

Product Evaluation

RC58 | 1021

Engineering Services Program

The following product has been evaluated for compliance with the wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.

For more information, contact TDI Engineering Services Program at (800) 248-6032.

Evaluation ID: RC-58

Effective Date: October 1, 2021

Re-evaluation Date: October 2025

Product Name: Modified Bitumen Roof Covering Systems

Manufacturer: Bitec
#2 Industrial Park Drive
P.O. Box 497
Morrilton, Arkansas 72110
(501) 354-3019

General Description:

Bitec Membranes:

SFM-3.5H: a hot asphalt-applied, mineral surfaced, modified bitumen waterproofing membrane reinforced with a high-strength fiberglass mat.

SFM-3.5H-FR: a hot asphalt-applied, mineral surfaced, modified bitumen waterproofing membrane reinforced with a high-strength fiberglass mat. It has a UL Class "A" fire rating.

SPM-3.5H: a hot asphalt applied, mineral surfaced, polyester-reinforced modified bitumen membrane.

SFM-4H-FR: a hot asphalt-applied, mineral surfaced, modified bitumen waterproofing membrane reinforced with a high-strength fiberglass mat. It has a UL Class "A" fire rating.

Mineral Design MDS: a pattern-designed, mineral surfaced, modified bitumen waterproofing membrane. Includes a smooth application of fine sand.

APM-4T: a torch-applied, mineral surfaced, modified bitumen waterproofing membrane reinforced with polyester fabric.

Bitec Membranes (continued):

Elastoplan G/S: a polyester reinforced SBS modified cap sheet with a granule surface and sand backing.

Elastoplan G/P: a polyester reinforced SBS modified cap sheet with a granule surface and film backing.

APM-4T: a torch-applied, mineral surfaced, modified bitumen waterproofing membrane reinforced with polyester fabric.

APS-4T: a torch-applied modified bitumen waterproofing membrane reinforced with polyester fabric.

ISA-4T: a heat weld-applied, smooth surfaced, membrane reinforced with a non-woven polyester mat.

SPM-4.5T: a torch-applied, mineral surfaced, modified bitumen waterproofing membrane reinforced with polyester fabric.

Mineral Design MDA: a pattern-designed, mineral surfaced, modified bitumen waterproofing membrane. Includes a smooth application of polyethylene film.

Limitations:

Positive Drainage of Roof Deck: Roof decks must be provided with positive drainage. A minimum roof slope after construction of 1/4" per foot is recommended. Minimum roof slope requirements must be in accordance with the membranes and base sheets used.

Roof Framing: The maximum allowable spacing of the roof framing must not exceed 24" on center for wood structural panel roof decks and 60" on center for steel roof decks.

Application: The systems must not be loose laid or ballasted.

Design Wind Pressures: The design wind uplift pressures must be as specified in the systems listed in this evaluation report.

Roof Deck: For new roof covering applications, the roof deck must be secured to the roof framing to resist the required uplift loads.

Installation over an Existing Roof Covering: The existing roof covering must be removed, and the existing roof deck inspected, before applying the new roof covering.

Installation:**General Installation Requirements:**

All International Residential Code (IRC) and International Building Code (IBC) requirements must be satisfied, and manufacturer's installation instructions followed, unless otherwise specified by this product evaluation.

All fasteners and caps must have corrosion resistance as specified in the IRC and the IBC.

System 1**Design Pressure: -60 psf**

Roof Deck: The roof deck must consist of minimum nominal 15/32" wood structural panels.

Base Sheet: One ply of Type G2 "Glasbase", "FS-2H", "Imperflex MSA", "Imperflex USA", "DEFEND", "MAT-40", or "UDL-40". Minimum 4" side laps.

Fasteners: The base sheet is secured to the roof deck using galvanized steel cap nails with a cap that is at least 1" in diameter and 0.032" in thickness. The nails are annular ring shank, at least 1-1/2" long, and with a minimum shank diameter of 0.120". The cap nails are spaced a maximum of 7-1/2" on center along the side laps and a maximum of 12" on center in two interior rows located 11" from the exposed edges of the side laps. Fasteners must be long enough to penetrate completely through the roof deck.

