

UL Evaluation Report

UL ER1306-01

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DIVISION: 07 00 00 THERMAL AND MOISTURE PROTECTION

Sub-level 2: 07 50 00 – Membrane Roofing

Sub-level 3: 07 54 00 – Thermoplastic Membrane Roofing

Sub-level 4: 07 54 23 – Thermoplastic-Polyolefin Roofing

COMPANY:

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1. SUBJECT: EverGuard® TPO, EverGuard Extreme® TPO

EverGuard® TPO FB Ultra, EverGuard Extreme® TPO FB Ultra

EverGuard® Freedom™ TPO HW

2. SCOPE OF EVALUATION

- 2018, 2015, 2012, 2009 and 2006 *International Building Code®* (IBC)
- 2018, 2015, 2012, 2009 and 2006 *International Residential Code®* (IRC)
- ICC ES Acceptance Criteria for Roof-Covering Systems (AC75), Dated July 2010 (Editorially revised March 2018)
- ICC ES Acceptance Criteria for Quality Documentation (AC10), Dated January 2019



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)
- Physical Properties (ASTM D6878, ASTM G155)
- Impact Resistance (FM 4470)
- Foot Traffic Resistance (FM 4470)

3. REFERENCED DOCUMENTS

- ANSI/UL 790, Standard Test Methods for Fire Tests of Roof Coverings, Eighth Edition including revisions through October 19, 2018
- ASTM D6878-2013, Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing
- ASTM G155-2013, Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials
- ASTM E108-2016, Test Methods for Fire Tests of Roof Covering
- FM 4470-2016, 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 July 2010 (Editorially revised March 2018)
- ICC ES Acceptance Criteria for Quality Documentation (AC10), Dated January 2019

4. USES

The TPO membranes described in this report are used as roof coverings in mechanically fastened or fully adhered Class A roof assemblies installed on combustible or non-combustible roof decks.

5. PRODUCT DESCRIPTION

The TPO membrane roofing systems described in this report consist of single-ply roofing membranes, 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 in accordance with ANSI/UL790 or ASTM E108, as required by Section 1505.1 of 2018, 2015, 2012, 2009 and 2006 IBC and Section R902.1 of the 2018, 2015, 2012, 2009 and 2006 IRC.

Wind Uplift Resistance: Roofing assemblies covered under this report have been tested for wind uplift resistance in accordance with FM 4474, and therefore qualify for use under Roofing membranes Section 1504.3.1 of the 2018, 2015, 2012, 2009 and 2006 IBC.

The roofing assemblies shall be designed to resist the design wind load pressures for components and cladding in accordance with Section 1609 of the 2018, 2015, 2012, 2009 and 2006 IBC and Section R905.1 of the 2018, 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 D6878 and ASTM G155, and therefore qualify for use under Section 1507.13.2 and Section 1504.6 of the 2018, 2015, 2012, 2009 and 2006 IBC and Section R905.13.2 of the 2018, 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 4.6 of FM 4470 and therefore qualify for use under Section 1504.7 of the 2018, 2015, 2012, 2009 and 2006 IBC.

5.1 Membranes:

- 5.1.1 **EverGuard® TPO:** A nominally 45-, 60- or 80-mil-thick [0.045 inch (1.1 mm), 0.060 inch (1.5 mm) or 0.080 inch (2.0 mm)], thermoplastic polyolefin roof covering with woven polyester reinforcement. The membranes are supplied in rolls 48 inches (1219 mm), 60 inches (1524 mm), 96 inches (2438 mm), 120 inches (3048 mm) or 144 inches (3658 mm) wide by 100 feet (30.5 m) long.
- 5.1.2 **EverGuard® TPO FB Ultra:** A nominally 45-, 60- or 80-mil-thick [0.045 inch (1.1 mm), 0.060 inch (1.5 mm) or 0.080 inch (2.0 mm)], thermoplastic polyolefin roof covering with woven polyester reinforcement and a 3.5 oz/yd² (120 g/m²) polyester fleece fabric backing. The membrane is supplied in rolls 60 inches (1524 mm) or 120 inches (3048 mm) wide. The 45-mil and 60-mil membranes are supplied in 100 foot (30.5 m) long rolls and the 80-mil membranes is supplied in 50 foot (15.2 m) long rolls.
- 5.1.3 **EverGuard Extreme® TPO:** A nominally 50-, 60-, 70- or 80-mil-thick [0.050 inch (1.3 mm), 0.060 inch (1.5 mm), 0.070 inch (1.8 mm), 0.080 inch (2.0 mm)], thermoplastic polyolefin roof covering with woven polyester reinforcement. The membranes are supplied in rolls 60 inches (1524 mm), 96 inches (2438 mm), 120 inches (3048 mm) or 144 inches (3658 mm) wide by 100 feet (30.5 m) long.
- 5.1.4 **EverGuard Extreme® TPO FB Ultra:** A nominally 50-, 60-, 70- or 80-mil-thick [0.050 inch (1.3 mm), 0.060 inch (1.5 mm), 0.070 inch (1.8 mm), 0.080 inch (2.0 mm)], thermoplastic polyolefin roof covering with woven polyester reinforcement and a white polyester fleece fabric backing. The membrane has a white surface and is supplied in rolls 60 inches (1523 mm) or 120 inches (3048 mm) wide. The 50-mil and 60-mil membranes are supplied in 100 foot (30.5 m) long rolls. The 70-mil and 80-mil membranes are supplied in 50 foot (15.20 m) long rolls.
- 5.1.5 **EverGuard® Freedom™ TPO HW:** A nominally 45- or 60-mil-thick [0.045 inch (1.1 mm) or 0.060 inch (1.5 mm)], internally reinforced thermoplastic polyolefin roof covering with a self-adhering backing and a heat weldable seam. The membrane is supplied in rolls 60 inches (1524 mm) or 120 inches (3048 mm) wide by 50 feet (15.2 m) or 100 feet (30.5 m) long.

5.2 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 2018, 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.

5.3 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 Table 1 through 20 of this Report.

5.4 Adhesive:

The adhesive used to adhere GAF TPO membranes to the insulation or roofing substrate shall be as noted in Table 9, 10, 11, 13, 14, 15, 16, 17, 18, 20 and Appendix A Table 1 and Table 2 of this Report.

6. INSTALLATION

GAF TPO single ply 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 2018, 2015, 2012, 2009 and 2006 IBC or Section R905.13 of the 2018, 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 the Tables in the Appendix 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 2018, 2015, 2012, 2009 and 2006 IBC or Section R903.2 of 2018, 2015, 2012, 2009 and 2006 IRC and applicable code.

7. Fire Classification

7.1 New Construction: Roof assemblies utilizing GAF EverGuard® TPO thermoplastic single ply roof coverings are described in UL Certification Category for Roofing Systems, ([TGFU](#)), File R1306 and in Tables of this Report.

7.2 Reroofing: The existing roof shall be inspected in accordance with the provisions and limitations of Section 1511 of the 2018 IBC, Section 1510 of the 2015, 2012, 2009 and 2006 or Section R908 of the 2018 IRC, 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.

GAF EverGuard® TPO membranes may be installed over existing Classified Class A roof assemblies as described in the Tables of 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 conditions:

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

8. Wind Resistance

- 8.1 New Construction:** The allowable wind uplift pressures for the roof assemblies are noted in the Tables in Appendix of this Report. Metal edge securement for all systems shall be designed in accordance with ANSI/SPRI ES-1, complying with Section 1504.5 of 2018, 2015, 2012, 2009 and 2006 IBC. For certifications of metal edge securement systems in accordance with ANSI/SPRI ES-1, See UL Product iQ™ database 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 GAF single ply roofing membranes 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** GAF thermoplastic single ply roofing membranes shall be installed by professional roofing contractors trained and approved by the manufacturer.
- 9.3** See UL Product iQ™ database Roofing Systems ([TGFU](#)) File R1306. 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 2018, 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 of this Report.
- 9.6** 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.
- 9.7** 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.

- 9.8** The metal edge securement shall be designed and installed for wind loads in accordance with Chapter 16 of 2018, 2015, 2012, 2009 and 2006 IBC and tested for resistance in accordance with Test Methods RE-1, RE-2 and RE-3 of ANSI/SPRI ES-1, except basic wind speed, V, shall be determined from Figures 1609.3(1) through 1609.3(8) of 2018 IBC and except ultimate wind speed, V_{ult} wind speed shall be determined from Figure 1609A, 1609B, or 1609C of 2015, 2012, 2009 and 2006 IBC as applicable.
- 9.9** The GAF thermoplastic single ply membranes 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, AC10.

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 for Roofing Systems (TGFU), File R1306.
- 10.4** Data in accordance with FM 4474.
- 10.5** Data in accordance with FM 4470.
- 10.6** Data in accordance with ASTM E108, ASTM D6878 and ASTM G155.
- 10.7** Documentation of quality system elements in accordance with ICC-ES Acceptance Criteria for Quality Documentation, AC10.

11. IDENTIFICATION

The GAF thermoplastic single ply membranes described in this evaluation report are identified by a marking bearing the report holder's name (GAF), the plant identification, the product designation, the UL Classification Mark, and the evaluation report number UL ER1306-01. 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 UL Products iQ™ database:

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**-Table 1- Wind Resistance and Fire Classification
EverGuard® TPO and EverGuard Extreme® TPO Mechanically Secured to Non-Combustible Roof Deck**

SYSTEM NO.	DECK	THERMAL BARRIER, INSULATION & COVER BOARD		ROOF COVER						FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
		Type	Attach.	Membrane	Fasteners and Plates	Min. Lap Width	Min. Weld Width	Max. Lap Spacing	Max. Fastener Spacing		
NC-1	Min. 22 ga. type B, Grade 33 steel or min. 2,500 psi concrete	See Notes	EverGuard® TPO -OR- EverGuard Extreme® TPO	Drill-Tec™ 2 in. Double Barbed XHD, 2-3/8 in. Barbed XHD or Eyehook AccuSeam Plates and Drill-Tec™ #14 Fasteners (structural concrete deck only) or Drill-Tec™ XHD Fasteners (steel deck only) or Drill-Tec™ Extra Heavy Duty ASAP Assembled Screw and 2-3/8 in. Steel Plate (steel deck only)	6 in.	1.5 in.	114 in.	12 in.	Class A at a max. 1:12 roof Incline	-30.0 psf	
NC-2					6 in.	1.5 in.	138 in.	6 in.		-45.0 psf	
NC-3					6 in.	1.5 in.	114 in.	6 in.		-52.5 psf	
NC-4				Drill-Tec™ 2-3/8 in. Barbed XHD Plates and Drill-Tec™ #14 Fasteners (structural concrete deck only), or Drill-Tec™ XHD Fasteners (steel deck only) or Drill-Tec™ Extra Heavy Duty ASAP Assembled Screw and 2-3/8 in. Steel Plate (steel deck only)	6 in.	1.5 in.	54 in.	18 in.		-30.0 psf	
NC-5					6 in.	1.5 in.	114 in.	12 in.		-37.5 psf	
NC-6					6 in.	1.5 in.	90 in.	6 in.		-60.0 psf	
NC-7					6 in.	1.5 in.	138 in.	12 in.		-30.0 psf	
NC-8	Min. 22 ga. type B, Grade 80 steel			6 in.	1.5 in.	138 in.	6 in.	-45.0 psf			
THERMAL BARRIER, INSULATION & COVER BOARD NOTE:											
Boards may consist of the following. The boards are preliminarily secured through the top layer and into the roof deck per manufacturer's installation instructions.											
Thermal Barrier (Optional):		Min. 0.5 in. thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board or ¾ in. thick EnergyGuard™ Perlite Roof Insulation.									
Insulation:		Min. 1.5 in. thick EnergyGuard™ Polyiso Insulation, EnergyGuard™ NH Polyiso Insulation, EnergyGuard™ RA Polyiso Insulation, EnergyGuard™ RN Polyiso Insulation, EnergyGuard™ Ultra Polyiso Insulation, or EnergyGuard™ NH Ultra Polyiso Insulation									
Cover Board (Optional):		Min. 0.25 in. thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, min. 0.5 in. EnergyGuard™ HD Polyiso Insulation, EnergyGuard™ NH HD Polyiso Insulation, EnergyGuard™ HD Plus Polyiso Insulation, EnergyGuard™ NH HD Plus Polyiso Insulation, Structodek® High Density Fiber Board Roof Insulation, EnergyGuard™ Perlite Recover Board or min. 0.75 in. thick EnergyGuard™ Perlite Roof Insulation.									

