5 EPDM - SECTION 5 – INSULATION

5.1 General

5.1.1 Insulation is the system component that provides the major portion of the thermal performance of the roofing system. The location of the insulation can vary, depending on the roofing system design type.

5.1.2 For ARCA Warranty Ltd. acceptance, insulation products must be tested by a certified testing agency approved by the Standards Council of Canada for a Canadian Construction Materials Centre (CCMC) evaluation listing to verify compliance to an existing standard such as the Underwriters' Laboratories of Canada (ULC) insulation standard. Third party certified thermal insulation products are accepted by specific manufacturer and product name and are not accepted generically for inclusion under the Warranty Certificate Program.

5.1.3 To eliminate confusion during the tendering process, it is recommended that the design authority specify roof insulation by the type and thickness of insulation to be used. Specifying insulation by thermal resistance values may lead to confusion during the construction process as insulation thickness affects the design heights of other building components, such as perimeters, curbs and junctions.

5.1.4 Insulation shall be protected during shipping and site storage to prevent moisture infiltration and damage. No insulation material is to be installed when its moisture content exceeds the recommended standard set by the manufacturer. Wet insulation must be removed. Surface moisture should be allowed to dry.

5.1.5 Only new insulation shall be installed in new conventional insulated roofing assemblies.

5.2 Insulation Blocking for Sloped Decks

5.2.1 To prevent membrane movement or insulation displacement, when deck slopes exceed 1:8 (12.5%), continuous wood nailers or insulation blocking shall be mechanically fastened to the decking. The design of the insulation blocking system is the responsibility of the design authority and is not covered by the Warranty Certificate.

5.2.2 When insulation blocking is required, it is recommended that all roofing system components be uniformly adhered to each other and to their supporting substrate.

5.2.3 The upper nailers should be oriented perpendicular to the direction of the membrane.

5.2.4 The size and spacing of the blocking should match the insulation board dimensions and should provide for the mechanical fastening of the membrane. The maximum spacing permitted between the blocking shall be determined by the membrane manufacturer.

5.3 Insulation

5.3.1 Insulation may be loose-laid, mechanically fastened through the vapour retarder to the structural deck or uniformly adhered to the vapour retarder depending on the system type chosen.

5.3.2 Insulation boards shall be tightly butted together and may be installed in a soldier or staggered pattern. Gaps at board joints greater than 6.4mm (1/4") in width shall be filled

the full depth of the insulation gap with polyurethane spray foam (SPF) or the same insulation as used in the assembly insulation.[12][13][14]

5.3.3 When multi-layers of insulation are specified, offset board joints by a minimum distance of 150mm (6") from the joints of the preceding insulation layer.

5.3.4 For proper adhesion when insulation is adhered with adhesive or hot bitumen restrict board size to maximum 1200mm x 1200mm (4' x 4') dimensions.

5.3.5 For loose-laid ballasted E.P.D.M. designs, insulation shall be minimum 38mm (1 ½ ") thick for all insulation types except fiberboard or perlite insulation where the minimum thickness may be 25mm (1") thick.

5.3.6 To qualify for an ARCA 15 Year Warranty Certificate, each roof assembly shall consist of a minimum of two layers of insulation with a minimum thickness of 38mm (1 1⁄2") for each layer. Additional layers of insulation shall be either mechanically fastened, adhered using asphalt or adhered with an ARCA approved adhesive. [15][16]

5.3.7 To qualify for an ARCA 15 Year Warranty Certificate, the top layer of insulation shall be a minimum 38mm (1 1⁄2") ARCA approved polyisocyanurate insulation meeting CAN/ULC S-704.1 Type 2, Class 2.[17][18]

5.4 Coverboards

5.4.1 **General**

5.4.1.1 The insulation shall be covered with an approved coverboard for adhered and mechanically fastened EPDM membranes.[19]

5.4.1.2 The coverboard shall be uniformly adhered to the insulation in a full mopping of bitumen, an adhesive approved by the membrane manufacturer or mechanically fastened to the structural deck.

5.4.1.3 Coverboard joints shall be installed in a staggered pattern with coverboard joints supported and staggered a minimum distance of 150mm (6") from the joints of the underlying insulation.[20]

5.4.1.4 The top surface of the coverboard shall be free of asphalt coating.

5.4.1.5 For proper adhesion when using hot bitumen, the coverboard panels shall not exceed 1200mm x 2400mm (4' x 8') in size.

