

SECTION 02072 – MINOR DEMOLITION AND RENOVATION WORK

PART 1 – GENERAL

1 .1 SECTION INCLUDES:

- A. Required demolition for reroofing work.
- B. Required renovation for reroofing work.

1 .2 RELATED SECTIONS:

- A. Use of site - Section 01010
- B. Alterations project procedures - Section 01120
- C. Removing existing roofing – Section 07541.
- D. Roof accessories - Section 07720.

1 .3 SUBMITTALS:

- A. Product Data: Submit manufacturer's product data sheets for each product in accordance with Division One and Seven.

1 .4 PROTECTIONS:

- A. Prior to starting minor demolition operations, provide necessary protections as specified in Division One and Seven.

1 .5 COORDINATION:

- A. Sequence minor demolition and renovation with work sequence of reroofing work.
- B. Coordinate with reroofing work so that no more existing roofing and sheet metal items are removed in one day than can be replaced along with new roofing work in same day.

PART 2 – PRODUCTS

2 .1 MATERIALS

- A. Wood Nailers and Blocking: Utility grade lumber, any commercial softwood species, kiln dried and preservative treated.

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- B. Fasteners:
 - 1. Screws: Fluorocarbon coated screws, i.e. Roofgrip Climaseal™.
 - 2. Nails: Nonferrous, cement-coated, or hot-dip galvanized ring-shank nails.
 - 3. Concrete and Masonry: Stainless steel or galvanized screws with lead expansion anchor, Rawlplug by the Rawlplug Co.
- C. Gypsum Concrete: ASTM C317, Class A (500 psi compressive strength), density of not more than 60 pcf.
- D. Reinforcing: 48-1214 galvanized, welded wire mesh.
- E. Water: Clean and potable, free of organic matter.
- F. Concrete Splash Blocks: Precast concrete, minimum 3000 psi strength, 18 x 30 in. size, with water channel.

2.2 MIXES:

- A. Product: Furnish and install Siplast “**Zonopatch**” for lightweight concrete repair.
- B. Mixing Procedures: Follow manufacturer's directions.

PART 3 – EXECUTION

3.1 PREPARATION:

- A. Verify that required barricades and other protective measures are in place.

3.2 MINOR DEMOLITION OPERATIONS:

- A. GENERAL:
 - 1. Comply with precautions and procedures specified in Division One and Seven.
 - 2. Cut and remove materials as designated on Drawings.
 - 3. Execute demolition in a careful and orderly manner with least possible disturbance or damage to adjoining surfaces and structure.
 - 4. Avoid excessive vibrations in demolition procedures that would be transmitted through existing structure and finish materials.
- B. ABANDONED EQUIPMENT SUPPORTS AND VENTS:
 - 1. Completely remove abandoned supports.
 - 2. Remove abandoned piping and vent penetrations, electrical conduit

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and switch gear. Cap-off at roof deck level.

C. PITCH PANS:

1. Remove existing pitch pans and wood blocking supporting piping.
2. Remove existing pitch pans at conduit and pipe penetrations.
3. Remove existing pitch pans and wood blocking supporting at mechanical equipment.

D. ABANDONED CURBS/EQUIPMENT DEMOLITION:

1. Completely remove existing abandoned curbs and/or equipment. Remove curbs to deck level, and patch hole in roof deck to match existing roof deck.

3.3 DISPOSAL:

- A. Unless specifically noted otherwise, materials, equipment and debris resulting from demolition operations shall become property of Contractor. Remove demolition debris in accordance with applicable City, State and Federal laws, and in accordance with requirements of Division One.
- B. Legally dispose of demolition debris.

3.4 SALVAGE:

- A. Salvage following existing items for reconditioning and reuse:
 1. Existing ductwork and supports to remain. Modify duct support legs to allow for use with new roof system (where applicable).

