

SECTION 07310
SLATE SHINGLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Slate shingles.
- 2. Underlayment.

- B. Related Sections:

- 1. Section 06100 "Rough Carpentry" for solid wood roof decking and wood cant strips.

1.3 DEFINITIONS

- A. Roofing Terminology: See ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definitions of terms related to roofing work in this Section.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

- B. Samples for Initial Selection: Of each color, size, texture, and shape.

- 1. Include similar Samples of trim and accessories involving color selection.

- C. Samples for Verification: For the following products, of sizes indicated, to verify color selected:

- 1. Slate Shingle: Full size, of each color, size, texture, and shape.
- 2. Fasteners: Three fasteners of each type, length, and finish.

1.5 INFORMATIONAL SUBMITTALS

- A. Material Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each slate variety.

- B. Warranty: Sample of special warranty.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Slate Shingles: 2% of total roof area installed, including each type and color, stacked on edge.

1.7 QUALITY ASSURANCE

- A. Source Limitations: Obtain each color of slate shingle from single quarry capable of producing slate of consistent quality in appearance and physical properties.
- B. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Build mockups for slate shingles including related roofing materials.
 - a. Size: minimum of 48 inches long by 48 inches wide
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- C. Preinstallation Conference: Conduct conference at Project site.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store underlayment rolls on end, on pallets or other raised surfaces. Do not double stack rolls.
 - 1. Handle, store, and place roofing materials in a manner to avoid significant or permanent damage to roof deck or structural supporting members.
- B. Protect unused underlayment from weather, sunlight, and moisture when left overnight or when roofing work is not in progress.
- C. Store slates on edge, and on pallets.

1.9 WARRANTY

- A. Special Warranty: Standard form in which roofing Installer agrees to repair or replace slate roofing that fails in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SLATE SHINGLES

- A. Slate Shingles: ASTM C 406, Grade S1; hard, dense, and sound; chamfered edges, with nail holes machine punched for slates 3/8" or less in thickness, slates thicker than 1/2" may be drilled and countersunk.
1. No broken or cracked slates, no broken exposed corners, and no broken corners on covered ends that could sacrifice nailing strength or laying of a watertight roof.
 2. No pyrite inclusions in slates.
 3. No carbon-bearing bands or soft or weak ribbons in slates.
 4. No knots or knurls or cramps in slates that would produce humps in the roof.
 5. Nail holes are to be positioned no more than 1.5" in from the side edges of the slate.
 6. Nail holes must be positioned approximately 2/3 the distance from the bottom of the slate when using standard 3" headlap. The top of the underlying slate shall not be penetrated by the slating nails.
 7. The holes punched in the slates shall be the correct diameter to provide a snug fit for the shank of the roofing nails.
 8. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. [Black Diamond Slate LLC.](#)
 - b. [Buckingham Slate Company, LLC](#)
 - c. [Camara Slate Products, Inc.](#)
 - d. [CUPA USA, Inc.](#)
 - e. [Evergreen Slate Co., Inc.](#)
 - f. [Greenstone Slate Company](#)
 - g. [Natural Slate and Quarzite Co., LLC](#)
 - h. [The New England Slate Company](#)
 - i. [Newmont Slate Co., Inc.](#)
 - j. [North Country Slate](#)
 - k. [Rathscheck Schiefer und Dach-Systeme](#)
 - l. [Shaanxi Huanyu Slate Import Export Company Ltd.](#)
 - m. [SSQ North America](#)
 - n. [Taran Brothers Slate Company](#)
 - o. [Vermont Slate Company LLC](#)
 - p. [Vermont Structural Slate Co. / James River Slate Co.](#)
 - q. [The Vintage Slate Company, Inc.](#)
 - r. [Westone Natural Slate Co.,Ltd.](#)
 9. Thickness: **<Insert dimension>**.
 10. Surface Texture: **<Insert texture>**.
 11. Size: **insert size**.
 12. Nail Holes: Minimum two per shingle.
 13. Butt Shape: **Insert shape**.
 14. Color: **[As selected by Architect from manufacturer's full range] <Insert color>**.

15. Weather-Exposure Color Change: [**Unfading**] [**Weathering**].

B. Starter Slate: Slate shingles with chamfered nail holes front-side punched.

1. Length: Exposure of slate shingle plus head lap.

2.2 UNDERLAYMENT MATERIALS

A. Felt Underlayment: ASTM D 226, Type II, asphalt-saturated organic felt, unperforated.

2.3 ACCESSORIES

A. Slating Nails: ASTM F 1667, copper or stainless-steel, smooth shanked, wire nails; 0.135-inch minimum thickness; sharp pointed; with 3/8-inch minimum diameter flat head; of sufficient length to penetrate a minimum of 3/4 inch into sheathing.

1. Where nails are in contact with metal flashing, use nails made from same metal as flashing.

B. Felt Underlayment Nails: Stainless-steel, or hot-dip galvanized-steel wire nails with low-profile capped heads or disc caps, 1-inch minimum diameter.

