

ENVIROSLATE GUIDE NOTE: This master specification section includes ENVIROSLATE GUIDE NOTES identified as “ENVIROSLATE GUIDE NOTE” for information purposes and to assist the specification writer in making appropriate decisions. The ENVIROSLATE GUIDE NOTE always immediately precedes the text to which it is referring. The section serves as a guideline only and should be edited with deletions and additions to meet specific project requirements.

ENVIROSLATE GUIDE NOTE: This specification section follows the recommendations of the Construction Specifications Institute, Project Resource Manual including MasterFormat™, SectionFormat™, and PageFormat™. Optional text is indicated by square brackets []; delete the optional text including the brackets in the final copy of the specification. Delete the ENVIROSLATE GUIDE NOTES in the final copy of the specification. Trade/brand names with appropriate product model numbers, styles and types are used in ENVIROSLATE GUIDE NOTES and in the specification text Article or Paragraph titled AAcceptable Material@.

1 GENERAL

1.01 SUMMARY OF WORK

- A. This Section specifies composite emulated slate roof tiles.

1.02 RELATED REQUIREMENTS

ENVIROSLATE GUIDE NOTE: Include in this Paragraph only those sections and documents that directly affect the work of this section. If a reader of this section could reasonably expect to find a product or component specified in this section, but it is actually specified elsewhere, then the related section number(s) should be listed in the Paragraph below. Do not include Division 00 Documents or Division 01 Sections since it is assumed that all technical sections are related to all project Division 00 Documents and Division 01 Sections to some degree. Refer to other documents with caution since referencing them may cause them to be considered a legal part of the Contract. Edit the following paragraphs to suit specific project conditions.

- A. Section [06 10 00 – Rough Carpentry: low-slope wood spacers and nailers].
- B. Section [07 50 00 – Membrane Roofing: low-slope waterproof roofing membrane].
- C. Section [07 62 00 – Sheet Metal Flashing and Trim: roof valley flashings; soffits and fascia].
- D. Section [07 72 00 – Roof Accessories: roof ventilators].
- E. Section [07 92 00 – Joint Sealants: flashing sealant].

ENVIROSLATE GUIDE NOTE: In the following Article, include only those reference standards which appear in the finished version of the project specification.

1.03 REFERENCE STANDARDS

- A. ASTM International (ASTM).
 - 1. ASTM D7349/D7349M-[2011], Standard Test Method for Determining the Capability of Roofing and Waterproofing Materials to Seal around Fasteners.
 - 2. ASTM E108-[2010a], Standard Test Methods for Fire Tests of Roof Coverings.
 - 3. ASTM F1667-[2011], Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.
- B. Canadian General Standards Board. (CGSB).
 - 1. CGSB-37.58-M86, Membrane, Elastomeric, Cold-Applied Liquid, for Non-Exposed Use in Roofing and Waterproofing.
- C. Florida Building Code Testing Application Standard (TAS).
 - 1. TAS-125- Test for Uplift Resistance on Roof Assemblies
- D. Miami-Dade Construction Standards (DADE)

1. DADE PA 100-[2000], Test Procedure for Wind and Wind Driven Rain Resistance of Discontinuous Roof Systems.
- E. Underwriter's Laboratories (UL)
 1. UL 2218-[2010], Standard for Impact Resistance of Prepared Roof Covering Materials.
- F. US Green Building Council (USGBC).
 1. LEED® NC Version 2.2-[2009], LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Co-ordination: Co-ordinate work of this Section with work of other trades for proper time and sequence to avoid construction delays.
- B. Pre-installation Meeting: Convene pre-installation meeting after Award of Contract and one week prior to commencing work of this Section to verify project requirements, substrate conditions and coordination with other building sub-trades, and to review manufacturer's written installation instructions.
 1. Comply with Section 01 31 19 - Project Meetings and co-ordinate with other similar pre-installation meetings.
 2. Notify attendees 2 weeks prior to meeting and ensure meeting attendees include as minimum:
 - a. Owner;
 - b. Consultant;

ENVIROSLATE GUIDE NOTE: Enviroshake must be installed by a Factory Trained Enviroshake Installer so it is important that the roofing contractor meets this criteria.

- c. Composite slate roofing installer;
 - d. Manufacturer's Technical Representative.
 3. Ensure meeting agenda includes review of methods and procedures related to composite roof tile installation including co-ordination with related work.
 4. Record meeting proceedings including corrective measures and other actions required to ensure successful completion of work and distribute to each attendee within 1 week of meeting.

