March 2024

Guide Specification

Specifier Notes: This guide specification is written in the Construction Specifications Institute (CSI) 3-Part Format in accordance with *The CSI Construction Specifications Practice Guide, MasterFormat, SectionFormat,* and *PageFormat.*

This Section must be carefully reviewed and edited by the Architect to meet the requirements of the Project and local building code. Coordinate this Section with Conditions of the Contract, Division 01, other specification sections, and the Drawings. Delete all Specifier Notes after editing this Section.

Section numbers and titles are based on *MasterFormat 2018 Edition.*

SECTION 07 41 13

METAL ROOF PANELS

Specifier Notes: This Section covers Roofing Systems, Inc. "Shingle Plus" aggregate-coated metal roof panels – installed direct to the roof deck method. Consult Roofing Systems, Inc. for assistance in editing this Section as required for the Project.

"Shingle Plus" aggregate-coated metal roof panels must be installed with a minimum slope of 3:12 (25 percent). For roof slopes between 2:12 (16 percent) and less than 3:12 (25 percent), the metal roof panels are considered decorative and must be installed over a roof covering system in accordance with the local building code. Consult Roofing Systems, Inc. for more information.

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Aggregate-coated metal roof panels.

1.2 RELATED REQUIREMENTS

Specifier Notes: Edit the following list of related sections as required for the Project. Limit the list to sections with specific information that the reader might expect to find in this Section but is specified elsewhere.

A. Section 06 10 00 – Rough Carpentry: Wood framing and sheathing.

B. Section 07 62 00 –Sheet Metal Flashing and Trim: Metal flashing.

C. Section 07 72 00 – Roof Accessories: Roof ventilators.

D. Section 07 92 00 – Joint Sealants: Field-applied sealants.

1.3 REFERENCE STANDARDS

Specifier Notes: List reference standards used elsewhere in this Section, complete with designations and titles. Delete reference standards from the following list not used in the edited Section.

A. American Society of Mechanical Engineers (ASME) (www.asme.org):
   1. ANSI/ASME B18.6.1 – Wood Screws (Inch Series).
   2. ANSI/ASME B18.6.4 – Thread Forming and Thread Cutting Tapping Screws and Metallic Drive Screws, Inch Series.

B. ASTM International (ASTM) (www.astm.org):
   1. ASTM A 653/A 653M – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   2. ASTM A 792/A 792M – Standard Specification for Steel Sheet, 55 % Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
   3. ASTM C 920 – Standard Specification for Elastomeric Joint Sealants.
   4. ASTM D 226/D 226M – Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
   5. ASTM D 1970/D 1970M – Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
   6. ASTM E 108 – Standard Test Methods for Fire Tests of Roof Coverings.

C. ICC Evaluation Service (www.icc-es.org):
   1. ICC-ES Evaluation Report ESR-1754 – DECRA Shingle Plus (Direct-to-Roof Deck Installation).

D. International Organization for Standardization (ISO) (www.iso.org):
   1. ISO 9001:2015 – Quality management systems – Requirements.
   2. ISO 14001:2015 – Environmental management systems – Requirements with guidance for use.

E. UL (www.ul.com):
   1. UL 790 – Standard for Standard Test Methods for Fire Tests of Roof Coverings.

2. UL 2218 – Standard for Impact Resistance of Prepared Roof Covering Materials.

1.4 PREINSTALLATION MEETINGS

Specifier Notes: Edit the Preinstallation Meetings article as required for the Project. Delete this article if not required.

A. Convene preinstallation meeting [1 week] [2 weeks] before start of installation of roof panels.

B. Require attendance of parties directly affecting the Work of this Section, including Contractor, Architect, installer, and manufacturer's representative.

C. Review the Following:
   1. Materials.
   2. Preparation.
   3. Installation.
   4. Adjusting.
   5. Cleaning.
   6. Protection.
   7. Coordination with other Work.

1.5 SUBMITTALS

Specifier Notes: Edit the Submittals article as required for the Project. Delete the submittals not required.

A. Submittals: Comply with Division 01.

B. Product Data: Submit manufacturer's product data, including preparation and installation instructions.

C. Shop Drawings: Submit manufacturer's shop drawings, including plans, elevations, sections, and details, indicating dimensions, tolerances, materials, components, fabrication, flashing, fasteners, finish, options, and accessories.

D. Samples: Submit manufacturer's sample of roof panels.
   1. Sample Size: Minimum 6 inches by 6 inches.

E. Manufacturer's Certification: Submit manufacturer's certification that materials comply with specified requirements and are suitable for intended application.

