

# **GOOD ROOFING PRACTICE STEEP-SLOPE RE-ROOFING ASPHALT SHINGLE ROOFING 1:3 (4/12) AND GREATER**

Revised January 6, 2011

## **1 DECK**

### **1.1 General**

- a) Application of asphalt shingles directly over rigid insulations is not permitted.
- b) Asphalt shingles must be applied to wood decking. For re-roofing applications to plywood or O.S.B. decks the decking shall be minimum 10 mm (3/8") thick exterior grade sheathing.
- c) For new construction the minimum decking thickness is 11 mm (7/16") O.S.B. or 13 mm (1/2") thick plywood sheathing.

### **1.2 Strength**

- a) The roof framing and decking shall be designed of sufficient strength so that they will support the anticipated load such as construction loads. Roof decks shall be free of damaged, deteriorated or decayed wood.

### **1.3 Surface**

- a) The surface of all roof decks to which a roofing system is to be applied shall be sufficiently clean and dry so that proper attachment can take place.
- b) Roofing over existing asphalt shingles is not permitted; tear off old materials to expose the decking.
- c) Repair damaged or deteriorated decking and fill abandoned deck openings with similar materials prior to re-roofing.

## **2 ROOFING MATERIALS**

### **2.1 General**

- a) The roofing materials shall conform to the Manitoba Building Code and shall comply with their applicable materials standard.
- b) Materials shall be adequately labeled so that proper identification of the materials may be made.

### **2.2 Application Limitations**

- a) No roofing material is to be applied when the weather or the condition of its substrate is such that the required installation procedures could not be followed or which would jeopardize the performance of the roofing system.

### **2.3 Asphalt Shingles**

- a) Organic asphalt shingles shall conform to Canadian Standards Association standard CSA A123.1-98 "Asphalt Shingles Made from Organic Felt and Surfaced with Mineral Granules".

b) Inorganic asphalt shingles shall conform to CSA A123.5-98 "Asphalt Shingles Made from Glass Felt and Surface with Mineral Granules".

## **2.4 Organic Felt**

a) The organic felt used for the underlayment shall be No. 15 asphalt saturated non-perforated felt conforming to CAS A123.3-98.

## **2.5 Nails**

a) Nails used for roofing shall be corrosion-resistant roofing or shingle nails conforming to CSA B111 "Wire Nails, Spikes and Staples".

b) Nails shall have sufficient length to penetrate through deck sheathing, or a minimum penetration of 25 mm (1") into the roof decking.

c) Nails shall have a head diameter of not less than 9.5 mm and a shank thickness of not less than 2.95 mm

## **2.6 Staples**

a) The use of staples for the attachment of asphalt shingles is not recommended.

## **3 FLASHING AT INTERSECTIONS**

### **3.1 Materials**

a) Sheet metal flashing shall consist of not less than:

- 15kg/m<sup>2</sup> (3 P.S.F.) thick sheet lead
- 0.41 mm (30 ga.) thick Z275 galvanized steel
- 0.56 mm (16 oz.) thick copper
- 0.60 mm (22 ga) thick aluminum
- or approved alternates

### **3.2 Valley Flashing**

a) Open, woven or closed cut valleys are permitted. Open valleys may be employed for all asphalt shingle applications. California style valleys are permitted.

b) Where sloping surfaces of shingle roofs intersect to form a valley, the valley shall be flashed with minimum one (1) ply of self adhering modified bituminous membrane, minimum of 914 mm (36") wide, centered in the valley.

c) Open valleys are to be flashed with an additional layer of sheet metal not less than 600 mm (2') wide. Where adjoining roof areas differ in pitch, metal valley flashing shall contain a 25 mm (1") high centre crimp.

d) 2ply modified bitumen rolled roofing minimum 36" centered in the valley

e) The shingle underlayment shall be carried over (on top of) the sheet metal valley flashing edges and be trimmed to line parallel to the interior cut edge of the shingle's triangular clip. Shingles and shingle segments on both sides of the finished valleys shall have their top valley edges cut to form a triangle approximately 50 mm wide to direct runoff towards the valley's centerline.

f) For woven and closed cut valleys ensure shingles are tightly pressed in the valley and that nails are located no closer than 150 mm (6") to the valley centerline. The shingle termination on the opposite side of the valley shall be fastened with a minimum of two roofing nails placed vertically above one another.

g) For closed cut valleys, trim the overlapping shingle a minimum distance of 50 mm (2") up from the valley centerline.

### **3.3 Intersection of Shingle Roofs and Walls**

a) The intersection of shingle roofs and walls or chimneys shall be protected with flashing.

b) Sheet metal step flashing shall be installed when the rake of a roof abuts a vertical wall or projection.

c) Sheet metal wall flashing shall be installed where a roof meets a vertical wall perpendicular to the slope. Flashing may be left exposed or covered with a decorative course of shingles with exposed face nails.

d) Sheet metal step flashing fabricated with out-turn or kick out shall be install at the eave edge where the vertical wall continues past the eaves to prevent water from entering behind the wall cladding.

### **3.4 Chimney (recommended)**

a) Chimney saddles shall be installed where the upper side of a chimney on a sloping roof is more than 750 mm (30") wide.

b) For chimneys less than 750 mm (30") wide a chimney saddle need not be installed if the intersection between the chimney and roof is protected by one ply of self adhering modified bitumen membrane and a sheet metal flashing that extends up the chimney to a height equal to not less than one sixth the width of the chimney, but not less than 150 mm (6"), and shall extend up the roof slope to a point equal in height to the flashing on the chimney, but not less than 1.5 times the shingle exposure.