**-Table 1 Continued- Wind Resistance and Fire Classification
EverGuard® TPO and EverGuard Extreme® TPO Mechanically Secured to Non-Combustible Roof Deck**

SYSTEM NO.	DECK	THERMAL BARRIER, INSULATION & COVER BOARD		ROOF COVER						FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
		Type	Attach.	Membrane	Fasteners and Plates	Min. Lap Width	Min. Weld Width	Max. Lap Spacing	Max. Fastener Spacing		
NC-9	Min. 22 ga. type B, Grade 33 steel or min. 2,500 psi concrete	See Notes	EverGuard® TPO -OR- EverGuard Extreme® TPO	Drill-Tec™ 2-3/4 in. Barbed SXHD Plates and Drill-Tec™ #14 Fasteners (structural concrete deck only) or Drill-Tec™ XHD Fasteners (steel deck only)	6 in.	1.5 in.	114 in.	12 in.	Class A at a max. 1:12 roof incline	-45.0 psf	
NC-10					6 in.	1.5 in.	138 in.	12 in.		-30.0 psf	
NC-11					6 in.	1.5 in.	138 in.	6 in.		-52.5 psf	
NC-12					6 in.	1.5 in.	114 in.	6 in.		-67.5 psf	
NC-13					6 in.	1.5 in.	66 in.	12 in.		-52.5 psf	
NC-14					6 in.	1.5 in.	54 in.	12 in.		-60.0 psf	
NC-15					6 in.	1.5 in.	66 in.	12 in.		-52.5 psf	
NC-16					Drill-Tec™ 2 in. Double Barbed XHD Plates and Drill-Tec™ XHD Fasteners	6 in.	1.5 in.	54 in.		12 in.	-52.5 psf
NC-17				6 in.		1.5 in.	66 in.	12 in.		-45.0 psf	
THERMAL BARRIER, INSULATION & COVER BOARD NOTE:											
Boards may consist of the following. The boards are preliminarily secured through the top layer and into the roof deck per manufacturer's installation instructions.											
Thermal Barrier (Optional):		Min. 0.5 in. thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board or ¾ in. thick EnergyGuard™ Perlite Roof Insulation.									
Insulation:		Min. 1.5 in. thick EnergyGuard™ Polyiso Insulation, EnergyGuard™ NH Polyiso Insulation, EnergyGuard™ RA Polyiso Insulation, EnergyGuard™ RN Polyiso Insulation, EnergyGuard™ Ultra Polyiso Insulation, or EnergyGuard™ NH Ultra Polyiso Insulation									
Cover Board (Optional):		Min. 0.25 in. thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, min. 0.5 in. EnergyGuard™ HD Polyiso Insulation, EnergyGuard™ NH HD Polyiso Insulation, EnergyGuard™ HD Plus Polyiso Insulation, EnergyGuard™ NH HD Plus Polyiso Insulation, Structodek® High Density Fiber Board Roof Insulation, EnergyGuard™ Perlite Recover Board or min. 0.75 in. thick EnergyGuard™ Perlite Roof Insulation.									

**-Table 1 Continued- Wind Resistance and Fire Classification
EverGuard® TPO and EverGuard Extreme® TPO Mechanically Secured to Non-Combustible Roof Deck**

SYSTEM NO.	DECK	THERMAL BARRIER, INSULATION & COVER BOARD		ROOF COVER						FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
		Type	Attach.	Membrane	Fasteners and Plates	Min. Lap Width	Min. Weld Width	Max. Lap Spacing	Max. Fastener Spacing		
NC-18	Min. 20 ga. type B, Grade 33 steel	See Notes		EverGuard® TPO -OR- EverGuard Extreme® TPO	Drill-Tec™ 2-3/4 in. Barbed SXHD Plates and Drill-Tec™ #14 Fasteners (structural concrete deck only) or Drill-Tec™ SXHD Fasteners (steel deck only)	6 in.	1.5 in.	138 in.	12 in.	Class A at a max. 1:12 roof incline	-37.5 psf
NC-19	Min. 22 ga. type B, Grade 33 steel or min. 2,500 psi concrete					6 in.	1.75 in.	90 in.	18 in.		-30.0 psf
NC-20	Min. 22 ga. type B, Grade 33 steel or min. 2,500 psi concrete					6 in.	1.5 in.	138 in.	12 in.		-37.5 psf
NC-21	Min. 22 ga. type B, Grade 80 steel or min. 2,500 psi concrete					6 in.	1.5 in.	114 in.	12 in.		-45.0 psf
NC-22	Min. 22 ga. type B, Grade 80 steel or min. 2,500 psi concrete					6 in.	1.5 in.	138 in.	6 in.		-37.5 psf
THERMAL BARRIER, INSULATION & COVER BOARD NOTE:											
Boards may consist of the following. The boards are preliminarily secured through the top layer and into the roof deck per manufacturer's installation instructions.											
Thermal Barrier (Optional):		Min. 0.5 in. thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board or ¾ in. thick EnergyGuard™ Perlite Roof Insulation.									
Insulation:		Min. 1.5 in. thick EnergyGuard™ Polyiso Insulation, EnergyGuard™ NH Polyiso Insulation, EnergyGuard™ RA Polyiso Insulation, EnergyGuard™ RN Polyiso Insulation, EnergyGuard™ Ultra Polyiso Insulation, or EnergyGuard™ NH Ultra Polyiso Insulation									
Cover Board (Optional):		Min. 0.25 in. thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, min. 0.5 in. EnergyGuard™ HD Polyiso Insulation, EnergyGuard™ NH HD Polyiso Insulation, EnergyGuard™ HD Plus Polyiso Insulation, EnergyGuard™ NH HD Plus Polyiso Insulation, Structodek® High Density Fiber Board Roof Insulation, EnergyGuard™ Perlite Recover Board or min. 0.75 in. thick EnergyGuard™ Perlite Roof Insulation.									

-Table 2- Wind Resistance and Fire Classification-

EverGuard® TPO and EverGuard Extreme® TPO Mechanically Secured to Non-Combustible Roof Deck with the Drill-Tec™ RhinoBond® Membrane Attachment System (Membrane Bonded to Plate)

SYSTEM NO	DECK	THERMAL BARRIER, INSULATION & COVER BOARD		ROOF COVER (See Note)			FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
		Type	Attach.	Membrane	Fasteners and Plates	Contributory Area per Fastener		
NC-23	Min. 22 ga. type B, Grade 33 steel or min. 2,500 psi concrete	See Note		EverGuard® TPO -OR- EverGuard Extreme® TPO	Drill-Tec™ RhinoBond® TPO XHD Plates, Drill-Tec™ RhinoBond® TPO XHD Tread Safe Plates (see note) and Drill-Tec™ #14 Fasteners (structural concrete deck only) or Drill-Tec™ XHD Fasteners (steel deck only)	5.33 ft ² (6 Fasteners per 48 x 96 in. Board)	Class A at a max. 1:12 roof incline	-45.0 psf
NC-24						2.0 ft ² (8 Fasteners per 48 x 96 in. Board)		-60.0 psf
NC-25						2.67 ft ² (12 Fasteners per 48 x 96 in. Board)		-67.5 psf
NC-26						4.0 ft ² (8 Fasteners per 48 x 96 in. Board)		-60.0 psf
NC-27						2.67 ft ² (12 Fasteners per 48 x 96 in. Board)		-82.5 psf
<p>ROOF COVER NOTE: The membrane is bonded to the Drill-Tec™ RhinoBond® TPO XHD Plates or Drill-Tec™ RhinoBond® TPO XHD Tread Safe Plates per manufacturer's installation instructions. The membrane side laps are minimum 3.0 in. wide and are sealed with minimum 1.5 in. wide heat welds.</p> <ul style="list-style-type: none"> When using the Drill-Tec™ RhinoBond® TPO XHD Tread Safe Plates, one must ensure the following: Drill a minimum 5/8 in. dia. pilot hole in the cover board when using a gypsum or wood fiber cover board prior to the installation of the fasteners and plates. The minimum thickness of board stock [thermal barrier (when present), insulation and cover board (when present)] must be greater than or equal to 2 in. 								
<p>THERMAL BARRIER, INSULATION & COVER BOARD NOTE: Boards may consist of the following. The boards are preliminarily secured through the top layer and into the roof deck with the RhinoBond® membrane plates and fasteners applied within the contributory area specifications identified above.</p> <p>Thermal Barrier (Optional): Min. 0.5 in. thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board or ¾ in. thick EnergyGuard™ Perlite Roof Insulation (Homogeneous).</p> <p>Insulation: Min. 1.5 in. thick EnergyGuard™ Polyiso Insulation, EnergyGuard™ NH Polyiso Insulation, EnergyGuard™ RA Polyiso Insulation, EnergyGuard™ RN Polyiso Insulation, EnergyGuard™ Ultra Polyiso Insulation or EnergyGuard™ NH Ultra Polyiso Insulation.</p> <p>Cover Board (Optional): Min. 0.25 in. thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, min. 0.5 in. EnergyGuard™ HD Polyiso Insulation, EnergyGuard™ NH HD Polyiso Insulation, EnergyGuard™ HD Plus Polyiso Insulation, EnergyGuard™ NH HD Plus Polyiso Insulation or Structodek® High Density Fiber Board Roof Insulation.</p>								

**-Table 3- Wind Resistance and Fire Classification-
EverGuard® TPO and EverGuard Extreme® TPO Mechanically Secured to Insulated Combustible Roof Decks**