Membrane: Bitec membranes "APM-4T", "APM-4.5T", "APS-4T", "SPM-4.5T", "Elastoplan 250 G/P", "ISA-4T" or "Mineral Design MDA" heat fused to the base sheet according to the manufacturer's installation instructions.

or

Bitec membranes "SFM-3.5H", "SFM-3.5H-FR", "SFM-4H-FR", "SPM-3.5H", "Elastoplan 180 G/S", or "Mineral Design MDS" hot mopped to the base sheet according to the manufacturer's installation instructions.

System 2**Design Pressure: -52.5 psf**

Roof Deck: The roof deck must consist of either minimum nominal 15/32" wood structural panels or nominal 2 x 6 Douglas Fir-Larch wood boards.

Insulation: Polyisocyanurate, wood fiber, or perlite insulation. Mechanically attached to the roof deck with the fasteners used to attach the base sheet. The insulation may be "tacked" to the roof deck to hold it in place until the base sheet and the fasteners are installed.

Base Sheet: One ply of Type G2 "Glasbase", "FS-2H", "Imperflex MSA", "Imperflex USA", "DEFEND", "MAT-40", or "UDL-40". Minimum 4" side laps.

Fasteners: The base sheet is secured to the roof deck using galvanized annular ring shank nails at least 2-1/2" in length with a minimum shank diameter of 0.0148" used with a separate formed galvanized steel disk that is 3" in diameter and 0.021" thick. Fasteners must be long enough to fully penetrate the roof deck. The cap nails are spaced a maximum of 7-1/2" on center along the side laps and a maximum of 12" on center in two interior rows located 11" from the exposed edges of the side laps.

As an alternate for fastening to the wood structural panels, No. 12-12.5, No. 3 Phillips drive, truss head, or 1/4" hex-head coated steel screws and a 3" diameter

galvanized steel plate may be used with the same spacing as for the nails. Screws must fully penetrate the wood structural panels.

As an alternate for fastening to wood boards, No. 14-10, No. 3 Phillips drive, truss head, or 1/4" hex-washer-head coated steel screws and a 3" diameter galvanized steel plate may be used with the same spacing as for nails. Screws must fully penetrate the wood boards.

Membrane: Bitec membranes "APM-4T", "APM-4.5T", "APS-4T", "SPM-4.5T", "Elastoplan 250 G/P", "ISA-4T" or "Mineral Design MDA" heat fused to the base sheet according to the manufacturer's installation instructions.

or

Bitec membranes "SFM-3.5H", "SFM-3.5H-FR", "SFM-4H-FR", "SPM-3.5H", "Elastoplan 180 G/S", or "Mineral Design MDS" hot mopped to the base sheet according to the manufacturer's installation instructions.

System 3

Design Pressure: -67.5 psf

Roof Deck: The roof deck must consist of minimum nominal 15/32" wood structural panels.

Insulation: Polyisocyanurate, wood fiber, or perlite insulation. Mechanically attached to the roof deck with the fasteners used to attach the barrier board. The insulation may be "tacked" to the roof deck to hold it in place until the base sheet and the fasteners are installed.

Barrier Board Minimum 1/2" thick G-P Gypsum Corp "DensDeck Roofboard", "DensDeck Prime Roofboard", "DensDeck Prime 2 Roofboard", "DensDeck DuraGuard Roofboard", CertainTeed Gypsum Inc "GlasRoc", or USG Corp "SECUROCK Glass-Mat Roofboard (Type SGMRX)".

Fasteners: Minimum No. 14 threaded screws with minimum 3" diameter, 0.021" thick galvanized steel plates. Apply a minimum of one (1) fastener per square foot. Fasteners must be long enough to fully penetrate the roof deck

Base Sheet: One ply of Type G2 "Glasbase" fully adhered according to the manufacturer's installation instructions.