5.4.1.6 Coverboard panels exceeding 1200mm x 2400mm (4' x 8') in size shall be mechanically fastened to the decking.

5.4.2 **Gypsum Fibre Roof Boards**

5.4.2.1 Minimum 6.4mm (1/4") thick gypsum fibre roof board may be substituted for the coverboard layer for membrane attachment when approved by the membrane manufacturer. Paper-faced gypsum fibre roof board is not permitted for W.C. issuance.

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[12] EPDM 5.3.2 Revised October 1, 2020 (TB-2020-09)
[13] EPDM 5.3.2 Revised February 5, 2021 (TB-2021-02)
[14] EPDM 5.3.2 Revised October 23, 2023 (TB-2023-04)
[15] EPDM 5.3.8 Revised September 22, 2020 (TB-2020-04)
[16] EPDM 5.3.6 Revised May 8, 2023 (TB-2023-02), February 26, 2024 (TB-2024-01)
[17] EPDM 5.3.7 Revised October 23, 2023 (TB-2023-04)
[18] EPDM 5.3.7 Revised October 20, 2026 (TB-2026-02)
[19] EPDM 5.4.1.1 Revised February 11, 2022 (TB-2022-01)
[20] EPDM 5.4.1.3 Revised October 1, 2020 (TB-2020-09)

5.4.2.2 Gypsum fibre roof board surface may be coated or uncoated. For proper membrane adhesion confirm priming requirements with the membrane manufacturer.

5.4.2.3 Gypsum fibre roof board may be adhered to accepted substrates with membrane manufacturer's approved insulation adhesive, hot bitumen, or mechanically attached to the roof decking following the membrane manufacturer's written securement requirements. Attachment in a full mopping of hot bitumen is permitted only over faced insulations that are not heat sensitive.

5.4.2.4 Gypsum fibre roof board joints shall be supported and staggered a minimum distance of 150mm (6") from the joints of the underlying substrate or insulation.

5.4.2.5 Do not leave gypsum fibre roof board exposed to the weather. At all times protect from moisture accumulation and mechanical damage. Keep the gypsum fibre roof board dry prior to, during and after application. Apply only as many boards as can be waterproofed within the same work day.

5.4.3 **Fibreglass Faced Gypsum Roof Boards**

5.4.3.1 Minimum 6.4mm (1/4") thick fiberglass faced gypsum roof board may be substituted for the coverboard layer for membrane attachment when approved by the membrane manufacturer. Paper-faced gypsum board is not permitted for W.C. issuance.

5.4.3.2 Fiberglass faced gypsum roof board surface may be coated or uncoated. For proper membrane adhesion confirm priming requirements with the membrane manufacturer.

5.4.3.3 Gypsum roof boards may be adhered to accepted substrates with membrane manufacturer's approved insulation adhesive, hot bitumen, or mechanically attached to the roof decking following the membrane manufacturer's written securement requirements. Attachment in a full mopping of hot bitumen is permitted only over faced insulations that are not heat sensitive.

5.4.3.4 Gypsum board joints shall be supported and staggered a minimum distance of 150mm (6") from the joints of the underlying substrate or insulation.

5.4.3.5 Do not leave gypsum roof board exposed to the weather. At all times protect from moisture accumulation and mechanical damage. Keep the gypsum roof board dry prior to, during and after application. Apply only as many boards as can be waterproofed within the same work day.

5.4.4 **High Density Polyisocyanurate Coverboard**

5.4.4.1 For mechanically fastened E.PD.M. membrane systems, a mechanically fastened 12.7mm (1/2") thick high density (HD) polyisocyanurate roof insulation cover board may be installed over accepted roof insulation when approved by the membrane manufacturer. Do not use under loose-laid ballasted membrane.

5.4.4.2 For fully adhered E.P.D.M. membrane systems, a mechanically fastened or adhered 12.7mm (1/2") thick high density (HD) polyisocyanurate roof insulation cover board may be installed over accepted roof insulation when approved by the membrane manufacturer. Do not use under loose-laid ballasted membrane.[21]

[21] EPDM 5.4.4.2 Added October 23, 2023 (TB-2023-04)

5.5 Accepted Roof Insulation

5.5.1 Each listed insulation manufacturer has confirmed third party product certification by an accredited independent testing agency by submission of a C.C.M.C. evaluation listing or equivalent, in accordance with the ARCA Warranty Ltd. insulation acceptance criteria.

5.5.2 The design authority shall obtain long term thermal resistance (LTTR) values from the insulation manufacturer and shall specify insulation by thickness.