SYSTEM NO	DECK	FIRE BARRIER ^{1,2}	INSULATION ^{1,2}	COVER BOARD ¹	ROOF COVER						FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
					Membrane	Fasteners and Plates	Min. Lap Width	Min. Weld Width	Max. Lap Spacing	Max. Fastener Spacing		
C-1	Min. 15/32 in. Plywood or 1 in. Wood Plank	VersaShield® Solo™ Fire Resistant Slip Sheet -OR- Min. ¼" thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board or SECUROCK® Glass-Mat Roof Board -OR- FireOut™ Fire Barrier Coating applied at 1 gal/sq -OR- 1/2" EnergyGuard™ Barrier or EnergyGuard™ NH Barrier	(One or more of the following) Min. 0.5 in. thick EnergyGuard™, EnergyGuard™ NH, EnergyGuard™ RA, EnergyGuard™ RN, EnergyGuard™ Ultra, or EnergyGuard™ NH Ultra Polyiso Insulation	(Optional) Min. 0.25 in. thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, min. 0.5 in. thick EnergyGuard™ HD Polyiso Insulation, EnergyGuard™ NH HD Polyiso Insulation, EnergyGuard™ HD Plus Polyiso Insulation, EnergyGuard™ NH HD Polyiso Insulation, Structodek® High Density Fiberboard Roof Insulation, EnergyGuard™ Perlite Recover Board or min. 0.75 in. thick EnergyGuard™ Perlite Roof Insulation	EverGuard® TPO -OR- EverGuard Extreme® TPO	Drill-Tec™ 2 in. Double Barbed XHD, 2-3/8 in. Barbed XHD or Eyehook AccuSeam Plates and Drill-Tec™ #14 Fasteners	6 in.	1.5 in.	54 in.	9 in.	Class A; 0.5:12	-30.0 psf
C-2	Min. 19/32 in. Plywood or 1 in. Wood Plank	1/2" EnergyGuard™ Barrier or EnergyGuard™ NH Barrier		6 in.			1.5 in.	54 in.	8 in.	-45.0 psf		
C-3	Min. 15/32 in. Plywood or 1 in. Wood Plank	Min. ¼" thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board -OR- SECUROCK® Glass-Mat Roof Board -OR- 1/2" EnergyGuard™ Barrier or EnergyGuard™ NH Barrier	None	None			6 in.	1.5 in.	54 in.	9 in.	Class A; 2.5:12 with Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board -OR- Class A; 0.5:12 with EnergyGuard™ Barrier or EnergyGuard™ NH Barrier	-30.0 psf
C-4			None				6 in.	1.5 in.	54 in.	8 in.	-45.0 psf	
C-5	Min. 19/32 in. Plywood or 1 in. Wood Plank	None	(Optional, one or more of the following) Min. 0.5 in. thick EnergyGuard™, EnergyGuard™ NH, EnergyGuard™ RA, EnergyGuard™ RN, EnergyGuard™ Ultra, or EnergyGuard™ NH Ultra Polyiso Insulation	Min. 0.25 in. thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board			6 in.	1.75 in.	54 in.	6 in.	-52.5 psf	

FIRE BARRIER NOTE:

- The fire barrier (when present), insulation and cover board (when present) shall be preliminarily secured per manufacturer's installation instructions.
- If the fire barrier (when present) utilizes either EnergyGuard™ Barrier or EnergyGuard™ NH Barrier, then the use of other Polyiso insulation is optional.

**-Table 3 Continued - Wind Resistance and Fire Classification-
EverGuard® TPO and EverGuard Extreme® TPO Mechanically Secured to Insulated Combustible Roof Decks**

SYSTEM NO	DECK	FIRE BARRIER ^{1,2}	INSULATION ^{1,2}	ROOF COVER						FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
				Membrane	Fasteners and Plates	Min. Lap Width	Min. Weld Width	Max. Lap Spacing	Max. Fastener Spacing		
C-6	Min. 15/32 in. Plywood over nominal No. 2 wood trusses at 24 in. o.c.	VersaShield® Solo™ Fire Resistant Slip Sheet -OR- Min. 1/4" thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board or SECUROCK® Glass-Mat Roof Board -OR- FireOut™ Fire Barrier Coating applied at 1 gal/sq -OR- 1/2" EnergyGuard™ Barrier or EnergyGuard™ NH Barrier	Min. 1 in. thick EnergyGuard™, EnergyGuard™ NH Polyiso Insulation, EnergyGuard™ Ultra, or EnergyGuard™ NH Ultra	EverGuard® TPO -OR- EverGuard Extreme® TPO	Drill-Tec™ 2 in. Double Barbed XHD, 2-3/8 in. Barbed XHD or Eyehook AccuSeam Plates and Drill-Tec™ #14 Fasteners, fastened into wood trusses	6 in.	1.5 in.	48 in.	12 in.	Class A; 0.5:12	-52.5 psf
C-7		Drill-Tec™ 2-3/4 in. Barbed SXHD Plate with Drill-Tec™ #14 Fasteners, fastened into wood trusses	6 in.		1.5 in.	48 in.	12 in.	-67.5 psf			
C-8		None	6 in.	1.5 in.	48 in.	12 in.	-75.0 psf				
C-9		Drill-Tec™ 2 in. Double Barbed XHD, 2-3/8 in. Barbed XHD or Eyehook AccuSeam Plates and Drill-Tec™ #14 Fasteners, fastened into wood trusses	6 in.	1.5 in.	48 in.	12 in.	-60.0 psf				
FIRE BARRIER NOTE:											
1. The fire barrier (when present), insulation and cover board (when present) shall be preliminarily secured per manufacturer's installation instructions.											
2. If the fire barrier (when present) utilizes either EnergyGuard™ Barrier or EnergyGuard™ NH Barrier, then the use of other Polyiso insulation is optional.											

**-Table 4- Wind Resistance and Fire Classification-
 EverGuard® TPO and EverGuard Extreme® TPO Mechanically Secured to Uninsulated Combustible Roof Decks
 with the Drill-Tec™ RhinoBond® Membrane Attachment System
 (Membrane Bonded to Plate)**

SYSTEM NO	DECK	FIRE BARRIER ¹	ROOF COVER (See Note)		FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT	
			Membrane	Fasteners and Plates			
C-10	Min. 15/32 in. Plywood or 1 in. Wood Plank Secured to Structural Lumber Supports Spaced Max. 96 in. o.c.	VersaShield® Solo™ Fire Resistant Slip Sheet -OR- Min. ¼" thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board or SECUROCK® Glass-Mat Roof Board (<i>presecured when used with System No. C-10 or C-11</i>) -OR- FireOut™ Fire Barrier Coating applied at 1 gal/sq -OR- 1/2" EnergyGuard™ Barrier or EnergyGuard™ NH Barrier	EverGuard® TPO -OR- EverGuard Extreme® TPO	Drill-Tec™ RhinoBond® TPO XHD Plates and Drill-Tec™ #14 Fasteners secured 12 in. o.c. into the structural lumber supports (max. 12 x 96 in. grid)	Class A; 2:12 with VersaShield® Solo™ Fire Resistant Slip Sheet -OR- Class A; 2.5:12 with Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board or SECUROCK® Glass-Mat Roof Board -OR- Class A; 0.5:12 with FireOut™ Fire Barrier Coating -OR- Class A; 0.5:12 with EnergyGuard™ Barrier or EnergyGuard™ NH Barrier	-30.0 psf	
C-11	Min. 15/32 in. Plywood or 1 in. Wood Plank Secured to Structural Lumber Supports Spaced Max. 48 in. o.c.			Drill-Tec™ RhinoBond® TPO XHD Plates and Drill-Tec™ #14 Fasteners secured 24 in. o.c. into the structural lumber supports (max. 24 x 48 in. grid)			-37.5 psf
C-12	Min. 15/32 in. Plywood or 1 in. Wood Plank			Drill-Tec™ RhinoBond® TPO XHD Plates and Drill-Tec™ #14 Fasteners secured into the plywood or wood plank in a 16 x 24 in. grid or at a rate of 12 fasteners per 4 x 8 ft. board (2.67 ft ² per fastener)			-52.5 psf
C-13	Min. 15/32 in. Plywood or 1 in. Wood Plank Secured to Structural Lumber Supports Spaced Max. 24 in. o.c.			Drill-Tec™ RhinoBond® TPO XHD Plates and Drill-Tec™ #14 Fasteners secured 36 in. o.c. into the structural lumber supports (max. 24 x 36 in. grid)			-52.5 psf
C-14				Drill-Tec™ RhinoBond® TPO XHD Plates and Drill-Tec™ #14 Fasteners secured 24 in. o.c. into the structural lumber supports (max. 24 x 24 in. grid)			-75.0 psf

FIRE BARRIER NOTE:
 1. The fire barrier (when present), insulation and cover board (when present) shall be preliminarily secured per manufacturer's installation instructions.

ROOF COVER NOTE:
 The membrane is bonded to the Drill-Tec™ RhinoBond® TPO XHD Plates per manufacturer's installation instructions. The membrane side laps are minimum 3.0 in. wide and are sealed with minimum 1.5 in. wide heat welds.

**-Table 5- Wind Resistance and Fire Classification-
EverGuard® TPO and EverGuard Extreme® TPO Mechanically Secured to Insulated Combustible Roof Decks with the Drill-Tec™ RhinoBond® Membrane Attachment
System over EnergyGuard™ Polyiso Insulations
(Membrane Bonded to Plate)**

SYSTEM NO	DECK	FIRE BARRIER ^{1,2}	INSULATION ^{1,2}	ROOF COVER (See Note)		FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
				Membrane	Fasteners and Plates		
C-15	Min. 15/32 in. Plywood or 1 in. Wood Plank Secured to Structural Lumber Supports Spaced Max. 96 in. o.c.	VersaShield® Solo™ Fire Resistant Slip Sheet -OR- 1/2" EnergyGuard™ Barrier or EnergyGuard™ NH Barrier -OR- Min. 0.25 in. thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board or SECUROCK® Glass-Mat Roof Board <i>(presecured when used with System No. C-15 or C-16)</i>	(One or more of any of the following) Min. 0.5 in. thick EnergyGuard™, EnergyGuard™ NH, EnergyGuard™ RA, EnergyGuard™ RN, EnergyGuard™ Ultra, , EnergyGuard™ NH Ultra, EnergyGuard™ HD, EnergyGuard™ NH HD, EnergyGuard™ HD Plus, or EnergyGuard™ NH HD Plus Polyiso Insulation	EverGuard® TPO -OR- EverGuard Extreme® TPO	Drill-Tec™ RhinoBond® TPO XHD Plates or Drill- Tec™ RhinoBond® TPO XHD Tread Safe Plates and Drill-Tec™ #14 Fasteners secured 12 in. o.c. into the structural lumber supports (max. 12 x 96 in. grid)	Class A; 0.5:12	-30.0 psf
C-16	Min. 15/32 in. Plywood or 1 in. Wood Plank Secured to Structural Lumber Supports Spaced Max.48 in. o.c.				Drill-Tec™ RhinoBond® TPO XHD Plates or Drill- Tec™ RhinoBond® TPO XHD Tread Safe Plates and Drill-Tec™ #14 Fasteners secured 24 in. o.c. into the structural lumber supports (max. 24 x 48 in. grid)		-37.5 psf
C-17	Min. 15/32 in. Plywood or 1 in. Wood Plank				Drill-Tec™ RhinoBond® TPO XHD Plates or Drill- Tec™ RhinoBond® TPO XHD Tread Safe Plates and Drill-Tec™ #14 Fasteners secured into the plywood or wood plank within a maximum contributory area of 2.67 ft ² per fastener (12 fasteners per 48 x 96 in. board)		-52.5 psf
C-18	Min. 15/32 in. Plywood or 1 in. Wood Plank Secured to Structural Lumber Supports Spaced Max. 24 in. o.c.				Drill-Tec™ RhinoBond® TPO XHD Plates or Drill- Tec™ RhinoBond® TPO XHD Tread Safe Plates and Drill-Tec™ #14 Fasteners secured 36 in. o.c. into the structural lumber supports (max. 24 x 36 in. grid)		-52.5 psf
C-19	Min. 15/32 in. Plywood or 1 in. Wood Plank Secured to Structural Lumber Supports Spaced Max. 24 in. o.c.				Drill-Tec™ RhinoBond® TPO XHD Plates or Drill- Tec™ RhinoBond® TPO XHD Tread Safe Plates and Drill-Tec™ #14 Fasteners secured 24 in. o.c. into the structural lumber supports (max. 24 x 24 in. grid)		-75.0 psf
FIRE BARRIER NOTE:							
1. The fire barrier (when present), insulation and cover board (when present) shall be preliminarily secured per manufacturer's installation instructions.							
2. If the fire barrier (when present) utilizes either EnergyGuard™ Barrier or EnergyGuard™ NH Barrier, then the use of other Polyiso insulation is optional.							
ROOF COVER NOTE:							
The membrane is bonded to the Drill-Tec™ RhinoBond® TPO XHD Plates per manufacturer's installation instructions. The membrane side laps are minimum 3.0 in. wide and are sealed with minimum 1.5 in. wide heat welds. The insulation thickness must be greater than or equal to 2 in. when using Drill-Tec™ RhinoBond® TPO XHD Tread Safe Plates.							