ENVIROSLATE GUIDE NOTE: Article below includes submittal of relevant data to be furnished by Contractor.

1.05 ACTION AND INFORMATIONAL SUBMITTALS

- A. Make submittals in accordance with Contract Conditions and Section 01 33 00 - Submittal Procedures.
- B. Product Data: Submit product data including manufacturer's literature for composite roof slate tile components and accessories, indicating compliance with specified requirements and material characteristics.
 1. Submit list on composite roof tile manufacturer's letterhead of materials, components and accessories to be incorporated into Work.
 2. Include product names, types and series numbers.
 3. Include contact information for manufacturer and their representative for this Project.
- C. Samples:
 1. Submit duplicate full size samples of composite slate roof tile used.
- E. Test Reports:
 1. Submit test reports showing compliance with specified performance characteristics and physical properties.
- F. Field Reports: Submit manufacturer's field reports within 3 days of each manufacturer representative's site visit and inspection.
- G. Sustainable Design (LEED).

- .1 LEED Submittals: In accordance with Section [01 35 21 – LEED Requirements]

H. Installer Qualifications:

- .1 Submit [verification of manufacturer's certification of installer] [letter verifying installer's experience with work similar to work of this Section].

1.06 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Supply maintenance data for composite slate roof tile materials for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

ENVIROSLATE GUIDE NOTE: If LEED is not a part of the project delete the following Paragraph in its entirety.

- B. Sustainable Design Closeout Documentation (LEED).
1. Provide calculations on end-of-project recycling rates, salvage rates, and landfill rates for work of this Section demonstrating percentage of construction wastes which were recycled.
 2. Submit verification from recycling facility showing receipt of materials.
- C. Record Documentation: In accordance with Section 01 78 00 - Closeout Submittals.
1. List materials used in composite roof shake work.
 2. Warranty: Submit warranty documents specified.

1.07 QUALITY ASSURANCE

- A. Sustainability Standards Certification (LEED).
1. LEED NC Version 2.2 submittals: In accordance with Section 01 35 21 - LEED Requirements.

ENVIROSLATE GUIDE NOTE: Retain the following paragraph only when roofing system is especially complex.

- B. Mock-up: Construct full size 10 x 10 ft mock-up of roof showing composite slate roof tiles using proposed procedures, materials and quality of work where directed by Consultant [and in accordance with Section 01 43 00 - Quality Assurance].
1. Include valley, ridge cap, edge, roof vent or penetration, dormer window and, parapet details.
 2. Purpose: To judge quality of work and material installation.
 3. Allow Consultant [24] hours minimum prior to inspection of mock-up.
 4. Do not proceed with work prior to receipt of written acceptance of mock-up by Consultant.
 5. When accepted, mock-up will demonstrate minimum standard of quality required for work of this Section.
 6. Approved mock-up will [not] remain part of finished work.

ENVIROSLATE GUIDE NOTE: Enviroshake must be installed by a certified Enviroshake® Inc. installer.

- C. Installer Qualifications: Manufacturer's certification for installation of composite slate roofing.

ENVIROSLATE GUIDE NOTE: The following Article although not part of Quality Assurance, can be used to enhance the quality of materials by ensuring that they are delivered and handled properly at the work site.

1.08 DELIVERY STORAGE AND HANDLING

- A. Delivery and Requirements:
1. Deliver material in accordance with Section 01 61 00 - Common Product Requirements.
 2. Deliver materials and components in manufacturer's original packaging with identification labels intact.
- B. Storage and Handling Requirements: Store materials off ground and protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.
1. Exercise care to avoid damage during unloading and storing.
 2. Do not stack material or other skids on top of ridge caps.

3. Stone Grey slate are bundled with white wrapping/strapping, and Charcoal Grey are bundles with green wrapping and yellow strappings.

C. Packaging Waste Management:

ENVIROSLATE GUIDE NOTE: For smaller projects that do not have a separate Section for waste management and disposal, delete the following paragraph.

1. Separate and recycle waste packaging materials in accordance with Section 01 74 19 - Construction Waste Management and Disposal.
2. Remove waste packaging materials from site and dispose of packaging materials at appropriate recycling facilities.

ENVIROSLATE GUIDE NOTE: For smaller projects that do not have a Waste Management Plan, delete the option referring to a Waste management Plan.

3. Collect and separate for disposal paper and plastic material in appropriate on-site storage containers for recycling[in accordance with Waste Management Plan].