3.5 MINOR RENOVATION WORK:

- A. Replacing wood nailers and curbs; new wood nailers and curbs:
 1. Clean and prepare existing surfaces to receive wood nailers and curbs.
 2. Replace designated wood blocking with new wood blocking.
 3. Install wood nailers and curbs continuously without gaps and plumb, level and true with joints flush. Securely fasten to structure with expansion fasteners and to existing wood with Fluorocarbon or epoxy coated screws, @ a rate of 12" o.c.
- B. Equipment Reinstallation:
 1. Remove and reinstall existing equipment, HVAC units, and fans as required to facilitate installation of new roofing and flashing.
 2. Carefully disconnect equipment and move in a manner to prevent damage to equipment or service lines.
 3. Coordinate reinstallation with new equipment support curbs where scheduled.

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4. Reinstall equipment on curbs and supports after new flashing is installed. Securely fasten to curbs.
 5. Extend and reconnect electrical connections, gas piping and drain lines. Disconnecting, extending and reconnecting of services shall be performed by a mechanical, plumbing and electrical company licensed to perform such work.
 6. Equipment shall be left in complete operating condition.
- C. Relocating and Raising Piping and Conduit:
1. Raise existing gas piping, conduit and condensate drain lines where scheduled and where required for new curbs and supports.
 2. Disconnect gas piping and extend with new piping and fittings.
 3. Extend conduit with proper conduit connections and fittings. Extend wiring as required for additional conduit.
- D. Roof Drain Replacement and Down spout Cleaning:
1. Remove the existing drain bowl, and install a new **U-Flow** Aluminum Hercules® Drain with Aluminum Dome per manufacturers requirements and specifications (Section 07720) included in the bid documents.
- E. Testing and inspection:
1. Test electrical circuits for proper operation.
 2. Test drain piping for leaks and proper flow.
 3. Perform tests and inspections on gas piping as required by City. Gas piping systems shall be left complete and operational with City inspection "green tags" at completion of work.
 4. Test equipment that was removed and reinstalled to ensure that equipment is operating properly.

END OF SECTION 02072

SECTION 07610 - PREFORMED METAL STANDING SEAM ROOFING

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Prefinished, prefabricated structural standing seam roof system with continuous interlocking seams.
 - 2. Coordinate with installation of roofing substructure.
 - 3. Provide color coordinated head wall, rake wall, eave, gutter, and flashings, parapet caps, and counter-flashings.
 - 4. Provide clips, fasteners, closures, and sealant as necessary to meet design criteria and ensure weathertight installation.

- B. Related Sections:
 - 1. Section 06100: Rough Carpentry

1.2 SYSTEM DESCRIPTION

- A. Design Requirements:
 - 1. Provide UL 90 rated roofing system that has been tested in accordance with UL 580 test procedure.
 - 2. Provide factory preformed panel system that has been pre-tested and certified by manufacturer to comply with specified requirements under installed conditions.
 - 3. Provide one piece, single length roof panel.
 - 4. Provide continuous interlocking standing seam that inherently increases load span capability, stiffness and flexural stress handling.
 - 5. Panel capable of maintaining UL 90 wind uplift rating.
 - 6. Vinyl Weatherseal Insert (Berridge).

- B. Structural Requirements:
 - 1. Engineer panels for structural properties in accordance with latest edition of American Iron and Steel Institute's "Cold Formed Steel Design Manual", using "effective width" concepts.
 - 2. Provide confirmation of positive and negative buckling moments and uplift capacity determined by full-scale tests.

- C. Substrate Criteria:
 - 1. Insulated metal deck with ½" minimum thickness CDX plywood substrate.

1.3 REFERENCES

- A. American Iron & Steel Institute (AISI) Specification for the Design of Cold-formed Steel Structural Members.
- B. ASTM A-653 & ASTM A924 Steel Sheet, Zinc-Coated (Galvanized)

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- C. ASTM E-283-84
- D. ASTM E-331-86
- E. ASTM E-1592
- F. Spec Data Sheet - Galvalume Sheet Metal by Bethlehem Corp.
- G. SMACNA - Architectural Sheet Metal Manual.
- H. Building Materials Directory - Underwriter's Laboratories, Test Procedure 580.