**-Table 6 - Wind Resistance and Fire Classification-
EverGuard® TPO and EverGuard Extreme® TPO Mechanically Secured to Insulated Combustible Roof Decks
with the Drill-Tec™ RhinoBond® Membrane Attachment System over Gypsum Cover Boards
(Membrane Bonded to Plate)**

SYSTEM NO	DECK	FIRE BARRIER	INSULATION	COVER BOARD	ROOF COVER (See Note)		FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
					Membrane	Fasteners and Plates		
C-20	Min. 15/32 in. Plywood or 1 in. Wood Plank Secured to Structural Lumber Supports Spaced Max. 96 in. o.c.	None	(Optional, One or more of the following) Min. 0.5 in. thick EnergyGuard™, EnergyGuard™ NH, EnergyGuard™ RA, EnergyGuard™ RN, EnergyGuard™ Ultra, or EnergyGuard™ NH Ultra Polyiso Insulation	Min. 0.25 in. thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board or SECUROCK® Glass-Mat Roof Board (<i>presecured when used with System No. C-20 or C-21</i>)	EverGuard® TPO -OR- EverGuard Extreme® TPO	Drill-Tec™ RhinoBond® TPO XHD Plates or Drill-Tec™ RhinoBond® TPO XHD Tread Safe Plates and Drill-Tec™ #14 Fasteners secured 12 in. o.c. into the structural lumber supports (max. 12 x 96 in. grid)	Class A; 2.5:12	-30.0 psf
C-21	Min. 15/32 in. Plywood or 1 in. Wood Plank Secured to Structural Lumber Supports Spaced Max. 48 in. o.c.					Drill-Tec™ RhinoBond® TPO XHD Plates or Drill-Tec™ RhinoBond® TPO XHD Tread Safe Plates and Drill-Tec™ #14 Fasteners secured 24 in. o.c. into the structural lumber supports (max. 24 x 48 in. grid)		
C-22	Min. 15/32 in. Plywood or 1 in. Wood Plank					Drill-Tec™ RhinoBond® TPO XHD Plates or Drill-Tec™ RhinoBond® TPO XHD Tread Safe Plates and Drill-Tec™ #14 Fasteners secured into the plywood or wood plank within a maximum contributory area of 2.67 ft ² per fastener (12 fasteners per 48 x 96 in. board)		

ROOF COVER NOTE:

The membrane is bonded to the Drill-Tec™ RhinoBond® TPO XHD Plates or Drill-Tec™ RhinoBond® TPO XHD Tread Safe Plates per manufacturer's installation instructions. The membrane side laps are minimum 3.0 in. wide and are sealed with minimum 1.5 in. wide heat welds.

When using the Drill-Tec™ RhinoBond® TPO XHD Tread Safe Plates, one must ensure the following:

- Drill a minimum 5/8 in. dia. pilot hole in the Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board or SECUROCK® Glass-Mat Roof Board cover board prior to the installation of the fasteners and plates.
- The minimum thickness of board stock (insulation and cover board) must be greater than or equal to 2 in.

**-Table 6 Continued - Wind Resistance and Fire Classification-
 EverGuard® TPO and EverGuard Extreme® TPO Mechanically Secured to Insulated Combustible Roof Decks
 with the Drill-Tec™ RhinoBond® Membrane Attachment System over Gypsum Cover Boards
 (Membrane Bonded to Plate)**

SYSTEM NO	DECK	FIRE BARRIER	INSULATION	COVER BOARD	ROOF COVER (See Note)		FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
					EverGuard® TPO -OR- EverGuard Extreme® TPO	Drill-Tec™ RhinoBond® TPO XHD Plates or Drill-Tec™ RhinoBond® TPO XHD Tread Safe Plates and Drill-Tec™ #14 Fasteners secured 36 in. o.c. into the structural lumber supports (max. 24 x 36 in. grid)		
C-23	Min. 15/32 in. Plywood or 1 in. Wood Plank Secured to Structural Lumber Supports Spaced Max. 24 in. o.c.	None	(Optional, One or more of the following) Min. 0.5 in. thick EnergyGuard™, EnergyGuard™ NH, EnergyGuard™ RA, EnergyGuard™ RN, EnergyGuard™ Ultra, EnergyGuard™ NH Ultra Polyiso Insulation	Min. 0.25 in. thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board or SECUROCK® Glass-Mat Roof Board	EverGuard® TPO	Drill-Tec™ RhinoBond® TPO XHD Plates or Drill-Tec™ RhinoBond® TPO XHD Tread Safe Plates and Drill-Tec™ #14 Fasteners secured 36 in. o.c. into the structural lumber supports (max. 24 x 36 in. grid)	Class A; 2.5:12	-52.5 psf
C-24					EverGuard Extreme® TPO	Drill-Tec™ RhinoBond® TPO XHD Plates or Drill-Tec™ RhinoBond® TPO XHD Tread Safe Plates and Drill-Tec™ #14 Fasteners secured 24 in. o.c. into the structural lumber supports (max. 24 x 24 in. grid)		-75.0 psf

ROOF COVER NOTE:

The membrane is bonded to the Drill-Tec™ RhinoBond® TPO XHD Plates or Drill-Tec™ RhinoBond® TPO XHD Tread Safe Plates per manufacturer's installation instructions. The membrane side laps are minimum 3.0 in. wide and are sealed with minimum 1.5 in. wide heat welds.

When using the Drill-Tec™ RhinoBond® TPO XHD Tread Safe Plates, one must ensure the following:

- Drill a minimum 5/8 in. dia. pilot hole in the Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board or SECUROCK® Glass-Mat Roof Board cover board prior to the installation of the fasteners and plates.
- The minimum thickness of board stock (insulation and cover board) must be greater than or equal to 2 in.

**-Table 7- Wind Resistance and Fire Classification-
 EverGuard® Freedom™ TPO HW Self-Adhered to StormSafe™ Anchor Sheet over Uninsulated Combustible Roof Decks**

SYSTEM NO	DECK	FIRE BARRIER	ROOF COVER (See Note)			FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
			Anchor Sheet	Fasteners and Plates	Fasteners and Plates		
C-25	Min. 15/32 in. Plywood or 1 in. Wood Plank	VersaShield® Solo™ Fire Resistant Slip Sheet -OR- FireOut™ Fire Barrier Coating applied at 1 gal/sq	StormSafe™ Anchor Sheet (48" wide)	32 ga., 1-5/8 in. diameter tin caps and 12 ga., 1-1/4 in. long galvanized ring shank nails spaced 6 in. o.c. in the min. 4 in. wide anchor sheet side laps and in two staggered rows in the field of the anchor sheet.	EverGuard® Freedom™ TPO HW	Class A; 1:12 with FireOut™ Fire Barrier Coating -OR- Class A; 1.5:12 with VersaShield® Solo™ Fire Resistant Slip Sheet	-45.0 psf
C-26				Drill-Tec™ 3 in. Ribbed Galvalume Plate (Flat) or Drill-Tec™ 3" Standard Steel Plates and Drill-Tec™ #14 Fasteners installed 18 in. o.c. in the min. 4 in. wide anchor sheet side laps and in two staggered rows in the field of the anchor sheet.			-45.0 psf

ROOF COVER NOTE: The membrane is self-adhered to the anchor sheet per manufacturer's installation instructions. The membrane side laps are minimum 3.0 in. wide and are sealed with minimum 1.5 in. wide heat welds for EverGuard® Freedom™ TPO HW.

**-Table 8- Wind Resistance and Fire Classification-
EverGuard® Freedom™ TPO HW Self-Adhered to StormSafe™ Anchor Sheet over Insulated Combustible Roof Decks**

SYSTEM NO	DECK	FIRE BARRIER ^{1, 2}	INSULATION	COVER BOARD	ROOF COVER (See Note)			FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
					Membrane	Anchor Sheet	Fasteners and Plates		
C-27	Min. 15/32 in. Plywood or 1 in. Wood Plank	VersaShield® Solo™ Fire Resistant Slip Sheet -OR- Min. 0.25 in. thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board or SECUROCK® Glass-Mat Roof Board -OR- FireOut™ Fire Barrier Coating applied at 1 gal/sq -OR- 1/2" EnergyGuard™ Barrier or EnergyGuard™ NH Barrier	(One or more of any of the following) Min. 0.5 in. thick EnergyGuard™, EnergyGuard™ NH, , EnergyGuard™ RA, EnergyGuard™ RN, EnergyGuard™ Ultra, EnergyGuard™ NH Ultra EnergyGuard™ HD, EnergyGuard™ NH HD, EnergyGuard™ HD or EnergyGuard™ NH HD Plus Polyiso Insulation, preliminarily secured.	None	EverGuard® Freedom™ TPO HW	StormSafe™ Anchor Sheet (48" wide)	Drill-Tec™ 3 in. Ribbed Galvalume Plate (Flat) or Drill-Tec™ 3" Standard Steel Plates and Drill-Tec™ #14 Fasteners installed 18 in. o.c. in the min. 4 in. wide anchor sheet side laps and in two staggered rows in the field of the sheet	Class A; 0.25:12	-45.0 psf
C-28		None	(Optional, one or more of any of the following) Min. 0.5 in. thick EnergyGuard™, EnergyGuard™ NH, EnergyGuard™ RA, EnergyGuard™ RN EnergyGuard™ Ultra, or EnergyGuard™ NH Ultra Polyiso Insulation	Min. 0.25 in. thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board or SECUROCK® Glass-Mat Roof Board, preliminarily secured.					

FIRE BARRIER NOTE:

- The fire barrier (when present), insulation and cover board (when present) shall be preliminarily secured per manufacturer's installation instructions.
- If the fire barrier (when present) utilizes either EnergyGuard™ Barrier or EnergyGuard™ NH Barrier, then the use of other Polyiso insulation is optional.

ROOF COVER NOTE: The membrane is self-adhered to the anchor sheet per manufacturer's installation instructions. The membrane side laps are minimum 3.0 in. wide and are sealed with minimum 1.5 in. wide heat welds for EverGuard® Freedom™ TPO HW.

**-Table 9- Wind Resistance and Fire Classification-
 EverGuard® TPO and EverGuard Extreme® TPO Fully Adhered to EnergyGuard™ Polyiso over Insulated Cementitious Wood Fiber Roof Deck**

SYSTEM NO	DECK	INSULATION	INSULATION ATTACHMENT	ROOF COVER (See Note)	FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
C-29	Cementitious Wood Fiber Roof Deck	(One or more of any of the following) Min. 1.5 in. thick EnergyGuard™, EnergyGuard™ NH, or EnergyGuard™ RA Polyiso Insulation (48 x 96 in. boards)	Insulation is secured with Drill-Tec™ Polymer Gyptec Fasteners and Drill-Tec™ 3" Gyptec Plates applied at a rate of 2.0 ft ² per fastener (16 fasteners per board)	SEE APPENDIX A, TABLE 1, ROOF COVERS 1A1, 1A2, 1A3, 1A4, 1A5, 1A6		-45.0 psf
ROOF COVER NOTE: The membrane side laps are minimum 3.0 in. wide and are sealed with minimum 1.5 in. wide heat welds.						

**-Table 10 - Wind Resistance and Fire Classification-
EverGuard® TPO and EverGuard Extreme® TPO Fully Adhered to EnergyGuard™ Polyiso over Combustible Roof Deck**

SYSTEM NO	DECK	FIRE BARRIER ^{1,2}	INSULATION	INSULATION ATTACHMENT	COVER BOARD	ROOF COVER (See Note)	FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
C-30	Min. 15/32 in. Plywood or 1 in. Wood Plank	VersaShield® Solo™ Fire Resistant Slip Sheet -OR- Min. 0.25 in. thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board or SECUROCK® Glass-Mat Roof Board -OR- FireOut™ Fire Barrier Coating applied at 1 gal/sq -OR- 1/2" EnergyGuard™ Barrier or EnergyGuard™ NH Barrier	Min. 1.5-in. thick GAF EnergyGuard™ Polyiso Insulation or EnergyGuard™ NH Polyiso Insulation	Drill-Tec™ 3" Steel Plates, Drill-Tec™ #12 fastener (20 fasteners per board)	None	SEE APPENDIX A, TABLE 1, ROOF COVERS 1A1, 1A2, 1A3, 1A5, 1A6		-60.0 psf
C-31		None	Min. 2.5-in. thick GAF EnergyGuard™ Polyiso Insulation or EnergyGuard™ NH Polyiso Insulation	Drill-Tec™ 3" Steel Plates, Drill-Tec™ #12 fastener (18 fasteners per board)				
C-32			Min. 1.0-in. thick GAF EnergyGuard™ Polyiso Insulation or EnergyGuard™ NH Polyiso Insulation	Drill-Tec™ 3" Steel Plates, Drill-Tec™ #12 fastener (16 fasteners per board)	Min. 0.25 in. thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board or SECUROCK® Glass-Mat Roof Board, preliminarily secured.	SEE APPENDIX A, TABLE 1, ROOF COVERS 1A8, TABLE 2 ROOF COVERS 2A2, 2A3, 2A4, 2A5, 2A6	-60.0 psf	
C-33			OMG OlyBond 500™ or LRF Adhesive M applied in 0.75-1.00 in. wide ribbons spaced 6 in. o.c.			-75.0 psf		
C-34			OMG OlyBond 500™ or LRF Adhesive M applied in 0.75-1.00 in. wide ribbons spaced 12 in. o.c.		-67.5 psf			
FIRE BARRIER NOTE: 1. The fire barrier (when present), insulation and cover board (when present) shall be preliminarily secured per manufacturer's installation instructions. 2. If the fire barrier (when present) utilizes either EnergyGuard™ Barrier or EnergyGuard™ NH Barrier, then the use of other Polyiso insulation is optional. ROOF COVER NOTE: The membrane side laps are minimum 3.0 in. wide and are sealed with minimum 1.5 in. wide heat welds.								

-Table 11- Wind Resistance and Fire Classification-

EverGuard® TPO FB Ultra or EverGuard Extreme® TPO FB Ultra Fully Adhered to Gypsum Cover Board over Combustible Roof Deck

SYSTEM NO	DECK	INSULATION	Cover Board	ATTACHMENT	ROOF COVER (See Note)	FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
C-35	Min. 15/32 in. Plywood or 1 in. Wood Plank	(Optional one or more of any of the following) Min. 0.5 in. thick EnergyGuard™, EnergyGuard™ NH, EnergyGuard™ RA, EnergyGuard™ RN EnergyGuard™ Ultra, or EnergyGuard™ NH Ultra Polyiso Insulation	0.25 in. thick USG SECUROCK Gypsum-Fiber Roof Board	Drill-Tec™ 3" Standard Steel Plates, Drill-Tec™ #12 fastener (18 fasteners per board)	SEE APPENDIX A, TABLE 2, ROOF COVERS 2A12		-60.0 psf
C-36			0.25 in. thick GP DensDeck®, Prime Roof Board	Drill-Tec™ 3" Ribbed Galvalume Plate, Drill-Tec™ #12 fasteners (18 fasteners per board)			-52.5 psf
ROOF COVER NOTE: The membrane side laps are minimum 3.0 in. wide and are sealed with minimum 1.5 in. wide heat welds.							

-Table 12- Wind Resistance and Fire Classification-

EverGuard® Freedom™ TPO HW Self-Adhered to StormSafe™ Anchor Sheet over Insulated Noncombustible Roof Decks

SYSTEM NO	DECK	INSULATION (See Note)	COVER BOARD (See Note)	ROOF COVER (See Note)			FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
				Anchor Sheet	Anchor Sheet Attachment	Membrane		
NC-28	Min. 22 ga. type B. Grade 33 steel or min. 2,500 psi concrete	(One or more of any of the following) Min. 0.5 in. thick EnergyGuard™, EnergyGuard™ NH, EnergyGuard™ RA, EnergyGuard™ RN, EnergyGuard™ Ultra, or EnergyGuard™ NH Ultra Polyiso Insulation	(Optional) Min. 0.25 in. thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board or SECUROCK® Glass-Mat Roof Board	StormSafe™ Anchor Sheet (48" wide)	Drill-Tec™ ASAP 3S (steel deck only) installed 18 in. o.c. in the min. 4 in. wide anchor sheet side laps and in two staggered rows in the field of the anchor sheet -OR- Drill-Tec™ 3" Steel Plates, Drill-Tec™ 3" Standard Steel Plates, Drill-Tec™ 3 in. Ribbed Galvalume Plates (Flat) and Drill-Tec™ #12 Fasteners (steel deck only) or Drill-Tec™ #14 Fasteners (steel or structural concrete deck) installed 18 in. o.c. in the min. 4 in. wide anchor sheet side laps and in two staggered rows in the field of the anchor sheet	EverGuard® Freedom™ TPO HW	Class A; 0.5:12	-52.5 psf
INSULATION & COVER BOARD NOTE: The insulation and cover board (when present) shall be preliminarily attached per manufacturer's installation instructions.								
ROOF COVER NOTE: The membrane is self-adhered to the anchor sheet per manufacturer's installation instructions. The membrane side laps are minimum 3.0 in. wide and are sealed with minimum 1.5 in. wide heat welds for EverGuard® Freedom™ TPO HW..								

**-Table 13- Wind Resistance and Fire Classification-
EverGuard® TPO, EverGuard Extreme® TPO, EverGuard® TPO FB Ultra and EverGuard Extreme® TPO FB Ultra
Fully Adhered over Insulated Noncombustible Roof Decks
-With Mechanically Secured EnergyGuard™ Polyiso Insulations-**

SYSTEM NO	DECK	VAPOR RETARDER	INSULATION	INSULATION ATTACHMENT (See Note)	ROOF COVER (See Note)	FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
					Membrane & Attachment		
NC-29	Min. 22 ga. type B. Grade 33 steel or Structural Concrete	(Optional) GAF SA Vapor Retarder with GAF SA Primer applied at 0.74 - 1.23 gal/sq	Min. 1.5 in. thick EnergyGuard™ or EnergyGuard™ NH Polyiso Insulation (48 x 96 in.)	2.67 ft ² per fastener (12 fasteners per board)	SEE APPENDIX A, TABLE 1, ROOF COVERS 1A1, 1A2, 1A3, 1A4, 1A5, 1A6, 1A7		-37.5 psf
NC-30			Min. 2.0 in. thick EnergyGuard™, EnergyGuard™ NH, EnergyGuard™ RA or EnergyGuard™ RN Polyiso Insulation (48 x 96 in.)	2.0 ft ² per fastener (16 fasteners per board)			-45.0 psf
NC-31			Min. 2.5 in thick EnergyGuard™ or EnergyGuard™ NH Polyiso Insulation (48 x 96 in.)	3.5 ft ² per fastener (14 fasteners per board)	SEE APPENDIX A, TABLE 1, ROOF COVERS 1A1	-45.0 psf	
NC-32			Min. 2.5 in thick EnergyGuard™ or EnergyGuard™ NH Polyiso Insulation (48 x 96 in.)	2.0 ft ² per fastener (16 fasteners per board)		-60 psf	
NC-33			Min. 2.0 in. thick EnergyGuard™, EnergyGuard™ NH, EnergyGuard™ RA or EnergyGuard™ RN Polyiso Insulation (48 x 96 in.)	4.0 ft ² per fastener (8 fasteners per board)	SEE APPENDIX A, TABLE 1, ROOF COVERS 1A1, 1A2, 1A3, 1A4, 1A5, 1A6, 1A7	-30.0 psf	
NC-34			Min. 2.0 in. thick EnergyGuard™ or EnergyGuard™ NH Polyiso Insulation (48 x 96 in.)	2.9 ft ² per fastener (11 fasteners per board)		-45.0 psf	
VAPOR RETARDER NOTE: GAF SA Vapor Retarder is only for use with Structural Concrete Decks.							
INSULATION ATTACHMENT NOTE: Drill-Tec™ 3" Steel Plates, 3" Standard Steel Plates, AccuTrac® Flat Plates, AccuTrac® Recessed Plates, 3 in. Ribbed Galvalume Plates (Flat) and Drill-Tec™ #12 Fasteners (steel deck only) or Drill-Tec™ #14 Fasteners (steel or structural concrete) applied within the contributory area specified above.							
ROOF COVER NOTE: The membrane is adhered to the insulation with the selected adhesive per manufacturer's published installation instructions. Membrane side laps are min. 3.0 in. wide and sealed with min. 1.5 in. wide heat welds.							

