

## SECTION 07325

### CERAMIC SLATE ROOFING

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Kiln-fired clay roofing slate.
- B. Moisture shedding underlayment, eave, valley, and ridge protection.
- C. Metal roof flashing.
- D. Roofing cant strips and hip and ridge nailing strips.
- E. Fasteners.

##### 1.2 RELATED SECTIONS

- A. Section 06100 - Rough Carpentry: Framing and Sheathing.
- B. Section 06114 - Wood Blocking and Curbing.
- C. Section 06150 - Wood Decking.
- D. Section 07600 - Flashing and Sheet Metal.
- E. Section 07710 - Manufactured Roof Specialties: Snow guards.
- F. Section 08620 - Unit Skylights.

##### 1.3 REFERENCES

- A. ASTM A 167 - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
- B. ASTM B 370 - Standard Specification for Copper Sheet and Strip for Building Construction.
- C. ASTM B 749 - Standard Specification for Lead and Lead Alloy Strip, Sheet, and Plate Products.
- D. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants.
- E. ASTM C 1167 - Standard Specification for Clay Roof Tiles.

- F. ASTM D 226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
- G. ASTM D 1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
- H. ASTM D 2626 - Standard Specification for Asphalt-Saturated and Coated Organic Felt Base Sheet Used in Roofing.

#### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide manufacturer's printed information on material characteristics, performance testing, and application limitations.
- C. Installation Instructions: Include manufacturer's requirements for substrate preparation and installation of roofing system and related accessories.
- D. Shop Drawings: Indicate specially configured metal flashing, jointing methods and locations for flashing, and typical roofing system details.
- E. Selection Samples: Provide pieces of actual ceramic slate, illustrating complete range of colors available, for Architect's selection.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer's Data: Perform work in accordance with manufacturer's installation instructions. Maintain one copy of document at project site.
- B. Installer Qualifications: Company specializing in installing roofing of the type specified in this section, with not fewer than three years of documented experience.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to project site in manufacturer's unopened cartons, labeled with data indicating compliance with specified requirements.

## 1.7 WARRANTY

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
- B. Provide manufacturer's 60-year limited transferable warranty against defective materials.
  - 1. Supplement: Provide supplemental "FirstFifteen Protection" warranty to cover labor and materials in the event of a material defect during the first fifteen years after completion of ceramic slate application.
  - 2. Transferability Clause: Include clause in warranty giving Owner the right to transfer the warranty to a subsequent owner.

## 1.8 EXTRA MATERIALS

- A. Provide an additional 3 percent of installed roofing slates, but not less than one full carton, for Owner's use in roof maintenance.

## PART 2 PRODUCTS

### 2.1 MANUFACTURER

- A. Provide Celadon Ceramic Slate, as manufactured by Celadon; P.O. Box 309; New Lexington, OH 43764. For additional information, contact Celadon's Architectural Support Group; P.O. Box 860, Valley Forge PA 19482; ASD. Tel. (800) 699-9988, Fax. (610) 341-7940.
- B. Substitutions will not be acceptable.

### 2.2 CERAMIC ROOFING SLATES

- A. Provide roofing slates with the following properties:
  - 1. Basic Properties: Comply with ASTM C 1167, Grade 1.
  - 2. Weight: 580 pounds per square (28.3 kg/sq m), for normal 13-1/4 inch (336 mm) exposure.
  - 3. Weight: 589 pounds per square (28.8 kg/sq m), for low slope 13 inch (330 mm) exposure.
  - 4. Thickness: Nominal 3/4 inch (19 mm), ribbed design.
  - 5. Moisture Absorption: Maximum of 1.0 percent.
  - 6. Minimum Cross Breaking Strength: 300 pounds.
  - 7. Color: Slate Gray.

8. Color: Montpelier Green.
  9. Color: Brunswick Black.
  10. Color: Slate Red.
  11. Color: Plumstone.
  12. Color: As selected by Architect from manufacturer's standard colors.
  13. Color Blend:
    - a. Slate Gray: \_\_\_ percent.
    - b. Montpelier Green: \_\_\_ percent.
    - c. Brunswick Black: \_\_\_ percent.
    - d. Slate Red: \_\_\_ percent.
    - e. Plumstone: \_\_\_ percent.
- B. Accessory Slate Shapes: Provide the following accessory shapes, in color matching field slates, for areas shown on the drawings:
1. Custom ridge cap.
  2. Custom hip cap.
  3. Rake edge.
  4. Detached gable rake.
  5. Half slate.

### 2.3 SHEET MATERIALS

- A. Underlayment: ASTM D 1970, self-adhering rubberized asphalt membrane with high traction surface, internal reinforcement, and "split" back plastic release film.
  1. Provide CertainTeed "WinterGuard" sheet barrier waterproofing shingle underlayment.
- B. Underlayment: ASTM D 2626; one layer of No. 40 coated base sheet.
- C. Underlayment: ASTM D 226; two layers of No. 30 asphalt impregnated roofing felt.
- D. Flashing: Terne coated stainless steel; 0.015 inch (0.38 mm) thick stainless steel core material complying with ASTM A 167, Type 304; coated with 0.092 lb/sq ft (450 g/sq m) terne alloy on both sides of core metal.
- E. Flashing: ASTM B 370 copper, cold rolled, 16 oz/sq ft (0.56 mm thick), natural finish.
- F. Flashing: Lead sheet, 2.5 lb/sq ft (1 mm thick); complying with ASTM B 749.

### 2.4 ACCESSORIES

- A. Screws: No. 8 or No. 9 brass or stainless steel, flathead Phillips or square drive, not less than 1-3/4 inches (45 mm) long.
- B. Nails for Solid Wood Deck: Corrosion resistant copper, brass, or stainless steel; minimum 3/8 inch (9.5 mm) head diameter; shank of minimum 11 gage (3 mm) diameter and length sufficient to penetrate 3/4 inch (19 mm) into deck but not through the underside.
- C. Nails for Plywood Sheathing: Slater's copper ring shank nail, 11 gage (3 mm), not less than 1-3/4 inches (45 mm) long with 3/8 inch (9.5 mm) head; point must penetrate through underside of deck.
- D. Wood Nailers and Cant Strips: Preservative-treated wood, as specified in Section 06114.
- E. Adhesive: OSI Pro-Series RT-600 Roof Tile Adhesive.
  - 1. Do not expose to ultraviolet rays.
  - 2. Do not allow direct contact with waterproofing shingle underlayment.
- F. Sealant: ASTM C 920 silicone, low modulus. Provide one of the following:
  - 1. Dow Corning 790 Silicone Building Sealant.
  - 2. GE SilProof.
- G. Copper Wire: 18 gage (1.2 mm) minimum.
- H. Snow Guards.

## 2.5 FLASHING FABRICATION

- A. Form flashing to profiles indicated on drawings and as required to protect roofing materials from physical damage and shed water.
- B. Form sections square and accurate in profile, in maximum possible lengths, free from distortion or defects detrimental to appearance or performance.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Comply with provisions of Section 01700.

- B. Verify that roofing penetrations and plumbing stacks are in place and properly flashed to deck surface.
- C. Verify that roof openings are correctly framed.
- D. Verify that deck surfaces are dry and free of ridges, warps, and voids.

### 3.2 PREPARATION

- A. Comply with ceramic slate manufacturer's recommendations on preparation of acceptable roof deck.
- B. Broom clean deck surfaces prior to installation of underlayment.

