

SECTION 073150 – SLATE SHINGLE ROOFING

PART 1 - GENERAL

PART 1 - GENERAL

1.01 SUMMARY

A. This procedure includes new slate shingle roofing, salvage slate roofing and underlayment. Note that it also includes two (2) Alternates.

B. Quality Assurance

Slate Roofing Specialist: Contractor that performs slate roofing work shall be regularly engaged in slate roofing repair and new construction. Contractor shall demonstrate to Architect's satisfaction that, within previous five (5) years, he has successfully performed and completed in a timely manner at least three (3) projects similar in scope and type to required work involving buildings designated as Landmarks by local governmental authorities; or buildings listed on the National Register of Historic Places or on a State Register of Historic Places.

C. Safety Precautions:

1. Wear rubber-soled shoes that have non-slip tread (preferably sneakers with a high top for good ankle support). Avoid wearing loose clothing.
2. Wear a safety belt or harness and secure it to a substantial chimney or other substantial object secured to the building. Leave only enough slack to work comfortably in one area. Move and adjust as required to work on other sections of the roof.
3. As the work proceeds, keep roof clear of debris and water. Avoid stepping on damaged or crumbling roofing materials.
4. On slopes where the roof is steeper than 4 inches rise per foot, special consideration must be given to footing and handling of materials. Chicken ladders or cleats should be used on the roof as required for adequate footing.
5. Do not work on shingled roofs when wet or snow-covered.
6. Carrying and transporting of materials should be limited to a safe amount so that balance and footing are not impaired.

D. Acceptance at Site: Keep roof materials dry during delivery, storage, and handling.

E. Storage and Protection:

1. Store materials in stacks with provisions for air circulation within stacks. Protect bottom of stacks against contact with damp surfaces. Protect materials against weather.
2. When the slates are stored in an open yard, cover the piles with overlapping boards or use tar paper weighted down. Adequate protection prevents the slates from being frozen together. While slates are of ample strength when used in their proper place, reasonable care should be used in the handling of the material.
3. Slates up to and including 20" X 11" may be safely piled up to 6 tiers high. Slates of a larger size should never be piled more than 4 tiers high. Closely piled, 100 commercial slates average 20" to 24".

1.02 PROJECT SITE CONDITIONS

A. Environmental Requirements:

1. Do not apply new or repaired shingle roofs in wet weather.
2. Do not remove roofing from structures when rain is forecasted or in progress.
3. If roofing is to be removed on a clear day, remove no more than can be replaced or repaired in one day.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Slating tools:

John Stortz & Sons
210 Vine Street
Philadelphia, PA 19106
215/627-3855

B. Waterproof Underlayment:

W.R. Grace & Co.
62 Whitetmore Avenue
Cambridge, MA 02140

C. Breather Membrane:

Proctor Group Ltd.
The Hague, Blairgowrie
Perthshire, PH10 7ER
Scotland, United Kingdom
Phone: 01144-1250-872261

Posi-Slope
5720 Timberlea Boulevard,
Suite 206,
Mississauga, Ontario L4W 4W2
Phone:1-877-767-4123

2.02 MATERIALS

- A. Slate: Roofing slate shall be Unfading Green as provided by Vermont Structural Slate Company, or Architect approved equal.
1. **Base Bid Slates** shall be 10" wide by 16" long by ¼" thick and shall meet the requirements of Grade S1 per ASTM C-406 and Federal Specification SS-S-451.
 2. **Alternate #1 - Slates** shall be 10" wide by 14" long by ¼" thick and shall meet the requirements of Grade S1 per ASTM C-406 and Federal Specification SS-S-451.
 3. **Base Bid Slates** shall be Unfading Green by Vermont Structural Slate. Modulus of Rupture 11,687 lbs per square in. Water Absorption 0.167 of 1% in 48 hours. Acid Resistance 0.0012 of an inch.
 4. **Alternate #2 - Slates** shall be Semi-weathering Gray-Green by Vermont Structural Slate. Modulus of Rupture 611 lbs, Ave. thickness 0.253 in. Water Absorption 0.163% (max. .25%). Acid Resistance 0.0019 of an inch (max. .002 in.)
 5. Slates with broken corners greater than 3/4" shall not be accepted.
 6. Slates shall not curve more than 1/8" over 12 inches.
 7. Slates must be free of ribbons.
 8. Cracked slates will not be accepted. Questionable slates can be sounded. Only slates capable of ringing will be accepted.
 9. Face dimensions of slates shall no vary by more than 1/8"
- B. Large flat-head hard solid copper wire nails not less than 1-1/2" long for field and 2" long at hips and ridges. Length should be twice the thickness of an individual slate plus 1 inch.
- D. Waterproof Underlayment: Minimum 40-mil- (1-mm-) thick, self-adhering, polymer-modified, bituminous sheet membrane, complying with ASTM D 1970. Provide primer when recommended by underlayment manufacturer.
1. Ice & Water Shield by W.R. Grace & Co.
- E. Underlayment: #30 Asphalt Felt, ASTM D226. Install double, half-lapped felts in direction of flow of water.
- E. Elastic cement or exterior grade caulk such as "Gutter-Seal" (Dow), "Roof Sealant" (Alcoa), or approved equal. Color shall match roof slates.