C. Wood Nailer Strips and Eave Cants: Comply with requirements in Section 061000 "Rough Carpentry."

2.4 METAL FLASHING AND TRIM

A. General: Comply with requirements in Section 07620 "Sheet Metal Flashing and Trim."

1. Sheet Metal: minimum 16 oz. (20 oz recommended) Copper or minimum 28 gauge Stainless steel.

B. Fabricate sheet metal flashing and trim to comply with recommendations that apply to design, dimensions, metal, and other characteristics of the item in SMACNA's "Architectural Sheet Metal Manual" and "Copper and Common Sense" by Revere Copper Products

C. Vent-Pipe Flashings: Provide minimum 16 oz. copper or lead (ASTM B 749, Type L51121, at least 1/16 inch thick) sleeve sized to slip over and turn down into pipe, soldered to skirt at slope of roof and extending at least 4 inches from pipe onto roof.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. Examine roof sheathing to verify that sheathing joints are supported by framing and blocking and that installation is within flatness tolerances.
 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored and that provision has been made for flashings and penetrations through roofing.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 UNDERLAYMENT INSTALLATION

- A. General: Comply with underlayment manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
- B. Double-Layer Felt Underlayment: Install on roof deck parallel with and starting at the eaves. Install a 19-inch- wide starter course at eaves and completely cover with full-width second course. Install succeeding courses lapping previous courses 19 inches in shingle fashion. Lap ends a minimum of 6 inches. Stagger end laps between succeeding courses at least 72 inches. Fasten with felt underlayment nails.
1. Terminate felt underlayment extended up not less than 4 inches against sidewalls, curbs, chimneys, and other roof projections.
- C. Metal-Flashed, Open-Valley Underlayment: Install two layers of 36-inch-wide felt underlayment centered in valley. Stagger end laps between layers at least 72 inches. Lap ends of each layer at least 12 inches in direction to shed water. Fasten each layer to roof deck with felt underlayment nails.
1. Lap roof-deck felt underlayment over first layer of valley felt underlayment at least 6 inches.

3.3 METAL FLASHING INSTALLATION

- A. General: Install metal flashings and other sheet metal to comply with requirements in Section 07620 "Sheet Metal Flashing and Trim."
- B. Apron Flashings: Extend lower flange over and beyond each side of downslope slate shingles and up the vertical surface.
- C. Step Flashings: Install with a head lap of 3 inches and extend both horizontally and vertically. Install with lower edge of flashing just upslope of, and concealed by, butt of overlying slate shingle. Fasten to roof deck only.
- D. Cricket Flashings: Install against the roof-penetrating element, extending concealed flange beneath upslope slate shingles and beyond each side.
- E. Hip Flashings: Install centrally over hip with lower edge of flashing concealed by butt of overlying slate shingle. Fasten to roof deck.

- F. Valley Flashings: Install centrally in valleys, lapping ends at least 8 inches in direction to shed water. Fasten upper end of each length to roof deck beneath overlap.
 - 1. Nail valley flashings within 3/4" of the edge of the flashing.
 - 2. If valleys are soldered, cleating is preferred to nailing.

- G. Pipe Flashings: Form flashing around pipe penetrations and slate shingles. Fasten to roof deck.

3.4 SLATE-SHINGLE INSTALLATION

- A. General: Beginning at eaves, install slate shingles according to the SRCA's written installation guidelines and as follows:
 - 1. Install wood cant strip or metal drip edge with integral cant at eave edges.
 - 2. Install shingle starter course chamfered face down.
- B. Install first and succeeding shingle courses with chamfered face up. Begin installation with full-width first course end slate at rake edge.
 - 1. Offset joints of uniform-width slate shingles by half the shingle width in succeeding courses.
 - 2. Offset joints of random-width slate shingles a minimum of 3 inches in succeeding courses.
- C. Maintain a 3-inch-minimum head lap between succeeding shingle courses.
- D. Maintain uniform exposure of shingle courses between eaves and ridge.
- E. Extend shingle starter course and first course minimum 1.5 inches over fascia at eaves.
- F. Extend shingle starter course and succeeding courses 1 inch over fascia at rakes.
- G. Cut and fit slate neatly around roof vents, pipes, ventilators, and other projections through roof.
- H. Hang each slate with two slating nails for each shingle with nail heads lightly touching slate. Do not drive nails home drawing slates downward or leave nail head protruding enough to interfere with overlapping shingle above.
- I. Metal Ridge: Install metal ridge with fasteners of same metal as ridge, fastened through keyways in slate, or with cleats and blind fasteners.
 - 1. Overlap metal ridge sections minimum 4 inches at ends.
- J. Ridges: Install ridge slate in [saddle] configuration.
 - 1. Install and anchor wood nailer strips of thicknesses to match abutting courses of slate shingles, terminating nailer strip 1 inch from the eave.
 - 2. Anchor ridge slate to supporting wood nailer strip with three nails for each slate shingle without nails penetrating underlying slate.

- K. Hips: Install and anchor slate hips in [**saddle**] [**mitered**] [**fantail**] configuration.
 - 1. Install and anchor wood nailer strips of thickness to match abutting courses of slate shingles. Anchor hip slate to nailer strip with three nails located in upper third of hip-slate length.
 - 2. Notch starter shingle and first shingle course at hip to fit around nailer strips so no wood is exposed at ridge eave.
- L. Open Valleys: Cut slate shingles to form straight lines at open valleys. Maintain uniform width of exposed open valley from highest to lowest point.
 - 1. Do not nail shingles to valley metal flashings.
- M. Closed Valleys: Cut slate shingles to form straight lines at closed valleys.
 - 1. Do not nail shingles to valley metal flashings.

3.5 ADJUSTING AND CLEANING

- A. Remove and replace damaged or broken slate shingles.
- B. Remove excess slate and debris from Project site.

END OF SECTION