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ESR-1388

Reissued 05/2017
This report is subject to renewal 05/2018.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
SECTION: 07 52 00—MODIFIED BITUMINOUS SHEET ROOFING

REPORT HOLDER:

CERTAINTEED CORPORATION

18 MOORES ROAD
MALVERN, PENNSYLVANIA 19355

EVALUATION SUBJECT:

CERTAINTEED FLINTLASTIC MODIFIED BITUMEN ROOF COVERING SYSTEMS

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ICC-ES Evaluation Report

ESR-1388

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

REPORT HOLDER:

CERTAINTEED CORPORATION
18 MOORES ROAD
MALVERN, PENNSYLVANIA 19355
(800) 274-8530
www.certainteed.com

EVALUATION SUBJECT:

CERTAINTEED FLINTLASTIC MODIFIED BITUMEN ROOF COVERING SYSTEMS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2012, 2009 and 2006 *International Building Code*® (IBC)
- 2012, 2009 and 2006 *International Residential Code*® (IRC)
- 1997 *Uniform Building Code*™ (UBC)

Properties evaluated:

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

2.0 USES

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

3.0 DESCRIPTION

3.1 General:

CertainTeed roofing membranes are atactic polypropylene (APP) or styrene butadiene styrene (SBS) modified bitumen membranes complying with ASTM D6222, ASTM D6163 or ASTM D6164, as applicable. Roof covering systems utilizing CertainTeed roofing membranes consist of single-ply membranes, base sheets and ply sheets, approved insulation, flashing, asphalts, adhesives, coatings and mechanical fasteners that are installed to produce an integrated roof system.

3.2 Membranes:

3.2.1 Flintlastic FR Cap 30 (Standard or CoolStar): Flintlastic FR Cap 30 is a 0.14-inch-thick (3.5 mm), granular-surfaced, reinforced, SBS modified bitumen roofing membrane manufactured from a glass fiber mat impregnated and covered with SBS modified bitumen. The membrane is a Type I, Grade G, membrane complying with ASTM D6163 and intended for adhesive or hot asphalt application. The membrane weighs approximately 7.2 pounds per square yard (3.9 kg/m^2). The membrane is also available as a CoolStar option, which utilizes bright white granules.

3.2.2 Flintlastic FR-P(Standard or CoolStar): Flintlastic FR-P is a 0.17-inch-thick (4.3 mm), granular-surfaced, reinforced, SBS modified bitumen roofing membrane manufactured from a nonwoven polyester fabric impregnated and covered with SBS modified bitumen. The membrane is a Type I, Grade G, membrane complying with ASTM D6164 and intended for adhesive or hot asphalt application. The membrane weighs approximately 8.4 pounds per square yard (4.6 kg/m^2). The membrane is also available as a CoolStar option, which utilizes bright white granules.

3.2.3 Flintlastic Premium FR-PStandard or CoolStar): Flintlastic PremiumFR-P is a 0.17-inch-thick (4.3 mm), mineral-surfaced, reinforced, SBS modified bitumen roofing membrane manufactured from a nonwoven polyester fabric impregnated and covered with SBS modified bitumen. The membrane is a Type II, Grade G, membrane complying with ASTM D6164 and intended for adhesive or hot asphalt application. The membrane weighs approximately 8.4 pounds per square yard (4.6 kg/m^2). The membrane is also available as a CoolStar option, which utilizes bright white granules.

3.2.4 Flintlastic GTS (Standard or CoolStar): Flintlastic GTS is a 0.18-inch-thick (4.5 mm), granular-surfaced, reinforced, SBS modified bitumen roofing membrane manufactured from a nonwoven polyester fabric impregnated and covered with SBS modified bitumen. The membrane is a Type II, Grade G, membrane complying with ASTM D6164 and intended for torch application only. The membrane weighs approximately 9.9 pounds per square yard (5.4 kg/m^2). The membrane is also available as a CoolStar option, which utilizes bright white granules.

3.2.5 Flintlastic GMS (Standard or CoolStar): Flintlastic GMS is a 0.17-inch-thick (4.3 mm), granular-surfaced, reinforced, SBS modified bitumen roofing membrane manufactured from a nonwoven polyester fabric impregnated and covered with SBS modified bitumen. The membrane is a Type I, Grade G, membrane complying

with ASTM D6164 and intended for adhesive or hot asphalt application. The membrane weighs approximately 8.0 pounds per square yard (4.4 kg/m^2). The membrane is also available as a CoolStar option, which utilizes bright white granules.

3.2.6 Flintlastic Premium GMS (Standard or CoolStar): Flintlastic Premium GMS is a 0.17-inch-thick (4.3 mm), granular-surfaced, reinforced, SBS modified bitumen roofing membrane manufactured from a nonwoven polyester fabric impregnated and covered with SBS modified bitumen. The membrane is a Type II, Grade G, membrane complying with ASTM D6164 and intended for adhesive or hot asphalt application. The membrane weighs approximately 8.4 pounds per square yard (4.6 kg/m^2). The membrane is also available as a CoolStar option, which utilizes bright white granules.

3.2.7 Flintlastic STA: Flintlastic STA is a 0.16-inch-thick (4 mm), smooth-talc-surfaced, reinforced, APP modified bitumen roofing membrane. Flintlastic STA is used as a cap sheet or ply sheet and is manufactured from a nonwoven polyester fabric impregnated and covered with APP modified bitumen. The membrane is a Type I, Grade S, membrane complying with ASTM D6222 and intended for torch application only. The membrane weighs approximately 7.4 pounds per square yard (4.0 kg/m^2).

3.2.8 Flintlastic STA Plus: Flintlastic STA Plus is a 0.18-inch-thick (4.5 mm), smooth-talc-surfaced, reinforced, APP modified bitumen roofing membrane. The membrane is used as a cap sheet or ply sheet and is manufactured from a nonwoven polyester fabric impregnated and covered with APP modified bitumen. The membrane is a Type I, Grade S, membrane complying with ASTM D6222 and intended for torch application only. The membrane weighs approximately 8.1 pounds per square yard (4.4 kg/m^2).

3.2.9 Flintlastic GTA (Standard or CoolStar): Flintlastic GTA is a 0.16-inch-thick (4 mm), granular-surfaced, reinforced, APP modified bitumen roofing membrane manufactured from a nonwoven polyester fabric impregnated and covered with APP modified bitumen. The membrane is a Type I, Grade G, membrane complying with ASTM D6222 and intended for torch application only. The membrane weighs approximately 7.8 pounds per square yard (4.2 kg/m^2). The membrane is also available as a CoolStar option, which utilizes bright white granules.

3.2.10 Flintlastic GTA-FR (Standard or CoolStar): Flintlastic GTA-FR is a 0.16-inch-thick (4 mm), granular-surfaced, reinforced, APP modified bitumen roofing membrane manufactured from a nonwoven polyester fabric impregnated and covered with APP modified bitumen. The membrane is a Type I, Grade G, membrane complying with ASTM D6222 and intended for torch application only. The membrane weighs approximately 8.6 pounds per square yard (4.7 kg/m^2). Thr membrane is also available as a CoolStar option, which utilizes bright white granules.

3.2.11 Flintlastic SA Cap-FR (Standard or CoolStar): Flintlastic SA Cap FR is a 0.13-inch-thick (3.2 mm), granular-surfaced, reinforced, SBS modified bitumen roofing membrane manufactured from a glass fiber mat impregnated and covered with SBS modified bitumen. The membrane is a Type I, Grade G membrane complying with ASTM D6163 and is intended for self-adhered application. The membrane weighs approximately 7.3 pounds per square yard (4.0 kg/m^2). The membrane is also available as a CoolStar option, which utilizes bright white granules.

3.2.12 Flintlastic SA Cap (Standard or CoolStar): Flintlastic SA Cap is a 160-mil (4.0 mm), granular-surfaced, reinforced, SBS modified bitumen roofing membrane manufactured from a non-woven polyester/fiber glass scrim combination mat, impregnated and coated with a superior grade of modified bitumen compound. The membrane is a Type I, Grade G membrane complying with ASTM D6164 and is intended for self-adhered application. The membrane weighs approximately 95 pounds per roll. The membrane is also available as a CoolStar option, which utilizes bright white granules.

3.2.13 Flintlastic FR Cap 30 T (Standard or CoolStar): Flintlastic FR Cap 30 T is a 0.15-inch-thick (3.8 mm), granular-surfaced, reinforced, SBS modified bitumen roofing membrane manufactured from a glass fiber mat impregnated and covered with SBS modified bitumen. The membrane is a Type I, Grade G membrane complying with ASTM D6163 and is intended for torch application only. The membrane weighs approximately 8.1 pounds per square yard (4.4 kg/m^2). The membrane is also available as a CoolStar option, which utilizes bright white granules.

3.3 Insulation:

Foam plastic insulation, where used, must have a flame-spread index of not more than 75 when tested, at the maximum thickness intended for use, in accordance with UL 723 or ASTM E84 (UBC Standard 8-1). See Tables 1A, 1C and 2A through 2F for insulations permitted for use with specific roofing systems.

3.4 Fasteners:

Fasteners and plates used to mechanically fasten insulation and base sheets must be in accordance with Table 3 unless otherwise noted.

3.5 Adhesives:

See Table 2F, footnote 5, for adhesives and coverage rates.

3.6 Impact Resistance:

The CertainTeed Flintlastic modified bitumen roof coverings described in this report meet the requirement for impact resistance in accordance with FM 4470.

4.0 INSTALLATION

4.1 General:

Installation of the CertainTeed Flintlastic membrane roof covering systems described in this report must comply with the applicable code, the manufacturer's published installation instructions and this report. The manufacturer's published installation instructions must be available at all times on the jobsite during installation. CertainTeed Flintlastic roofing membranes are components of roof covering systems that may be installed over new or existing roofs as described in Tables 1A through 1D and 2A through 2F.

The roof slope must be a minimum of $^1/_4$:12 (2 percent slope) and must not be more than maximum slope for the particular system as specified in Tables 1A through 1D.

Penetrations and terminations of the roof covering must be flashed and made weathertight in accordance with the CertainTeed Corporation published installation instructions and the applicable code.

4.2 Fire Classification:

4.2.1 New Construction: Roof covering systems described in Tables 1A through 1D, when installed in accordance with this report, are Class A, B or C roof coverings in accordance with ASTM E108 or UL 790.

4.2.2 Reroofing: Prior to installation of new roof coverings, inspection in accordance with IBC Section

1510, IRC Section R907 or UBC Appendix Chapter 15, and approval from the code official having jurisdiction, are required.

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

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

4.3 Wind Uplift Resistance:

4.3.1 New Construction: The CertainTeed Flintlastic membrane roof covering systems described in this report have a maximum allowable wind uplift capacity as shown in Tables 2A through 2F. Metal edge securement systems must be listed in accordance with ANSI/SPRI ES-1 and designed and installed in accordance with IBC Section 1504.5.

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

5.0 CONDITIONS OF USE

The CertainTeed Flintlastic membrane roof covering systems described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Installation must comply with the applicable code, the manufacturer's published installation instructions and this report. If there are any conflicts between the manufacturer's published installation instructions and this report, this report governs.

5.2 The roof covering systems must be installed only by authorized applicators approved by CertainTeed Corporation.

5.3 Foam plastic insulation must be separated from the interior of the building by an approved thermal barrier in accordance with IBC Section 2603.4.1.5, IRC Section R314.1.2 and UBC Section 2602.5.3, except when specifically recognized in an ICC-ES evaluation report as outlined in Footnote 3 following Table 1D.

5.4 For all above-deck insulations except foam plastics, the roof covering assembly, including such insulation, must have passed testing in accordance with UL 1256 or FM 4450.

5.5 Foam plastic insulation, where used, must bear the label of an approved agency indicating that the foam plastic has a flame-spread index of not more than 75 when tested at the maximum thickness intended for use in accordance with ASTM E84 or UL 723 (UBC Standard 8-1), subject to the approval of the code official. Except for applications where a thermal barrier is not required, total thickness of foam plastic insulation must be limited to the lesser of the maximum thickness allowed in Tables 1A, 1C and 2A through 2F or the maximum thickness that limits the flame-spread index to not more than 75 when testing is in accordance with ASTM E84 or UL 723 (UBC Standard 8-1), subject to the approval of the code official.

5.6 Design wind uplift pressure on any roof area, including edge and corner zones, must not exceed the allowable wind uplift pressure for the roof covering installed in that particular area. Refer to allowable wind uplift pressure shown in Tables 2A through 2F.

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

5.8 The allowable wind-uplift pressures shown in Tables 2A through 2F are for the roof covering only. The deck and framing to which the roof covering is attached must be designed for the applicable components, and cladding wind loads in accordance with the applicable code.

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

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

5.11 The membranes are manufactured in Little Rock, Arkansas, under quality control programs with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Membrane Roof-covering Systems (AC75), dated July 2010 (editorially revised April 2014)

7.0 IDENTIFICATION

Each roll of CertainTeed Flintlastic roofing membrane covered by this report is labeled with the CertainTeed Corporation name and address, product name, date code, and the evaluation report number (ESR-1388).

TABLE 1A—EXTERNAL ROOF FIRE CLASSIFICATIONS[1,7] INSULATED NONCOMBUSTIBLE DECKS[6]

SYSTEM NO.	CLASS	MAX. ROOF SLOPE	VAPOR BARRIER OR ANCHOR SHEET[4]	INSULATION[2,3,8] / THICKNESS	ROOF COVER			
					Base Sheet[4]	Ply Sheet[4]	Membrane	Surfacing
A-1	A	1:12	(Optional) Type G2 or G2 Glasbase (MA) or (HM)	Perlite, glass fiber or wood fiber / max. 7.2-inch	Type G2 or G2 Glasbase Base Sheet (MA) or (HM)	None	Flintlastic GTA, Flintlastic GTA CoolStar, Flintlastic GTS or Flintlastic GTS CoolStar (HW) or Flintlastic GMS, Flintlastic GMS CoolStar (HM) or Flintlastic Premium GMS, Flintlastic Premium GMS CoolStar (HM)	Karnak No. 97 Fibrated Aluminum at $1^1/_2$ gal/sq.
A-2	A	$^3/_4$:12	(Optional) Type G2 or G2 Glasbase Base Sheet (MA) or (HM)	Perlite, glass fiber or wood fiber / max. 7.2-inch	Type G2 or G2 Glasbase Base Sheet (MA) or (HM)	None	Flintlastic STA or Flintlastic STA Plus (HW)	Karnak No. 97 Fibrated Aluminum at $1^1/_2$ gal/sq.
A-3	B	1:12	(Optional) Type G2 or G2 Glasbase Base Sheet (MA) or (HM)	Perlite, glass fiber or wood fiber / max. 7.2-inch	Type G2 or G2 Glasbase Base Sheet (MA) or (HM)	None	Flintlastic STA or Flintlastic STA Plus (HW)	Karnak No. 97 Fibrated Aluminum at $1^1/_2$ gal/sq.
A-4	A	$^1/_2$:12	None	Polyisocyanurate, perlite, glass fiber or wood fiber / minimum 1 inch thick	Type G1 or G2 (MA) or (HM)	(Optional) One or more Type G1 or G2 (HM)	Flintlastic STA or Flintlastic STA Plus, Flintlastic GTA, or Flintlastic GTA CoolStar (HW)	Tropical 120AF, Karnak No. 97 AF, Henry No. 520, Grundy AIMB AF at $1^1/_2$ gal/sq. or Monsey Fibered Asphalt Emulsion or Henry No. 107 Emulsion at 3 gal/sq.
A-5	A	$1^1/_2$:12	None	Polyisocyanurate, perlite, glass fiber or wood fiber / any thickness	Type G2 or G2 Glasbase Base Sheet (MA) or (HM)	(Optional) One or more Type G1 or G2 (HM)	Flintlastic GTA-FR or Flintlastic GTA-FR CoolStar (HW)	None
A-6[5]	A	$^1/_2$:12	None	1.5-inch min. to 4 in. max. ENRGY 3, ACFoam II or FlintBoard ISO followed by min. $^3/_4$-inch Fesco Board or Permalite or min. $^1/_2$-inch DensDeck or DensDeck Prime	Glasbase Base Sheet or Flexiglas Base Sheetor Flintlastic Base 20 (MA)	(Optional) Flintlastic Poly SMS Base Sheet or Flintlastic Ultra Poly SMS Base Sheet applied with Karnak No. 81 at $1^1/_2$ gal/sq.	Flintlastic FR-P, Flintlastic FR-P CoolStar, Flintlastic Premium FR-P, Flintlastic Premium FR-P CoolStar or Flintlastic FR Cap 30 or Flintlastic FR Cap 30 CoolStar applied with Karnak No. 81 at $1^1/_2$ gal/sq.	None
A-7	A	$1^1/_2$:12	None	Min. 4 inch Polyisocyanurate	Flintlastic Base 20 T (HW)	None	Flintlastic FR Cap 30 T or Flintlastic FR Cap 30 T CoolStar (HW)	None
A-8	A	¾:12	None	(Optional) Polyisocyanurate, perlite, glass fiber or wood fiber / any thickness	None	Flintlastic UltraGlass SA (SA)	Flintlastic GTA-FR or Flintlastic GTA-FR CoolStar (HW)	None
A-9	A	½:12	None	(Optional) Polyisocyanurate, perlite, glass fiber / any thickness	None	Flintlastic Ultra Glass SA (SA)	Flintlastic FR Cap 30, Flintlastic FR Cap 30 CoolStar (HM) or Flintlastic FR Cap 30 T or Flintlastic FR Cap 30 T CoolStar (HW)	None

For **SI:** 1 inch = 25.4 mm, 1 gal/sq. = 0.41 l/m^2.

TABLE 1B—EXTERNAL ROOF FIRE CLASSIFICATIONS[1,7] NONINSULATED NONCOMBUSTIBLE DECKS[6]

SYSTEM NO.	CLASS	MAX. ROOF SLOPE	ROOF COVER			
			Base Sheet[4]	Ply Sheet[4]	Membrane	Surfacing
B-1	A	1:12	Type G2 or G2 Glasbase Base Sheet (MA) or (HM)	None	Flintlastic GTA, Flintlastic GTA CoolStar, Flintlastic GTS or Flintlastic GTS CoolStar (HW) or Flintlastic GMS, Flintlastic GMS CoolStar or Flintlastic Premium GMS, Flintlastic Premium GMS CoolStar, (HM)	Karnak No. 97 Fibrated Aluminum at $1^1/_2$ gal/sq.
B-2	A	$^3/_4$:12	Type G2 or G2 Glasbase Base Sheet (MA) or (HM)	None	Flintlastic STA or Flintlastic STA Plus (HW)	Karnak No. 97 Fibrated Aluminum at $1^1/_2$ gal/sq.
B-3	B	1:12	Type G2 or G2 Glasbase Base Sheet (MA) or (HM)	None	Flintlastic STA or Flintlastic STA Plus (HW)	Karnak No. 97 Fibrated Aluminum at $1^1/_2$ gal/sq.
B-4	A	$1^1/_2$:12	Type G2 or G2 Glasbase Base Sheet (MA) or (HM)	(Optional) One or more Type G1 or G2 (HM)	Flintlastic GTA-FR or Flintlastic GTA-FR CoolStar (HW)	None
B-5	A	$^1/_2$:12	Flintlastic SA NailBase (MA)	None	Flintlastic SA P-Cap-FR (SA)	None
B-6	A	$^1/_2$:12	Flintlastic SA NailBase (MA) or Flintlastic SA PlyBase (SA to primed DensDeck or DensDeck DuraGuard only)	Flintlastic SA PlyBase (SA)	Flintlastic SA Cap FR, Flintlastic SA Cap FR CoolStar (SA)	None
B-7	B	$^1/_2$:12	None	Flintlastic Ultra Glass SA (SA)	Flintlastic FR-P fully-adhered with FlintBond Brush Grade Adhesive at $1^1/_2$ gal/sq.	None
B-8	B	$^1/_2$:12	None	Flintlastic Ultra Glass SA (MA)	Flintlastic FR-P (HM)	None
B-9	A	$^1/_4$:12	None	Flintlastic Ultra Glass SA (SA)	Flintlastic SA Cap FR or Flintlastic SA Cap FR CoolStar (SA)	None
B-10	A	¾:12	Flintlastic APP Base T (MA) or (HW)	(Optional) Flintlastic APP Base T (HW)	Flintlastic GTA-FR or Flintlastic GTA-FR CoolStar (HW)	None
B-11	B	¼:12	Flintlastic APP Base T (MA) or (HW)	(Optional) Flintlastic APP Base T (HW)	Flintlastic GTA or Flintlastic GTA CoolStar (HW)	None

For **SI:** 1 inch = 25.4 mm, 1 gal/sq. = 0.41 l/m^2.

TABLE 1C—EXTERNAL ROOF FIRE CLASSIFICATIONS[1,7] INSULATED COMBUSTIBLE DECKS[6]

SYSTEM NO.	CLASS	MAX. ROOF SLOPE	VAPOR BARRIER OR ANCHOR SHEET[4]	INSULATION [2,3,8] / THICKNESS	ROOF COVER			
					Base Sheet[4]	Ply Sheet[4]	Membrane	Surfacing
C-1	A	1:12	Type G2 or G2 Glasbase Base Sheet (LL) or (MA)	Perlite or fiberglass / min. 1-inch, max. 1.5-inch	Type G2 or G2 Glasbase Base Sheet (MA) or (HM)	None	Flintlastic STA or Flintlastic STA Plus, Flintlastic GTA, Flintlastic GTA CoolStar, Flintlastic GTS or Flintlastic GTS CoolStar (HW) or Flintlastic GMS, Flintlastic GMS CoolStar or Flintlastic Premium GMS, Flintlastic Premium GMS CoolStar (HM)	Flood coat and gravel at 400 pounds per square
C-2	A	$^1/_4$:12	(Optional) Type G2 or G2 Glasbase Base Sheet (LL) or (MA)	Perlite, glass fiber or wood fiber / max. 7.2-inch	Type G2 or G2 Glasbase Base Sheet (LL) or (MA)	Type G2 or G2 GlasbaseBase Sheet (MA) or (HM)	Flintlastic GTA, Flintlastic GTA CoolStar, Flintlastic GTS or Flintlastic GTS CoolStar (HW) or Flintlastic GMS, Flintlastic GMS CoolStar or Flintlastic Premium GMS, Flintlastic Premium GMS CoolStar (HM)	Karnak No. 97 Fibrated Aluminum at $1^1/_2$ gal/sq.
C-3	A	$^1/_4$:12	(Optional) Type G2 or G2 Glasbase Base Sheet (LL) or (MA)	Perlite / min. 1.5-inch	Type G2 or G2 Glasbase Base Sheet (MA) or (HM)	None	Flintlastic GTA, Flintlastic GTA CoolStar, Flintlastic GTS or Flintlastic GTS CoolStar (HW) or Flintlastic GMS, Flintlastic GMS CoolStar or Flintlastic Premium GMS, Flintlastic Premium GMS CoolStar (HM)	Karnak No. 97 Fibrated Aluminum at $1^1/_2$ gal/sq.
C-4	A	$^1/_2$:12	None	Polyisocyanurate, perlite, glass fiber or wood fiber / any thickness	Type G2 or G2 Glasbase Base Sheet (MA) or (HM)	None	Flintlastic FR Cap 30 or Flintlastic FR Cap 30 CoolStar (HM)	None

TABLE 1C—EXTERNAL ROOF FIRE CLASSIFICATIONS[1,7] INSULATED COMBUSTIBLE DECKS[6] (Continued)

SYSTEM NO.	CLASS	MAX. ROOF SLOPE	VAPOR BARRIER OR ANCHOR SHEET[4]	INSULATION [2,3,8] / THICKNESS	ROOF COVER			
					Base Sheet[4]	Ply Sheet[4]	Membrane	Surfacing
C-5	A	1/2:12	None	Perlite, glass fiber / any thickness	One or more Flexiglas Base Sheet or Flintlastic Base 20 adhered with Monsey Bakor MBA Gold Adhesive at 1 1/2 gal/sq.	(Optional) One or more Type G1, Type G2 or Flexiglas Base Sheet or Flintlastic Base 20 or Flintlastic Poly SMS Base Sheet adhered with Monsey Bakor MBA Gold Adhesive at 1 1/2 gal/sq.	Flintlastic FR Cap 30 or Flintlastic FR Cap 30 CoolStar adhered with Monsey Bakor MBA Gold Adhesive at 1 1/2 gal/sq.	None
C-6	A	1/2:12	None	DensDeck / min. 1/4-inch	Flintlastic SA NailBase (MA)	None	Flintlastic SA Cap-FR or Flintlastic SA Cap-FR CoolStar (SA)	None
C-7	C	2:12	None	Polyisocyanurate, perlite, glass fiber or wood fiber / any thickness	Flintlastic SA NailBase (MA)	Flintlastic SA Mid Ply (SA)	Flintlastic SA Cap-FR or Flintlastic SA Cap-FR CoolStar (SA)	None
C-8	A	1/2:12	None	Polyisocyanurate, perlite, glass fiber or wood fiber / any thickness DensDeck / min. 1/4-inch	Flintlastic SA NailBase (MA) or Flintlastic SA PlyBase (SA to primed DensDeck or DensDeck DuraGuard only)	Flintlastic SA PlyBase (SA)	Flintlastic SA Cap FR, Flintlastic SA Cap-FR CoolStar (SA)	None
C-9	C	Unlimited	None	Perlite, glass fiber or wood fiber / any thickness	Flintlastic SA NailBase (MA)	None	Flintlastic SA Cap FR or Flintlastic SA Cap-FR CoolStar (SA)	None
C-10	C	2:12	None	Polyisocyanurate, perlite, glass fiber or wood fiber / any thickness	Flintlastic SA NailBase (MA)	(Optional) Flintlastic SA Mid Ply (SA) or Flintlastic SA PlyBase (SA)	Flintlastic SA Cap FR or Flintlastic SA Cap-FR CoolStar (SA)	None
C-11	A	1 1/2:12	None	Flintboard ISO / min. 1.5 inch (presecured) DensDeck /min. 1/4-inch adhered in hot asphalt	Flintlastic Base 20 T (HW)	None	Flintlastic FR Cap 30 T or Flintlastic FR Cap 30 T CoolStar (HW)	None

For **SI:** 1 inch = 25.4 mm, 1 gal/sq. = 0.41 l/m^2.

TABLE 1D—EXTERNAL ROOF FIRE CLASSIFICATIONS[1,7] NONINSULATED COMBUSTIBLE DECKS[6]

SYSTEM NO.	CLASS	MAX. ROOF SLOPE	ROOF COVER			
			Base Sheet[4]	Ply Sheet[4]	Membrane	Surfacing
D-1	A	1/2:12	1 or more layers Yosemite Venting Base Sheet (MA) or (HM)	None	Flintlastic FR-P, Flintlastic FR-P CoolStar, Flintlastic Premium FR-P or Flintlastic Premium FR-P CoolStar (HM)	Firecade 2000 or Premium Long Life Aluminum Roof Coating at 1 1/2 gal/sq.
D-2	A	1/4:12	Type G2 or G2 Glasbase Base Sheet (LL)or (MA)	Type G2 or G2 Glasbase Base Sheet (MA)or (HM)	Flintlastic STA, Flintlastic STA Plus, Flintlastic GTA, Flintlastic GTA CoolStar, Flintlastic GTS or Flintlastic GTS CoolStar (HW) or Flintlastic GMS, Flintlastic GMS CoolStar or Flintlastic Premium GMS, Flintlastic Premium GMS CoolStar (HM)	Karnak No. 97 Fibrated Aluminum at 1 1/2 gal/sq.
D-3	A	1/2:12	Type G2 or G2 Glasbase Base Sheet (MA) or (HM)	None	Flintlastic FR Cap 30 or Flintlastic FR Cap 30 CoolStar (HM)	None
D-4	A	1/2:12	One or more Flexiglas Base Sheet or Flintlastic Base 20 adhered with Monsey Bakor MBA Gold Adhesive at 1 1/2 gallons per square	(Optional) One or more Type G1, Type G2 or Flexiglas Base Sheet or Flintlastic Base 20 or Flintlastic Poly SMS Base Sheet adhered with Monsey Bakor MBA Gold Adhesive at 1 1/2 gal/sq.	Flintlastic FR Cap 30 or Flintlastic FR Cap 30 CoolStar adhered with Monsey Bakor MBA Gold Adhesive at 1 1/2 gal/sq.	None
D-5	B	1/2:12	Type G2 or G2 Glasbase Base Sheet (MA)	(Optional) One or more Type G2 or G2 Glasbase Base Sheet (HM)	Flintlastic GTA, Flintlastic GTA CoolStar (HW) or Flintlastic GMS, Flintlastic GMS CoolStar or Flintlastic Premium GMS, Flintlastic Premium GMS CoolStar (HM)	None
D-6	A	1/2:12	Type G2 Glasbase Base Sheet (MA)	Flintlastic SA NailBase (MA)	Flintlastic SA Cap-FR or Flintlastic SA Cap-FR CoolStar (SA)	None
D-7	C	2:12	Flintlastic SA NailBase (MA)	Flintlastic SA Mid Ply (SA)	Flintlastic SA Cap-FR or Flintlastic SA Cap-FR CoolSTar (SA)	None
D-8	C	Unlimited	Flintlastic SA NailBase (MA)	None	Flintlastic SA Cap-FR or Flintlastic SA Cap-FR CoolSTar (SA)	None
D-9	C	2:12	Flintlastic SA NailBase (MA)	(Optional) Flintlastic SA Mid Ply (SA) or Flintlastic SA PlyBase (SA)	Flintlastic SA Cap-FR or Flintlastic SA Cap-FR CoolSTar (SA)	None
D-10	A	2:12	Flintlastic SA NailBase or Flexiglas Base Sheet or Flintlastic Base 20 or Yosemite Venting Base Sheet or Glasbase Base Sheet (MA)	Flintlastic Ultra Glass SA (SA)	Flintlastic GTA-FR or Flintlastic GTA-FR CoolStar (HW)	None
D-11	A	¼:12	Type G2 Glasbase Base Sheet (MA)	Flintlastic Ultra Glass SA (SA)	Flintlastic SA Cap-FR or Flintlastic SA Cap-FR CoolStar (SA)	None
D-12	A	½:12	Glasbase Base Sheet Base Sheet or Flintlastic SA NailBase or Flexiglas Base Sheet or Flintlastic Base 20 or Yosemite Venting Base Sheet (MA)	Flintlastic Ultra Glass SA (SA)	Flintlastic FR Cap 30, Flintlastic FR Cap 30 CoolStar (HM) or Flintlastic FR Cap 30 T, Flintlastic FR Cap 30 T CoolStar (HW)	None

For **SI:** 1 inch = 25.4 mm, 1 gal/sq. = 0.41 l/m^2.

Footnotes for Table 1A thru Table 1D, as applicable:

[1]Unless otherwise specified (see Footnote 5), vapor barriers, anchor sheets, insulation, adhesives, base sheets, ply sheets, membranes, and surface coatings must be UL classified for roofing systems.
[2]Foam plastic insulation thickness is limited to the lesser of the maximum thickness specified in this table or the maximum thickness stated on the label, that limits the flame spread index to not more than 75 when tested in accordance with ASTM E84 (UBC Standard 8-1).
[3]Foam plastic insulation may be installed over a steel deck without a thermal barrier when installed in accordance with an ICC-ES evaluation report recognizing direct application of a specific foam plastic insulation. Reference: 2006 IBC Section 2603.4.1.5.
[4]Type G1 and Type G2 relate to any UL classified fiberglass reinforced ply or base sheet respectively, complying with UL 55A.
[5]Insulation, adhesives, base sheets, ply sheets and membranes in system A-6 must be FM – Approved for roofing systems.
[6]Combustible wood decks must be minimum 15/32-inch-thick (11.9 mm) plywood, 7/16-inch-thick (11.1 mm) nonveneer APA rated oriented strand board or 3/4-inch-thick (19 mm) sheathing boards. Steel decks must be minimum No. 22 gage galvanized steel [0.030 inch (0.76 mm)]. Concrete decks must have a minimum compressive strength (f_c) of 2500 psi.
[7]Abbreviations:
(MA) Mechanically Fastened
(HM) Hot Mopped with hot roofing asphalt conforming to ASTM D312, Type III or IV.
(HW) Heat Welded
(LL) Loose Laid
(SA) Self-Adhered
[8]Polyisocyanurate insulation must comply with ASTM C1289, Type I or Type II. Perlite insulation must comply with ASTM C728. Wood fiberboard insulation must comply with ASTM C208.

TABLE 2A—WIND UPLIFT RESISTANCE: METHOD OF ATTACHMENT MECHANICALLY ATTACHED BASE INSULATION, BONDED COVERBOARD

SYSTEM NO.	SUBSTRATE	INSULATION[6]		COVERBOARD[6]		ROOF COVER[1]			ALLOWABLE UPLIFT CAPACITY (psf)[4]
		Type	Attach[2]	Type	Attachment Method	Base	Ply	Cap	
A-1	Min. 22 ga. Steel or min. 2,500 psi concrete	1.5-inch min. to 4-inch max. FlintBoard ISO, ACFoam-II, ENRGY 3, or Multi-Max FA-3	1 fastener per 1.3 ft^2	Min. $^3/_4$-inch FescoBoard	Mopped with hot asphalt	One to three plies applied in hot asphalt		Hot mopped with hot asphalt or heat welded	52.5
A-2	Min. 22 ga. Steel or min. 2,500 psi concrete	1.5-inch min. to 4-inch max. FlintBoard ISO, ACFoam-II, ENRGY 3, or Multi-Max FA-3	1 fastener per 1.3 ft^2	Min. $^1/_2$-inch HD Fiber Board Roof Insulation	Mopped with hot asphalt	One to three plies applied in hot asphalt		Hot mopped with hot asphalt or heat welded	67.5
A-3	Min. 22 ga. Steel	2-inch min. to 4-inch max. FlintBoard ISO or ACFoam-II	1 fastener per 3.2 ft^2	Min. $^1/_2$-inch Armor Board HD, BP High Strength, ERS Redi-Deck, GAFTEMP HD, Roof Insulation Board, Structodek HD Fiberboard or FiberBase HD1/HD6 or min. $^3/_4$-inch ConPerl, Fesco Board or EnergyGuard Perlite	Mopped with hot asphalt	One to three plies applied in hot asphalt		Hot mopped with hot asphalt or heat welded	45.0
A-4	Min. 22 ga. Steel Min. 33 ksi Steel	Min. 1.5-inch Firestone ISO 95+ GL	Dekfast Galvalume Steel Hex Plates and 24 Dekfast #12 DP fasteners per 4 by 8 ft. insulation board	Min. 1.5-inch Firestone ISO 95+ GL	Adhered with Millennium One Step Foamable Adhesive[5]	Flintlastic Ultra Glass SA, self-adhered		Flintlastic GTA or Flintlastic GTA CoolStar, heat welded	37.5

TABLE 2B—WIND UPLIFT RESISTANCE: METHOD OF ATTACHMENT
ALL INSULATION LAYERS MECHANICALLY ATTACHED THROUGH TOP INSULATION LAYER OR COVERBOARD

SYSTEM NO.	SUBSTRATE	INSULATION[6]		COVERBOARD[6]		ROOF COVER[1]			ALLOWABLE UPLIFT CAPACITY (psf)[4]
		Type	Attach[2]	Type	Attachment[2] Method	Base	Ply	Cap	
B-1	Min. 22 ga. Steel, min. 2,500 psi concrete or min. $^{19}/_{32}$-inch plywood	Min. 1.5-inch, min. 2.0 pcf polyiso-cyanurate	Loose laid	Min. $^{1}/_{4}$-inch DensDeck primed with FlintPrime SA at 0.3 gal/sq.	1 fastener per 1.3 ft^2	Flintlastic SA Mid Ply, self-adhered	(Optional) Flintlastic SA Mid Ply, self-adhered	Self-Adhered	45.0
B-2	Min. 22 ga. Steel or min. 2,500 psi concrete	1.5-inch min. to 4-inch max. FlintBoard ISO, ACFoam-II, ENRGY 3 or Multi-Max FA-3	1 fastener per 1.3 ft^2 through top layer	None	N/A	Black Diamond Base Sheet, self-adhered	(Optional) One or two plies applied in hot asphalt	Hot mopped with hot asphalt	52.5
B-3	Min. 22 ga. Steel or min. 2,500 psi concrete	1.5-inch min. to 4-inch max. FlintBoard ISO, ACFoam-II, ENRGY 3 or Multi-Max FA-3	1 fastener per 1.3 ft^2 through top layer	None	N/A	Black Diamond Base Sheet, self-adhered	(Optional) One or two plies applied in hot asphalt	Heat welded	82.5
B-4	Min. 22 ga. Steel or min. 2,500 psi concrete	Max. 3-inch-thick OC FOAMULAR 350 or max. 4-inch-thick Hy-Therm AP, Flintboard ISO, ACFoam-II, PSI 25, H-Shield, FlintBoard$_H$ ISO, H-Shield P, H-Shield WF, FlintBoard$_H$ ISO WF, H-Shield NB or FlintBoard$_H$ ISO NB.	Loose laid	Min. $^{1}/_{2}$-inch Armor Board HD, BP High Strength, ERS Redi-Deck, GAFTEMP HD, Roof Insulation Board, Structodek HD Fiberboard or FiberBase HD1/HD6 or min. $^{3}/_{4}$-inch ConPerl, Fesco Board or EnergyGuard Perlite or min. $^{1}/_{4}$-inch DensDeck or DensDeck Prime	1 fastener per 2 ft^2	One to three plies in hot asphalt full-mop or spot mopped in hot asphalt in 24-inch diameter spots spaced 30-inch o.c.		Hot mopped with hot asphalt or heat welded	45.0
B-5	Min. 22 ga. Steel or min. 2,500 psi concrete	1.5-inch min. to 4-inch max. Hy-Therm AP, ENRGY 3 or PSI-25 or min. 2-inch FlintBoard ISO or ACFoam-II	Loose laid	Min. 1-inch Fesco Board	1 fastener per 1.6 ft^2	Yosemite Venting Base Sheet or Channel Vent spot mopped in hot asphalt in 24-inch diameter spots spaced 30-inch o.c	None	Hot mopped with hot asphalt or heat welded	45.0

TABLE 2B—WIND UPLIFT RESISTANCE: METHOD OF ATTACHMENT
ALL INSULATION LAYERS MECHANICALLY ATTACHED THROUGH TOP INSULATION LAYER OR COVERBOARD (Continued)

SYSTEM NO.	SUBSTRATE	INSULATION[6]		COVERBOARD[6]		ROOF COVER[1]			ALLOWABLE UPLIFT CAPACITY (psf)[4]
		Type	Attach[2]	Type	Attachment[2] Method	Base	Ply	Cap	
B-6	Min. 22 ga. Steel or min. 2,500 psi concrete	1.5-inch min. to 4-inch max. Hy-Therm AP, ENRGY 3 or PSI-25 or min. 2-inch FlintBoard ISO or ACFoam II	Loose laid	Min. $^{1}/_{2}$-inch Structodek, FiberBase HD1/HD6 or GP HD Roof Fiberboard	1 fastener per 2 ft^2	Yosemite Venting Base Sheet or Channel Vent spot mopped in hot asphalt in 24-inch diameter spots spaced 30-inch o.c	None	Hot mopped with hot asphalt or heat welded	45.0
B-7	Min. $^{19}/_{32}$-inch plywood at max 24-inch spans attach 6-inch o.c. using 8d ring shank nails	(Optional) One or more layers min. 1.5" ACFoam-II, ENRGY 3, H-Shield, FlintBoard$_H$ ISO, Mult-Max FA-3 or FlintBoard ISO	Loose laid	Min. 1.5" ACFoam II, ENRGY 3, HShield, Mult-Max FA3 or FlintISO	1 fastener per 1.45 ft^2	Flintlastic SA Mid Ply or Flintlastic SA PlyBase, self-adhered (Substrate Primed with Flint-Prime SA)	(Optional) Flintlastic SA Mid Ply or Flintlastic SA PlyBase, self-adhered	Self-Adhered	60.0
B-8	Min. 22 ga. Steel or min. 2,500 psi concrete	Min. 1.5-inch Owens-Corning FOAMULAR, Hy-Therm AP, Hy-Therm(a) AP, FlintBoard ISO, ACFoam-II, ENRGY 3, PSI-25, H-Shield, FlintBoard$_H$ ISO, H-Shield-P, H-Shield-WF, FlintBoard$_H$ ISO WF, H-Shield-NB or FlintBoard$_H$ ISO NB	Loose laid	Min. $^{1}/_{4}$-inch DensDeck or DensDeck Prime	1 fastener per 2 ft²	Flintlastic Base 20 T, heat welded	None	Flintlastic FR Cap 30 T or Flintlastic FR Cap 30 T CoolStar, heat welded	45.0
B-9	Tectum 1 Plank (install per ESR-1112) or existing substrate	Min $^{5}/_{8}$-inch DensDeck or DensDeck Prime	1 fastener per 4 ft²	None	N/A	Flintlastic Base 20 T, heat welded	None	Flintlastic FR Cap 30 T or Flintlastic FR Cap 30 T CoolStar, heat welded	45.0
B-10	Existing substrate	Min. $^{1}/_{4}$-inch DensDeck or DensDeck Prime	1 fastener per 2 ft²	None	N/A	Flintlastic Base 20 T, heat welded	None	Flintlastic FR Cap 30 T or Flintlastic FR Cap 30 T CoolStar, heat welded	45.0
B-11	Min. 22 ga. Steel Min. 33 ksi Steel	Min. 1.5-inch FlintBoard ISO	Loose laid	Min. ¼-inch DensDeck Prime	FlintFast 3 inch Insulation Plates and 24 FlintFast #12 fasteners per 4 by 8 ft. insulation board and adhered with Millennium Hurricane Force Membrane Adhesive[5]	Glasbase Base Sheet, adhered with Millennium Hurricane Force Membrane Adhesive	None	Flintlastic FR-P or Flintlastic FR-P CoolStar adhered with Millennium Hurricane Force Membrane Adhesive	30.0

TABLE 2C—WIND UPLIFT RESISTANCE: METHOD OF ATTACHMENT MECHANICALLY ATTACHED BASE SHEET OVER INSULATION

SYSTEM NO.	SUBSTRATE	INSULATION[6]		COVERBOARD[6]		ROOF COVER[1]			ALLOWABLE UPLIFT CAPACITY (psf)[4]
		Type	Attach	Type	Attachment Method	Base[2]	Ply	Cap	
C-1	Min. 22 ga. steel or min. 2,500 psi concrete	Min. 1.5-inch, min. 2.0 pcf polyisocyanurate	Loose laid	(Optional) FM Approved min. 3/4-inch perlite min. 1/2-inch wood fiberboard or min. 1/4-inch DensDeck	Loose laid	Yosemite Venting Base Sheet, Flexiglas Base Sheet or Flintlastic Base 20 attached 6-inch o.c. in a 4-inch lap and 6-inch o.c. in two, equally spaced, staggered center rows	(Optional) Hot mopped with hot asphalt	Hot mopped with hot asphalt or heat welded	67.5
C-2	Min. 22 ga. steel or min. 2,500 psi concrete	Min. 1.5-inch, min. 2.0 pcf polyisocyanurate	Loose laid	(Optional) FM Approved Min. 3/4-inch perlite min. 1/2-inch wood fiberboard or min. 1/4-inch DensDeck	Loose laid	Flintlastic Poly SMS Base Sheet or Flintlastic Ultra Poly SMS Base Sheet attached 12-inch o.c. in a 4-inch lap and 12-inch o.c. in two, equally spaced, staggered center rows	(Optional) Hot mopped with hot asphalt	Hot mopped with hot asphalt or heat welded	120
C-3	Min. 22 ga. steel or min. 2,500 psi concrete	Min. 1.5-inch, min. 2.0 pcf polyisocyanurate	Loose laid	(Optional) FM Approved min. 3/4-inch perlite min. 1/2-inch wood fiberboard or min. 1/4-inch DensDeck	Loose laid	Flintlastic Ultra Poly SMS Base Sheet attached 12-inch o.c. in the 4-inch heat welded lap with Tru-Fast #15 EHD and Tru-Fast 2.4" Barbed Metal Seam Plates	None	Heat welded	60
C-4	Min. 22 ga. Steel, min. 2,500 psi concrete or min. 19/32-inch plywood	Min. 1.5-inch, min. 2.0 pcf polyisocyanurate	Loose laid	(Optional) FM Approved min. 3/4-inch perlite min. 1/2-inch wood fiberboard or min. 1/4-inch DensDeck	Loose laid	Flintlastic SA NailBase attached 12-inch o.c. in a 4-inch lap and 12-inch o.c. in two, equally spaced, staggered center rows	(Optional) Flintlastic SA Mid Ply, self-adhered	Self-Adhered	60
C-5	Min. 22 ga. steel or min. 2,500 psi concrete	Max. 3-inch-thick OC FOAMULAR 350 or max. 4-inch-thick Hy-Therm AP, Flintboard ISO, ACFoam-II, PSI 25, H-Shield, FlintBoard$_H$ ISO, H-Shield P, H-Shield WF, FlintBoard$_H$ ISO WF, H-Shield NB or FlintBoard$_H$ ISO NB.	Loose laid	Min. 1/2-inch Armor Board HD, BP High Strength, ERS Redi-Deck, GAFTEMP HD, Roof Insulation Board, Structodek HD Fiberboard or FiberBase HD1/HD6 or min. 3/4-inch ConPerl, Fesco Board or EnergyGuard Perlite or min. 1/4-inch DensDeck or DensDeck Prime	Presecured[3]	CertainTeed base sheet (except Channel Vent) attached 12-inch o.c. in a 4-inch lap and 36-inch o.c. in two, equally spaced, staggered center rows	(Optional) Hot mopped with hot asphalt	Hot mopped with hot asphalt or heat welded	30.0
C-6	Min. 22 ga. steel or min. 2,500 psi concrete	Max. 3-inch-thick OC FOAMULAR 350 or max. 4-inch-thick Hy-Therm AP, Flintboard ISO, ACFoam-II, PSI 25, H-Shield, FlintBoard$_H$ ISO, H-Shield P, H-Shield WF, FlintBoard$_H$ ISO WF, H-Shield NB or FlintBoard$_H$ ISO NB.	Loose laid	Min. 1/2-inch Armor Board HD, BP High Strength, ERS Redi-Deck, GAFTEMP HD, Roof Insulation Board, Structodek HD Fiberboard or FiberBase HD1/HD6 or min. 3/4-inch ConPerl, Fesco Board or EnergyGuard Perlite or min. 1/4-inch DensDeck or DensDeck Prime	Presecured[3]	CertainTeed base sheet (except Channel Vent) attached 12-inch o.c. in a 4-inch lap and 24-inch o.c. in two, equally spaced, staggered center rows	(Optional) Hot mopped with hot asphalt	Hot mopped with hot asphalt or heat welded	45.0

TABLE 2C—WIND UPLIFT RESISTANCE: METHOD OF ATTACHMENT MECHANICALLY ATTACHED BASE SHEET OVER INSULATION (Continued)

SYSTEM NO.	SUBSTRATE	INSULATION[6]		COVERBOARD[6]		ROOF COVER[1]			ALLOWABLE UPLIFT CAPACITY (psf)[4]
		Type	Attach	Type	Attachment Method	Base[2]	Ply	Cap	
C-7	Min. 22 ga. steel or min. 2,500 psi concrete	Max. 3-inch-thick OC FOAMULAR 350 or max. 4-inch-thick Hy-Therm AP, Flintboard ISO, ACFoam-II, PSI 25, H-Shield, FlintBoard$_H$ ISO, H-Shield P, H-Shield WF, FlintBoard$_H$ ISO WF, H-Shield NB or FlintBoard$_H$ ISO NB.	Loose laid	Min. $^1/_2$-inch Armor Board HD, BP High Strength, ERS Redi-Deck, GAFTEMP HD, Roof Insulation Board, Structodek HD Fiberboard or FiberBase HD1/HD6 or min. $^3/_4$-inch ConPerl, Fesco Board or EnergyGuard Perlite or min. $^1/_4$-inch DensDeck or DensDeck Prime	Presecured[3]	Flintlastic Poly SMS Base Sheet attached 12-inch o.c. in a 4-inch lap and 36-inch o.c. in two, equally spaced, staggered center rows or 18-inch o.c. in a 4-inch lap and 18-inch o.c. in one staggered center row	(Optional) Hot mopped with hot asphalt	Hot mopped with hot asphalt or heat welded	45.0
C-8	Min. 22 ga. steel or min. 2,500 psi concrete	Max. 3-inch-thick OC FOAMULAR 350 or max. 4-inch-thick Hy-Therm AP, Flintboard ISO, ACFoam-II, PSI 25, H-Shield, FlintBoard$_H$ ISO, H-Shield P, H-Shield WF, FlintBoard$_H$ ISO WF, H-Shield NB or FlintBoard$_H$ ISO NB.	Loose laid	Min. $^1/_2$-inch Armor Board HD, BP High Strength, ERS Redi-Deck, GAFTEMP HD, Roof Insulation Board, Structodek HD Fiberboard or FiberBase HD1/HD6 or min. $^3/_4$-inch ConPerl, Fesco Board or EnergyGuard Perlite or min. $^1/_4$-inch DensDeck or DensDeck Prime	Presecured[3]	Channel Vent attached 12-inch o.c. in a 4-inch lap and 18-inch o.c. in two, equally spaced, staggered center rows	(Optional) Hot mopped with hot asphalt	Hot mopped with hot asphalt or heat welded	45.0
C-9	Min. 22 ga. steel or min. 2,500 psi concrete	Max. 3-inch-thick OC FOAMULAR 350 or max. 4-inch-thick Hy-Therm AP, Flintboard ISO, ACFoam-II, PSI 25, H-Shield, FlintBoard$_H$ ISO, H-Shield P, H-Shield WF, FlintBoard$_H$ ISO WF, H-Shield NB or FlintBoard$_H$ ISO NB.	Loose laid	Min. $^1/_2$-inch Armor Board HD, BP High Strength, ERS Redi-Deck, GAFTEMP HD, Roof Insulation Board, Structodek HD Fiberboard or FiberBase HD1/HD6 or min. $^3/_4$-inch ConPerl, Fesco Board or EnergyGuard Perlite or min. $^1/_4$-inch DensDeck or DensDeck Prime	Presecured[3]	Flintlastic Poly SMS Base Sheet or Flintlastic Ultra Poly SMS Base Sheet attached with SFS Intec 2 in. round metal plates and #12 or #14 fasteners spaced 12-inch o.c. in a 4-inch wide, heat-welded side lap.	(Optional) Hot mopped with hot asphalt	Hot mopped with hot asphalt or heat welded	45.0
C-10	(Recover) Min. 22 ga. steel or min. $^3/_4$-inch plywood	None	N/A	Min. $^1/_2$-inch to max 1-inch Armor Board HD, BP High Strength, ERS Redi-Deck, GAFTEMP HD, Roof Insulation Board, Structodek HD Fiberboard or FiberBase HD1/HD6 or min. $^3/_4$-inch to max. 1-inch ConPerl, Fesco Board or EnergyGuard Perlite or min. $^1/_4$-inch to max. 1-inch DensDeck or DensDeck Prime	Presecured[3]	Flintlastic Poly SMS Base Sheet or Flintlastic Ultra Poly SMS Base Sheet attached with SFS Intec 2 in. round metal plates and #12 or #14 fasteners spaced 12-inch o.c. in a 4-inch wide, heat-welded side lap.	(Optional) Hot mopped with hot asphalt	Hot mopped with hot asphalt or heat welded	45.0
C-11	Min. 22 ga. steel or min. 2,500 psi concrete	1.5-inch min. to 4-inch max. FlintBoard ISO or ACFoam-II	Loose laid	Min. $^3/_4$-inch Fesco Board or EnergyGuard Perlite or min. $^1/_2$-inch DensDeck or DensDeck Prime	Presecured[3]	GlasbaseBase Sheet, Flexiglas or Flintlastic Base 20 attached 6-inch o.c. in a 4-inch lap and 12-inch o.c. in two, equally spaced, staggered center rows (excludes ITW Buildex fasteners & plates)	(Optional) Flintlastic Poly SMS Base Sheet or Flintlastic Ultra Poly SMS Base Sheet applied in Karnak No. 81 at 1.5 gal/square	Flintlastic FR-P, Flintlastic FR-P CoolStar, Flintlastic Premium FR-P, Flintlastic Premium FR-P CoolStar, Flintlastic FR Cap 30 or Flintlastic FR Cap 30 CoolStar, applied in Karnak No. 81 at 1.5 gal/square	45.0

TABLE 2C—WIND UPLIFT RESISTANCE: METHOD OF ATTACHMENT MECHANICALLY ATTACHED BASE SHEET OVER INSULATION (Continued)

SYSTEM NO.	SUBSTRATE	INSULATION[6]		COVERBOARD[6]		ROOF COVER[1]			ALLOWABLE UPLIFT CAPACITY (psf)[4]
		Type	Attach	Type	Attachment Method	Base[2]	Ply	Cap	
C-12	Min. $^{19}/_{32}$-inch plywood at max 24-inch spans attached 6-inches o.c. using #8 wood screws	One or more layers min. 1.5-inch ACFoam-II, ENRGY 3, HShield, Mult-Max FA-3 or Flintboard ISO	Loose laid	Min. $^{1}/_{4}$-inch DensDeck or DensDeck Prime	Presecured[3]	Flintlastic SA NailBase attached 8-inches o.c. in a 3-inch lap and 8-inches o.c. in two, equally spaced, staggered center rows 35-inches o.c.	(Optional) Flintlastic SA Mid Ply or Flintlastic SA PlyBase, self-adhered	Self-Adhered	82.5
C-13	Min. 22 ga. Steel or min. 2,500 psi concrete	Min. 1.5-inch Owens-Corning FOAMULAR, Hy-Therm AP, Hy-Therm(a) AP, FlintBoard ISO, ACFoam-II, ENRGY 3, PSI-25, H-Shield, $FlintBoard_H$ ISO, H-Shield-P, H-Shield-WF, $FlintBoard_H$ ISO WF, H-Shield NB or $FlintBoard_H$ ISO NB.	Loose laid	Min. $^{1}/_{4}$-inch DensDeck or DensDeck Prime	Loose laid	Flintlastic Base 20 T attached 12-inches o.c. in a 4-inch lap and 12-inches o.c. in two, equally spaced, staggered center rows 35-inches o.c.	None	Flintlastic FR Cap 30 T or Flintlastic FR Cap 30 T CoolStar, heat welded	30.0
C-14	Min. 22 ga. Steel or min. 2,500 psi concrete	Min. 1.5-inch Owens-Corning FOAMULAR, Hy-Therm AP, Hy-Therm(a) AP, FlintBoard ISO, ACFoam-II, ENRGY 3, PSI-25, H-Shield, $FlintBoard_H$ ISO, H-Shield-P, H-Shield WF, $FlintBoard_H$ ISO WF, H-Shield NB or $FlintBoard_H$ ISO NB.	Loose laid	Min. $^{1}/_{4}$-inch DensDeck or DensDeck Prime	Loose laid	Flintlastic Base 20 T attached 12-inches o.c. in a 4-inch lap and 12-inches o.c. in two, equally spaced, staggered center rows 24-inches o.c.	None	Flintlastic FR Cap 30 T or Flintlastic FR Cap 30 T CoolStar, heat welded	45.0

TABLE 2D—WIND UPLIFT RESISTANCE: METHOD OF ATTACHMENT
MECHANICALLY ATTACHED ANCHOR SHEET FOLLOWED BY BONDED INSULATION

SYSTEM NO.	SUBSTRATE	ANCHOR SHEET	INSULATION[6]		COVERBOARD[6]		ROOF COVER[1]			ALLOWABLE UPLIFT CAPACITY (psf)[4]
			Type	Attach	Type	Attachment Method	Base	Ply	Cap	
D-1	Min. $^{19}/_{32}$-inch plywood	Glasbase Base Sheet, or Flintglas Premium Ply Sheet Type VI attached with 11 ga. annular ring shank nails & min. $1^{5}/_{8}$-inch dia. tin caps spaced 8-inch o.c. in the 4-inch lap and 8-inch o.c. in three, equally spaced, staggered center rows	(Optional) One or more layers min. 1.5-inch, min. 2.0 pcf polyisocyanurate	Hot asphalt	Min. $^{3}/_{4}$-inch FescoBoard or min. $^{1}/_{2}$-inch High Density Fiberboard Roof Insulation	Hot asphalt	One to three plies applied in hot asphalt		Hot asphalt or heat welded	60
D-2	Min. $^{19}/_{32}$-inch plywood	Glasbase Base Sheet or Flintglas Premium Ply Sheet Type VI attached with 11 ga. annular ring shank nails & min. $1^{5}/_{8}$-inch dia. tin caps spaced 8-inch o.c. in the 4-inch lap and 8-inch o.c. in three, equally spaced, staggered center rows	One or more layers min. 1.5-inch FlintBoard ISO, ACFoam-II, ENRGY 3 or Multi-Max FA-3. Maximum thickness not to exceed 4 inches.	Hot asphalt	None	N/A	Black Diamond Base Sheet, self-adhered	(Optional) One or two plies in hot asphalt	Hot asphalt	52.5
D-3	Same as System No. D-2, using Heat welded cap sheet								Heat welded	60
D-4	Tectum 1 Plank (install per ESR-1112) or Existing substrate	Glasbase Base Sheet, Flexiglas Base Sheet, Flintlastic Base 20 or All Weather Empire Base attached with Twin Loc-Nails spaced 7-inch o.c. in the 4-inch lap and 7-inch o.c. in two, equally spaced, staggered center rows	(Optional) One or more layers min. 1.5-inch FlintBoard ISO, ACFoam-II, ENRGY 3 or Multi-Max FA-3. Maximum thickness not to exceed 4 inches.	Hot asphalt	Min. $^{3}/_{4}$-inch FescoBoard or min. $^{1}/_{2}$-inch High Density Fiberboard Roof Insulation	Hot asphalt	One to three plies applied in hot asphalt		Hot asphalt or heat welded	60
D-5	Tectum 1 Plank (install per ESR-1112) or Existing substrate	Glasbase Base Sheet, Flexiglas Base Sheet, Flintlastic Base 20 or All Weather Empire Base attached with Twin Loc-Nails spaced 7-inch o.c. in the 4-inch lap and 7-inch o.c. in two, equally spaced, staggered center rows	One or more layers min. 1.5-inch FlintBoard ISO, ACFoam-II, ENRGY 3 or Multi-Max FA-3. Maximum thickness not to exceed 4 inches.	Hot asphalt	None	N/A	Black Diamond Base Sheet, self-adhered	(Optional) One or two plies in hot asphalt	Hot asphalt	52.5
D-6	Same as System No. D-5, using Heat welded cap sheet								Heat welded	60
D-7	Existing substrate	Glasbase Base Sheet, Flexiglas Base Sheet, Flintlastic Base 20 or All Weather Empire Base attached with Twin Loc-Nails spaced 9-inch o.c. in the 4-inch lap and 9-inch o.c. in two, equally spaced, staggered center rows	(Optional) One or more layers min. 1.5-inch FlintBoard ISO, ACFoam-II, ENRGY 3 or Multi-Max FA-3. Maximum thickness not to exceed 4 inches.	Hot asphalt	Min. $^{3}/_{4}$-inch FescoBoard or min. $^{1}/_{2}$-inch High Density Fiberboard Roof Insulation	Hot asphalt	One to three plies applied in hot asphalt		Hot asphalt or heat welded	60
D-8	Existing substrate	Glasbase Base Sheet, Flexiglas Base Sheet, Flintlastic Base 20 or All Weather Empire Base attached with Twin Loc-Nails spaced 9-inch o.c. in the 4-inch lap and 9-inch o.c. in two, equally spaced, staggered center rows	One or more layers min. 1.5-inch FlintBoard ISO, ACFoam-II, ENRGY 3 or Multi-Max FA-3. Maximum thickness not to exceed 4 inches.	Hot asphalt	None	N/A	Black Diamond Base Sheet, self-adhered	(Optional) One or two plies in hot asphalt	Hot asphalt	52.5
D-9	Same as System No. D-8, using Heat welded cap sheet								Heat welded	60

TABLE 2D—WIND UPLIFT RESISTANCE: METHOD OF ATTACHMENT
MECHANICALLY ATTACHED ANCHOR SHEET FOLLOWED BY BONDED INSULATION (Continued)

SYSTEM NO.	SUBSTRATE	ANCHOR SHEET	INSULATION[6]		COVERBOARD[6]		ROOF COVER[1]			ALLOWABLE UPLIFT CAPACITY (psf)[4]
			Type	Attach	Type	Attachment Method	Base	Ply	Cap	
D-10	Tectum 1 Plank (install per ESR-1112) or Existing substrate	Flintlastic Base 20 T fastened with ES Products Insuldek Loc-Nails or Twin Loc-Nails	Min. 1/4-inch DensDeck or DensDeck Prime	Hot asphalt	None	N/A	(Optional) One ply of Flintastic Base 20 T, heat welded	(Optional) One ply of Flintastic Base 20 T, heat welded	One ply of Flintlastic Base 20 T, heat welded (Optional provided the base sheet or ply sheet is installed as the cap sheet)	45
D-11	Min. 19/32-inch Plywood at max 24-inch spans attach 6-inches o.c. using 8d ring shank nails	All Weather Empire, Flexiglas Base Sheet, Flintlastic Poly SMS Base Sheet or Flintlastic Ultra Poly SMS Base Sheet attached with nails & tin caps spaced 8-inches o.c. at the 3-inch lap and 8-inches o.c. in three, equally spaced center rows	Min. 1.5" ACFoam-II, ENRGY 3, HShield, Mult-Max FA-3 or FlintBoard ISO	Insta-Stick, OlyBond 500, OlyBond Green, Pliodeck, 3M Tite-Set Roofing Adhesive, 3M Polyurethane Foam Adhesive CR-20 or Millennium One Step Foamable Adhesive, 4" o.c.	Min. 1/4-inch DensDeck, DensDeck Prime	Insta-Stick, OlyBond 500, OlyBond Green, Pliodeck, 3M Tite-Set Roofing Adhesive, 3M Polyurethane Foam Insulation Adhesvie CR-20 or Millennium One Step Foamable Adhesive, 6" o.c.	One or two layers self-adhered (substrate primed with Flint-Prime SA)	None	Self-adhered	52.5
D-12	Min. 19/32-inch Plywood at max 24-inch spans attach 6-inches o.c. using 8d ring shank nails	All Weather Empire, Flexiglas Base Sheet, Flintlastic Poly SMS Base Sheet or Flintlastic Ultra Poly SMS Base Sheet attached with nails & tin caps spaced 8-inches o.c. at the 3-inch lap and 8-inches o.c. in three, equally spaced center rows	Min. 1.5" ACFoam-II, ENRGY 3, HShield, Mult-Max FA-3 or FlintBoard ISO	Insta-Stick, OlyBond 500, OlyBond Green, Pliodeck, 3M Tite-Set Roofing Adhesive, 3M Polyurethane Foam Insulation Adhesive CR-20 or Millennium One Step Foamable Adhesive, 4-inches o.c.	Min. 1/4-inch SECUROCK Gypsum-Fiber Roof Board	Insta-Stick, OlyBond 500, OlyBond Green, Pliodeck, 3M Tite-Set Roofing Adhesive, 3M Polyurethane Foam Adhesive CR-20 or Millennium One Step Foamable Adhesive, 6" o.c.	One or two layers self-adhered (substrate primed with Flint-Prime SA)	None	Self-adhered	60.0
D-13	Min. 19/32-inch Plywood at max 24-inch spans attach 6-inches o.c. using 8d ring shank nails	All Weather Empire, Flexiglas Base Sheet, Flintlastic Poly SMS Base Sheet or Flintlastic Ultra Poly SMS Base Sheet attached with nails & tin caps spaced 8-inches o.c. at the 3-inch lap and 8-inches o.c. in three, equally spaced center rows	Min. 1.5" ACFoam-II, ENRGY 3, HShield, Mult-Max FA-3 or FlintBoard ISO	Insta-Stick, OlyBond 500, OlyBond Green, Pliodeck, 3M Tite-Set Roofing Adhesive, 3M Polyurethane Foam Adhesive CR-20 or Millennium One Step Foamable Adhesive, 4-inches o.c.	None	N/A	One or two layers Self-Adhered (Substrate Primed with Flint-Prime SA)	None	Self-adhered	60.0

TABLE 2E—WIND UPLIFT RESISTANCE: METHOD OF ATTACHMENT MECHANICALLY ATTACHED BASE SHEET, NONINSULATED

SYSTEM NO.	SUBSTRATE	ROOF COVER[1]			ALLOWABLE UPLIFT CAPACITY (psf)[4]
		Base	Ply	Cap	
E-1	Min. $^{19}/_{32}$-inch plywood	Yosemite Venting Base Sheet, Glasbase Base Sheet or Flintglas Premium Ply Sheet Type VI attached with 11 ga. annular ring shank nails & min. $1^{5}/_{8}$-inch dia. tin caps spaced 8-inch o.c. in the 4-inch lap and 8-inch o.c. in three, equally spaced, staggered center rows	(Optional) One or two plies in hot asphalt	Hot asphalt or heat welded	60.0
E-2	Min. $^{7}/_{16}$-inch OSB, min. $^{15}/_{32}$-inch plywood or min. 1-inch dimensional lumber	Yosemite Venting Base Sheet, Glasbase Base Sheet or All Weather Empire Base attached with Tru-Fast Cap Nails spaced 6-inch o.c. in the 3-inch lap and 6-inch o.c. in three, equally spaced, staggered center rows	(Optional) One or two plies in hot asphalt	Hot asphalt or heat welded	45.0
E-3	Min. $^{15}/_{32}$-inch OSB, min. $^{19}/_{32}$-inch plywood or min. 1-inch dimensional lumber	Yosemite Venting Base Sheet, Glasbase Base Sheet or All Weather Empire Base attached with Tru-Fast Cap Nails spaced 6-inch o.c. in the 3-inch lap and 6-inch o.c. in two, equally spaced, staggered center rows	(Optional) One or two plies in hot asphalt	Hot asphalt or heat welded	45.0
E-4	Min. $^{15}/_{32}$-inch OSB, min. $^{19}/_{32}$-inch plywood or min. 1-inch dimensional lumber	Yosemite Venting Base Sheet, Glasbase Base Sheet or All Weather Empire Base attached with Tru-Fast Cap Nails spaced 6-inch o.c. in the 3-inch lap and 6-inch o.c. in three, equally spaced, staggered center rows	(Optional) One or two plies in hot asphalt	Hot asphalt or heat welded	52.5
E-5	Min. $^{19}/_{32}$-inch OSB, min. $^{19}/_{32}$-inch plywood or min. 1-inch dimensional lumber	Yosemite Venting Base Sheet, Glasbase Base Sheet or All Weather Empire Base attached with Tru-Fast Cap Nails spaced 9-inch o.c. in the 3-inch lap and 9-inch o.c. in two, equally spaced, staggered center rows	(Optional) One or two plies in hot asphalt	Hot asphalt or heat welded	30.0
E-6	Min. $^{19}/_{32}$-inch OSB, min. $^{19}/_{32}$-inch plywood or min. 1-inch dimensional lumber	Yosemite Venting Base Sheet, Glasbase Base Sheet or All Weather Empire Base attached with Tru-Fast Cap Nails spaced 6-inch o.c. in the 3-inch lap and 6-inch o.c. in three, equally spaced, staggered center rows	(Optional) One or two plies in hot asphalt	Hot asphalt or heat welded	75.0
E-7	Min. 1-inch dimensional lumber	Yosemite Venting Base Sheet, Glasbase Base Sheet or All Weather Empire Base attached with Tru-Fast Cap Nails spaced 6-inch o.c. in the 3-inch lap and 9-inch o.c. in two, equally spaced, staggered center rows	(Optional) One or two plies in hot asphalt	Hot asphalt or heat welded	52.5
E-8	Min. $^{19}/_{32}$-inch plywood	Flintlastic SA NailBase attached with 11 ga. annular ring shank nails and $1^{5}/_{8}$" tin caps spaced 8-inch o.c. in the 3-inch lap and 8-inch o.c. in three, equally spaced, staggered center rows	(Optional) Flintlastic SA Mid Ply, self-adhered	Flintlastic SA Cap, Flintlastic SA Cap CoolStar or Flintlastic SA Cap-FR, Flintlastic SA Cap-FR CoolStar self-adhered	60.0
E-9	Tectum 1 Plank (install per ESR-1112) or existing substrate	Yosemite Venting Base Sheet, Glasbase Base Sheet, Flexiglas Base Sheet, Flintlastic Base 20 or All Weather Empire Base attached with Twin Loc-Nails spaced 7-inch o.c. in the 4-inch lap and 7-inch o.c. in two, equally spaced, staggered center rows	(Optional) One or two plies in hot asphalt	Hot asphalt or heat welded	67.5
E-10	Tectum 1 Plank (install per ESR-1112) or existing substrate	Flintlastic SA NailBase attached with Twin Loc-Nails spaced 7-inch o.c. in the 4-inch lap and 7-inch o.c. in two, equally spaced, staggered center rows	(Optional) Flintlastic SA Mid Ply, self-adhered	Self-Adhered	60.0
E-11	Existing substrate	Yosemite Venting Base Sheet, Glasbase Base Sheet, Flexiglas Base Sheet, Flintlastic Base 20 or All Weather Empire Base attached with Twin Loc-Nails spaced 9-inch o.c. in the 4-inch lap and 9-inch o.c. in two, equally spaced, staggered center rows	(Optional) One or two plies in hot asphalt or Flintlastic SA Mid Ply, self-adhered	Hot asphalt, heat welded or self-adhered	60.0
E-12	Min. $^{19}/_{32}$-inch plywood	Yosemite Venting Base Sheet, Glasbase Base Sheet attached with OMG 3" Galvalume Steel Plates with OMG #12 Standard screws spaced 7-inch o.c. at the 4-inch wide laps and 7-inch o.c. in two equally spaced staggered center rows.	Flintlastic Ultra Glass SA, self-adhered	Flintlastic FR Cap 30 T or Flintlastic FR Cap 30 T CoolStar, heat welded	67.5
E-13	Min. $^{19}/_{32}$-inch plywood	Yosemite Venting Base Sheet, Glasbase Base Sheet attached with OMG 3" Round Metal Plates with OMG #12 Fasteners spaced 7-inch o.c. at the 4-inch wide laps and 7-inch o.c. in three equally spaced staggered center rows	Black Diamond Base Sheet, self-adhered	Flintlastic FR Cap 30 T or Flintlastic FR Cap 30 T CoolStar, heat welded	105.0
E-14	Min. $^{19}/_{32}$-inch plywood	Yosemite Venting Base Sheet, Glasbase Base Sheet attached with FBC HVHZ Nails and Tin Caps spaced 6-inch o.c. at the 3-inch wide laps and 6-inch o.c. in four equally spaced staggered center rows	Black Diamond Base Sheet, self-adhered	Flintlastic FR Cap 30 T or Flintlastic FR Cap 30 T CoolStar, heat welded	82.5

TABLE 2E—WIND UPLIFT RESISTANCE: METHOD OF ATTACHMENT MECHANICALLY ATTACHED BASE SHEET, NONINSULATED (Continued)

SYSTEM NO.	SUBSTRATE	ROOF COVER[1]			ALLOWABLE UPLIFT CAPACITY (psf)[4]
		Base	Ply	Cap	
E-15	Min. 22 ga. Steel form covered with light weight concrete	Flintlastic SA NailBase attached with ES Products FM-90 spaced 3-inch lap and 7.5-inch o.c. at two field rows equally spaced between the rows	Flintlastic SA PlyBase, self-adhered	Flintlastic SA Cap, Flintlastic SA Cap CoolStar or Flintlastic SA Cap-FR or Flintlastic SA Cap-FR CoolStar, self-adhered	45.0
E-16	Min. 2,500 psi concrete covered with light weigth concrete	Glasbase Base Sheet attached with ES Products FM-90 spaced 7-inch o.c. at 4-inch lap and 7-inch o.c. in two equally spaced staggered center rows	None	Flintlastic FR Cap 30, Flintlastic FR Cap 30 CoolStar, Flintlastic FR-P or Flintlastic FR-P CoolStar adhered with Millennium Hurricane Force Membrane Adhesive	60.0
E-17	Min. 22 ga. Steel form covered with light weight concrete	Flintlastic Base 20 attached with ES Products FM-90 spaced 7-inch o.c. at 4-inch lap and 7-inch o.c. at two equally spaced staggered center rows	None	Flintlastic FR Cap 30, Flintlastic FR Cap 30 CoolStar, Flintlastic FR-P or Flintlastic FR-P CoolStar adhered with Millennium Hurricane Force Membrane Adhesive	45.0
E-18	Min. 22 ga. Steel form covered with light weight concrete	Glasbase Base Sheet attached with ES Products FM-90 spaced 7-inch o.c. at 4-inch lap and 7-inch o.c. at two equally spaced staggered center rows	None	Flintlastic FR Cap 30, Flintlastic FR Cap 30 CoolStar, Flintlastic FR-P or Flintlastic FR-P CoolStar adhered with Millennium Hurricane Force Membrane Adhesive	52.5

TABLE 2F—WIND UPLIFT RESISTANCE: METHOD OF ATTACHMENT ALL LAYERS BONDED, INSULATED OR NONINSULATED

SYSTEM NO.	SUBSTRATE	VAPOR BARRIER	INSULATION[6]		COVERBOARD[6]		ROOF COVER[1]			ALLOWABLE UPLIFT CAPACITY (psf)[4]
			Type	Attach[5]	Type	Attach[5]	Base	Ply	Cap	
F-1	Min. 2,500 psi concrete primed with ASTM D41 primer	(Optional) Two plies D2178, type IV or VI in hot asphalt	(Optional) One or more layers FlintBoard ISO or ACFoam-II not to exceed 4 inches in thickness.	Hot asphalt	Min. 1/2-inch DuraBoard or min. ¾-inch FescoBoard	Hot asphalt	One to three plies applied in hot asphalt		Hot asphalt or heat welded	412
F-2	Min. 2,500 psi concrete primed with ASTM D41 primer or unprimed	None	One or more layers FlintBoard ISO, ACFoam-II, ENRGY 3 or Multi-Max FA-3 not to exceed 4 inches in thickness.	Hot asphalt or TITESET	Min. 1/4-inch DensDeck primed with FlintPrime SA at 0.3 gal/sq.	Hot asphalt or TITESET	Flintlastic SA Mid Ply, self-adhered	(Optional) Flintlastic SA Mid Ply, self-adhered	Self-Adhered	192.5
F-3	Min. 2,500 psi concrete primed with ASTM D41 primer or unprimed	None	One or more layers FlintBoard ISO or ACFoam-II not to exceed 4 inches in thickness	Insta-Stik or Spray-N-Grip	Min. 1/4-inch DensDeck primed with FlintPrime SA at 0.3 gal/sq.	Insta-Stik	Flintlastic SA Mid Ply, self-adhered	(Optional) Flintlastic SA Mid Ply, self-adhered	Self-Adhered	120
F-4	Min. 2,500 psi concrete primed with ASTM D41 primer or unprimed	None	One or more layers ENRGY 3 not to exceed 4 inches in thickness	Insta-Stik or Spray-N-Grip	Min. 1/4-inch DensDeck primed with FlintPrime SA at 0.3 gal/sq.	Insta-Stik	Flintlastic SA Mid Ply, self-adhered	(Optional) Flintlastic SA Mid Ply, self-adhered	Self-Adhered	112.5
F-5	Min. 2,500 psi concrete primed with ASTM D41 primer or unprimed	None	One or more layers Multi-Max FA-3 not to exceed 4 inches in thickness	Insta-Stik or Spray-N-Grip	Min. 1/4-inch DensDeck primed with FlintPrime SA at 0.3 gal/sq.	Insta-Stik	Flintlastic SA Mid Ply, self-adhered	(Optional) Flintlastic SA Mid Ply, self-adhered	Self-Adhered	67.5

TABLE 2F—WIND UPLIFT RESISTANCE: METHOD OF ATTACHMENT ALL LAYERS BONDED, INSULATED OR NONINSULATED

SYSTEM NO.	SUBSTRATE	VAPOR BARRIER	INSULATION[6]		COVERBOARD[6]		ROOF COVER[1]			ALLOWABLE UPLIFT CAPACITY (psf)[4]
			Type	Attach[5]	Type	Attach[5]	Base	Ply	Cap	
F-6	Min. 2,500 psi concrete	None	One or more layers FlintBoard ISO, ACFoam-II, ENRGY 3 or Multi-Max FA-3 not to exceed 4 inches in thickness	Millennium Pourable Foam Adhesive	Min. 1/4-inch DensDeck primed with FlintPrime SA at 0.3 gal/sq.	Millennium Pourable Foam Adhesive	Flintlastic SA Mid Ply, self-adhered	(Optional) Flintlastic SA Mid Ply, self-adhered	Self-Adhered	135
F-7	Min. 2,500 psi concrete	None	One or more layers FlintBoard ISO, ACFoam-II, ENRGY 3 or Multi-Max FA-3 not to exceed 4 inches in thickness	Millennium One-Step Foamable Adhesive	Min. 1/4-inch DensDeck primed with FlintPrime SA at 0.3 gal/sq.	Millennium One-Step Foamable Adhesive	Flintlastic SA Mid Ply, self-adhered	(Optional) Flintlastic SA Mid Ply, self-adhered	Self-Adhered	192.5
F-8	Min. 2,500 psi concrete	None	(Optional) One or more layers FlintBoard ISO or ACFoam-II not to exceed 4 inches in thickness	OlyBond 500	Min. 1/4-inch DensDeck primed with FlintPrime SA at 0.3 gal/sq.	OlyBond 500	Flintlastic SA Mid Ply, self-adhered	(Optional) Flintlastic SA Mid Ply, self-adhered	Self-Adhered	150
F-9	Min. 2,500 psi concrete primed with ASTM D41 primer	None	(Optional) One or more layers FlintBoard ISO or ACFoam-II not to exceed 4 inches in thickness	OlyBond 500	Min. 1/4-inch DensDeck primed with FlintPrime SA at 0.3 gal/sq.	OlyBond 500	Flintlastic SA Mid Ply, self-adhered	(Optional) Flintlastic SA Mid Ply, self-adhered	Self-Adhered	120
F-10	Min. 2,500 psi concrete primed with ASTM D41 primer or FlintPrime SA	None	None	N/A	None	N/A	Flintlastic SA Mid Ply, self-adhered	(Optional) Flintlastic SA Mid Ply, self-adhered	Self-Adhered	550

TABLE 2F—WIND UPLIFT RESISTANCE: METHOD OF ATTACHMENT ALL LAYERS BONDED, INSULATED OR NONINSULATED (Continued)

SYSTEM NO.	SUBSTRATE	VAPOR BARRIER	INSULATION[6]		COVERBOARD[6]		ROOF COVER[1]			ALLOWABLE UPLIFT CAPACITY (psf)[4]
			Type	Attach[5]	Type	Attach[5]	Base	Ply	Cap	
F-11	Min. 2,500 psi concrete primed with ASTM D41 primer or unprimed	None	None	N/A	None	N/A	Flintlastic Base 20 T, heat-welded	None	Flintlastic FR Cap 30 T or Flintlastic FR Cap 30 T CoolStar, heat-welded	450.0
F-12	Min. 2,500 psi concrete primed with ASTM D41 primer or unprimed	None	Min. 1.5-inch Flintboard ISO	Hot mopped with hot asphalt	Min. $^{1}/_{4}$-inch DensDeck or DensDeck Prime	Hot mopped with hot asphalt	Flintlastic Base 20 T, heat-welded	None	Flintlastic FR Cap 30 T or Flintlastic FR Cap 30 T CoolStar, heat-welded	480.0
F-13	Min. $^{19}/_{32}$" plywood at max 24-inch spans attach 6-inches o.c. using #8 wood screws primed with FlintPrime SA	None	None	N/A	None	N/A	Flintlastic SA Mid Ply or Flintlastic PlyBase, self-adhered	None	Self-adhered	127.5
F-14	Min. 2,500 psi concrete	None	1.5-inch min. FlintBoard ISO	Insta-Stik, 12-inch o.c.	Min. ¼-inch DensDeck Prime	Insta-Stik, 12-inch o.c.	Glasbase Base Sheet, All Weather/Empire Base Sheet, Flexiglas Base Sheet or Flintlastic Base 20, hot asphalt	(Optional) Flintglas Ply Sheet Type IV, Mopped with hot asphalt	Hot Asphalt	297.5
F-15	Min. 2,500 psi concrete	None	1.5-inch min. FlintBoard ISO	Pliodeck, 12-inch o.c.	Min. ¼-inch SECUROCK Gypsum-Fiber Roof Board	Pliodek, 12-inch o.c.	Black Diamond Base Sheet or Flintlastic Ultra Glass SA, self-adhered	None	Flintlastic FR Cap 30 T or Flintlastic FR Cap 30 T CoolStar, torched-applied	117.5
F-16				Pliodeck, 6-inch o.c.		Pliodek, 6-inch o.c.				217.5
F-17	Primed min. 2,500 psi concrete	None	0.5-inch Structodek High Density Fiberboard or Fesco Board	Hot asphalt	None	N/A	Glasbase Base Sheet, All Weather/Empire Base Sheet, Flexiglas Base Sheet or Flintlastic Base 20, hot asphalt	(Optional) Flintglas Ply sheet Type IV, Mopped with hot asphalt	Hot Asphalt	437.5
F-18	Primed min. 2,500 psi concrete		0.25-inch DensDeck, DensDeck Prime, DensDeck DuraGuard or SECUROCK Gypsum-Fiber Roof Board							537.5
F-19	Primed min. 2,500 psi concrete	None	0.5-inch Structodek High Density Fiberboard	Insta-Stik, 12-inch o.c.	None	N/A	Glasbase Base Sheet, All Weather/Empire Base Sheet, Flexiglas Base Sheet or Flintlastic Base 20, hot asphalt	(Optional) Flintglas Ply Sheet Type IV, Mopped with hot asphalt	Hot Asphalt	195.0
F-20	Primed min. 2,500 psi concrete	None	1.5-inch FlintBoard ISO	Insta-Stik, 12 inch o.c.	0.25-inch DensDeck Prime	Insta-Stik, 12-inch o.c.	Flintlastic Base 20 T, torched-applied	None	Flintlastic FR Cap 30 T or Flintlastic FR Cap 30 T CoolStar, torched-applied	302.5

TABLE 2F—WIND UPLIFT RESISTANCE: METHOD OF ATTACHMENT ALL LAYERS BONDED, INSULATED OR NONINSULATED (Continued)

F-21	Min. 22 ga. Steel covered with light weight concrete	None	1.5-inch H-Shield CG	OMG OlyBond 500	None	N/A	Glasbase Base Sheet adhered with Millennium Hurricane Force Membrane Adhesive	None	Flintlastic FR Cap 30, Flintlastic FR Cap 30 CoolStar, Flintlastic FR-P or Flintlastic FR-P CoolStar adhered with Millennium Hurricane Force Membrane Adhesive	60.0
F-22	Min. 22 ga. Steel fastened with Flintfast #14 fasteners and 3" Round Plates at 1:8 ft^2 covered with light weight concrete									67.5
F-23	Unprimed min. 2,500 psi concrete	None	1.5-inch Multi-Max FA-3	Insta-Stik Roofing Adhesive	1.5-inch Firestone ISO 95+ GL	Insta-Stik Roofing Adhesive	Flintlastic Ultra Glass SA, self-adhered	None	Flintlastic FR Cap 30 or Flintlastic FR Cap 30 CoolStar, Mopped with hot asphalt	135.0

For **SI:** 1 inch = 25.4mm, 1 psf = 47.88 Pa, 1 gal/sq. = 0.41 l/m^2, 1 psi = 6.89 kPa.

Footnotes for Table 2A thru Table 2F, as applicable:

[1]Unless otherwise noted, base sheets, ply sheets and cap sheets are as follows:

- ***Base:*** **Hot Asphalt Applied:** Glasbase Base Sheet, Flintlastic Poly SMS Base Sheet, Flintlastic Ultra Poly SMS Base Sheet, Flintglas Ply Sheet Type IV. **Heat Welded:** Flintlastic Base 20 T. **Self-Adhered:** Black Diamond Base Sheet, Flintlastic Ultra Glass SA, Flintlastic SA Mid Ply, Flintlastic SA PlyBase. **Mechanically Fastened:** Flintlastic SA NailBase, Flexiglas Base Sheet, Flintlastic Base 20, All Weather/Empire Base Sheet, Flintglas Premium Ply Sheet Type VI Yosemite Venting Base Sheet or Channel Vent
- ***Ply:*** **Hot Asphalt Applied:** Glasbase Base Sheet, Flintlastic Poly SMS Base Sheet, Flintlastic Ultra Poly SMS Base Sheet, Flintglas Ply Sheet Type IV. **Heat Welded:** Flintlastic Base 20 T. **Self-Adhered:** Black Diamond Base Sheet, Flintlastic Ultra Glass SA, Flintlastic SA Mid Ply, Flintlastic SA PlyBase.
- ***Cap:*** **Hot Asphalt Applied:** Flintlastic GMS, Flintlastic GMS CoolStar, Flintlastic Premium GMS, Flintlastic FR-P, Flintlastic Premium FR-P, Flintlastic FR Cap 30. **Heat Welded:** Flintlastic STA, Flintlastic STA Plus, Flintlastic GTA, Flintlastic GTA CoolStar, Flintlastic GTA FR, Flintlastic GTA FR CoolStar, Flintlastic GTS, Flintlastic FR Cap 30 T, Flintlastic FR Cap 30 T CoolStar, Flintlastic GTA, Flintlastic GTA CoolStar, **Self-Adhered:** Flintlastic FR-P, Flintlastic FR-P CoolStar, Flintlastic SA Cap-FR, Flintlastic SA Cap-FR CoolStar.

[2] Unless otherwise noted, fasteners and plates must be as noted in Table 3.

[3]Preliminary securement consists of four fasteners per board for boards having any dimension greater than 4 ft and two fasteners per board for boards having a maximum dimension of 4 ft.

[4]For mechanically fastened insulation, coverboards or base sheets the uplift capacity shall meet or exceed Zone 1 roof cladding design pressure requirements, and the fastener density shall be increased at edge strips and end zones, as defined in Section 6 of ASCE 7 and IBC Section 1609.6.3. For bonded assemblies, the uplift capacity shall meet or exceed the critical roof cladding design pressure requirements (Zone 2 or 3).

[5]Bonded polyisocyanurate insulation boards must have a maximum 4 x 4 ft dimension. Insulation Adhesive Application Rates are as follows. Consult adhesive manufacturers published installation instructions for further details.

- Hot asphalt at 25-30 lbs/square.
- Dow Chemical, Insta-Stik applied in $^3/_4$ to 1 inch diameter beads spaced max. 12" o.c.
-
- Adco Millennium Pourable Foam Adhesive applied in $^3/_4$ inch wide strips spaced max. 12" o.c.
- Adco Millennium One Step Foamable Adhesive applied in $^3/_4$ inch diameter beads spaced max. 12" o.c.
- Adco Millennium Hurricane Force Adhesive applied in ½ to $^3/_4$ inch wide beads spaced max. 12" o.c. (for use with membranes)
- CertainTeed FlintBond Brush Grade adhesive applied in full coverage to approximately 1½ gallons per square. (for use with membranes)
- OMG OlyBond 500 applied in $^3/_4$ inch diameter beads spaced max. 12" o.c.
- 3M Tite-Set Roofing Adhesive and 3M Polyurethane Foam Insulation Adhesive CR-20 spray applied in continuous 3 inch wide ribbons spaced max. 12" o.c.
- Ashland Pliodeck applied at a rate of 300 to 400 ft² per gallon in $^3/_8$ to ½ inch diameter beads spaced max. 12" o.c.
- Henry Company #903 Adhesive applied at a rate 1.5 gallons per 100 ft² (for use with membranes)

[6]Polyisocyanurate insulation must comply with ASTM C1289, Type I or Type II. Perlite insulation must comply with ASTM C728. Wood Fiberboard insulation must comply with ASTM C208.

TABLE 3—INSULATION AND BASE SHEET FASTENERS AND PLATES

DECK TYPE	ATTACHING	FASTENER	PLATE
Wood or Steel	Insulation or Base Sheet	SFS Intec Dekfast 12, 14 or #15	Dekfast Galvalume Steel 3" Round or Dekfast Galvalume Steel Hex
		OMG Standard orHeavy Duty	OMG 3" Galvalume Steel Plate or OMG 3 in. Ribbed Galvalume Plate
		OMG #12 or #14 Roofgrip	OMG AccuTrac Plate, AccuTrac Flat Bottom or Flat Bottom Metal Plate
		Altenloh Trufast SIP TP Fastener, Trufast #12 DP Fastener, Trufast #14 HD Fastener	Altenloh Trufast 3" Metal Insulation Plate,
		Altenloh Trufast #12 DPH Fastener	Altenloh Trufast 3" Recessed Metal Insulation Plate,
		CertainTeed FlintFast #12 or #14	CertainTeed FlintFast 3" Insulation Plate or FlintFast 3" Round Plates
Concrete	Insulation or Base Sheet	SFS Intec Dekfast 14 or DekSpike	Dekfast Galvalume Steel 3" Round or Dekfast Galvalume Steel Hex
		OMG Heavy Duty or CD-10	OMG 3" Galvalume Steel Plate or OMG 3 in. Ribbed Galvalume Plate
		OMG #14 Roofgrip	OMG AccuTrac Plate, AccuTrac Flat Bottom or Flat Bottom Metal Plate
		Altenloh Trufast #14 HD Fastener	Altenloh Trufast 3" Metal Insulation Plate
		Altenloh Trufast #12 DPH Fastener	Altenloh Trufast 3" Metal Insulation Plate
		CertainTeed FlintFast #14	CertainTeed FlintFast 3" Insulation Plate
Concrete or steel	Base Sheet	Altenloh Tru-Fast #15 EHD	Altenloh Tru-Fast 2.4" Barbed Metal Seam Plates
Concrete or steel	Base Sheet	ES Products FM-90	Integral Steel Disk 2.7 inch diameter
Tectum I Plank (install per ESR-1112) or existing substrate	Base Sheet	ES Products Insuldek Loc-Nails or Twin Loc-Nails	None
Steel	Insulation	Dekfast #12 DP	Dekfast Galvalume Steel Hex Plates
Steel	Cover Board	FlintFast #12	FlintFast 3 inch Insulation Plates