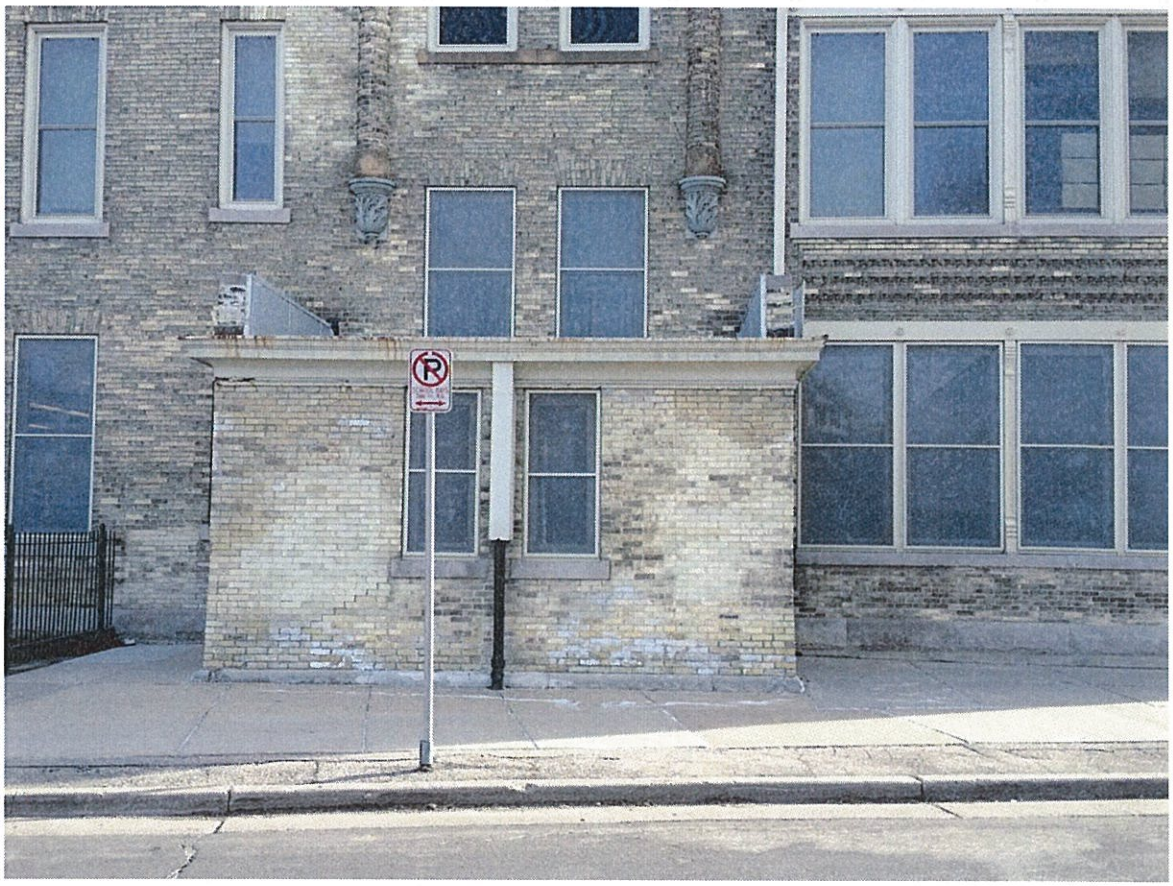
PHONE: (414) 286-5722 **FAX: (414) 286-3004** **www.milwaukee.gov/hpc**

SUBMIT

West Building Entrance (looking South from Trowbridge Street)

North Elevation of West Entrance

South Elevation of West Entrance



West Elevation of West Entrance

SECTION 04900

MASONRY RESTORATION AND CLEANING OF EXISTING MASONRY

PART 1 GENERAL

1.1 WORK INCLUDED

A. Field verification and documentation of existing masonry parapet prior to demolition.

B. Demolition of existing 'historical' masonry parapet; Brick and limestone.

C. Rebuilding of parapet wall consisting of brick and limestone to match existing.

D. Removal and replacement of brick.

E. Grinding and repointing of mortar joints.

F. Repair of damaged masonry.

G. Application of moisture repellent coating.

H. Installation of new copper through wall flashing system below limestone copings

1.2 RELATED WORK

A. Instructions to Bidders: Information required with Proposal Form at time of bidding.

B. Section 01300 – Submittals: Submittal Procedures.

C. Section 01700 – Project Closeout.

D. Section 07531 – Fully Adhered EPDM.

E. Section 07620 – Sheet Metal Flashing and Trim – Copper.

1.3 REFERENCES

A. ACI 530/ASCE 5/TMS 402 – Building Code Requirements for Masonry Structures; American Concrete Institute International; 1999.

B. ACI 530.1/ASCE 6/TMS 602 – Specifications for Masonry Structures; American Concrete Institute International; 1999.

C. ICRI – Technical Guidelines, No. 0373; International Concrete Repair Institute; 1995.

1.4 QUALITY ASSURANCE

A. Comply with provisions of ACI 530 / ASCE 5 / TMS 402 and ACI 530.1 / ASCE 6 / TMS 602, except where exceeded by requirements of the Contract Documents.

B. Maintain one copy of each document on site.

2. Masonry contractor.

3. Masonry superintendent and foreman.

4. Architect.

1.8 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products to the Site under provisions of Section 01600.

B. Deliver masonry, stone, cement, or mortar neatly stacked and tied on pallets. Store clear of ground with adequate waterproof covering.

C. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

D. Stack masonry units, anchors, ties, and miscellaneous accessories on wood pallets or blocking above ground. Protect from exposure to weather at all times.

E. Store flashing material, related accessories and restoration cleaner in the manufacturer's packaging. Store chemicals at 40 to 80 degrees F., or as required by each manufacturer.

F. Store sand on waterproof tarp. Cover when not in use with waterproofing covering.

G. Clean all materials of ice, rust, or other foreign substances immediately prior to using.

H. Any materials not protected at all times will be marked "Rejected" and shall be removed from the Site by the Contractor within 24 hours. All transportation, replacement costs, and delays in the Schedule will be the sole responsibility of the Contractor and at no additional cost to the Owner.

1.9 PROTECTION

A. Protect elements surrounding the Work of this Section from damage or disfiguration.

B. Protect roof membrane and flashings from damage. Lay 3/4" plywood over 1" rigid insulation placed on roof surfaces over full extent of the work area and traffic route. Weight down accordingly to prevent any blow off.

C. COORDINATE ROOFING SEQUENCE: Protect roof base flashing from damage as indicated in the drawings.

D. Immediately remove stains, efflorescence, or other excess resulting from the Work of this Section.

E. Provide sand or waterproof dams to divert flowing water from entering the building.

F. All windows, doors, louvers, and other masonry wall penetrations to be sealed off with 10 mil. Polyethylene and tape. This can be removed following grinding. All tape adhesive must be removed and windows and frames cleaned.

1.10 ENVIRONMENTAL REQUIREMENTS

A. Hot Weather Requirements: Comply with ACI 530.1.

1. Maximum Temperature: Maintain materials and surrounding air temperature to maximum 90 degrees F prior to, during, and 48 hours after completion of the masonry work. It is anticipated that walls facing southwest of west to have extreme summer afternoon sun raising the surface temperatures of freshly applied mortar.

B. Cold Weather Requirements: Comply with ACI 530.1.

1. Minimum Temperature: Maintain materials and surrounding air temperature to a minimum 40 degrees F prior to, during, and 48 hours after completion of the masonry work.

C. Remove and replace all masonry work damaged by freezing.

D. Remove and replace all repointing damaged by hot or cold weather.

E. Do not blast clean or use process creating dust or dirt when wind is over 10 mph.

F. Saws and grinders shall be fitted with dust extraction system to prevent dust from being released in accordance with EPA (Environmental Protection Agency), local code jurisdictions, and other government agencies.

G. Prior to grinding or any noise generating activity, observe the morning timings of noise restrictions as mandated by jurisdiction of the Owner. Coordinate with the [Village, School District, Property Manager's] office for starting time.

1.11 SEQUENCING

A. Sequence work under the provisions of Section 01010 – Summary of Work.

B. Coordinate masonry work with roofing contractor.

1. Masonry work to take place while the existing roof is in place, and not over the new roof system.

C. Perform cleaning after rebuilding of the masonry and limestone surfaces.

1.12 PROJECT CONDITIONS

A. Perform any repointing before cleaning masonry surfaces.

B. Do not allow cleaning run-off to drain into sanitary or storm sewers.

1.13 WARRANTY AND CLOSEOUT DOCUMENTS

A. Refer to Section 01700 – Project Closeout.

B. Two (2) year workmanship warranty covering all work of this section.

1. Defective Work: Correct all work within a two year period that becomes defective after substantial completion for damage of building resulting from failure to prevent moisture intrusion.

2. Defective work to be completed within 4 weeks of notification.

C. Five (5) year sealant warranty against cohesive or adhesive failure and water penetration. Warranty to cover labor and materials to replace deteriorated sealant joints.

D. Five (5) year masonry sealer warranty for the resistance to liquid water penetration.

PART 2 PRODUCTS

2.1 MASONRY WATER REPELLENT

A. Protectosil ® CHEM-TRETE® BSM 400
Evonik Degussa Corporation, Parisippany, NJ;
www.protectosil.com

B. Enviroseal® Double 7 for Brick:
Hydrozo Coatings, Lincoln, NE.
www.buildingsystems.basf.com

C. Siloxane WB Concentrate;
PROSOCO, Inc., Lawrence, KS.
www.prosoco.com.

2.2 LIMESTONE AND PRECAST STONE RESTORATION AND CLEANING

A. Sure Klean® Limestone and Masonry Pre-wash: PROSOCO, Inc.; www.prosoco.com.

B. Sure Klean® Limestone Restorer: PROSOCO, Inc.; www.prosoco.com.

C. Diedrich Limestone Cleaner Pre-Rinse and After-Rinse.

D. S.K. Limestone and Masonry After wash: PROSOCO, Inc.; www.prosoco.com.

2.3 RESTORED MASONRY CLEANING

A. Use: To clean masonry after restoration.

B. Acceptable Products and Manufacturers:

1. Sure Klean® Light Duty Concrete Cleaner: PROSOCO, Inc.; www.prosoco.com.

2.4 REPOINTING MORTAR

A. Mortar Proportions by Volume: ASTM C 270 Proportion Specification. Use Portland cement only.

1. Mix cementitious materials and aggregate in a mechanical batch mixer for at least 5 minutes with maximum consistency. All mortar shall be used within two hours after mixing.

2. Re-tempering of mortar shall not be permitted

B. Type N Mortar: Shall be used for all work; ASTM C 270 – Standard Specification for Mortar for Unit Masonry, using Proportion Specification.

OR

B. SPEC MIX® Type N – P & L Mortar as prepared by; Packaged Concrete Inc. (PCI), 1S950S. Lorang Road, Elburn, IL 60119; www.pci-il.com.

1. Color as selected by architect.

C. Non-Staining White Type N Mortar: Shall be used for limestone joints; ASTM C 270 – Standard Specification for Mortar for Unit Masonry, using Proportion Specification.

D. Mortar shall match color and texture of existing mortar joints.

E. Admixtures: Are not permitted.

B. Comply with the following standards:

1. ASTM C 270 - Standard Specification for Mortar for Unit Masonry.

2. ASTM C 1072 - Method of Measurement of Masonry Flexural Bond Strength.

3. ACI 530 - Building Code Requirements for Masonry Structures.

4. ACI 530.1 - Specification for Masonry Structure.

2.5 MORTAR COLOR

A. Mortar Color: Mineral oxide pigment; color as selected to match color of existing.

2.6 MASONRY MATERIALS

A. Quality: Materials and proportions must be the same for each type of sight-exposed masonry. Cement, lime, and aggregate must be exactly the same type from same source.

1. Portland Cement: ASTM C 150, Type I.

a. Saylor's Portland Cement

2. Hydrated Lime: ASTM C 207, Type S.

a. Western Miracle Type S Hydrated Masons Lime

3. Aggregate: ASTM C144, Natural Sand. Provide sand with rounded edges.

4. Water: Clean and potable.

2.7 FLASHINGS

A. Copper flashings: ASTM B 370, .060 soft annealed; 20 oz. psf; natural finish, refer to Section 07620.

a. Revere Copper Products; website: www.reverecopper.com.

B. Bedding Drip Edge Sealant: One component gun grade polyurethane sealant.

1. NP1: Sonneborn.

C. Termination Bar: 1/8' wide x 1" thick stainless steel with sealant edge and predrilled pilot holes at 6" on center. Expansion anchors for the termination bar must consist of a material that is compatible with the termination bar and which will not cause any galvanic action.

2.8 STAINLESS STEEL DOWELS

A. Diameter and configuration as indicated on the drawings and found within existing masonry parapet.

2.9 BONDING AGENT

A. Use: To bond fresh concrete or patching material to original concrete.

B. Acceptable Products and Manufacturers:

1. Epoxy Adhesive 24LPL: ThoRoc Concrete Restoration Solutions, (800) 327-1570.

2. EMACO P-24 (water based epoxy cementitious bonding agent and rebar coating): Master Builder, Inc., Cleveland, OH (216) 831-5500.

2.10 MASONRY ANCHORS

A. For anchorage to concrete and framework:

1. 1.5 oz. hot dip zinc coating: Conforming with ASTM A153, Class B2.

2. H & B 305 22 gauge galvanized sheet metal dovetail slot: Hohmann & Barnard, Inc., 30 Rasons Court, Hauppauge, NY 11788-0270; www.h-b.com.

3. H & B 315 vee-shaped 3/16" wire tie section with 12 gauge dovetail anchor section, tie sized to extend to within 1" of face of masonry: Hohmann & Barnard, Inc., 30 Rasons Court, Hauppauge, NY 11788-0270; www.h-b.com.

2.11 STONE ANCHORS

A. Type 304, stainless steel pins and stone hook anchors.

1. 3/8" diameter.

B. Acceptable Manufacturers:

1. Hohmann & Barnard, Inc.;
30 Rasons Court, Hauppauge, NY 11788-0270;
Website: www.h-b.com.

2. Heckmann Building Products Inc.;
1501 N. 31st Avenue, Melrose Park, IL 60160-2911;
Phone: 708-865-2403 Fax: 708-865-2640;
Website: www.heckmannbuildingprods.com

2.12 BRICK

A. Brick Standard: Facing brick, ASTM C-216:

1. Grade: SW

2. Type: FBS (normal size and color variations).

3. Compressive Strength: Not less than the unit compressive strengths required to produce clay masonry construction of compressive strength indicated.

B. Size: Provide bricks manufactured to the following actual dimensions:

1. Match existing face brick in size, color and texture.

2. Special Shapes: Provide where indicated and for application requiring brick of form, size and finish on exposed surfaces which cannot be produced from standard brick sizes by sawing.

C. Texture and Color: Match existing face brick and approved by Architect.

D. Products: Subject to compliance with requirements, provide products indicated on Drawings.

2.13 LIMESTONE

A. Limestone: Indiana oolitic limestone as quarried in Lawrence, Monroe, and Owen counties, Indiana, complying with ASTM C_568, Category II (medium density), and the following Indiana Limestone Institute of America (ILI) requirements:

1. Color: Match existing limestone, approved by Architect,

2. Grade: Select

3. Finish: Smooth

B. Cut stone accurately to shape and dimensions indicated, with exposed faces dressed true, beds and joints at right angles to face; comply with ILI fabricating tolerances.

C. Stone shall be seasoned a minimum of six months prior to setting in the wall.

2.14 CLOSED CELL BACKER ROD

A. ASTM C 1330 Type C; Closed cell backer rod with continuous outer skin.

B. Thickness as required by field conditions and sealant manufacturer.

C. Acceptable Products and Manufacturers:

1. Sonolastic® Closed Cell Backer Rod; Sonneborn.

2.15 SEALANT

A. One part polyurethane gun grade sealant.

1. Sonolastic NP1® by Sonneborn.

2.16 SEALANT PRIMER

A. Sonolastic® Primer 733; by Sonneborn.

2.17 THROUGH-WALL FLASHING METAL

A. 16 oz. zinc/tin coated copper.

PART 3 EXECUTION

3.1 EXAMINATION/DOCUMENTATION

A. Field verify and document the existing masonry parapet conditions.

1. Rebuild parapet to match existing.

3.2 PREPARATION

A. Verify that surfaces are cleaned and ready for the Work of this Section.

B. Protect surrounding elements from damage due to restoration procedures.

C. Carefully protect and cover all windows.

D. Separate areas to be protected from restoration areas using means adequate to prevent damage.

E. Cover existing landscaping and sidewalks with tarpaulins or similar covers.

F. Mask immediate adjacent surfaces with material that will withstand cleaning and restoration procedures.

G. Close off areas, landscaping, materials, and surfaces, including doors and windows, not receiving the Work of this Section to protect them from damage.

H. Close off adjacent occupied areas with dustproof partitions.

I. Protect elements surrounding the Work of this Section from damage and disfigurement.

J. Immediately remove stains, efflorescence, or other excess resulting from the Work of this Section.

K. When using cleaning methods that involve water or other liquids, install drainage devices to prevent run-off over adjacent surfaces unless those surfaces are impervious to damage from runoff.

L. Take necessary precautions to prevent dust penetration into building and air intakes.

M. Prior to commencement of the Work of this Section, take photographs of all areas in which work is to be performed, as well as sidewalks, driveways, and landscaping to provide documentation of pre-construction condition.

