

BUILT-UP ROOFING

SECTION 2 - CONTROL JOINTS, PERIMETERS & PENETRATIONS

2.1 CONTROL JOINTS

2.1.1 General

- .1 Roofing control joints are required to prevent structural movement or stresses within the roofing system from damaging a Built-Up Roofing (B.U.R.) membrane.
- .2 For new construction, for building additions and for re-roofing, control joints shall be installed between the new and existing roofing systems. The Warranty Certificate will only be issued on self-contained roof areas/sections.
- .3 Two types of control joints are used for roofing, construction expansion joints and roof area dividers.

2.1.2 Construction Expansion Joints

- .1 The building construction expansion joint is incorporated by the design authority when differential structural movement is anticipated.
- .2 Roofing expansion joints typically are of double curb/plate construction, fastened on opposite sides of the structural separation.
- .3 For conventional B.U.R. systems, the top of the expansion joint shall extend a minimum distance of 200 mm (8") above the finished roof surface.
- .4 Drainage openings are not permitted through roof expansion joints.

2.1.3 Roof Area Dividers

- .1 A roof area divider is incorporated to divide the roofing system into manageable sections and to protect the membrane from stress related damage.
- .2 For built-up roofing membranes, roof area dividers are required where membrane stress points are likely to occur, such as at changes in roof deck direction or deck construction type.
- .3 For conventional B.U.R. systems, the top of the roof area divider shall extend a minimum distance of 200 mm (8") above the finished roof surface.
- .4 Minimum roof area divider heights may be reduced where the roofing system drainage slopes away from the divider.
- .5 Roof area dividers may be of single or multi-plate construction and shall be fastened to the roof decking to prevent displacement.

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- .6 Roof area dividers shall be installed so that the maximum dimension of the B.U.R. membrane does not exceed 46.0 m (150 ft.) and shall be spaced so that the enclosed membrane section does not exceed approximately 1394 m² (15,000 ft²) in area.
- .7 Membrane level drainage openings are not permitted through roof area dividers. Where drainage is required through area dividers, drainage openings shall be installed no lower than the top of the cant.

2.2 PERIMETERS

- .1 To receive a Warranty Certificate, the minimum perimeter parapet height for a conventional roof design is 75 mm (3") above the finished roof surface.
- .2 The top surface of the perimeter parapet wall shall be sloped towards the roof when the width of the parapet is greater than 100 mm (4"). The top of the parapet wall must have wood blocking installed which is capable of providing holding power for nails and/or screws used to secure the metal flashing.
- .3 Gypsum board is not an acceptable substrate for the interior (roof side) vertical surface of a perimeter parapet wall.
- .4 A gravel stop perimeter detail is not accepted for Warranty Certificate issuance.

2.3 ROOF PENETRATIONS

2.3.1 General

- .1 Where permitted and when installed in accordance with the ARCA Warranty Ltd. Roofing Application Standards, BUR membrane penetrations may be waterproofed with gum boxes, metal flashings or curbs.
- .2 Specialty devices designed for this purpose shall be pre-approved prior to installation.

2.3.2 Curbs

- .1 Curb tops shall extend a minimum distance of 200 mm (8") above the finished roof surface.
- .2 Curbs may be of wood or metal construction and shall be mechanically fastened to the structural decking. Curbs shall be insulated.
- .3 Prefabricated metal curbs shall be manufactured with no open corners.
- .4 Metal curb tops shall be designed to provide a minimum 50 mm (2") counter flashing overlap.
- .5 Exposed penetrations through curbs shall be placed no lower than 200 mm (8") above the finished roof surface.

2.3.3 Plumbing Vent Flashings

- .1 Plumbing vents penetrating the roofing system, that are not curbed, may be waterproofed with a lead flashing, a conical one piece aluminum flashing or a pre-approved specialty device designed for this purpose.
- .2 When leads are specified, the lead sheet shall be sized to extend a minimum distance of 150 mm (6") over the surrounding primary membrane. The underside of the lead shall be cleaned to provide proper adhesion and set in a bedding of plastic cement over the primary membrane. The top surface of the lead shall be primed with compatible asphalt primer or plastic cement. The lead flashing shall be stubbed and caulked to the vent stack hub with oakum and plumbing sealant.
- .3 Spun aluminum vent flashings, when not curb mounted, shall extend a minimum distance of 200 mm (8") above the primary membrane surface, and shall have a minimum of 100 mm (4") wide flange. The flange shall be set in a bed of plastic cement and the top surface cleaned and primed to ensure proper adhesion of the membrane flashing.
- .4 When curb mounted, the curb shall be sized so the base flashing overlaps and extends down over the membrane flashing a minimum distance of 50 mm (2") on all sides. The plumbing vent flashing shall be mechanically fastened to the curb on each side. Do not place fasteners through the horizontal surface.
- .5 Where vent extension pipes are required, the base of the extension pipe shall be sealed into the vent stack hub, and the extension pipe shall be sealed to the neoprene collar with a compatible sealant. The interior of the plumbing vent flashing shall be insulated to reduce condensation.