1.09 WARRANTY

- A. Project Warranty: Refer to Contract Conditions for project warranty provisions.
- B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to and not intended to limit other rights Owner may have under Contract Conditions.

ENVIROSHAKE GUIDE NOTE: Coordinate article below with manufacturer's warranty requirements. Warranty periods for Enviroshake are only valid if a Factory Trained Enviroshake installer does the work.

- C. Gold Level Warranty period (If Enviroshield Synthetic Underlayment is used):
1. Commercial installations: [50] years commencing on Date of Purchase.
 2. Residential installations: [50] commencing on Date of Purchase.
 3. Caribbean installations: [25] years commencing on Date of Purchase.

Standard Level Warranty period (If Enviroshield Synthetic Underlayment is NOT used):

1. Commercial installations: [25] years commencing on Date of Purchase.
2. Residential installations: [25] commencing on Date of Purchase.
3. Caribbean installations: [25] years commencing on Date of Purchase.

2 PRODUCTS

2.01 MANUFACTURER

- A. Manufacturer: Enviroshake., 650 Riverview Drive, Chatham, Ontario, N7M 5W8, Canada, Phone: (519) 380-9265, Toll Free: (866) 423-3302, FAX: (519) 380-0689, e-mail: info@enviroshake.com , URL: <http://www.enviroshake.com> .

2.02 DESCRIPTION

- A. Slate style composite roofing tile.
- B. Acceptable Material: Enviroshake, Enviroslate.

2.03 DESIGN CRITERIA

- A. Roof Slope: 2:12 minimum.

- B. Ensure roof design load includes shingle weight of 260 lbs per 100 square feet minimum.
- C. Fire Resistance: To ASTM E108
 - 1. UBC Standard 15-2 Rating: Class C and Class A available
 - 2. A Class A roof system rating can be achieved by using a Class A rated underlayment
- D. Water Infiltration Resistance: To Miami-Dade PA 100.
- E. Impact Resistance: To UL 2218, Class 4.
- F. Accelerated Weathering: To UBC Standard 26-6 and 26-7.
- G. Stability Testing: To CGSB-37.58.
- H. Wind Uplift Resistance: To Miami-Dade TAS-125 Class 90.
- I. Wind Driven Rain: To Miami-Dade TAS-10
- J. Miami Dade NOA No. 19-0807.04

2.04 MATERIALS

- A. Composite Roofing Slate: Blend of post industrial plastic, elastomers and cellulosic fiber materials
 - 1. Recycled content: [95] %.
 - 2. Appearance: Slate tile style [20] inches long x [12] inches wide, single width profile, exposed surface textured for first 9 inches, from butt end and flat and smooth to tapered end; black, dark gray, silver gray, green or purple in colour.

ENVIROSLATE GUIDE NOTE: Although the color of the Enviroslate when first installed is either black, dark gray, lighter grey, green and purple within 6 to 12 months depending on exposure to UV the tiles will show nominal weathering similar to a natural slate.

- 3. Color: Black, Dark gray, Silver gray, Green (light/dark) and Purple (light/dark).

2.05 ACCESSORIES

- A. Ridge Caps: Purpose made from same material as composite roofing slate 12 inches wide one piece tile, custom formed to angle of roof slope from 2:12-18:12.
- B. Eaves Protection: To ASTM D7349/D7349M, self adhesive, self sealing rubberized asphalt bonded to polyethylene film composite sheet material [40] mil minimum thickness.
- C. Drip Edges: [26] ga minimum thick [copper] [galvanized steel] [aluminum], purpose made and preformed.
- D. Flashing: [26] ga minimum thick [copper] [galvanized steel] [prefinished aluminum], 24 inches wide “W” flashing

ENVIROSLATE GUIDE NOTE: The material listed in the following paragraph is intended to establish the level of quality required to ensure a good quality Enviroslate installation. If another synthetic underlayment than the Enviroshield is used, only a Standard Level Warranty will be provided. Verify the use of other underlayment with Enviroshake before specifying.

- E. Enviroshield Synthetic Underlayment: synthetic underlay to ASTM E108, [48] inches wide minimum.
- F. Sheathing Paper: [single ply] [laminated] type [perforated] sheathing paper.

ENVIROSLATE GUIDE NOTE: Stainless steel nails are preferred, but hot dipped galvanized nails is acceptable.

