SECTION 07323 [07 41 13]

STONE COATED METAL ROOF PANEL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Stone coated metal modular roof panels and accessories.

B. Associated metal flashings.

1.2 RELATED SECTIONS

A. Section 06112 - Framing and Sheathing: Roof sheathing.

B. Section 06200 - Finish Carpentry: Wood trim.

C. Section 07620 - Sheet Metal Flashing and Trim.

D. Section 08600 - Skylights.

E. Division 15 - Mechanical: Mechanical work projecting through roof.

F. Division 16 - Electrical: Electrical work projecting through roof.

1.3 REFERENCES

A. ASTM International (ASTM):
1. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
2. ASTM A792/A792M - Sheet Steel, Aluminum - Zinc alloy coated by the Hot-Dip Process, structural (physical) quality.
3. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus.
4. ASTM C920 - Specification for Electrometric Joint Sealant.
5. ASTM D226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.

B. International Code Council Evaluation Service, Inc. (ICC-ES):
1. ICC-ESR-1188. (GRANITE-RIDGE Shingle)
2. ICC-ESR-3012. (Batten install)
3. ICC-ESR-3098. (Direct-to-deck install)

C. Canadian Code Compliance Evaluation:
1. Canadian Evaluation Report - CCMC-14112.
2. Canadian Evaluation Report - CCMC-14113. (GRANITE-RIDGE Shingle)

D. Texas Department of Insurance:
1. Report RC-29.
2. Report RC 226. (GRANITE-RIDGE Shingle)

E. Miami-Dade County, Florida Acceptance NOA 18.0912.07.

F. Florida Approval FL No. 27408.

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation instructions.

C. Shop Drawings: Include roof plans and elevations; sections at hips, ridges, gables, valleys, and eaves; and details of components, accessories, and attachments to other work. Indicate metal panel and flashing profiles, joint locations, fastening locations, and installation details. Indicate panel layout with location of cut and special shapes identified.

D. LEED Submittals: Documentation of how the requirements of Credit will be met.
   1. List of proposed materials with recycled content. Indicate post-consumer recycled content and pre-consumer recycled content for each product having recycled content.
   2. Product data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content.

E. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

F. Verification Samples: For each finish product specified, two samples, representing actual product, color, and patterns.

G. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Conform to applicable building code for roof assembly fire hazard requirements.
   2. Conform to building code for minimum wind uplift resistance.

B. Manufacturer Qualifications: Minimum five years documented experience producing roofing panels of the type specified.

C. Pre-Installation Meeting:
   1. Convene at job site seven calendar days prior to scheduled beginning of construction activities of this section to review requirements of this section.
   2. Require attendance by representatives of the following:
      a. Installer of this Section.
      b. Other trades directly affecting, or affected by, construction activities of this Section.
   3. Notify Architect four calendar days in advance of scheduled meeting date.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging with labels intact until ready for installation.

B. Store products in accordance with the manufacturer’s instructions.
   1. Store products on pallets off the ground and sufficiently high to allow air circulation beneath each bottom stack and prevent rising water from entering pallet or stacks. Elevate one end of the pallets to ensure drainage.
   2. Prevent rain from entering pallet stacks by covering with a tarpaulin, making provision for air circulation between draped edges of tarpaulin and ground.
   3. Prolonged storage of panels in a stack or pallet outside is not recommended and could result in white rust or watermarks on the materials.

C. Secure stored materials and unfinished work against damage by wind.

1.7 SEQUENCING

A. Ensure that locating information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.

B. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 WARRANTY

A. Manufacturer’s 50 year fully transferable, limited warranty for defects and the following.
   1. 120-mph Wind Warranty.
   2. Hail Impact Warranty.
   3. Fire: Unified Steel panels will not burn.

1.10 EXTRA MATERIALS

A. See Section 01600 - Product Requirements, for additional provisions.

B. Provide an additional 1 percent of installed roof tiles, but not less than one full square, for Owner's use in roof maintenance.

C. Furnish extra materials packaged with protective covering for storage and identified with labels clearly describing contents.

PART 2 PRODUCTS

2.1 SUPPLIERS

A. Acceptable Supplier: Best Buy Metals, which is located at: 1668 S Lee Hwy; Toll Free Tel: 800-728-4010; Fax: 423-728-3606; Email: request info (info@bestbuymetals.com); Web: https://bestbuymetals.com.com.