2.3.4 Jack, Ventilator and Gooseneck Flashings

- .1 Roof jack, ventilator, and gooseneck flashings may be supported at membrane level or may be curb mounted.
- .2 When installed at membrane level, the flashing may not exceed 350 mm (14") in diameter or on a side. Each flashing shall incorporate a one piece base flange not less than 100 mm (4") nor more than 200 mm (8") in width. A flashing sleeve/cone shall extend not less than 200 mm (8") nor more than 300 mm (12") above the base flange. For gooseneck flashings, the minimum flashing height shall be measured to the throat of the bend. The sleeve connection with the base flange shall be soldered. All other seams, including gooseneck segments, shall be soldered/welded water tight.
- .3 The base flange shall be set in a bedding of plastic cement placed over the primary membrane. The top surface of the flange shall be cleaned and primed to ensure the proper adhesion of the membrane flashing.
- .4 When curb mounted, the base flange shall be sized to over lap and extend down over the curb base flashing a minimum distance of 50 mm (2") on all sides. The flashing shall be mechanically fastened to the curb on each side. Do not place fasteners through the horizontal flange surface.

2.3.5 Gum Boxes

- .1 Only rigid service lines shall be waterproofed using gum boxes.
- .2 Flexible service lines shall be contained within a curbed enclosure.
- .3 For new construction, gum boxes shall be of one-piece construction incorporating a minimum 100 mm (4") wide continuous horizontal flange with no open corners. Gum box sides shall be sealed and shall extend a minimum distance of 100 mm (4") above the primary membrane surface.
- .4 The gum box shall be packed with oakum or other material to contain the sealer. The gum box shall be filled with a minimum 50 mm (2") thick layer of rubberized asphalt sealer or a pourable sealer and left crowned to shed water. Plastic cement is not permitted to fill gum boxes and shall not be used for this purpose.
- .5 When re-roofing, gum boxes may be of a two piece construction provided there are no openings when installed and the rubberized asphalt sealer is contained.
- .6 When more than one service line occupies a gum box, a minimum separation distance of 50 mm (2") shall be maintained between each service line and the gum box sides.

2.3.6 Fall Arrest Anchors

- .1 ARCA Warranty Ltd. assumes no liability relative to the supply and installation of fall arrest anchors.
- .2 The Warranty Certificate does not include warranty of the fall arrest anchor system or its performance except as it relates to the watertight integrity of the roof membrane flashing seal around anchor flashings.
- .3 ARCA Warranty Ltd. recommends that a professional structural engineer, licensed in Alberta, design the fall arrest anchor system. Installation, drawings, specifications and conformance to current building and safety codes shall be included in the professional engineer's scope of work.

2.4 ROOF DRAINS

2.4.1 General

- .1 The Warranty Certificate does not include warranty of the roof drainage system except as it relates to the watertight integrity of the roof membrane flashing seal around the drain assembly.
- .2 Provision for emergency drainage is recommended in all instances and is a requirement when control flow drains are incorporated into the roof drainage system.

2.4.2 Cast Drains

- .1 The Warranty Certificate requires that a minimum 25 kg/m² (5 lb./ ft.) lead flashing be used with all cast drain assemblies. The lead flashing shall be sized to extend over the primary membrane a minimum distance of 150 mm (6") beyond the outside perimeter of the drain hopper flange. The lead shall extend a minimum distance 25 mm (1") beyond the inner edge of the clamping ring, used to secure the lead to the drain hopper. The lead flashing shall be set in a full bed of plastic cement and the top surface shall be cleaned and primed to ensure proper adhesion of the membrane flashing.
- .2 The top hopper flange of the roof drain must be approximately 12.7 mm (½") below the surface of the primary membrane.

2.4.3 Retrofit Drains

- .1 Retrofit drains may be used for roof replacements (re-roofing) when cast drains are not practical. Retrofit drains shall be of spun aluminum or copper construction, with a minimum 100 mm (4") wide flange. The flange shall be set in a bed of plastic cement and the top surface shall be cleaned and primed to ensure proper adhesion of the membrane flashing. The drain size shall match that of the existing drain line. The retrofit drain sleeve shall incorporate a seal to prevent back flow from the existing drain line.
- .2 Galvanized sheet metal drop drains shall only be used for exterior drainage locations, such as through an overhang. A minimum 100 mm (4") wide horizontal flange shall be soldered to the pipe sleeve and shall be set in a bed of plastic cement. The top surface of the flange shall be cleaned and primed to ensure proper adhesion of the membrane flashing.

2.4.4 Scupper Drains

- .1 Scupper drains permit roof drainage through the perimeter building elements, such as parapets. Scupper drains may also serve as emergency over flow outlets. Scuppers may be open or through-wall type fabricated with or without an exterior hopper. When serving as primary drainage, the scupper shall be set so that the scupper apron is at or below primary membrane level.
- .2 Scuppers shall be fabricated from minimum 26 gauge galvanized sheet metal. Scupper flanges must extend a minimum distance of 100 mm (4") over the primary membrane, cant face and wall opening. Sheet metal flanges shall be set in a bed of plastic cement. The tops of the flanges shall be cleaned and primed to ensure proper adhesion of the membrane flashing.
- .3 Through wall scuppers shall be four (4) sided to cover the upper scupper opening with sheet metal. The scupper opening shall be waterproofed in accordance with good roofing practice.
- .4 Where control of drainage is required, the scupper assembly may include an exterior hopper and an attached down pipe.

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