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ICC-ES Evaluation Report
ESR-3460

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DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 52 00—Modified Bituminous Sheet Roofing

REPORT HOLDER:

THE GARLAND COMPANY, INC.

EVALUATION SUBJECT:

GARLAND SBS MODIFIED BITUMEN ROOF SYSTEMS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2024, 2021, 2018, 2015, 2012, 2009 and 2006 *International Building Code®* (IBC)
- 2024, 2021, 2018, 2015, 2012, 2009 and 2006 *International Residential Code®* (IRC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)†

†The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

Properties evaluated:

- Physical properties
- Fire classification
- Wind uplift resistance
- Impact resistance

2.0 USES

The Garland SBS modified bitumen roof covering membranes are used as roof coverings in Class A roof covering systems, described in this report, on new or existing roofs.

3.0 DESCRIPTION

3.1 General:

The Garland modified bitumen roofing systems consist of modified bitumen roofing membranes, insulation where used, mechanical fasteners, and asphalt or construction adhesives that are installed on a combustible or noncombustible deck.

3.2 Garland SBS Modified Bitumen Membrane:

3.2.1 Millennium Mineral: Millennium Mineral is a 160-mil-thick (4.06 mm) membrane consisting of a combination fiberglass and polyester scrim coated with an SBS compound on both sides and topped with a mineral surface. The membrane complies with ASTM D6162, Type III, Grade G.

3.2.2 Millennium FR Mineral: Millennium FR Mineral membrane is identical to the Millennium Mineral membrane with the exception of a fire retardant added to the compound during the manufacturing process.

3.2.3 StressPly: StressPly is an 80-mil-thick (2.03 mm) membrane consisting of two layers of fiberglass scrim coated with an SBS compound on both sides. The membrane complies with ASTM D6163, Type III, Grade S.

3.2.4 StressPly FR Mineral: StressPly FR Mineral is a 140-mil-thick (3.56 mm) membrane, identical in formulation to the StressPly membrane with the exception of a fire retardant added to the compound during the manufacturing process. The membrane complies with ASTM D6163, Type III, Grade G.

3.2.5 StressPly E: StressPly E is an 80-mil-thick (2.03 mm) membrane consisting of a combination SBS and Styrene-Isoprene-Styrene (SIS) compound utilizing Kevlar fibers with a dual fiberglass and polyester reinforcement. The membrane complies with ASTM D6162, Type III, Grade S.

3.2.6 StressPly Legacy: StressPly Legacy is a 115-mil-thick (2.92 mm) membrane with a slag surfacing consisting of a combination SBS, fire retardants and recycled constituents with a dual fiberglass and polyester reinforcement. The membrane complies with ASTM D6162, Type III, Grade S.

3.2.7 StressPly E FR Mineral: StressPly E FR Mineral is a 160-mil-thick (4.06 mm) membrane, identical in formulation to the StressPly E membrane with the exception of a fire retardant added to the compound during the manufacturing process. The membrane complies with ASTM D6162, Type III, Grade G.

3.2.8 StressPly Legacy FR Mineral: StressPly Legacy FR Mineral is a 160-mil-thick (4.06 mm) membrane, identical to the StressPly Lagacy membrane with the exception of a mineral surfacing. The membrane complies with ASTM D6162, Type III, Grade G.

3.2.9 StressPly EUV: StressPly EUV is a 115-mil-thick (2.92 mm) membrane consisting of a combination SBS and Styrene-Isoprene-Styrene (SIS) compound incorporating Kevlar fibers with a dual fiberglass and

polyester reinforcement. The membrane complies with ASTM D6162, Type III, Grade S.

3.2.10 StressPly EUV FR Mineral: StressPly EUV FR Mineral is a 160-mil-thick (4.06 mm) membrane, identical in formulation to the StressPly EUV membrane with the exception of a fire retardant and a surface mineral added to the compound during the manufacturing process. The membrane complies with ASTM D6162, Type III, Grade G.

3.2.11 StressPly Plus: StressPly Plus is a 105 mil-thick (2.67 mm) membrane consisting of a combination fiberglass and polyester scrim coated with an SBS compound on both sides. The membrane complies with ASTM D6162, Type III, Grade S.

3.2.12 StressPly Plus FR Mineral: StressPly Plus FR Mineral is a 155 mil-thick (3.94 mm) membrane similar in formulation to the StressPly Plus with the exception of a fire retardant and mineral granules added to the compound during the manufacturing process. The membrane complies with ASTM D6162, Type III, Grade G.

3.2.13 StressPly SA FR Mineral: StressPly SA FR Mineral is a 140 mil-thick (3.56 mm) self-adhering membrane consisting of the fiberglass reinforced SBS bitumen and incorporating a fire retardant compound and a mineral surface. The membrane complies with ASTM D6163, Type II, Grade G.

3.2.14 StressPly Max: StressPly Max is a 145 mil-thick (3.68 mm) membrane consisting of a combination SBS and styrene-isoprene-styrene (SIS) compound incorporating Kevlar fibers with a dual fiberglass and polyester reinforcement. The membrane complies with ASTM D6162, Type III, Grade S.

3.2.15 StressPly Max FR Mineral: StressPly Max FR Mineral is a 170 mil-thick (4.32 mm) membrane consisting of a combination SBS and SIS compound incorporating Kevlar fibers with a dual fiberglass and polyester reinforcement, and a proprietary “starburst” mineral surface. A fire retardant is added to the compound during the manufacturing process. The membrane complies with ASTM D6162, Type III, Grade G.

3.2.16 VersiPly 60: VersiPly 60 is a 60-mil-thick (1.52 mm) membrane consisting of two laminated layers of fiberglass reinforcement sandwiched by SBS in a high penetration index asphalt mixture. The membrane meets the requirements for ASTM D6163, Type III, Grade S.

3.2.17 VersiPly 80: VersiPly 80 is an 80 mil-thick (2.03 mm) membrane consisting of two laminated layers of fiberglass reinforcement sandwiched by SBS in a high penetration index asphalt mixture. The membrane meets the requirements for ASTM D6163, Type III, Grade S.

3.2.18 VersiPly Mineral: VersiPly Mineral is a 135-mil-thick (3.43 mm) membrane consisting of two laminated layers of fiberglass reinforcement sandwiched by SBS in a high penetration index asphalt mixture. The membrane is coated at the factory with mineral granules and meets the requirements for ASTM D6163, Type III, Grade G.

3.2.19 BiFlex Cap: BiFlex Cap is a 120-mil-thick (3.05 mm) membrane consisting of a fiberglass reinforcement sandwiched by SBS in a high penetration index asphalt mixture. The membrane meets the requirements for ASTM D6163, Type I, Grade S.

3.2.20 BiFlex Mineral Cap: BiFlex Mineral Cap is a 140-mil-thick (3.56 mm) membrane consisting of a fiberglass reinforcement sandwiched by SBS in a high penetration index asphalt mixture. The membrane is coated at the factory with mineral granules and meets the requirements for ASTM D6163, Type I, Grade G

3.2.21 StressPly IV: StressPly IV is a 180-mil-thick (4.57 mm), smooth-surfaced, fiberglass-reinforced, rubber modified roofing membrane. The membrane complies with ASTM D6163, Type III, Grade S. StressPly IV membranes are designed to be used in torching applications.