5.5.3 **Accepted Polyisocyanurate Roof Insulation**[22][23]

5.5.3.1 ATLAS ROOFING CORPORATION

5.5.3.1.1 AC Foam-II

5.5.3.2 CARLISLE[24][25]

5.5.3.2.1 Insulbase

5.5.3.2.2 Insulbase HD

5.5.3.2.3 Insulbase RL

5.5.3.2.4 SecurShield

5.5.3.2.5 SecurShield RL

5.5.3.3 ELEVATE[26]

5.5.3.3.1 ISOGARD GL

5.5.3.3.2 ISOGARD CG

5.5.3.4 IKO INDUSTRIES LTD.

5.5.3.4.1 IKOtherm

5.5.3.5 HUNTER PANELS LLC

5.5.3.5.1 H-Shield

5.5.3.5.2 H-Shield CG

5.5.3.6 POLYGLASS[27]

5.5.3.6.1 Polytherm

5.5.3.6.2 Polytherm G

5.5.3.7 SOPREMA INC.

5.5.3.7.1 Sopra-ISO (e)

5.5.3.7.2 Sopra-ISO (s)

5.5.3.7.3 Sopra-ISO (r)

5.5.3.7.4 Sopra-ISO

5.5.3.7.5 Sopra-ISO Plus

5.5.3.8 TREMCO

5.5.3.8.1 Trisotech

[22] EPDM 5.5.3 Revised June 16 2022 (TB-2022-03)
[23] EPDM 5.5.3 Revised June 10, 2025 (TB-2025-04)
[24] EPDM 5.5.3.2 Revised October 23, 3023 (TB-2023-04)
[25] EPDM 5.5.3.2 Revised October 21, 2025 (TB-2025-05)
[26] EPDM 5.5.3.3 Revised July 4, 2023 (TB-2023-03)
[27] EPDM 5.5.3.6 Added October 13, 2021 (TB-2021-06)

5.5.4 **Accepted Polystyrene Roof Insulation**

5.5.4.1 AIRFORM[28]

5.5.4.1.1 Korolite-EPS-100
5.5.4.1.2 Korolite-EPS-130
5.5.4.1.3 Korolite-EPS-160
5.5.4.1.4 Korolite-EPS-200
5.5.4.1.5 Korolite-EPS-250
5.5.4.1.6 Korolite-EPS-300
5.5.4.1.7 Korolite-EPS-400
5.5.4.1.8 Korolite-EPS-600
5.5.4.1.9 Korolite-GPS-100
5.5.4.1.10 Korolite-GPS-160
5.5.4.1.11 Korolite-GPS-200
5.5.4.1.12 Korolite-GPS-250
5.5.4.1.13 Korolite-GPS-300
5.5.4.1.14 Korolite-GPS-400

5.5.4.2 ALLEGUARD[29]

5.5.4.2.1 Envirosheet Type 1
5.5.4.2.2 Envirosheet Type 2
5.5.4.2.3 Envirosheet Type 3

5.5.4.3 BEAVER PLASTICS LTD.

5.5.4.3.1 Terrafoam Type 1
5.5.4.3.2 Terrafoam Type 2

5.5.4.4 FOAM MODS[30]

5.5.4.4.1 Foam Mods Type 1
5.5.4.4.2 Foam Mods Type 2

5.5.4.5 PLASTI-FAB LTD.[31]

5.5.4.5.1 Plasti-Span Type 1
5.5.4.5.2 Plasti-Span Type 2
5.5.4.5.3 Plasti-Span Type 3
5.5.4.5.4 Enerspan Type 1
5.5.4.5.5 Enerspan Type 2
5.5.4.5.6 Enerspan Type 3

5.5.4.6 SUPERFORM [32]

5.5.4.6.1 EPS+ Type 1
5.5.4.6.2 EPS+ Type 2
5.5.4.6.3 EPS+ Type 3

[28] EPDM 5.5.4 Revised October 20, 2026 (TB-2026-02)
[29] EPDM 5.5.4.1 Revised February 15, 2023 (TB-2023-01)
[30] EPDM 5.5.4.3 Added December 14, 2023 (TB-2023-06)
[31] EPDM 5.5.4.4 Revised September 25, 2024 (TB-2023-03)
[32] EPDM 5.5.4 Added March 31, 2021 (TB-2021-03)

5.5.5 **Accepted Extruded Polystyrene Roof Insulation**[33]

5.5.5.1 DuPont [34]

5.5.5.1.1 DeckMate Type 2

5.5.5.1.2 DeckMate 200 Type 3

5.5.5.1.3 RoofMate Type 4

5.5.5.1.4 Deckmate PLUS FA

5.5.5.2 SOPREMA[35]

5.5.5.2.1 SOPRA-XPS 35

5.5.5.2.2 SOPRA-XPS 35 DC

5.5.5.2.3 SOPRA-XPS 40

5.5.5.2.4 SOPRA-XPS 40 PL

5.5.5.2.5 SOPRA-XPS 60

5.5.5.2.6 SOPRA-XPS 60 PL

5.5.5.2.7 SOPRA-XPS 100

5.5.5.3 OWENS CORNING CANADA[36]

5.5.5.3.1 Foamular NGX C-300

5.5.5.3.2 Foamular NGX 350

5.5.6 **Accepted Mineral Fibre Roof Insulation**

5.5.6.1 SOPREMA INC.

5.5.6.1.1 Soprarock DD (Plus)

5.5.6.1.2 Soprarock MD (Plus) – 25mm thick

5.5.7 **Fibreboard Roof Insulation**

5.5.7.1 Building Products of Canada (BP)[37]

5.5.7.1.1 ESGARD High Density (HD) Roof Insulator

5.5.7.1.2 ESGARD High Strength (HS) Roof Insulator

5.5.7.2 MSL LOUISEVILLE FIBREBOARD INC.

5.5.7.2.1 Wood Fibreboard Insulation

5.5.7.3 Soprema

5.5.7.3.1.1 Soprafibre NAT 1C[38][39]

[33] EPDM 5.5.5 Revised July 15 2024 (TB-2024-02)
[34] EPDM 5.5.5 Revised December 1, 2020 (TB-2020-11)
[35] EPDM 5.5.5.3 Revised June 16, 2022 (TB-2022-04)
[36] EPDM 5.5.5.3 Added December 4, 2024 (TB-2024-05)
[37] EPDM 5.5.7 Added December 6, 2021 (TB-2021-07)
[38] EPDM 5.5.7 Revised October 1, 2020 (TB-2020-09)
[39] EPDM 5.5.7 Revised October 21, 2026 (TB-2025-05)

5.6 Accepted Coverboard

5.6.1 Acceptance of coverboard products by the ARCA Warranty Ltd. are on an individual product basis. The acceptance criteria provide for specific manufacturing or application parameters pertaining to each listed product.

5.6.2 Accepted Coverboard[40]

Fibreboard Roof Insulation Coverboard (CAN/ULC S706-02)	Thickness	Attachment Method		
		Adhered (adhesive)	Adhered (asphalt)	Mech. Fast.
BP - ESGARD High Density (HD) Roof Insulator	12.7mm, 25mm		●	●
BP - ESGARD High Strength (HS) Roof Insulator	12.7mm, 25mm		●	●
MSL - Wood Fibreboard	12.7mm	●	●	●
Soprema Soprafibre NAT 1C	12.7mm	●	●	●

Note 1: Fibreboard Roof Insulation Coverboard is not considered an ARCA Accepted High Density Coverboard with a minimum compressive strength of 550 kPa (80 PSI).

5.6.3 Accepted Gypsum Fibre Roof Board

Gypsum Fiber Roof Board Coverboard (ASTM C1278)	Thickness	Attachment Method			
		Adhered (adhesive)	Adhered (asphalt)	Mech. Fast.	
CGC Securock Gypsum Fiber Roof Board	9.5mm 12.7mm, 15.9mm	●	●	●	Max. asphalt application temperature for Type III asphalt of 235°C (455°F)

Note 1: Attachment in a full mopping of hot bitumen is permitted only over faced insulations that are not heat sensitive.

5.6.4 Accepted Fibreglass Faced Gypsum Board

Glass Faced Gypsum Coverboard (ASTM C1177)	Thickness	Attachment Method			
		Adhered (adhesive)	Adhered (asphalt)	Mech. Fast.	
Georgia Pacific - Densdeck	6.4mm, 12.7mm, 15.9mm	●	●	●	Mech. Fastened systems only
Georgia Pacific - Densdeck Prime	6.4mm, 12.7mm, 15.9mm	●	●	●	Mech. Fastened, Partially Adhered and Adhered Systems systems
CGC Securock Coated Glass Mat Roof Board	6.4mm, 12.7mm, 15.9mm	●		●	For use in cold-applied adhesive applications only

Note 1: Attachment in a full mopping of hot bitumen is permitted only over faced insulations that are not heat sensitive.