1.4 SUBMITTALS

- A. Product Data:
 - 1. Metal System: Submit manufacturer's specifications, standard detail drawings, installation instructions and warranty information.
 - 2. Underlayment: Submit manufacturer's specifications, standard detail drawings, installation instructions and warranty information.
- B. Shop Drawings:
 - 1. Submit four (4) copies of shop drawings indicating thickness and dimensions of parts, fastenings and anchoring methods, details and locations of seams, transitions and other provisions necessary for thermal expansion and contraction.
 - 2. Indicate roof terminations, clearly showing flashings and change of direction caps.
 - 3. Clearly indicate locations of field and factory applied sealant.
 - 4. Show locations and types of hold-down clips and fasteners.
 - 5. Provide plan showing layout of entire roof.
- C. Samples:
 - 1. Submit two samples, 12" long x full width panel showing proposed metal gauge, seam profile, and required finish.
 - 2. Submit standard color samples on metal for Consultant's selection. Color and style of metal roofing to match existing roofing on adjacent south building.
 - 3. Submit 2 samples of each fastener used (size & type).
- D. Test Reports:
 - 1. Submit test reports prepared by (UL) Underwriters Laboratories, Inc. indicating wind uplift rating of proposed roof system (UL 90).
 - 2. Submit results indicating compliance with minimum requirements of the following performance tests:
 - a. Air Infiltration - ASTM E 283-84
 - b. Water Infiltration - ASTM E 331-86
- E. Certification:
 - 1. Submit manufacturer's certification that materials and finishes meet specification requirements.

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2. Submit manufacturer's certification that contractor is certified and approved to install and provide manufacturer's 20 year watertight warranty.
 3. Submit calculations with registered engineer seal, verifying roof panel and attachment method resists wind pressures imposed on it pursuant to applicable building codes.
- F. Applicator's and Manufacturer's Experience Records:
1. Submit list of completed projects including name of owner and/or consultant.
 2. Submit (with bid) contractor's reference list demonstrating a minimum of three (3) projects of similar scope, that the manufacturer's 20 year watertight warranty **was issued**.

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1.5 QUALITY ASSURANCE

A. Manufacturer's Qualifications:

1. Ten years minimum experience in factory fabrication of standing seam roofs.
2. All roof panels shall be rollformed at the manufacturer's prime manufacturing location.
3. Products listed in this specification section are as manufactured by:
 - a. Berridge Manufacturing.
4. No other bidder of standing seam roof panels will be accepted without prior written approval of Consultant based upon other manufacturer's products meeting specified requirements.
5. No substitutions will be permitted after bid date.

B. Applicator Qualifications:

1. Five (5) years minimum experience in application of standing seam roofs.
2. Minimum of five satisfactory projects on similar types of roofs.
3. Certified by the manufacturer to install and provide manufacturer's 20 year watertight warranty.

C. Regulatory Requirements:

1. Comply with requirements of applicable building codes and other agencies having jurisdiction of wind uplift rating of standing seam roofs.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Protect products and accessories from damage and discoloration during transit and at project site. Store sheets and components in dry storage area to prevent condensation.
- B. Do not overload roof structure with stored materials. Do not permit material storage or traffic on completed roof surfaces.
- C. Upon receipt of panels and other materials, installer shall examine the shipment for damage and completeness.
- D. Panels should be stored in a clean, dry place. One end should be elevated to allow moisture to run off.
- E. Panels with strippable film must not be stored in the open, exposed to the sun.
- F. Stack all materials to prevent damage and to allow for adequate ventilation.