3.2.22 StressPly IV Mineral: StressPly IV Mineral is a 195-mil-thick (4.94 mm), granular-surfaced, fiberglass-reinforced, rubber modified roofing membrane. The membrane complies with ASTM D6163, Type III, Grade G.

3.2.23 StressPly IV UV Mineral: StressPly IV UV Mineral is a 195 mil-thick (4.94 mm), granular-surfaced, fiberglass reinforced, rubber modified roofing membrane. The membrane complies with ASTM D6163, Type III, Grade G.

3.2.24 StressPly IV Plus: StressPly IV Plus is a 180-mil-thick (4.57 mm), smooth-surfaced, polyester/fiberglass reinforced, rubber modified roofing membrane. The membrane complies with ASTM D6162, Type III, Grade S.

3.2.25 StressPly IV Plus Mineral: StressPly IV Plus Mineral is a 195-mil-thick (4.94 mm), granular-surfaced, polyester/fiberglass reinforced, rubber modified roofing membrane. The membrane complies with ASTM D6162, Type III, Grade G.

3.2.26 StressPly IV Plus UV Mineral: StressPly IV Plus UV Mineral is a 195-mil-thick (4.94 mm), granular-surfaced, polyester/fiberglass reinforced, rubber modified roofing membrane. The membrane complies with ASTM D6162, Type III, Grade G.

3.3 Base and Felt Sheets:

3.3.1 FlexBase 80: FlexBase 80 is an 80-mil-thick (2.03 mm) membrane consisting of two layers of fiberglass reinforcement sandwiched by SBS rubber in a high penetration index asphalt mixture. The membrane complies with ASTM D6163, Type III, Grade S.

3.3.2 FlexBase 120: FlexBase 120 is a 120-mil-thick (3.05 mm) membrane consisting of two layers of fiberglass reinforcement sandwiched by SBS rubber in a high penetration index asphalt mixture. The membrane complies with ASTM D6163, Type III, Grade S.

3.3.3 FlexBase E80: FlexBase E80 is an 80-mil-thick (2.03 mm) SBS rubber modified base sheet utilizing Kevlar fibers and a dual polyester and fiberglass combination reinforcement. The membrane complies with ASTM D6162, Type III, Grade S.

3.3.4 FlexBase E120: FlexBase E120 is a 120-mil-thick (3.05 mm) SBS rubber modified base sheet utilizing Kevlar fibers and a dual polyester and fiberglass combination reinforcement. The membrane complies with ASTM D6162, Type III, Grade S.

3.3.5 FlexBase Plus 80: FlexBase Plus 80 is an 80-mil-thick (2.03 mm) base sheet consisting of a combination fiberglass and polyester reinforcement sandwiched by SBS rubber in a high penetration index asphalt mixture.

The membrane complies with ASTM D6162, Type III, Grade S.

3.3.6 FlexBase Plus 120: FlexBase Plus 120 is a 120-mil-thick (3.05 mm) base sheet consisting of a combination fiberglass and polyester reinforcement sandwiched by SBS rubber in a high penetration index asphalt mixture. The membrane complies with ASTM D6162, Type III, Grade S.

3.3.7 HPR SA FR Base Sheet: HPR SA FR Base Sheet is an 80-mil-thick (2.03 mm) SBS base sheet, fiberglass-reinforced, self-adhering, modified bitumen membrane used as underlayment for the StressPly SA FR Mineral roofing system. The top surface of the base sheet has a polyolefin film. The bottom has an adhesive backing with a peel-off release film.

3.3.8 HPR Tri-Base Premium: HPR Tri-Base Premium is a 60-mil-thick (1.52 mm) SBS polymer modified base sheet, reinforced with a polyester/fiberglass/polyester scrim. The membrane complies with ASTM D6162, Type III, Grade S.

3.3.9 Millennium Base: Millennium Base is an 80-mil-thick (2.03 mm) fiberglass/polyester reinforced base sheet that is coated on both sides with an SBS polymer modified coal tar pitch compound. The membrane complies with ASTM D6162, Type III, Grade S.

3.3.10 StressBase 80: StressBase 80 is an 80-mil-thick (2.03 mm) base sheet consisting of two layers of fiberglass reinforcement sandwiched by SBS rubber in a high penetration index asphalt mixture. The membrane complies with ASTM D6163, Type I, Grade S.

3.3.11 StressBase 120: StressBase 120 is a 120-mil-thick (3.05 mm) base sheet consisting of two layers of fiberglass reinforcement sandwiched by SBS rubber in a high penetration index asphalt mixture. The membrane complies with ASTM D6163, Type I, Grade S.

3.3.12 HPR Glasbase: HPR Glasbase is a 55-mil-thick (1.40 mm) asphalt-coated fiberglass base sheet. The membrane complies with ASTM D4601, Type II.

3.3.13 HPR Premium Glasbase: HPR Premium Glasbase is a 55-mil-thick (1.40 mm) asphalt-coated fiberglass base sheet. The membrane complies with ASTM D4601, Type II.

3.3.14 HPR Glasfelt: HPR Glasfelt is a 20-mil-thick (0.51 mm) asphalt saturated mat made up of fiberglass monofilaments bonded together with a water-resistant melamine binder and reinforced with fiberglass strands. The membrane complies with ASTM D2178, Type 1V.

3.3.15 HPR Premium Glasfelt: HPR Premium Glasfelt is a 25-mil-thick (0.63 mm) asphalt-saturated mat made up of fiberglass monofilaments bonded together with a water-resistant melamine binder and reinforced with fiberglass strands. The membrane complies with ASTM D2178, Type VI.

3.3.16 HPR Torch Base Sheet: HPR Torch Base Sheet is a 110-mil-thick (2.79 mm), smooth-surfaced, modified bitumen base sheet, complying with ASTM D6163, Type III, Grade S. It is designed to be used as the underlayment ply for any of Garland's torch-applied membranes.

3.4 Insulation:

See Tables 1 and 2 for insulations used with specific roofing systems. Foam plastic insulation, where used, must have a flame-spread index of not more than 75 when tested at the maximum thickness intended for use in accordance with ASTM E84. Polyisocyanurate foam plastic insulation must comply with ASTM C1289.

3.5 Cover Board:

Cover board, where used, must be either $^1/_4$-inch-thick (6.4 mm) Georgia-Pacific "DensDeck" or "DensDeck Prime", $^1/_4$-inch-thick (6.4 mm) USG Corporation "SECUROCK Gypsum-Fiber Roof Board" or $^1/_2$-inch-thick (12.7 mm) Celotex "Structodek", minimum thicknesses unless otherwise noted.

3.6 Adhesives:

3.6.1 Weatherking Adhesive: Weatherking Adhesive is a cold process modified bitumen adhesive that is used in conjunction with a Garland cold-applied roofing system. It is for use with two plies of base sheets with a top ply of

Garland's modified bitumen membrane. The coverage rate is $2^1/_2$ gal/sq/ply (1.02 L/m^2/ply) and the slope limitation is a maximum of 5:12 (42 percent slope). The adhesive is available in 5-gallon pails (18.9 L) and 55-gallon drums (209 L) and has a shelf life of one year when stored in unopened containers.

3.6.2 Weatherking Plus WC Adhesive: Weatherking Plus WC Adhesive is a cold process modified bitumen adhesive containing SEBS and SIS fibers. The coverage rate is $2^1/_2$ gal/sq/ply (1.02 L/m^2/ply) and the slope limitation is a maximum of 3:12 (25 percent slope). The adhesive is available in 5-gallon pails (18.9 L) and 55-gallon drums (209 L) and has a shelf life of one year when stored in unopened containers.

3.6.3 Garlastik KM Plus Adhesive: Garlastik KM Plus is a SEBS modified bitumen roofing interply adhesive. It is for use as the interply adhesive for all Garland HPR modified bitumen membranes. The coverage rate is 25 lbs/sq/ply. The adhesive is available in 60-pound (27.2 kg) kegs and has a shelf life of one year when stored in unopened containers.

3.6.4 Green-Lock Membrane Adhesive: Green-Lock Membrane Adhesive is an asphalt polyether moisture-cured polymer adhesive used in conjunction with a Garland cold-applied roofing system. The coverage rate is 2 to $2^1/_2$ gal/sq per ply or cap sheet. The adhesive is available in 5-gallon pails (18.9 L) and has a shelf life of six months when stored in unopened containers.

3.6.5 Insul-Lock HR: Insul-Lock HR adhesive is an elastomeric, one-step roof insulation adhesive that contains no solvents. Insul-Lock HR is used to adhere approved roof insulations to a building's structural roof deck. Insul-Lock HR adhesive must not be applied over roof membranes. The adhesive is available in four 50.7-ounce (1.5 L) cartridges/case, has a coverage of 600 ft^2 (55.74m^2) per case and has a shelf life of one year when stored in unopened containers.

3.6.6 HPR All-Temp Asphalt: HPR All-Temp Asphalt is a modified bitumen-based and waterproofing roofing asphalt with a high melting point and high penetration index. The HPR All-Temp can be used with all Garland HPR systems, including all StressPly, VersiPly, HPR Tri-Base and Glassfelt membranes. HPR All-Temp Asphalt is available in 100-pound (45.4 kg) kegs and has a shelf life of one year when stored in unopened containers.

3.6.7 Insta Stik™ Quik Set Insulation Adhesive: Insta Stik™ Quik Set Insulation Adhesive, manufactured by DuPont, is a single-component polyurethane adhesive

used to attach multiple insulation layers and cover boards to compatible roof decks and substrates. The adhesive is supplied either in a Quik Set Complete unit [30-pound (13.kg) unit, 23 pounds (10.43 kg) net chemical weight, with flexible dispensing equipment] or in a Quik Set Tank Only [30-pound (13.kg) unit, 23 pounds (10.43 kg) net chemical weight, with no dispensing equipment].

3.7 Fasteners

Fasteners and plates used to mechanically fasten insulation and base sheets must be in accordance with Table 3. The length of fasteners varies and must be sufficient to penetrate through the steel deck a minimum of $^3/_4$ inch (19.1 mm) and the wood sheathing deck a minimum of 1 inch (25.4 mm). The fasteners must penetrate a minimum of $^1/_2$ inch (12.7 mm) beyond the underside of the plywood. For concrete decks, fastener length must be sufficient to penetrate at least 1 inch (25.4 mm) into the deck.

3.8 Coatings:

3.8.1 Garla-Brite: Garla-Brite is a non-fibered, asphalt based aluminum roof coating. The coverage rate is 150–250 sq. ft/gal per coat (3.68–6.14 m^2/L per coat). It is available in 1-gallon pails (3.8 L), 5-gallon pails (18.9 L), 55-gallon drums (209 L) and 20-liter pails, and has a shelf life of one year when stored in unopened containers.

3.8.2 Pyramic: Pyramic is a white, water-based, acrylic latex roof coating designed for application by brush, roller or spray. The coverage rate is 1–1.5 gal/sq (0.41–0.61L/m^2). It is available in 5-gallon pails (118.9 L) and in 55-gallon drums (208 L), and has a shelf life of one year when stored in unopened containers.

3.8.3 Solex: Solex is a white, water-based, fluoropolymer-acrylic resin roof coating. The coverage rate is $^1/_2$ gal/sq (0.27 L/m^2). It is available in 5-gallon pails (18.9 L) and 55-gallon drums (208.2 L), and has a shelf life of one year when stored in unopened containers.

3.8.4 Black-Knight: Black-Knight is a polymer-modified coal tar pitch, roofing adhesive and coating. Black-Knight has a coverage rate of 30 pounds per 100 ft^2 interply when applied as an adhesive, or a coverage rate of 70 pounds per 100 ft^2 when applied as a roof coating. The product is available in 200-pound (90 kg) kegs and has a shelf life of one year when stored in unopened containers.

3.8.5 Black-Knight Cold: Black-Knight Cold is a polymer-modified, cold-process roofing bitumen adhesive and coating. Black-Knight Cold has an application rate of 4–5 gallons/100 ft^2 (1.63–2.03 L/m^2) for new roofs and 5–8 gallons/100 ft^2 (2.03–3.26 L/m^2) on an existing roof where the gravel has been removed. Black-Knight Cold is available in 5-gallon pails (18.9 L), 55-gallon drums (208.2 L) and 20-liter pails. The product has a shelf life of one year when stored in unopened containers.

4.0 DESIGN AND INSTALLATION

4.1 General:

Installation of the Garland SBS modified bitumen roofing membranes described in this report must comply with the applicable code, the manufacturer's published installation instructions and this report. The manufacturer's published installation instructions must be available on the jobsite at all times during installation.

The slope of the roof must be a minimum of $^1/_4$:12 (2 percent slope) and must not be more than the maximum slope indicated for the particular assembly as listed in Tables 1 and 2.

Penetrations and terminations of the roof covering must be flashed and made weathertight in accordance with IBC Section 1503.2, IRC Section R903.2 and the manufacturer's published installation instructions. Where flashing is of metal, the metal must be corrosion-resistant, minimum No. 26 gage [0.019 (0.483 mm)] galvanized steel.

4.2 Fire Classification:

4.2.1 New Construction: Roof covering systems described in Table 1, when installed in accordance with this report, are classified as Class A or B roof covering systems in accordance with ASTM E108 or UL 790.

4.2.2 Reroofing: The existing deck must be inspected to verify that the structure to be reroofed is structurally sound and adequate to support and secure the roofing membrane. Prior to installation of new roof coverings, inspection by and approval from the code official having jurisdiction must be in accordance with 2024 and 2021 IBC Section 1512 [2018 and 2015 IBC Section 1511 (2012, 2009 or 2006 IBC Section 1510)] or 2024, 2021, 2018 and 2015 Section R908, [2012, 2009 and 2006 IRC Section R907].

Class A or B roof covering systems may be installed over existing classified roof covering systems under the following conditions without additional roof classification tests, provided the resulting classification is the lower of the new and existing roofing classification:

- New uninsulated systems installed only over existing uninsulated assemblies.
- New insulated systems installed only over existing uninsulated systems.

4.3 Wind Resistance:

4.3.1 New Construction: The allowable wind uplift pressures for the Garland SBS modified bitumen membrane roof covering systems described in the report are noted in Table 2. Metal edge securement systems must be listed in accordance with ANSI/SPRI/FM4435 ES-1 (dated 2003, 2011 or 2017, as applicable), and designed and installed in accordance with 2024 and 2021 IBC Section 1504.6 (2018, 2015 and 2012 IBC Section 1504.5) and IBC Chapter 16.

4.3.2 Reroofing: Roof covering systems employing mechanical fasteners must be qualified to the satisfaction of the code official as to the adequacy of fasteners penetrating through existing roof coverings into structural substrates. Since the composition and/or condition of any particular underlying existing roofing material may vary widely, reroofing with adhered systems is outside the scope of this report.

5.0 CONDITIONS OF USE

The Garland SBS modified bitumen membranes described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Installation of the roofing systems must comply with the applicable code, the report holder's published installation instructions and this report. In the event of a conflict between the report holder's published installation instructions and this report, this report governs.

5.2 The roof covering systems must be installed only by applicators approved by Garland Company, Inc.

5.3 Foam plastic insulation must be separated from the interior of the building by an approved thermal barrier in accordance with IBC Section 2603.4.1.5, 2024 IRC Section R303.5.2, or 2021, 2018, 2015, 2012, 2009 and 2006 IRC Section R316.5.2, as applicable.

5.4 Foam plastic insulation, where used, must bear the label of an approved agency indicating that the foam plastic has a flame-spread index of not more than 75 when tested at the maximum thickness intended for use in accordance with ASTM E84 or UL 723, subject to the approval of the code official.

5.5 Above-deck thermal insulation board must comply with the applicable standards listed in IBC Table 1508.2 and IRC Table R906.2.

5.6 Design wind-uplift pressure on any roof area, including edge and corner zones, must not exceed the allowable wind pressure for the system installed in that particular area. Refer to the allowable wind uplift pressures for roof coverings as listed in Table 2.

5.7 The allowable wind uplift pressures listed in Table 2 are for the roof covering only. The deck and framing to which the roof covering is attached must be designed for the applicable components and cladding wind loads in accordance with the applicable code.

5.8 Calculations demonstrating that the required wind resistance is less than the allowable wind resistance must be submitted to the code official.

5.9 When application is over existing roofs, documentation of the wind uplift resistance of the composite roof construction must be submitted to the code official for approval at the time of permit application.

5.10 The membranes are manufactured in Cleveland, Ohio and Morrilton, Arkansas, under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Membrane Roof Covering Systems (AC75), dated July 2010 (editorially revised April 2024).

7.0 IDENTIFICATION

7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-3460) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.

7.2 In addition, each roll of Garland SBS Modified Bitumen roofing membrane covered by this report is labeled with The Garland Company name and address, product name, and production date code.

7.3 The report holder's contact information is the following:

THE GARLAND COMPANY, INC.
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TABLE 1—FIRE CLASSIFICATION ASSEMBLIES

SYSTEM NUMBER	ROOF CLASS	SUBSTRATE[3]	MAX. ROOF SLOPE	INSULATION[1,2,5]	COVER BOARD[6]	ROOF COVER[4]		SURFACING OR COATING[7]
						BASE/PLY SHEET	CAP SHEET	
1	A	Noncombustible	1:12	1.5-inch-thick Atlas Roofing "ACFoam II", mechanically fastened to deck.	Celotex "Structodek", adhered to insulation with hot asphalt or Insul-Lock HR	Two plies of HPR Glasfelt or HPR Premium Glasfelt, adhered with hot asphalt.	Mineral cap sheet[9], adhered with hot asphalt.	---
2	A	Noncombustible	1:12	1.5-inch-thick Atlas Roofing "ACFoam II", mechanically fastened to deck.	Celotex "Structodek", adhered to insulation with hot asphalt or Insul-Lock HR	Two plies of HPR Glasfelt or HPR Premium Glasfelt, adhered with hot asphalt.	Mineral[9] or smooth[10] cap sheet, adhered with hot asphalt.	Garla-Brite
3	A	Noncombustible	1:12	1.5-inch-thick Atlas Roofing "ACFoam II", mechanically fastened to deck.	Celotex "Structodek", adhered to insulation with hot asphalt or Insul-Lock HR	Two plies of HPR Glasfelt or HPR Premium Glasfelt, adhered with hot asphalt.	Mineral[9] or smooth[10] cap sheet, adhered with hot asphalt.	Pyramic or Pyramic & Solex
4	A	Noncombustible	1:12	1.5-inch-thick Atlas Roofing "ACFoam II", mechanically fastened to deck.	Celotex "Structodek", adhered to insulation with hot asphalt or Insul-Lock HR	Two plies of HPR Glasfelt or HPR Premium Glasfelt, adhered with hot asphalt.	Mineral[9] or smooth[10] cap sheet, adhered with hot asphalt.	Black-Knight Cold followed by gravel at 400 lb/sq. (19.5 kg/m^2)
5	A	Noncombustible	$^1/_2$:12	1.5-inch-thick Atlas Roofing "ACFoam II", mechanically fastened to deck.	Celotex "Structodek", adhered to insulation with Insta-Stik adhesive or Insul-Lock HR	Two plies of base sheet[8], adhered with Weatherking.	Mineral[9] or smooth[10] cap sheet, adhered with Weatherking.	---
6	A	Noncombustible	$^1/_2$:12	1.5-inch-thick Atlas Roofing "ACFoam II", mechanically fastened to deck.	Celotex "Structodek", adhered to insulation with Insta-Stik adhesive or Insul-Lock HR	Two plies of base sheet[8], adhered with Weatherking.	Mineral[9] or smooth[10] cap sheet, adhered with Weatherking.	Garla-Brite or Pyramic
7	A	Noncombustible	$^1/_2$:12	1.5-inch-thick Atlas Roofing "ACFoam II", mechanically fastened to deck.	Celotex "Structodek", adhered to insulation with Insta-Stik adhesive or Insul-Lock HR	Base sheet[8], adhered with GreenLock.	Mineral[9] or smooth[10] cap sheet, adhered with GreenLock.	---
8	A	Noncombustible	$^1/_2$:12	1.5-inch-thick Atlas Roofing "ACFoam II", mechanically fastened to deck.	Celotex "Structodek", adhered to insulation with Insta-Stik adhesive or Insul-Lock HR	Base sheet[8], adhered with GreenLock.	Mineral[9] or smooth[10] cap sheet, adhered with GreenLock.	Garla-Brite or Pyramic

For **SI:** 1 inch = 25.4 mm; 1 psf = 4.88 kg/m^2

TABLE 1—FIRE CLASSIFICATION ASSEMBLIES (Continued)

SYSTEM NUMBER	ROOF CLASS	SUBSTRATE[3]	MAX. ROOF SLOPE	INSULATION [1,2,5]	COVER BOARD[6]	ROOF COVER[4]		SURFACING OR COATING[7]
						BASE/PLY SHEET	CAP SHEET	
9	A	Noncombustible	1/2:12	1.5-inch-thick Atlas Roofing "ACFoam II", loose-laid.	Celotex "Structodek" or Georgia-Pacific "DensDeck Prime, mechanically fastened to deck	HPR Torch Base Sheet, torch adhered.	StressPly IV Mineral cap sheet[11], torch adhered	---
10	A	Noncombustible	1/2:12	1.5-inch-thick Atlas Roofing "ACFoam II", loose-laid.	Celotex "Structodek" or Georgia-Pacific "DensDek Prime", mechanically fastened to deck	HPR Torch Base Sheet, torch adhered.	StressPly IV Mineral[11] or smooth[12] cap sheet, torch adhered	Garla-Brite or Pyramic
11	A	Noncombustible	1/4:12	1.5-inch-thick Atlas Roofing "ACFoam II", mechanically fastened	Celotex "Structodek", adhered to insulation with Insta-Stik adhesive or Insul-Lock HR	Millenium Base, adhered with Black-Knight Cold	Millenium FR Mineral, adhered with Black-Knight Cold	---
12	A	Noncombustible	1/2:12	1.5-inch-thick Atlas Roofing "ACFoam II", mechanically fastened	Celotex "Structodek", adhered to insulation with Insta-Stik adhesive or Insul-Lock HR	Millenium Base, adhered with Black-Knight Cold	Millenium or Millenium Mineral, adhered with Black-Knight Cold	Black-Knight, Black-Knight Cold or Green Lock Adhesive, followed by gravel at 400 lb/sq. (19.5 kg/m^2)
13	A	Minimum 15/32-inch-thick plywood	1/2:12	1.5-inch-thick Atlas Roofing "ACFoam II", loose laid on deck.	Min. 0.5-inch-thick Georgia-Pacific DensDeck Prime, mechanically fastened to deck	HPR SA FR Base Sheet, self-adhered.	StressPly SA FR Mineral, self-adhered.	---
14	A	Minimum 15/32-inch-thick plywood	1/2:12	1.5-inch-thick Atlas Roofing "ACFoam II", loose laid on deck.	Min. 0.5-inch-thick Georgia-Pacific DensDeck Prime, mechanically fastened to deck	HPR SA FR Base Sheet, self-adhered.	StressPly SA FR Mineral, self-adhered.	Pyramic applied in 2 equal coats.
15	A	Minimum 15/32-inch-thick plywood	1:12	1.5-inch-thick Atlas Roofing "ACFoam II", loose laid on deck.	Min. 0.5-inch-thick Georgia-Pacific DensDeck Prime, mechanically fastened to deck	HPR SA FR Base Sheet, self-adhered.	StressPly SA FR Mineral, self-adhered.	One coat of Pyramic followed by 1 coat of Solex
16	A	Noncombustible	½:12	1.5-inch-thick Atlas Roofing "ACFoam II", mechanically fastened to deck.	Celotex "Structodek", adhered to insulation with hot asphalt or Insul-Lock HR	Two plies of HPR Glasfelt or HPR Premium Glasfelt, adhered with hot asphalt	StressPly Legacy FR Mineral, adhered with hot asphalt	---
17	A	Noncombustible	1:12	1.5-inch-thick Atlas Roofing "ACFoam II", mechanically fastened to deck.	Celotex "Structodek", adhered to insulation with hot asphalt or Insul-Lock HR	Two plies of HPR Glasfelt or HPR Premium Glasfelt, adhered with hot asphalt	StressPly Legacy or StressPly Legacy FR Mineral, adhered with hot asphalt	Garla-Brite
18	A	Noncombustible	¾:12	1.5-inch-thick Atlas Roofing "ACFoam II", mechanically fastened to deck.	Celotex "Structodek", adhered to insulation with hot asphalt or Insul-Lock HR	Two plies of HPR Glasfelt or HPR Premium Glasfelt, adhered with hot asphalt	StressPly Legacy FR Mineral, adhered with hot asphalt	Pyramic

TABLE 1—FIRE CLASSIFICATION ASSEMBLIES (Continued)

SYSTEM NUMBER	ROOF CLASS	SUBSTRATE[3]	MAX. ROOF SLOPE	INSULATION [1,2,5]	COVER BOARD[6]	ROOF COVER[4]		SURFACING OR COATING[7]
						BASE/PLY SHEET	CAP SHEET	
19	A	Noncombustible	½:12	1.5-inch-thick Atlas Roofing "ACFoam II", mechanically fastened to deck.	Celotex "Structodek", adhered to insulation with hot asphalt or Insul-Lock HR	Two plies of HPR Glasfelt or HPR Premium Glasfelt, adhered with hot asphalt	StressPly Legacy, adhered with hot asphalt.	Pyramic
20	A	Noncombustible	½:12	1.5-inch-thick Atlas Roofing "ACFoam II", mechanically fastened to deck.	Celotex "Structodek", adhered to insulation with hot asphalt or Insul-Lock HR	Two plies of HPR Glasfelt or HPR Premium Glasfelt, adhered with hot asphalt	StressPly Legacy or StressPly Legacy FR Mineral, adhered with hot asphalt	Black-Knight Cold followed by gravel at 400 lb/sq. (19.5 kg/m^2)
21	A	Noncombustible	½:12	1.5-inch-thick Atlas Roofing "ACFoam II", mechanically fastened to deck.	Celotex "Structodek", adhered to insulation with Insta-Stik adhesive or Insul-Lock HR	Two plies of base sheet[8] adhered with Weatherking	StressPly Legacy FR Mineral, adhered with Weatherking	---
22	A	Noncombustible	½:12	1.5-inch-thick Atlas Roofing "ACFoam II", mechanically fastened to deck.	Celotex "Structodek", adhered to insulation with Insta-Stik adhesive or Insul-Lock HR	Two plies of base sheet[8] adhered with Weatherking	StressPly Legacy or StressPly Legacy FR Mineral, adhered with Weatherking	Garla-Brite or Pyramic
23	A	Noncombustible	½:12	1.5-inch-thick Atlas Roofing "ACFoam II", mechanically fastened to deck.	Celotex "Structodek", adhered to insulation with Insta-Stik adhesive or Insul-Lock HR	Base sheet[8] adhered with GreenLock	StressPly Legacy FR Mineral, adhered with GreenLock	---
24	A	Noncombustible	½:12	1.5-inch-thick Atlas Roofing "ACFoam II", mechanically fastened to deck.	Celotex "Structodek", adhered to insulation with Insta-Stik adhesive or Insul-Lock HR	Base sheet[8] adhered with GreenLock	StressPly Legacy or StressPly Legacy FR Mineral, adhered with GreenLock	Garla-Brite or Pyramic

For **SI:** 1 inch = 25.4 mm; 1 psf = 4.88 kg/m^2

[1] All foam plastic insulation must be UL-classified foam plastic for roofing systems, and must be limited to the maximum thickness noted in Section 5.4 of this report.
[2] Polyisocyanurate insulation must comply with ASTM C1289.
[3] Wood deck must be minimum $^{15}/_{32}$-inch-thick (11.9 mm) plywood. Steel deck must be minimum No. 22 gage galvanized steel [0.030 inch (0.76 mm)]. Concrete must have a minimum compressive strength (f_c) of 2500 psi.
[4] Base, ply and cap sheet membranes must be UL-classified for roofing systems.
[5] Fasteners and plates must be as noted in Table 3.
[6] All cover boards must be UL-classified for roofing systems.
[7] All coatings must be UL-classified for roofing systems. See Section 3.8 for coating coverage rate.
[8] Base sheet, unless noted otherwise, must be any of the following: FlexBase 80, FlexBase 120, FlexBase E80, E120, FlexBase Plus 80, FlexBase Plus 120, StressBase 80 or StressBase 120.
[9] Mineral cap sheet, unless noted otherwise, must be any of the following: StressPly FR Mineral, StressPly E FR Mineral, StressPly EUV FR Mineral, StressPly Plus FR Mineral, StressPly SA FR Mineral, StressPly Max FR Mineral, VersiPly Mineral or BiFlex Mineral Cap.
[10] Smooth cap sheet, unless noted otherwise, must be any of the following: StressPly, StressPly E, StressPly EUV, StressPly Plus, StressPly Max, VersiPly 60, VersiPly 80 or BiFlex Cap.
[11] Mineral cap sheet for torch-applied membranes must also be any of the following: StressPly IV UV Mineral, StressPly IV Plus Mineral or StressPly IV Plus UV Mineral.
[12] Smooth cap sheet for torch-applied membranes must be StressPly IV or StressPly IV Plus.

TABLE 2—WIND RESISTANCE – ADHERED ASSEMBLIES

SYSTEM NO.	DECK[4]	PRIMER	INSULATION[1,2,3]		COVER BOARD[11]		ROOF COVER[5]		ALLOWABLE WIND UPLIFT (psf)
			TYPE	ATTACHMENT	TYPE	ATTACHMENT	BASE/PLY SHEET	CAP SHEET	
C-1	Concrete	None	Min. 1.5-inch-thick polyisocyanurate insulation[1]	Insul-Lock HR, $^3/_4$-inch beads at 8 inches o.c.	Min. 0.5-inch-thick Georgia-Pacific "DensDeck Prime"	Insul-Lock HR, $^3/_4$-inch beads at 8 inches o.c.	HPR SA FR Base Sheet (second ply optional), self-adhered.	StressPly SA FR Mineral, self-adhered.	-120
C-2	Concrete	None	Min. 1.5-inch-thick Hunter "H-Shield" or min. 2-inch-thick Atlas Roofing "ACFoam-II" or Johns Manville "ENRGY 3"	Insul-Lock HR, $^3/_4$-inch beads at 6 inches o.c.	Min. 0.25-inch-thick USG Corp. "SECUROCK Gypsum Fiber Roof Board", primed with ASTM D41-complying primer.	Insul-Lock HR, $^3/_4$-inch beads at 6 inches o.c.	HPR SA FR Base Sheet, self-adhered.	StressPly SA FR Mineral, self-adhered.	-127
C-3	Concrete	None	Min. 1.5-inch-thick Atlas Roofing "ACFoam-II" or Johns Manville "ENRGY 3"	Insul-Lock II, $^1/_2$- to $^3/_4$-inch beads, 12 inches o.c.	Celotex "Structodek"	Insul-Lock II, $^1/_2$- to $^3/_4$-inch beads, 12 inches o.c.	Two plies, HPR Base Sheet[6] adhered with Weatherking or Weatherking Plus WC	StressPly,[7] VersiPly[8] or BiFlex[9] cap sheet, adhered with Weatherking or Weatherking Plus WC	-128
C-4	Concrete	ASTM D41-complying	Min. 1.5-inch-thick polyisocyanurate insulation	Hot asphalt	Georgia-Pacific "DensDeck" or Celotex "Structodek"	Hot asphalt	Two plies, HPR Base Sheet[6] adhered with Weatherking or Weatherking Plus WC	StressPly,[7] VersiPly[8] or BiFlex[9] cap sheet, adhered with Weatherking or Weatherking Plus WC	-143
C-5	Concrete	ASTM D41-complying	Min. 1.5-inch-thick polyisocyanurate insulation	Hot asphalt	Georgia-Pacific "DensDeck" or Celotex "Structodek"	Hot asphalt	Two plies, HPR Base Sheet[6] adhered with hot asphalt.	StressPly,[7] VersiPly[8] or BiFlex[9] cap sheet, adhered with hot asphalt.	-158

For **SI:** 1 inch = 25.4 mm; 1 psi = 6.89 kPa; 1 psf = 4.88 kg/m^2

TABLE 2—WIND RESISTANCE – ADHERED ASSEMBLIES (Continued)

SYSTEM NO.	DECK[4]	PRIMER	INSULATION[1,2,3]		COVER BOARD[11]		ROOF COVER[5]		ALLOWABLE WIND UPLIFT (psf)
			TYPE	ATTACHMENT	TYPE	ATTACHMENT	BASE/PLY SHEET	CAP SHEET	
C-5	Concrete	ASTM D41-complying	Min. 1.5-inch-thick polyisocyanurate insulation	Hot asphalt	Georgia-Pacific "DensDeck" or Celotex "Structodek"	Hot asphalt	Two plies, HPR Base Sheet[6] adhered with hot asphalt.	StressPly,[7] VersiPly[8] or BiFlex[9] cap sheet, adhered with hot asphalt.	-158
C-6	Concrete	ASTM D41-complying	Min. 1.5-inch-thick polyisocyanurate insulation	Insul-Lock HR, 3/4-inch beads at 8 inches o.c.	Min. 0.5-inch-thick USG Corp. "SECUROCK Gypsum Fiber Roof Board" or Georgia-Pacific "DensDeck" or "DensDeck Prime"	Insul-Lock HR, 3/4-inch beads at 8 inches o.c.	HPR SA FR Base Sheet, self-adhered	StressPly SA FR Mineral, self-adhered.	-203
C-7	Concrete	None	Min. 1.5-inch-thick polyisocyanurate insulation	Insul-Lock HR, 1/2- to 3/4-inch beads, 12 inches o.c.	Min. 0.5-inch-thick Georgia-Pacific "DensDeck"	Insul-Lock HR, 1/2- to 3/4-inch beads, 12 inches o.c.	Two plies, HPR Base Sheet[6] adhered with hot asphalt.	StressPly,[7] VersiPly[8] or BiFlex[9] cap sheet, adhered with hot asphalt.	-158
C-8	Concrete	None	Min. 2-inch-thick Johns Manville ENRGY 3 or Rmax Multi-Max FA-3	Insul-Lock HR, 3/4-inch beads at 8 inches o.c.	Min. 0.5-inch-thick USG Corp. "SECUROCK Gypsum Fiber Roof Board" or Georgia-Pacific "DensDeck Prime"	Insul-Lock HR, 3/4-inch beads at 8 inches o.c.	Millenium Base, adhered with GreenLock	Millenium, Millenium Mineral or Millenium FR Mineral, adhered with GreenLock	-263
C-9	Concrete	None	Min. 1.5-inch-thick Hunter H-Shield	Insul-Lock HR, 3/4-inch beads at 6 inches o.c.	USG Corp. "SECUROCK Gypsum Fiber Roof Board"	Insul-Lock HR, 3/4-inch beads at 6 inches o.c.	StressBase 80 or StressBase 120, adhered with GreenLock	StressPly,[7] VersiPly[8] or BiFlex[9] cap sheet, adhered with GreenLock	-290
C-10	Concrete	ASTM D41-complying	Min. 1.5-inch-thick Hunter H-Shield	Hot asphalt	USG Corp. "SECUROCK Gypsum Fiber Roof Board"	Hot asphalt	StressBase 80 or StressBase 120, adhered with GreenLock	StressPly,[7] VersiPly[8] or BiFlex[9] cap sheet, adhered with GreenLock	-375
C-11	Concrete	None	Min. 1.5-inch-thick Atlas Roofing "ACFoam-II" or Johns Manville "ENRGY 3"	Insul-Lock II, 1/2- to 3/4-inch beads, 12 inches o.c.	Celotex "Structodek"	Insul-Lock II, 1/2- to 3/4-inch beads, 12 inches o.c.	Two plies, HPR Base Sheet[6] adhered with Weatherking or Weatherking Plus WC	StressPly Legacy or StressPly Legacy FR Mineral, adhered with Weatherking or Weatherking Plus WC	-128