- G. Roofing Nails: To ASTM F1667, 1 ½" [stainless] [hot-dipped galvanized] steel roofing nails, four per field shake, and 2 ½" [stainless] [hot-dipped galvanized] steel roofing nails, 2 per ridge cap.
- H. Roof Ventilators: In accordance with Section [07 72 00 – Roof Accessories].
- I. Flashing Sealant: In accordance with Section [07 92 00 – Joint Sealants].
- J. Soffits and Facia: In accordance with Section [07 62 00 – Sheet Metal Flashing and Trim].

2.06 PRODUCT SUBSTITUTIONS

- A. Substitutions: [In accordance with Section 01 23 13 - Product Substitution Procedures] [No substitutions permitted].

3 EXECUTION

3.01 INSTALLERS

ENVIROSLATE GUIDE NOTE: Warranties periods for Enviroshake installations are only valid if a Factory Trained Enviroshake installer does the work.

- A. Use only [Factory Trained Enviroshake installers for] [installers with 2 years' minimum experience in work similar to] work of this Section.

3.02 EXAMINATION

- A. Verification of Conditions: Verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for composite roof shake installation in accordance with manufacturer's written recommendations.
 - 1. Visually inspect substrate in presence of Consultant.
 - a. Verify roof slope.
 - 2. Inform Consultant of unacceptable conditions immediately upon discovery.
 - 3. Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Consultant.

ENVIROSLATE GUIDE NOTE: Retain the following article if existing asphalt shingles are to be removed before installation of new composite slate roofing can begin

3.03 PREPARATION

- A. Removal of Existing Roofing:
 - 1. Remove existing roofing, flashings and underlay to expose sheathing.
- B. Remove existing shingle and flashing nails and set nails which break off.
 - 1. Leave surfaces free from dirt and loose material.
- C. Proceed with work only after receipt of written approval from Consultant.
 - 1. Remove unsuitable portions of sheathing boards, including areas affected by fungal or insect attack as directed by Consultant.
- D. Replace cut out portions of sheathing boards or lath with boards of equal sectional dimensions and grade.
 - 1. Seat each end of board on [rafter] [roof truss], with 1 inch minimum bearing and secure with mechanical fasteners.

3.04 COMPOSITE SLATE ROOFING INSTALLATION

- A. Do composite slate roofing in accordance with shake roofing manufacturer's written recommendations.

- B. Nail drip edge along roof deck edges at 16 inch maximum on center before installation of eaves protection.
 - 1. Ensure drip edge overhangs fascia ½ inch minimum with 2 inch flange extending on to roof deck.
- C. Install self-adhesive eaves protection from bottom edge of roof deck to 3 feet minimum from roof edge.
 - 1. Install eaves protection over ridges, valleys and at projections or penetrations through roof.
 - 2. Lap seams 4 inches minimum.

ENVIROSLATE GUIDE NOTE: Retain the following paragraph if vertical or high slope roof deck is included in the project.

- 3. Install eaves protection over entire surface of [vertical] [high slope] roof deck.
- D. Install roof ventilators and other accessories over eaves protection material in accordance with Section [07 72 00 – Roof Accessories].
- E. Install sheet metal valley flashings where required over eaves protection material, 24 inches wide minimum centred down valleys in accordance with [Section 07 62 00 – Sheet Metal Flashing and Trim] [manufacturer's written recommendations].

ENVIROSLATE GUIDE NOTE: Edit the following paragraph to suit roof conditions.

- 1. Include step and apron flashings at [chimneys] [ridge cap] [ridge vent] [parapets] [and] [dormer windows].
 - 2. Nail flashings in accordance with composite shake manufacturer's written recommendations.
 - 3. Apply bead of sealant to flashing edges and joints in accordance with Section [07 92 00 – Joint Sealants].
- F. Nail synthetic underlay horizontally to roof slope above eaves protection.
 - 1. Overlap eaves protection 4 inches minimum.
 - 2. Ensure roof deck is completely covered by a synthetic underlayment.
 - 3. Overlap breathable synthetic underlay 2 inches minimum at top edges and 4 inches minimum at side edges.
 - 4. Use synthetic underlay of weight meeting requirements of authority having jurisdiction.
 - 5. Nail drip edges along rakes after underlayment is laid.
 - 6. Nail top edges of synthetic underlay strips into sheathing at 6 feet on center.
- G. Install composite roofing tiles in accordance with manufacturer's written recommendations.
 - 1. Use double starter course at bottom edges, including vertical and high slope roof surfaces.
 - 2. Install course straight and plumb.
 - a. Exposure: 9 inches maximum.
 - b. Avoid keyway on keyway pattern.
 - c. Avoid "staircase" pattern.
 - 3. Fasten each tile with 4 nails minimum regardless of tile width.
 - a. Space nails in accordance with shake manufacturer's written recommendations.
 - b. Drive nails flush with surface of tile.
 - c. Ensure tile surface is not crushed.
 - 4. Shake spacing: 3/8 inch.
 - 5. Overlap between shake joints: 1-1/2 inches minimum.
 - 6. Lay each consecutive row of tiles in accordance with manufacturer's written recommendations.
 - 7. Cut tiles to fit accurately around roof projections.
 - a. Allow 1 inch clearance around roof projections, in valleys and beside flashings.
 - b. Use only uncut factory edges kept flush along rake and gable ends and where ends are exposed.