N. Fabricate related sheet metal accessories to existing conditions and as per the drawings.

3.3 TOLERANCES

A. Construct unit masonry assemblies in strict accordance with ACI 530.1, but not less than tolerances below.

B. Maximum Variation from Unit to Adjacent Unit: 1/16 inch.

C. Maximum Variation from Plane of Wall: ¼" in 10 feet and ½" in 20 feet or more.

D. Maximum Variation from Plumb: ¼" per story non-cumulative, ½ in 2 stories or more.

E. Maximum Variation from Level Coursing: 1/8" in 3 feet and ¼" in 10 feet, ½" in 30 feet.

F. Maximum Variation of Joint Thickness: 1/8" in 3 feet.

G. Maximum Variation from Cross Sectional Thickness of Walls: ¼ inch.

3.4 CUTTING AND FITTING

A. Cut and fit for application. Coordinate with existing materials to provide correct size, shape, and location.

B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.5 REBUILDING OF MASONRY WALLS

A. Rebuild parapet wall to match existing in configuration and geometry.

B. Cut brick masonry as required.

C. Color and proportion the mortar mix to match existing work.

D. Ensure that anchors are correctly located and built-in.

E. Install built-in masonry and/or stone, and related accessories to match and align with existing, with joints and coursing true and level, faces plumb and in line. Build-in all openings, accessories and fittings.

F. Set new through wall flashing and pins as indicted in the drawings. Seal all joints.

G. Set clamping coping stones, rake back joints for sealant application.

3.6 PARAPET COPING THRU WALL FLASHING INSTALLATION

A. Set new stainless steel pins, grout solid.

B. Install a linear bead of butyl sealant atop the existing masonry, along the outside faces of the brick.

C. Install the new copper thru wall flashing as indicated on the drawings. Solder to the stainless steel pins.

D. Set stones in mortar, provide full head joints, raked back to receive sealant.

E. Install primer, foam rod, and sealant into joints, tool in place and mask as required.

F. Install sealant below, thru wall flashing drip, tool.

3.7 PROGRESS CLEANING

A. Immediately remove stains, efflorescence or other excess resulting from the work.

B. Remove excess mortar, smears, and droppings as work proceeds and upon completion.

C. Clean surrounding areas.

3.8 LIMESTONE

A. Remove select pieces of limestone indicted to be replaced.

B. Remove all surrounding deteriorated mortar.

1. Point recessed pockets of removed mortar.

C. Clean, prep, prime and paint all exposed steel.

D. Set new limestone with stainless steel anchors, in accord with the Indiana Limestone Handbook.

E. Limestone Joints:

1. Prime all surfaces that will be in contact with the new sealant.

2. Install new foam backer rod to the depths required by sealant manufacturer.

3. Install new sealant, tool into place. Mask as required.

3.9 CLEANING NEW MASONRY

A. Verify mortar is fully set and cured.

B. Protect windows, window frames, doors and frames, louvers, copper flashing, landscaping, and all building elements that may be damaged, stained or etched by cleaning agent.

C. Clean surfaces. Remove large particles with wood scrapers, brass or nylon wire brushes.

D. Scrub walls with cleaning agent using stiff brush. Thoroughly rinse and wash off cleaning solution, dirt and mortar crumbs using clean pressurized water.

3.10 RESTORATION CLEANING

A. Clean surfaces and remove large particles with wood scrapers or a non-ferrous wire brush.

B. Spray coat the masonry with restoration cleaner, mixed into solution in accordance with the manufacturer's instructions.

C. Provide a second application if required to match mock-up area.

C. Masonry Restorer must have a minimum of ten years documented experience in masonry restoration work.

D. Upon request, the tuck-pointing contractor shall engage a testing company to perform the following:

1. ASTM International C1601-05 Standard Test Method for Field Determination of Water Penetration of Masonry Wall Surface.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300 and General Conditions as indicated.

B. Pre-Construction Conditions:

1. Submit photos, documenting pre-construction conditions, in a three-ring binder.

2. Submit field verified dimensioned drawings of existing conditions.

C. Shop Drawings:

1. Through wall flashing system, masonry parapet wall, reveals, setting details of stone, and details of special masonry conditions.

2. Limestone:

a. Base Rain Table.

b. Coping.

D. Product Data: Provide data on:

1. Through wall flashing system:

a. Primer.

b. Mastic.

c. Self-Adhering Membrane.

2. Sealants.

3. Masonry Sealer.

4. Cleaning Solutions.

5. Mortar.

6. Stainless Steel Pins and Anchors.

E. Manufacturer's Instructions for:

1. Water repellents.

2. Cleaning materials. Indicate procedures and conditions requiring special attention.

3. Patching compounds.

F. Samples:

1. Copper Through Wall Flashing.

a. Profile.

b. Laps.

2. Preformed Self-Adhering End Dams.

3. Stainless Steel Anchors.

4. Polyurethane Sealant.

5. Brick Units

6. Copper through wall flashings

G. References: ACI and ASCE manuals, most recent editions.

1.6 MOCK-UP

A. Repointing Mock-up:

1. In area designated by Architect 'rebuild' and area approximately 5"-0" long, which includes a reveal, through wall flashing and counterflashing reglet condition.

2. Rebuild mock-up or non-conforming work within mock-up to meet intent of all specified components at the direction of the Architect.

3. Mock up will be used as the standard of quality for all repointing installation on the project.

4. All work shall conform to the specifications and quality established in the mock-up area.

5. Mock-up may remain as part of the finished work upon written approval by Architect.

1.7 PRE-INSTALLATION CONFERENCE

A. Convene minimum one week before starting work of this section.

B. Construct mock-up wall prior to pre-installation meeting.

C. Attendance:

1. Prime contractor

D. Allow sufficient time for solution to remain on masonry. Agitate with soft fiber brush/sponge.

E. Rinse from bottom up with potable water applied at 400 psi and a rate of 4 gal. minimum.

3.11 MASONRY SEALING

A. Seal the masonry indicated in the drawings with two coats of sealer in accordance with the manufacturer's printed instructions.

3.12 FINAL CLEANING

A. Remove all mortar dust and stains from existing wall surface.'

B. Remove all materials from site and roof.

C. Remove all site and roof top protection.

D. Restore to original condition all existing site and building components damaged by work of this section.

3.13 SCHEDULES

A. Walls as indicated on drawings. Field verify and document, and rebuild parapet walls to match existing. Seal with 2 coats of sealer at all repointed areas.

END OF SECTION

SECTION 06100

CARPENTRY WORK FOR REROOFING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Rough carpentry for roofing removal and replacement includes, but not limited to:

1. Cornice Framing.

1.2 RELATED WORK

A. Section 07050 – Preparation for Reroofing.

B. Section 07220 – Certified Drainage Roof Insulation Systems.

C. Section 07531 – Fully Adhered EPDM.

D. Section 07620 – Sheet Metal Flashing and Trim – Copper.

1.3 REFERENCES

A. PS 1 – Construction and Industrial Plywood; National Institute of Standards and Technology) Department of Commerce); 1995.

B. PS 20 – American Softwood Lumber Standard; National Institute of Standards and Technology (Department of Commerce); 1999.

1.4 SUBMITTALS

A. Section 01300 – Submittals: See for submittal procedures.

B. Product Data: Provide technical data on wood preservative materials.

1.5 QUALITY ASSURANCE

A. Rough Carpentry Lumber: Visible grade stamp of agency certified by National Forest Products Association (NFPA).

B. Wood Blocking: Anchor all wood blocking per National Roofing Contractors Association (NRCA) Roofing & Waterproofing Manual.

C. Installer: Company specializing in installing the materials indicated in this Section with three years minimum experience.

D. Lumber: Comply with PS 20 and approved grading rules and inspection agencies.

E. Plywood: Comply with PS 1.

PART 2 PRODUCTS

2.1 MATERIALS

A. Lumber: PS 20; graded in accordance with established grading rules; maximum moisture content of 10 percent; No. 2 grade or better; free from warping and visible decay, S4S, Douglas Fir-Larch; nominal size as indicated on drawings.

B. Plywood Sheathing: PS 1, APA rated sheathing, ¾ inch C-D INT APA; Exposure 1.

C. Angle Brackets: Galvanized steel.

D. Fasteners and Anchors: Nails, bolts, nuts, washers, labs, and screws shall be of aluminum alloy or galvanized, size and type to suit application.

1. Fasteners: Hot-dipped galvanized steel for high humidity and treated wood locations; unfinished steel elsewhere.

2. Anchors: Expansion shield and lag bolt type for anchorage to solid masonry or concrete. Anchor bolt for anchorage into cavity walls.

E. Wood Deck: Cement coated or annular thread nails with minimum 30 mm (1-1/4 inch) penetration into adjoining member.

PART 3 EXECUTION

3.1 INSTALLATION

A. Examine all surfaces to receive parts of the work specified herein. Application or installation of materials constitutes acceptance of the substrate.

B. Verify all dimensions of in-place and subsequent construction and ensure that it accurately fits this part of the Work to other construction.

C. Protect lumber and keep under cover both in transit and at job site. Protect from dampness.

D. All installed wood shall be primed prior to installation.

3.2 FRAMING

A. Set wood framing, blocking and nailing membrane in correct position. Do not deviate from the alignment more than ¼ inch. Provide blocking and framing members as indicated.

B. Place horizontal members with crown side up.

C. Construct members of continuous pieces of longest possible lengths.

D. Construct cornice framing as necessary for cornice sheet metal to match existing.

E. All wood blocking installed shall be temporarily protected from moisture utilizing 15 lb. roofing felt.

F. All wood blocking joints shall be mitered at 45 degree angles, staggered, and screw fastened together.

G. Provide miscellaneous members as indicated or as required to support finishes, fixtures, specialty items, and trim.

H. The wood blocking indicated on the drawings is believed to be the correct amount required. Contractor to install additional layers of wood blocking as required under field conditions to achieve the design intent.

3.3 SCHEDULES

A. Roof Blocking: S/P/F species, 19 percent maximum moisture content; all roof edge cornice and roof related wood blocking.

B. Plywood: As required for roof edge cornice framing.

END OF SECTION

SECTION 07050

PREPARATION FOR REROOFING

PART 1 GENERAL

1.1 SUMMARY

A. Section includes removal of existing roofing systems and masonry parapet walls in preparation for a new roof. Work includes, but is not limited to, removal of the following:

1. Modified bitumen roofing membrane.
2. Metal roof system.
3. Remove lead based paint on metal cornice.
4. Remove metal cornice and framing (after field verification of dimension).
5. Vapor retarder (if any).
6. Metal counterflashings indicated for removal.
7. Masonry parapet walls and copings indicated for removal.
8. Pitch pans.
9. Perimeter and base flashings, including all penetrations.
10. Wood blocking.
11. Vent stack flashings.
12. Existing roof deck should be cleared of all materials to expose deck.

B. This Section includes removal of all materials from the roof deck to expose the roof deck.

C. Related Sections:

1. Section A – Instructions to Bidders: Time and date of Pre-Bid Walkthrough.
2. Section 07531 – Fully Adhered EPDM.
3. Section 07620 – Sheet Metal Flashing and Trim.

1.2 REFERENCES

A. Refer to Section H - Hazardous Materials.

1.3 QUALITY ASSURANCE

A. Materials Removal Firm: Company specializing in performing the work of this Section with minimum three years documented experience.

B. MPS reserves the right to stop Contractor's work at any time if it is determined that such work is not in compliance with the procedures outlined in this Section. Contractor shall not accept such work stoppage as the basis of a claim for additional compensation.

1.4 SUBMITTALS

A. Section 01300 – Submittals: Submittal procedures.

B. Qualifications: Submit documentation indicating that Contractor has the technical qualifications, personnel, experience, equipment, training, and facilities to properly and safely perform the work in accordance with these project specifications.

1.5 CONFERENCE

A. Section 01039 – Coordination and Meetings: Pre-installation conference.

B. Contractor to schedule a conference two weeks prior to commencing work of this Section.

C. All required Submittals must be submitted a minimum of seven (7) days prior to time of conference.

D. Review removal procedures and coordination required with related work and other related Sections.

E. Review structural loading limitations of deck.

1.6 COORDINATION

A. Section 01039 – Coordination and Meetings: Coordination and project conditions.

B. Do not remove existing roofing membrane when inclement weather threatens the integrity of the building contents or intended continued occupancy.

C. Remove only existing roofing materials being replaced with new materials same day.

D. Coordinate Work with other affected mechanical and electrical work associated with roof penetrations.

E. Maintain continued temporary protection prior to and during installation of new roofing system.

PART 2 PRODUCTS

2.1 MATERIALS

A. Temporary Protection: Sheet polyethylene or fiber reinforced plastic; provide weights to retain sheeting in position.

B. Plastic Cement: ASTM D2822 Type I, ASTM D24586 Type I, or approved equal.

C. Cotton Fabric: Asphalt impregnated.

D. Steel plate covers: 22 gauge galvanized steel.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01039 – Coordination and Meetings: Coordination and Project Conditions.

B. Verify that roof deck is clear and ready to receive the work of this Section.

3.2 PREPARATION

A. Utilities:

1. Notify all affected utility companies of construction operations at least three (3) working days before beginning work near their facilities.

2. Locate, identify and protect utilities that remain, from damage.

3. If uncharted or incorrectly charted utilities are encountered during removal work, consult MPS Project Inspector immediately for directions as to procedure. Cooperate with Owner, and public and private utility companies to keep their services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

B. Contractor to assume the presence of lead paint.

C. Provide a dumpster(s) on site prior to commencing removal of roofing materials; located adjacent to the building on public right of way where approved by MPS Project Inspector. Provide a minimum layer of 3/4 inch plywood under wheels to prevent damage to existing asphalt and concrete pavement.

D. Protect the building surfaces at chute and set-up area with heavy tarpaulins and plywood. Secure tarpaulins in place. Replace dumpsters from the premises when full.

E. Sweep roof surface clean of loose matter. Remove loose refuse and dispose of off site.

F. Non-Asbestos Materials: Materials and gravel to be removed from roof shall be done so by means of dust-tight chutes and containers.

3.3 ROOF SYSTEM REMOVAL

A. Remove metal counterflashings where indicated. Where flashings are indicated to remain, hold up metal counterflashings to permit access to top edge of base flashings.

B. Install 22 gauge steel plates to cover former vent openings.

C. Remove roofing membrane and metal roof below, perimeter base flashings, flashings around roof protrusions, pitch pans and pockets, and insulation vents. Flashings shall be cut at top of cant and removed from top of cant to roof.

D. Remove all insulation and fasteners, including tapered edge strips and cants.

E. Remove all wood blocking and fasteners from roof deck.

F. Remove vapor retarder, sheathing paper and underlayment sheet.

G. Remove gravel from drains and drain sumps.

H. Scrape and remove alligatored plastic cement off flashed-in areas, drains, stacks, and vents to provide clean, even surface for subsequent roofing application. Power vacuum as required.

I. Repair existing deck surface to provide smooth working surface for new roof system.

3.4 PARAPET

A. Prior to demolition field document all conditions so that the wall can be rebuilt to match existing.

B. Remove limestone parapet coping stone.

C. Remove masonry parapet and any reinforcing steel.

3.5 CORNICE

A. Remove metal cornice.

B. Field document the existing framing conditions so that the new framing will match the existing.

C. Remove framing.

3.6 TEMPORARY PROTECTION

A. Provide temporary protective sheeting over uncovered deck surfaces.

B. Turn sheeting up and over parapets and curbing. Retain sheeting in position with weights/temporary fasteners.

C. Provide for surface drainage from sheeting to existing drainage facilities.

D. Do not permit traffic over unprotected or repaired deck surface.

3.7 CLEAN UP AND REMOVAL

A. Promptly dispose of removed materials. Do not allow removed materials to accumulate on site.

B. Upon completion of the project, dumpster shall be removed from site.

C. Spilled or scattered debris shall be cleaned up immediately.

D. Removed materials to be disposed from roof and site as it accumulates.

E. Clean and restore all interior and exterior surfaces and components to pre-construction condition.

END OF SECTION

SECTION 07220

CERTIFIED DRAINAGE
ROOF INSULATION SYSTEMS

PART 1 GENERAL

1.1 WORK INCLUDED

A. Flat and tapered roof insulations.

B. Certified drainage tapered roof insulation system.

1.2 RELATED WORK

A. Instructions to Bidders: Information required with Proposal Form at time of bidding.

B. Section 06100 – Carpentry Work for Reroofing: Wood nailers and blocking.

C. Section 07531 – Fully Adhered EPDM.

1.3 REFERENCES

A. Standard Specifications of Polyurethane and Polyisocyanurate Roof Insulation (PIMA).

B. UL 790 – Class A Components: For selected Class A adhered and mechanically fastened roof coverings.

1.4 QUALITY ASSURANCE

A. Manufacturer: Company specializing in manufacturing the products specified in this Section with minimum three years documented experience.

B. All insulation materials shall be manufactured without the use of HCFC's.

C. Installer: Company specializing in installation of the tapered insulation system indicated in this Section must be an authorized applicator for the Certified Drainage Tapered System.

D. All tapered and flat insulation components used with the Certified Drainage Tapered System shall be manufactured or approved by the manufacturer of the certified drainage system as compatible.

E. Manufacturer's tapered field technician shall inspect the progress of the project in order to insure proper installation and progress on the project.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300 and General Conditions as indicated.

B. Submit manufacturer's specifications and installation instructions, including data substantiating that the tapered insulation system complies with the specified requirements.

C. Submit list of materials to be used on project, including manufacturer's name, size, thickness, type and grade.

D. Submit shop drawings in accordance with provisions of General Conditions. Shop drawings to indicate outline of roof, insulation layout and profiles, average "R" value, compressive strength, total insulation thickness, actual location and sizes of all roof drains, scuppers, gutters, vents, protrusions, etc.

1. The responsibility of providing shop drawings for the tapered insulation system lies solely with the manufacturer of the Certified Drainage Tapered System. Shop drawings by others will not be accepted.

E. Manufacturer's Certificates: Submit certificate from Certified Drainage Tapered System manufacturer stating that the insulation system to be installed is approved for the use with the roofing system.

