SECTION 07611

METAL ROOFING & PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sheet metal roofing, associated flashings, and underlayment.

B. Counterflashings.

C. Integral fascias.

D. Mechanical equipment screen panels.

1.02 RELATED REQUIREMENTS

A. Section 07620 - Sheet Metal Flashing and Trim: Placement of flashing reglets and accessories.

1.03 REFERENCE STANDARDS

A. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

B. ASTM B 32 - Standard Specification for Solder Metal.

C. SMACNA (ASMM) - Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors' National Association.

1.04 SUBMITTALS

A. See Section 01350 - Submittals, for submittal procedures.

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

C. Product Data: Provide data on metal types, finishes, characteristics.

D. Submit two samples 3x6 inch in size illustrating metal finish color.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA Architectural Sheet Metal Manual requirements and standard details, except as otherwise noted.

B. Fabricator and Applicator Qualifications: Company specializing in performing sheet metal roof installations with minimum 10 years of documented experience and approved by manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Stack material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

B. Prevent contact with materials that could cause discoloration or staining.

1.07 WARRANTY

A. See Section 01740 - Warranties and Guarantees, for additional warranty requirements.

B. Paint finish shall have a twenty year guarantee against cracking, peeling and fade (not to exceed 5 N.B.S. units).

C. Applicator shall furnish guarantee covering watertightness of the roofing system for the period of two (2) years from the date of certificate of occupancy.

PART 2 PRODUCTS

2.01 MANUFACTURER

A. Berridge Manufacturing Co. (562) 402-2081.

B. Substitutions: See Section 01640 - Substitutions and Product Options.

2.02 SHEET MATERIALS

A. Prefinished Metal shall be Hot-Dipped Galvanized - ASTM A653-94 Grade C G90 Coating A924-94 24 Gauge core steel.

B. Finish shall be Zinc-Cote coating, applied by the manufacturer on a continuous coil coating line, with a top side dry film thickness of 0.70 to 0.90 mil over 0.25 to 0.35 mil prime coat, to provide a total dry film thickness of 0.95 to 1.25 mil. Bottom side shall be coated with primer with a dry film thickness of 0.25 mil. Finish shall conform to all tests for adhesion, flexibility, and longevity as specified by the Kynar 500 finish supplier.

C. Strippable film shall be applied to the top side of the painted coil to protect the finish during fabrication, shipping and field handling. This strippable film must be removed immediately before installation.

2.03 ACCESSORIES

A. Fasteners: Galvanized steel, with soft neoprene washers, where required.

B. Underlayment: "Grace Ice & Water Shield" as manufactured by W. R. Grace & Co.

C. Sealant: As recommended by manufacturer.

D. Vinyl weatherseal insert.

2.04 FABRICATION

A. All exposed adjacent flashing shall be of the same material and finish as the roof panels.

B. Hem all exposed edges of flashing on underside, 1/2 inch.

2.05 PREFORMED METAL PANELS

A. Berridge Standing Seam Curved Tee-Panel.
   1. Panels shall have 18-1/4 inch on-center seam spacing with a seam height of 1-1/2 inches and shall have no exposed fasteners.
   2. Panels shall be site-formed with the Berridge Model SS-14 Portable Roll Former in continuous lengths with a 4 foot minimum radius to conform to solid-sheathed curved substrate (factory fabrication not available).
   3. Snap-on seams shall be 1 inch in height and shall contain the Berridge factory-applied Extruded Vinyl Weather Seal Insert (Patent No. 4641475) to prevent siphoning of moisture through the standing seam.
   4. Concealed anchor clips shall be spaced as required to meet uplift loads (maximum of 24 inches on-center).
   5. 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-1680 and E-1646.

B. Berridge Panel
   1. Panels shall be HR-16.
   2. Panels shall be roll-formed in continuous lengths - maximum 40'-0".

PART 3 EXECUTION

3.01 EXAMINATION

A. Inspect roof deck to verify deck is clean and smooth, free of depressions, waves, or projections, properly sloped to eaves.

B. Verify deck is dry and free of ice.

C. Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set, reglets are in place, and nailing strips located.