For **SI:** 1 inch = 25.4 mm; 1 psi = 6.89 kPa; 1 psf = 4.88 kg/m^2

TABLE 2—WIND RESISTANCE – ADHERED ASSEMBLIES (Continued)

SYSTEM NO.	DECK[4]	PRIMER	INSULATION[1,2,3]		COVER BOARD[11]		ROOF COVER[5]		ALLOWABLE WIND UPLIFT (psf)
			TYPE	ATTACHMENT	TYPE	ATTACHMENT	BASE/PLY SHEET	CAP SHEET	
C-12	Concrete	ASTM D41-complying	Min. 1.5-inch-thick polyisocyanurate insulation	Hot asphalt	Georgia-Pacific "DensDeck" or Celotex "Structodek"	Hot asphalt	Two plies, HPR Base Sheet[6] adhered with Weatherking or Weatherking Plus WC	StressPly Legacy or StressPly Legacy FR Mineral, adhered with Weatherking or Weatherking Plus WC.	-143
C-13	Concrete	None	Min. 1.5-inch-thick Hunter H-Shield	Insul-Lock HR, $^3/_4$-inch beads at 6 inches o.c.	USG Corp. "SECUROCK Gypsum Fiber Roof Board"	Insul-Lock HR, $^3/_4$-inch beads at 6 inches o.c.	StressBase 80 or StressBase 120, adhered with GreenLock	StressPly Legacy or StressPly Legacy FR Mineral, adhered with GreenLock	-290
C-14	Concrete	ASTM D41-complying	Min. 1.5-inch-thick Hunter H-Shield	Hot asphalt	USG Corp. "SECUROCK Gypsum Fiber Roof Board"	Hot asphalt	StressBase 80 or StressBase 120, adhered with GreenLock	StressPly Legacy or StressPly Legacy FR Mineral, adhered with GreenLock	-375

For **SI:** 1 inch = 25.4 mm; 1 psi = 6.89 kPa; 1 psf = 4.88 kg/m^2

TABLE 2—WIND RESISTANCE – ADHERED ASSEMBLIES (Continued)

SYSTEM NO.	DECK[4]	PRIMER	INSULATION[1,2,3]		COVER BOARD[11]		ROOF COVER[5]		ALLOWABLE WIND UPLIFT (psf)
			TYPE	ATTACHMENT[10]	TYPE	ATTACHMENT	BASE/PLY[10] SHEET	CAP SHEET	
LWC-1	Celcore lightweight concrete (250-300 psi) over structural concrete	None	---	---	USG Corp. "SECUROCK Gypsum Fiber Roof Board"	Insul-Lock HR, $^3/_4$-inch beads at 6 inches o.c	StressBase or StressBase 120, adhered with GreenLock	StressPly,[7] VersiPly[8] or BiFlex[9] cap sheet, adhered with GreenLock	-273
LWC-2	Celcore lightweight concrete (250-300 psi) over metal deck	None	---	---	---	---	HPR Tri-Base Premium sheet attached with ES Products FM-290 fasteners[13]; followed by StressBase 80, StressBase 120, FlexBase 80, FlexBase 120, FlexBase E80, FlexBase E120, FlexBase 80 or FlexBase Plus 120, adhered with hot asphalt.	StressPly,[7] VersiPly[8] or BiFlex[9] cap sheet, adhered with hot asphalt.	-75
LWC-3	Celcore lightweight concrete (250-300 psi) over structural concrete	None	---	---	USG Corp. "SECUROCK Gypsum Fiber Roof Board"	Insul-Lock HR, $^3/_4$-inch beads at 6 inches o.c	StressBase or StressBase 120, adhered with GreenLock	StressPly Legacy or StressPly Legacy FR Mineral, adhered with GreenLock	-273
SC-1	Steel or concrete deck	None	Min. 1.8-inch-thick polyisocyanurate insulation	Mechanically attached with fasteners at 3 ft^2 per fastener. See Table 3 for fasteners.	Celotex "Structodek"	Hot asphalt	HPR base sheet[6] adhered with hot asphalt.	StressPly,[7] VersiPly[8] or BiFlex[9] cap sheet, adhered with hot asphalt.	-45
SC-2	Steel or concrete deck	---	Min. 1.8-inch-thick polyisocyanurate insulation	Mechanically attached with fasteners at 3 ft^2 per fastener. See Table 3 for fasteners.	Celotex "Structodek", USG Corp. "SECUROCK Gypsum Fiber Roof Board", or Georgia-Pacific "DensDeck" or "DensDeck Prime"	Hot asphalt	HPR base sheet[6] adhered with hot asphalt.	StressPly,[7] VersiPly[8] or BiFlex[9] cap sheet, adhered with hot asphalt.	-45

For **SI:** 1 inch = 25.4 mm; 1 psi = 6.89 kPa; 1 psf = 4.88 kg/m^2

TABLE 2—WIND RESISTANCE – ADHERED ASSEMBLIES (Continued)

