

# UL Evaluation Report



## UL ER10167-03

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UL Category Code: ULFB

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DIVISION: 07 00 00 THERMAL AND MOISTURE PROTECTION

Sub-level 2: 07 50 00 – Membrane Roofing

Sub-level 2: 07 51 00 – Built-Up Bituminous Roofing

Sub-level 3: 07 51 13 – Built-Up Asphalt Roofing

Sub-level 2: 07 52 00 – Modified Bituminous Membrane Roofing

Sub-level 3: 07 52 16 – Styrene-Butadiene-Styrene Modified bituminous Sheet Roofing

### COMPANY:

Johns Manville  
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[www.jm.com](http://www.jm.com)

### 1. SUBJECT:

#### SBS Modified Bitumen Membranes

DynaWeld Cap 250	DynaLastic 180	DynaMax FR
DynaKap FR T1	DynaKap FR T1 CR G	DynaKap FR T1 HW CR G
DynaGlas	DynaGlas FR	DynaGlas FR XT
DynaWeld Cap FR XT	DynaGlas 30 FR	DynaWeld Cap FR
DynaLastic 180 F	R, DynaWeld Cap 180 FR	DynaLastic 180 FR CR G
DynaWeld Cap 250 FR	DynaLastic 250 FR CR G	DynaWeld Cap 250 FR CR G
DynaWeld Cap 180 FR CR	DynaWeld Cap 250 FR CR	DynaLastic 180 FR CR
DynaGlas FR CR	DynaMax FR CR	DynaMax FR HW CR
GlasKap CR	DynaWeld Cap FR CR G	DynaLastic 250 FR
DynaMax FR HW	DynaKap T1	DynaGlas FR CR G
DynaLastic 250 FR CR	GlasKap	DynaWeld Cap FR CR

## Base and Felt Sheets

DynaLastic 180 S	DynaWeld 180 S	DynaMax FR S
DynaFast 180 HW	DynaPly T1	DynaLastic 250 S
DynaFast 250 HW	DynaBase	DynaBase XT
DynaWeld Base	DynaBase HW	PermaPly 28
GlassBase Plus	GlasPly Premier	GlasPly IV
DynaFast 180 S	DynaWeld 250 S	DynaBase PR
Ventsulation	DynaGrip Base SD/SA	

### 2. SCOPE OF EVALUATION

- 2015, 2012, 2009 and 2006 *International Building Code®* (IBC)
- 2015, 2012, 2009 and 2006 *International Residential Code®* (IRC)
- ICC ES Acceptance Criteria for Roof-Covering Systems (AC75), Dated Jul 2010 (Editorially revised April 2014)
- ICC ES Acceptance Criteria for Quality Documentation (AC10), Dated June 2014

#### The products were evaluated for the following properties:

- Roofing Systems for Exterior Fire Exposure (ANSI/UL 790, ASTM E108)
- Roofing Systems, Wind Uplift Resistance (FM 4474, ANSI/UL 1897)
- Physical Properties (ASTM D2178, ASTM D3909, ASTM D4601, ASTM D4897, ASTM D6162, ASTM D6163, ASTM D6164, ASTM G155)
- Foot Traffic Resistance (FM 4470)

### 3. REFERENCED DOCUMENTS

- ANSI/UL790, Standard Test Methods for Fire Tests of Roof Coverings, Eighth Edition including revisions through July 29, 2014
- ANSI/UL1897, Uplift Tests for Roof Covering Systems, Sixth Edition, dated September 14, 2012
- ASTM D2178-04, Standard Specification for Asphalt Glass Felt Used in Roofing and Waterproofing
- ASTM D3909-97b, Standard Specification for Asphalt Roll Roofing (Glass Felt) Surfaced With Mineral Granules
- ASTM D4601-04, Standard Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing
- ASTM D4897-01, Standard Specification for Asphalt-Coated Glass-Fiber Venting Base Sheet Used in Roofing
- ASTM D6162-00, Standard Specification for Styrene Butadiene-Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements
- ASTM D6163-00, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements
- ASTM D6164-11, Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements
- ASTM E108-2011, Test Methods for Fire Tests of Roof Covering
- ASTM G155-2013, Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials
- FM 4470-2012, Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction
- FM 4474-2011, Evaluating the Simulated Wind Uplift Resistance of Roof Assemblies Using Static Positive and/or Negative Differential Pressures
- ICC ES Acceptance Criteria for Membrane Roof-Covering Systems (AC75), Dated April 2014
- ICC ES Acceptance Criteria for Quality Documentation (AC10), Dated June 2014

## 4. USES

The styrene-butadiene-styrene (SBS) modified bitumen membranes, built-up roofing felts and base sheets described in this report are used as roof coverings in mechanically fastened or fully adhered Class A, B or C roof assemblies installed on combustible or non-combustible roof decks.

## 5. PRODUCT DESCRIPTION

The modified bitumen roofing systems described in this report consist of single-ply roofing membranes, base sheets and ply sheets, insulation where used, barrier board or slip sheet where used, flashing, mechanical fasteners and adhesives that are installed on a combustible or non-combustible roof deck.

The roofing assemblies incorporating the membranes comply with the following properties when installed as described in this report.

**Fire Classification:** Roofing assemblies covered under this report have been tested for fire classification Class A, B or C in accordance with ANSI/UL790 or ASTM E108, as required by [Section 1505.1](#) of 2015, 2012, 2009 and 2006 IBC and [Section R902.1](#) of the 2015, 2012, 2009 and 2006 IRC.

**Wind Resistance:** Roofing assemblies covered under this report have been tested for wind uplift resistance in accordance with FM 4474 or ANSI/UL 1897, and therefore qualify for use under Roofing membranes [Section 1504.3.1](#) of the 2015, 2012, 2009 and 2006 IBC.

The roofing assemblies shall be designed to resist the design wind load pressures for components and claddings in accordance with [Section 1609](#) of the 2015, 2012, 2009 and 2006 IBC and [Section R905.1](#) of the 2015, 2012, 2009 and 2006 IRC.

**Physical Properties:** The roofing membranes covered under this Report have been tested for physical properties in accordance with ASTM D2178, ASTM D3909, ASTM D4601, ASTM D4897, ASTM D6162, ASTM D6163, ASTM D6164 and ASTM G155, and therefore qualify for use under Section 1507.6, 1507.11 and [Section 1504.6](#) of the 2015, 2012, 2009 and 2006 IBC and [Section R905.11.2](#) of the 2015, 2012, 2009 and 2006 IRC.

**Impact Test:** The single-ply roofing membranes covered under this Report have been tested for impact resistance in accordance with "Resistance to Foot Traffic Test" in Section 5.5 of FM 4470 and therefore qualify for use under [Section 1504.7](#) of the 2015, 2012, 2009 and 2006 IBC.

### 5.1 SBS Modified Bitumen Membranes:

- 5.1.1 DynaGlas:** A fiber glass-reinforced, SBS mineral surfaced cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6163, Type I, Grade G.
- 5.1.2 DynaGlas 30 FR:** A fire-retardant, fiber glass-reinforced, SBS mineral-surfaced cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6163, Type 1, Grade G.
- 5.1.3 DynaGlas FR:** A fire-retardant, fiber glass-reinforced, SBS mineral-surfaced cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6163, Type 1, Grade G.
- 5.1.4 DynaGlas FR CR:** A fire-retardant, fiber glass-reinforced, SBS mineral-surfaced cool roof cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6163, Type I, Grade G.

- 5.1.5 DynaGlas FR CR G:** A fire-retardant, fiber glass-reinforced, SBS reflective mineral-surfaced, cool roof cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6163, Type I, Grade G.
- 5.1.6 DynaGlas FR XT:** A fire resistant, fiber glass-reinforced, SBS modified bitumen membrane surfaced with granules. The membrane is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6163, Type I, Grade G.
- 5.1.7 DynaKap FR T1:** A fire-retardant, fiber glass/polyester-reinforced, SBS mineral-surfaced cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6162, Type I, Grade G.
- 5.1.8 DynaKap FR T1 CR G:** A fire-retardant, fiber glass/polyester-reinforced, SBS reflective mineral-surfaced, cool roof cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6162, Type I, Grade G.
- 5.1.9 DynaKap FR T1 HW CR G:** A fire-retardant, fiber glass/polyester-reinforced, SBS reflective mineral-surfaced, cool roof cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6162, Type I, Grade G.
- 5.1.10 DynaKap T1:** A fiber glass/polyester-reinforced, SBS mineral-surfaced cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6162, Type I, Grade G.
- 5.1.11 DynaLastic 180:** A glass scrim/polyester-reinforced, SBS mineral-surfaced cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6164, Type I, Grade G.
- 5.1.12 DynaLastic 180 FR:** A fire-retardant, polyester-reinforced, SBS mineral-surfaced cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6164, Type I, Grade G.
- 5.1.13 DynaLastic 180 FR CR:** A fire-retardant, polyester-reinforced, SBS mineral-surfaced, cool roof cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6164, Type I, Grade G.
- 5.1.14 DynaLastic 180 FR CR G:** A fire-retardant, polyester-reinforced, SBS reflective mineral-surfaced, cool roof cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6164, Type I, Grade G.
- 5.1.15 DynaLastic 250 FR:** A fire retardant, heavy duty polyester-reinforced, SBS mineral-surfaced cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6164, Type II, Grade G.
- 5.1.16 DynaLastic 250 FR CR:** A fire retardant, heavy duty polyester-reinforced, SBS mineral-surfaced, cool roof cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6164, Type II, Grade G.
- 5.1.17 DynaLastic 250 FR CR G:** A fire retardant, heavy duty polyester-reinforced, SBS reflective mineral-surfaced, cool roof cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6164, Type II, Grade G.

- 5.1.18 DynaMax FR:** A fire resistant, composite reinforced SBS modified bitumen membrane surfaced with granules. The membrane is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches long (10 m) and complies with ASTM D6162, Type III, Grade G.
- 5.1.19 DynaMax FR CR:** A fire resistant, composite reinforced SBS modified bitumen membrane with granules and a reflective white coating. The membrane is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches long (10 m) and complies with ASTM D6162, Type III, Grade G.
- 5.1.20 DynaMax FR HW:** A fire resistant, composite reinforced SBS modified bitumen membrane surfaced with granules for use in heat weld applications. The membrane is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6162, Type III, Grade G.
- 5.1.21 DynaMax FR HW CR:** A fire resistant, composite reinforced SBS modified bitumen membrane surfaced with granules and a reflective white coating for use in heat weld applications. The membrane is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6162, Type III, Grade G.
- 5.1.22 DynaWeld Cap 180 FR:** A fire-retardant, glass scrim/polyester-reinforced, SBS mineral-surfaced cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6164, Type I, Grade G.
- 5.1.23 DynaWeld Cap 180 FR CR:** A fire resistant, polyester reinforced SBS modified bitumen membrane surfaced with granules and a reflective white coating for use in heat weld applications. The membrane is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6164, Type I, Grade G.
- 5.1.24 DynaWeld Cap 250:** A polyester-reinforced, SBS mineral-surfaced cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6164, Type II, Grade G.
- 5.1.25 DynaWeld Cap 250 FR:** A fire-retardant, polyester-reinforced, SBS mineral-surfaced cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6164, Type II, Grade G.
- 5.1.26 DynaWeld Cap 250 FR CR:** A fire resistant, polyester reinforced SBS modified bitumen membrane surfaced with granules for use in heat weld applications. The membrane is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6164, Type II Grade G.
- 5.1.27 DynaWeld Cap 250 FR CR G:** A fire-retardant, heavy duty polyester-reinforced, SBS reflective mineral-surfaced, cool roof cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6164, Type II, Grade G.
- 5.1.28 DynaWeld Cap FR:** A fire-retardant, fiber glass-reinforced, SBS mineral-surfaced cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6163, Type I, Grade G.
- 5.1.29 DynaWeld Cap FR CR:** A fire-retardant, fiber glass-reinforced, SBS cool roof cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6163, Type I, Grade G.

- 5.1.30 DynaWeld Cap FR CR G:** A fire-retardant, fiber glass-reinforced, SBS reflective Mineral-surfaced, cool roof cap sheet. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6163, Type I, Grade G.
- 5.1.31 DynaWeld Cap FR XT:** A fire-resistant, glass reinforced SBS modified bitumen membrane surface with granules for use in heat weld application. The cap sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6163, Type I, Grade G.
- 5.1.32 GlasKap:** A fiber glass-reinforced, mineral surfaced cap sheet. The cap sheet is supplied in rolls 36 inches (914 mm) wide by 36 feet (10.97 m) long and complies with ASTM D3909.
- 5.1.33 GlasKap CR:** A fiber glass-reinforced, BUR mineral-surfaced, cool roof cap sheet. The cap sheet is supplied in rolls 36 inches (914 mm) wide by 36 feet (10.97 m) long and complies with ASTM D3909.

## **5.2 Base and Felt Sheets:**

- 5.2.1 DynaBase:** A fiber glass-reinforced SBS modified bitumen base sheet. The base sheet is supplied in rolls 39-3/8 inches (1 m) wide by 49 feet 2 inches (15 m) long and complies with ASTM D6163, Type I, Grade S.
- 5.2.2 DynaBase HW:** A fiber glass-reinforced SBS base or ply sheet. The base/ply sheet is supplied in rolls 39-3/8 inches (1 m) wide by 49 feet 2 inches (15 m) long and complies with ASTM D6163, Type I, Grade S.
- 5.2.3 DynaBase PR:** A polyester-reinforced, SBS base or ply sheet. The base/ply sheet is supplied in rolls 39-3/8 inches (1 m) wide by 49 feet 2 inches (15 m) long and complies with ASTM D6164, Type I, Grade S.
- 5.2.4 DynaBase XT:** A glass reinforced SBS modified bitumen base or inner ply sheet. The base/ply sheet is supplied in rolls 39-3/8 inches (1 m) wide by 49 feet 2 inches (15 m) long and complies with ASTM D6163, Type I, Grade S.
- 5.2.5 DynaFast 180 HW:** A polyester-reinforced SBS base or ply sheet. The base/ply sheet is supplied in rolls 39-3/8 inches (1 m) wide by 49 feet 2 inches (15 m) long and complies with ASTM D6164, Type I, Grade S.
- 5.2.6 DynaFast 180 S:** A polyester-reinforced, SBS base or ply sheet. The base/ply sheet is supplied in rolls 39-3/8 inches (1 m) wide by 49 feet 2 inches (15 m) long and complies with ASTM D6164, Type I, Grade S.
- 5.2.7 DynaFast 250 HW:** A heavy duty, polyester-reinforced, SBS base or ply sheet. The base/ply sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6164, Type II, Grade S.
- 5.2.8 DynaLastic 180 S:** A glass scrim/polyester-reinforced, SBS base or ply sheet. The base/ply sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6164, Type I, Grade S.
- 5.2.9 DynaLastic 250 S:** A polyester reinforced SBS modified bitumen base or inner ply sheet. The base/ply sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6164, Type II, Grade S.

- 5.2.10 DynaMax FR S:** A composite reinforced SBS modified bitumen base or inner ply sheet. The base/ply sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m long) and complies with ASTM D6162, Type III, Grade S.
- 5.2.11 DynaPly T1:** A fiber glass/polyester-reinforced, SBS base or ply sheet. The base/ply sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6162, Type I, Grade S.
- 5.2.12 DynaWeld 180 S:** A glass scrim/polyester-reinforced, SBS base or ply sheet. The base/ply sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6164, Type I, Grade S.
- 5.2.13 DynaWeld 250 S:** A polyester reinforced SBS modified bitumen base or inner ply sheet for use in heat weld applications. The base/ply sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6164, Type II, Grade S.
- 5.2.14 DynaWeld Base:** A fiber glass-reinforced, BUR lightly modified bitumen base or ply sheet. The base/ply sheet is supplied in rolls 39-3/8 inches (1 m) wide by 32 feet 10 inches (10 m) long and complies with ASTM D6163, Type1, Grade S.
- 5.2.15 GlasBase Plus:** A fiber glass-reinforced, BUR lightly modified bitumen base or ply sheet. The base/ply sheet is supplied in rolls 36 inches (914 mm) wide by 106 feet (32.31 m) long and complies with ASTM D4601, Type II.
- 5.2.16 GlasPly IV:** A fiber glass-reinforced, asphalt-coated ply sheet. The ply sheet is supplied in rolls 36 inches (1 m) wide by 177 feet (53.95 m) long and complies with ASTM D2178, Type IV.
- 5.2.17 GlasPly Premier:** A premium fiber glass-reinforced, asphalt-coated ply sheet. The ply sheet is supplied in rolls 36 inches (1 m) wide by 177 feet (53.95 m) long and complies with ASTM D2178, Type VI.
- 5.2.18 PermaPly 28:** A fiber glass-reinforced, asphalt-coated lightweight base sheet. The base sheet is supplied in rolls 36 inches (914 mm) wide by 106 feet (32.31 m) long and complies with ASTM D4601, Type II.
- 5.2.19 Ventsulation Felt:** A fiber glass-reinforced, asphalt-coated venting base sheet. The base sheet is supplied in rolls 36 inches (914 mm) wide by 36 feet (10.97 m) long and complies with ASTM D4897.
- 5.2.20 DynaGrip Base SD/SA:** A self-adhering, fiber glass-reinforced, SBS base sheet. The base sheet is supplied in rolls 39-3/8 inches (1 m) wide by 65 feet 7 inches (19.99 m) long and complies with ASTM D4601, Type I.

### 5.3 Insulation:

Foam plastic insulation when used shall have a flame spread index of not more than 75 when tested at the maximum thickness intended for the use in accordance with ANSI/UL 723 or ASTM E 84 to qualify for use under [Section 2603.3](#) and Exception 3 of the 2015, 2012, 2009 and 2006 IBC. To qualify for use under [Section 2603.4.1.5](#) of the 2015, 2012, 2009 and 2006 IBC, a thermal barrier is not required for foam plastic insulation that is part of a Class A, B or C roof-covering assembly, provided the assembly with foam plastic insulation complies with FM 4450 or UL 1256.

#### 5.4 Fasteners:

Fasteners used to mechanically fasten insulation and membranes to the roof deck shall be corrosion resistant and shall be one of the fasteners identified in the Appendix of this Report.

#### 5.5 Adhesive:

The adhesive used for adhering John Manville SBS membranes to the insulation or roofing substrate shall be as noted in the Appendix of this Report.

#### 5.6 Asphalt:

Hot roofing asphalt, when specified in the roofing assemblies shall conform to ASTM D312, Type IV.

### 6. INSTALLATION

John Manville single ply PVC membranes shall be installed in accordance with the applicable code, this report and the manufacturer's published installation instructions. The membranes shall be installed in accordance with [Section 1507.13](#) of the 2015, 2012, 2009 and 2006 IBC or [Section R905.13](#) of the 2015, 2012, 2009 and 2006 IRC as applicable, except as noted in this report.

The manufacturer's published installation instructions shall be available at all times on the jobsite during installation.

The slope of the roof on which the membranes are installed shall be a minimum of 1/4:12 (2% slope) and shall not be more than the maximum slope indicated in Tables of this Report.

Penetrations and terminations of the roof covering shall be flashed and made watertight in accordance with the requirements of the membrane manufacturer, [Section 1503.2](#) of 2015, 2012, 2009 and 2006 IBC or [Section R903.2](#) of 2015, 2012, 2009 and 2006 IRC and applicable code.

### 7. FIRE CLASSIFICATION

**7.1 New Construction:** Roof assemblies utilizing Johns Manville roof coverings are described in UL Certification Category for Roofing Systems, [\(TGFU\)](#), under File R10167 and in Tables in this Report.

**7.2 Reroofing:** The existing roof shall be inspected in accordance with the provisions and limitations of [Section 1510](#) of the 2015, 2012, 2009 and 2006 or [Section R907](#) of the 2015, 2012, 2009 and 2006 IRC, as applicable. The existing deck shall 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 is required.

Johns Manville membranes may be installed over existing Classified Class A, B or C roofing systems as described in the UL Certification Category for Roofing Systems [\(TGFU\)](#), File R10167 under the heading SBS Modified Bitumen Maintenance and Repair Systems for applicable coverage and details of the roof assemblies and in Tables in this Report.

Class A, B or C roof coverings may be installed over existing classified roof assemblies under the following conditions without additional roof classification tests, provided the resulting classification is the lower of the new and existing roof classifications under the following condition:

- New uninsulated or insulated roof coverings may only be installed only over existing uninsulated assemblies.



## 8. WIND RESISTANCE

- 8.1 New Construction:** The allowable wind uplift pressures for the roof assemblies are noted in the Tables in this Report. Metal edge securement for all systems shall be designed in accordance with ANSI/SPRI ES-1, complying with [Section 1504.5](#) of 2015, 2012, 2009 and 2006 IBC. For certifications of metal edge securement systems in accordance with ANSI/SPRI ES-1, See UL Online Certifications Directory Roof-edge Systems, Metal for Use with Low-slope Roofing Systems ([TGJZ](#)).
- 8.2 Reroofing:** Roof covering systems employing mechanical fasteners shall 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 conditions of any particular underlying existing roofing materials may vary and reroofing material may vary, reroofing with adhered systems is outside the scope of this report.

## 9. CONDITIONS OF USE

The Johns Manville roof covering materials described in this Report comply with, or are suitable alternatives to, what is specified in those codes listed in Section 2 of this Report, subject to the following conditions:

- 9.1** Materials and methods of installation shall comply with this Report and the manufacturer's published installation instructions. In the event of a conflict between the installation instructions and this Report, this Report governs.
- 9.2** Johns Manville roof covering materials systems shall be installed by professional roofing contractors trained and approved by the manufacturer.
- 9.3** See UL Online Certification Directory Roofing Systems ([TGFU](#)) File R10167. Also refer to the Tables of this Report.
- 9.4** Above-deck thermal insulation board shall comply with the applicable standards listed in Table 1508.2 in [Section 1508.2](#) of 2015, 2012, 2009 and 2006 IBC.
- 9.5** Wind uplift pressures on any roof area, including edges and corner zones shall not exceed the allowable wind pressure for the roof covering installed in that particular area. Refer to the Tables in this Report.
- 9.6** For assemblies containing mechanical attachment for the perimeter and corner roof zones 2 and 3, the attachment density may be increased by a qualified design professional, as necessary, to meet the design pressure requirements in these areas.
- 9.7** The allowable wind uplift pressures listed in the Tables of this Report are for the roof systems only. The deck and framing to which the roofing system is attached shall be designed for the applicable components and cladding, wind loads in accordance with the applicable codes.
- 9.8** When application is over an existing roof, documentation of the wind uplift resistance of the composite roof construction shall be submitted to the code official.
- 9.9** The metal edge securement shall be designed and installed for wind loads in accordance with [Chapter 16](#) of 2015, 2012, 2009 and 2006 IBC and test for resistance in accordance with Test Methods RE-1, RE-2 and RE-3 of ANSI/SPRI ES-1, except  $V_{ult}$  wind speed shall be determined from Figure 1609A, 1609B, or 1609C of 2015, 2012, 2009 and 2006 IBC as applicable.

- 9.10** The Johns Manville base sheets, membranes and cap sheets covered under this report are produced under the UL LLC Classification and Follow-Up Service Program, which includes audits in accordance with quality elements of ICC-ES Acceptance Criteria for Quality Documentation, AC 10.

## **10. SUPPORTING EVIDENCE**

- 10.1** Data in accordance with ICC-ES Acceptance Criteria for Membrane Roof-Covering Systems, AC75.
- 10.2** Manufacturer's descriptive product literature, including installation instructions.
- 10.3** UL Classification Reports in accordance with ANSI/UL 790. See UL Product Certification Category under File R10167 for Roofing Systems (TGFU).
- 10.4** Data in accordance with FM 4474.
- 10.5** Data in accordance with FM 4470.
- 10.6** Data in accordance with ASTM D2178, ASTM D3909, ASTM D4601, ASTM D4897, ASTM D6162, ASTM D6163, ASTM D6164 and ASTM G155.
- 10.7** Documentation of quality system elements in accordance with ICC-ES Acceptance Criteria for Quality Documentation, AC10.

## **11. IDENTIFICATION**

The Johns Manville base sheets, membranes and cap sheets described in this evaluation report are identified by a marking bearing the report holder's name (Johns Manville), the plant identification, the product designation, the UL Classification Mark, and the evaluation report number UL ER10167-03. The validity of the evaluation report is contingent upon this identification appearing on the product or UL Classification Mark certificate.

## **12. USE OF UL EVALUATION REPORT**

- 12.1** The approval of building products, materials or systems is under the responsibility of the applicable authorities having jurisdiction.
- 12.2** UL Evaluation Reports shall not be used in any manner that implies an endorsement of the product, material or system by UL.
- 12.3** The current status of this report, as well as a complete directory of UL Evaluation Reports may be found at UL.com via our On-Line Certifications Directory at [www.ul.com/erdirectory](http://www.ul.com/erdirectory).

**APPENDIX**

<b>Table</b>	<b>Deck</b>	<b>Application</b>	<b>Description</b>
<a href="#">1</a>	Structural Concrete	New or Existing	Adhered Assemblies over Concrete Deck
<a href="#">2</a>	Insulated Structural Concrete	New, Existing or Recover	Adhered Assemblies over Insulated Concrete Deck
<a href="#">3</a>	Structural Concrete	New, Existing or Recover	Mechanically Fastened Assemblies over Concrete Deck
<a href="#">4</a>	Structural Cement Board	New or Existing	Adhered Assemblies over Tectum I Cementitious Wood Fiber Panels
<a href="#">5</a>	Structural Cement Board	New, Existing or Recover	Adhered Assemblies over Insulated Tectum I Cementitious Wood Fiber Panels
<a href="#">6</a>	Structural Cement Board	New or Existing	Adhered Assemblies over Tectum I Cementitious Wood Fiber Panels
<a href="#">7</a>	Poured Gypsum Deck	New, Existing or Recover	Adhered Assemblies over Poured Gypsum Deck
<a href="#">8</a>	Poured Gypsum Deck	New or Existing	Mechanically Fastened Assemblies over Poured Gypsum Deck
<a href="#">9</a>	Structural Concrete	New or ,Existing	Adhered Lightweight Concrete Assemblies over Concrete Deck
<a href="#">10</a>	Structural Concrete	New or Existing	Mechanically Fastened Lightweight Concrete Assemblies over Concrete Deck
<a href="#">11</a>	Steel	New or Existing	Mechanically Fastened Lightweight Concrete Assemblies over Steel Deck
<a href="#">12</a>	Steel	Recover	Mechanically Fastened Assemblies over Recover with Adhered Roof Cover
<a href="#">13</a>	Steel	New, Existing or Recover	Adhered Membranes over Insulated Steel
<a href="#">14</a>	Steel	New, Existing or Recover	Mechanically Fastened Assemblies over Steel
<a href="#">15</a>	Wood	New, Existing or Recover	Adhered Roof Cover
<a href="#">16</a>	Wood	New, Existing or Recover	Adhered Roof Cover

**The following notes apply to the systems outlined herein:**

1. Roof decks shall be in accordance with IBC or IRC requirements to the satisfaction of the AHJ. Wind load resistance of the roof deck shall be documented through proper codified and/or FBC Approval documentation. Wind load resistance of the roof deck shall be documented through proper codified Approval documentation.
2. Unless otherwise noted, fasteners and stress plates for insulation attachment shall be as follows. Fasteners shall be of sufficient length for the following engagements:

Steel Deck: JM All Purpose Fasteners #14 or JM UltraFast Fastener #12 must penetrate steel decking a minimum 3/4-inch into the top flute of the steel deck or wood deck.

Concrete Deck: JM All Purpose Fastener #14 minimum 1 inch embedment. Fasteners installed with a pilot hole in accordance with the fastener manufacturer's published installation instructions.

All Fasteners shall be FM Approved.

3. Unless otherwise noted, insulation adhesive application rates are as follows. Ribbon or bead width is at the time of application; the ribbons/beads shall expand as noted in the manufacturer's published instructions:

Hot asphalt	Full coverage at 20 -25 lbs/sq
JM Urethane Insulation Adhesive:	Continuous 0.75-inch ribbons, 12-inch oc
JM Two Part Urethane Insulation Adhesive:	Continuous 0.75-inch ribbons, 12-inch oc
JM Roofing System Urethane Adhesive:	Continuous 0.5 to 0.75-inch wide ribbons, 12-inch oc

*Note: When multiple layer(s) of insulation and/or coverboard are installed in ribbon-applied adhesive, adhesive ribbons shall be staggered from layer-to-layer a distance of one-half the ribbon spacing.*

*Note: The maximum edge distance from the adhesive ribbon to the edge of the insulation board shall be not less than one-half the specified ribbons spacing*

4. Unless otherwise noted, all insulations are flat stock or tapered board of the minimum thickness noted. Tapered polyisocyanurate at the following thickness limitations may be substituted with the following Maximum Design Pressure (MDP) limitations. All foam plastic insulation shall be UL Classified foam plastic for Roofing Systems, and shall be limited to the maximum thickness in accordance with Section 5.2 of this report or maximum thickness in accordance with the tables in this report, whichever is less.
5. Bonded polyisocyanurate insulation boards shall be maximum 4 x 4 ft.
6. For recover applications for mechanically fastened roof assemblies and induction welded assemblies, the insulation is optional. Alternatively, min. 0.25-inch Invinsa, DensDeck, DensDeck Prime, SECUROCK Gypsum-Fiber RoofBoard may be used as a separator board, preliminarily attached prior to roof cover installation. For all recover applications, the existing roof system shall be suitable for a recover application.

7. For base/ply sheet, side laps shall be minimum 3-inch wide side laps; minimum 6-inch end laps. Side-laps shall be installed perpendicular to the direction of the steel deck ribs and parallel to the direction of the wood trusses for mechanically attached systems, unless otherwise noted. For DynaGrip Base SD/SA, side laps shall be minimum 3-5/8 inch.
8. For cap sheets, side laps shall be minimum 3-inch wide side laps; minimum 6-inch end laps.
9. The deck details consist of:

Concrete deck	Min. $f'_{c=}$ 2,500 psi at 28 days	
Structural Cement Fiber Unit	Min. 2.5-inch thick Tectum I cementitious wood fiber units	
Steel Deck	Min. 22 ga wide rib deck (Type WR) conforming to ANSI/SDI-RD1.0; 0.5% vented for LWIC applications only.	
	F<#>	<#> #12-24 HWH self-drilling screws or equivalent fastener at each flute used to secure the deck to the structural supports; min. 1/4-inch penetration
	L<#>	Max. span of <#>ft
	P	Min. 5/8-inch diameter puddle welds at each flute used to secure the deck to the structural supports
	S<#>	1/4 in. – 14 HWH X 7/8 in. self-drilling screws or equivalent fastener
	W	3/4-inch OD flat washer used with indicated fastener

10. The following naming conventions have been utilized for specify products shown in the tables of this Report.

Name	Description
2-Part UIA	JM Two Part Urethane Insulation Adhesive
CA SBS BUR Ply	One or more plies of GlasBase Plus, PermaPly 28, DynaLastic 180 S, DynaLastic 250 S, DynaBase, DynaBase XT, DynaBase PR or DynaPly T1 fully adhered in MBR Cold Application Adhesive
CA SBS Cap	DynaGlas, DynaGlas 30 FR, DynaGlas FR, DynaGlas FR CR, DynaGlas FR CG G, DynaGlas FR XT, DynaLastic 180, DynaLastic 180 FR, DynaLastic 180 FR CR, DynaLastic 180 FR CR G, DynaLastic 250 FR, DynaLastic 250 FR CR, DynaLastic 250 FR CR G, DynaKap T1, DynaKap T1 FR, DynaKap FR T1 CR G, DynaMax FR or DynaMax FR CR fully adhered in MBR Cold Application Adhesive
CA SBS Ply	One or more plies of DynaLastic 180 S, DynaFast 180 S, DynaLastic 250 S, DynaBase, DynaBase XT, DynaBase PR or DynaPly T1 fully adhered in MBR Cold Application Adhesive
HA SBS BUR Base	One ply of PermaPly 28, DynaBase, DynaBase XT, or GlasBase Plus adhered in ASTM D312 Type IV Asphalt
HA SBS BUR Base 2	One ply of PermaPly 28, GlasPly IV, GlasPly Premier, DynaBase, DynaBase XT, DynaPly T1 or GlasBase Plus fully adhered in ASTM D312, Type IV Asphalt
HA SBS BUR Ply	One or more plies of GlasPly IV, GlasPly Premier, GlasBase Plus, PermaPly 28, DynaLastic 180 S, DynaFast 180 S, DynaLastic 250 S, DynaBase, DynaBase XT, DynaBase PR, DynaMax FR S or DynaPly T1 fully adhered in ASTM D312, Type IV Asphalt

HA SBS Cap	One or more plies of DynaGlas, DynaGlas 30 FR, DynaGlas FR, DynaGlas FR CR, DynaGlas FR CR G, DynaGlas FR XT, DynaLastic 180, DynaLastic 180 FR, DynaLastic 180 FR CR, DynaLastic 180 FR CR G, DynaLastic 250 FR, DynaLastic 250 FR CR, DynaLastic 250 FR CR G, DynaKap T1, DynaKap T1 FR, DynaKap FR T1 CR G, DynaMax FR, or DynaMax FR CR fully adhered in ASTM D312, Type IV Asphalt
HA SBS Ply	One ply of DynaLastic 180 S, DynaFast 180 S, DynaLastic 250 S, DynaBase XT, DynaBase PR, DynaMax FR S or DynaPly T1 fully adhered in ASTM D312, Type IV Asphalt
MA Base	One ply of PermaPly 28, GlasBase Plus, Ventsulation Felt, DynaBase , DynaBase XT, DynaBase PR, DynaLastic 180 S, DynaFast 180 S, DynaLastic 250 S, DynaMax FR S or Dyna Ply T1 mechanically fastened
RSUA	JM Roofing System Urethane Adhesive
SBS TA VB	One ply DynaBase HW heat welded over concrete deck prepared with ASTM D 41 primer
TA SBS Cap	DynaWeld Cap FR, DynaWeld Cap FR CR, DynaWeld Cap FR XT, DynaWeld Cap 180 FR, DynaWeld Cap 180 FR CR, DynaWeld Cap 250, DynaWeld Cap 250 FR, DynaWeld Cap 250 FR CR, DynaWeld 250 Cap FR CR G, DynaKap FR T1, HW CR G or DynaMax FR HW or DynaMax FR HW CR are heat welded
TA SBS Ply	One or more plies of DynaWeld Base, DynaBase HW, DynaWeld 180 S, DynaFast 180 HW, DynaWeld 250 S, DynaFast 250 HW are heat welded

11. When insulation is generic in the following tables, one or more layers in any combination of the following insulations could be used: ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGR, ENRGY 3 FR, Fesco Board, Fesco Foam, Invinsa Roof Board, Invinsa FR Roof Board, Retro-Fit Board, RetroPlus Roof Board; SECUROCK Glass-Mat Roof Board or SECUROCK Gypsum-Fiber Roof Board.
12. "MDP" = Maximum Design Pressure is the result of testing for wind load resistance based on allowable wind loads. A safety factor of 2 was applied to the maximum test load achieved without failure. Refer to FBC 1609.1.5 for determination of design wind loads.

**TABLE 1: ADHERED ASSEMBLIES OVER CONCRETE DECK (NEW OR EXISTING)**

Adhered Assemblies over Concrete Deck (New or Existing)									
System No.	Vapor Barrier	Base Insulation Layer	Top Insulation Layer	Roof Cover			MDP (psf)	FIRE RATING UL790/ASTM E108	
				Base Ply	Ply Sheet	Cap Sheet		Class	Maximum Incline
1	-	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, DuraBoard any combination secured with 2-Part UIA ribbons spaced 12-inch OC	DuraBoard secured with 2-Part UIA ribbons spaced 12-inch OC	CA SBS Ply	CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	82.5	A	1/2:12
2	-	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR any combination secured with 2-Part UIA ribbons spaced 12-inch OC	FescoBoard secured with 2-Part UIA ribbons spaced 12-inch OC	GlasPly Premier, GlasPly IV or PermaPly 28 fully bonded in ASTM D312 Type IV Asphalt	(Optional) HA SBS BUR Ply; or TA SBS Ply	HA SBS Cap; or TA SBS Cap	112.5	A	1/2:12
3	(Optional) HA SBS BUR Base 2	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR or FescoFoam or DuraFoam any combination fully adhered in ASTM D312, Type IV Asphalt	Retro-Fit Board or DuraBoard fully adhered in ASTM D312, Type IV Asphalt	HA SBS BUR Base 2	(Optional) HA SBS BUR Ply; or TA SBS Ply	HA SBS Cap; or TA SBS Cap	155.0	A	1/2:12
4	(Optional) HA SBS BUR Base 2	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR or FescoFoam or DuraFoam, FescoBoard, Retro-Fit Board OR Min. 3-4-inch DuraBoard any combination fully adhered in ASTM D312, Type IV Asphalt	(Optional) Retro-Fit Board or Min. ¾-inch DuraBoard fully adhered in ASTM D312, Type IV Asphalt	HA SBS BUR Base	(Optional) HA SBS BUR Ply; or TA SBS Ply	HA SBS Cap; or TA SBS Cap	167.5	A	1/2:12
5	-	-	-	HA SBS BUR Base or DynaPly T1 fully bonded in ASTM D312 Type IV Asphalt	(Optional) HA SBS BUR Ply; or TA SBS Ply	HA SBS Cap; or TA SBS Cap	275	A	1/2:12
6	-	FescoBoard secured in 2-Part UIA ribbons spaced 12-inch OC	-	HA SBS BUR Base	(Optional) HA SBS BUR Ply; or TA SBS Ply	HA SBS Cap; or TA SBS Cap	285	A	1/2:12
7	-	DuraBoard or Retro-Fit Board secured in 2-Part UIA ribbons spaced 12-inch OC	-	HA SBS BUR Base	(Optional) HA SBS BUR Ply; or TA SBS Ply	HA SBS Cap; or TA SBS Cap	305	A	1/2:12

**TABLE 1: ADHERED ASSEMBLIES OVER CONCRETE DECK (NEW OR EXISTING)**

Adhered Assemblies over Concrete Deck (New or Existing)									
System No.	Vapor Barrier	Base Insulation Layer	Top Insulation Layer	Roof Cover			MDP (psf)	FIRE RATING UL790/ASTM E108	
				Base Ply	Ply Sheet	Cap Sheet		Class	Maximum Incline
8	-	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF or DuraFoam fully adhered in ASTM D312, Type IV Asphalt	(Optional) FescoBoard, Retro-Fit Board or Min. 3/4-inch DuraBoard fully adhered in ASTM D312, Type IV Asphalt	GlasPly Premier, GlasPly IV or PermaPly 28 fully adhered in ASTM D312, Type IV Asphalt	(Optional) HA SBS BUR Ply; or TA SBS Ply	HA SBS Cap; or TA SBS Cap	305	A	1/2:12
9	-	-	-	TA SBS Ply	(Optional) TA SBS Ply	TA SBS Cap	315	A	1/2:12
10	-	Min 2-inch thick, one or more layers, ENRGY 3 or ENRGY 3 AGF secured with 2-Part UIA ribbons spaced 12-inch OC	Min. 0.25-inch Gypsum-Fiber Roof Board secured with 2-Part UIA ribbons spaced 12-inch OC	HA SBS BUR Ply; or TA SBS Ply	(Optional) HA SBS BUR Ply; or TA SBS Ply	HA SBS Cap; or TA SBS Cap	367.5	A	1/2:12
11	-	Min 2-inch thick, one or more layers, ENRGY 3 or ENRGY 3 AGF secured with 2-Part UIA ribbons spaced 12-inch OC	-	HA SBS BUR Base	(Optional) HA SBS BUR Ply; or TA SBS Ply	HA SBS Cap; or TA SBS Cap	367.5	A	1/2:12
12	-	Min 2-inch thick ENRGY 3 AGF secured with 2-Part UIA ribbons spaced 12-inch OC or fully adhered in ASTM D312, Type IV Asphalt	Min. 0.25-inch Gypsum-Fiber Roof Board secured with 2-Part UIA ribbons spaced 12-inch OC or fully adhered in ASTM D312, Type IV Asphalt	HA SBS BUR Ply or TA SBS Ply	(Optional) HA SBS BUR Ply; or TA SBS Ply	HA SBS Cap; or TA SBS Cap	397.5	A	1/2:12
13	-	Min. 2-inch thick ENRGY 3 secured with 2-Part UIA ribbons spaced 12-inch OC	Min. 0.25-inch Gypsum-Fiber Roof Board secured with 2-Part UIA ribbons spaced 12-inch OC	HA SBS BUR Ply or TA SBS Ply	HA SBS BUR Ply; or TA SBS Ply	HA SBS Cap; or TA SBS Cap	442.5	A	1/2:12
14	-	Min. 2-inch thick ENRGY 3 fully adhered in ASTM D312, Type IV Asphalt	Min. 0.25-inch Gypsum-Fiber Roof Board fully adhered in ASTM D312, Type IV Asphalt	HA SBS BUR Ply or TA SBS Ply	HA SBS BUR Ply; or TA SBS Ply	HA SBS Cap; or TA SBS Cap	495	A	1/2:12
15	-	Min. 2-inch thick ENRGY 3 fully adhered in ASTM D312, Type IV Asphalt	Min. 0.25-inch Gypsum-Fiber Roof Board fully adhered in ASTM D312, Type IV Asphalt	TA SBS Ply	-	TA SBS Cap	535.5	A	1/2:12



**TABLE 2: Adhered Assemblies over Insulated Concrete Deck (New, Existing or Recover)**

System No.	Base Insulation Layer		Top Insulation Layer		Roof Cover			MDP (psf)	FIRE RATING UL790/ASTM E108	
	Type	Attach	Type	Attach	Base Ply	Ply Sheet	Cap Sheet		Class	Maximum Incline
15	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, FescoFoam, FescoBoard, DuraFoam OR Min. 3/4-inch DuraBoard, any combination	Simultaneously fastened with Top Insulation	FescoFoam, FescoBoard, DuraFoam, Retro-Fit board or Min. 3/4-inch DuraBoard	All Purpose Fasteners and UltraFast Plates (round or square) at a rate of 16 per 4-ft x 8-ft Board	HA SBS BUR Base	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	52.5	A	1/2:12
16	Min. 1.5-inch ENRGY 3, FescoFoam or DuraFoam	All Purpose Fasteners and UltraFast Plates (round or square) at a rate of 18 per 4-ft x 8-ft Board	FescoFoam, DuraFoam, Retro-Fit, RetroPlus or DuraBoard	ASTM D312, Type IV Asphalt	HA SBS BUR Base	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	60.0	A	1/2:12
17	Min. 1.5-inch ENRGY 3	All Purpose Fasteners and UltraFast Plates (round or square)s at a rate of 18 per 4-ft x 8-ft Board	Min. 0.5-inch Gypsum-Fiber Roof Board	2-Part UIA applied 12-inch OC	CA SBS BUR Ply; or HA SBS BUR Ply	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	60.0	A	1/2:12
18	Min. 2-inch ENRGY 3, FescoFoam or DuraFoam	All Purpose Fasteners and UltraFast Plates (round or square) at a rate of 22 per 4-ft x 8-ft Board	Retro-Fit, RetroPlus, DuraBoard or Min. 2-inch FescoFoam or DuraFoam	ASTM D312, Type IV Asphalt	HA SBS BUR Base	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	75.0	A	1/2:12

**TABLE 2: Adhered Assemblies over Insulated Concrete Deck (New, Existing or Recover)**

System No.	Base Insulation Layer		Top Insulation Layer		Roof Cover			MDP (psf)	FIRE RATING UL790/ASTM E108	
	Type	Attach	Type	Attach	Base Ply	Ply Sheet	Cap Sheet		Class	Maximum Incline
19	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	Simultaneously fastened with Top Insulation	FescoBoard or Min. 3/4-inch DuraBoard	All Purpose Fasteners and UltraFast Plates (round or square) at a rate of 24 per 4-ft x 8-ft Board	TA SBS Ply	-	TA SBS Cap	75	A	1/2:12
20	Min. 1.5-inch ENRGY 3	All Purpose Fasteners and UltraFast Plates (round or square) at a rate of 32 per 4-ft x 8-ft Board	Min. 0.5-inch Gypsum-Fiber Roof Board	2-Part UIA applied 12-inch OC	CA SBS BUR Ply; or HA SBS BUR Ply	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	82.5	A	1/2:12
21	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	Simultaneously fastened with Top Insulation	Min. 0.5-inch Gypsum-Fiber Roof Board	All Purpose Fasteners and UltraFast Plates (round or square) at a rate of 22 per 4-ft x 8-ft Board	CA SBS BUR Ply; or HA SBS BUR Ply	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	82.5	A	1/2:12

**TABLE 3: MECHANICALLY FASTENED ASSEMBLIES OVER CONCRETE DECK (New, Existing or Recover)**

System No.	Base Insulation Layer	Top Insulation Layer	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
			Base Sheet	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
22	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 180 S	All Purpose Fasteners and APB Plates spaced 18-inch OC within min. 4-inch heat welded side lap	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	47.5	A	1/2:12
23	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 180 HW or DynaFast 250 HW	All Purpose Fasteners and APB Plates spaced 18-inch OC within min. 4-inch heat welded side lap	(Optional) TA SBS BUR Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	47.5	A	1/2:12
24	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 180 HW or DynaFast 250 HW	All Purpose Fasteners and High Load Plates spaced 6-inch OC within min. 4-inch heat welded side lap in rows max. 70-inch OC	(Optional) TA SBS BUR Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	52.5	A	1/2:12
25	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 180 S	All Purpose Fasteners and High Load Plates spaced 6-inch OC within min. 4-inch heat welded side lap in rows max. 70-inch OC	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	52.5	A	1/2:12
26	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR or FescoFoam, DuraFoam, FescoBoard or Retro-Fit Board, any combination	(Optional) Insulation	MA Base	All Purpose Fasteners and UltraFast Plates (round or square) 9-inch OC at min. 4-inch side lap and 16-inches OC in two equally spaced, staggered rows in the field of the roll	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	60.0	A	1/2:12

**TABLE 3: MECHANICALLY FASTENED ASSEMBLIES OVER CONCRETE DECK (New, Existing or Recover)**

System No.	Base Insulation Layer	Top Insulation Layer	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
			Base Sheet	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
27	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaLastic 180 S or DynaLastic 250 S	All Purpose Fasteners and High Load Plates spaced 12-inch OC within min. 5-inch heat welded side lap	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	67.5	A	1/2:12
28	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	(Optional) Insulation	DynaLastic 180 S or DynaLastic 250 S	All Purpose Fasteners and APB Plates spaced 12-inch OC within min. 4-inch heat welded side lap	TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	67.5	A	1/2:12
29	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaLastic 180 S or DynaLastic 250 S	All Purpose Fasteners and APB Plates spaced 12-inch OC within min. 4-inch heat welded side lap	TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	67.5	A	1/2:12
30	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 180 S, DynaFast 250 S or DynaFast 250 HW	All Purpose Fasteners and High Load Plates spaced 12-inch OC within min. 4-inch heat welded side lap	(Optional) TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	67.5	A	1/2:12
31	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 180 S	All Purpose Fasteners and High Load Plates spaced 12-inch OC within min. 4-inch heat welded side lap	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	67.5	A	1/2:12
32	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 180 S, DynaFast 250 S or DynaFast 250 HW	All Purpose Fasteners and APB Plates spaced 6-inch OC within min. 4-inch heat welded side lap	(Optional) TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	105.0	A	1/2:12

**TABLE 3: MECHANICALLY FASTENED ASSEMBLIES OVER CONCRETE DECK (New, Existing or Recover)**

System No.	Base Insulation Layer	Top Insulation Layer	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
			Base Sheet	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
33	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 180 S,	All Purpose Fasteners and APB Plates spaced 6-inch OC within min. 4-inch heat welded side lap	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	105.0	A	1/2:12
34	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	Retro-Fit Board	DynaLastic 180 S	Attached in min. 4-inch side lap 6-inch OC with JM Structural Concrete Fasteners or JM All Purpose Fasteners and High Load Plates	TA SBS Ply	TA SBS Cap	112.5	A	1/2:12
35	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	Retro-Fit Board or Min. 5/8-inch plywood	DynaFast 180 S, DynaFast 180 HW or DynaFast 250 HW	Attached in min. 5-inch heat welded side lap 6-inch OC with JM Structural Concrete Fasteners or JM All Purpose Fasteners and High Load Plates	(Optional) TA SBS Ply	TA SBS Cap	112.5	A	1/2:12
36	FescoBoard under Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	Min. 5/8-inch plywood	DynaLastic 180 S	Attached in min. 5-inch heat welded side lap 6-inch OC with JM Structural Concrete Fasteners or JM All Purpose Fasteners and High Load Plates	(Optional) TA SBS Ply	TA SBS Cap	135.0	A	1/2:12
37	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	Retro-Fit Board	DynaLastic 180 S	Attached in min. 5-inch heat welded side lap 6-inch OC with JM Structural Concrete Fasteners or JM All Purpose Fasteners and High Load Plates	(Optional) TA SBS Ply	TA SBS Cap	135.0	A	1/2:12

**TABLE 3: MECHANICALLY FASTENED ASSEMBLIES OVER CONCRETE DECK (New, Existing or Recover)**

System No.	Base Insulation Layer	Top Insulation Layer	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
			Base Sheet	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
38	FescoBoard under Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	Min. 5/8-inch plywood	DynaLastic 180 S	Attached in min. 4-inch side lap 6-inch OC with JM Structural Concrete Fasteners or JM All Purpose Fasteners and High Load Plates	TA SBS Ply	TA SBS Cap	150.0	A	1/2:12
39	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	Retro-Fit Board	DynaLastic 180 S	Attached in min. 4-inch side lap 6-inch OC with JM Structural Concrete Fasteners or JM All Purpose Fasteners and High Load Plates	TA SBS Ply	TA SBS Cap	150.0	A	1/2:12

**TABLE 4: ADHERED ASSEMBLIES OVER STRUCTURAL CEMENT BOARDS (New or Existing)**

System No.	Base Insulation Layer		Top Insulation Layer		Roof Cover			MDP (psf)	FIRE RATING UL790/ASTM E108	
	Type	Attach	Type	Attach	Base Ply	Ply Sheet	Cap Sheet		Class	Maximum Incline
40	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	RSUA applied 12-inch OC	Retro-Fit Board	RSUA applied 12-inch OC	CA SBS Ply	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	105.0	A	1/2:12

**TABLE 5: ADHERED ASSEMBLIES OVER STRUCTURAL CEMENT BOARDS (New or Existing)**

System No.	Base Insulation Layer or Anchor Sheet		Top Insulation Layer		Roof Cover			MDP (psf)	FIRE RATING UL790/ASTM E108	
	Type	Attach	Type	Attach	Base Ply	Ply Sheet	Cap Sheet		Class	Maximum Incline
41	MA Base	Twin-Loc Nails with integral plate spaced 9-inch OC at the 3-inch side lap and two rows (2) staggered 12-inch OC in the field	Min. 1.3-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, FescoFoam, DuroFoam, FescoBoard or Min. 3/4-inch DuraBoard.any combination	ASTM D312, Type IV Asphalt	HA SBS BUR Base	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	82.5	A	1/2:12

**TABLE 6: MECHANICALLY FASTENED ASSEMBLIES OVER STRUCTURAL CEMENT BOARDS (New or Existing)**

System No.	Insulation	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
		Base Ply	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
42	Min. 375 psi Celcore MF with HS Rheology Admixture poured in place	DynaWeld Base	Min. 1.7-inch JM LWC CR Base Fastener installed 7-inch OC in 4-inch side laps, 7-inch OC in two (2) equally spaced, staggered rows in the field	(Optional) TA SBS Ply	TA SBS Cap	45.0	A	1/2:12
43	Min. 375 psi Celcore MF with HS Rheology Admixture poured in place	DynaWeld Base	Min. 1.7-inch JM LWC CR Base Fastener installed 7-inch OC in 4-inch side laps, 7-inch OC in three (3) equally spaced, staggered rows in the field	(Optional) TA SBS Ply	TA SBS Cap	52.5	A	1/2:12
44	Min. 475 psi Celcore MF with HS Rheology Admixture poured in place	DynaFast 180 HW, DynaFast 180 S or DynaFast 250 HW	Min. 1.8-inch Twin-Loc Nails and Straight Line Batten Bar spaced 6-inch OC within the 4-inch wide heat welded laps	(Optional) TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	60.0	A	1/2:12
45	Min. 475 psi Celcore MF with HS Rheology Admixture poured in place	DynaFast 180 S	Min. 1.8-inch Twin-Loc Nails and Straight Line Batten Bar spaced 6-inch OC within the 4-inch wide heat welded laps	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	60.0	A	1/2:12
46	Min. 475 psi Celcore MF with HS Rheology Admixture poured in place	PermaPly 28	Min. 1.7-inch JM LWC CR Base Fastener installed 6-inch OC in 4-inch side laps, 6-inch OC in three (3) equally spaced staggered rows in the field	CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	60.0	A	1/2:12

**TABLE 6: MECHANICALLY FASTENED ASSEMBLIES OVER STRUCTURAL CEMENT BOARDS (New or Existing)**

System No.	Insulation	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
		Base Ply	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
47	-	MA Base	Twin-Loc Nails with integral plate spaced 9-inch OC at the 3-inch side lap and two rows (2) staggered 12-inch OC in the field	(Optional) HA SBS BUR Ply; or TA SBS BUR Ply	HA SBS Cap; or TA SBS Cap	82.5	A	1/2:12
48	(Optional) Insulation	DynaFast 180 HW, DynaFast 180 S or DynaFast 250 HW	Min. 1.8-inch Twin-Loc Nails and Straight Line Batten Bar spaced 6-inch OC within the 4-inch wide heat welded side laps and 6-inch OC in one intermediate row centered in the field of the roll	(Optional) TA SBS BUR Ply (Min. 4-inch side laps)	TA SS Cap (Min. 4-inch side laps)	90.0	A	1/2:12
49	(Optional) Insulation		Min. 1.8-inch Twin-Loc Nails and Straight Line Batten Bar spaced 6-inch OC within the 4-inch wide heat welded side laps and 6-inch OC in one intermediate row centered in the field of the roll	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	90.0	A	1/2:12

**TABLE 7: ADHERED ASSEMBLIES OVER POURED-GYPSUM DECK (New, Existing or Recover)**

System No.	Base Insulation Layer or Anchor Sheet		Top Insulation Layer		Roof Cover			MDP (psf)	FIRE RATING UL790/ASTM E108	
	Type	Attach	Type	Attach	Base Ply	Ply Sheet	Cap Sheet		Class	Maximum Incline
50	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	Polymer Auger Fasteners and Plates secured at a rate of 8 per 4-ft x 8-ft Board	FescoBoard, Retro-Fit, RetroPlus or Min. 3/4-inch DuraBoard	ASTM D312 Type IV Asphalt	HA SBS BUR Base	(Optional) CA SBS Ply; HA SBS BUR Ply; or TA SBS BUR Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	45.0	A	1/2:12
51	FescoBoard or Min. 3/4-inch DuraBoard	Polymer Auger Fasteners and Plates secured at a rate of 16 per 4-ft x 8-ft Board	FescoBoard, Retro-Fit, RetroPlus or Min. 3/4-inch DuraBoard	ASTM D312 Type IV Asphalt	HA SBS BUR Base	(Optional) CA SBS Ply; HA SBS BUR Ply; or TA SBS BUR Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	45.0	A	1/2:12



**TABLE 7: ADHERED ASSEMBLIES OVER POURED-GYPSUM DECK (New, Existing or Recover) (cont)**

System No.	Base Insulation Layer or Anchor Sheet		Top Insulation Layer		Roof Cover			MDP (psf)	FIRE RATING UL790/ASTM E108	
	Type	Attach	Type	Attach	Base Ply	Ply Sheet	Cap Sheet		Class	Maximum Incline
52	(Optional) Insulation	Simultaneously fastened with Top Insulation	FescoBoard or Min. 3/4-inch DuraBoard	Polymer Auger Fasteners and Plates secured at a rate of 16 per 4-ft x 8-ft Board	HA SBS BUR Base	(Optional) CA SBS Ply; HA SBS BUR Ply; or TA SBS BUR Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	45.0	A	1/2:12
53	MA Base or DynaPly T1	Twin-Loc Nails with integral plate spaced 9-inch OC at the 3-inch side lap and two rows (2) staggered 12-inch OC in the field	Min. 1.4-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, FescoFoam, DuraFoam, Fesco Board, Retro-Fit, RetroPlus or Min. 3/4-inch DuraBoard, any combination	ASTN D312, Type IV Asphalt	HA SBS BUR Base	(Optional) CA SBS Ply; HA SBS BUR Ply; or TA SBS BUR Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	75.0	A	1/2:12

**TABLE 8: MECHANICALLY FASTENED ASSEMBLIES OVER POURED GYPSUM DECK (New or Existing)**

System No.	Insulation	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
		Base Ply	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
54	Insulation	MA Base	Polymer Auger Fasteners and Plates spaced 9-inch OC at the side lap and two rows (2) staggered 12-inch OC in the field	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	45.0	A	1/2:12
55	-	MA Base	Min. 1.8-inch Twin-Loc Nails with integral plate spaced 9-inch OC at the 3-inch side lap and two rows (2) staggered 12-inch OC in the field	(Optional) HA SBS BUR Ply; or TA SBS BUR Ply	HA SBS Cap; or TA SBS Cap	75.0	A	1/2:12

**TABLE 8: MECHANICALLY FASTENED ASSEMBLIES OVER POURED GYPSUM DECK (New or Existing) (cont)**

System No.	Insulation	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
		Base Ply	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
56	(Optional) Insulation	DynaFast 180 HW, DynaFast 180 S or DynaFast 250 HW	Min. 1.8-inch Twin-Loc Nails and Straight Line Batten Bar spaced 6-inch OC within the 4-inch wide heat welded side laps and 6-inch OC in one intermediate row centered in the field of the roll	(Optional) TA SBS BUR Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	90.0	A	1/2:12
57	(Optional) Insulation	DynaFast 180 S	Min. 1.8-inch Twin-Loc Nails and Straight Line Batten Bar spaced 6-inch OC within the 4-inch wide heat welded side laps and 6-inch OC in one intermediate row centered in the field of the roll	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	90.0	A	1/2:12

**TABLE 9: MECHANICALLY FASTENED LIGHTWEIGHT CONCRETE ASSEMBLIES OVER CONCRETE DECK (New, Existing or Recover)**

System No.	Vapor Barrier	LWIC	Insulation Layer/Cover Board		Roof Cover			MDP (psf)	FIRE RATING UL790/ASTM E108	
			Type	Attach	Base Ply	Ply Sheet	Cap Sheet		Class	Maximum Incline
58	-	Min. 262 psi LWIC	Min. 0.25-inch Gypsum-Fiber Roof Board	2-Part UIA ribbons spaced 12-inch OC	HA SBS BUR Ply; or TA SBS BUR Ply	(Optional) HA SBS BUR Ply; or TA SBS BUR Ply	HA SBS Cap; or TA SBS Cap	210.0	A	1/2:12

**TABLE 10: MECHANICALLY FASTENED LIGHTWEIGHT CONCRETE ASSEMBLIES OVER CONCRETE DECK (New or Existing)**

System No.	Vapor Barrier	LWIC	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
			Base Sheet or Insulation	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
59	-	Min. 283 psi LWIC	MA Base	1.4-inch JM UltraLok or 1.7-inch LWC CR Base Sheet Fastener installed 7-inch OC in 3-inch side laps, 7-inch OC in two (2) equally spaced, staggered rows in the field	CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	30.0	A	1/2:12
60	-	Min. 200 psi LWIC	MA Base	1.4-inch JM UltraLok Fastener installed 9-inch OC in 3-inch side laps, 12-inch OC in two (2) equally spaced, staggered rows in the field	CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	30.0	A	1/2:12
61	-	Min. 283 psi LWIC	MA Base	1.4-inch JM UltraLok or 1.7-inch LWC CR Base Sheet Fastener installed 7-inch OC in 3-inch side laps, 7-inch OC in two (2) equally spaced, staggered rows in the field	DynaGrip Base SD/SA	HA SBS Cap; or TA SBS Cap	30.0	A	1/2:12
62	-	Min. 200 psi LWIC	MA Base	1.4-inch JM UltraLok Fastener installed 9-inch OC in 3-inch side laps, 12-inch OC in two (2) equally spaced, staggered rows in the field	DynaGrip Base SD/SA	HA SBS Cap; or TA SBS Cap	30.0	A	1/2:12
63	(Optional) DynaBase HW over ASTM D 41 primed concrete	Min. 375 psi Ealstizell with Zell-Crete Fibers	DynaFast 180 HW or DynaFast 205 HW	Min. 1.8-inch Twin-Loc Nails and Straight Line Batten Bar spaced 9-inch OC within the 4-inch wide heat welded side laps	(Optional) TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	37.5	A	1/2:12
64	(Optional) DynaBase HW over ASTM D 41 primed concrete	Min. 375 psi Ealstizell with Zell-Crete Fibers	DynaFast 180 S	Min. 1.8-inch Twin-Loc Nails and Straight Line Batten Bar spaced 9-inch OC within the 4-inch wide heat welded side laps	(Optional) CA SBS Ply; HA SBS BUR Ply; or TA SBS Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	37.5	A	1/2:12

**TABLE 10: MECHANICALLY FASTENED LIGHTWEIGHT CONCRETE ASSEMBLIES OVER CONCRETE DECK (New or Existing)**

System No.	Vapor Barrier	LWIC	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
			Base Sheet or Insulation	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
65	(Optional) SBS TA VB	Min. 300 psi Celcore MF	MA Base 2	Min. 1.7-inch JM LWC CR Base Fastener installed 7-inch OC in 4-inch side laps, 7-inch OC in two (2) equally spaced, staggered rows in the field	(Optional) TA SBS Ply	TA SBS Cap	45.0	A	1/2:12
66	(Optional) SBS TA VB	Min. 347 psi Celcore MF with HS Rheology Admixture	MA Base 3	Min. 1.7-inch JM LWC CR Base Fastener installed 12-inch OC in 4-inch side laps, 12-inch OC in three (3) equally spaced, staggered rows in the field	TA SBS Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	45.0	A	1/2:12
67	-	Min. 200 psi LWIC	Invinsa Roof Board	Min. 1.8-inch JM UltraLok secured at a rate of 32 per 4-ft x 8-ft board	DynaGrip Base SD/SA with Optional TA SBS Ply	TA SBS Cap; or HA SBS Cap (Min. 4-inch side laps)	45.0	A	1/2:12
68	(Optional) SBS TA VB	Min. 325 psi Celcore MF	MA Base 2	Min. 1.7-inch JM LWC CR Base Fastener installed 7-inch OC in 4-inch side laps, 7-inch OC in three (3) equally spaced, staggered rows in the field	(Optional) TA SBS Ply	TA SBS Cap	52.5	A	1/2:12
69	(Optional) SBS TA VB	Min. 414 psi Celcore MF with HS Rheology Admixture and Celcore S-1	MA Base 2	Min. 1.7-inch JM LWC CR Base Fastener installed 12-inch OC in 4-inch side laps, 12-inch OC in two (2) equally spaced, staggered rows in the field	TA SBS Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	52.5	A	1/2:12
70	(Optional) SBS TA VB	Min. 414 psi Celcore MF with HS Rheology Admixture and Celcore S-1	DynaFast 180 HW, DynaFast 180 S or DynaFast 250 HW	Min. 1.8-inch Twin-Loc Nails and Straight Line Batten Bar spaced 6-inch OC within the 4-inch wide heat welded side laps	(Optional) TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	52.5	A	1/2:12
71	(Optional) SBS TA VB	Min. 414 psi Celcore MF with HS Rheology Admixture and Celcore S-1	DynaFast 180 S	Min. 1.8-inch Twin-Loc Nails and Straight Line Batten Bar spaced 6-inch OC within the 4-inch wide heat welded side laps	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap	52.5	A	1/2:12

**TABLE 10: MECHANICALLY FASTENED LIGHTWEIGHT CONCRETE ASSEMBLIES OVER CONCRETE DECK (New or Existing)**

System No.	Vapor Barrier	LWIC	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
			Base Sheet or Insulation	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
72	(Optional) SBS TA VB	Min. 414 psi Celcore MF with HS Rheology Admixture and Celcore S-1	MA Base 2	Min. 1.7-inch JM LWC CR Base Fastener installed 12- inch OC in 4-inch side laps, 12-inch OC in two (2) equally spaced, staggered rows in the field	TA SBS Ply	TA SBS Cap	60.0	A	1/2:12
73	-	Min. 200 psi Mearlcrete	PermaPly 28 or Ventsulation	Min. 1.7-inch LWC Base Sheet Fastener installed 7- inch OC in 3-inch side laps, 7-inch OC in two (2) equally spaced, staggered rows in the field	(Optional) HA SBS BUR Ply or TA SBS Ply	HA SBS Cap or TA SBS Cap	60.0	A	1/2:12
74	(Optional) SBS TA VB	Min. 475 psi Celcore MF with HS Rheology Admixture	DynaFast 180 HW, DynaFast 180 S or DynaFast 250 HW	Min. 1.8-inch Twin-Loc Nails and Straight Line Batten Bar spaced 6-inch OC within the 4- inch wide heat welded side laps	(Optional) TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	60.0	A	1/2:12
75	(Optional) SBS TA VB	Min. 400 psi Elastizell with Zell-Crete Fibers	DynaFast 180 HW or DynaFast 250 HW	All Purpose Fasteners and High Load Plates spaced 12-inch OC within min. 5-inch heat welded laps	(Optional) TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	60.0	A	1/2:12
76	(Optional) SBS TA VB	Min. 400 psi Elastizell with Zell-Crete Fibers	DynaFast 180 S	All Purpose Fasteners and High Load Plates spaced 12-inch OC within min. 5-inch heat welded laps	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	60.0	A	1/2:12
77	(Optional) SBS TA VB	Min. 475 psi Celcore MF with HS Rheology Admixture	DynaFast 180 S	Min. 1.8-inch Twin-Loc Nails and Straight Line Batten Bar spaced 6-inch OC within the 4- inch wide heat welded side laps	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	60.0	A	1/2:12

**TABLE 10: MECHANICALLY FASTENED LIGHTWEIGHT CONCRETE ASSEMBLIES OVER CONCRETE DECK (New or Existing)**

System No.	Vapor Barrier	LWIC	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
			Base Sheet or Insulation	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
78	(Optional) SBS TA VB	Min. 375 psi Celcore MF with HS Rheology Admixture	PermaPly 28	Min. 1.7-inch JM LWC Base Fastener installed 6-inch OC in 4-inch side laps, 6-inch OC in three (3) equally spaced, staggered rows in the field	CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	60.0	A	1/2:12
79	(Optional) DynaBase HW over ASTM D 41 primed concrete	Min. 400 psi Elastizell with Zell-Crete Fibers	PermaPly 28, GlasBase Plus, DynaBase or Ventsulation Felt	Min. 1.7-inch JM LWC CR Base Fastener installed 7-inch OC in 4-inch side laps, 7-inch OC in two (2) equally spaced, staggered rows in the field	HA SBS BUR Ply; or TA SBS Ply	HA SBS Cap; or TA SBS Cap	75.0	A	1/2:12

**TABLE 11: MECHANICALLY FASTENED LIGHTWEIGHT CONCRETE ASSEMBLIES OVER STEEL DECK (New or Existing)**

System No.	Deck	LWIC	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
			Base Sheet or Insulation	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
80	Min. 22 ga., type WR, Grade 33 steel (L5)	Min. 282 psi LWIC	MA Base	1.4-inch JM UltraLok or 1.7-inch LWC CR Base Sheet Fastener installed 7-inch OC in 3-inch side laps, 7-inch OC in two (2) equally spaced, staggered rows in the field	CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	30.0	A	1/2:12
81	Min. 22 ga., type WR, Grade 33 steel (L5)	Min. 200 psi LWIC	MA Base	1.4-inch JM UltraLok Fastener installed 9-inch OC in 3-inch side laps, 12-inch OC in two (2) equally spaced, staggered rows in the field	CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	30.0	A	1/2:12
82	Min. 22 ga., type WR, Grade 33 steel (L5)	Min. 283 psi LWIC	MA Base	1.4-inch JM UltraLok or 1.7-inch LWC CR Base Sheet Fastener installed 7-inch OC in 3-inch side laps, 7-inch OC in two (2) equally spaced, staggered rows in the field	DynaGrip Base SD/SA	HA SBS Cap; or TA SBS Cap	30.0	A	1/2:12
83	Min. 22 ga., type WR, Grade 33 steel (L5)	Min. 200 psi LWIC	MA Base	1.4-inch JM UltraLok Fastener installed 9-inch OC in 3-inch side laps, 12-inch OC in two (2) equally spaced, staggered rows in the field	DynaGrip Base SD/SA	HA SBS Cap; or TA SBS Cap	30.0	A	1/2:12
84	Min. 22 ga., type WR, Grade 33 steel (L5, P, S12)	Min. 375 psi Elastizell with Zell-Crete Fibers	DynaFast 180 HW or DynaFast 250 HW	Min. 1.8-inch Twin-Loc Nails and Straight Line Batten Bar spaced 9-inch OC within the 4-inch wide heat welded side laps	(Optional) TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	37.5	A	1/2:12
85	Min. 22 ga., type WR, Grade 33 steel (L5, P, S12)	Min. 375 psi Elastizell with Zell-Crete Fibers	DynaFast 180 S	Min. 1.8-inch Twin-Loc Nails and Straight Line Batten Bar spaced 9-inch OC within the 4-inch wide heat welded side laps	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	37.5	A	1/2:12

**TABLE 11: MECHANICALLY FASTENED LIGHTWEIGHT CONCRETE ASSEMBLIES OVER STEEL DECK (New or Existing)**

System No.	Deck	LWIC	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
			Base Sheet or Insulation	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
86	Min. 22 ga., type WR, Grade 33 steel (L5, F1, S12)	Min. 300 psi Celcore MF	MA Base 2	Min. 1.7-inch JM LWC CR Base Fastener installed 7-inch OC in 4-inch side laps, 7-inch OC in two (2) equally spaced, staggered rows in the field	(Optional) TA SBS Ply	TA SBS Cap	45.0	A	1/2:12
87	Min. 22 ga., type WR, Grade 33 steel (L5, P, S12)	Min. 347 psi Celcore MF with HS Rheology Admixture and Celcore S-1	MA Base 3	Min. 1.7-inch JM LWC CR Base Fastener installed 7-inch OC in 4-inch side laps, 7-inch OC in two (2) equally spaced, staggered rows in the field	TA SBS Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	45.0	A	1/2:12
88	Min. 22 ga., type WR, Grade 33 steel (L5, F1, S12)	Min. 200 psi LWIC	Invinisa Roof Board	Min. 1.8-inch JM UltraLok secured at a rate of 32 per 4-ft x 8-ft board	DynaGrip Base SD/SA with (Optional) TA SBS Ply	TA SBS Cap; or HA SBS Cap (Min. 4-inch side laps)	45.0	A	1/2:12
89	Min. 22 ga., type WR, Grade 33 steel (L5, F1, S12)	Min. 325 psi Celcore MF	MA Base 2	Min. 1.7-inch JM LWC CR Base Fastener installed 7-inch OC in 4-inch side laps, 7-inch OC in three (3) equally spaced, staggered rows in the field	(Optional) TA SBS Ply	TA SBS Cap	52.5	A	1/2:12
90	Min. 22 ga., type WR, Grade 33 steel (L5, P, S12)	Min. 400 psi Celcore MF with HS Rheology Admixture and Celcore S-1	MA Base 2	Min. 1.7-inch JM LWC CR Base Fastener installed 7-inch OC in 4-inch side laps, 7-inch OC in two (2) equally spaced, staggered rows in the field	TA SBS Ply	TA SBS Cap	52.5	A	1/2:12
91	Min. 22 ga., type WR, Grade 33 steel (L5, P, S15)	Min. 400 psi Celcore MF with HS Rheology Admixture and Celcore S-1	DynaFast 180 HW, DynaFast 180 S or DynaFast 250 HW	Min. 1.8-inch Twin-Loc Nails and Straight Line Batten Bar spaced 6-inch OC within the 4-inch wide heat welded side laps	(Optional) TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	52.5	A	1/2:12
92	Min. 22 ga., type WR, Grade 33 steel (L5, P, S15)	Min. 400 psi Celcore MF with HS Rheology Admixture and Celcore S-1	DynaFast 180 S	Min. 1.8-inch Twin-Loc Nails and Straight Line Batten Bar spaced 6-inch OC within the 4-inch wide heat welded side laps	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	52.5	A	1/2:12



**TABLE 11: MECHANICALLY FASTENED LIGHTWEIGHT CONCRETE ASSEMBLIES OVER STEEL DECK (New or Existing)**

System No.	Deck	LWIC	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
			Base Sheet or Insulation	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
93	Min. 22 ga., type WR, Grade 33 steel (L5)	Min. 414 psi Celcore MF with HS Rheology Admixture and Celcore S-1	MA Base 2	Min. 1.7-inch JM LWC CR Base Fastener installed 12-inch OC in 4-inch side laps, 12-inch OC in two (2) equally spaced, staggered rows in the field	TA SBS Ply	TA SBS Cap	60.0	A	1/2:12
94	Min. 22 ga., type WR, Grade 33 steel (L5, P, S12)	Min. 400 psi Elastizell with Zell-Crete Fibers	DynaFast 180 HW or DynaFast 250 HW	HL Fasteners & Plates spaced 12-inch OC within min. 5-in. heat welded side laps	(Optional) TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	60.0	A	1/2:12
95	Min. 22 ga., type WR, Grade 33 steel (L5, P, S12)	Min. 400 psi Elastizell with Zell-Crete Fibers	DynaFast 180 S	HL Fasteners & Plates spaced 12-inch OC within min. 5-in. heat welded side laps	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	60.0	A	1/2:12
96	Min. 22 ga., type WR, Grade 33 steel (L5, P, S15)	Min. 475 psi Celcore MF with HS Rheology Admixture and Celcore S-1	DynaFast 180 HW, DynaFast 180 S or DynaFast 250 HW	Min. 1.8-inch Twin-Loc Nails and Straight Line Batten Bar spaced 6-inch OC within the 4-inch wide heat welded side laps	(Optional) TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	60.0	A	1/2:12
97	Min. 22 ga., type WR, Grade 33 steel (L5, P, S15)	Min. 475 psi Celcore MF with HS Rheology Admixture and Celcore S-1	DynaFast 180 S	Min. 1.8-inch Twin-Loc Nails and Straight Line Batten Bar spaced 6-inch OC within the 4-inch wide heat welded side laps	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	60.0	A	1/2:12
98	Min. 22 ga., type WR, Grade 33 steel (L5, F1, S20)	Min. 475 psi Celcore MF with HS Rheology Admixture and Celcore S-1	PermaPly 28	Min. 1.7-inch JM LWC CR Base Fastener installed 6-inch OC in 4-inch side laps, 12-inch OC in three (3) equally spaced, staggered rows in the field	CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	60.0	A	1/2:12
99	Min. 22 ga., type WR, Grade 33 steel (L5, P, S12)	Min. 400 psi Elastizell with Zell-Crete Fibers	PermaPly 28, GlasBase Pluys, DynaBase or Ventsulation Felt	Min. 1.7-inch JM LWC CR Base Fastener installed 6-inch OC in 4-inch side laps, 12-inch OC in three (3) equally spaced, staggered rows in the field	HA SBS BUR Ply; or TA SBS Ply	HA SBS Cap; or TA SBS Cap	75.0	A	1/2:12

**TABLE 12: MECHANICAL FASTENED ASSEMBLIES OVER RECOVER WITH ADHERED MEMBRANES**

System No.	Deck	LWIC	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
			Base Sheet	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
100	Min. 22 ga., type WR, Grade 33 steel (P, L5, S12)	Min. 200 psi LWIC	DynaFast 180 S, DynaFast 180 HW or DynaFast 250 HW	HL Fasteners & Plates spaced 6-inch OC within min. 4-in. heat welded side laps	(Optional) TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	97.5	A	1/2:12
101	Min. 22 ga., type WR, Grade 33 steel (P, L5, S12)	Min. 200 psi LWIC	DynaFast 180 S	HL Fasteners & Plates spaced 6-inch OC within min. 4-in. heat welded side laps	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	97.5	A	1/2:12

**TABLE 13: ASSEMBLIES WITH ADHERED MEMBRANES OVER INSULATED STEEL DECK (New, Existing or Recover)**

System No.	Deck	Base Insulation Layer		Top Insulation Layer		Roof Cover			MDP (psf)	FIRE RATING UL790/ASTM E108	
		Type	Attach	Type	Attach	Base Sheet	Ply Sheet	Cap Sheet		Class	Maximum Incline
102	Min. 22 ga., type WR, Grade 80 steel (P, L5)	Min. 1.5-inch thick, one or more layers, ENRGY 3, FescoFoam or DuraFoam; or Min. 1-inch Fesco Board or DuraBoard, any combination	UF Fasteners & Plates secured at a rate of 16 per 4-ft x 8-ft Board	FescoFoam or DuraFoam; Min. 1-inch Fesco Board; Retro-Fit, RetroPlus or DuraBoard	ASTM D312 Type IV Asphalt	HA SBS BUR Base	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	52.5	A	1/2:12
103	Min. 22 ga., type WR, Grade 80 steel (P, L5)	Min. 1.5-inch thick, one or more layers, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR; FescoFoam or DuraFoam; or Min. 1-inch Fesco Board or DuraBoard, any combination	Simultaneously fastened with Top Insulation	FescoFoam or DuraFoam; Fesco Board; Retro-Fit, RetroPlus or DuraBoard	UF Fasteners & Plates or UltraFast Fasteners with UltraFast Plastic Plates secured at a rate of 16 per 4-ft x 8-ft Board	HA SBS BUR Base	(Optional) CA SBS BUR Cap; HA SBS BUR Ply; or TA SBS BUR Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	52.5	A	1/2:12

**TABLE 13: ASSEMBLIES WITH ADHERED MEMBRANES OVER INSULATED STEEL DECK (New, Existing or Recover)**

System No.	Deck	Base Insulation Layer		Top Insulation Layer		Roof Cover			MDP (psf)	FIRE RATING UL790/ASTM E108	
		Type	Attach	Type	Attach	Base Sheet	Ply Sheet	Cap Sheet		Class	Maximum Incline
104	Min. 22 ga., type WR, Grade 33 steel (L6, F1, S24)	Min. 1.5-inch thick, one or more layers, ENRGY 3, FescoFoam or DuraFoam; any combination	<i>UF Fasteners &amp; Plates</i> secured at a rate of 18 per 4-ft x 8-ft Board	FescoFoam or DuraFoam; Fesco Board; Retro-Fit, RetroPlus or DuraBoard	ASTM D 312 Type IV Asphalt	<i>HA SBS BUR Base</i>	(Optional) <i>CA SBS BUR Cap; HA SBS BUR Ply; or TA SBS BUR Ply</i>	<i>CA SBS Cap; HA SBS Cap; or TA SBS Cap</i>	60.0	A	1/2:12
105	Min. 22 ga., type WR, Grade 33 steel (L6, F1, S30)	Min. 1.5-inch thick, one or more layers, ENRGY 3	<i>UF Fasteners &amp; Plates</i> secured at a rate of 18 per 4-ft x 8-ft Board	Min. 0.5-inch Gypsum-Fiber Roof Board,	<i>2-Part UIA</i> applied 12-inch OC	<i>CA SBS BUR Ply; or HA SBS BUR Ply</i>	(Optional) <i>CA SBS BUR Cap; HA SBS BUR Ply; or TA SBS BUR Ply</i>	<i>CA SBS Cap; HA SBS Cap; or TA SBS Cap</i>	60.0	A	1/2:12
106	Min. 22 ga., type WR, Grade 80 steel (L6, F1, S30)	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR any combination	<i>UF Fasteners &amp; Plates</i> secured at a rate of 24 per 4-ft x 8-ft Board	Min. 0.5-inch Gypsum-Fiber Roof Board,	<i>2-Part UIA</i> applied 12-inch OC	<i>CA SBS BUR Ply; HA SBS BUR Ply</i>	(Optional) <i>CA SBS BUR Cap; HA SBS BUR Ply; or TA SBS BUR Ply</i>	<i>CA SBS Cap; HA SBS Cap; or TA SBS Cap</i>	67.5	A	1/2:12
107	Min. 22 ga., type WR, Grade 33 steel (L6, F1, S30)	Min. 2-inch thick, one or more layers, ENRGY 3, FescoFoam or DuraFoam	<i>UF Fasteners &amp; Plates</i> secured at a rate of 24 per 4-ft x 8-ft Board	Retro-Fit, RetroPlus or DuraBoard or Min. 2-inch FescoFoam or DuraFoam	ASTM D312 Type IV Asphalt	<i>HA SBS BUR Base</i>	(Optional) <i>CA SBS BUR Cap; HA SBS BUR Ply; or TA SBS BUR Ply</i>	<i>CA SBS Cap; HA SBS Cap; or TA SBS Cap</i>	75.0	A	1/2:12

**TABLE 13: ASSEMBLIES WITH ADHERED MEMBRANES OVER INSULATED STEEL DECK (New, Existing or Recover)**

System No.	Deck	Base Insulation Layer		Top Insulation Layer		Roof Cover			MDP (psf)	FIRE RATING UL790/ASTM E108	
		Type	Attach	Type	Attach	Base Sheet	Ply Sheet	Cap Sheet		Class	Maximum Incline
108	Min. 22 ga., type WR, Grade 80 steel (L6, F1, S30)	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR any combination	Simultaneously fastened with Top Insulation	Min. 3/4-inch DuraBoard	<i>UF Fasteners &amp; Plates or UltraFast with UltraFast Plastic Plates secured at a rate of 24 per 4-ft x 8-ft Board</i>	DynaWeld Base fully bonded by heat fused	(Optional) <i>CA SBS BUR Cap; HA SBS BUR Ply; or TA SBS BUR Ply</i>	<i>CA SBS Cap; HA SBS Cap; or TA SBS Cap</i>	75.0	A	1/2:12
109	Min. 22 ga., type WR, Grade 80 steel (L6, F1, S30)	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR; FescoFoam or DuraFoam; FescoBoard or Min. 3/4-inch DuraBoard, any combination	Simultaneously fastened with Top Insulation	Min. 0.5-inch Gypsum-Fiber Roof Board,	<i>UF Fasteners &amp; Plates or UltraFast with UltraFast Plastic Plates secured at a rate of 18 per 4-ft x 8-ft Board</i>	<i>HA SBS BUR Ply</i>	(Optional) <i>CA SBS BUR Cap; HA SBS BUR Ply; or TA SBS BUR Ply</i>	<i>CA SBS Cap; HA SBS Cap; or TA SBS Cap</i>	75.0	A	1/2:12
110	Min. 22 ga., type WR, Grade 33 steel (L6, F2, S24)	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	<i>UF Fasteners &amp; Plates secured at a rate of 18 per 4-ft x 8-ft Board</i>	Min. 0.5-inch Gypsum-Fiber Roof Board,	<i>2-Part UIA applied 12-inch OC</i>	<i>CA SBS BUR Ply; or HA SBS BUR Ply</i>	(Optional) <i>CA SBS BUR Cap; HA SBS BUR Ply; or TA SBS BUR Ply</i>	<i>CA SBS Cap; HA SBS Cap; or TA SBS Cap</i>	82.5	A	1/2:12
111	Min. 22 ga., type WR, Grade 33 steel (L6, F2, S24)	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	Simultaneously fastened with Top Insulation	Min. 0.5-inch Gypsum-Fiber Roof Board,	<i>UF Fasteners &amp; Plates secured at a rate of 22 per 4-ft x 8-ft Board</i>	<i>CA SBS BUR Ply; or HA SBS BUR Ply</i>	(Optional) <i>CA SBS BUR Cap; HA SBS BUR Ply; or TA SBS BUR Ply</i>	<i>CA SBS Cap; HA SBS Cap; or TA SBS Cap</i>	82.5	A	1/2:12

**TABLE 13: ASSEMBLIES WITH ADHERED MEMBRANES OVER INSULATED STEEL DECK (New, Existing or Recover)**

System No.	Deck	Base Insulation Layer		Top Insulation Layer		Roof Cover			MDP (psf)	FIRE RATING UL790/ASTM E108	
		Type	Attach	Type	Attach	Base Sheet	Ply Sheet	Cap Sheet		Class	Maximum Incline
112	Min. 22 ga., type WR, Grade 80 steel (L6, F1, S24)	Min. 2-inch ENRGY 3	<i>UF Fasteners &amp; Plates</i> secured at a rate of 22 per 4-ft x 8-ft Board	Min. 0.5-inch Gypsum-Fiber Roof Board,	<i>2-Part UIA</i> applied 12-inch OC	<i>CA SBS BUR Ply; or HA SBS BUR Ply</i>	(Optional) <i>CA SBS BUR Cap; HA SBS BUR Ply; or TA SBS BUR Ply</i>	<i>CA SBS Cap; HA SBS Cap; or TA SBS Cap</i>	90.0	A	1/2:12
113	Min. 22 ga., type WR, Grade 80 steel (L6, F1, S24)	Min. 1.5-inch ENRGY 3	<i>UF Fasteners &amp; Plates</i> or UltraFast with UltraFast Plastic Plates secured at a rate of 32 per 4-ft x 8-ft Board	Min. 0.5-inch Gypsum-Fiber Roof Board,	<i>2-Part UIA</i> applied 12-inch OC	<i>CA SBS BUR Ply; or HA SBS BUR Ply</i>	(Optional) <i>CA SBS BUR Cap; HA SBS BUR Ply; or TA SBS BUR Ply</i>	<i>CA SBS Cap; HA SBS Cap; or TA SBS Cap</i>	90.0	A	1/2:12

**TABLE 14: MECHANICALLY FASTENED ASSEMBLIES OVER STEEL DECK (New, Existing, or Recover)**

System No.	Deck	Base Insulation	Top Insulation	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
				Base Sheet	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
114	Min. 22 ga., type WR, Grade 33 steel (L5)	(Optional) <i>Insulation</i>	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 180 S	<i>APB Fasteners &amp; Plates</i> spaced 18-inch OC within min. 4-in. heat welded side laps	(Optional) <i>CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply</i> (Min. 4-inch side laps)	<i>CA SBS Cap; HA SBS Cap; or TA SBS Cap</i> (Min. 4-inch side laps)	47.5	A	1/2:12
115	Min. 22 ga., type WR, Grade 33 steel (L5)	(Optional) <i>Insulation</i>	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 180 HW or DynaFast 250 HW	<i>APB Fasteners &amp; Plates</i> spaced 18-inch OC within min. 4-in. heat welded side laps	(Optional) <i>TA SBS Ply</i> (Min. 4-inch side laps)	<i>TA SBS Cap</i> (Min. 4-inch side laps)	47.5	A	1/2:12
116	Min. 22 ga., type WR, Grade 33 steel (L6, F1W, S24)	(Optional) <i>Insulation</i>	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 180 HW or DynaFast 250 HW	<i>HL Fasteners &amp; Plates</i> spaced 6-inch OC within min. 4-in. heat welded side laps in rows max. 70-inch OC	(Optional) <i>TA SBS Ply</i> (Min. 4-inch side laps)	<i>TA SBS Cap</i> (Min. 4-inch side laps)	52.5	A	1/2:12

**TABLE 14: MECHANICALLY FASTENED ASSEMBLIES OVER STEEL DECK (New, Existing, or Recover)**

System No.	Deck	Base Insulation	Top Insulation	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
				Base Sheet	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
117	Min. 22 ga., type WR, Grade 33 steel (L6, F1W, S24)	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 180 S	HL Fasteners & Plates spaced 6-inch OC within min. 4-in. heat welded side laps in rows max. 70-inch OC	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	52.5	A	1/2:12
118	Min. 22 ga., type WR, Grade 33 steel (L5,)	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR; FescoFoam, DuraFoam or Retro-Fit Board, any combination	(Optional) Insulation	MA Base	UF Fasteners & Plates spaced 9-inch OC at min. 4-in. side lap and 18-inches OC in two (2) equally spaced, staggered rows in the field of the roll	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	60.0	A	1/2:12
119	Min. 22 ga., type WR, Grade 33 steel (L6, F1, S24)	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaLastic 180 S or DynaLastic 250 S	HL Fasteners & Plates spaced 12-inch OC within min. 5-in. heat welded side lap	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply	CA SBS Cap; HA SBS Cap; or TA SBS Cap	67.5	A	1/2:12
120	Min. 22 ga., type WR, Grade 33 steel (L6, F1, S24)	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	(Optional) Insulation	DynaLastic 180 S or DynaLastic 250 S	APB Fasteners & Plates spaced 12-inch OC within min. 4-in. heat welded side laps	TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	67.5	A	1/2:12
121	Min. 22 ga., type WR, Grade 33 steel (L6, F1, S24)	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaLastic 180 S or DynaLastic 250 S	APB Fasteners & Plates spaced 12-inch OC within min. 4-in. heat welded side laps	TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	67.5	A	1/2:12
122	Min. 22 ga., type WR, Grade 33 steel (L6, P)	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 180 S, DynaFast 180 HW or DynaFast 250 HW	HL Fasteners & Plates spaced 12-inch OC within min. 4-in. heat welded side lap	(Optional) TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	67.5	A	1/2:12

**TABLE 14: MECHANICALLY FASTENED ASSEMBLIES OVER STEEL DECK (New, Existing, or Recover)**

System No.	Deck	Base Insulation	Top Insulation	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
				Base Sheet	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
123	Min. 22 ga., type WR, Grade 33 steel (L6, P)	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 180 S	HL Fasteners & Plates spaced 12-inch OC within min. 4-in. heat welded side lap	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	67.5	A	1/2:12
124	Min. 22 ga., type WR, Grade 33 steel (L6, P)	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 180 S, DynaFast 180 HW or DynaFast 250 HW	High Load LH Fasteners and Polymer Membrane Batten OR High Load Fasteners and Metal Membrane batten or Deep Well Batten Strip spaced 6-inch OC within min. 4-inch heat welded side laps in rows max. 71-inch OC	(Optional) TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	90.0	A	1/2:12
125	Min. 22 ga., type WR, Grade 33 steel (L6, P)	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 180 S	High Load LH Fasteners and Polymer Membrane Batten OR High Load Fasteners and Metal Membrane batten or Deep Well Batten Strip spaced 6-inch OC within min. 4-inch heat welded side laps in rows max 71-inch OC	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	90.0	A	1/2:12
126	Min. 22 ga., type WR, Grade 33 steel (L6, P)	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 180 S, DynaFast 180 HW or DynaFast 250 HW	APB Fasteners & Plates spaced 12-inch OC within min. 4-in. heat welded side laps	(Optional) TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	105.0	A	1/2:12
127	Min. 22 ga., type WR, Grade 33 steel (L6, P)	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 180 S	APB Fasteners & Plates spaced 6-inch OC within min. 4-in. heat welded side laps	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	105.0	A	1/2:12

**TABLE 14: MECHANICALLY FASTENED ASSEMBLIES OVER STEEL DECK (New, Existing, or Recover)**

System No.	Deck	Base Insulation	Top Insulation	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
				Base Sheet	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
128	Min. 22 ga., type WR, Grade 80 steel (L6, F2W, S24)	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 180 S	HL Fasteners & Plates spaced 6-inch OC within min. 4-in. heat welded side lap	(Optional) CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap; or TA SBS Cap (Min. 4-inch side laps)	105.0	A	1/2:12
129	Min. 22 ga., type WR, Grade 33 steel (L6, F2W, S14)	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	(Optional) Insulation	DynaLastic 180 S or DynaLastic 250 S	HL Fasteners & Plates spaced 6-inch OC within min. 4-in. side lap	TA SBS Ply	TA SBS Cap	112.5	A	1/2:12
130	Min. 22 ga., type WR, Grade 33 steel (L6, F2W, S14)	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	(Optional) Insulation	DynaFast 180 S, DynaFast 180 HW or DynaFast 250 HW	HL Fasteners & Plates or APB Fastener & Plates spaced 6-inch OC over min 5-in. side lap	(Optional) TA SBS Ply	TA SBS Cap	112.5	A	1/2:12
131	Min. 22 ga., type WR, Grade 33 steel (L6, F2W, S14)	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	(Optional) Insulation	DynaLastic 180 S or DynaLastic 250 S	HL Fasteners & Plates spaced 6-inch OC within min. 5-in. heat welded side laps	(Optional) TA SBS Ply	TA SBS Cap	112.5	A	1/2:12
132	Min. 22 ga., type WR, Grade 33 steel (L6, F2W, S14)	FescoBoard under Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	Min. 5/8-inch Plywood	DynaLastic 180 S or DynaLastic 250 S	HL Fasteners & Plates spaced 6-inch OC within min. 5-in. heat welded side laps	(Optional) TA SBS Ply	TA SBS Cap	135.0	A	1/2:12
133	Min. 22 ga., type WR, Grade 33 steel (L6, F2W, S14)	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	Retro-Fit	DynaLastic 180 S or DynaLastic 250 S	HL Fasteners & Plates spaced 6-inch OC within min. 5-in. heat welded side laps	(Optional) TA SBS Ply	TA SBS Cap	135.0	A	1/2:12



**TABLE 14: MECHANICALLY FASTENED ASSEMBLIES OVER STEEL DECK (New, Existing, or Recover)**

System No.	Deck	Base Insulation	Top Insulation	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
				Base Sheet	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
134	Min. 22 ga., type WR, Grade 80 steel (L6, F1W)	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 180 S, DynaFast 180 HW or DynaFast 250 HW	<i>HL Fasteners &amp; Plates</i> spaced 6-inch OC within min. 4-in. heat welded side laps	(Optional) <i>TA SBS Ply</i> (Min. 4-inch side laps)	<i>TA SBS Cap</i> (Min 4-inch side laps)	142.5	A	1/2:12
135	Min. 22 ga., type WR, Grade 33 steel (L6, F1W)	FescoBoard under Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	Min. 5/8-inch plywood	DynaLastic 180 S or DynaLastic 250 S	<i>HL Fasteners &amp; Plates</i> spaced 6-inch OC over min. 4-in. side laps	<i>TA SBS Ply</i>	<i>TA SBS Cap</i>	150.0	A	1/2:12
136	Min. 22 ga., type WR, Grade 33 steel (L6, F2W, S14)	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	Retro-Fit Board	DynaLastic 180 S or DynaLastic 250 S	<i>HL Fasteners &amp; Plates</i> spaced 6-inch OC over min. 4-in. side laps	<i>TA SBS Ply</i>	<i>TA SBS Cap</i>	150.0	A	1/2:12
137	Min. 22 ga., type WR, Grade 80 steel (L6, F1W)	(Optional) Insulation	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	DynaFast 250 HW	<i>HL Fasteners &amp; Plates</i> spaced 6-inch OC within min. 4-in. heat welded side laps	(Optional) DynaFast 250 HW heat fused (Min. 4-inch side laps)	DynaWeld 180 FR, DynaWeld 180 FR CF, DynaWeld 250, DynaWeld 250 FR or DynaWeld 250 FR CR	165.0	A	1/2:12
138	Min. 22 ga., type WR, Grade 33 steel (L6, F2W, S14)	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination	Min. 5/8-inch plywood	DynaLastic 180 S or DynaLastic 250 S	<i>UF Fasteners &amp; Plates</i> spaced 12-inch OC over min. 4-in. side lap and 12-inches OC in three (3) equally spaced, staggered rows in the field of the roll	<i>TA SBS Ply</i>	<i>TA SBS Cap</i>	195.0	A	1/2:12

**TABLE 15: ASSEMBLIES WITH ADHERED MEMBRANES OVER INSULATED WOOD DECK (New, Existing or Recover)**

System No.	Deck	Anchor Sheet	Anchor Attachment	Base Insulation Layer	Top Insulation Layer	Roof Cover			MDP (psf)	FIRE RATING UL790/ASTM E108	
						Base Ply	Ply Sheet	Cap Sheet		Class	Maximum Incline
139	Min. 19/32 in. plywood at 24 in. spans with blocking at supported joint attached with min. #12-3" Olympic STC screws; secured 6-in. oc at all intermediate supports and 6 in. oc at the perimeter of each board	PermPly 28 or Ventsulation	<i>UF Fasteners &amp; Plates</i> spaced 8-inch OC at 3-in. side lap three (3) row staggered in the center of the roll 8-inch OC	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination in ASTM D312, Type IV Asphalt	FescoFoam, DuraFoam, Fesco Board, Retro-Fit, RetroPlus pr DuraBoard in ASTM D318, Type IV Asphalt	<i>HA SBS BUR Base</i>	<i>CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply</i>	<i>CA SBS Cap; HA SBS Cap; or TA SBS Cap</i>	52.5	A	1/2:12
140	Min. 15/32 in. plywood at 24 in. spans with blocking at supported joint attached with min. #8 x 2-inch wood screws; secured 6 in. oc at all intermediate supports and 6 in. oc at the perimeter of each board	Two plies PermaPly 28, DynaBase, GlasBase Plus or Ventsulation	Min. 12 ga. Ring shank nails and min. 32 ga. 1-5/8-inch diameter tin caps 9-inch OC at 3-inch side lap and two rows staggered in center 12-inch OC	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination in ASTM D312, Type IV Asphalt	FescoFoam, DuraFoam, Fesco Board, Retro-Fit, RetroPlus pr DuraBoard in ASTM D318, Type IV Asphalt	<i>HA SBS BUR Base</i>	<i>CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply</i>	<i>CA SBS Cap; HA SBS Cap; or TA SBS Cap</i>	52.5	A	1/2:12
141	Min. 19/32 in. plywood at 24 in. spans with blocking at supported joint attached with min. #12-3" Olympic STC screws; secured 6-in. oc at all intermediate supports and 6 in. oc at the perimeter of each board	PermPly 28 or Ventsulation	Min. 12 ga. Ring shank nails and min. 32 ga. 1-5/8-inch diameter tin caps 9-inch OC at 3-inch side lap and two rows staggered in center 9-inch OC	Min. 1.5-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination in ASTM D312, Type IV Asphalt	FescoFoam, DuraFoam, Fesco Board, Retro-Fit, RetroPlus pr DuraBoard in ASTM D318, Type IV Asphalt	<i>HA SBS BUR Base</i>	<i>CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply</i>	<i>CA SBS Cap; HA SBS Cap; or TA SBS Cap</i>	60.0	A	1/2:12
142	Min. 19/32 in. plywood at 24 in. spans with blocking at supported joint attached with min. 10d ring shank nails; secured 6-inch OC at all intermediate supports and 6 in. oc at the perimeter of each board	-	-	Min. 1.5-inch ENRGY 3 fastened with <i>UF Fasteners &amp; Plates</i> secured at a rate of 24 per 4-ft x 8-ft board	DuraBoard in ASTM D312, Type IV Asphalt	(Optional) <i>HA SBS BUR Base</i>	(Optional) <i>CA SBS BUR Ply; HA SBS BUR Ply; or TA SBS BUR Ply</i>	<i>HA SBS Cap or TA SBS Cap</i>	60.0	A	1/2:12

**TABLE 16: MECHANICALLY FASTENED ASSEMBLIES OVER WOOD DECK (New, Existing or Recover)**

System No.	Deck	Insulation	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
			Base Sheet	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
143	Min. 19/32 in. plywood at 24 in. spans with blocking at supported joint attached with min. #12-3" Olympic STC screws; secured 6-in. oc at all intermediate supports and 6 in. oc at the perimeter of each board	(Optional) Min. 1.3-inch <i>Insulation</i>	PermaPly 28 or Ventsulation	UF Fasteners & Plates 8-inch OC at side lap and three rows staggered in center of the roll 8-inch OC	HA SBS BUR Ply; or TA SBS Ply	HA SBS Cap or TA SBS Cap	52.5	A	1/2:12
144	Min. 19/32 in. plywood at 24 in. spans with blocking at supported joint attached with min. #12-3" Olympic STC screws; secured 6-in. oc at all intermediate supports and 6 in. oc at the perimeter of each board	-	Two plies PermaPly 28, DynaBase, GlasBase Plus or Ventsulation	Min. 12 ga. Ring shank nails and min. 32 ga. 1-5/8-inch diameter tin caps 9-inch OC at 3-inch side lap and two rows staggered in center 12-inch OC	HA SBS BUR Ply; or TA SBS Ply	HA SBS Cap or TA SBS Cap	52.5	A	1/2:12
145	Min. 15/32 in. plywood at 24 in. spans with blocking at supported joint attached with min. #8 x 2-inch wood screws; secured 6 in. oc at all intermediate supports and 6 in. oc at the perimeter of each board	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination in	DynaFast 180 HW, DynaFast 180 S, DynaFast 250 HW	APB Fasteners & Plates spaced 9-inch OC within 4-inch heat welded side laps	TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side laps)	60.0	A	1/2:12
146	Min. 15/32 in. plywood at 24 in. spans with blocking at supported joint attached with min. #8 x 2-inch wood screws; secured 6 in. oc at all intermediate supports and 6 in. oc at the perimeter of each board	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination in	DynaFast 180 S	APB Fasteners & Plates spaced 9-inch OC within 4-inch heat welded side laps	CA SBS Ply; HA SBS Ply; or TA SBS Ply (Min. 4-inch side laps)	CA SBS Ply; HA SBS Ply; or TA SBS Cap (Min. 4-inch side laps)	60.0	A	1/2:12

**TABLE 16: MECHANICALLY FASTENED ASSEMBLIES OVER WOOD DECK (New, Existing or Recover)**

System No.	Deck	Insulation	Roof Cover				MDP (psf)	FIRE RATING UL790/ASTM E108	
			Base Sheet	Attach	Ply Sheet	Cap Sheet		Class	Maximum Incline
147	Min. 19/32 in. plywood at 24 in. spans with blocking at supported joint attached with min. #12-3" Olympic STC screws; secured 6-in. oc at all intermediate supports and 6 in. oc at the perimeter of each board	-	PermaPly 28 or Ventsulation	Min. 12 ga. Ring shank nails and min. 32 ga. 1-5/8-inch diameter tin caps 9-inch OC at 3-inch side lap and two rows staggered in center 12-inch OC	HA SBS Ply; or TA SBS Ply	HA SBS Ply; or TA SBS Cap	60.0	A	1/2:12
148	Min. 15/32 in. plywood at 24 in. spans with blocking at supported joint attached with min. #8 x 2-inch wood screws; secured 6 in. oc at all intermediate supports and 6 in. oc at the perimeter of each board	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination in	DyaFast 180 HW, DynaFast 180 S, DynaFast 250 HW	High Load LH Fasteners and Polymer Membrane Batten or High Load Fasteners and Deep Well Batten strip spaced 6-inch OC within the 4-inch heat welded side laps	TA SBS Ply (Min. 4-inch side laps)	TA SBS Cap (Min. 4-inch side lap)	82.5	A	1/2:12
149	Min. 15/32 in. plywood at 24 in. spans with blocking at supported joint attached with min. #8 x 2-inch wood screws; secured 6 in. oc at all intermediate supports and 6 in. oc at the perimeter of each board	Min. 1-inch thick, one or more layers, ENRGY 3, ENRGY 3 AGF, ENRGY 3 CGF, ENRGY 3 FR, any combination in	DynaFast 180 S	High Load LH Fasteners and Polymer Membrane Batten or High Load Fasteners and Deep Well Batten strip spaced 6-inch OC within the 4-inch heat welded side laps	CA SBS BUR Ply; HA SBS BUR Ply or TA SBS BUR Ply (Min. 4-inch side laps)	CA SBS Cap; HA SBS Cap or TA SBS Cap (Min. 4-inch side laps)	82.5	A	1/2:12

**TABLE 16: MECHANICALLY FASTENED ASSEMBLIES OVER WOOD DECK (New, Existing or Recover)**

System No.	Deck	Base Insulation Layer			Top Insulation Layer		Roof Cover						MDP (psf)	FIRE RATING UL790/ASTM E108	
		Type	Fasteners	Attach	Type	Attach	Base Sheet	Attach	Ply Sheet	Attach	Cap Sheet	Attach		Class	Maximum Incline
150	Min. 19/32-inch plywood at max. 24-inch span	Min. 1.4 in. ENRGY 3	UltraFast Fasteners or All Purpose Fasteners with Ultra Fast Metal Plates	Min. 3/4-inch penetration or minimum 1-inch wood plank embedment (1 per 2.67 ft <sup>2</sup> )	Min. 0.5-inch Retro-Fit Board	ASTM D312, Type IV Asphalt	One ply GlasPly IV	ASTM D312, Type IV Asphalt HA	One or more plies GlasPly IV	ASTM D312, Type IV Asphalt HA	GlasKap CR	ASTM D312, Type IV Asphalt HA	45.0	A	1/2:12

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