2.03 EQUIPMENT

- A. 25' steel tape

- B. Hacksaw(s)
- C. Slate ripper
- D. Machine punch and hand (or mawl) punch
- E. Slate cutter
- F. Hammer
- G. Slater's Stake
- H. Nail pouch

PART 3---EXECUTION

3.01 EXAMINATION

- A. Inspect the deck to determine whether it is sound. Make whatever repairs are necessary to the existing roof framing to strengthen it and to level and true the deck. Replace rotted, damaged, or warped sheathing or plywood.

3.02 PREPARATION

- B. Surface Preparation:
 - 1. Carefully examine, measure, and record existing slate shingle patterns at edges, hips, ridges, and other special conditions.
 - 2. Remove existing roofing down to the roof deck. Contractor may salvage slates for his own resale purposes.
 - 3. Use a slate ripper to remove the nails of slates in good condition which can be reused. Use care in the removal and stacking of slates to avoid damage.
 - 4. Be careful not to damage old metal wall and vent flashings that may be used as a pattern for cutting templates. If metal cap flashings at the chimney and other vertical masonry wall intersections have not deteriorated, bend them up out of the way so that they may be used again. Carefully remove slate shingles in these areas to avoid damaging reusable base flashing.
 - 5. Remove loose or protruding nails or hammer them down.

3.03 ERECTION, INSTALLATION, APPLICATION

- A. The roof decks shall be treated with a self-adhereing membrane of rubberized asphalt integrally bonded to polyethylene sheeting. Follow manufacturer's written instructions

for membrane application. Areas to be sheeted with membrane are valleys, eaves, all slope changes or tie-ins and protrusions through the roof.

- B. Lay breather membrane over entire deck not required to be covered with ice and watershield membrane waterproofing.
 - 1. Lay felt in horizontal layers printed side up with 4 inch horizontal laps and 6 inch vertical laps. Overlaps to be run with the flow of water in a shingling manner.
 - 2. Overlap breather membrane with self-adhereing membrane
 - 3. Secure to roof deck using minimum No. 12 gauge corrosion resistant steel or stainless steel nail with minimum 3/8-inch-dia. heads. The underlayment shall be fastened only as necessary to hold in place.
- C. Determine exposure of slate: subtract 3" (standard head lap between alternating courses) from overall length of slates being used. Divide this number in half to determine final exposure. 16" tall slates will result in a 6-1/2" exposure.
- D. If required by slope of roof, nail cant strip at bottom eaves, even with edge of sheathing, to slightly raise first courses of slate. Thickness of cant strip allows second course of slate to be laid correctly. A 1/4" taper is usually sufficient.
- E. Lay under-eave starter slate. Butt of slate shall project 2" beyond cant strip or bottom edge of sheathing, and 1" beyond the edge of the sheathing at gable ends. Under-eave slate is shorter than other slates. Determine length of under-eave slates by adding 3" to the exposure as determined in B. above. Secure each slate with two nails.
 - 1. Drive the nails into the punched holes until heads just clear surface of slate. The slates should "hang" on the nails, not be driven in so far as to produce a strain on the slate.
 - 2. Use 3d nails for standard-thickness slates up to 18 in. long. Use 4d nails for extra-long slates, and 6d nails on hips and ridges.
- F. Lay full first course with bottom of slate even with bottom of under-eave slate. Position joints between slates so that there is a minimum 3" off-set between the vertical joints of the under-eave slates below.
- G. Lay second full course of slate using the exposure as determined in C. above. Off-set vertical joints a minimum of 3" from the vertical joints in the course below. Continue to lay main field of slates in this manner.
- H. Lay hip slates and ridge slates (or install ridge and hip cap flashing) as originally designed. Consult with slate manufacturer for construction details.
 - 1. Ridge types (slate): saddle ridge.
 - 2. Hip types (slate): mitered.

- I. Build in and place all flashing pieces furnished by the sheet metal contractor. Valley design shall match original construction. Valleys shall be open.
- J. Slates overlapping sheet metal work should have the nails so placed as to avoid puncturing the sheet metal. Exposed nails should be permissible only in top courses where unavoidable.
- K. Scribe slate neatly around any roof penetrations.
- L. The roofer shall build in and place, all flashing pieces. Each course of slate shall have copper step-flashing neatly woven into the slate.
- M. Entire surfaces of all roofs, except at open valleys, shall be covered with slate in the specified and weatherproof manner. Upon completion, all slates must be sound, whole and clean. The roof must be left watertight and neat in every respect, and subject to the architect's approval.
- N. The Owner shall be furnished with a stock of 2% extra slates for future roof repairs.

END OF SECTION