

SPEC NOTE: This Section has been developed using products based on ENVIROSHAKE INC. "Enviroshake" Roofing Shakes manufactured by Enviroshake Inc., P.O. Box 1462, Chatham, Ontario, Canada N7M 5W8.

SPEC NOTE: Square brackets in the text indicate options to be selected by the specifier.

SPEC NOTE: This Section specifies materials, installation and regulatory requirements for composite shakes intended for application to sloping roofs. Ensure that drawings indicate extent of shake application and show representative portion of pattern to be used, including exposure, side laps and head laps as well as installation at flashings, eaves, gables, hip, parapets, chimneys and dormers. Ensure that sheet metal flashings and trim required in connection with shakes are specified in Section 07620 - Metal Flashing and Trim.

SPEC NOTE: Format of this section assumes it will be included in a Project Manual with administrative procedures provided in Division 1 - General Requirements (eg. Section 01700 - Contract Closeout) and other technical specification sections. Delete references to those sections where not applicable.

## PART 1 – GENERAL

### 1.1 Related Sections

SPEC NOTE: Specifier to include related section references. Following are not necessarily needed for this project and are included for example only.

- .1 Section [06101: Rough Carpentry]
- .2 Section [07431: Fascia and Soffit]
- .3 Section [07620: Metal flashing and trim]
- .4 Section[ 07720: Eavestroughs and Downspouts]
- .5 Section [07810: Plastic skylights ]
- .6 Section [07000: Roof hatches]
- .7 Section [07720: Ridge vents, Ventilators and Accessories]
- .8 Section [07000: Air Barriers]
- .9 Section [07000: Vapour Barriers]
- .10 Section [07900: Joint Sealers]
- .11 Section [07000: Waterproofing]

### 1.2 Work Included

SPEC NOTE: Normally do not include a scope of work unless required due to complexity of the work. It is the General Contractor's responsibility to delegate trades to complete the work. If this contract is to be expanded to include supply and/or installation of other trades' such as roof gutters and downspouts, skylights, soffit, roof accessories or other work, describe extent here.

- .1 [ \_\_\_\_\_ ]

### 1.3 References

- .1 ASTM 3161 Wind Resistance Testing
- .2 ASTM C666-[97] Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing .
- .3 ASTM D2794 -[93(1999)e1] Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
- .4 ASTM D570-[95] Water Absorption Testing.
- .5 ASTM D570-[98] Standard Test Method for Water Absorption of Plastics.
- .6 ASTM D1037-[99] Standard Test Methods for Evaluating Properties of Wood Base Fiber and Particle Panel Materials.
- .7 CAN/CGSB-19.13M-M87- Sealing Compound, One Component, Elastomeric Chemical Curing.
- .8 CAN/CGSB-51.32-[M77] Sheathing, Membrane, Breather Type.
- .9 CRCA Guideline SH-1.
- .10 CSA A123.3-[98] Asphalt Saturated Organic Roofing felt.
- .11 CSA B111-[1974(R1998)] Wire Nails, Spikes and Staples.

- .12 CSA O118.1-[97] Western Cedars, Shakes and Shingles.

SPEC NOTE: Following code references are for Ontario, Canada projects. Specifiers to substitute local and national code references for projects outside of Ontario and Canada.

- .13 Ontario Building Code (OBC), Ontario Regulation [403/97].  
.14 National Building Code (NBC) 1995

#### **1.4 Regulatory Requirements**

- .1 Provide documentation confirming compliance with the following:
- .1 Shakes are to be manufactured in accordance with the limitations and conditions of Ontario Ministry of Municipal Affairs and Housing , Building Material Evaluation Commission (BMEC), BMEC Authorization # 99-12-240, dated December 14th 1999. This authorization provides the level of performance equivalent to that which would be achieved by conformance with Article 9.26.2.1 of the Ontario Building Code.
  - .2 Compliance with CCMC Technical Guide for Recycled Plastic Composite Shakes, Masterformat number 07318.1, dated 2002-11-21 ensuring a level of performance equivalent to that required in NBC 1995, Subsection 9.26.2

SPEC NOTE: Approval of shake material by Canada Mortgage and Housing Corporation is required if construction is financed or insured under the National Housing Act. Specifier to ask for this if required.