## **4 EAVE PROTECITION AND ANGLE FLASHING**

### **4.1 Materials**

- a) Eave protection laid beneath the starter strip shall consist of one of the following
- Type M or S roll roofing conforming to CSA A123.2-M1979 laid with not less than 100 mm (4") head and end laps cemented together with lap cement. This application is restricted to warm weather applications to minimize the possibility of wrinkling.
  - Minimum No. 25 glass fiber coated base sheet.
  - Modified bituminous membranes

### **4.2 Eave Protection**

a) Eave protection shall extend from the roof edge a minimum distance of 900 mm (3') up the roof slope to a line not less than 300 mm (1') inside the inner face of the exterior wall.

- b) Eave protection is not required:
- over unheated garages, carports and porches,
  - where the roof overhang exceeds 900 mm (3') measured along the roof slope from the eave of the roof to the inner face of the exterior wall,

### **4.3 Drip Edge Flashings (optional)**

a) The installation may include pre-finished or galvanized sheet metal drip edge flashings. The deck flange shall extend a minimum distance of 50 mm (2") on to the roof decking and shall be nailed a maximum of 400 mm (16") centers prior to the application of the eave protection or shingles. Space vertical flange a minimum of 6 mm (1/4") from fascia.

b) Except where structure has less than 4" of overhang (soffit) in which case the eave protection membrane may be installed first and extended past the outer edge of fascia board then the drip edge flashing shall be installed over top the eave membrane to protect it from exposure

## **5 UNDERLAYMENT (Recommended)**

### **5.1 Materials**

a) The field of the decking shall be completely covered with a minimum of one ply of CSA No 15 non-perforated asphalt saturated felt or synthetic underlayment designed for sloped roof application prior to application of shingles

### **5.2 Installation**

a) Underlay shall be installed parallel to the eaves with a head lap not less than 100mm (4") and end lap of not less than 150mm (6")

b) The underlay shall over lap the eave protection a minimum distance of 100 mm (4"), if no eave protection is installed the underlay shall start at the outer edge of the fascia board.

c) The top edge of each strip shall be sufficiently fastened to hold the underlayment in place until the shingles are applied.

d) Ensure underlayment is lying flat prior to single application.

## **6 VENTILATION**

a) Every roof space or attic above an insulated ceiling shall be ventilated with openings to the exterior to provide an unobstructed vent area of not less than 1/300 of the insulated ceiling area. Vents may be roof type, eave type, soffit type, gable-end type or any combination thereof, and shall be uniformly distributed on opposite sides of the building. Roof vents shall be equally distributed so that approximately 50% of the require vent area is located near the lower part of the roof and approximately 50% of the required vent area is near the ridge. Not withstanding houses built prior to the current building code.

## **7 APPLICATION**

### **7.1 Coverage**

a) Coverage shall be not less than two (2) thicknesses of organic or inorganic asphalt shingles over the entire field of the roof, disregarding shingle tab cutouts.

### **7.2 Starter Strip**

a) A starter strip shall be installed along the lower edge of the roof so that it extends a minimum 19 mm (3/4") beyond the eaves and rake of the roof and be fastened along the bottom edge with nails spaced not more than 300mm (1') on centre.

### **7.3 Fasteners**

- a) Shingles shall be fastened with no fewer than four (4) nails per shingle so that nails penetrate through both shingle courses with no exposed nails.
- b) Shingles shall be fastened with a minimum of six (6) nails for roof pitches greater than 12/12
- c) Fasteners shall be located 25 mm (1") to 40 mm (1 ½ ") from each end of each strip shingle with other fasteners equally spaced between them.
- d) Fasteners shall be located not less than 12.5 mm (1/2") above the tops of the cutouts and penetrating a minimum of 2 layers of shingles.
- e) Fastener quantities may be reduced for narrower shingles in proportion to the width of the shingle or when shingles incorporating interlocking devices are used. No fewer than two (2) fasteners shall be used per shingle segment.

### **7.4 Hips and Ridges**

- a) Shingles on hips and ridges must be applied so they extend not less than 100 mm (4") on either side of the hip or ridge centerline and shall be lapped not less than 150 mm (6").
- b) Shingles must be fastened with nails located not more than 25 mm (1") from the edge and 25mm (1") above the butt of the overlaying shingle on both sides of the hip or ridge centerline.

### **7.5 Securing of Tabs**

- a) Follow shingle manufacturer's application recommendations and allow one (1) year for shingles to seal. It may not be necessary to hand tab shingles that have been installed in cold weather.
- b) Shingle tabs shall be secured by a self sealing adhesive strip or by a spot of plastic cement not exceeding 25 mm (1") diameter under the centre of each tab (Manual sealing)

## **9 LOW SLOPE APPLICATIONS (Slopes 1:6 (2/12) to less than 1:3 (4/12))**

- a) Modified bitumen membrane shall be installed so that it extends 2 ft inside the heated wall as eave protection with the balance of the roof covered with 2 plies of underlayment or 100% coverage of modified bitumen membrane.  
For exceptions refer to section 4.2 (b). NOTE: underlayment requirements still apply.
- b) Appropriate metal eave protection (drip edge) shall be installed on roofs between 2/12 – less than 4/12
- c) When applying shingles with a low slope application refer to manufacturers pitch requirement for shingle warranties