F. Product Evaluation Reports: Submit manufacturer's product evaluation reports from accredited evaluation service.

G. Manufacturer's Project References: Submit manufacturer's list of 10 successfully completed roof panel projects of comparable size and scope to this Project, including project names and locations, name of architects, and type and quantity of roof panels furnished.

H. Installer's Project References: Submit installer's list of 5 successfully completed roof panel projects of comparable size and scope to this Project, including project names and locations, name of architects, and type and quantity of roof panels installed.

I. Warranty Documentation: Submit manufacturer's standard warranty.

1.6 QUALITY ASSURANCE

A. Manufacturer's Qualifications:
   1. Manufacturer is regularly engaged in the manufacturing of roof panels of similar type to that specified for a minimum of 10 years.
   2. Certified Company:
      a. ISO 9001:2015.
      b. ISO 14001:2015.

B. Installer's Qualifications:
   1. Installer regularly engaged in installation of roof panels of similar type to that specified for a minimum of 5 years.
   2. Use persons trained for installation of roof panels.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Storage and Handling Requirements:
   1. Store and handle materials in accordance with manufacturer's instructions.
   2. Keep materials in manufacturer's original, unopened containers and packaging until installation.
   3. Store materials in clean, dry area indoors.
   4. Do not store materials directly on the floor or ground.
   5. Protect materials and finish during storage, handling, and installation to prevent damage.

1.8 WARRANTY

A. Warranty Period:
   1. Single-Family Detached Residential: Lifetime limited.
      a. Wind: Resist blow-off in wind speed up to 120 mph.
      b. Hail: Resist hail stone penetration, cracks, and splits. Hail stone size limit: 2.5"
   2. Multi-family Residential, Non-residential: 50-year limited.
      a. Wind: Resist blow-off in wind speed up to 120 mph.
      b. Hail: Resist hail stone penetration, cracks, and splits. Hail stone size limit: 2.5"

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Manufacturer: Roofing Systems, Inc., 1230 Railroad Street, Corona, California 92882. Toll Free 877-463-3272. Phone 951-272-8180. Fax 951-272-4476. www.decra.com. info@decra.com.

Specifier Notes: Specify if substitutions will be permitted.

B. Substitutions: [Not permitted] [Comply with Division 01].

C. Single Source: Provide materials from single manufacturer.

2.2 MATERIALS

Specifier Notes: Do not specify materials containing lead or copper with roof panel system. Do not specify pressure-treated lumber containing copper compounds in the treatment solution with roof panel system. Consult Roofing Systems, Inc. for more information.

A. Basis-of-Design Product: Roofing Systems, Inc. “Shingle Plus” aggregate-coated metal roof panels.

B. Roof Panels: “Shingle Plus” interlocking panels, resembling medium-weight dimensional roofing shingles.
   1. Material: Pre-corrugated, pressure-formed, aluminum-zinc alloy-coated steel, ASTM A 792/A 792M, with multiple vertical ribs forming 2 flat steps, each of which have raised and lowered pan sections.
   2. Thickness: 26 gauge, 0.0179 inch (0.455 mm).
   3. Finish: Ceramic-coated, colored-stone chip finish.

Specifier Notes: Specify color of roof panels required for the Project. Delete the colors not required.

   4. Color: [Classic Cobblestone] [Midnight Eclipse] [Natural Slate] [Old Hickory] [Woodland Green].
   5. Dimensions:
      a. Overall Panel Size: 16-1/2 inches (419 mm) wide by 52 inches (1,321 mm) long.
      b. Installed Panel Exposure: 14-1/2 inches (368 mm) wide by 50 inches (1,270 mm) long.
      c. Side Panel Laps: 2-1/2 inches (64 mm).
      d. Panel Leading Edges Bent Down: 3/4 inch (19 mm); provides overlap for weather protection and adjoining to prior roof panels course.
   6. Installed Weight: 150 pounds per 100 square feet.
   7. Recycled Steel Content: Maximum 30 percent.

Specifier Notes: Specify Class A, B, or C.

   8. Non-Combustible, ASTM E 108, UL 790: [Class A] [Class B] [Class C].

9. Impact Resistance, UL 2218: Class 4.
10. ICC-ES Evaluation Reports:
    a. Direct-to-Roof Deck Installation: ESR-1754.
11. Florida Building Code Approval:
    a. Direct-to-Roof Deck Installation: FL9759-R10.
12. Miami-Dade County, FL:
    a. Direct-to-Roof Deck Installation: NOA No. 23-0207.04.
13. CCMC – National Building Code of Canada:
    a. Direct-to-Roof Deck Installation: 13551-R.
    .