**-Table 13 Continued - Wind Resistance and Fire Classification-
 EverGuard® TPO, EverGuard Extreme® TPO, EverGuard® TPO FB Ultra and EverGuard Extreme® TPO FB Ultra
 Fully Adhered over Insulated Noncombustible Roof Decks
 -With Mechanically Secured EnergyGuard™ Polyiso Insulations-**

SYSTEM NO	DECK	VAPOR RETARDER	INSULATION	INSULATION ATTACHMENT (See Note)	ROOF COVER (See Note)	FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
					Membrane & Attachment		
NC-35	Min. 2,500 psi concrete	(Optional) GAF SA Vapor Retarder with GAF SA Primer applied at 0.74 - 1.23 gal/sq	One or more layers of min. 0.5 in. EnergyGuard™ or EnergyGuard™ NH Polyiso Insulation (48 x 48 in.)	OlyBond 500™, OlyBond 500™ Green, OlyBond 500™ Canister, LRF Adhesive M, TPO LRF Adhesive M Low Temp, Weather-Tite One-Step Foamable Adhesive applied in 0.75 - 1.0 in. wide ribbons spaced 12 in. o.c.	SEE APPENDIX A, TABLE 1, ROOF COVERS 1A1, 1A2, 1A3, 1A4, 1A7		-232.5 psf
NC-36			One or more layers of min. 1.5 in. EnergyGuard™ RA or EnergyGuard™ RN Polyiso Insulation (48 x 48 in.)		SEE APPENDIX A, TABLE 1, ROOF COVERS 1A1, 1A2, 1A3, 1A4, 1A5, 1A6, 1A7		-135.0 psf
NC-37			One or more layers of min. 0.5 in. EnergyGuard™, EnergyGuard™ NH, EnergyGuard™ RA or EnergyGuard™ RN Polyiso Insulation (48 x 48 in.)		SEE APPENDIX A, TABLE 1, ROOF COVER 1A8		-180.0 psf

VAPOR RETARDER NOTE: The use of a Vapor Retarder in System NC-35 will reduce the Maximum uplift to -202.5 psf.

INSULATION ATTACHMENT NOTE: Drill-Tec™ 3" Steel Plates, 3" Standard Steel Plates, AccuTrac® Flat Plates, AccuTrac® Recessed Plates, 3 in. Ribbed Galvalume Plates (Flat) and Drill-Tec™ #12 Fasteners (steel deck only) or Drill-Tec™ #14 Fasteners (steel or structural concrete) applied within the contributory area specified above.

ROOF COVER NOTE: The membrane is adhered to the insulation with the selected adhesive per manufacturer's published installation instructions. Membrane side laps are min. 3.0 in. wide and sealed with min. 1.5" in. wide heat welds.

**-Table 14- Wind Resistance and Fire Classification-
EverGuard® TPO, EverGuard Extreme® TPO, EverGuard® TPO FB Ultra and EverGuard Extreme® TPO FB Ultra Partially Adhered over Insulated
Noncombustible Roof Decks to *EnergyGuard™ Polyiso Insulations-***

SYSTEM NO	DECK	VAPOR RETARDER	INSULATION	INSULATION ATTACHMENT (See Note)	ROOF COVER (See Note)	FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
					Membrane & Attachment		
NC-38	Min. 22 ga. type B. Grade 33 steel or Structural Concrete	None	Min. 1.5 in. thick EnergyGuard™, EnergyGuard™ NH, EnergyGuard™ RA or EnergyGuard™ RN Polyiso Insulation (48 x 96 in. boards)	2.67 ft² per fastener (12 fasteners per board)	45 – 80 mil EverGuard® TPO FB Ultra or 50 – 80 mil EverGuard Extreme® TPO FB Ultra is partially adhered to the insulation with LRF Adhesive O or LRF Adhesive M, TPO LRF Adhesive M Low Temp, applied in 0.75 – 1.0 in. wide ribbons spaced 12 in. o.c. The top surface of the roof cover is rolled per manufacturer's installation instructions to ensure complete bonding. -OR- OlyBond 500™ Canister spray applied to the substrate in a "spatter pattern" at a rate of 0.318 gal/sq.	Class A; 0.5:12	-37.5 psf
NC-39				2.0 ft² per fastener (16 fasteners per board)			-45.0 psf
NC-40			Min. 2.0 in. thick EnergyGuard™, EnergyGuard™ NH, EnergyGuard™ RA or EnergyGuard™ RN Polyiso Insulation (48 x 96 in. boards)	4.0 ft² per fastener (8 fasteners per board)			-37.5 psf
NC-41				2.9 ft² per fastener (11 fasteners per board)			-45.0 psf
NC-42	Min. 2,500 psi concrete	(Optional) GAF SA Vapor Retarder with GAF SA Primer applied at 0.74 - 1.23 gal/sq	Min. 1.5 in. thick EnergyGuard™ RA or EnergyGuard™ RN Polyiso Insulation (48 x 48 in. boards)	OlyBond 500™, OlyBond 500™ Green, OlyBond 500™ Canister, LRF Adhesive M, TPO LRF Adhesive M Low Temp, or Weather-Tite One-Step Foamable Adhesive applied in ¾ - 1.0 in. wide ribbons spaced 12 in. o.c.			-45.0 psf
NC-43			Min. 1.5 in. thick EnergyGuard™ or EnergyGuard™ NH Polyiso Insulation (48 x 48 in. boards)				-60.0 psf

INSULATION ATTACHMENT NOTE: Drill-Tec™ 3" Steel Plates, 3" Standard Steel Plates, AccuTrac® Flat Plates, AccuTrac® Recessed Plates, 3 in. Ribbed Galvalume Plates (Flat) and Drill-Tec™ #12 Fasteners (steel deck only) or Drill-Tec™ #14 Fasteners (steel or structural concrete) applied within the contributory area specified above.

ROOF COVER NOTE: The membrane is adhered to the insulation with the selected adhesive per manufacturer's published installation instructions. Membrane side laps are minimum 3.0 in. wide and sealed with minimum 1.5 in. wide heat welds.

**-Table 15- Wind Resistance and Fire Classification-
 EverGuard® TPO, EverGuard Extreme® TPO, EverGuard® TPO FB Ultra and EverGuard Extreme® TPO FB Ultra Fully and Partially Adhered over Insulated
 Noncombustible Roof Decks
 -With Gypsum Cover Boards-**

SYSTEM NO	DECK	VAPOR RETARDER	INSULATION	INSULATION ATTACHMENT	COVER BOARD	COVER BOARD ATTACHMENT (See Note)	ROOF COVER (See Note)	FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
NC-44	Min. 22 ga. type B. Grade 33 steel or min. 2,500 psi concrete	None	(One or more of any of the following) Min. 1.0 in. thick EnergyGuard™, EnergyGuard™ NH, EnergyGuard™ RA, EnergyGuard™ RN, EnergyGuard™ Ultra, or EnergyGuard™ NH Ultra Polyiso Insulation.	Loose laid.	Min. 0.25 in. thick Dens Deck Prime®, SECUROCK® Gypsum-Fiber Roof Board (4 x 8 ft.)	4 ft² per fastener (8 fasteners per board)	SEE APPENDIX A – TABLE 2– ROOF COVERS 2A1 – 2A10 FOR APPROVED MEMBRANE, ADHESIVE AND COVER BOARD COMBINATIONS		-30.0 psf
NC-45						3.2 ft² per fastener (10 fasteners per board)			-45.0 psf
NC-46						4 ft² per fastener (8 fasteners per board)			-45.0 psf
NC-47	Min. 2,500 psi concrete	(Optional) GAF SA Vapor Retarder with GAF SA Primer applied at 0.74 - 1.23 gal/sq	One or more layers of min. 0.5 in. EnergyGuard™, EnergyGuard™ NH, EnergyGuard™ RA or EnergyGuard™ RN Polyiso Insulation	OlyBond 500™, OlyBond 500™ Green, OlyBond 500™ Canister, LRF Adhesive M, TPO LRF Adhesive M Low Temp., Weather-Tite One-Step Foamable Adhesive applied in ¾ - 1.0 in. wide ribbons spaced 12 in. o.c.	Min. 0.25 in. thick Dens Deck Prime®, SECUROCK® Gypsum-Fiber Roof Board (4 x 8 ft.)	OlyBond 500™, OlyBond 500™ Green, OlyBond 500™ Canister, LRF Adhesive M, TPO LRF Adhesive M Low Temp., Weather-Tite One-Step Foamable Adhesive applied in ¾ - 1.0 in. wide ribbons spaced 12 in. o.c.	SEE APPENDIX A – TABLE 2– ROOF COVERS 2A1, 2A2, 2A3, 2A4, 2A5, 2A6, 2A7, 2A8, 2A9, 2A11, 2A12 FOR APPROVED FULLY ADHERED MEMBRANE, ADHESIVE AND COVER BOARD COMBINATIONS	-180.0 psf	

COVER BOARD ATTACHMENT NOTE:

Construction NC-44: Dens Deck Prime® cover board is mechanically attached with Drill-Tec™ #12 Fasteners (steel deck only) or Drill-Tec™ #14 Fasteners (steel or structural concrete) Fasteners and Drill-Tec™ 3 in. Ribbed Galvalume Plates (Flat), Drill-Tec™ 3" Standard Steel Plates or Drill-Tec™ AccuTrac® Flat Plates or with Drill-Tec™ ASAP 3s (steel deck only). SECUROCK® Gypsum-Fiber Roof Board cover board is mechanically attached with Drill-Tec™ #12 Fasteners (steel deck only) or Drill-Tec™ #14 Fasteners (steel or structural concrete) and Drill-Tec™ 3 in. Ribbed Galvalume Plates (Flat) or Drill-Tec™ AccuTrac® Flat Plates.

Constructions NC-45 & NC-46: Cover board is mechanically attached with Drill-Tec™ #12 Fasteners (steel deck only) or Drill-Tec™ #14 Fasteners (steel or structural concrete) Fasteners and Drill-Tec™ 3 in. Ribbed Galvalume Plates (Flat), Drill-Tec™ 3" Standard Steel Plates or Drill-Tec™ AccuTrac® Flat Plates or with Drill-Tec™ ASAP 3s (steel deck only).

ROOF COVER NOTE: The membrane is adhered to the insulation with the selected adhesive per manufacturer's published installation instructions. Membrane side laps are min. 3.0 in. wide and sealed with min. 1.5 in. wide heat welds.

**-Table 15 Continued - Wind Resistance and Fire Classification-
 EverGuard® TPO, EverGuard Extreme® TPO, EverGuard® TPO FB Ultra and EverGuard Extreme® TPO FB Ultra Fully and Partially Adhered over Insulated
 Noncombustible Roof Decks
 -With Gypsum Cover Boards-**

SYSTEM NO	DECK	VAPOR RETARDER	INSULATION	INSULATION ATTACHMENT	COVER BOARD	COVER BOARD ATTACHMENT	ROOF COVER (See Note)	FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
NC-48	Min. 2,500 psi concrete	None	One or more layers of min. 0.5 in. EnergyGuard™, EnergyGuard™ NH or EnergyGuard™ RA RN Polyiso Insulation	OlyBond 500™, OlyBond 500™ Green, OlyBond 500™ Canister, LRF Adhesive M, TPO LRF Adhesive M Low Temp, or Weather-Tite One-Step Foamable Adhesive applied in ¾ - 1.0 in. wide ribbons spaced 12 in. o.c	Min. 0.25 in. thick Dens Deck Prime® or SECUROCK® Gypsum-Fiber Roof Board (4 x 4 ft.)	OlyBond 500™, OlyBond 500™ Green, OlyBond 500™ Canister, LRF Adhesive M, TPO LRF Adhesive M Low Temp, or Weather-Tite One-Step Foamable Adhesive applied in ¾ - 1.0 in. wide ribbons spaced 12 in. o.c	SEE APPENDIX A – TABLE 2– ROOF COVERS 2A1, 2A2 2A3, 2A4, 2A5, 2A6, 2A7, 2A8, 2A9, 2A11, 2A12 FOR APPROVED FULLY ADHERED MEMBRANE, ADHESIVE AND COVER BOARD COMBINATIONS		-180.0 psf
NC-49		(Optional) GAF SA Vapor Retarder with GAF SA Primer applied at 0.74 - 1.23 gal/sq					SEE APPENDIX A – TABLE 2– ROOF COVERS 2A9, 2A11 FOR APPROVED PARTIALLY ADHERED MEMBRANE, ADHESIVE AND COVER BOARD COMBINATIONS		-45.0 psf
ROOF COVER NOTE: The membrane is adhered to the insulation with the selected adhesive per manufacturer’s published installation instructions. Membrane side laps are minimum 3.0 in. wide and sealed with minimum 1.5 in. wide heat welds.									