B. Substitutions: permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01600 – Product Requirements.

2.2 MATERIALS - GENERAL

A. Coated Steel: ASTM A792 Grade 33 with an AZ 50 class, hot-dipped aluminum-zinc alloy coating and a thickness of 0.017 inch (0.43 mm). Exposed surface is covered by pressed colored stone granules embedded in an acrylic resin base coating, followed with a clear acrylic glaze. Weight of coated steel is 1.3 psf (6.3 kg per m2).

2.3 STONE COATED PANELS AND ACCESSORIES

A. PACIFIC Tile: Panels resembling traditional roofing tile with sections 16 inches wide by 52 inches long (406 mm by 1320 mm) with an installed exposure of 14-1/2 inches by 50 inches (368 mm by 1270 mm). Leading edge of each panel is turned down 1 inch (25 mm), and the

back edge is bent up and horizontally back 1-1/2 inches (38 mm) to create an overlapping weather edge. Side laps are 2 inches (51 mm). Color as selected from Manufacturer's line of available colors.

B. PINE-CREST Shake: Provides a wood grained shake appearance, 16-1/2 inches wide by 52 inches long (406 mm by 1320 mm) with an installed exposure of 14-1/2 inches by 50 inches (368 mm by 1270 mm). Leading edge of each panel is turned down 1 inch (25 mm), and the back edge is bent up and horizontally back 1-1/2 inches (38 mm) to create an overlapping weather edge. Side laps are 2 inches (51 mm). Color as selected from Manufacturer's line of available colors.

C. BARREL VAULT Tile Panels: Resembling Spanish clay S-tile, 16 inches wide by 45 inches long (406 mm by 1143 mm) with an installed exposure of 14 inches by 42 inches (356 mm by 1067 mm). Leading edge of each panel is turned down 1 inch (25 mm), and the back edge is bent up and horizontally back 1-1/2 inches (38 mm) to create an overlapping weather edge. Side laps are 2 inches (51 mm). Color as selected from Manufacturer's line of available colors.

D. GRANITE-RIDGE Shingle Panels: Consists of a panel resembling a traditional asphalt shingle. Front and rear edges are formed to a ' C' configuration, so that the panels interlock when overlapped. Panel is 15-5/8 inches by 46-1/16 inches (397 mm by 1168 mm) with an installed exposure of 13-5/8 inches by 44 inches (346 mm by 1118 mm). Side laps are 2 inches (51 mm). Color as selected from Manufacturer's line of available colors.

E. COTTAGE Shingle: Panels provide a heavy shingle appearance. Panel is 16 inches by 51 inches (407 mm by 1296 mm) with an installed exposure of 14 inches by 47-1/2 inches (356 mm by 1207 mm). Side laps are 3-1/2 inches (89 mm) top course section right side-lap and 2-1/2 inches (64 mm) bottom course section right side-lap. Color as selected from Manufacturer's line of available colors.

F. Timber Battens:
   1. Counter Batten, Nominal 1 by 4 inches (25 by 100 mm) #2 or better SPF, as needed, for re-roof applications.
   2. Panel Batten, Nominal 2 by 2 inches (50 by 50 mm) #2 or better SPF, as needed.
   3. Elevated Batten, Westlake Royal Roofing Components EBS (Elevated Batten System) Nominal 2 by 2 inches (50 by 50 mm).
   4. Timber Batten Fasteners:
      a. Screws: minimum #9 course thread of sufficient length to penetrate roofing structural member a minimum of 1 inch (25.4 mm).
      b. Nails: Box: Minimum .131 inch, 16d ring shanked, 3-1/4 inch (83 mm) long of sufficient length to penetrate roofing structural member a minimum of 1 inch (25.4 mm).

G. Steel Battens: Minimum 20 Gauge, ASTM A 653 galvanized steel, formed into "hat channel", "C", "U", "J", or "Z" sections with minimum height of 1-1/2 inch (38 mm) with bends at 90 degrees.
   1. Steel Batten Fasteners: Screws: No. 8, minimum 2-inch (51 mm) long, corrosion resistant wood screw or 3/4-inch (19 mm) minimum, Tek type screws or equivalent, to fasten to steel rafter/truss member.

H. Direct-to-Deck - (batten-less) Installation Flashing: Trim to be of same material, profile and color as roof panels.
   1. Drip edge.
   2. Gutter-Riser or Ventilated Riser.
   3. Rake Channels or Trim Caps on rakes.

I. Hips, Ridges, and Rakes: Unified Steel, Aluminum-Zinc Alloy Coated Steel sheet, nominal

.0170 inches. Pressure formed to match roofing material, color, and finish to match panels.
1. Cap Shake (PINE-CREST Shake, COTTAGE Shingle).
2. Cap Mission (BARREL-VAULT Tile, PACIFIC Tile).
3. Cap Cottage (COTTAGE Shingle).
4. Cap Shingle (GRANITE-RIDGE Shingle).