#### **1.5 Submittals**

- .1 Samples
- .1 Submit samples in accordance with Section 01300 - Submittals.]
  - .2 Submit duplicate full size shakes, of finish and profile specified.
- .2 Shop Drawings

SPEC NOTE: For 1.5.2, specify requirements for shop drawings only when complicated shake installation is detailed for project. If required, provide wording as follows:

- .1 Submit shop drawings in accordance with Section 01300 - Submittals.]
- .2 Indicate details of all flashing installations and roof accessories.

#### **1.6 Design Conditions**

- .1 Minimum roof slope for application of this product is 4:12. There is no maximum limit and shakes may be applied vertically. Inform Consultant if any areas of roof appear to exceed limitations of the product.
- .2 Obtain confirmation that the structural capacity of the roof is sufficient for applications of products of this section. At recommended exposure of 229 mm (9")and slope of 4:12, shakes will weigh 147 Kg per 9.3 square metres (325 lbs per 100 square feet ). Obtain in writing from the Owner and submit to the Consultant prior to installation.
- .3 Obtain confirmation that local codes have been met regarding roof ventilation prior to installation.

#### **1.7 Storage and Handling**

- .1 Deliver, handle, store and protect materials in accordance with [Section 01600 - Material and Equipment] [Section 01610 - Basic Product Requirements].
- .2 Provide and maintain dry, off ground weatherproof storage.
- .3 Unpackage material only in quantities required for same day use.
- .4 Avoid walking on roof shakes when moisture or frost is present.
- .5 Do not stack skids of shake material more than 2 high.

#### **1.8 Job Mock-up**

SPEC NOTE: Consultant's option; not normally required.

- .1 Submit mock-ups in accordance with [Section 01300 - Submittals].
- .2 Construct 1200 x 1200 mm (4 ft x 4 ft) panel of shake pattern including [eave] [ridge] [dormer]

- .3 [parapet] [and valley] details.
- .3 [Mock-up may be part of finished work.] [Remove mock-up when directed.]
- .4 Allow 24 hours for inspection of mock-up by Consultant before proceeding with shake work.

**1.9 Warranty**

- .1 Provide a 50 year material warranty from the shake manufacturer against defective product design or manufacture. Warranty registration is the responsibility of the installer.
- .2 Include in the warranty a guarantee to replace defective material for a period of 5 (five) years from the completion date of the original installation. Guarantee to include all material, labour and hardware necessary for a complete installation.

**1.10 Unused Materials**

- .1 All unused shakes remain property of Owner.

**PART 2 - PRODUCTS**

**2.1 Materials**

- .1 Roof Shakes: composite roof shakes consisting of recycled plastics, fibre, rubber and engineered polymers and conforming to Regulatory Requirements listed in Clause [1.4] of this Section. Appearance to resemble taper split cedar shakes, 508 mm (20") long, varying widths, exposed surface striated for the first 229 mm (9") from the butt end and flat and smooth to the tapered end; dark gray in colour. Acceptable products:
  - .1 ENVIROSHAKE INC. "Enviroshake" Roofing, manufactured by Enviroshake Inc., Chatham, Ontario, Canada.
- .2 Ridge caps: identical material to field area shakes, but purpose made, 300 mm (12") wide one piece shake, custom formed to the angle of the roof slope.
- .3 Eaves Protection: self adhesive, self sealing composite sheet material comprised of rubberized asphalt bonded to a polyethylene film, minimum thickness [1.02 mm (40 mils)].
- .4 Drip Edges: sheet metal 0.457 mm (26 ga.) [copper] [galvanized steel] [aluminum], purpose made and preformed.
- .5 Metal flashings: 0.457 mm (26 ga) [copper] [galvanized steel] [aluminum] W flashing 600 mm (24") wide. Material [other than copper] to be supplied pre-painted.
- .6 Roofing felt: to CSA A123.3, perforated asphalt felt; No. 15 unless otherwise specified, min 450 mm (18") wide.
- .7 Dry sheathing: standard dry sheathing paper to CAN/CGSB-51.32, single ply type, perforated.
- .8 Nails: standard non corrosive roofing nails to CSA B111. See manufacturer's installation instructions for lengths required. Normal length is 38 mm (1 1/2").
- .9 Sealants: construction grade high performance caulking.

**2.2 Roof Accessories**

SPEC NOTE: only if material and/or installation included in this subcontract. Normally included where no other subcontracts on the project.

- .1 [ \_\_\_\_\_ ]

**2.3 Soffit and Fascia:**

SPEC NOTE: only if material and/or installation included in this subcontract. Normally included where no other subcontracts on the project.

- .1 [ \_\_\_\_\_ ]

## PART 3 - EXECUTION

### 3.1 Manufacturer's Instructions

- .1 Thoroughly review manufacturer's instructions and installation diagrams before proceeding with the work. Direct questions or concerns related to the installation procedures to the [Consultant] [manufacturer at 1-866-423-3302] The manufacturer is not responsible for any costs incurred by the Contractor associated with improper installation procedures.

### 3.2 Material Preparation

- .1 Shake material will arrive in bundles on skids. Open and thoroughly mix or "shuffle" the contents of a minimum of 10 to 15 bundles at a time on the ground before delivering to the roof. Apply shakes from this mix at random to insure a blended natural finished appearance. Select bundles at random by removing a portion from each skid to further vary the mix.

### 3.3 Removal of Existing Roofing

SPEC NOTE: use clause only if removal is necessary. Shake material may be applied over one (only) layer of existing asphalt shingles. See clause 3.6 following for installation over existing shingles.

- .1 Remove existing roofing, flashings and underlay, and expose sheathing or shingle lath of roof.
- .2 Withdraw existing shingle and flashing nails, set those which break off. Leave surfaces free from dirt and loose material.
- .3 Consultant to inspect roof sheathing. Remove unsuitable portions of sheathing boards, including areas affected by fungal or insect attack as directed by Consultant.
- .4 Replace cut out portions of sheathing boards or lath with boards of equal sectional dimensions, and specified grade. Seat each end of board on rafter, with 25 mm (1") bearing and secure to rafter.

### 3.4 Underlayments and Flashings

- .1 Nail a drip edge along eaves prior to application of eaves protection and underlayment. Provide the metal overhangs fascia by minimum 12 mm (½") with minimum 50 mm (2") flange extending onto roof decking. Nail to deck at 400 mm (16") oc.
- .2 Install minimum 300 mm (36") wide eaves protection material at roof eaves, overlapping drip edge. Provide eaves protection material also over ridges, valleys and at projections through the roof such as skylights, mechanical vents and fans, as well as to parapets and dormers if any, prior to installing the metal flashings or roof accessories. For vertical shake applications (walls), provide eaves protection material over entire vertical surface. Lap seams minimum 100 mm (4").

SPEC NOTE: re 3.4.2 above, if using a ridge vents, delete ridge cap eaves protection material requirement.

- .3 [Where required, install roof ventilators and other accessories supplied by others over eaves protection material.]
- .4 Install sheet metal valley flashings if required over eaves protection material, minimum 600 mm (24") wide centred down valleys leaving 200 mm (8") of metal exposed. Nail as indicated in manufacturer's instructions. Provide step and apron flashings at chimneys, parapets or dormers on the slope. Provide 150 mm (6") overlap at flashing steps. Finish with bead of sealant.
- .5 Cover the area of roof above the eaves protection with minimum [15 pound] felt with the bottom edge of felt overlapping the eaves protection material. [Use heavier felts where required by local building authorities.] Apply horizontally to roof slope by nailing. Install in one layer over all roof areas to receive shakes, excepting those areas already covered in eaves protection material. Provide 50 mm (2") head laps and 100 mm (4") side laps.
- .6 Nail drip edges along rakes after felt is laid. Nail top edges of felt strips into sheathing at approx. 1800 mm (6 ft) c/c.