5.6.5 Accepted High Density Polyisocyanurate Coverboards[41]

High-Density Polyisocyanurate Coverboard	Thickness	Attachment Method			
		Adhered (adhesive)	Adhered (asphalt)	Mech. Fast.	
Atlas - ACFOAM HD	Min. 12.7mm	●		●	
Elevate - Isogard HD	Min. 12.7mm	●	●	●	Coverboard can not be encapsulated with hot asphalt.
Carlisle - InsulBase HD	Min. 12.7mm	●		●	
Carlisle - Securshield HD	Min. 12.7mm	●		●	
Carlisle - Securshield HD RL	Min. 12.7mm	●		●	
IKO - IKOTherm CoverShield	Min. 12.7mm	●	●	●	
Soprema SOPRA-ISO PLUS HD	12.7mm	●		●	

Notes:

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5.7 Polyurethane Foam Adhesive for Insulation and Coverboard

5.7.1 **General**

5.7.1.1 A membrane manufacturers' accepted low-rise two component, chemical cure, polyurethane foam adhesive, when used in compliance with the manufacturer's written application instructions, may be used to uniformly adhere accepted insulation and coverboards to one another, to accepted vapour retarders, insulation and substrates.

5.7.1.2 The membrane manufacturers' insulation adhesive(s) have been evaluated by ARCA Warranty Ltd. for specific applications and are not accepted as general purpose roofing adhesives and are not to be substituted for other accepted membrane manufacturers insulation adhesives.

5.7.1.3 Prior to dispensing, store adhesive at recommended application temperature and ensure adhesive shelf life date has not been exceeded.

5.7.1.4 Insulation adhesives may be dispensed to clean moisture free substrate surfaces, by wand or spray equipment, applied in accordance with membrane manufacturer's application rates. For wand applications, maintain proper adhesive ribbon size and spacing for roof field, perimeter and corners. When spraying, maintain minimum coverage rates.

5.7.1.5 Protect newly applied insulation adhesive from contamination prior to bonding roofing components. Follow manufacturer's post application requirements for weighting, rolling or walk-in insulation boards into the uncured adhesive to prevent air gaps from forming between insulation boards and their supporting substrate.

5.7.1.6 When polyisocyanurate roof insulation forms the insulation layer, insulation boards shall not exceed 1200mm x 1200mm (4' x 4') in size.

5.7.2 **Roof Insulation Adhesives**

5.7.2.1 The adhesives listed below by membrane manufacturer have been evaluated and accepted for specific applications. Accepted adhesives are not general purpose roofing adhesives and are not interchangeable amongst membrane manufacturers.

5.7.2.2 Polyurethane Foam Insulation Adhesive. A two component low-rise, chemically cured urethane foam adhesive for the attachment of selected rigid roof insulation and coverboards to one another and to fully adhered vapour barriers.

5.7.2.3 Other Insulation Adhesives. When approved for application by the membrane manufacturer and accepted by ARCA Warranty Ltd. on a project by project basis.

[40] EPDM 5.6.2 Revised October 21, 2025 (TB-2025-05)
[41] EPDM 5.6.5 Revised June 16, 2022 (TB-2022-04)
[42] EPDM 5.6 Revised April 6, 2022 (TB-2022-02)
[43] EPDM 5.6.5 Revised June 1, 2023 (TB-2023-03)
[44] EPDM 5.6.5 Revised October 23, 3023 (TB-2023-04)
[45] EPDM 5.6.5 Revised February 27, 2025 (TB-2025-01)
[46] EPDM 5.6.5 Revised October 21, 2025 (TB-2025-05)

5.7.3 **Accepted Polyurethane Foam Adhesives**

5.7.3.1 The adhesives listed below by membrane manufacturer have been evaluated and accepted for specific applications. Accepted adhesives are not general purpose roofing adhesives and are not interchangeable amongst membrane manufacturers.

5.7.3.2 Polyurethane Foam Insulation Adhesive

5.7.3.2.1 Two component low-rise, chemically cured urethane foam adhesive for the attachment of selected rigid roof insulation and cover boards to one another and to fully adhered vapour barriers.

5.7.3.2.2 ELEVATE[47]

5.7.3.2.2.1 ISO Twin Pack Roof Insulation Adhesive

5.7.3.2.3 CARLISLE SYNTEC CANADA

5.7.3.2.3.1 FAST Adhesive Dual Cartridge

5.7.3.3 Other Insulation Adhesives

5.7.3.3.1 When approved for application by the membrane manufacturer and accepted by ARCA Warranty Ltd. on a project by project basis.

[47] EPDM 5.7.3.2.2 Revised June 1, 2023 (TB-2023-03)