1.7 WARRANTY

- A. Furnish manufacturer's standard 20-year warranty stating architectural fluorocarbon finish will be:
 1. Free of fading or color change in excess of 5 NBS units as measured per ASTM D 2244-68;
 2. Will not chalk in excess of numerical rating of 7 when measured in accordance with standard procedures specified in ASTM D 659-74;

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3. Will not peel, crack, chip, or delaminate.
- B. Galvalume material shall have a twenty year guarantee against failure due to corrosion, rupture or perforation.
- C. Furnished written MRCA Guaranty signed by applicator for two year period from date of substantial completion, covering repairs required to maintain roof and flashings in watertight condition.
- D. Furnish manufacturer's **20-year Watertightness** and Finish Warranty from date of substantial completion, covering repairs required to maintain roof and flashings in watertight condition.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

- A. Berridge Manufacturing

2.2 ACCEPTABLE PRODUCTS:

- A. Cee-Lock® panels as manufactured by Berridge Manufacturing.

2.3 MATERIALS

A. Panels

1. Prefinished Galvalume™ sheet, ASTM AZ50 made up of 55% aluminum, 1.6% silicon and the balance zinc as described in ASTM specification A792.
2. Fabricate panels with sufficient thickness to meet specified UL 90 wind uplift requirements.
3. Factory fabricates panel with integral continuous interlocking standing seams without need for separate seam covers.
4. Seam size:
 - a. Male leg: 1-3/8" high.
 - b. Female leg: 1-1/2" high x 1/2" wide.
5. Provide field installed, Vinyl Weatherseal Insert as manufactured by Berridge.
6. Acceptable Standing Seam System:
 - a. **Cee-Lock** standing seam system (16.5" panel width) by Berridge Manufacturing.
7. Strippable film shall be applied to the top side of the painted surface to protect the finish during fabrications, shipping and field handling. This strippable film must be removed before installation.

B. Clip/Fastener Assemblies:

1. Berridge: Continuous **Cee-Rib** as manufactured by Berridge.

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- C. UL 90 requirements:
1. Fasteners: Manufacturer's standard #10 - 16 x 1" long self-drilling, self-tapping pancake head Phillips drive screws for metal; non-corrosive base material.
 2. UL Rated Clip:
 - a. Berridge: Continuous **Cee-Rib** as manufactured by Berridge.
 3. Standard Fasteners: Same as UL 90 fasteners specified above.
 4. Nailable Substrate Fasteners: #10 - 12 x 1" long A-Point fastener, pancake head Phillips drive screws for plywood; noncorrosive base material. Clip shall be designed to meet positive and negative pressures as calculated per local building code.

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- D. Accessories:
 - 1. Provide manufacturer's standard accessories and other items essential to completeness of standing seam roof installation.
 - 2. Provide nylon seam end plugs for clean termination of panel.
 - 3. Provide factory fabricated rib covers at roof slope transitions.
 - 4. Provide transition rib covers where roofing changes directions.
 - 5. Gutters and downspouts will be fabricated to the same gauge and specification as panel.
 - 6. Provide Vinyl Weatherseal Insert
- E. Field Sealant:
 - 1. Color coordinate primerless silicone or high grade, nondrying butyl as recommended by panel manufacturer.
 - 2. Do not use sealant containing asphalt.
- F. Waterproof Underlayment: Grace **Vycor Ultra (no substitutions)**.
- G. Substrate: ½" CDX plywood.
- H. Roof Insulation: 3" x 4' x 4' polyisocyanurate roof insulation (See Sections 07220 & 07221).
- I. Vapor Retarder: Sarnavap-10 (See Section 07541).