1. Manufacturer shall submit Letter of Intent to certify the drainage of the new roofing system, signed by one or more of the approved manufacturers. **The Letter of Intent must be submitted with the Proposal Form at the time of bidding.**

2. Contractor shall submit authorized applicator letter.

1.6 PRE-INSTALLATION CONFERENCE

A. Material manufacturer shall be in attendance at pre-installation conference scheduled by roofing contractor two weeks prior to commencing work of this Section. See Section 07531.

B. The roofing contractor, primary membrane materials manufacturer, insulation manufacturer, and MPS project inspector shall be in attendance.

C. Review installation procedures and coordination required with related work and other related Sections.

1.7 COORDINATION

A. Coordinate work under the provisions of Section 01039.

B. Coordinate the work of all other Sections referencing this Section.

C. Arrange work sequence to avoid use of newly completed roofing areas for storage, walking surface, or equipment movement.

1.8 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Delivery of Materials:

1. Deliver and store materials under provisions of General Conditions and Section 01300.

2. Deliver products in manufacturer's original containers, dry and undamaged, with seals and labels intact. All materials shall be delivered on pallets.

3. Deliver materials in sufficient quantity to allow continuity of work.

B. Storage of Materials

1. Store materials on raised pallets or platforms a minimum of 6 inches off the ground and moisture. Do not stack pallets or platforms.

2. Provide protective coverings of canvas tarpaulins. Manufacturer's shrink wrap or polyethylene is not acceptable. Maintain adequate air circulation. Coverings to extend down sides completely and shall be secured. Protect insulation from direct sunlight exposure.

3. Do not store materials on new roofing, or load on the roof structure to cause overloading of roof's design capacity.

1.9 ENVIRONMENTAL REQUIREMENTS

A. Do not expose materials vulnerable to water or sun damage in quantities greater than can be waterproofed during the same day.

PART 2 PRODUCTS

2.1 FLAT AND TAPERED INSULATION SYSTEM MATERIALS

A. Manufacturer: Atlas Roofing Corporation. Manufacturer shall have at least three years of continuous production experience with hydrocarbon-blown, HCFC-free polyisocyanurate insulation and at least 10 million square feet of installed hydrocarbon-blown, HCFC-free polyisocyanurate insulation product in North America.

B. Insulation Material: Polyisocyanurate foam panels shall be HCFC free and formulated with a hydrocarbon blowing agent chemically bonded during the foaming process to facers on the top and bottom surfaces, and shall conform to the following: ASTM C 1289-01, Type II, Class 1; UL 263 (ASTM E 119); FM 4450/4470, Class 1 fire rating.

PROPERTY:	TEST METHOD:	POLYISOCYANURATE:
Thermal Performance	ASTM C-518	As Required
Water Absorption	ASTM C-209	<1% of volume
Dimensional Stability	ASTM D-2126	1% max. 7 days
Compressive Strength	ASTM D-1621	25 psi minimum
Moisture Vapor Transmission	ASTM E-96	<1 perm
Service Temperature		-100° to 200° F
Flame Spread (foam core)	ASTM E-84	25
Smoke Developed	ASTM E-84	200

C. Facers shall be fiber reinforced. All flat or filler insulation panels shall have facer materials identical to the Tapered Insulation panels, or as required by the manufacturer.

D. Facers shall be fiber reinforced. All flat or filler insulation panels shall have facer materials identical to the Tapered Insulation panels, or as required by the manufacturer.

E. All tapered insulation boards shall be shop mitered at the factory – **no tapering or cutting to adjust the tapered board joints in the field will be allowed.**

1. Size: 48" x 48"

2.2 HARDBOARD INSULATION

A. Wood Fiberboard Tapered Edge Strips; ASTM C 208, with surface treatment, 0-1-1/2" thickness.

2.3 ACCESSORIES

A. Insulation Fasteners: Factory Mutual approved with metal washers, furnished or approved by insulation manufacturer.

B. Insulation Adhesive: As furnished or approved by the insulation and roof system manufacturer.

PART 3 EXECUTION

3.1 PREPARATION

A. Contractor shall be responsible for providing proper substrate to receive insulation and roofing system.

B. Contractor shall verify that work done under other sections meets the following:

1. Roof drains and/or scuppers have been reconditioned and/or properly installed in the location shown on the approved shop drawings and as required by the construction documents.

2. Roof curbs, nailers, equipment supports, vents and other items penetrating the roof are properly attached to the substrate and are otherwise properly prepared.

3. Concrete surfaces are properly finished and free of fins, edges, or voids.

C. Ensure deck is clean and dry.

3.2 INSULATION SYSTEM APPLICATION

A. Place constant thickness first layer directly over prepared deck, and tapered thickness insulation second layer to the required slope pattern, in accordance with manufacturer's instructions and approved shop drawings.

1. Mechanically fasten base layer of polyisocyanurate insulation with Factory Mutual approved screw fasteners and stress plates.

2. Embed second layer (where two layers are required) of polyisocyanurate insulation into insulation adhesive in accord with the insulation manufacturer's instructions. Lay second layer of insulation with joints staggered from first layer.

3. At roof drains, start 2'-0" from center of roof drain. Place 0-1-1/2" tapered edge strip to create a 4'-0" x 4'-0" sump around roof drain, in accord with insulation manufacturer's instructions.

B. Minimum total insulation thickness as required to achieve an average deck assembly, including insulation, of R-20 value.

C. Lay insulation boards with edges in moderate contact without forcing. Do not jam or deform boards or edges. Cut the insulation to fit neatly to perimeter blocking and around penetrations through roof.

1. Maximum insulation gap: ¼". Gaps larger than ¼" must be filled with additional insulation.

2. Maximum elevation variation between boards at joints is 1/8".

D. Do not cantilever insulation edges. Provide minimum 1 ½" bearing surface.

E. Provide tapered insulation saddles as required at all locations of curbs, scuttles, etc., where pitch of new roof is interrupted. Tapered insulation to start at 0".

F. Apply no more insulation than can be covered with membrane in same day.

G. After installation, protect insulation from excess foot traffic.

H. See Section 07531 for roof membrane installation.

3.3 FIELD QUALITY CONTROL

A. A final inspection and walkthrough will be performed by the manufacturer, roofing contractor and inspector. A field flood test or inspection within 24 hours of precipitation will determine if the installation is acceptable or corrections are to be made.

B. Upon acceptance of the installation, the manufacturer will submit certification of drainage document.

C. If corrections are required to the installation, the remedy shall be agreed upon by the Manufacturer, Roofing Contractor, and Milwaukee Public Schools, prior to any actual corrections taking place.

END OF SECTION

SECTION 07531

FULLY ADHERED EPDM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fully Adhered 60 mil EPDM: Membrane, Base Flashings, Accessories, and Appurtenances for a complete system.

1.2 SYSTEM DESCRIPTION

A. Elastomeric Sheet Membrane, Fully Adhered EPDM Roofing System: Fully adhered 60 mil EPDM single ply membrane roofing and flashing system, and all accessories and appurtenances for a complete system.

1.3 RELATED SECTIONS

A. Section 06100 – Carpentry Work for Reroofing.

B. Section 07050 – Preparation for Re-Roofing.

C. Section 07220 – Certified Drainage Roof Insulation Systems.

D. Section 07590 – Plumbing Specialties for Roofing.

E. Section 07620 – Sheet Metal Flashing and Trim – Copper.

1.4 REFERENCES

A. ASTM D 412 - Rubber Properties in Tension.

B. ASTM D 471 - Standard Test Method for Rubber Property - Effect of Liquids.

C. ASTM D 624 - Rubber Property - Tear Resistance.

D. ASTM D 746 - Brittleness Temperature of Plastics and Elastomeric by Impact.

E. ASTM E 96 - Water Vapor Transmission of Materials.

F. ASTM E 108 - Standard Test Methods for Fire Tests of Roof Coverings.

G. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction & Materials.

H. ASTM E 136 – Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 705 degrees C.

I. FM 4470 - (Factory Mutual) – Roof Assembly Classifications.

J. NCRA (National Roofing Contractors Association) - Roofing and Waterproofing Manual, latest edition.

K. UL (Underwriters Laboratories) 790 - Fire Hazard Classifications.

L. SMACNA - Sheet Metal and Air Conditioning Contractors Association: Architectural Sheet Metal Manual; latest edition.

1.5 SUBMITTALS

A. Submit written certification that the roofing contractor / subcontractor has been an approved applicator of the selected roof system for 5 years or more.

B. Submit written certification from the proposed EPDM manufacturer that all appropriate warranty paper work has been submitted prior to starting the work.

C. Submit written certification from the insulation manufacturer that their insulation is compatible with the proposed EPDM.

D. Submit written certification and/or documentation that the foreman and/or crewmembers have attended the proposed EPDM manufacturer's training seminar.

E. Submit written certification from the insulation manufacturer that the proposed insulation faces are compatible with the proposed single ply membranes.

F. Submit written certification from the roofing system manufacturer that all details indicated in the drawings are acceptable to the roofing system manufacturer.

G. Product Data: Provide characteristics on the membrane materials, flashing materials, and all products to be installed as part of the roofing system.

1. Material Safety and Technical Information Data Sheets: For all roofing system components.

2. EPDM:

   a. Membrane.

   b. Self-adhering flashing.

   c. Adhesives.

   d. Seam tape.

   e. EPDM lap sealant.

   f. Water cut-off mastic.

3. Mechanical Fasteners:

   a. Nails.

   b. Screw fasteners.

4. EPDM Manufacturer's Specification and Instruction Manual: For all components of roofing system.

5. Warranty: Sample copy of manufacturer's 15-year full roof system warranty.

6. Cover board.

H. Shop drawings:

1. Submit shop drawings to the roofing system manufacturer for approval.

2. Submit manufacturer-approved shop drawings to the Architect. Shop drawings shall represent standards and detailing as specified herein or as indicated in the drawings.

3. Minimum scale: 3" = 1'-0", except where otherwise specified. The manufacturer's standard details are unacceptable.

4. Submit:

a. Base flashing:

i. Utilizing field ply EPDM as base flashing.

ii. Utilizing reinforced EPDM strip.

b. Parapet roof edge with counterflashing.

c. Eave edge with ornamental cornice and integral gutter.

d. Roof plumbing vents.

e. Roof plan insulation layout:

i. Tapered insulation layout minimum scale 1/8" = 1'-0".

I. Samples: Submit 3 manufacturer's samples.

1. EPDM: 60 mils.

2. Seam Tape: 3".

3. EPDM Corner: Premolded, semi-cured self-adhering.

4. Fasteners: As indicated on the drawings.

a. Nails.

b. Screw fasteners with stress plates.

5. Aluminum Termination Bar: 1/8" x 1".

6. Foam Insulation Adhesive.

7. Cover board.

1.6 SUBMITTALS FOR INFORMATION

A. Manufacturer's Installation Instructions: Indicate special precautions required for seaming the membrane.

B. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

C. Reports: Indicate procedures followed; ambient temperatures, humidity, wind velocity during application, work in progress, and observations.

1.7 QUALITY ASSURANCE

A. Manufacturer must be a company specializing in manufacturing products specified in this section with five years documented experience.

B. Applicator must:

1. Specialize in the Work of this Section with five continuous years of documented experience as an approved applicator of one of the specified manufacturers.

2. Have had all crewmembers trained by the EPDM manufacturer in the installation of their system. Written certification of same must be forwarded upon request.

3. Have installed five fully-adhered EPDM roof systems within the last year, 300 squares or larger.

4. Have performed work in accordance with the current published manufacturer's instructions and recommendations.

1.8 REGULATORY REQUIREMENTS

A. Conform to applicable code for roof assembly fire hazard requirements, including:

1. UL 790: Class A Fire Hazard Classification.

2. FM 4470: Roof Assembly Classification 1 Construction, wind uplift requirement of I-90, in accordance with FM Construction Bulletin 1-28.

1.9 PRE-INSTALLATION MEETING

A. Convene one week before starting the Work of this section.

B. Roof Foreman: MUST BE IN ATTENDANCE.

1.10 DELIVERY, STORAGE, AND PROTECTION

A. Store products on clean raised pallets in weather protected environment, clear of ground and moisture per the manufacturer's recommendations.

B. Deliver all materials in the manufacturer's original, unopened containers and rolls with all labels intact and legible.

C. Deliver materials requiring fire resistance classification packaged with labels attached as required by the labeling service.

D. Deliver materials in sufficient time and quality to allow continuity of work and compliance with approved construction schedule.

E. Store rolled goods on end and handle rolled goods in a manner so as to prevent damage to edges or ends.

F. Provide continuous protection of materials against damage or deterioration.

G. Remove damaged or defective materials from site.

H. Comply with fire and safety regulations.

I. EPDM splice cleaner to be contained in UL approved safety cans at all times.

J. All materials shall be new.

K. Do not store material or park vehicles/dumpsters in front of doors.

L. No materials shall be stored on any new or existing roofing system.

1.11 ENVIRONMENTAL REQUIREMENTS

A. Do not apply EPDM roofing membrane during inclement weather and/or ambient temperatures below 20 degrees F or above 95 degrees F.

B. Do not apply roofing membrane to damp or frozen deck surface.

C. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.

D. All EPDM lap sealants, mastics, and adhesives must be kept at 60 degrees F prior to installation when the ambient temperature falls below 40 degrees.

1.12 COORDINATION

A. Coordinate the work with the installation of trades whose impinges on the roofing and of associated metal flashings, as the work of this section proceeds

1.13 PROTECTION

A. Avoid heavy traffic on heavy work.

B. Restore to original condition or replace all work/materials damaged by roofing operations.

C. Protect paving, grass, and building walls adjacent to hoists and kettles, prior to starting work.

1. Lap all suitable protective materials at least 6".

2. Secure protective coverings against wind.

3. Leave protective covering in place for duration of roofing work.

4. Repair any damage to existing conditions caused by work of this section.

D. Remove protection upon completion of the roofing work.

1.14 WARRANTY AND CLOSEOUT DOCUMENTS

A. Refer to Section 01700 – Project Closeout.

B. Defective Work: Correct all defective work within a two year period after Substantial Completion for damage to building resulting from failure to prevent penetration of water.

C. General Contractor to provide manufacturer's 15 year total roofing system warranty guaranteeing that the materials manufacturer will pay for repairs to stop the leaks resulting from the natural deterioration of the membrane or from any errors in application of the membrane.

D. Guarantee: Shall start from the day of inspection by the manufacturer's representative. The date shall be established as the day when the Architect and the manufacturer's representative inspect the Work and find that all work is complete and forms a watertight installation.

E. Final Inspection: The roofing contractor shall notify the Architect in writing when the roof is complete for final inspection.

F. Completed Operations Inspection: Upon completed installation of the EPDM roof system:

1. An inspection of the entire roof system shall be made by the Contractor to determine compliance with manufacturer's requirements. Written notice shall be submitted.

2. Manufacturer shall certify in writing to the Architect that materials, workmanship, and installation are in accordance with manufacturer's instructions and current recommendations

G. See Section 01700 – Project Closeout.

PART 2 PRODUCTS

2.1 MANUFACTURERS – MEMBRANE MATERIAL

A. Carlisle Syntec, Inc., P.O. Box 7000, Carlisle, PA 17013. Phone: 800-4-SYNTEC. Website: www.carlisle-syntec.com/

B. Firestone Building Products, 525 Congressional Boulevard, Carmel, IN 46032. Phone: (317) 575-7000. Website: www.firestonebpco.com.

C. Substitutions: NOT PERMITTED.

2.2 MEMBRANE AND ASSOCIATED MATERIALS

A. Membrane: EPDM, non-reinforced, 60 mil thick.

	Properties	Test	Passing Test
1.	Tensile Strength	ASTM D 412	1305 psi
2.	Elongation	ASTM D 412	350%
3.	Tear Strength	ASTM D 624 Die C	174# / inch
4.	Water Absorption	ASTM E 96	0.1 perms
5.	Moisture Vapor Perms	ASTM E 96	0.1 perms
6.	Resistant to Outdoor Weathering	ASTM D 22	No cracks/ No crazing.

7.	Low Temperature Brittleness	ASTM E 96	0.1 perms
8.	Ozone Resistance	ASTM D 1149	No cracks.

B. Seaming Materials: As recommended by membrane manufacturer.

2.3 ADHESIVE MATERIALS

A. Surface Conditioner: Compatible with membrane, as recommended by the membrane manufacturer.

B. Membrane Adhesives: As recommended by the membrane manufacturer.

C. Thinner and Cleaner: As recommended by the adhesive manufacturer, compatible with sheet membrane.

2.4 FLASHINGS

A. EPDM: Self-adhering, semi-cured, various widths required.

B. EPDM Corners: Self-adhering, premolded, semi-cured; inside and outside.

C. Flexible Flashings: Same material as membrane.

D. Counterflashings and Miscellaneous Sheet Metal: As specified in Section 07620.

2.5 EPDM ACCESSORIES

A. The following materials shall be provided by the membrane manufacturer:

1. Seam Tape: 3".

2. Lap Sealant: As provided by membrane manufacturer.

3. Preformed Boots:

   a. Flexible boot with self-adhering flange for pipe penetrations through the membrane; by membrane manufacturer.

   b. Stainless steel draw bands.

4. EPDM Manufacturer's Water Cut-Off Mastic: Provide as needed to the sheet metal manufacturer.

5. Weathered Membrane Cleaners: Provided by the roof membrane manufacturer.

2.6 COVER BOARD

A. High density polyisocyanurate with a mineral-surfaced fiberglass reinforced facers.

B. Compliance with ASTM C 209, ASTM C 473, ASTM C 518, ASTM C 1289, Type 2, Class 2, ASTM D 1037, ASTM D 1621, ASTM D 2126, ASTM D 3273, and ASTM E 96.

C. Thickness: ¼ inch.

D. Board Size: 4'-0" x 8'-0".

E. Approved Manufacturer: Johns-Manville.

2.7 ACCESSORIES

A. Roofing Nails: Ring shank aluminum; size as required to suit application with 1" plastic washer heads.

B. Insulation Fasteners: Appropriate for purpose intended and approved by Factory Mutual and system manufacturer; length required for thickness of material with metal washers; manufactured by EPDM manufacturer.

C. Insulation Adhesive: As furnished or approved by roof membrane manufacturer.

D. Termination Bars: 1/8" x 1" minimum, as supplied by roofing membrane manufacturer.

E. Foam Adhesive:

1. Provided by the roof membrane manufacturer.

2. Insta-stik, by Dow Chemicals; http://building.dow.com/global/.

3. Millennium, By Millennium; www.millenniumadhesives.com.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that masonry parapet rebuilding has been completed.

B. Verify that surfaces and site conditions are ready to receive work.

C. Verify deck is supported and secure.

D. Verify deck is clean and smooth, free of depressions, waves, or projections, properly sloped to drains.

E. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set and wood blocking is in place.

F. Verify work of subcontractors which penetrates roof deck or requires men and equipment to traverse roof deck has been completed.

G. Do not issue a Proceed Order to the subcontractor or proceed with work until all defects are corrected to the satisfaction of, and with written approval from the roofing system manufacturer.

H. Repair any minor sections of the roof deck which may have been damaged to provide smooth level surface.

I. Do not install any roof insulation until all perimeter roof edge wood blocking is installed. Wood blocking shall be installed with staggered, mitered joints, without buckles or warps, screw fastened.

3.2 INSTALLATION

A. Install roofing with flashing systems and accessory items in strict accordance with system manufacturer's printed instructions current at the date of bidding documents. When items of conflict arise between manufacturer's recommendations and the contract documents, the more stringent will govern unless it violates manufacturer's warranty requirements.

B. In applying the roof systems, reference drawing sheets for roof areas and construction for each.

3.3 INSULATION APPLICATION

A. See Section 07220 – Certified Drainage Roof Insulation Systems.

3.4 COVER BOARD

A. Lay cover board over mechanically fastened insulation with joints staggered and offset by 18".

B. Set in bead foam adhesive at 4" O.C.

C. Roll cover board with 90# roller to achieve positive bonding.

3.5 MEMBRANE

A. Install reinforced 60 mil EPDM securement strip at the perimeter conditions.

B. Position membrane without stretching over the substrate.

C. Allow the membrane to relax for approximately 1/2 hour before adhering.

D. Fold sheet in half longitudinally.

E. Apply bonding adhesive to insulation and EPDM after adhesive has dried to where it does not string or stick when pushed into with finger.

1. Roll EPDM into bonding adhesive.

2. Broom EPDM flush to insulation to achieve positive bonding.

F. Repeat steps B through E for remaining portion of the roof.

G. Fully adhere membrane to insulation and perimeter wood blocking with bonding adhesive and to the securement strip with splice adhesive. Membrane should extend up and over perimeter wood blocking and down 1" minimum onto the masonry. Fully adhere and nail 6" on center with cap nails on the same day installed.

H. Exposed corners of the perimeter wood blocking are to be flashed with uncured EPDM extending 1" down onto masonry and nailed at 6" on center with cap nails.

I. Install water cut-off at the end of the day's work using water cut-off mastic. Remove water cut-off mastic prior to beginning the next day's work.

J. Where applicable, fold EPDM field sheet into corners and create a "pig's ear" to eliminate excess material. Do not cut membrane. Adhere the pig's ear to the EPDM with splice adhesive.

K. Lap joints shall be a minimum of 5'-0" from roof drains. Seams shall be water lapped.

3.6 LAP SEAM TAPE SPLICES

A. Use manufacturer's weathered membrane cleaner to prepare all EPDM left open for 24 hours or more.

B. All field lap seams to be fabricated using tape adhesive.

C. Shingle: lay the membrane 5" towards the roof drain.

D. Mark 1" to the low side of the overlapping sheet with a crayon.

E. Tack back the overlaying sheet with primer at 4"-0" on center.

F. Thoroughly clean and prime membrane, on both the overlap and underlap conditions. Allow to dry.

G. When washing and priming seam, be sure to wash lengthwise across the sheet, except at factory seams where you should wash in direction of factory seam to remove talc.

H. Install tape in proper alignment so it will protrude ¼" to ½" beyond overlaying sheet.

I. Roll seam tape with 4: hand roller. Using hand pressure only is not acceptable.

J. Bring overlapping membrane over the top of the seam tape and release the paper.

K. Remove release paper by pulling at a 45 degree angle.

L. At seam tape laps, lap seam tape 1".

M. Untack the EPDM sheet and allow it to fall into place.

N. Following removal of the release paper, broom membrane into sealant tape.

O. Roll seam with 1-1/2" silicone roller at a 45 degree angle to the seam.

P. Membrane manufacturer must supply all products used in seams.

Q. Apply uncured EPDM in irregular areas where ¼" seam tape is not shown and at tee-joints.

R. At tee-joints and lap seam elevation changes, prime membrane and install splice adhesive. Then install 6"x6" patches of uncured EPDM over same.

S. Following approval by the Architect and/or membrane manufacturer, clean and prime top of completed seam at the edge and install a continuous bead of EPDM lap sealant.

3.7 ROOF BASE FLASHING

A. Use manufacturer's weathered membrane cleaner to prepare EPDM left open for 24 hours or more.

B. Secure field membrane by screwing through metal anchor bar at 6" on center with approved screw fasteners. Where possible, install reinforced 60 mil EPDM securement strip previously fastened at 6" on center.

C. Extend roofing membrane up wall or vertical surface or over wood blocking nailer, as indicated, and fully adhere to reinforcement strip vertical surface.

D. All flashings and terminations shall be done in accordance with manufacturer's standard details or as detailed, whichever is more stringent.

E. Use prefabricated, self adhering corners where possible.

F. Cover anchor bar strips with EPDM flashing, extending above anchor bar and 6" out on horizontal roof surface.

G. Apply the appropriate adhesive to the EPDM flashing, roofing membrane, and curb wall.

H. After the lap cement dries to a point where it does not string or stick to the dry finger touch, roll base flashing into the adhesive with a steel roller to achieve positive bonding.

I. Clean edges of the completed EPDM flashing laps with an approved splice wash. Apply the lap sealant along both edges of the EPDM flashing and feather.

J. All vertical splice laps shall be covered with a 6" minimum cover strip of uncured EPDM. Extend 3" beyond horizontally on the flat.

K. Fold EPDM flashing into corners to create a "pig's ear" and eliminate excess material. Do not cut off membrane. Adhere "pig's ear" to EPDM.

L. Cover vertical surfaces of the end wall flashing with uncured neoprene flashing. Apply EPDM lap sealant to exposed edges of uncured neoprene flashing.

M. Terminate top of the flashing on masonry with 1/8" x 1" aluminum termination bar with manufacturer-approved expansion anchors at 6" on center.

1. Install water cut-off mastic between the masonry and EPDM, prior to installation of termination bar.

2. Cut EPDM flush to top of termination bar.

3. Install EPDM lap sealant to top of termination bar.

N. Terminate vertical flashing ends on masonry with 1/8" aluminum termination bar with manufacturer-approved expansion anchors at 4" on center.

1. Install water-cut off mastic between masonry and EPDM prior to installation of the termination bar.

2. Cut EPDM flush to top of termination bar.

3. Install EPDM lap sealant to top of termination bar.

O. Cover termination bar with metal counterflashing.

P. The 1/8" thick aluminum termination bar must be installed atop base flashing on day base flashing in installed.

3.8 PIPE PENETRATIONS

A. Use manufacturer's weathered membrane cleaner to prepare EPDM left open for 24 hours or more.

B. Flash pipe with premolded pipe flashings and self-adhering flange where installation is possible.

C. Where molded pipe flashings cannot be installed, use field fabricated flashing techniques using uncured EPDM.

D. Raise the pipe penetrations and roof vents to maintain a minimum 12" projection above the new roof surface. Verify all pipe penetrations extend to a minimum 12" above the finished roof surface.

E. Apply lap sealant at all flashing edges.

F. Provide water cut-off mastic between the pipe and molded pipe flashing.

G. Install stainless steel clamping ring around pipe at top of premolded pipe flashing.

H. Install EPDM lap sealant at top pipe boot and field flashing.

I. Premolded Pipe Boot:

1. When flashing must be cut to fit pipe penetration and top of premolded boot is below 8" above EPDM, pipe penetration is to be wrapped in uncured EPDM.

2. Top edge should be a minimum 8" above EPDM. Then install premolded pipe boot.

3. Wrap all gas vent pipe penetrations with cured EPDM membrane following completion of field flashing.

4. Install stainless steel rain cap around pipe and over tip of field flashing.

3.9 DAILY SEAL

A. Temporarily seal loose edges of membrane with water cut-off mastic or adhesive at end of the working day. Loose night seals are unacceptable.

1. Surface shall be clean and dry.

2. Apply water cut-off mastic at a rate of 100 lineal feet per gallon, 12" back from edge of the sheet onto exposed surface.

3. If necessary, use a trowel to spread material in order to achieve complete seal.

B. After embedding the membrane in night seal, check for continuous contact. Weight the edge, providing continuous pressure over length of the cut-off.

C. When the work is resumed, pull sheet face free before continuing installation.

D. Cut off and remove a portion of EPDM with water cut-off mastic on it.

3.10 FIELD QUALITY CONTROL

A. Correct identified defects or irregularities.

B. Require site attendance of both the roofing and insulation material manufacturers' reps at the first day of installation, and once per week throughout the project.

3.11 CLEANING

A. In areas where finished surfaces are soiled by Work of this section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.

B. Repair or replace defaced or disfigured finishes caused by Work of this section.

3.12 PROTECTION OF FINISHED WORK

A. Protect building surfaces against damage from roofing work,

B. Where traffic must continue over finished roof membrane, protect surfaces.

END OF SECTION

SECTION 07620

SHEET METAL FLASHING AND TRIM - COPPER

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Ornamental cornice assembly with integral gutter, downspouts, counterflashing receiver, counterflashings, and miscellaneous flashings as indicated in Schedule.

B. Sample submission for review and approval by Milwaukee Historical Society.

1.2 RELATED SECTIONS

A. Section 06100 – Carpentry Work for Reroofing.

B. Section 07536 – Fully Adhered EPDM.

1.3 REFERENCES

A. ASTM A 167 – Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate.

B. ASTM B 209 – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

C. ASTM B 32 – Standard Specification for Solder Metal.

D. ASTM B 370 – Standard Specification for Copper Sheet and Strip for Building Construction.

E. FS TT-C-494 – Coating Compound, Bituminous, Solvent Type, Acid Resistant.

F. SMACNA (Sheet Metal & Air Conditioning Contractors National Association) – Architectural Sheet Metal Manual, Fifth Edition, 1993.

G. CDA (Copper Development Association) - Copper in Architecture Design Handbook, most recent edition.

1.4 DESIGN REQUIREMENTS

A. Sheet Metal Flashings: Comply with criteria of:

1. CDA (Copper Development Association) – Copper in Architecture Design Handbook.

2. SMACNA Architectural Sheet Metal Manual.

1.5 SUBMITTALS FOR REVIEW

A. Section 01300 – Submittals: Procedures for submittals.

B. Shop Drawings: Indicate the material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

1. Cornice assembly at parapet.
2. Cornice assembly at gutters.
3. Counterflashing assembly.

C. Product Data: Provide data on sheet metal material and prefabricated components.

D. Samples: Submit two full size samples, 24 inches long, of cornice assembly; illustrating typical coping material, and finish. Include continuous cleats and cover plates.

1.6 SUBMITTALS AT PROJECT CLOSEOUT

A. Section 01700 – Project Closeout Procedures: For submittals.

B. Warranty: Submit contractor's five-year workmanship warranty.

1.7 QUALITY ASSURANCE

A. Perform work in accordance with the CDA (Copper Development Association) – Copper in Architecture Design Handbook and SMACNA Architectural Sheet Metal Manual requirements and standard details, except as otherwise notes.

B. Fabricator and Installer Qualifications: Company specializing in sheet metal work with five years documented experience.

1.8 PRE-INSTALLATION MEETING

A. Section 01039 – Coordination and Meetings: Pre-construction meeting.

B. Convene one week before starting Work of this section.

1.9 DELIVERY, STORAGE, AND PROTECTION

A. Section 01600 – Product Requirements: Transporting, handling, storage, and protection.

B. Stock material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage. When material is stored on the roof it must be placed on ½" minimum plywood on 1" rigid insulation. Ends of plywood shall exceed end of sheet metal goods by 2'-0".

C. Prevent contact with materials which may cause discoloration or staining.

D. All field cutting of sheet metal performed over new roofing shall be permitted only where the new roof is protected by a minimum 3/4" plywood on 1" rigid insulation.

1.10 PROJECT CONDITIONS

A. Project Coordination: See Section 01039.

1.11 WARRANTY

A. Closeout Submittals: See Section 01700 – Project Closeout.

B. Workmanship Guarantee: Sheet Metal Contractor to issue guarantee of workmanship to correct defective work within a two-year period after Date of Substantial Completion. Defective work includes failure of watertightness or seals and oil canning, due to rupture restricted expansion / contraction or faulty workmanship.

PART 2 PRODUCTS

2.1 SHEET MATERIALS

A. Copper: ASTM B 370, cold rolled, 16 oz. and 20 oz. per sq. ft. thick; natural finish.

B. 3 inch diameter, 24 ga., G90 hot dipped galvanized corrugated downspouts.

C. Pre-Finished Galvanized Steel Sheet: ASTM A653, G90 zinc coating; 0.02 inch, 24 gauge core steel, shop pre-coated with 1 mil PVDF (polyvinylidene fluoride) coating; color as selected from manufacturer's standard.

2.2 ACCESSORIES

A. Fasteners:

1. For coping covers, expansion joint covers, gutter brackets and exhaust fans: Stainless steel with stainless steel clad EPDM washers.
2. For fascia: Copper ring shank nails, brass screws.
3. For counterflashing: Masonry fasteners with climaseal corrosion resistive coating with stainless steel clad EPDM washers, 3/16" x 1-1/4"; ASTM B 117.

    a. Acceptable manufacturers and products:

        i. Sierra: Tapcon Anchors.
        ii. Wireband: Climaseal Screw.
        iii. ITW Buildex: Maxi Set Tapcon.
        iv. Lap Joints

            1) Solid copper rivets.

B. Primer: Zinc molybdate type.

C. Protective Backing Paint: Zinc molybdate alkyd.

D. Sealant: Polyurethane type, manufactured by:

1. Tremco: Dymeric.
2. Sonnoborn: NPI.

E. Solder: ASTM B 32; 50/50 Type.

F. Polyethylene: 18" wide, black, 10 mil.

2.3 FABRICATION - GENERAL

A. Fabricate continuous cleats of same materials as coping; minimum 3" wide; interlocking with sheet a minimum of ½".

1. Drill pilot holes at 4" on center for attachment to wood.
2. Drill pilot holes at 6" on center for attachment to masonry or concrete.

B. All fastener locations will have predrilled pilot holes.

1. Nails: ¼" diameter @ 4" on center.
2. Screw Fasteners: 5/16" diameter @ 1'-0" on center.

C. Form pieces in longest possible lengths.

D. Hem exposed edges on underside ½ inch; miter and seam corners.

E. Fabricate corners from one piece with minimum 24" long legs; for cover plates, lap in sealant and pop rivet corner.

F. Fabricate vertical faces with bottom edge formed outward ½ inch and hemmed to form drip.

G. Fabricate flashings to allow toe to extend 2 inches over roofing. Return and brake edges.

H. Anchorage devices must be in accordance with SMACNA requirements.

I. Copper Work:

1. Tin edges of copper sheet to be soldered. Solder shop formed metal joints. After soldering, remove flux. Wipe and wash solder joints clean. Weather seal joints.

2. Pop rivet and fully solder all copper metal joints.

3. All solder joints shall be thoroughly washed with neutralizing solution to completely remove flux. Rinse with water.

4. As the Work progresses, neutralize excess flux with a 5% to 10% washing soda solution. Then thoroughly rinse.

2.4 COPPER MATERIAL FINISH PROTECTION

A. Protection: All metal materials should be delivered to the Site with protective strippable plastic film.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that all paint has been removed from the existing metal cornice system.

B. Verify existing conditions before starting work.

1. Field measure and record the existing metal corner dimensions for replication prior to removal.

a. Field measure the existing support framing for replication.

C. Verify that the new wood support framing is installed to match existing solidly and reglets are in place.

D. Verify roofing termination and base flashings are in place, sealed and secure.

E. Verify that surfaces to receive sheet metal are smooth and clean, and will not impinge upon the integrity of the sheet metal.

F. Verify that all wood blocking to receive sheet metal is properly installed, anchored without warps, and covered with roofing waterproofing.

G. Do not start any sheet metal work until the conditions relevant to the Work are acceptable. Commencement of work will indicate acceptance of condition.

3.2 PREPARATION

A. Install starter and edge strips, and cleats before starting installation.

B. Lay out joints to be symmetrical about the building corners. May require that more than one run is cut down to attain symmetry.

C. Paint dissimilar metals with bituminous paint to form a complete barrier.

3.3 INSTALLATION

A. Secure flashings in place using concealed fasteners as indicated in the Drawings.

1. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles. Install work watertight, without buckles, warps, fastening stresses or distortion. Allow for expansion and contraction.

2. Solder metal joints for full metal surface contact. After soldering, wash metal clean with neutralizing solution and rinse with water.

B. Verify height of aluminum roof base flashing termination bar allows for the installation of counterflashing and sealant below weep holes and throughwall flashing.

C. Continuous Cleats: Set in water cut-off mastic (supplied by Roofing Contractor) or sealant, as indicated in the Drawings. Secure to the surface with nail fasteners through ¼" predrilled pilot holes at 4" on center.

D. Fascias/Ornamental Trim:

1. Set continuous cleat in sealant or water cut off mastic, as indicated on the drawings. Secure with nails at 4" O.C. through ¼" predrilled pilot holes.

2. Set the outside and inside corners. Secure with nails at 4" on center through ¼" predrilled pilot holes.

3. Lay out fascia joints symmetrical about corners. May require multiple cutting to achieve lengths of 10'-0".

4. Running joints at 10'-0", except where the cut pieces are required for symmetry between the existing corners.

5. Secure fascia to continuous cleat and nail at 4" on center through ¼" predrilled pilot holes.

6. Pop rivet laps and fully solder.

E. Copings/Integral Gutter:

1. Set continuous cleat. Set the outside and inside corners. Secure with stainless steel nails at 4" O.C. through ¼" predrilled pilot holes.

2. Lay out coping and integral gutter joints symmetrical about the building corners. May require multiple cuttings at 10'-0" lengths to achieve same. Nail through predrilled ¼" pilot holes.

3. Run joints at 10'-0", except where cut pieces are required for symmetry between existing corners.

4. Secure coping/integral gutter to continuous cleat and pull coping/integral gutter over roof edge wood block. Cut 10'-0" lengths to size to provide symmetrical placement between existing building corners.

5. Verify coping/integral is tight to wood blocking.

6. Lap joints, pop rivets, and fully solder.

F. Two Piece Counterflashing – Reglet Set:

1. Overlap the base flashing a minimum of 3 inches.

2. Saw new, or at an existing location a clean, reglet joint, 3/8" x 2", at mortar joint.

3. Fill reglet with polyurethane sealant; then insert horizontal flange of counterflashing receiver.

4. Install lead wedges at 6" on center.

5. Install foam rod and sealant at exterior surface of masonry. Tool sealant in place.

6. Insert counterflashing into receiver.

7. Install screw fasteners at 2'-0" on center. Match counterflashing color and material.

G. End Wall Flashings:

1. Set in full bed of water cut-off mastic.

2. Secure with screw fasteners through ¼" predrilled pilot holes as indicated on the Drawings.

3. Coordinate installation with Roofing Contractor.

4. Have Roofing Contractor flash-in vertical flange of end wall flashing.

5. Install coping or standing seam siding over the end wall flashing.

6. Secure to end wall flashing vertical flange. Pull coping over the roof edge wood blocking. Or secure to the continuous clip and lay against the mansard.

H. Miscellaneous Flashings: Install as indicated on the Drawings. Coordinate with interfacing contractors.

I. Downspouts:

1. Solder all horizontal and vertical seams.

2. Face all vertical seams away from building.

3. Insert wire downspout strainer.

3.4 CLEANING

A. Leave material clean and free of stains.

B. Remove all sheet metal debris from roof top daily.

C. Remove all sheet metal debris from site daily.

D. As the Work progresses, neutralize excess flux with a 5% to 10% washing soda solution. Then thoroughly rinse.

3.5 FIELD QUALITY CONTROL

A. See Section 01400 – Quality Control: Field inspection.

B. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

3.6 SCHEDULE

A. Continuous Cleats.

B. Ornamental Copings/Integral Curbs.

C. Fascias.

D. Ornamental Trim.

E. Counterflashings – Reglet Set.

F. Endwall Flashings.

G. Downspouts.

H. Miscellaneous Flashings.

END OF SECTION

Trowbridge Street Elementary School
General Notes:

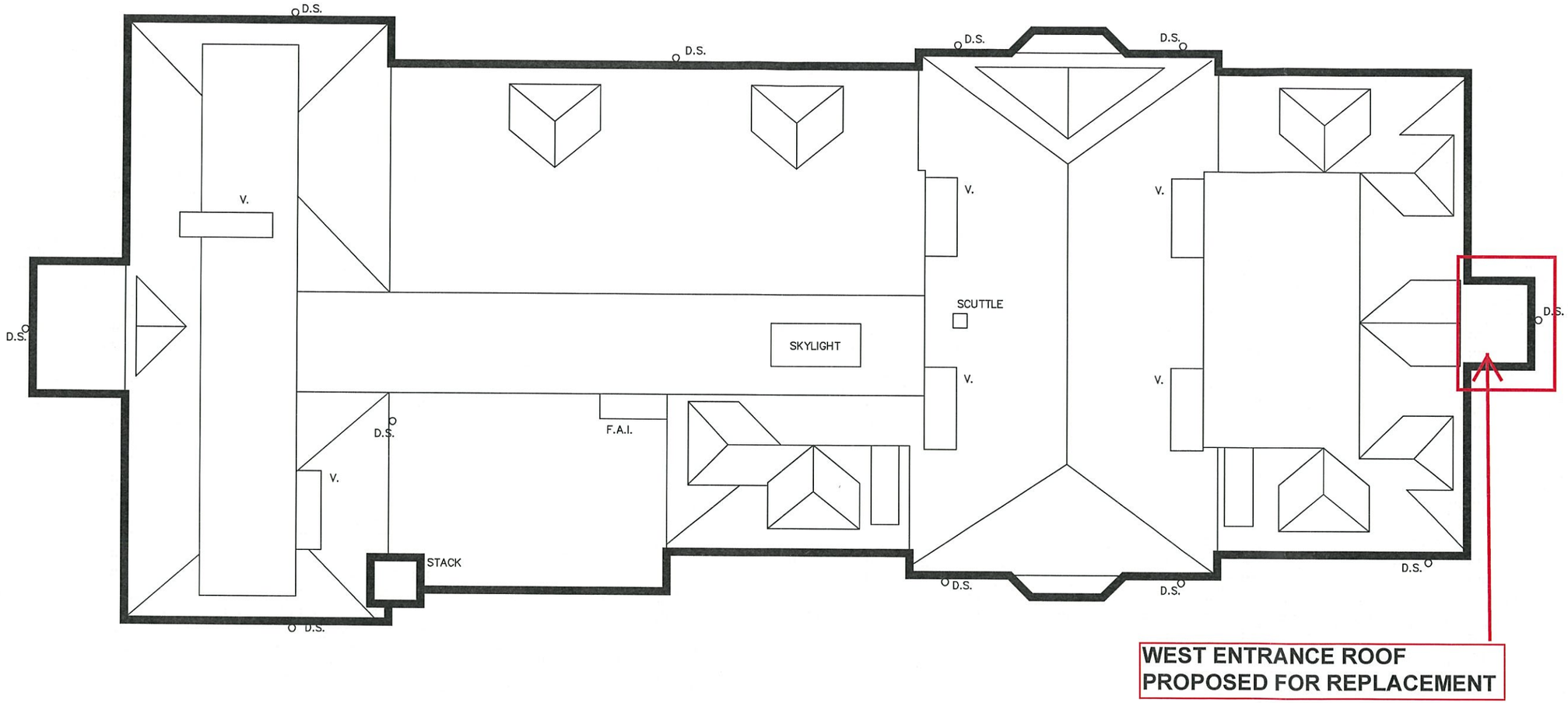
1. The Trowbridge Street Roof Replacement is a historical project and will need to meet approval by Milwaukee Historical Society.

2. Completely remove the existing modified bitumen roofing system and sheet metal cornice materials to the deck and from adjacent walls.

3. Upon removal of the existing metal cornice the associated wood framing shall be reconfigured as required to accommodate the new cornice and roof installation.

4. New copper cornice to be factory fabricated by metal fabricator experienced in historical metal fabrications. Shop bending by roofing/sheet metal contractor is unacceptable.

Milwaukee Public Schools
Division of Facilities and Maintenance Services
1154 North 11th Street
P.O. BOX 0259
Milwaukee, Wisconsin 53205-0259
Phone : 414 283-4900
Fax : 414 283-4682



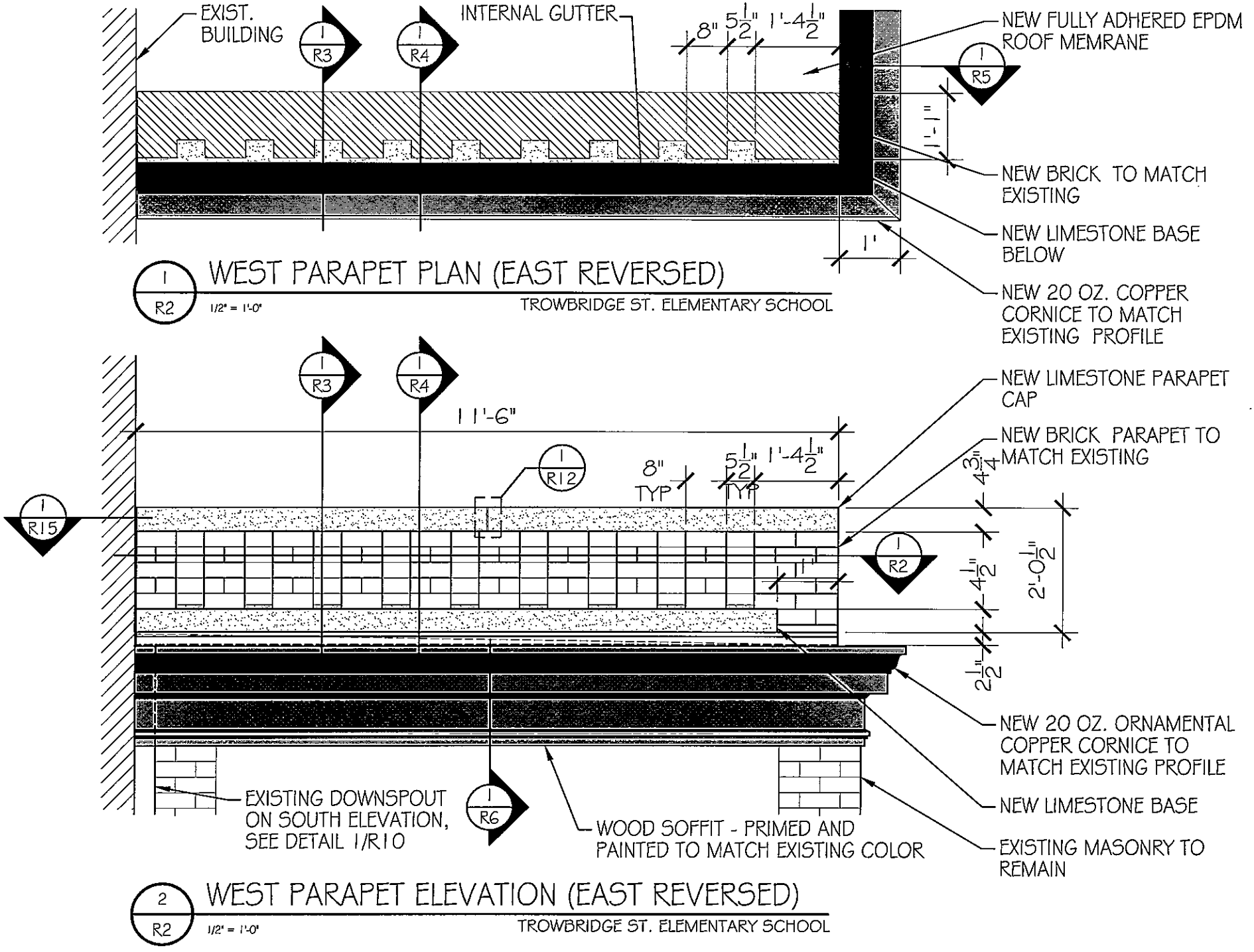
ROOF PLAN

SITE NO: 368 – TROWBRIDGE STREET ELEMENTARY SCHOOL
1943 EAST TROWBRIDGE STREET, MILW., WI. 53207-2596
DATE: 10/19/99

NORTH

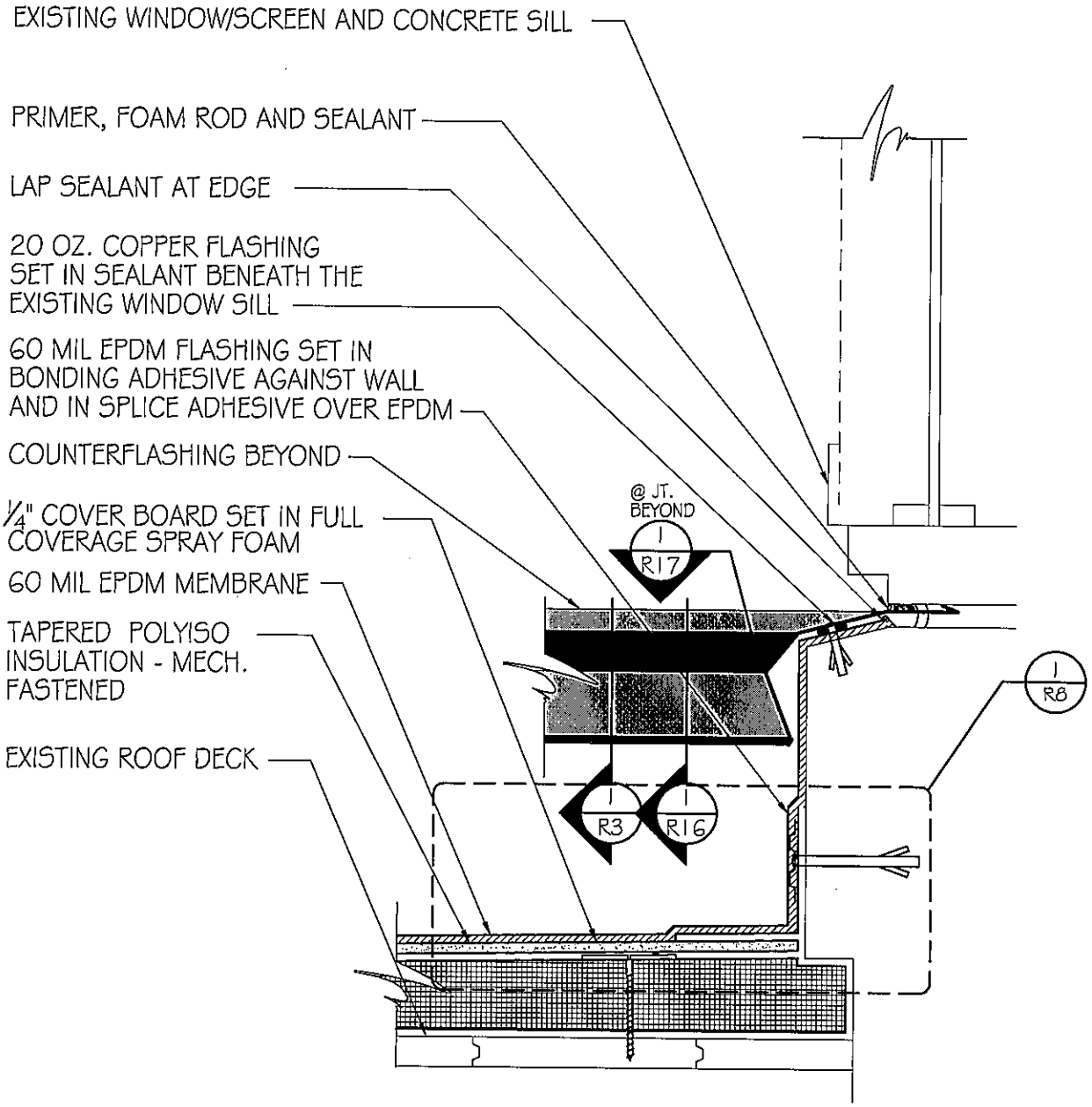
0 8' 16'

SCALE: 1/16" = 1'


EXIST. BUILDING
1/R3
1/R4
INTERNAL GUTTER
8"
5 1/2"
1'-4 1/2"
NEW FULLY ADHERED EPDM ROOF MEMRANE
1/R5
1'-1"
NEW BRICK TO MATCH EXISTING
NEW LIMESTONE BASE BELOW
1'
NEW 20 OZ. COPPER CORNICE TO MATCH EXISTING PROFILE
1/R2
WEST PARAPET PLAN (EAST REVERSED)
1/2" = 1'-0"
TROWBRIDGE ST. ELEMENTARY SCHOOL
1/R3
1/R4
11'-6"
NEW LIMESTONE PARAPET CAP
NEW BRICK PARAPET TO MATCH EXISTING
1/R12
8" TYP
5 1/2" TYP
1'-4 1/2"
3 3/4"
1/R15
1/R2
4 1/2"
2'-0 1/2"
1"
2 1/2"
NEW 20 OZ. ORNAMENTAL COPPER CORNICE TO MATCH EXISTING PROFILE
NEW LIMESTONE BASE
EXISTING MASONRY TO REMAIN
EXISTING DOWNSPOUT ON SOUTH ELEVATION, SEE DETAIL 1/R10
1/R6
WOOD SOFFIT - PRIMED AND PAINTED TO MATCH EXISTING COLOR
2/R2
WEST PARAPET ELEVATION (EAST REVERSED)
1/2" = 1'-0"
TROWBRIDGE ST. ELEMENTARY SCHOOL

NOTE:

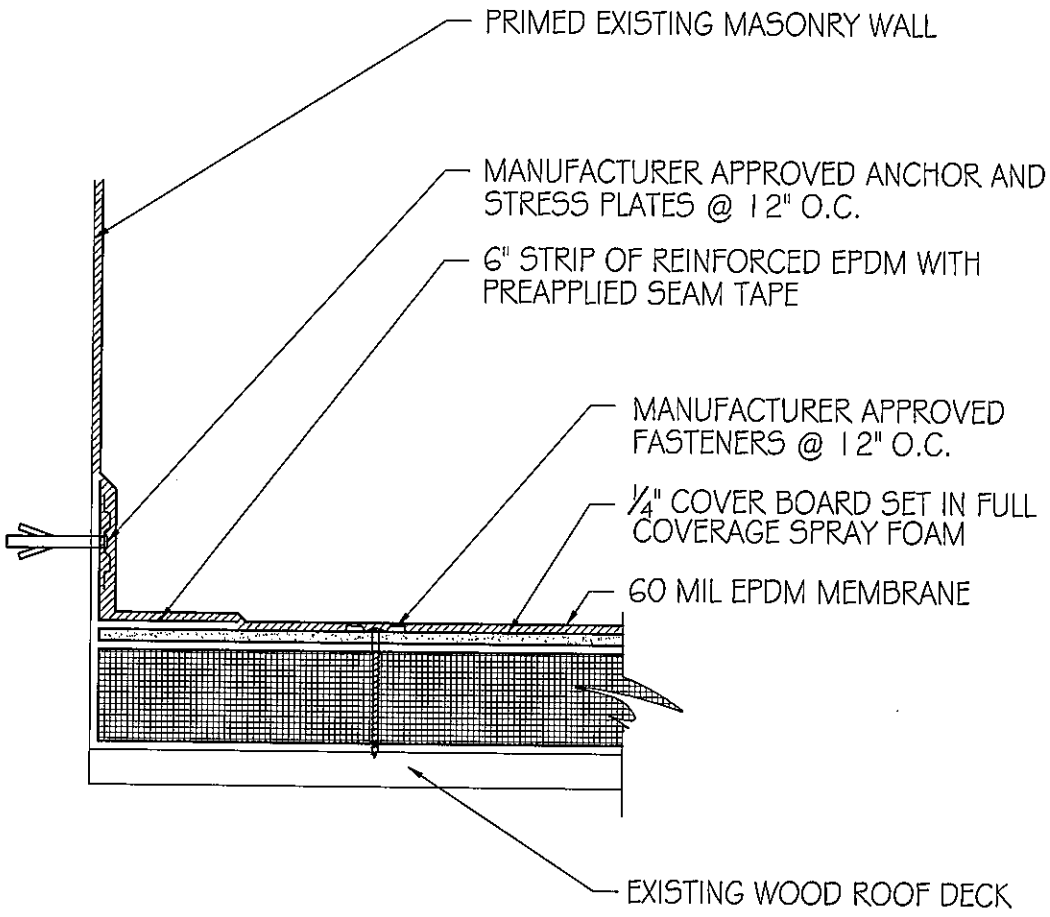
1. REMOVE ALL SEALANT AND FOAM RODS FROM BELOW WINDOWSILL



1/R7 WINDOW SILL FLASHING DETAIL

3" = 1'-0"

TROWBRIDGE ST. ELEMENTARY SCHOOL



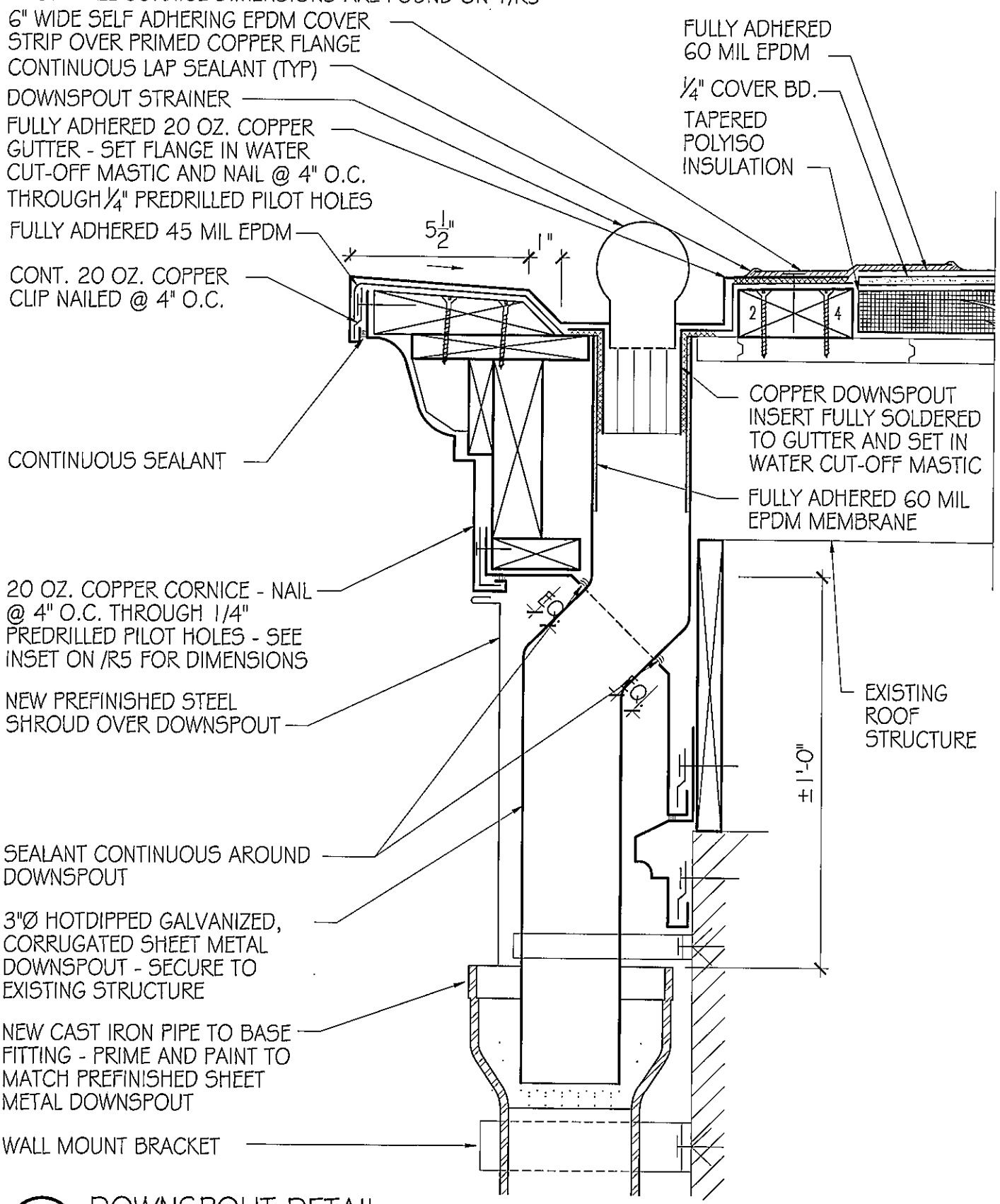
1 / R8 TYPICAL BASE ANCHOR FLASHING DETAIL

3" = 1'-0"

TROWBRIDGE ST. ELEMENTARY SCHOOL

NOTES:

1. ALL SEAMS, BOTH HORIZONTAL AND VERTICAL ARE TO BE SOLDERED ON THE NEW DOWNSPOUT.
2. ALL SEAMS TO FACE OUT AWAY FROM THE BUILDING ON THE DOWNSPOUT.
3. ALL CORNICE DIMENSIONS ARE FOUND ON 1/R5



1/R9 DOWNSPOUT DETAIL

3" = 1'-0"

COMPATIBLE SEALANT - COLOR TO MATCH DOWNSPOUT COVER

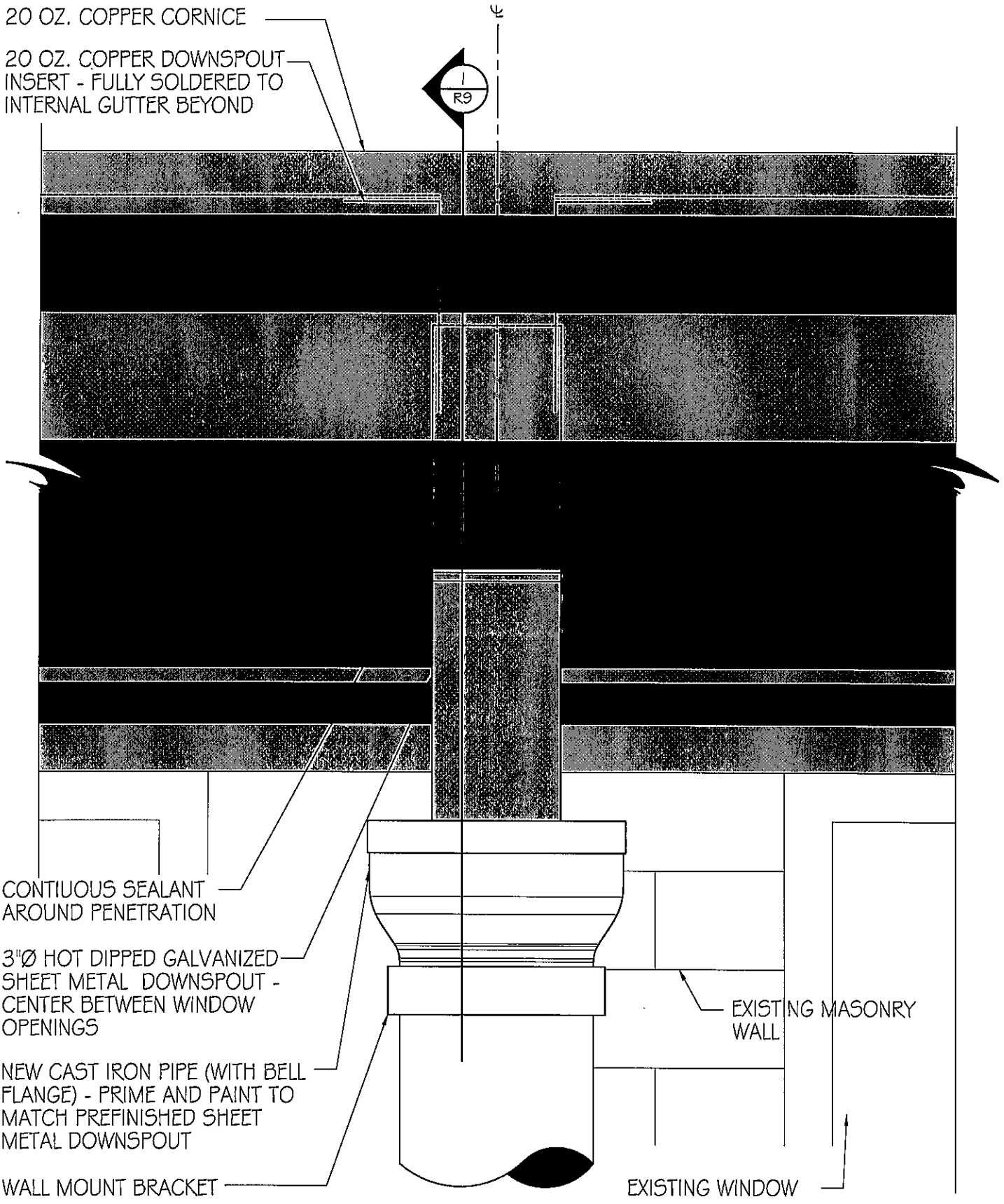
NEW COPPER CORNICE ASSEMBLY

PROVIDE NEW HOT DIPPED GALVANIZED SHEET METAL DOWNSPOUT INTO EXISTING CAST IRON PIPE - MOUNT TO EXISTING BRICK AT TOP AND BOTTOM - HEM ALL EXPOSED EDGES AND RIVET PIECES TOGETHER PRIOR TO INSTALLATION

PRIME AND PAINT EXISTING SANITARY SEWER PIPE TO PAVEMENT BELOW

1/R10 DOWNSPOUT CLADDING DETAIL

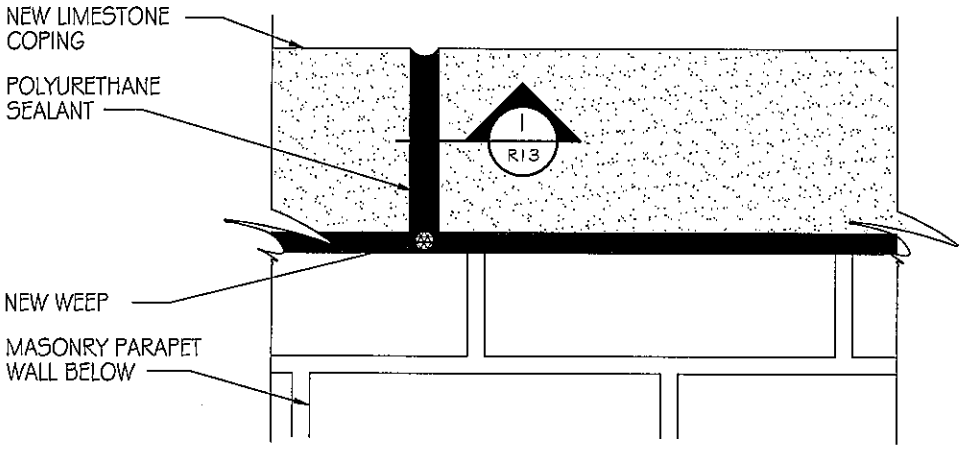
NTS



1/R11 DOWNSPOUT ELEVATION

3" = 1'-0"

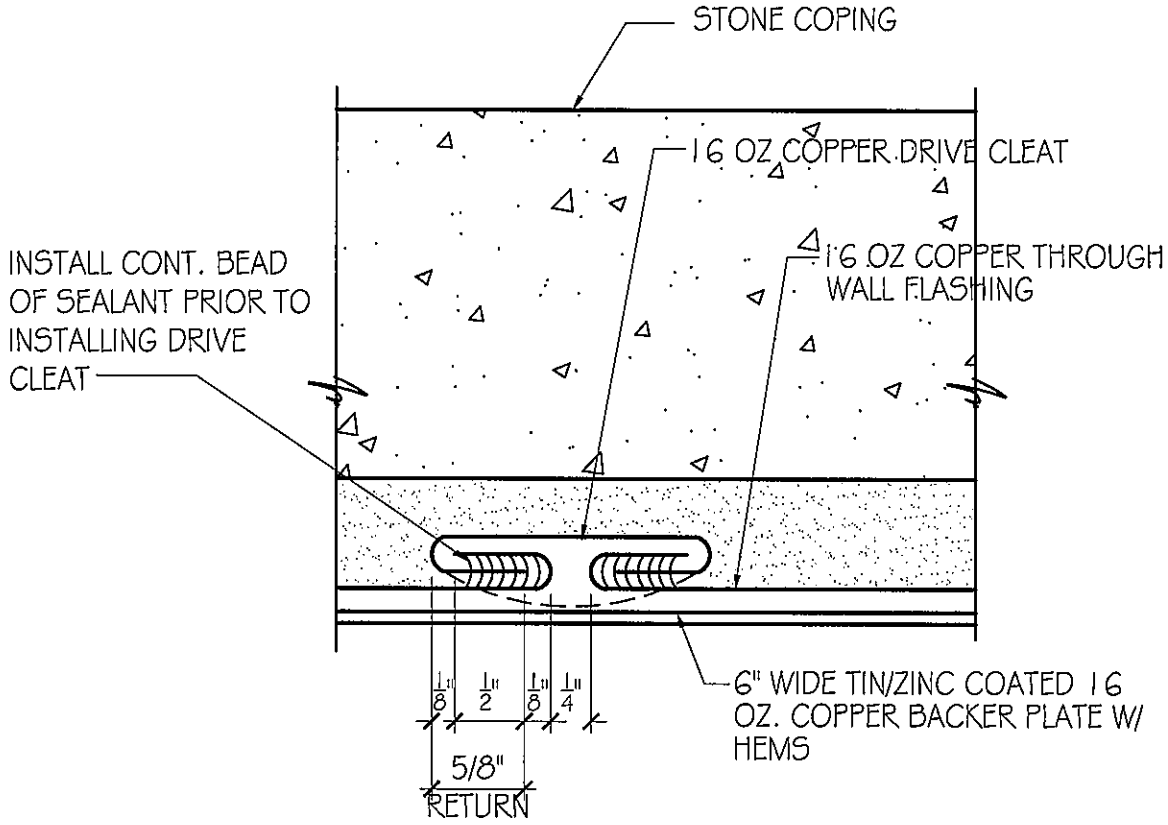
TROWBRIDGE ST. ELEMENTARY SCHOOL



1 / R12 COPING BUTT JOINT DETAIL

3" = 1'-0"

TROWBRIDGE ST. ELEMENTARY SCHOOL



2 / R12 HORIZONTAL THROUGH WALL FLASHING JOINT

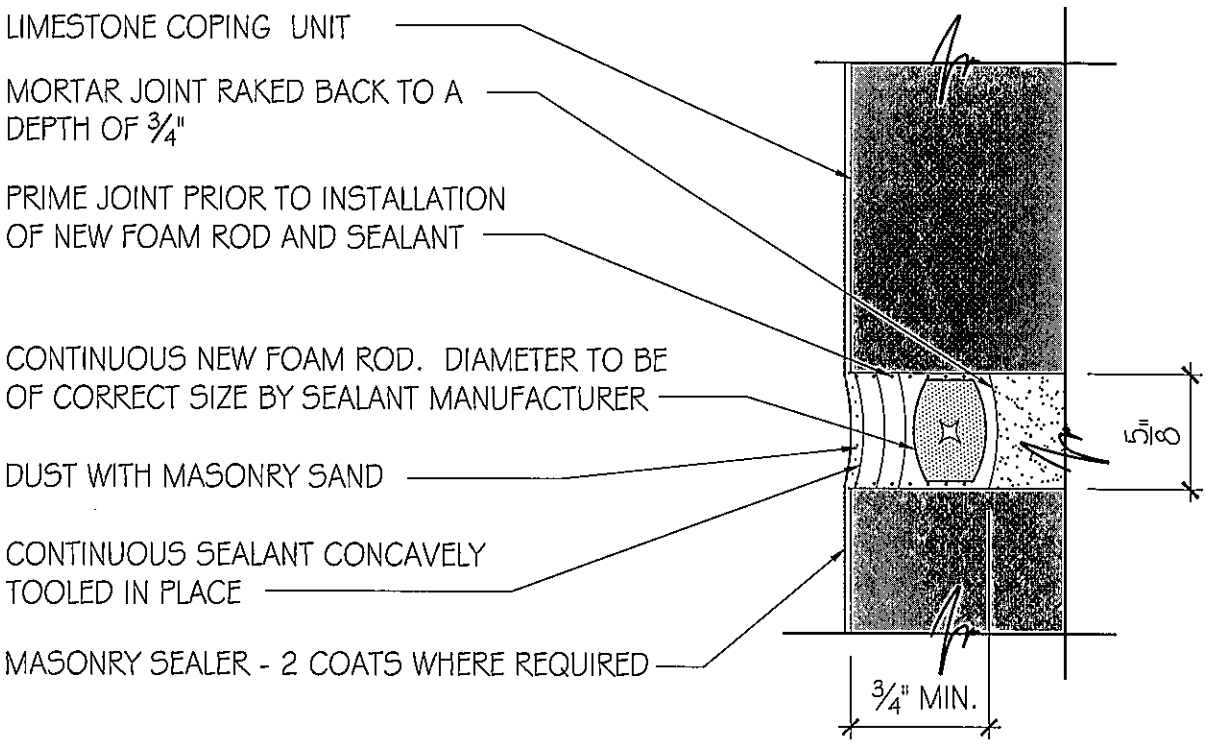
NTS

TROWBRIDGE ST. ELEMENTARY SCHOOL

NOTES:

1. WIRE BRUSH ALL JOINTS CLEAN PRIOR TO INSTALLING PRIMER, BACKER ROD, & SEALANT.

2. LIMESTONE TO BE SANDED AND CLEANED PRIOR TO INSTALLATION OF PRIMER, FOAM ROD, SEALANT AND MASONRY SEALER.



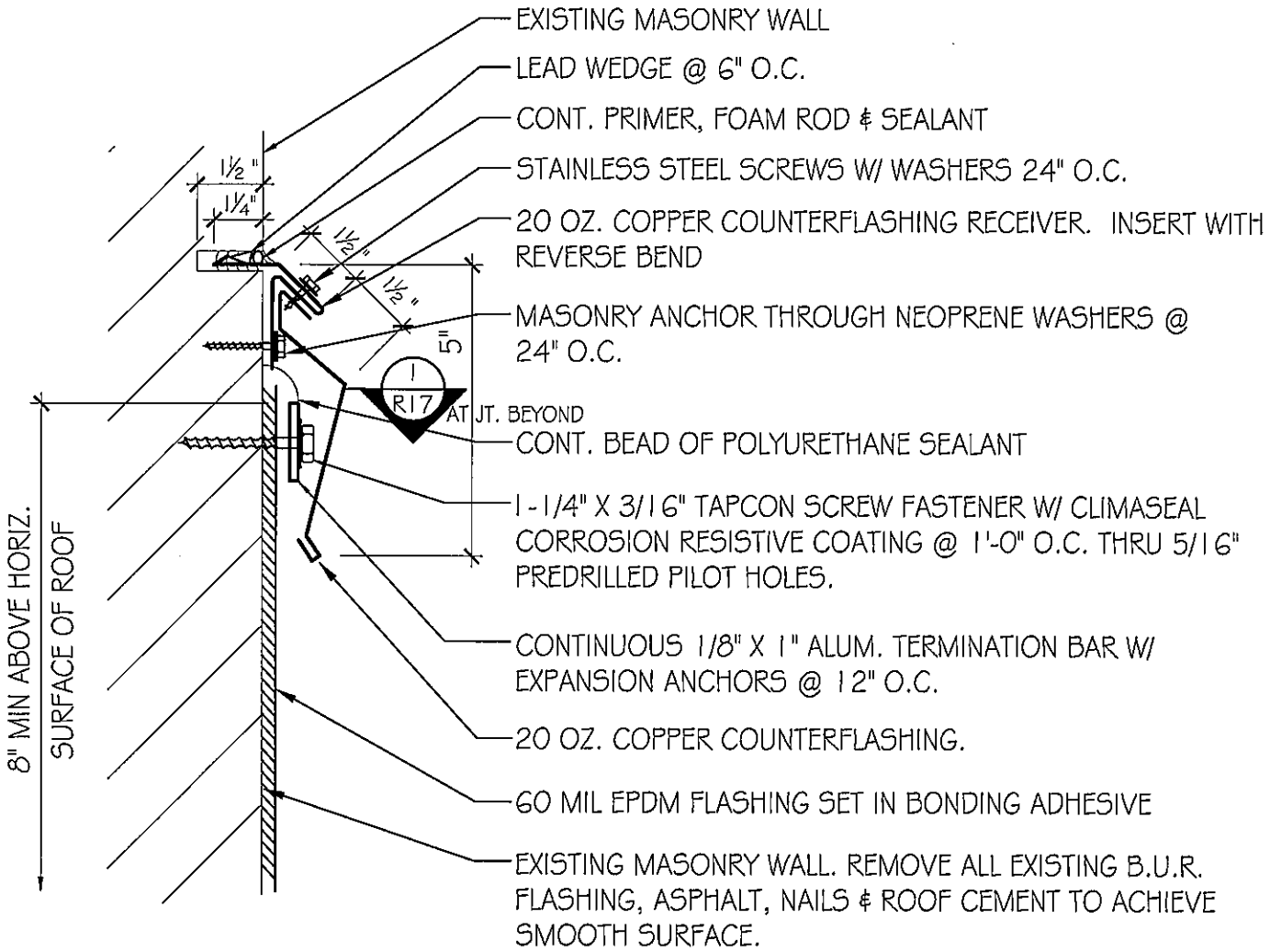
1/R13 LIMESTONE BUTT JOINT DETAIL

FULL SCALE

TROWBRIDGE ST. ELEMENTARY SCHOOL

NOTE:

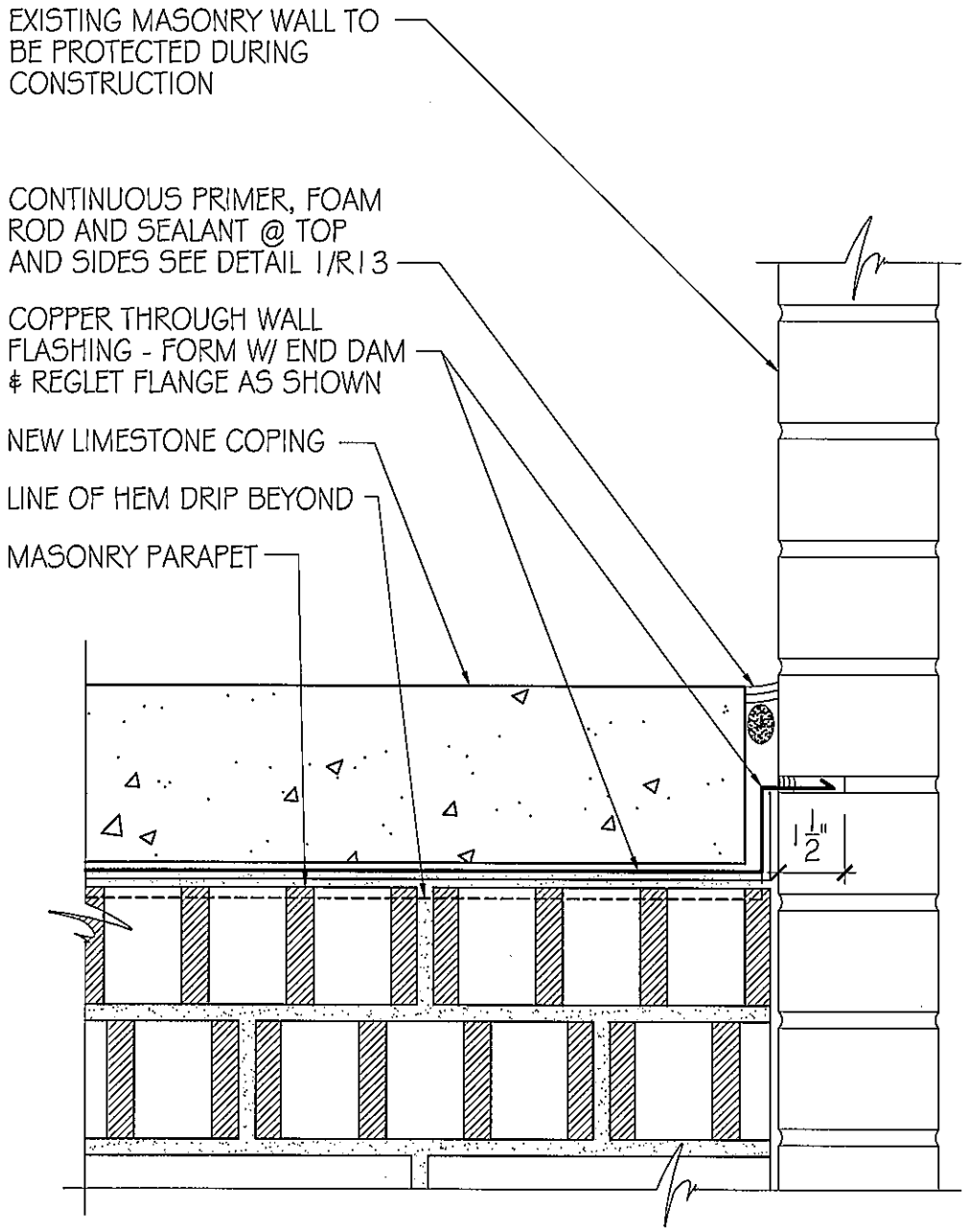
1. SAW-CUT IN NEW REGLET - TUCKPOINT ALL EXISTING REGLETS
2. TERMINATION BAR & COUNTERFLASHING ARE TO BE INSTALLED HORIZONTALLY ACROSS MASONRY WALL. COORDINATE HEIGHT OF BASE FLASHING SO THAT AT HIGHEST POINT OF INSULATION THE TOP OF THE BASE FLASHING IS 8" MIN. ABOVE THE SURFACE OF THE ROOF.
3. TERMINATION BAR MUST BE INSTALLED ON SAME DAY AS FLASHING PLIES.



1/R14 COUNTERFLASHING DETAIL

3" = 1'-0"

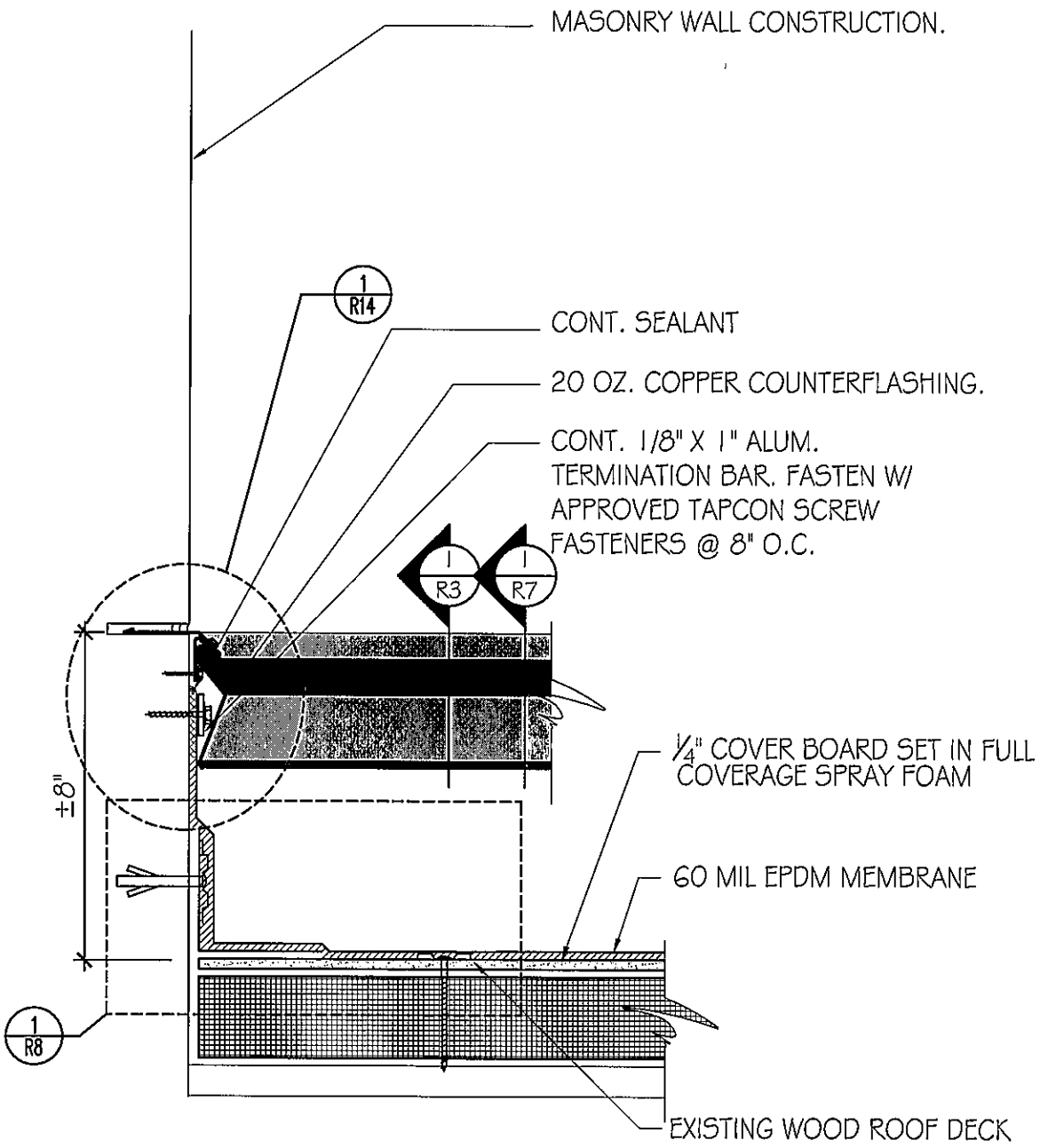
TROWBRIDGE ST. ELEMENTARY SCHOOL



1 / R15 COPPER THROUGH WALL FLASHING @ END DAM

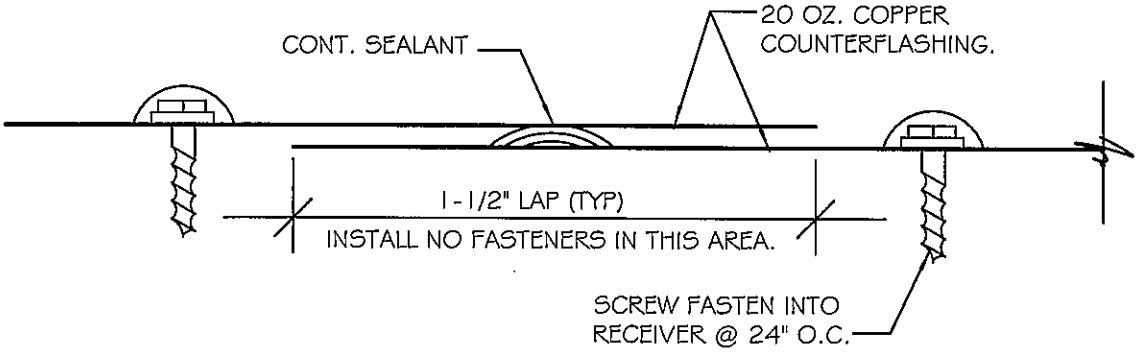
3" = 1'-0"

TROWBRIDGE ST. ELEMENTARY SCHOOL



1/R16 BASE FLASHING DETAIL

TROWBRIDGE ST. ELEMENTARY SCHOOL 3" = 1'-0"

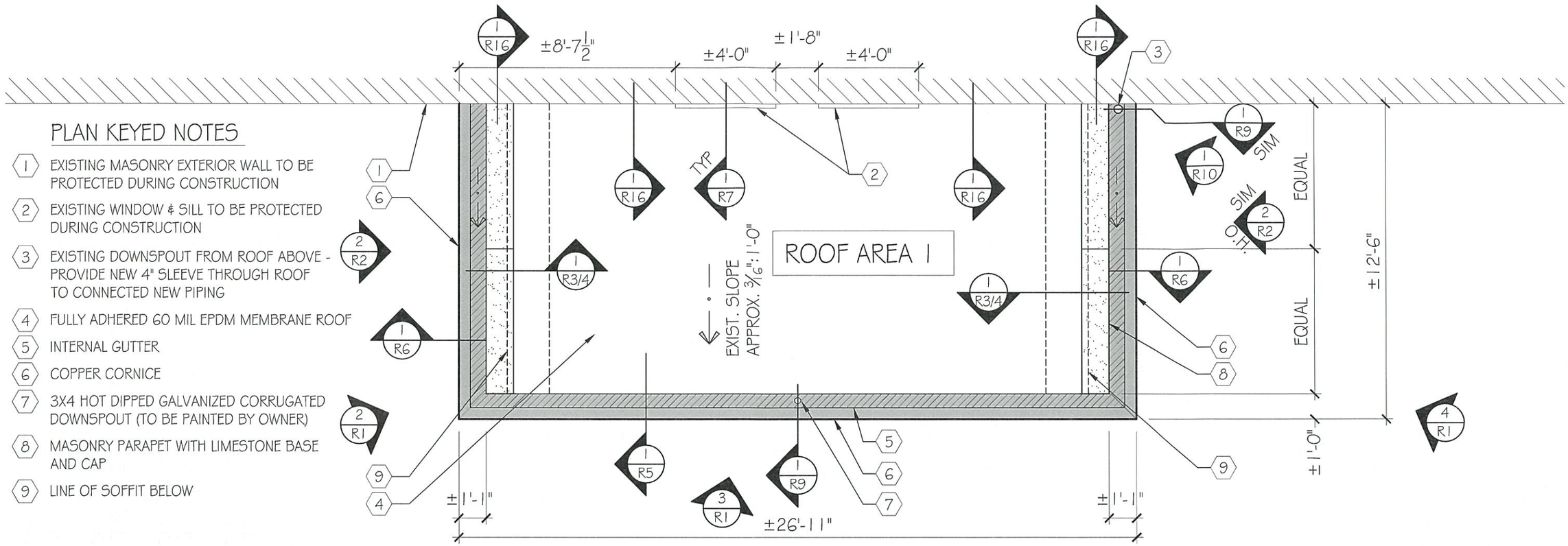


1 / R17 COUNTERFLASHING LAP JOINT DETAIL

TROWBRIDGE ST. ELEMENTARY SCHOOL 1-1/2"=1'-0"

PLAN KEYED NOTES

1. EXISTING MASONRY EXTERIOR WALL TO BE PROTECTED DURING CONSTRUCTION
2. EXISTING WINDOW & SILL TO BE PROTECTED DURING CONSTRUCTION
3. EXISTING DOWNSPOUT FROM ROOF ABOVE - PROVIDE NEW 4" SLEEVE THROUGH ROOF TO CONNECTED NEW PIPING
4. FULLY ADHERED 60 MIL EPDM MEMBRANE ROOF
5. INTERNAL GUTTER
6. COPPER CORNICE
7. 3X4 HOT DIPPED GALVANIZED CORRUGATED DOWNSPOUT (TO BE PAINTED BY OWNER)
8. MASONRY PARAPET WITH LIMESTONE BASE AND CAP
9. LINE OF SOFFIT BELOW



1/R1 ROOF PLAN
1/4" = 1'-0"

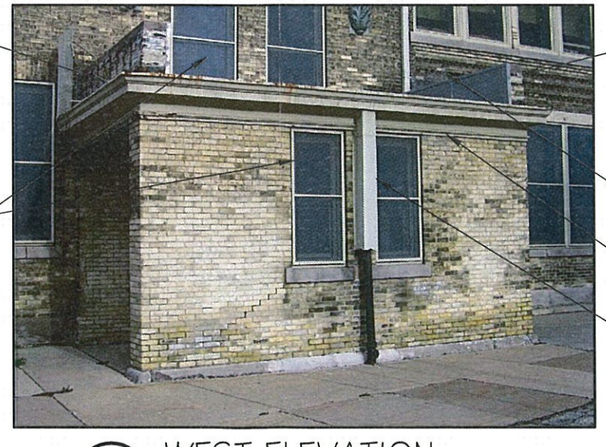
TROWBRIDGE ST. ELEMENTARY SCHOOL

REMOVE EXISTING SHEET METAL CORNICE

REMOVE EXISTING STEEL MESH AND SUPPORTS

PROTECT EXISTING GLAZED OPENINGS THROUGHOUT CONSTRUCTION DURATION

2/R1 NORTH ELEVATION
NTS



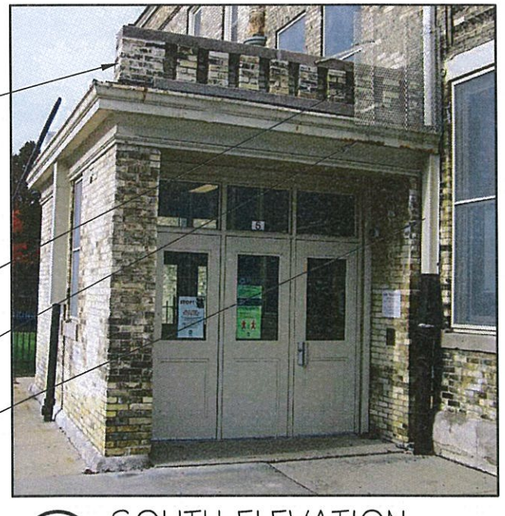
REMOVE EXISTING MASONRY PARAPET AND ASSOCIATED FLASHING

REMOVE EXISTING STEEL MESH AND SUPPORTS

REMOVE EXISTING SHEET METAL CORNICE

REMOVE EXISTING SHEET METAL HOUSING AND CAST IRON PIPE TO BASE FITTING

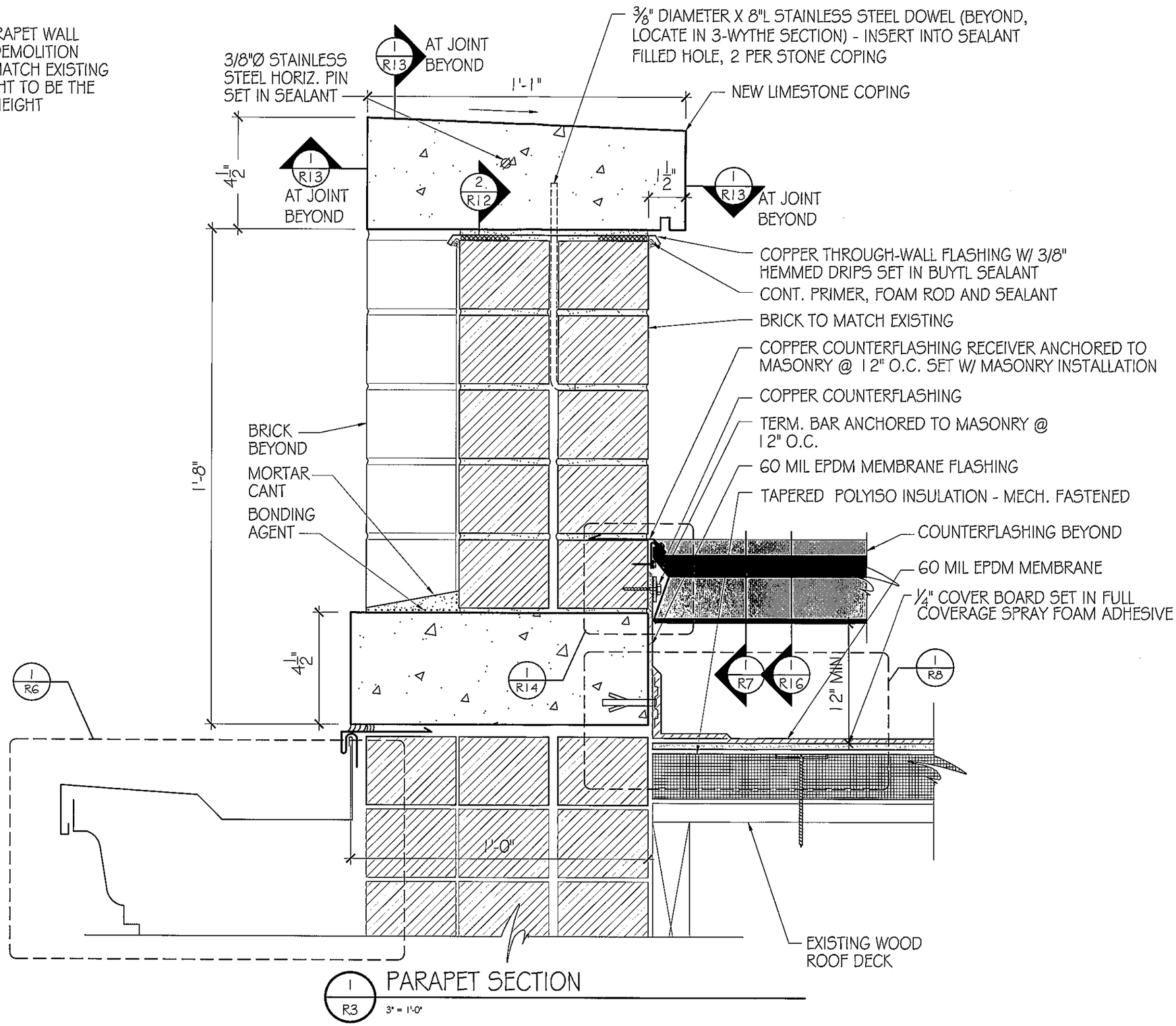
3/R1 WEST ELEVATION
NTS

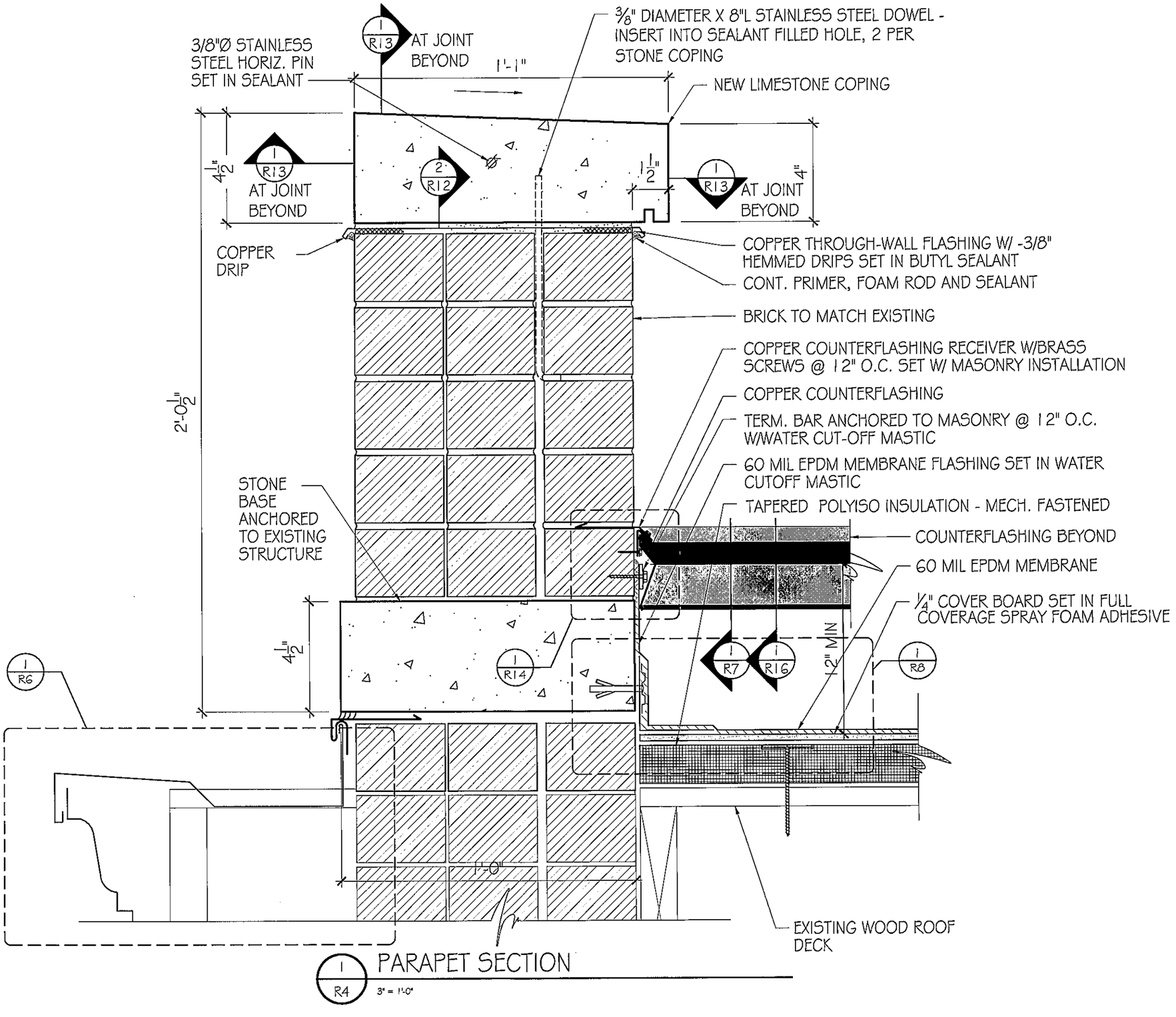


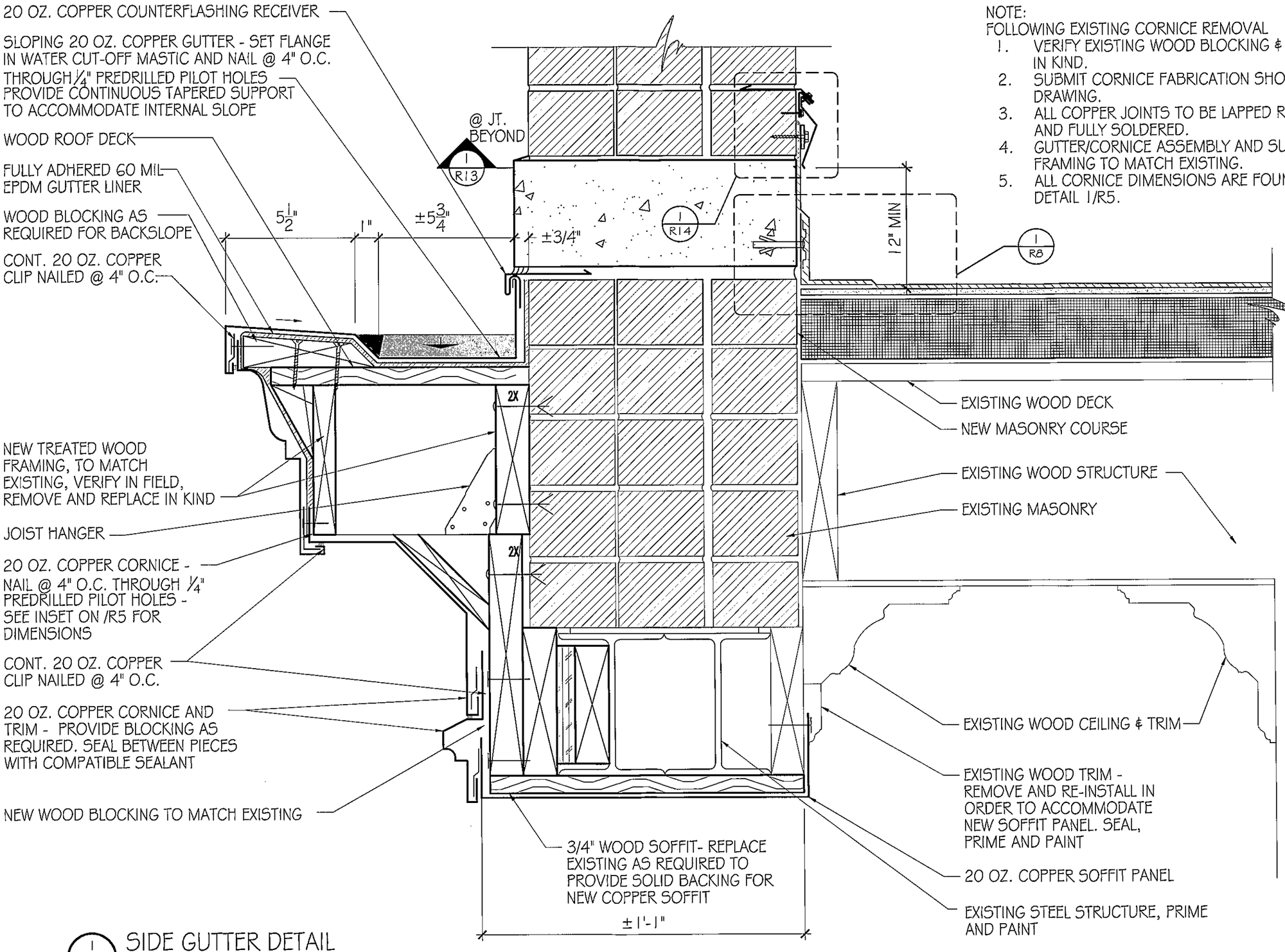
4/R1 SOUTH ELEVATION
NTS

NOTES:

1. DOCUMENT EXISTING PARAPET WALL DIMENSIONS PRIOR TO DEMOLITION
2. NEW PARAPET WALL TO MATCH EXISTING
3. COUNTERFLASHING HEIGHT TO BE THE SAME AS WINDOW SILL HEIGHT




3/8"Ø STAINLESS STEEL HORIZ. PIN SET IN SEALANT
1 R13 AT JOINT BEYOND
3/8" DIAMETER X 8"L STAINLESS STEEL DOWEL - INSERT INTO SEALANT FILLED HOLE, 2 PER STONE COPING
1'-1"
NEW LIMESTONE COPING
4 1/2"
1 R13 AT JOINT BEYOND
2 R12
1 1/2"
1 R13 AT JOINT BEYOND
4"
COPPER DRIP
COPPER THROUGH-WALL FLASHING W/ -3/8" HEMMED DRIPS SET IN BUTYL SEALANT
CONT. PRIMER, FOAM ROD AND SEALANT
BRICK TO MATCH EXISTING
COPPER COUNTERFLASHING RECEIVER W/BRASS SCREWS @ 12" O.C. SET W/ MASONRY INSTALLATION
COPPER COUNTERFLASHING
TERM. BAR ANCHORED TO MASONRY @ 12" O.C. W/WATER CUT-OFF MASTIC
60 MIL EPDM MEMBRANE FLASHING SET IN WATER CUTOFF MASTIC
TAPERED POLYISO INSULATION - MECH. FASTENED
COUNTERFLASHING BEYOND
60 MIL EPDM MEMBRANE
1/4" COVER BOARD SET IN FULL COVERAGE SPRAY FOAM ADHESIVE
2'-0 1/2"
STONE BASE ANCHORED TO EXISTING STRUCTURE
4 1/2"
1 R14
1 R6
1 R7
1 R16
2" MIN
1 R8
1'-0"
EXISTING WOOD ROOF DECK
1 R4 PARAPET SECTION
3" = 1'-0"



NOTE:
FOLLOWING EXISTING CORNICE REMOVAL

1. VERIFY EXISTING WOOD BLOCKING & REPLACE IN KIND.
2. SUBMIT CORNICE FABRICATION SHOP DRAWING.
3. ALL COPPER JOINTS TO BE LAPPED RIVETED AND FULLY SOLDERED.
4. GUTTER/CORNICE ASSEMBLY AND SUPPORT FRAMING TO MATCH EXISTING.
5. ALL CORNICE DIMENSIONS ARE FOUND ON DETAIL 1/R5.

1/R6 SIDE GUTTER DETAIL

3" = 1'-0"