ENVIROSLATE GUIDE NOTE: Delete the following paragraph if roof design includes ridge ventilators.

- 8. Install ridge caps over eaves protection at ridges.
 - a. Exposure: 9 inches maximum.
 - b. Fasten each ridge cap with 2 nails minimum.

- c. Space nails in accordance with shake manufacturer's written recommendations.
- d. Drive nails flush with surface ridge cap.
- e. Ensure ridge cap surface is not crushed.
- 9. At valleys saw tiles parallel to valley centre line.
 - a. Do not break joints into valley.

3.05 SOFFITS AND FACIA

- A. Install prefinished aluminum soffits and fascia material where indicated and in accordance with Section [07 62 00 – Sheet Metal Flashing and Trim].

3.07 ROOF VENTILATORS

- A. Install roof ventilators and other roofing accessories in accordance with Section [07 72 00 – Roof Accessories].

3.08 FIELD QUALITY CONTROL

- A. Field Inspection: Coordinate field inspection in accordance with Section [01 45 00 - Quality Control].

ENVIROSLATE GUIDE NOTE: Specify requirements if manufacturers are to provide field quality control with onsite personnel for instruction or supervision of product installation, application, erection or construction. Manufacturer field reports are included under PART 1, Action and Informational Submittals.

- C. Manufacturer's Services:

ENVIROSLATE GUIDE NOTE: Use the following Paragraphs only when manufacturer's field services are provided and are required to verify the quality of the installed components. Establish the number and duration of periodic site visits required by manufacturer and specify below. Consult manufacturer for services required. Delete if field services are not required.

- 1. Coordinate manufacturer's services with Section [01 45 00 - Quality Control].
 - a. Have manufacturer review work involved in handling, installation, protection, and cleaning of composite roof shake and components, and submit written reports in acceptable format to verify compliance of Work with Contract conditions.
- 2. Manufacturer's Field Services: Provide manufacturer's field services consisting of product use recommendations and periodic site visits for product installation review in accordance with manufacturer's instructions.
 - a. Report any inconsistencies from manufacturer's recommendations immediately to Consultant.
- 3. Schedule site visits to review work at stages listed:
 - a. After delivery and storage of composite slate roof tile and components, and when preparatory work on which Work of this Section depends is complete, but before installation begins.
 - b. Twice during progress of work at 25% and 60% complete.
 - c. Upon completion of Work, after cleaning is carried out.
 - d. Obtain reports within three days of review and submit immediately to Consultant.

3.09 CLEANING

ENVIROSLATE GUIDE NOTE: For smaller projects that do not have a separate Division 01 Section for cleaning, delete the reference to Section 01 74 00 – Cleaning in the following two Paragraphs.

- A. Progress Cleaning: Perform cleanup as work progresses [in accordance with Section 01 74 00 - Cleaning and Waste Management].
 - 1. Leave work area clean end of each day.
- B. Final cleaning: Upon completion, remove surplus materials, rubbish, tools, and equipment [in accordance with Section 01 74 00 – Cleaning and Waste Management].

- C. Waste Management:
 - .1 Co-ordinate recycling of waste materials with 01 74 19 - Construction Waste Management and Disposal.
 - .2 Collect recyclable waste and dispose of or recycle field generated construction waste created during construction or final cleaning related to work of this Section.
 - .3 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.10 PROTECTION

- A. Protect installed products and components from damage during construction.
- B. Repair damage to adjacent materials caused by composite slate roof tile installation.

END OF SECTION 07 31 34 – COMPOSITE SLATE ROOFING