

STEEP-SLOPE ROOFING

SECTION 2 - ASPHALT SHINGLE ROOFING

2.1 DECKS

2.1.1 General

- .1 Asphalt shingle application directly over rigid insulation is not permitted.
- .2 Asphalt shingle application directly over dimensional lumber is not permitted.
- .3 Asphalt shingles must be applied to wood decking.
- .4 For new construction, the roof decking shall be minimum 11 mm (7/16") thick O.S.B. or minimum 12.7 mm (1/2") thick plywood sheathing.
- .5 When reroofing, plywood or O.S.B. roof sheathing shall be minimum 10 mm (3/8") thick.

2.1.2 Strength

- .1 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.

2.1.3 Surface

- .1 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.
- .2 Roofing over existing asphalt shingles is not permitted, tear off old materials to expose the decking.
- .3 Repair damaged or deteriorated decking and fill abandoned deck openings with similar materials prior to reroofing.

2.1.4 Slope

- .1 The minimum roof slope permitted for issuance of an asphalt shingle roofing Warranty Certificate is 4:12 (1:3).
- .2 Use a membrane roofing system for roof slopes less than 4:12 (1:3).

2.2 ROOFING MATERIALS

2.2.1 General

- .1 The roofing materials shall conform to the Alberta Building Code (A.B.C.) and shall comply with their applicable materials standard.
- .2 Materials shall be adequately labeled so that proper identification of the materials may be made.

2.2.2 Protection and Storage

- .1 All roofing materials that can be adversely affected by moisture shall be protected prior to application and only dry materials shall be applied.
- .2 Rolls of felt are to be stored on end, covered and out of danger of water penetration.

2.2.3 Application Limitations

- .1 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 or the safety of the applicators.

2.2.4 Asphalt Shingles

- .1 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.
- .2 Inorganic asphalt shingles shall conform to CSA A123.5-98, Asphalt Shingles made from glass felt and surfaced with mineral granules.

2.2.5 Organic Felt

- .1 The organic felt used for the underlayment and eave protection shall be No.15 asphalt saturated non-perforated felt conforming to CSA A 123.3-98.

2.2.6 Nails

- .1 Nails used for roofing shall be corrosion-resistant roofing or shingle nails conforming to CSA B111, "Wire Nails, Spikes and Staples".
- .2 Nails shall have sufficient length to penetrate through the asphalt shingle roofing and roof sheathing or have a minimum penetration of 25 mm (1") into the roof decking.
- .3 Nails shall have a head diameter of not less than 10 mm (3/8") and a shank thickness of not less than 2.95 mm.

2.2.7 Staples

- .1 The use of staples for the attachment of asphalt shingles is not permitted.

2.3 FLASHING AT INTERSECTIONS

2.3.1 Materials

- .1 Sheet metal flashing shall consist of not less than:
 - a) 15 kg/m² (3 P.S.F.) thick sheet lead,
 - b) 0.41 mm (30 ga.) thick Z275 galvanized steel,
 - c) 0.56 mm (16 oz.) thick copper,
 - d) 0.60 mm (22 ga.) thick aluminum
 - e) or approved alternates.

2.3.2 Valley Flashing

- .1 Open, woven or closed cut valleys are permitted for W.C. issuance. California style valleys are not permitted.
- .2 Open valleys must be employed for both laminated and interlocking asphalt shingle applications.
- .3 Where sloping surfaces of shingle roofs intersect to form a valley, the valley shall be flashed with a minimum of one (1) ply of 914 mm (36") wide self adhering modified bituminous membrane centered in valley.
- .4 Open valleys shall be flashed with an additional layer of sheet metal not less than 600 mm (2 ft.) wide. Where adjoining roof areas differ in pitch, the metal valley flashing shall contain a 25 mm (1") high centre crimp.
- .5 The shingle underlayment shall be carried over (on top of) the edges of the sheet metal valley flashing and be trimmed to a line parallel to the interior cut edge of the shingle's triangular clip. Shingles and shingle segments on both sides of valleys shall have their top valley edge clipped to form an approximately 50 mm (2") wide triangle to direct runoff towards the valley's centerline.
- .6 For woven and closed cut valleys, shingles shall be tightly pressed into the valley and fastened no closer than 150 mm (6") from the valley centre line. Shingle terminations on opposite sides of the valley shall be fastened with a minimum of two (2) roofing nails placed vertically above one another.
- .7 For closed cut valleys, trim the overlapping shingles at a minimum distance of 50 mm (2") up/back from the valley centerline.