SYSTEM NO.	DECK[4]	ANCHOR SHEET	INSULATION[1,2,3]		COVER BOARD[11]		ROOF COVER[5]		ALLOWABLE WIND UPLIFT (psf)
			TYPE	ATTACHMENT[10]	TYPE	ATTACHMENT	BASE/PLY[10] SHEET	CAP SHEET	
S-1	Steel deck	---	Min. 2-inch-thick Johns Manville "ENRGY 3", Atlas Roofing " ACFoam II", and Hunter "H-Shield"	Mechanically attached with fasteners at 1 ft^2 per fastener. See Table 3 for fasteners.	USG Corp. "SECUROCK Gypsum Fiber Roof Board" or min. 0.5-inch-thick Georgia-Pacific "DensDeck Prime"	Hot asphalt	HPR base sheet[6] adhered with hot asphalt.	StressPly,[7] VersiPly[8] or BiFlex[9] cap sheet, adhered with hot asphalt	-143
SW-1	Steel or wood deck	---	Min. 2-inch-thick polyisocyanurate insulation	Mechanically attached with fasteners at 2 ft^2 per fastener. See Table 3 for fasteners.	Celotex "Structodek" or min. 0.5-inch-thick Georgia-Pacific "DensDeck"	Insta-Stik™ Quik Set Insulation Adhesive, at 3/4 to 1-inch beads at 12 inches o.c.	Two plies HPR base sheet,[6] adhered with Weatherking or Weatherking Plus	StressPly,[7] VersiPly[8] or BiFlex[9] cap sheet, adhered with Weatherking or Weatherking Plus WC.	-45
SW-2	Steel or wood deck	---	Min. 2-inch-thick polyisocyanurate insulation	Mechanically attached with fasteners at 2 ft^2 per fastener. See Table 3 for fasteners.	Celotex "Structodek" or min. 0.5-inch-thick Georgia-Pacific "DensDeck"	Insta-Stik™ Quik Set Insulation Adhesive, at 3/4 to 1-inch beads at 12 inches o.c.	Two plies HPR base sheet,[6] adhered with Weatherking or Weatherking Plus WC	StressPly Legacy or StressPly Legacy FR Mineral, adhered with Weatherking or Weatherking Plus WC	-45
CWF-1	Tectum I, III or E (ESR-1112)	See Footnote No. 12.	1.5-inch-thick polyisocyanurate[1] insulation (Optional)	Hot asphalt	Min. 0.5-inch-thick Georgia-Pacific DensDeck Prime	Hot asphalt	HPR base sheet,[6] adhered with asphalt, HPR All Temp or Garlastic KM Plus.	StressPly,[7] VersiPly[8] or BiFlex[9] cap sheet, adhered with hot asphalt, HPR All Temp or Garlastic KM Plus	-135
CWF-2	Tectum I, III or E (ESR-1112)	See Footnote No. 12	1.5-inch-thick polyisocyanurate[1] insulation (Optional)	Hot asphalt	Min. 0.5-inch-thick Georgia-Pacific DensDeck Prime	Hot asphalt	HPR base sheet, adhered with asphalt, HPR All Temp or Garlastic KM Plus	StressPly Legacy or StressPly Legacy FR Mineral, adhered with Garlastic KM Plus.	-135
G-1	Existing poured gypsum deck	---	None	N/A	None	N/A	HPR Base Sheet,[6] mechanically attached to deck with ES Products FM-90 fasteners[14]	StressPly,[7] VersiPly[8] or BiFlex[9] cap sheet, adhered with asphalt, HPR All Temp or Garlastic KM Plus	-45
G-2	Existing poured gypsum deck	---	None	N/A	None	N/A	HPR Base Sheet,[6] mechanically attached to deck with ES Products FM-90 fasteners[14]	StressPly Legacy or StressPly Legacy FR Mineral, adhered with Garlastic KM Plus	-45

For **SI:** 1 inch = 25.4 mm

Table 2 Notes:

[1] Polyisocyanurate insulation, unless specifically noted, may be any of the following: Atlas Roofing "ACFoam II", Johns Manville "ENRGY 3", Hunter "H-Shield", Rmax "Multi-Max FA-3" or Firestone "ISO ISO 95 + GL".
[2] All foam plastic insulation must be UL-classified foam plastic for roofing systems, and must be limited to the maximum thickness noted in Section 5.4 of this report.
[3] Polyisocyanurate insulation must comply with ASTM C1289.
[4] Wood deck must be minimum $^{15}/_{32}$-inch-thick (11.9 mm) plywood. Steel deck must be minimum No. 22 gage galvanized steel [0.030 inch (0.76 mm)]. Structural concrete must have a minimum compressive strength (f_c) of 2500 psi.
[5] Base, ply and cap sheet membranes must be UL-classified for roofing systems.
[6] HPR base sheet must be any of the following: HPR Tri-Base Premium, HPR GlasBase, HPR Premium GlasBase, HPR GlasFelt or HPR Premium GlasFelt.
[7] StressPly cap sheet must be any of the following: StressPly, StressPly E, StressPly FR Mineral, StressPly E FR Mineral, StressPly EUV, StressPly EUV FR Mineral, StressPly Plus, StressPly Plus FR Mineral, StressPly Max, StressPly Max FR Mineral.
[8] VersiPly cap sheet must be any of the following: VersiPly 60, VersiPly 80 or VersiPly Mineral.
[9] BiFlex cap sheet must be BiFlex Cap or BiFlex Mineral Cap.
[10] Fasteners and plates must be as noted in Table 3.
[11] All cover boards must be UL-classified for roofing systems.
[12] Anchor sheet: One ply of HPR GlasBase, HPR Premium GlasBase, HPR Tri-Base Plus, i.e., HPR Tri-Base Premium fastened to the deck as described below:
Fastening: Attach anchor sheet using ES ProductsTwin Loc-Nail spaced 6" o.c. within 4" wide lap and 6" o.c. within three equally spaced staggered rows in the field.
[13] Attach base sheet at 7 inches o.c. within 4-inch wide lap and 7 inches o.c. within three equally spaced staggered rows in the field.
[14] Attach base sheet at 9 inches o.c. within 4-inch wide lap and 18 inches o.c. within two equally spaced staggered rows in the field.

TABLE 3—MECHANICAL FASTENERS AND PLATES FOR INSULATION AND BASE SHEET

DECK TYPE	ATTACHING	FASTENER	PLATE
Wood or Steel	Insulation or Base Sheet	OMG #14 Roofgrip	OMG Flat Bottom Metal Plate or OMG Recessed Metal Plate
		OMG #12 Standard Roofgrip or OMG Heavy Duty	OMG 3" Galvalume Steel Plate
		SFS Dekfast 12 or SFS Dekfast 14	SFS Dekfast Galvalume Steel Hex, SFS Dekfast Galvalume Steel 3" Round or SFS Dekfast Deklite Galvalume 3" Round Insulation Plate
		Altenloh Trufast #12 DP Fastener or Altenloh Trufast #14 HD Fastener	Trufast 3" Metal Insulation Plate
Wood, Steel or Concrete	Insulation or Base Sheet	OMG Heavy Duty or OMG #14 Roofgrip	OMG 3" Galvalume Steel Plate or OMG Flat Bottom Plate
		Trufast #14 HD Fastener	Trufast 3" Metal Insulation Plate
Cementitious Wood Fiber (CWF), Gypsum	Insulation or Base Sheet	ES Products Twin Loc-Nails, ES Products FM 75, ES Products FM 90 or ES Products FM 290	N/A
Lightweight Concrete (LWC)	Base Sheet	ES Products FM 290	N/A