J. Sheet Metal Materials: Aluminum-Zinc Alloy Coated Steel sheet, ASTM A 792/A 792M, color and surface finish matching roof panels.

K. End Cap: Unified Steel End Disk Aluminum-Zinc Alloy Coated Steel sheet, nominal .0170 inch. Circular cap to match roofing material, color, and finish to match panels. To be applied at open end of hip and ridge at eave.

L. Flashing: Trim to be of same material, profile, and color as roof panels.

M. Nails: Corrosion resistant full, flat head, .131-inch ring shanked, nails of sufficient length to penetrate substrate 1 inch minimum, finish color black.

N. Screws: Manufacturer's minimum #9 by 2-1/2-inch (63.5 mm) long corrosion resistant steel, 1/4-inch (6.36 mm) hex head screws. Screws colored coat to match panel color. Capable of resisting a minimum 1,000 hour salt spray in accordance with ASTM B 117.

O. Panel Fasteners:
1. Battenless Screws: Minimum #10 by 2-1/2-inch (64 mm) long corrosion resistant steel, 1/4-inch (6.36 mm) hex head screws.
    a. Screws colored coat to match panel color.
    b. Use color matched stainless-steel screws for Coastal Regions/Salt Spray installations.
2. Batten Screws: Minimum #10 by 2 inched (50 mm) long minimum, 1/4-inch (6.36 mm) hex head screws.
    a. Screws colored coat to match panel color.
    b. Use color matched stainless-steel screws for Coastal Regions/Salt Spray installations.
3. Granite-Ridge Screws: Minimum #10 by 1-1/2 (64 mm) long minimum, 1/4-inch (6.36 mm) hex head screws.
    a. Screws colored coat to match panel color.
    b. Use color matched stainless-steel screws for Coastal Regions/Salt Spray installations.
4. Nails: Full, flat head, .131-inch ring shanked, 8d box nails, of sufficient length to penetrate substrate 1 inch (25 mm) minimum, finish color black.

P. Valley and other Flashings:
1. Aluminum zinc alloy coated sheet ASTM-A792/A792M or G-90 Galvanized. Do not use copper and lead flashings due to metal incompatibility.
2. Permanently exposed rated flexible flashing (Wakaflex).

Q. Underlayment:
1. Westlake Royal Ply40.
2. Westlake Royal Metal Seal, self-adhering underlayment.
3. SwiftGuard engineered synthetic underlayment.
4. Sol-R-Skin BLUE (for Class A fire assembly).
5. Asphalt Saturated Organic Felt: No. 30 or 43# Asphalt Saturated felt to meet requirements of ASTM D 226 Type II.
6. Perimeter Underlayment, ASTM D 1970; self-adhering, polymer-modified, bituminous sheet underlayment; 1 mm thick. Provide primer when recommended by underlayment manufacture.

R. Sealant: One-part elastomeric polyurethane, sealant conforming to ASTM C 920. Where sealant will be exposed, provide in color to match panels.

S. Elastomeric Pipe Sleeve Covers: EPDM elastomeric pipe and penetration flashing, Master flash or equal.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. Verify roof structure for correct framing prior to placing battens and Metro roof panels.

C. Verify roof penetrations and plumbing vent stacks are in place and flash to roof surface.

D. Verify that work requiring roof access by other trades is completed prior to starting roofing panel installation. Limit roof access by other trades after completion of roofing.

E. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Coordinate with installation of gutters, vents, skylights, and other adjoining work to ensure proper sequencing. Do not install roofing materials until all vent stacks and other penetrations through roof sheathing have been installed and securely fastened.

C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions and the applicable local code requirements.

B. Underlayment:
   1. Re-roof: Install ASTM D226 type II or equivalent over existing surface.
      a. Westlake Royal Ply40.
      b. Westlake Royal Metal Seal, self-adhering underlayment.
      c. SwiftGuard engineered synthetic underlayment.
      d. #30 asphalt saturated felt.
      e. Sol-R-Skin BLUE (for Class A fire assembly).
   2. New Construction: Install:
      a. Install Self-adhering roofing underlayment membrane installed per manufacture's specifications at perimeter, valleys and non-heated areas or as required by local building codes.
         1) Westlake Royal Metal Seal, self-adhering underlayment.
         2) ASTM D1970 self-adhering underlayment.
      b. Install asphalt saturated felt or better. Installed as per manufacture's specification over roof field.
         1) Westlake Royal Ply40.
         2) Westlake Royal Metal Seal, self-adhering underlayment.
         3) SwiftGuard engineered synthetic underlayment.
         4) #30 asphalt saturated felt.
      c. Sol-R-Skin BLUE (for Class A fire assembly).