2.3.3 Intersection of Shingle Roofs and Walls

- .1 The intersection of shingle roofs and walls or chimneys shall be protected with flashing in accordance with the Alberta Building Code (A.B.C.).
- .2 Sheet metal step flashing shall be installed when the rake of a roof abuts a vertical wall or projection.

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2.3.4 Chimney Saddles

- .1 For sloping roofs, chimney saddles shall be installed where the upslope side of a chimney is more than 750 mm (30") wide. See the Alberta Building Code for details.
- .2 For chimneys less than 750 mm (30") wide, a chimney saddle need not be installed if the intersection between the chimney and roof decking is protected by one (1) ply of self-adhering modified bituminous membrane covered by a sheet metal flashing (back pan) that extends up the chimney to a height equal to not less than one sixth the width of the chimney, but no less than 150 mm (6") in height and shall extend up the roof slope to a point equal in height to the top edge of the chimney flashing, but not less than 1.5 times the shingle exposure.
- .3 Chimney saddles and valleys shall be treated in accordance with Clause 2.3.2.

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2.4 EAVE PROTECTION AND METAL FLASHING

2.4.1 Eave Protection

- .1 Eave protection shall extend from the roof edge a minimum distance of 900 mm (3 ft.) up the roof slope to a line not less than 300 mm (1 ft.) inside the inner face of the exterior wall.
- .2 Eave protection is not required:
 - (a) Over unheated garages, carports and porches,
 - (b) Where the roof overhang exceeds 900 mm (3 ft.) measured along the roof slope from the edge of the roof to the inner face of the exterior wall,
 - (c) On roofs with slopes of 8:12 (1:1.5) or greater.

2.4.2 Materials

- .1 Eave protection laid beneath the starter strip shall consist of one of the following:
 - (a) No. 15 asphalt saturated felt conforming to CSA A123.3-98, laid in two plies lapped 480 mm (19") and cemented together with lap cement,
 - (b) 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.
 - (c) Minimum No. 25 glass fiber coated base sheets,
 - (d) Self-adhering modified bituminous membranes.

2.4.3 Drip Edge Flashings

- .1 Pre-finished or galvanized sheet metal drip edge flashing shall be installed along roof eaves and rakes. The vertical flange shall be spaced a minimum distance of 6 mm (1/4") from the fascia face. The deck flange shall extend a minimum distance of 75 mm (3") on to the roof decking and shall be nailed at maximum 400 mm (16") centres prior to shingle application.
- .2 At the eaves, the sheet metal drip edge flashing shall be fastened directly to the roof decking beneath the eave protection.

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- .3 At roof rake edges, the drip edge shall be fastened to the roof decking over the underlayment and eave protection membranes.
- .4 Exposed flashing edges shall be hemmed.

2.5 UNDERLAYMENT

2.5.1 Materials

- .1 The field of the decking shall be completely covered with a minimum of one (1) ply of CSA No. 15 non-perforated asphalt saturated felt prior to application of the shingles.

2.5.2 Installation

- .1 Underlay shall be installed parallel to the eaves with head and end lap of not less than 100 mm (4").
- .2 The underlay shall overlap the eave protection a minimum distance of 100 mm (4").
- .3 The top edge of each underlayment strip shall be sufficiently fastened to hold the underlayment in place until the shingles are applied.
- .4 Ensure the underlayment is lying flat prior to shingle application.

2.6 VENTILATION

- .1 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 percent of the required vent area is located near the lower part of the roof and approximately 50 percent of the required vent area is near the ridge. For exceptions see Alberta Building Code, Section 9.19.1, Venting.

2.7 APPLICATION

2.7.1 Coverage

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

2.7.2 Starter Strip

- .1 A starter strip shall be installed along the lower edge of the roof so that it extends approximately 19 mm (3/4") beyond the eaves and rakes of the roof and be fastened along the bottom edge with nails spaced not more than 300 mm (1 ft.) on centre.
- .2 Starter strips shall be three (3) tab shingles with tabs facing up the roof slope or starter shingles of the same weight and quality as those used as the roof covering.

2.7.3 Head Lap

- .1 Shingles shall have a head lap of not less than 50 mm (2").

2.7.4 Fasteners

- .1 Shingles shall be fastened with no fewer than four (4) roofing nails per shingle, placed in the nailing zone so that nails penetrate through both shingle courses and the roof decking, with no exposed nails. Nails shall be driven flush with the shingle surface.
- .2 For roof pitches greater than 12:12, asphalt shingles shall be fastened with a minimum of six (6) roofing nails per shingle.
- .3 Fasteners shall be located 25 mm (1") to 40 mm (1-1/2") from the end of each shingle and the remaining fasteners equally spaced between them.
- .4 For three tab shingles, roofing nails shall be located not less than 12.5 mm (1/2") above the tops of the cutouts.
- .5 Fastener quantities may be reduced for trimmed shingles in proportion to the shingle segment's width and when shingles incorporating interlocking devices are used. No fewer than two (2) roofing nails shall be used to secure trimmed shingle segments.
- .6 No nail head shall be left exposed to the weather.

2.7.5 Securing of Tabs

- .1 Shingles and shingle tabs shall be secured by a self sealing adhesive strip, by interlocking devices or by additional application of plastic cement when hand tabbing.
- .2 Follow shingle manufacturer's application recommendations and allow one (1) season for shingles to seal. It may not be necessary to hand tab shingles during cold weather applications.
- .3 The first course of shingles shall be hand tabbed to the starter shingles along eave and rake edges.
- .4 Partial and trimmed shingles shall be hand tabbed at terminations such as gable edges, rakes, valleys, vents, curbs, etc.

2.7.6 Hips and Ridges

- .1 Hip and ridge shingles must be applied so they extend not less than 100 mm (4") on either side of the hip or ridge centre line and shall be lapped not less than 150 mm (6"). Shingle laps shall face away from the prevailing wind direction.
- .2 Shingles must be fastened with nails located not more than 25 mm (1") from the edge and 25 mm (1") above the butt of the overlying shingle on both sides of the hip or ridge centre line.

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2.8 ACCEPTED ASPHALT SHINGLES

2.8.1 Organic Asphalt Shingles

- .1 Three tab, interlocking and architectural organic asphalt shingles complying with the latest revision of CSA Standard, CSA - A123.1 - 98, Asphalt Shingles Made from Organic Felt and Surfaced with Mineral Granules.
- a) *IKO Industries Ltd.*
 - b) *BP Co*

2.8.2 Inorganic Asphalt Shingles

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- .1 Three tab and architectural inorganic asphalt shingles complying with C.S.A. A123.5 - 98, Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules and successfully completing an ARCA Warranty Ltd. material evaluation as accepted products.

- a) *GAF-Elk Corporation*

Timberline 30
Timberline Prestique High Definition 30
Timberline Prestique High definition 40
Timberline Prestique High Definition LT

- b) *IKO / CRC*

IKO Cambridge 30 and 30 AR
IKO Cambridge LT and LT AR
IKO Roofshake 40 and 40 AR

CRC Biltmore 30 and 30 AR

- c) *CERTAINTEED CORPORATION*

Added
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Landmark, Landmark Plus, Landmark Premium, Landmark TL