### 3.3 UNDERLAYMENT INSTALLATION

- A. Install underlayment over entire deck surface, in accordance with instructions of ceramic slate manufacturer. At hips, valleys, and ridges, install 36 inch ( 915 mm) width of WinterGuard underlayment or equivalent, centered on the valley or ridge.
  - 1. Under cold installation conditions, tack WinterGuard in place if it does not immediately adhere to deck.
- B. Ice Dam Protection: Apply WinterGuard underlayment or equivalent at eaves that are subject to icing and back-up of water. Apply from roof edge to a line that when projected to the horizontal is not less than 24 inches (610 mm) inside of interior wall line.
  - 1. On overhanging eaves that require more than a single 36-inch (915 mm) width of WinterGuard, overlap not less than 6 inches (152 mm), assuring that overlapped area is located on overhang, outside wall line.

### 3.4 FLASHING INSTALLATION

- A. Install flashing at all locations where roof intersects other roofs, sidewall or parapet walls, chimneys, ventilators, and similar projections, and at gable edges.
- B. Open Valley: Install minimum 20 inch ( 510 mm) wide open valley metal flashing over 36-inch (915 mm) wide WinterGuard, with field underlayment lapped over edges of flashing not less than 4 inches (100 mm) . Fasten metal with cleats. Overlap metal a minimum of 5 inches (130 mm) .

- C. Closed Valley: Install closed valley metal flashing over 36-inch (915 mm) wide WinterGuard by interleaving ceramic slates with minimum 20-inch (510 mm) wide prepared metal flashing sheets. Attach ceramic slates using copper wires to copper straps nailed beyond the top edge of the metal flashing.

### 3.5 WOOD NAILER AND CANT STRIP INSTALLATION

- A. Cant Strip: Install nominal 1 inch by 2 inches by 48 inches (25 mm by 50 mm by 1220 mm) wood cant strips at eaves. Apply eave flashing and underlayment over cant strip.
- B. Cant Strip: Install nominal 1 inch by 2 inches by 48 inches (25 mm by 50 mm by 1220 mm) pressure-treated wood cant strips directly over underlayment at eaves, spacing 1 inch (25 mm) apart for drainage.
- C. Nailers: Install nominal 1 inch by 2 inches by 48 inches (25 mm by 50 mm by 1220 mm) pressure-treated wood nailers as detailed at ridge and hips, directly over underlayment. Protect with additional layer of WinterGuard before installing hip and ridge accessory.

### 3.6 CERAMIC SLATE INSTALLATION

- A. Install ceramic slate roofing in strict conformance with manufacturer's instructions.
- B. Install first course over cant strip, with overhang.
  - 1. Do not drive fasteners tightly against ceramic slates, to reduce risk of breakage and to allow natural deck movement.
  - 2. Allow ceramic slate to "hang" on its fasteners.
  - 3. Provide 3/4 inch (19 mm) to 2 inches (51 mm) overhang, permitting proper flow into gutters.
  - 4. Provide not more than 1/2 inch (13 mm) overhang, unless gutters are in place. If gutters are used, provide just enough overhang to permit proper flow into gutters; provide under-eave slate course or heavy-gage drip edge with extended hemmed lip to reinforce strength of overhang.
- C. Install each subsequent course with joints centered on ceramic slates below, with maximum exposure in each course of 13-1/4 inches (336 mm). Wet cut slates at hips and valleys, using masonry saw with diamond blade.

- D. At hip and ridge, and on mansard roofs, install bead of adhesive at butt end of each slate, located so it is completely concealed. Install sealant as required at hip and ridge accessories to achieve watertight installation.
- E. Install snow guards where shown and otherwise required by Code.

### 3.7 FIELD QUALITY CONTROL

- A. Comply with Section 01400 for field inspection.
- B. Inspection will involve surveillance of roofing work during installation to ascertain compliance with specified requirements.

### 3.8 PROTECTION

- A. Comply with Section 01700.
- B. Minimize traffic over finished roof surface. If necessary, wear soft-soled shoes and walk on the "butt" of the tile in order to avoid breakage.

END OF SECTION