Membrane: Bitec membranes "APM-4T", "APM-4.5T", "APS-4T", "SPM-4.5T", "Elastoplan 250 G/P", "ISA-4T" or "Mineral Design MDA" heat fused to the base sheet according to the manufacturer's installation instructions.

or

Bitec membranes "SFM-3.5H", "SFM-3.5H-FR", "SFM-4H-FR", "SPM-3.5H", "Elastoplan 180 G/S", or "Mineral Design MDS" hot mopped or adhered with cold applied adhesive to the base sheet according to the manufacturer's installation instructions.

System 4**Design Pressure: -60 psf**

- Roof Deck: The roof deck must consist of a minimum 22 MSG Type B steel deck
- Insulation: Polyisocyanurate, wood fiber, or perlite insulation. Mechanically attached to the roof deck with the fasteners used to attach the barrier board. The insulation may be "tacked" to the deck to hold it in place until the base sheet and the fasteners are installed.
- Barrier Board Minimum 1/2" thick G-P Gypsum Corp "DensDeck Roofboard", "DensDeck Prime Roofboard", "DensDeck Prime 2 Roofboard", "DensDeck DuraGuard Roofboard", CertainTeed Gypsum Inc "GlasRoc", or USG Corp "SECUROCK Glass-Mat Roofboard (Type SGMRX)"
- Fasteners: Minimum No. 14 threaded screws with minimum 3" diameter, 0.021" thick galvanized steel plates. Apply a minimum of one (1) fastener per square foot. Fasteners must be long enough to fully penetrate the roof deck
- Base Sheet: One ply of Type G2 "Glasbase" fully adhered in accordance with the manufacturer's installation instructions. the manufacturer's
- Membrane: Bitec membranes "APM-4T", "APM-4.5T", "APS-4T", "SPM-4.5T", "Elastoplan 250 G/P", "ISA-4T" or "Mineral Design MDA" heat fused to the base sheet according to the manufacturer's installation instructions.
- or
- Bitec membranes "SFM-3.5H", "SFM-3.5H-FR", "SFM-4H-FR", "SPM-3.5H", "Elastoplan 180 G/S", or "Mineral Design MDS" hot mopped or adhered with cold applied adhesive to the base sheet according to the manufacturer's installation instructions.

System 5**Design Pressure: -112.5 psf**

- Roof Deck: The roof deck must consist of structural concrete (minimum $f_c = 2,500$ psi).
- Insulation: Polyisocyanurate, wood fiber, or perlite insulation. Adhered to the roof deck with ADCO "Millennium One Step" adhesive in accordance with the manufacturer's installation instructions.
- Barrier Board Minimum 1/2" thick G-P Gypsum Corp "DensDeck Roofboard", "DensDeck Prime Roofboard", "DensDeck Prime 2 Roofboard", "DensDeck DuraGuard Roofboard", CertainTeed Gypsum Inc "GlasRoc", or USG Corp "SECUROCK Glass-Mat Roofboard (Type SGMRX)". Adhered with ADCO "Millennium One Step" adhesive in accordance with the manufacturer's installation instructions.
- Base Sheet: One ply of Type G2 "Glasbase" hot mopped or adhered with cold applied adhesive in accordance with the manufacturer's installation instructions.

Membrane: Bitec membranes "APM-4T", "APM-4.5T", "APS-4T", "SPM-4.5T", "Elastoplan 250 G/P", "ISA-4T" or "Mineral Design MDA" heat fused to the base sheet according to the manufacturer's installation instructions.

or

Bitec membranes "SFM-3.5H", "SFM-3.5H-FR", "SFM-4H-FR", "SPM-3.5H", "Elastoplan 180 G/S", or "Mineral Design MDS" hot mopped or adhered with cold applied adhesive to the base sheet according to the manufacturer's installation instructions

Note: Keep the manufacturer's installation instructions available on the job site during the installation. Use corrosion resistant fasteners as specified in the IRC and the IBC.