**-Table 16 Wind Resistance and Fire Classification-
 EverGuard® TPO, EverGuard Extreme® TPO, EverGuard® TPO FB Ultra, EverGuard Extreme® TPO FB Ultra Fully Adhered over Insulated Noncombustible Roof Decks
 with EnergyGuard™ Polyiso Insulation Cover Boards**

SYSTEM NO	DECK	VAPOR RETARDER	INSULATION	INSULATION ATTACHMENT	COVER BOARD	COVER BOARD ATTACHMENT (See Note)	ROOF COVER (See Note)		FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT	
							Membrane	Membrane Attachment			
NC-50	Min. 22 ga, type B. Grade 33 steel or min. 2,500 psi concrete	None	(One or more of any of the following) Min. 1.5 in. thick EnergyGuard™, EnergyGuard™ NH, EnergyGuard™ RA, EnergyGuard™ RN, EnergyGuard™ Ultra, or EnergyGuard™ NH Ultra, Polyiso Insulation	Loose laid.	Min. 0.5 in. thick EnergyGuard™ HD, EnergyGuard™ NH HD, EnergyGuard™ NH HD Plus, Polyiso Insulation	2.0 ft² per fastener (16 fasteners per 4 x 8 ft. board)	EverGuard® TPO -OR- EverGuard Extreme® TPO	EverGuard® Low VOC TPO Bonding Adhesive applied at a total rate of 0.91 gal/sq. Half of the adhesive is applied to the membrane and half is applied to the substrate. -OR- EverGuard® #1121 Bonding Adhesive applied at a total rate of 1.67 gal/sq. Half of the adhesive is applied to the membrane and half is applied to the substrate. -OR- EverGuard® WB 181 Bonding Adhesive applied at a total rate of 0.84 – 1.0 gal/sq. One quarter of the adhesive is applied to the membrane and three quarters of the adhesive is applied to the substrate.	Class A; 0.75:12	-45.0 psf	
NC-51	min. 2,500 psi concrete	(Optional) GAF SA Vapor Retarder with GAF SA Primer applied at 0.74 - 1.23 gal/sq		OlyBond 500™, OlyBond 500™ Green, OlyBond 500™ Canister, LRF Adhesive M, TPO LRF Adhesive M Low Temp, or Millennium One-Step Foamable Adhesive applied in 0.75-1.0 in. wide ribbons spaced 12 in. o.c.		OlyBond 500™, OlyBond 500™ Green, OlyBond 500™ Canister TPO LRF Adhesive M Low Temp, or Millennium One-Step Foamable Adhesive applied in 0.75-1.0 in. wide ribbons spaced 12 in. o.c.		OlyBond 500™, OlyBond 500™ Green, OlyBond 500™ Canister, LRF Adhesive M, TPO LRF Adhesive M Low Temp, or Millennium One-Step Foamable Adhesive applied in 0.75-1.0 in. wide ribbons spaced 12 in. o.c.		EverGuard® TPO FB Ultra -OR- EverGuard Extreme® TPO FB Ultra	OlyBond 500™ Canister spray applied to the substrate in a "spatter pattern" at a rate of 0.318 gal/sq.
NC-52											

VAPOR RETARDER NOTE: The use of a Vapor Retarder in System NC-52 will reduce the Maximum uplift to -202.5 psf.

COVER BOARD ATTACHMENT NOTE: Secured with Drill-Tec™ #12 Fasteners (steel deck only) or Drill-Tec™ #14 Fasteners (steel or structural concrete deck) and Drill-Tec™ 3" Steel Plates, Drill-Tec™ 3" Standard Steel Plates, Drill-Tec™ AccuTrac® Flat Plates or Drill-Tec™ AccuTrac® Recessed Plates.

ROOF COVER NOTE: The membrane is adhered to the insulation with the selected adhesive per manufacturer's published installation instructions. The membrane side laps are minimum 3.0 in. wide and are sealed with minimum 1.5 in. wide heat welds.

**-Table 17 - Wind Resistance and Fire Classification-
 EverGuard® TPO and EverGuard Extreme® TPO Mechanically Secured to Standing Lap/Seam Roof Covers in Recovery Assemblies with the Drill-Tec™ RhinoBond®
 Membrane Attachment System
 (Membrane Bonded to Plate)**

SYSTEM NO	DECK	INSULATION (See Note)	COVER BOARD (Optional; See Note)	ROOF COVER (See Note)		FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
				Membrane	Fasteners and Plates		
NC-53	Existing Standing Lap/Seam Metal Roof Cover over Min. 16 ga. Structural Steel Purlins	(One or more of the following) Min. 1.0 in. thick EnergyGuard™, EnergyGuard™ NH, EnergyGuard™ RA, EnergyGuard™ RN or EnergyGuard™ Ultra EnergyGuard™ NH Ultra Polyiso Insulation	Min. 0.25 in. thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board or min. 0.5 in. thick EnergyGuard™ HD Polyiso Insulation, EnergyGuard™ NH HD Polyiso Insulation, EnergyGuard™ NH HD Plus Polyiso Insulation, or EnergyGuard™ HD Plus Polyiso Insulation	EverGuard® TPO -OR- EverGuard Extreme® TPO	Fasteners and Plates applied 18 in. o.c. along each structural steel purlin (max. purlin spacing of 60 in.)	Class A at 1:12 over EnergyGuard™, EnergyGuard™ NH, EnergyGuard™ RA, EnergyGuard™ RN EnergyGuard™ Ultra, or EnergyGuard™ NH Ultra Polyiso Insulations -OR- Class A at 1.5:12 over EnergyGuard™ HD, EnergyGuard™ NH HD, EnergyGuard™ HD Plus, or EnergyGuard™ NH HD Plus Polyiso Insulations (<i>when present</i>) -OR- Class A at 3:12 over Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board or SECUROCK® Glass-Mat Roof Board (<i>when present</i>)	-30.0 psf
NC-54					Fasteners and Plates applied 12 in. o.c. along each structural steel purlin (max. purlin spacing of 60 in.)		-37.5 psf
NC-55					Fasteners and Plates applied 6 in. o.c. along each structural steel purlin (max. purlin spacing of 72 in.)		-67.5 psf
NC-56					Fasteners and Plates applied 18 in. o.c. along each structural steel purlin (max. purlin spacing of 60 in.)		-37.5 psf
NC-57					Fasteners and Plates applied 12 in. o.c. along each structural steel purlin (max. purlin spacing of 60 in.)		-45.0 psf
<p>INSULATION & COVER BOARD NOTE: Insulation and cover board (when present) are preliminarily attached per manufacturer's installation instructions.</p> <p>ROOF COVER NOTE:</p> <p>The membrane is bonded to the Drill-Tec™ RhinoBond® TPO XHD Plates or Drill-Tec™ RhinoBond® TPO XHD Tread Safe Plates per manufacturer's installation instructions. The membrane side laps are minimum 3.0 in. wide and are sealed with minimum 1.5 in. wide heat welds.</p> <p>Fasteners consist of Drill-Tec™ RhinoBond® TPO XHD Plates or Drill-Tec™ RhinoBond® TPO XHD Tread Safe Plates and Drill-Tec™ Purlin Fasteners. The Drill-Tec™ Purlin Fasteners are driven through the insulation, existing standing metal lap/seam roof cover and into the structural steel purlins.</p> <p>When using the Drill-Tec™ RhinoBond® TPO XHD Tread Safe Plates, one must ensure the following:</p> <ul style="list-style-type: none"> • Drill a minimum 5/8 in. dia. pilot hole in the Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board or SECUROCK® Glass-Mat Roof Board cover board prior to the installation of the fasteners and plates. • The minimum thickness of board stock (insulation and cover board) must be greater than or equal to 2 in. 							

**-Table 18 - Wind Resistance and Fire Classification-
 EverGuard® TPO and EverGuard Extreme® TPO Mechanically Secured to Recover and Re-Roof Steel Deck Assemblies with the Drill-Tec™ RhinoBond® Membrane
 Attachment System
 (Membrane Bonded to Plate)**

SYSTEM NO	DECK	INSULATION	COVER BOARD	ROOF COVER (See Note)		FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
				Membrane	Fasteners and Plates		
NC-58	Recover Steel Deck	(One or more of the following) Min. 0.5-1.0 in. thick EnergyGuard™ Polyiso Insulation, EnergyGuard™ NH, EnergyGuard™ Ultra, EnergyGuard™ NH Ultra, EnergyGuard™ RA or EnergyGuard™ RN Polyiso Insulation	Min. 0.25 in. thick Dens Deck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board or min. 0.5 in. thick EnergyGuard™ HD Polyiso Insulation, EnergyGuard™ NH HD	EverGuard® TPO -OR- EverGuard Extreme® TPO	Mechanically fastened with Drill-Tec™ RhinoBond® TPO XHD Plates and Drill- Tec™ XHD Fasteners applied in a 24 in. x 24 in. grid	Class A at 1:12	-60.0 psf
NC-59	Re-Roof Steel Deck	Min. 1.0 in. EnergyGuard™ Polyiso Insulation, EnergyGuard™ NH, EnergyGuard™ Ultra, or EnergyGuard™ NH Ultra Polyiso Insulation -OR- Min. 1.5 in. EnergyGuard™ RA or EnergyGuard™ RN	Polyiso Insulation, EnergyGuard™ HD Plus Polyiso Insulation, or EnergyGuard™ NH HD Plus Polyiso Insulation				-60.0 psf

Table 19 - Wind Resistance and Fire Classification

EverGuard® TPO and EverGuard Extreme® TPO Mechanically Secured to Non-Combustible Roof Deck through Insulation and into 16 ga. Purlins for Recover