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

3.02 INSTALLATION - STANDING SEAM ROOFING

A. Apply underlayment over entire roof area as recommended by manufacturer's written instructions.

B. Conform to SMACNA Architectural Sheet Metal Manual details.

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

D. Install starter and edge trim before installing roof panels.

E. Remove protective strippable film prior to installation of roof panels.

F. Attach panels using manufacturer's standard clips and fasteners, spaced in accordance with approved shop drawings.

G. Install sealants for performed roofing panels as approved on shop drawings.

H. Do not allow panels or trim to come into contact with dissimilar materials.

I. Do not allow traffic on completed roof. If required, provide cushioned walk boards.

J. Protect installed roof panels and trim from damage caused by adjacent construction until completion of installation.

K. Remove and replace any panels or components which are damaged beyond successful repair.

3.03 PANELS

A. Conform to SMACNA Architectural Sheet Metal Manual details.

B. Install over steel frame by others as recommended by manufacturer's written instructions.

C. Utilize concealed fasteners.

3.04 INSTALLATION - FLASHINGS

A. Conform to SMACNA Architectural Sheet Metal Manual details.

B. Secure flashings in place using concealed fasteners.

C. Cleat and seam all joints.

D. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.

E. Seal metal joints watertight.

3.05 PROTECTION

A. Do not permit traffic over unprotected roof surface.

END OF SECTION

SECTION 07620

SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fabricated sheet metal items, including flashings, counterflashings, gutters, downspouts, and and other items indicated in drawings.

B. Reglets and accessories.

1.02 RELATED REQUIREMENTS

A. Section 06100 - Rough Carpentry: Wood nailers.

B. Section 07611 - Standing Seam Sheet Metal Roofing.

C. Section 07900 - Joint Sealers.

D. Section 08620 - Unit Skylights: Metal curbs.

E. Section 09900 - Paints and Coatings: Field painting.

1.03 REFERENCE STANDARDS

A. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

B. ASTM A 666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.

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

D. SMACNA (ASMM) - Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors' National Association.

1.04 SUBMITTALS

A. See Section 01350 - Submittals, for submittal procedures.

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

1.05 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA Architectural Sheet Metal Manual requirements and standard details, except as otherwise indicated.

B. Maintain one copy of document on site.

C. Fabricator and Installer Qualifications: Company specializing in sheet metal work with 10 years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

B. Prevent contact with materials that could cause discoloration or staining.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

A. Galvanized Steel: ASTM A 653/A 653M, with G90/Z275 zinc coating; minimum 0.02 inch thick base metal.

2.02 ACCESSORIES

A. Fasteners: Galvanized steel, with soft neoprene washers.

B. Primer: Zinc chromate type.

C. Protective Backing Paint: Asphaltic mastic, ASTM D 4479 Type I.

D. Sealant: As specified in Section 07900.

E. Plastic Cement: ASTM D 4586, Type I.

F. Reglets: Surface mounted type, galvanized steel.

G. Solder: ASTM B 32; Sn50 (50/50) type.

2.03 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Fabricate cleats of same material as sheet as detailed on drawings, interlocking with sheet.

C. Form pieces in longest possible lengths.

D. Hem exposed edges on underside 1/2 inch; miter and seam corners.

E. Fabricate corners from one piece with minimum 18 inch long legs; solder for rigidity, seal with sealant.

F. Fabricate vertical faces with bottom edge formed outward 1/4 inch (6 mm) and hemmed to form drip.

2.04 GUTTER AND DOWNSPOUT FABRICATION

A. Gutters: SMACNA Architectural Sheet Metal Manual, profile as indicated.

B. Downspouts: Profile as indicated.

C. Accessories: Profiled to suit gutters and downspouts.
   1. Anchorage Devices: In accordance with SMACNA requirements.
   2. Gutter Supports: Brackets.
   3. Downspout Supports: Brackets.

D. Splash Pans: Same metal type as downspouts, formed to 6x18 inches size; rolled sides of 2 inch high for inverted pan placement.

E. Seal metal joints.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.

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

3.02 PREPARATION

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

B. Install surface mounted reglets true to lines and levels. Seal top of reglets with sealant.

C. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

3.03 INSTALLATION

A. Conform to drawing details.

B. Insert flashings into reglets to form tight fit. Secure in place with plastic wedges. Seal flashings into reglets with sealant.

C. Secure flashings in place using concealed fasteners. Use exposed fasteners only where permitted.

D. Apply plastic cement compound between metal flashings and felt flashings.

E. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.

F. Seal metal joints watertight.

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

H. Secure gutters and downspouts in place using concealed fasteners.

I. Slope gutters as indicated on drawings.

J. Set splash pans under downspouts. Set in place with adhesive recommended by roofing manufacturer..

3.04 FIELD QUALITY CONTROL

A. See Section 01410 - Testing and Inspections, for field inspection requirements.

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

END OF SECTION