2.4 FABRICATION

- A. Panels:
 - 1. Provide factory formed panel of 16-½" width, 1-½" high x ½" wide standing seam.
 - 2. Provide panels in full length from ridge to eave.
 - 3. Vertical striations (**Shadowline/Rigidized**) to be furnished on all panels.
- B. Seams:
 - 1. Panel seams shall interlock entire length of seam without use of field seaming machines.
 - 2. Engineer standing seam to lock up and resist joint disengagement during design wind uplift conditions as calculated according to local building codes.
 - 3. Fabricate female leg with pressure equalized capillary break to prevent water siphoning through joints.
 - 4. Provide factory sealant on leading edge of female seam leg to aid in resistance of leaks and to provide panel-to-panel seal while allowing expansion and contraction movement.
- C. Clips:
 - 1. Provide UL listed clip designed to allow panels to thermally expand and

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- contract.
 2. Fabricate clips with embossments that raise underside of panels above substrate to allow underside ventilation.
 3. Fabricate clips with structurally embossed outstanding legs to prevent distortion due to wind uplift forces.
 4. Continuous Cee Rib (Berridge) to be 1-3/8" wide and 1-7/16" in height. Rib shall be connected to substrate with two #12-14 x 1" self-drilling/tapping fasteners every 36" on center.
 5. Vinyl Weatherseal (U.S. Patent No. 4641475) to be factory-installed.
 6. Panel assembly to bear Underwriter's Laboratories Label UL90, pursuant to Construction Number 334 and applicable Fire Ratings.
 7. Certification shall be submitted, based on independent testing laboratory, indicating no measurable water penetration or air leakage through the system when tested in accordance with ASTM E-331-86 and E-283-84.
- D. Engineer panels to use concealed anchors that permit expansion and contraction. Exposed fasteners in roofing panels will not be permitted.
- E. Provide factory eave panel notch for eave termination. (To be utilized with joggle cleat detail.)

2.5 FINISH

- A. Fluorocarbon Coating:
1. Full strength 70% Kynar 500® coating baked on for 15 minutes at 450 degrees F to dry-film thickness of 1.0 mil.
 2. 15% reflective gloss (ASTM D 523). (Low Gloss).
 3. 0.3 mil baked on epoxy primer.
 4. Color: To match existing color on adjacent building.

PART 3 – EXECUTION

3.1 DEMOLITION/EXAMINATION

- A. Existing Roof:
1. Remove existing **modified bitumen** roof, all roof insulations, and all existing flashings down to existing roof deck. Comply with **all** applicable regulations for the handling and disposal of existing roofing and flashings.
- B. Substrate:
1. Examine substrate to ensure it is properly secured and prepared to receive metal roofing.
 2. Ensure substrate is installed flat, free from objectionable warp, wave, and buckle.
 3. Do not proceed with installation until unsatisfactory conditions have been corrected.
 4. Install vapor retarder as specified over entire prepared roof deck. Tape all joints/seams with approved tape, and tape seal all edges and roof penetrations to provide a proper vapor/air barrier.

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5. Over vapor retarder, install one layer of 3" polyisocyanurate roof insulation mechanically fastened to roof deck per Sections 07220 & 07221.
6. Over top of 3" polyisocyanurate roof insulation install one layer of ½" CDX plywood (**no OSB**) with joints staggered both directions, mechanically fastened with specified fasteners at a rate of 24 fasteners per 4' x 8' sheet of plywood, or to meet specified code requirements (**whichever is more stringent**).
7. Inspect roof deck/insulation assembly to verify deck is clean and smooth, free of depressions, waves or projections, level to +/- ¼" in 20', and properly sloped to valleys or eaves. **Install hot-dipped galvanized shims as needed between substrate and anchor clip/rib to insure that new roof is free of waves or depressions.**
8. Verify roof openings, curbs, pipes, sleeves, ducts or vents through roof are solidly set, cant strips and reglets in place, and nailing strips located.
9. Verify deck is dry and free of snow or ice.

3.2 PREPARATION

A. Waterproof Underlayment

1. Provide one layer of Vycor/W.R. Grace Ice & Watershield over entire plywood substrate.
2. Lay parallel to ridge or eave line with 3" horizontal (side) laps and 6" vertical (end) laps.
3. Comply with metal manufacturer and underlayment manufacturer installation requirements for compliance with guaranty requirements and this specification (whichever is more stringent).

3.3 INSTALLATION

A. Comply with manufacturer's instructions for assembly, installation, and erection in order to achieve weathertight installation. Install in accordance with approved shop drawings.

B. Install panels in such a manner that horizontal lines are true and level, and vertical lines are plumb.

C. Standing Seam System:

1. Install panels in accordance with manufacturer's instructions and recommendations.
2. Anchor securely in place using clips/ribs and fasteners spaced in accordance with manufacturer's recommendations for design wind load criteria.
3. Fully seat adjacent panel to achieve continuous engagement of standing seam joint.

D. Dissimilar Metals:

1. Where sheet metal is in contact with dissimilar metals, execute juncture to

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facilitate drainage and minimize possibility of galvanic action.

2. At point of contact with dissimilar metal, coat metal with protective paint or tape which can be placed between metals.
- E. Field apply sealant to penetrations, transitions, and other locations necessary (not standing seam) for airtight, waterproof installation.
- F. Do not allow traffic on completed roof. If required, provide cushioned walk boards.

3.4 CLEANING

- A. Clean exposed surfaces of work promptly after completion of installation.
- B. Clean any grease, finger marks or stains from the panels per manufacturer recommendations.
- C. Excessive marring/scratches of the finish product (as determined by the owner or their consultant), will be repaired and/or replaced at no cost to the owner.

3.5 PROTECTION

- A. Protect work as required to ensure roofing will be without damage at time of final completion.

3.6 FINAL INSPECTION

- A. Final inspection will be performed by the owners consultant and the manufacturer for issuance of the 20 year watertightness warranty.

END OF SECTION

SECTION 07620 – FLASHING AND SHEET METAL TRIM

PART 1 – GENERAL

1.1 SECTION INCLUDES:

- A. Shop or field-formed sheet metal work for moisture protection.
- B. Related accessories.

1.2 RELATED SECTIONS:

- A. Wood curbs, nailers, blocking – Section 02072.
- B. Thermoplastic sheet membrane roofing – Section 07541.
- C. Roof accessories – Section 07720.

1.3 ALTERNATES:

- A. Work specified in this Section may be affected by Alternates. Refer to Section 01030 and the bid form.

1.4 REFERENCES:

- A. ASTM A525 – Steel Sheet, Zinc-Coated (Galvanized), General Requirements.
- B. ASTM A526 – Steel Sheet, Zinc-Coated (Galvanized), Commercial Quality.
- C. ASTM B32 – Solder Metal.
- D. ASTM D4586 – Fibrated Asphalt Roof Cement.
- E. FS FF-S-325 – Shield Expansion; Nail, Expansion; and Nail, Drive-Screw.
- F. FS TT-S-00230C(2) – Sealing Compound, Elastomeric Type, Single Component (For Caulking, Sealing and Glazing in Buildings and Other Structures).
- G. (SMACNA) – Sheet Metal Manual, Fifth Edition, **1993**

1.5 SUBMITTALS:

- A. Product Data: Submit manufacturer's product data sheets for each product in accordance with Section 01340.
- B. Shop Drawings:
 - 1. Submit in accordance with Section 01340.
 - 2. Indicate joints, types and locations of fasteners, shapes, sizes, expansion joints, special conditions, and installation details.

1.6 GUARANTY:

- A. Provide Owner a written guaranty which shall warrant sheet metal work to be free of leaks and defects in materials and workmanship for 2 years after date of completion and acceptance of project by owner.
- B. Provide Owner Hickman's 20 year "Excel" Warranty covering wind blow off, leaking, and membrane failure, up to and including, winds of 110 miles per hour on Terminedge and Permasnap coping system.

PART 2 – PRODUCTS

2 .1 SHEET METAL MATERIAL:

- A. Galvanized Steel: ARMCO Zincgrip Paintgrip, ASTM A526 commercial quality, coating designation G90, ASTM A525, gauge as scheduled.
- B. Kynar or PVC Coated 24 gauge metal as scheduled.
- C. Mill Faced Aluminum .040 (to match existing)

2 .2 FASTENERS:

- A. Nails: Galvanized steel material, 3/8" flathead, wire, barbed, slating type. For washers use lead, EPDM or neoprene.
- B. Screws: Self-tapping sheet metal type and wood screws, cadmium plated.
- C. Rivets: Cadmium plated material, type and size as recommended by sheet metal manufacturer.
- D. Concrete Fasteners: Round-head stainless steel screw and neoprene washer with lead expansion anchor, FS FF-S-325, Group IV, Type 2. Rawlplug by The Rawlplug Co.

2 .3 RELATED MATERIAL:

- A. Solder: ASTM B32, alloy grade 58, 50% tin, 50% lead.
- B. Flux: Phosphoric acid type, manufacturer's standard.
- C. Sealant: Polyurethane, FS TT-S-00230c, Type II, Class A.
- D. Bituminous Plastic Cement: ASTM D4586, Type I, asbestos free.

2 .4 FABRICATION – GENERAL:

- A. Fabricate work in accordance with SMACNA Sheet Metal Manual and reviewed Shop Drawings.
- B. Form sheet metal on bending brake.
- C. Shape, trim and hand seam metal on bench insofar as practicable.
- D. Make angle bends and folds for interlocking metal with full regard for expansion and contraction to avoid buckling or fullness in metal after installation.
- E. Form materials with straight lines, sharp angles and smooth curves.
- F. Fold back edges on concealed side of exposed edge to form hem.
- G. Weld or solder joints on parts that are to be permanently and rigidly assembled.

2 .5 FABRICATED ITEMS:

- A. Edge Metal: PVC coated steel Edge Detail by per manufacturer's details and requirements, as detailed, in minimum 10 ft. lengths. Provide PVC joint cover strips. Fasten and seal per roof manufacturer requirements.
- B. Pre-Manufactured Edge Metal: 24 ga. Galvanized Kynar coated sheet steel or .040 Mill Faced Aluminum; Terminedge® by Hickman or AnchorTite® by approved roof manufacturer, as detailed, in minimum 10 ft. lengths. Provide factory mitered corners, end-caps and end-terms. Lap joints and seal per

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- manufacturer and contract requirements.
- C. Parapet Cap: 24 ga. galvanized Kynar coated sheet steel Permasnap® coping system by Hickman as detailed, in minimum 10 ft. lengths. Provide factory mitered corners, end-caps and end-terms. Lap joints and seal per Hickman requirements and contract documents.
 - D. Fascia: 24 ga. Galvanized Kynar coated steel Formed Fascia Extender with Offset by Hickman as detailed, in minimum 10 ft. lengths. Provide factory mitered corners. Lap joints and seal per Hickman requirements.
 - E. Gutters:
 - 1. 24 ga. galvanized Kynar coated sheet metal formed as detailed in minimum 10 ft. lengths. Lap joints per SMACNA requirements and seal with caulking and uncured 6" EPDM membrane at gutter joints. Install 3/16" x 1" gutter brackets at 24" o.c. and gutter spacers/straps at 24" o.c., or as required to properly support gutter whichever is more stringent.
 - 2. Provide outlet thimble to fit down spouts complete with down spout strainer.
 - 3. Provide expansion joints at 50 ft. o.c. maximum, Figure 1-6
 - F. Counter flashings:
 - 1. 24 ga. Galvanized Kynar coated prefinished sheet steel, formed in minimum 10 ft. lengths.
 - 2. 24 ga. Galvanized two-piece counter flashings Fry SM reglet with springlock flashing where shown on the drawings.
 - G. Fascia Scuppers: 24 ga. galvanized sheet steel, Figure 1-11, joints fully soldered. Install Kynar coated prefinished "beauty plates" on the outside wall of scupper.
 - H. Down spouts: 24 ga. galvanized Kynar coated prefinished sheet steel, upper sections telescoped into lower sections 3 in., and sealed per SMACNA requirements.
 - I. Splash Pans: Figure 1-36 where down spouts empty on roof.
 - J. Roof Penetration Flashing Pipes: 24 ga. galv. sheet steel, Figure 4-14C.
 - K. Metal Penetration Dams: Fabricate as detailed from 24 ga. galvanized sheet steel.
 - L. Umbrella Counter flashing: 24 ga. galv. sheet steel, similar to SMACNA Figure 4-15A, two-piece construction, fabricated as detailed.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify that substrates are smooth and clean to extend needed for sheet metal work.
- B. Verify that reglets, nails, cants, and blocking to receive sheet metal are installed and free of concrete and soil.

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- C. Do not start sheet metal work until conditions are satisfactory.

3.2 INSTALLATION

A. General:

1. Remove all existing sheet metal and properly dispose of prior to installation of new sheet metal.
2. Install work watertight without waves, warps, buckles, fastening stresses or distortion, allowing for expansion and contraction.
3. Install fabricated sheet metal items in accordance with SMACNA Sheet Metal Manual and Drawing Details.
4. Coat contact surfaces of dissimilar metals with Zinc chromate paint.

B. Metal Edging

1. Hang assembly over new continuous anchor cleat.
2. Weld roof membrane to metal flange prior to installing "stripping ply".
3. Set horizontal flanges over membrane per manufacturer requirements, and nail to wood blocking at 4 in. o.c. staggered.

C. Pre-Manufactured Edge Metal

1. Install new pre-manufactured edge metal fastened per manufacturer and contract documents.
2. Install edge metal to insure even/plumb appearance, allowing for expansion per manufacturer requirements.

D. Parapet Cap:

1. Install new parapet cap to new anchor cleat (both sides). Furnish and install specified factory-fabricated parapet cap, manufactured and installed with slope as shown on drawings.
2. Insure that parapet cap is attached per manufacturer requirements with anchor cleat (both sides) fastened at a rate of 6" o.c. Hang assembly over new metal edge.

E. Gutter:

1. Brace gutter by fastening with 3/16" x 1" straps of same material as gutter, spaced at 24" o.c. maximum.
2. Solder and rivet Down spout thimbles, extend 2 in. into Down spout. Install strainers at each Down spout.

F. Fascia:

1. Install fascia per details with hook strip fastened at a rate of 12" o.c. and with top of the fascia fastened at a rate of 12" o.c. Insure that fascia metal is installed to allow for movement, and to prevent warping, buckling and/or oil-canning.

G. Flashings, Counter flashings:

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1. Extend flanges into reglets and securely fasten.
 2. Where nailing is required, nail at 6 in. o.c.
 3. Overlap 4 in. (Min.) on base flashing, lap ends of sheets 4 inches as required by SMACNA.
 4. Install continuous bead of sealant along top of surface applied reglet/Counter flashing.
- H. Scuppers: Install with joints fully soldered. Extend flanges 4 in. in each direction. Install wood nailers under flange.
- I. Down spouts: Install plumb and level, attached to wall with 1¼ in. wide 24 ga. prefinished galvanized sheet steel straps at top, bottom, and 10 ft. o.c. maximum. Set splash pans in mastic on roof at bottom of down spouts.
- J. Metal Penetration Dams: Install at equipment supports, pipes, conduits, and other items penetrating roof where membrane or penetration flashing cannot be used.
- K. Roof Penetration Flashing-Pipes: Install at multiple pipes and small pipes and conduit penetrating roof. Fully solder connections and seams.
- L. Umbrella Counter flashing (Option for single pipe penetration):
1. Install sleeve with deck flanges.
 2. Fully solder connections and seams.
 3. Set umbrella in mastic and tighten draw bands.
 4. Seal top of umbrella with sealant.
- 3.3 CLEANING:
- A. Remove flux and residual acid immediately by neutralizing with baking soda and washing with clean water. Leave work clean and free of stains, scrap, and debris.

' END OF SECTION '