SYSTEM NO	DECK	THERMAL BARRIER, INSULATION & COVER BOARD		ROOF COVER (See Note)		FIRE RATING UL 790 / E108	ALLOWABLE WIND UPLIFT
		Insulation	Cover Board	Membrane	Fasteners and Plates		
NC-60	Existing, uninsulated, standing lap/seam metal roof cover, recover	0.5 in. – 1.0 in. EnergyGuard™ Polyiso Insulation, EnergyGuard™ NH Polyiso Insulation EnergyGuard™ RA Polyiso Insulation, EnergyGuard™ RN Polyiso Insulation, EnergyGuard™ Ultra Polyiso Insulation, or EnergyGuard™ NH Ultra Polyiso Insulation is preliminarily secured	NA	EverGuard® TPO or EverGuard Extreme® TPO	Drill-Tec™ Hex Head Purlin Fasteners and Drill-Tec™ 2-3/8" Barbed XHD Plates, Drill-Tec™ 2" Double Barbed XHD Plates or Drill-Tec™ Eye Hook AccuSeam Plates	Class A at 0.5 in 12	-45.0 psf
NC-61		0.5 in, EnergyGuard™ Polyiso Insulation, EnergyGuard™ NH Polyiso Insulation EnergyGuard™ RA Polyiso Insulation, EnergyGuard™ RN Polyiso Insulation, EnergyGuard™ Ultra Polyiso Insulation, or EnergyGuard™ NH Ultra Polyiso Insulation is loose-laid	0.5 in, EnergyGuard™ HD Polyiso Insulation EnergyGuard™ NH HD Polyiso Insulation, EnergyGuard™ HD Plus Polyiso Insulation, or EnergyGuard™ NH HD Plus Polyiso Insulation is preliminarily secured.				-45.0 psf
NC-62		0.5 in. – 0.75 in. EnergyGuard™ Polyiso Insulation, EnergyGuard™ NH Polyiso Insulation EnergyGuard™ RA Polyiso Insulation, EnergyGuard™ RN Polyiso Insulation, EnergyGuard™ Ultra Polyiso Insulation, or EnergyGuard™ NH Ultra Polyiso Insulation is loose laid	0.25 in, DensDeck®, DensDeck® Prime, SECUROCK® Glass-Mat Roof Board or SECUROCK® Gypsum-Fiber Roof Board, preliminarily secured				-45.0 psf

ROOF COVER NOTE: All fasteners and plates are put through the insulation and into the minimum 16 ga. purlins spaced 6" o.c. n rows spaced 120" o.c. An 8" wide cover strip is heat welded over the plates and screws.

**Table 20 - Wind Resistance and Fire Classification
 EverGuard® TPO, EverGuard® Extreme® TPO, EverGuard® TPO FB Ultra and EverGuard Extreme® TPO FB Ultra
 Adhered to Non-Combustible Roof Deck with adhered Vapor Retarder**

SYSTEM NO	DECK	Vapor Retarder	INSULATION	INSULATION ATTACHMENT (SEE NOTE)	COVER BOARD	COVER BOARD ATTACHMENT	Cover	Membrane Attachment	FIRE CLASS-IFICATION	ALLOWABLE WIND UPLIFT		
NC-63	Min. 22 ga, 33 ksi Steel deck	None	Min. 1.5 in. thick EnergyGuard™ Polyiso Insulation or EnergyGuard™ NH Polyiso Insulation	Mechanically attached with Drill-Tec 3" Steel Plate and Drill-Tec #12 Fasteners applied at a maximum contributory area of 1.33 ft ²	None	NA	EverGuard® TPO FB Ultra or EverGuard Extreme® TPO FB Ultra	Adhered with Millennium One Step Foamable Adhesive or TPO LRF Adhesive M Low Temp in 0.75 – 1.0 in. wide ribbons or Millennium PG-1 Pump Grade Adhesive or LRF Adhesive M in 0.75- 1.0 in wide ribbons spaced maximum 12 in. o.c.	Class A; 0.5 in.:12	-67.5 psf		
NC-64	New Structural Concrete Deck	1-2 ply BUR Adhered with hot asphalt at 20-25 lbs/sq	Min. 1.5 in. EnergyGuard™ Polyiso Insulation, EnergyGuard™ NH Polyiso Insulation, EnergyGuard™ RA Polyiso Insulation, EnergyGuard™ RN Polyiso Insulation,	Adhered with Millennium One Step Foamable Adhesive, Millennium PG-1 Pump Grade Adhesive, Millennium One Step Green Foamable Adhesive, Millennium PG-1 SAF Pump Grade Adhesive or LRF Adhesive M in 0.5-0.75 in wide ribbons spaced maximum 12 in. o.c.	Minimum 0.25 in. thick, DensDeck®, Prime or SECUROCK®, Gypsum-Fiber Roof Board	Adhered with Millennium One Step Foamable Adhesive, Millennium PG-1 Pump Grade Adhesive, Millennium One Step Green Foamable Adhesive, Millennium PG-1 SAF Pump Grade Adhesive or LRF Adhesive M in 0.5 - 0.75 in. wide ribbons spaced maximum 12 in. o.c.	EverGuard® TPO or EverGuard Extreme® TPO	Adhered with EverGuard® TPO #1121 Bonding Adhesive, EverGuard® TPO Low VOC Bonding Adhesive, EverGuard® TPO 3 Square Low VOC Bonding Adhesive or EverGuard® WB 181 Bonding Adhesive	SEE APPENDIX A – TABLE 2 ROOF COVERS 2A1, 2A2, 2A3, 2A4–FOR APPROVED ADHERED MEMBRANE, ADHESIVE AND COVER BOARD COMBINATIONS	-157.5 psf		
NC-65	New Structural Concrete Deck						EverGuard® TPO FB Ultra or EverGuard Extreme® TPO FB Ultra	Adhered with Millennium One Step Foamable Adhesive or TPO LRF Adhesive M Low Temp in 0.75 – 1.0 wide ribbons or Millennium PG-1 Pump Grade Adhesive or LRF Adhesive M in 0.75- 1.0 in. wide ribbons spaced maximum 12 in. o.c.			Class A; 3.0 in.:12	-67.5 psf
NC-66	New Structural Concrete Deck						EverGuard® TPO FB Ultra or EverGuard Extreme® TPO FB Ultra	LRF Adhesive M in 0.5 in ribbons spaced 4 in. o.c.			SEE APPENDIX A – TABLE 2 ROOF COVERS 2A8 AND 2A9 FOR APPROVED ADHERED MEMBRANE, ADHESIVE AND COVER BOARD COMBINATIONS	-157.5 psf

INSULATION ATTACHMENT: Drill-Tec™ 3" Steel Plates, 3" Standard Steel Plates, AccuTrac® Flat Plates, AccuTrac® Recessed Plates, 3 in. Ribbed Galvalume Plates (Flat) and Drill-Tec™ #12 Fasteners (steel deck only) or Drill-Tec™ #14 Fasteners (steel or structural concrete) applied within the contributory area specified above.

APPENDIX A – ADHERED ROOF COVER TABLES & FIRE CLASSIFICATIONS

APPENDIX A – TABLE 1						
Roof Cover No.	Membrane	Adhesive	Adhesive Application Rate	Substrate	Adhesive Details*	FIRE RATING UL 790 / E108
1A1	EverGuard® TPO or EverGuard Extreme® TPO	EverGuard® Low VOC TPO Bonding Adhesive	0.91 gal/sq (total)	EnergyGuard™, EnergyGuard™ NH, EnergyGuard™ RA or EnergyGuard™ RN Polyiso Insulation	½ to membrane and ½ to substrate	Class A; 0.25:12
1A2		EverGuard® TPO 3 Square Low VOC Bonding Adhesive	1.67 gal/sq (total)		½ to membrane and ½ to substrate	
1A3		EverGuard® #1121 Bonding Adhesive	1.67 gal/sq (total)		½ to membrane and ½ to substrate	Class A; 0.75:12
1A4		EverGuard® WB 181 Bonding Adhesive	0.83 gal/sq (total)		¼ to membrane and ¾ to substrate	
1A5		EverGuard® TPO Quick Spray Adhesive	0.705 lbs./sq		Spray applied in full coverage to both the membrane and substrate	Class A 0.5:12
1A6		EverGuard® TPO Quick Spray Adhesive LV50	0.837 lbs./sq		Spray applied in full coverage to both the membrane and substrate	
1A7	EverGuard® TPO FB Ultra or EverGuard Extreme® TPO FB Ultra	EverGuard® WB 181 Bonding Adhesive	0.83 – 1.0 gal/sq (total)		Apply all adhesive to substrate. Install membrane immediately into wet adhesive	Class A; 0.75:12
1A8		OlyBond 500™ Canister	0.318 gal/sq		Spray apply all adhesive to substrate in a "spatter pattern"	Class A; 0.5:12
*The membrane is adhered to the insulation with the selected adhesive per manufacturer's published installation instructions.						

APPENDIX A – TABLE 2						
Roof Cover No.	Membrane	Adhesive	Adhesive Application Rate	Substrate	Adhesive Details*	FIRE RATING UL 790 / E108
2A1	EverGuard® TPO or EverGuard Extreme® TPO	EverGuard® TPO 3 Square Low VOC Bonding Adhesive	1.67 gal/sq (total)	DensDeck® Prime or SECUROCK® Gypsum-Fiber Roof Board	½ to membrane and ½ to substrate	Class A; 3:12
2A2		EverGuard® #1121 Bonding Adhesive	1.67 gal/sq (total)	DensDeck® Prime or SECUROCK® Gypsum-Fiber Roof Board	½ to membrane and ½ to substrate	Class A; 1.5:12
2A3		EverGuard® Low VOC TPO Bonding Adhesive	0.91 gal/sq (total)	DensDeck® Prime or SECUROCK® Gypsum-Fiber Roof Board	½ to membrane and ½ to substrate	Class A; 3:12
2A4		EverGuard® WB 181 Bonding Adhesive	0.83 gal/sq (total)	DensDeck® Prime or SECUROCK® Gypsum-Fiber Roof Board	¼ to membrane and ¾ to substrate	
2A5		EverGuard® TPO Quick Spray Adhesive	0.705 lbs./sq	DensDeck® Prime	Spray applied in full coverage to both the membrane and substrate	Class A 0.5:12
2A6		EverGuard® TPO Quick Spray Adhesive LV50	0.837 lbs./sq	DensDeck® Prime or SECUROCK® Gypsum-Fiber Roof Board	Spray applied in full coverage to both the membrane and substrate	
2A7	EverGuard® TPO FB Ultra or EverGuard Extreme® TPO FB Ultra	EverGuard® WB 181 Bonding Adhesive	0.83 – 1.0 gal/sq (total)	DensDeck® Prime or SECUROCK® Gypsum-Fiber Roof Board	Apply all adhesive to substrate. Install membrane immediately into wet adhesive.	Class A; 3:12
2A8		LRF Adhesive M, TPO LRF Adhesive M Low Temp, -OR- LRF Adhesive O	See Adhesive Details	SECUROCK® Gypsum-Fiber Roof Board	Apply adhesive in 0.75 – 1.0 in. wide ribbons spaced 12 in. o.c	Class A; 3:12
2A9		DensDeck® Prime or SECUROCK® Gypsum-Fiber Roof Board		Apply adhesive in 0.75 – 1.0 in. wide ribbons spaced 4 in. o.c	Class A; 2:12	
2A10		LRF Adhesive O	See Adhesive Details	DensDeck® Prime	Apply adhesive in 0.75 – 1.0 in. wide ribbons spaced 12 in. o.c	Class A; 3:12
2A11				DensDeck® Prime	Apply adhesive in 0.75 – 1.0 in. wide ribbons spaced 4 in. o.c	Class A; 2:12
2A12		OlyBond500™ Canister	0.318 gal/sq	DensDeck® Prime or SECUROCK® Gypsum-Fiber Roof Board	Spray apply all adhesive to substrate in a "spatter pattern"	Class A; 2.5:12

**The membrane is adhered to the insulation with the selected adhesive per manufacturer's published installation instructions.*

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