### 3.5 Roof Shake Application

- .1 Ensure surface condition, quality, thickness, support and fastenings of deck and roof edge lumber material over which the work of this Section is to be installed is as specified and is suitable to meet installation requirements.
- .2 Install shakes in strict accordance with manufactures instructions unless indicated or specified otherwise in this Section. Obtain printed detailed instructions with diagrams available from the shake manufacturer. Generally, application procedures are similar to procedures for wood shingles and hand-split shakes set out in [NBC] [and] [CSA O118.1, Appendix D]. In cases of discrepancy with these standards, manufacture's written instructions take precedence. Basic procedures outlined in the manufactures product literature includes the following:
  - .1 Provide a double starter course at all bottom edges, including vertical areas.
  - .2 Install in straight, single courses. Maximum exposure to be 229 mm (9").
  - .3 Secure all shakes with a minimum of 2 (two) nails, regardless of shake width. A power-nailer is suitable for use in installation. Drive nails flush but do not crush the shake surface. Adhere to manufacturer's recommended nail spacings.
  - .4 Space the shakes a minimum of 9.5 mm (3/8") apart and stagger joints as described. Minimum overlap between joints below to be 38 mm (1 1/2").
  - .5 Beginning with the first full course of shakes, install felt underlayment strips over the top portion of each shake so felt covers the top 75 mm (3") of the shake, and continue up the roof, laying felt over the top portion of each consecutive row of shakes. Project underlayment strips 38 mm (1 1/2") over drip edge at eaves and 19 mm (3/4") at gable ends.
  - .6 Cut shakes to fit properly with 25 mm (1") clearance around roof projections, along the rake, in valleys, and beside flashing. Use only uncut factory edges kept flush along rake and gable ends and where ends are otherwise exposed.
  - .7 At ridges apply caps over eaves protection material unless ridge ventilators are specified. Maintain 229 mm (9") maximum exposure and fasten in a similar manner as the others. At valleys saw shakes parallel to valley centre line. Do not break joints into valley.

### 3.6 Application Over Existing Asphalt Shingles

SPEC NOTE: use 3.6 if applicable; see Clause 1.6.

- .1 Inspect existing conditions to determine suitability for installation over existing asphalt shingles. Suitability is the responsibility of the installer. Shakes may be installed over 1 layer of existing asphalt shingles provided:
  - .1 There is no evidence of leaks in the roof
  - .2 Sheathing and roof structure is sound
  - .3 Existing shingles are not curling or distorted
  - .4 The roof is structurally able to receive the additional weight. See Clause [1.6] of this section.
- .2 Trim back overhang of existing shingles and install a new drip edge on top of the cut back shingles to conceal edge and provide a clean line along the eaves. Use 45 mm (1 3/4") long (minimum) roofing nails when installing over existing asphalt shingles.
- .3 Generally follow procedures for new installation thereafter.

### 3.7 Roof Accessories

SPEC NOTE: only if material and/or installation included in this subcontract. Normally included where no other subcontracts on the project.

- .1 Install roof accessories such as ventilators or skylights to manufacturer's recommendations over eaves protection material.
- .2 Secure continuous roof edge vents and ridge vents, if any, @ [400 mm (16")] c/c with galvanized

nails. If material is aluminum, use aluminum nails.

### **3.8 Soffits and Fascia:**

SPEC NOTE: only if material and/or installation included in this subcontract. Normally included where no other subcontracts on the project.

- .1 [Install prefinished aluminum fascia and soffit material where indicated].

### **3.9 Eavestrough and Downspouts**

SPEC NOTE: only if material and/or installation included in this subcontract. Normally included where no other subcontracts on the project.

- .1 Provision of eavestroughs and downspouts l is [not part of this Contract] [or]
- .2 Eavestroughs and downspouts material is specified in Section [07720 \_ Roof Accessories] [07465 – Metal Siding].

SPEC NOTE: If products are supplied by others and installed under this subcontract, include clauses 3,4 and 5 following:

- .3 Install eavestroughs and secure to building at [750 mm (2'-6")] oc with eaves trough spikes through spacer ferrules. Slope eavestroughs to downpipes as indicated. Seal joints watertight.
- .4 Install downpipes and provide goosenecks back to wall. Secure downpipes to wall with straps at [1800 mm (6ft)] oc; minimum two straps per downpipe.
- .5 Install splash pans at end of downpipes spilling out on roofs below. Seal joint between splash pan and roofing with plastic cement.

End of Section