C. Flashing:

Specifier Notes: Specify "XD Valley" (use with Shingle Plus) for direct-to-roof deck installation.

1. Valley: "XD Valley" aluminum-zinc alloy-coated steel sheet, ASTM A 792/A 792M.
    a. Pressure formed into valley with stone-coated valley cap.
    b. Thickness: 26 gauge, 0.0179 inch (0.455 mm).
    c. Finish: Match upper-exposed stone-coated surface of valley cap to shingle material.

Specifier Notes: Include the following paragraph for batten installation.

2. Valley: Aluminum-zinc alloy-coated steel sheet, ASTM A 792/A 792M.
    a. Thickness: 26 gauge, 0.0179 inch (0.455 mm).
3. Side Flashing: "Side Flashing" aluminum-zinc alloy-coated steel sheet, ASTM A 792/ A 792M.
    a. Pressure formed to flash vertical roof surface transitions.
    b. Thickness: 26 gauge, 0.0179 inch (0.455 mm).
    c. Finish: Ceramic-coated, colored-stone chip finish to match roofing material.
4. Roof-to-Wall Flashing: Aluminum-zinc alloy-coated steel sheet, ASTM A 792/A 792M.
    a. Pressure formed to flash vertical roof surface transitions.
    b. Thickness: 26 gauge, 0.0179 inch (0.455 mm).
    c. Finish: Match color to exterior finish.
5. Pipe Jack Flashing:
    a. Material: Galvanized or aluminum-zinc alloy-coated steel, ASTM A 792/A 792M.
    b. Thickness: 26 gauge, 0.0179 inch (0.455 mm).
    c. Finish: Clean, prime, and paint to match roof material.
6. Underpan: DECRA "Shingle Plus Underpan" aluminum-zinc alloy-coated steel sheet, ASTM A 792/A 792M.
    a. Pressure formed to counter flash roof penetrations matching roof panel material profile.
    b. Thickness: 26 gauge, 0.0179 inch (0.455 mm).

Specifier Notes: Include **one** of the following **two** paragraphs for fascia metal for re-roofing installations. Specify required fascia metal required for the Project.

7. Fascia Metal: A“Fascia Metal” aluminum-zinc alloy-coated steel sheet, ASTM A 792/A 792M.
   a. Pressure formed angle installed at first batten to cover build up.
   b. [3.5 inches (89 mm)] [5 inches (127 mm)], 26 gauge, 0.0179 inch (0.455 mm).
   c. Finish: Ceramic-coated, colored-stone chip finish to match roofing material.
8. Fascia Metal: Aluminum-zinc alloy-coated steel sheet, ASTM A 792/A 792M.
   a. Pressure formed angle installed at first batten to cover build up.
   b. [3.5 inches (89 mm)] [5 inches (127 mm)], 26 gauge, 0.0179 inch (0.455 mm).
   c. Finish: Paint to match exterior finish.

D. Hip and Ridge: “Shingle Plus Hip & Ridge” covers, fasciae, drips, rakes, and other trim required, matching shingle material, color, and finish.
   1. Hips/Ridges and Rakes: “Shingle Plus Hip & Ridge” aluminum-zinc alloy-coated steel sheet, ASTM A 792/A 792M.
   2. Pressure formed to match roofing material.
   3. Thickness: 26 gauge, 0.0179 inch (0.455 mm).
   4. Finish: Color and finish to be applied along hips, ridges, and rakes.

2.3 ACCESSORIES

Specifier Notes: Specify accessories required for the Project. Delete the accessories not required.

Roof panels are installed direct-to-roof deck. Consult Roofing Systems, Inc. for more information.

A. Sheet Metal Materials: Aluminum-zinc alloy-coated steel sheet, ASTM A 792/A 792M, [Class AZ50] [Class AZ150] coating designation; minimum [Grade 37] [Grade 255].

B. Felt Underlayment: ASTM D 226/D 226M, Type I, No.15 or ASTM D 226/D 226M, Type II, No.30, non-perforated, asphalt-saturated organic felt.

Specifier Notes: Specify perimeter underlayment for ice dam protection, if required for the Project. Delete if not required. Consult Roofing Systems, Inc. for more information.

C. Perimeter Underlayment for Ice Dam Protection:
   1. Self-adhering, polymer-modified, bituminous sheet underlayment; 40 mils (1 mm) thick; ASTM D 1970/D 1970M.
   2. Provide primer when recommended by underlayment manufacturer.

D. Sealant:
   1. One-part elastomeric roof-grade sealant, ASTM C 920.
   2. Exposed Sealant: Color to match roof panels.

E. Fasteners:
   1. Screws:
      a. Wood Screws: ANSI/ASME B18.6.1.
      b. Sheet Metal Screws: ANSI/ASME B18.6.4.
      c. Corrosion resistant.
      d. Minimum No. 9.
      e. Length: Sufficient length to penetrate substrate 1/2 inch (13 mm) minimum.
      f. Color: Silver or color coordinated to match roof panels.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrate to receive roof panels.

B. Verify surfaces to support roof panels are clean, dry, square, sound, stable, rigid, and capable of supporting the weight.

C. Notify Architect of conditions that would adversely affect installation or subsequent use.

D. Do not begin preparation or installation until unacceptable conditions are corrected.

3.2 PREPARATION

A. Prepare substrate in accordance with manufacturer's instructions.

B. Clean substrate of projections and substances detrimental to roof panels.

C. Cover knotholes or other minor voids in substrate with sheet metal flashing secured with roofing nails.

Specifier Notes: Edit the following sentence as required for the Project.

D. Inspect and verify roof framing spacing and installation is straight, true, and ready for installation of roof panels.

E. Coordinate installation of roof panels with flashing and other adjoining work to ensure proper sequencing.

F. Do not install roof panels until vent stacks and other penetrations through the roof have been installed and are securely fastened.

G. Do not install roof panels until flashing is in place.

Specifier Notes: Delete the following sentence if exterior stucco and EIFS wall enclosures are not included in the Project.

H. Inspect and verify that exterior stucco and EIFS wall enclosures have been completed.

3.3 INSTALLATION

Specifier Notes: Edit the Installation article as required for the Project. Delete text not required.

A. Install roof panels in accordance with manufacturer's instructions at locations indicated on the Drawings.

B. Install roof panels weathertight.

C. Panel Installation Preparation: Over a prepared roof deck, position a 1 by 4 inch batten flush with fascia as a starter batten. Install in accordance with manufacturer's instructions.

D. Valleys: Install in accordance with manufacturer's instructions with a minimum 6-inch (152-mm) overlap in the direction of flow.

E. Flashing: Install as indicated on the Drawings and in accordance with manufacturer's instructions.

F. Roof Panels:
   1. Install roof panels, accessories, flashing, and hip and ridge level and plumb.
   2. Use fasteners as specified and in accordance with the manufacturer's instructions.
   3. Install each panel using a random stagger pattern in accordance with manufacturer's instructions.

Specifier Notes: Specify the appropriate number of fasteners in accordance with code requirements. Direct-to-roof deck installation requires a minimum of 4 fasteners in the back panel clip; and 4 fasteners in the panel nose – evenly spaced.

   4. Fasten each panel with minimum 4 fasteners running horizontally along the back panel flange, evenly spaced; and, minimum 4 fasteners running diagonally along the front panel nose – evenly spaced, through the lower course panel back flange and on into the roof deck.

G. Cut roof panels into each side of valleys in accordance with manufacturer's instructions straight and true to the line of the valley.

H. Hip and Ridge:
   1. Install hip and ridge along hips, ridges, and rakes as indicated on the Drawings and in accordance with manufacturer's instructions.
   2. Bend and fold exposed ends of hips and ridges and neatly cap with end cap or piece of similar material.

I. Do not install roof panels in a manner that detracts from the appearance of the roof.
   1. Do not rack panels.
   2. Do not line panels vertically up the roof.
   3. Do not use even panel offsets.
   4. Do not make a pattern with panels.

J. Do not use the following with roof panel system:
   1. Lead.
   2. Copper.
   3. Pressure-treated lumber containing copper compounds in the treatment solution.

3.4 ADJUSTING

A. Repair minor damage to roof panels in accordance with manufacturer's instructions and as approved by Architect.

B. Remove and replace with new material, damaged components that cannot be successfully repaired, as determined by Architect.

3.5 CLEANING

A. Clean roof panels of debris, including metal shavings, promptly after installation.

3.6 PROTECTION

A. Protect Work of this Section to ensure that, except for normal weathering, Work will be without damage or deterioration at time of Substantial Completion.

END OF SECTION