C. Counter Batten:
   1. Nominal 1 by 4 inches (25 by 100 mm) #2 or better SPF.
   2. Fastener Number: Refer to fastener requirement of the local building code.
   3. Fastener Size: Refer to fastener requirement of the local building code.
   4. Install counter battens at all rakes, hips, valleys, ridges, headwalls, and sidewalls and around all roof penetrations and at all roof truss/rafter members at a maximum of 24 inches (610 mm) O.C.
   5. Fasteners to be sufficient length to penetrate truss/rafter members by minimum 1 inch (25 mm).

D. Batten:
   1. Nominal 2 inch by 2 inches (51 mm by 51 mm) SPF Batten.
   2. Steel Battens.
   3. Fastener Number: Refer to fastener requirement of the local building code.
   4. Fastener Size: Refer to fastener requirement of the local building code.
   5. Install battens as required in Unified Steel's installation manual with appropriate spacing as determined by panel profile spacers specified.
      a. Fasten battens at all intersections of counter battens, ensuring that batten joints are located at counter batten support.
      b. Install battens at rakes, hips, and ridges.
      c. Install battens at valleys with full run frame for complete support of valley flange.
      d. Fasteners for wood battens to be sufficient length to penetrate truss/rafter members by minimum 1 inch (25 mm).
      e. Fasteners for steel battens to be 3/4-inch (19 mm) minimum, Tek type screws.

E. Direct to Deck:
   1. Install perimeter drip edge metal.
   2. Install Valley Metal:
      a. Two-piece valley.
      b. 5 "V" Valley.
      c. Strip in valley center joint.
      d. Valley Center Cover.
   3. Install Eave Riser:
      a. Gutter Riser.
      b. 1 by 4 inches (25 by 100 mm) batten specified.

F. Install valley flashing prior to panel installation:
   1. Overhang valley beyond fascia by 1/2-inch (12.5 mm) minimum.
   2. Lap valley flashing 6 inches (152 mm) and seal (two beads) at all laps.
   3. Cut, notch, bend, and seal watertight at all valley heads.
   4. Fasten both sides of valley flashing at valley flange at 24 inches (610 mm) O.C. with corrosion resistant fasteners.

G. Eave Metal
   1. BARREL-VAULT Stone Coated Fascia:
      a. 3.5-inch (90 mm) Bird-stop Eave Fascia.
   2. PINE-CREST Shake; PACIFIC Tile or COTTAGE Shingle:
      a. 3.5-inch (90 mm) Eave Universal Fascia.
      b. 5-inch (127 mm) Eave Universal Fascia.
      c. Painted drip edge.
   3. GRANITE-RIDGE Shingle: Starter Strip.

H. Panels:
   1. Work from numerous bundles of panels to help ensure overall color batch/production run blending throughout installation.
   2. Cut and bend panels at gables, hips, valleys, walls, and ridge to complete panel

installation as per Unified Steel's installation instructions.

3. Install ridge trim, hip caps, and counter flashing as per Unified Steel's installation instructions.
4. Fasten with fasteners in accordance with local code requirements and use the same fasteners for hips, ridges and rakes.
5. Stitch screws to be 1/2-inch (13 mm) minimum, hex head self-tapping thread. As provided by Unified Steel.
6. Tools: Use standard Unified Steel's cutter, bender, and batten spacers as applicable.

I. Rake Trim: Install as required.
   1. Rake Channel.
   2. Rake Trim and trim Cap.

J. Roof Penetrations: Install as required.
   1. Double Panel Method:
      a. Cut hole in primary panel.
      b. Install pipe flashing and apply sealant on top and sides of flashing.
      c. Cut and install top panel.
      d. Seal and chip cut.
   2. EPDM elastomeric pipe and penetration flashing.

3.4 CLEANING

A. Clean up building and grounds of all debris left from installation procedures and dispose of all debris in legal manner

B. Foot Traffic: Only permitted directly over horizontal joints or 2 by 2 inches (50 by 50 mm) battens to prevent denting of panels. Avoid stepping on side laps.

3.5 PROTECTION

A. Protect installed products until completion of project.

B. Stage work progress to avoid foot traffic over completed sections of roofing.

C. Where practical provide protection of installed materials from potential damage through work from other trades.

D. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION