Section 9.26. Roofing

9.26.1. General

9.26.1.1. Definitions

1) For the purpose of this Section, the term "roof" shall mean sloped or near-horizontal assemblies that protect the spaces beneath them, including platforms that effectively serve as roofs with respect to the accumulation or drainage of precipitation. (See Note A-9.26.1.1.(1).)

2) For the purpose of this Section, the term "roofing" shall mean the primary covering for roofs.

9.26.1.2. Required Protection

1) Roofs shall be protected with roofing, including flashing, installed so as to

a) effectively shed water,

b) prevent the ingress of water and moisture into building assemblies and occupied space, and

c) minimize the ingress of water due to ice damming into building assemblies.

2) Compliance with Sentence (1) shall be demonstrated by conforming to

a) the remainder of this Subsection, or

b) Part 5.

9.26.1.3. Alternative Installation Methods

1) Methods described in CAN3-A123.51-M, "Asphalt Shingle Application on Roof Slopes 1:3 and Steeper," or in CAN3-A123.52-M, "Asphalt Shingle Application on Roof Slopes 1:6 to Less Than 1:3," are permitted to be used for asphalt shingle applications not described in this Section.

9.26.2. Roofing Materials

9.26.2.1. Material Standards

1) Materials used for the preparation of the substrate for roofing shall conform to the requirements of the applicable standards in Table 9.26.2.1.-A.

Table 9.26.2.1.-A
Materials for Preparation of the Substrate for Roofing
Forming Part of Sentence 9.26.2.1.(1)

Type of Material	Standards
Sheathing membranes	CAN/CGSB-51.32-M, "Sheathing, Membrane, Breather Type"
Primers	CGSB 37-GP-9Ma, "Primer, Asphalt, Unfilled, for Asphalt Roofing, Dampproofing and Waterproofing"

2) Roofing materials shall conform to the requirements of the applicable standards in Table 9.26.2.1.-B.

Table 9.26.2.1.-B
Roofing Materials
Forming Part of Sentence 9.26.2.1.(2)

Types of Roof Covering	Standards
Built-up roofing (BUR)	ASTM D 3019, "Lap Cement Used with Asphalt Roll Roofing, Non-Fibered, Asbestos-Fibered, and Non-Asbestos-Fibered"(1)
	ASTM D 4479/D 4479M, "Asphalt Roof Coatings – Asbestos-Free"
	CGSB 37-GP-56M, "Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing"
	CAN/CGSB-37.50-M, "Hot-Applied, Rubberized Asphalt for Roofing and Waterproofing"
	CAN/CSA-A123.2, "Asphalt-Coated Roofing Sheets"
	CSA A123.3, "Asphalt Saturated Organic Roofing Felt"
	CAN/CSA-A123.4, "Asphalt for Constructing Built-Up Roof Coverings and Waterproofing Systems"
	CSA A123.17, "Asphalt Glass Felt Used in Roofing and Waterproofing"
Single-ply membranes	CAN/CGSB-37.54, "Polyvinyl Chloride Roofing and Waterproofing Membrane"
	CAN/CGSB-37.58-M, "Membrane, Elastomeric, Cold-Applied Liquid, for Non-Exposed Use in Roofing and Waterproofing"
	ASTM D 4637/D 4637M, "EPDM Sheet Used In Single-Ply Roof Membrane"
	ASTM D 4811/D 4811M, "Nonvulcanized (Uncured) Rubber Sheet Used as Roof Flashing"
	ASTM D 6878/D 6878M, "Thermoplastic Polyolefin Based Sheet Roofing"
Shingles, shakes, tiles, panels	CSA A123.1/A123.5, "Asphalt Shingles Made From Organic Felt and Surfaced with Mineral Granules/ Asphalt Shingles Made From Glass Felt and Surfaced with Mineral Granules"
	CAN/CSA-A220, "Concrete Roof Tiles"
	CSA O118.1, "Western Red Cedar Shakes and Shingles"
	CSA O118.2, "Eastern White Cedar Shingles"
Eave protection	CSA A123.22, "Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection"
Flashing	ASTM D 4811/D 4811M, "Nonvulcanized (Uncured) Rubber Sheet Used as Roof Flashing"

Notes to Table 9.26.2.1.-B:

(1) For the purpose of this Subsection, ASTM D 3019 shall only apply to the non-fibered and non-asbestos-fibered types of asphalt roll roofing.

3) Except where otherwise permitted by the Chief Building Official, cedar shingles and shakes shall be certified as to grade by an agency accredited by the Standards Council of Canada.

9.26.2.2. Installation of Materials

1) Materials listed in Tables 9.26.2.1.-A and 9.26.2.1.-B shall be installed in conformance with the manufacturer's written instructions. (See Sentence 1.5.1.2.(1) of Division A.)

9.26.2.3. Nails

1) Nails used for roofing shall be corrosion-resistant roofing or shingle nails conforming to

a) ASTM F 1667, "Driven Fasteners: Nails, Spikes, and Staples," or

b) CSA B111, "Wire Nails, Spikes and Staples."

2) Nails shall have sufficient length to penetrate through, or 12 mm into, roof sheathing.

3) Nails used with asphalt roofing shall have a head diameter of not less than 9.5 mm and a shank thickness of not less than 2.95 mm.

4) Nails used with wood shingles or shakes shall have a head diameter of not less than 4.8 mm and a shank thickness of not less than 2.0 mm and shall be stainless steel, aluminum or hot-dipped galvanized. (See Note A-9.26.2.3.(4).)

9.26.2.4. Staples

1) Staples used to apply asphalt or wood shingles shall be corrosion-resistant and shall be driven with the crown parallel to the eaves.

2) Staples used with asphalt shingles shall be not less than 19 mm long, 1.6 mm diam or thickness, with not less than a 25 mm crown, except that an 11 mm crown may be used as provided in Sentence 9.26.7.4.(2).

3) Staples used with wood shingles shall be not less than 29 mm long, 1.6 mm diam or thickness, with not less than a 9.5 mm crown and shall be stainless steel or aluminum. (See Note A-9.26.2.3.(4).)

9.26.3. Slope of Roofed Surfaces

9.26.3.1. Slope

1) Except as provided in Sentences (2) and (3), the slopes on which roof coverings may be applied shall conform to Table 9.26.3.1.

2) Asphalt and gravel or coal tar and gravel roofs may be constructed with lower slopes than required in Sentence (1) when effective drainage is provided by roof drains located at the lowest points on the roofs.

3) Profiled metal roof cladding systems specifically designed for low-slope applications are permitted to be installed with lower slopes than required by Sentence (1), provided they are installed in conformance with the manufacturer's written recommendations.

4) Except where back-slope will not adversely affect adjacent supported or supporting constructions due to water ingress, roofs and constructions that effectively serve as roofs shall be constructed with sufficient slope away from

a) exterior walls, and

b) guards that are connected to the roof, or to a construction that effectively serves as a roof, by more than pickets or posts.

(See Notes A-9.26.1.1.(1), A-9.26.4.1. and A-9.27.3.8.(4).)

5) The slope required by Sentence (4) shall be sufficient to maintain a positive slope

a) after expected shrinkage of the *building* frame, where these surfaces are supported by exterior walls and exterior columns (See Note A-9.27.3.8.(4)), and

b) once design loading is taken into consideration, where these surfaces are cantilevered from exterior walls.

Table 9.26.3.1.
Roofing Types and Slope Limits
Forming Part of Sentence 9.26.3.1.(1)

Roofing Types and Slope Limits	Minimum Slope	Maximum Slope
Forming Part of Sentence 9.26.3.1.(1)	1 in 4	no limit
Asphalt Shingles		
Low slope application	1 in 6	no limit
Normal application	1 in 3	no limit
Built-up Roofing		
Asphalt base (without gravel)	1 in 25	1 in 2
Asphalt base (gravelled)	1 in 50[(1)]	1 in 4
Coal-tar base (gravelled)	1 in 50[(1)]	1 in 25
Cold process	1 in 25	1 in 1.33
Cedar Shakes	1 in 3	no limit
Clay Tile	1 in 2	no limit
Glass Fibre Reinforced Polyester Roofing Panels	1 in 4	no limit

Table 9.26.3.1. *(continued)*
Roofing Types and Slope Limits
Forming Part of Sentence 9.26.3.1.(1)

Roofing Types and Slope Limits	Minimum Slope	Maximum Slope
Modified Bituminous Membranes	1 in 50	1 in 4
Profiled Metal Roofing	1 in 4(1)	no limit
Roll Roofing		
480 mm wide selvage asphalt roofing	1 in 6	no limit
Cold application felt	1 in 50	1 in 1.33
Smooth and mineral surfaced	1 in 4	no limit
Sheet Metal Shingles	1 in 4(1)	no limit
Slate Shingles	1 in 2	no limit
Wood Shingles	1 in 4	no limit

Notes to Table 9.26.3.1.:

(1) See Sentence 9.26.3.1.(3).

9.26.4. Flashing at Intersections

9.26.4.1. Required Flashing at Intersections

(See Notes A-9.26.4.1. and A-9.26.1.1.(1).)

1) Except where the omission of flashing will not adversely affect adjacent supported or supporting constructions, flashing shall be installed at junctions between roofs and

a) walls that rise above the roof, and

b) *guards* that are connected to the roof by more than pickets or posts.

2) For the purpose of Sentence (1), roofs shall include platforms that effectively serve as roofs with respect to the accumulation or drainage of precipitation.

9.26.4.2. Materials

1) Sheet metal flashing shall consist of not less than

a) 1.73 mm thick sheet lead,

b) 0.33 mm thick galvanized steel,

c) 0.33 mm thick copper,

d) 0.35 mm thick zinc, or

e) 0.48 mm thick aluminum.

9.26.4.3. Valley Flashing

1) Where sloping surfaces of shingled roofs intersect to form a valley, the valley shall be flashed.

2) Valley flashing shall be installed over continuous sheathing.

3) Closed valleys shall not be used with rigid shingles on slopes of less than 1 in 1.2.

4) Open valleys shall be flashed with at least

a) one layer of sheet metal not less than 600 mm wide, or

b) 2 layers of roll roofing.

5) The bottom layer of roofing required in Sentence (4) shall consist of at least Type S smooth roll roofing or Type M mineral surface roll roofing (mineral surface down) not less than 457 mm wide, centred in the valley and fastened with nails spaced not more than 450 mm o.c. located 25 mm away from the edges.

6) The top layer of roofing required in Sentence (4) shall consist of at least Type M mineral surface roll roofing (mineral surface up), 914 mm wide, centred in the valley, applied over a 100 mm wide strip of cement along each edge of the bottom layer, and fastened with a sufficient number of nails to hold it in place until the shingles are applied.

9.26.4.4. Intersection of Shingle Roofs and Masonry

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

2) Counter flashing required in Sentence (1) shall be embedded not less than 25 mm in the masonry and shall extend not less than 150 mm down the masonry and lap the lower flashing not less than 100 mm.

3) Flashing along the slopes of a roof described in Sentence (1) shall be stepped so that there is not less than a 75 mm head lap in both the lower flashing and counter flashing.

4) Where the roof described in Sentence (1) slopes upwards from the masonry, the flashing shall extend up the roof slope to a point equal in height to the flashing on the masonry, but not less than 1.5 times the shingle exposure.

9.26.4.5. Intersection of Shingle Roofs and Walls other than Masonry

1) The intersection of shingle roofs and walls clad with other than masonry shall be protected with flashing.

2) Flashing required in Sentence (1) shall be installed so that it extends up the wall not less than 75 mm behind the sheathing paper, and extends not less than 75 mm horizontally.

3) Along the slope of the roof, the flashing required in Sentence (1) shall be stepped with not less than a 75 mm head lap.

9.26.4.6. Intersection of Built-Up Roofs and Masonry

1) The intersection of built-up roofs with masonry walls or *chimneys* shall have a cant strip at the intersection, and a roofing membrane shall be mopped over the cant strip and not less than 150 mm up the wall.

2) Counter flashing installed over the intersection referred to in Sentence (1) shall be embedded not less than 25 mm in the masonry, and shall be of sufficient length to extend down not less than 150 mm, lapping the membrane on the masonry not less than 100 mm.

9.26.4.7. Intersection of Built-Up Roofs and Walls other than Masonry

1) The intersection of built-up roofs with walls clad with other than masonry shall have a cant strip at the intersection.

2) The roofing membrane shall be mopped over the cant strip referred to in Sentence (1).

3) Flashing plies shall extend not less than 150 mm up the wall referred to in Sentence (1) behind the sheathing paper.

9.26.4.8. Chimney Saddles

1) Except as otherwise permitted in Sentence (5), *chimney* saddles shall be installed where the upper side of a *chimney* on a sloping roof is more than 750 mm wide.

2) *Chimney* saddles shall be covered with sheet metal or roofing material of weight and quality equivalent to the roofing.

3) Saddles shall be flashed where they intersect the roof.

4) The intersection of the saddle and the *chimney* shall be flashed and counterflashed as described in Article 9.26.4.4.

5) A *chimney* saddle need not be installed if the intersection between the *chimney* and roof is protected by sheet metal flashing that extends up the *chimney* to a height equal to at least one sixth the width of the *chimney*, but not less than 150 mm, and 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.

6) Flashing described in Sentence (5) at the *chimney* shall be counterflashed as required by Article 9.26.4.4.

9.26.5. Eave Protection for Shingles and Shakes

9.26.5.1. Required Eave Protection

1) Except as provided in Sentence (2), eave protection shall be provided on shingle, shake or tile roofs, extending from the edge of the roof a minimum of 900 mm up the roof slope to a line not less than 300 mm 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 measured along the roof slope from the edge of the roof to the inner face of the exterior wall,

c) on roofs of asphalt shingles installed in accordance with Subsection 9.26.8.,

d) on roofs with slopes of 1 in 1.5 or greater, or

e) in regions with 3 500 or fewer degree-days.

9.26.5.2. Materials

1) Eave protection shall be laid beneath the starter strip and shall consist of

a) No. 15 asphalt-saturated felt laid in two plies lapped 480 mm and cemented together with lap cement,

b) Type M or S roll roofing laid with not less than 100 mm head and end laps cemented together with lap cement,

c) glass fibre or polyester fibre coated base sheets, or

d) self-sealing composite membranes consisting of modified bituminous coated material.

9.26.6. Underlay beneath Shingles

9.26.6.1. Materials

1) Except as required in Sentence (2), when underlay is used beneath shingles, it shall be

a) asphalt-saturated sheathing paper weighing not less than 0.195 kg/m^2, or

b) No. 15 plain or perforated asphalt-saturated felt.

2) Underlay used beneath wood shingles shall be breather type.

9.26.6.2. Installation

1) When used with shingles, underlay shall be installed parallel to the eaves with head and end lap of not less than 50 mm.

2) The top edge of each strip of underlay referred to in Sentence (1) shall be fastened with sufficient roofing nails to hold it in place until the shingles are applied.

3) The underlay referred to in Sentence (1) shall overlap the eave protection by not less than 100 mm. (See Article 9.26.10.2. for underlay beneath wood shakes.)

9.26.7. Asphalt Shingles on Slopes of 1 in 3 or Greater

9.26.7.1. Coverage

1) Coverage shall be not less than 2 thicknesses of shingle over the entire roof, disregarding cutouts.

9.26.7.2. Starter Strip

1) A starter strip shall be installed along the lower edge of the roof so that it extends approximately 12 mm beyond the eaves and rake of the roof and fastened along the bottom edge with nails spaced not more than 300 mm o.c.

2) Starter strips shall be

a) at least Type M mineral-surfaced roll roofing not less than 300 mm wide,

b) shingles of the same weight and quality as those used as a roof covering with tabs facing up the roof slope, or

c) pre-manufactured starter strips installed with sealant at the eaves.

3) Starter strips need not be provided where eave protection of not less than Type M mineral-surfaced roll roofing is provided.

9.26.7.3. Head Lap

1) Shingles shall have a head lap of not less than 50 mm.

9.26.7.4. Fasteners

1) Except as provided in Sentence (2), shingles shall be fastened with at least 4 nails or staples for 1 m wide shingles so that no nails or staples are exposed.

2) Where staples with an 11 mm crown are used, shingles shall be fastened with at least 6 staples.

3) Fasteners may be reduced for narrower shingles in proportion to the width of the shingle or when shingles incorporating interlocking devices are used.

4) Fasteners referred to in Sentences (1) and (2) shall be located 25 mm to 40 mm from each end of each strip shingle with other fasteners equally spaced between them.

5) Fasteners referred to in Sentences (1) and (2) shall be located not less than 12 mm above the tops of the cutouts.

9.26.7.5. Securing of Tabs

1) Shingle tabs shall be secured by a spot of plastic cement not exceeding 25 mm diam under the centre of each tab or by interlocking devices or self-sealing strips.

9.26.7.6. Hips and Ridges

1) Shingles on hips and ridges shall be applied so they extend not less than 100 mm on either side of the hip or ridge, and shall be lapped not less than 150 mm.

2) Shingles referred to in Sentence (1) shall be fastened with nails or staples on each side located not more than 25 mm from the edge and 25 mm above the butt of the overlying shingle.

9.26.7.7. Eave Protection

1) Eave protection shall conform to Subsection 9.26.5.

9.26.7.8. Flashing

1) Flashing shall conform to Subsection 9.26.4.

9.26.8. Asphalt Shingles on Slopes of less than 1 in 3

9.26.8.1. Coverage

1) Except for the first 2 courses, coverage shall be not less than 3 thicknesses of shingle over the entire roof, disregarding cutouts.

9.26.8.2. Starter Strip

1) A starter strip shall be installed as in Article 9.26.7.2.

2) Starter strips required in Sentence (1) shall be laid in a continuous band of cement not less than 200 mm wide.

9.26.8.3. Securing of Tabs

1) Shingle tabs shall be secured with cold application cement applied at the rate of not less than 0.5 L/m^2 of cemented area, or hot application asphalt applied at the rate of 1 kg/m^2 of cemented area.

9.26.8.4. Securing of Shingle Courses

1) The first course of shingles shall be secured by a continuous band of cement along the eaves applied so that the width of the band equals the shingle exposure plus 100 mm.

2) The succeeding courses of shingles shall be secured by a continuous band of cement applied so that the width of the band equals the shingle exposure plus 50 mm.

3) The band required in Sentence (2) shall be located not more than 50 mm above the butt of the overlying course of shingles.

9.26.8.5. Hips and Ridges

1) Shingles on hips and ridges shall be not less than 300 mm wide applied to provide triple coverage.

2) Shingles referred to in Sentence (1) shall be cemented to the roof shingles and to each other with a coat of cement and fastened with nails or staples located 40 mm above the butt of the overlying shingle and 50 mm from each edge.

9.26.8.6. Flashing

1) Flashing shall conform to Subsection 9.26.4.

9.26.8.7. Fastening

1) Shingles shall be fastened in accordance with Article 9.26.7.4.

9.26.9. Wood Roof Shingles

9.26.9.1. Decking

1) Except as provided in Sentence 9.23.16.1.(1), decking for wood shingled roofs may be continuous or spaced.

9.26.9.2. Grade

1) Western cedar shingles shall be not less than No. 2 grade.

2) Eastern white cedar shingles shall be not less than B (clear) grade.

9.26.9.3. Size

1) Wood shingles shall be not less than 400 mm long and not less than 75 mm or more than 350 mm wide.

9.26.9.4. Spacing and Joints

1) Shingles shall be spaced approximately 6 mm apart and offset at the joints in adjacent courses not less than 40 mm so that joints in alternate courses are staggered.

9.26.9.5. Fastening

1) Shingles shall be fastened with 2 nails or staples located approximately 20 mm from the sides of the shingle and 40 mm above the exposure line.

9.26.9.6. Exposure

1) The exposure of wood roof shingles shall conform to Table 9.26.9.6.

Table 9.26.9.6.
Exposure of Wood Roof Shingles
Forming Part of Sentence 9.26.9.6.(1)

Roof Slope	Maximum Exposure, mm					
	No.1 or A Grade Length of Shingle, mm			No. 2 or B Grade Length of Shingle, mm		
	400	450	600	400	450	600
< 1 in 3	100	115	165	90	100	140
≥ 1 in 3	125	140	190	100	115	165

9.26.9.7. Flashing

1) Flashing shall conform to Subsection 9.26.4.

9.26.9.8. Eave Protection

1) Eave protection shall conform to Subsection 9.26.5.

9.26.10. Cedar Roof Shakes

9.26.10.1. Size and Thickness

1) Shakes shall be not less than 450 mm long and not less than 100 mm nor more than 350 mm wide with a butt thickness of not more than 32 mm and not less than 9 mm.

9.26.10.2. Underlay

1) Where eave protection is not provided, an underlay conforming to the requirements in Article 9.26.6.1. for wood shingles shall be laid as a strip not less than 900 mm wide along the eaves.

2) A strip of material similar to that described in Sentence (1) not less than 450 mm wide shall be interlaid between each course of shakes with the bottom edge of the strip positioned above the butt line at a distance equal to double the exposure of the shakes.

3) Interlaid strips referred to in Sentence (2) shall be lapped not less than 150 mm at hips and ridges in a manner that will prevent water from reaching the roof sheathing.

9.26.10.3. Spacing and Joints

1) Shakes shall be spaced 6 mm to 9 mm apart and the joints in any one course shall be separated not less than 40 mm from joints in adjacent courses.

9.26.10.4. Fastening

1) Shakes shall be fastened with nails located approximately 20 mm from the sides of the shakes and 40 mm above the exposure line.

9.26.10.5. Exposure

1) The exposure of wood shakes shall not exceed

a) 190 mm for shakes not less than 450 mm long, and

b) 250 mm for shakes not less than 600 mm long.

9.26.10.6. Flashing

1) Flashing shall conform to Subsection 9.26.4.

9.26.10.7. Eave Protection

1) Eave protection shall conform to Subsection 9.26.5.

9.26.10.8. Grade

1) Shakes shall be not less than No. 1 or Handsplit grade.

9.26.11. Built-Up Roofs

9.26.11.1. Quantity of Materials

1) The quantities of bituminous materials used on built-up roofs shall conform to Table 9.26.11.1.

Table 9.26.11.1.
Quantities of Bitumen for Built-up Roofs
Forming Part of Sentence 9.26.11.1.(1)

Type of Roof	Amount of Bitumen per Square Metre of Roof Surface	
	Mopping Coats between Layers	Flood Coat
Asphalt and aggregate	1 kg	3 kg
Coal-tar and aggregate	1.2 kg	3.6 kg
Cold process roofing	0.75 L cold process cement	2 L cold process top coating

9.26.11.2. Coal-Tar and Asphalt Products

1) Coal-tar products and asphalt products shall not be used together in built-up roof construction.

9.26.11.3. Roof Felts

1) Bitumen roofing felts shall be at least No. 15 felt.

9.26.11.4. Aggregate Surfacing

1) Aggregate used for surfacing built-up roofs shall be clean, dry and durable and shall consist of particles of gravel, crushed stone or air-cooled blast *furnace* slag having a size of from 6 mm to 15 mm.

2) The minimum amount of aggregate surfacing per square metre of roof surface shall be 15 kg gravel or crushed stone or 10 kg crushed slag.

9.26.11.5. Flashing

1) Flashing for built-up roofs shall conform to Subsection 9.26.4.

9.26.11.6. Number of Layers

1) Built-up roofing shall consist of not less than 3 mopped-down layers of roofing felt flood coated with bitumen.

9.26.11.7. Installation of Layers

1) In hot process applications each layer of bitumen-saturated felt shall be laid while the bitumen is hot, with each layer overlapping the previous one.

2) The full width under each lap referred to in Sentence (1) shall be coated with bitumen so that in no place does felt touch felt.

3) Felt shall be laid free of wrinkles and shall be rolled directly into the hot bitumen and broomed forward and outward from the centre to ensure complete adhesion.

9.26.11.8. Roofing over Wood-Based Sheathing

1) Except as permitted in Sentence (2), built-up roofing applied over wood, plywood, OSB or waferboard roof sheathing shall be laid over an additional base layer of felt laid dry over the entire roof deck with not less than a 50 mm headlap and a 50 mm sidelap between each sheet.

2) Where plywood, OSB or waferboard roof sheathing is used, the dry layer of felt required in Sentence (1) may be omitted when the joints are taped and the sheathing is primed with asphalt.

9.26.11.9. Attachment to Decking

1) Roofing shall be securely attached to the decking or where insulation is applied above the deck, the insulation shall be securely attached to the deck before the first layer of felt is fastened to the insulation.

9.26.11.10. Cant Strips

1) Except as permitted in Sentence (4), a cant strip shall be provided at the edges of roofs.

2) At least 2 plies of the roofing membrane shall be carried over the top of the cant strip.

3) Flashing shall extend over the top of the cant strip and be shaped to form a drip.

4) The cant strip required in Sentence (1) need not be provided where a gravel stop is installed at the edge of roofs.

5) The roofing membranes shall be carried over the edge of the roof before the gravel stop referred to in Sentence (4) is fastened and 2 plies of roofing membrane mopped to the top surface of the gravel stop before the flood coat is applied.

6) The gravel stop referred to in Sentence (4) shall extend over the edge of the roof to form a drip or shall be flashed so that the flashing extends over the edge to form a drip.

9.26.12. Selvage Roofing

9.26.12.1. Coverage

1) Wide selvage asphalt roofing shall provide double coverage over the entire roof surface.

9.26.12.2. Joints

1) Plies of selvage roofing shall be cemented together to ensure a watertight joint.

9.26.13. Sheet Metal Roofing

9.26.13.1. Thickness

1) Sheet metal roofing shall be not less than

a) 0.33 mm thick galvanized steel,

b) 0.46 mm thick copper,

c) 0.46 mm thick zinc, or

d) 0.48 mm thick aluminum.

9.26.13.2. Support

1) Except as provided in Sentence 9.23.16.1.(1), where sheet metal roofing is not supported by roof decking but spans between spaced supports, the panels shall be designed to support the specified *live loads* for roofs.

9.26.14. Glass Reinforced Polyester Roofing

9.26.14.1. Support

1) Except as provided in Sentence 9.23.16.1.(1), where glass-reinforced polyester roofing panels are not supported by roof decking but span between spaced supports, the panels shall be designed to support the specified live roof loads.

9.26.15. Hot Applied Rubberized Asphalt Roofing

9.26.15.1. Installation

1) Hot applied rubberized asphalt roofing shall be installed in accordance with CAN/CGSB-37.51-M, "Application for Hot-Applied Rubberized Asphalt for Roofing and Waterproofing."

9.26.16. Polyvinyl Chloride Sheet Roofing

9.26.16.1. Installation

1) Polyvinyl chloride sheet applied roofing membrane shall be installed in accordance with CGSB 37-GP-55M, "Application of Sheet Applied Flexible Polyvinyl Chloride Roofing Membrane."

9.26.17. Concrete Roof Tiles

9.26.17.1. Installation

1) Except as provided in Sentence 9.23.16.1.(1), concrete roof tiles shall be installed according to CAN/CSA-A220, "Concrete Roof Tiles." (See Note A-9.26.17.1.(1).)

9.26.18. Roof Drains and Downspouts

9.26.18.1. Roof Drains

1) When roof drains are provided they shall conform to Part 7.

9.26.18.2. Downspouts

1) Where downspouts are provided and are not connected to a sewer, extensions shall be provided to carry rainwater away from the *building* in a manner which will prevent *soil* erosion.

9.26.18.3. Roof or Balcony Parapet Walls

1) Where a roof or balcony is entirely enclosed by parapet walls, a secondary means of drainage, such as scuppers or overflow outlets shall be installed in the parapet walls, in addition to drains. (See Note A-9.26.18.3.(1).)