



- Compliance with International Codes
- Compliance to State/Regional Codes

# ICC-ES Evaluation Report

## ESR-4676

Reissued August 2022

This report is subject to renewal August 2023.

### DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION

Section: 07 54 00—Thermoplastic Membrane Roofing  
Section: 07 54 23—Thermoplastic-Polyolefin Roofing

### REPORT HOLDER:

GAF

### EVALUATION SUBJECT:

**EVERGUARD® TPO SINGLE-PLY ROOF MEMBRANE SYSTEMS: EVERGUARD® TPO, EVERGUARD® TPO FLEECE-BACK MEMBRANE, EVERGUARD EXTREME® TPO**

## 1.0 EVALUATION SCOPE

### Compliance with the following codes:

- 2021, 2018, 2015 and 2012 International Building Code® (IBC)
- 2021, 2018, 2015 and 2012 International Residential Code® (IRC)

For evaluation for compliance with codes adopted by Los Angeles Department of Building and Safety (LADBS), see [ESR-4676 LABC Supplement](#).

### Properties evaluated:

- Weather resistance
- Fire classification
- Wind uplift resistance
- Impact resistance

## 2.0 USES

EverGuard® TPO single-ply roofing membranes are used as roof coverings in mechanically fastened and adhered fire-classified roof assemblies.

## 3.0 DESCRIPTION

### 3.1 General:

The EverGuard® TPO, EverGuard® TPO Fleece-Back Membrane, also known as EverGuard® TPO FB Ultra, and EverGuard Extreme® TPO described in this report consist of single-ply roofing membranes complying with ASTM D6878, insulation where used, barrier board or slip sheet where used, flashing, mechanical fasteners and/or adhesives that are installed on a combustible or noncombustible deck.

### 3.2 Membranes:

**3.2.1 EverGuard® TPO:** EverGuard® TPO is 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 membrane is supplied in rolls 48 inches (1219 mm), 60 inches (1524 mm), 96 inches (2438.4 mm), 120 inches (3048 mm), or 144 inches (3657 mm) wide by 100 feet (30.5 m) long.

**3.2.2 EverGuard® TPO Fleece-Back Membrane, also known as EverGuard® TPO FB Ultra:** EverGuard® TPO Fleece-Back Membrane, also known as EverGuard® TPO FB Ultra, is 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/yd<sup>2</sup> (120 g/m<sup>2</sup>) polyester fleece fabric backing. The membrane is supplied in rolls 60 inches (1523 mm) or 120 inches (3048 mm) wide. The 45-mil [0.045 inch (1.1 mm)] and 60-mil [0.060 inch (1.5 mm)] membranes are supplied in 100 foot (30.5 m) rolls and the 80-mil [0.080 inch (2.0 mm)] membrane is supplied in 50 foot (15.2 m) rolls.

**3.2.3 EverGuard Extreme® TPO:** EverGuard Extreme® TPO is a nominally 50-, 60- or 80-mil-thick thermoplastic polyolefin roof covering with woven polyester reinforcement. The 50-mil membrane [0.050 inch (1.27 mm)] and the 60-mil membrane [0.060 inch (1.5 mm)] are supplied in rolls 48 inches (1219 mm), 60 inches (1524 mm), 96 inches (2438 mm) or 120 inches (3048 mm) wide. The 80-mil [0.080 inch (2.0 mm)] membrane are supplied in rolls 60 inches (1523 mm) or 120 inches (3048 mm) wide. Both 60-mil [0.060 inch (1.5 mm)] and 80-mil [0.080 inch (2.0 mm)] membranes have a white surface and are supplied in 100 foot (30.5 m) long rolls.

### 3.3 Sealant:

EverGuard® TPO Cut Edge Sealant is a polymeric sealant, used for sealing exposed cut edges of the membrane. The sealant has a shelf life of 12 months and is required to be stored in a dry, well-ventilated area, where the temperature is 50°F to 90°F (10°C to 32.2°C).

### 3.4 Roof Deck:

Combustible roof decks are limited to minimum nominally 1<sup>5</sup>/<sub>32</sub>-inch-thick (11.9 mm) Exposure 1 wood structural panels, which must comply with IBC Section 2603.4.1.5. Noncombustible decks are steel or concrete decks specified in the IBC. The steel roof deck must be minimum No. 22

gage steel [base-metal thickness of 0.0273 inch (0.69 mm)], having a minimum yield strength,  $F_y$ , of 33 ksi or 80 ksi (227 or 550 MPa), depending on the wind uplift capacity of the roof assemblies shown in Table 2 and 3. Concrete decks must have a minimum 2500 psi (17.2 MPa) compressive strength and a minimum 28 day cure time prior to the roofing system installation.

### 3.5 Insulation:

Foam plastic insulation, where used, must have a flame-spread index of not more than 75 when tested in accordance with ASTM E84 or UL 723 at the maximum thickness intended for use. Polyisocyanurate foam plastic thermal insulation must comply with ASTM C1289. Polystyrene foam plastic insulation must comply with ASTM C578. Wood fiberboard insulation must comply with ASTM C208. See Tables 1 through 5 for insulations used with specific roof covering systems.

### 3.6 Barrier Board, Cover Board or Slip Sheet:

Barrier boards, cover boards and slip sheets must be UL classified for roofing applications. Barrier boards and cover boards, where used, must be a minimum 1/4-inch-thick (6.4 mm) G-P Gypsum LLC "DensDeck® Roof Board" or "DensDeck® Prime Roof Board," or minimum 1/4-inch-thick (6.4 mm) USG Corporation "SECUROCK® Gypsum-Fiber Roof Board" or "SECUROCK® Glass-Mat Roof Board."

#### 3.6.1 VersaShield® SOLO™ Fire-Resistant Slip Sheet:

VersaShield® SOLO™ Fire-Resistant Slip Sheet is a non-asphaltic fiberglass-based slip sheet. The slip sheet is supplied in rolls 6 feet (1.83 m) wide by 166.7 feet (50.8 m) long.

#### 3.6.2 EnergyGuard™ Barrier Polyiso Insulation Board:

EnergyGuard™ Barrier Polyiso Insulation Board consists of coated glass-fiber bonded to an isocyanurate foam core. Minimum 1/2-inch-thick (6.4 mm).

#### 3.6.3 EnergyGuard™ NH Barrier Polyiso Insulation Board:

EnergyGuard™ NH Barrier Polyiso Insulation Board consists of coated glass-fiber bonded to an isocyanurate foam core. Minimum 1/2-inch-thick (6.4 mm).

### 3.7 Fasteners and Plates:

Fasteners and plates used to attach barrier or cover board layer materials, insulation boards and the roof covering membrane must be corrosion-resistant. Fasteners may be any of the insulation and membrane fasteners and plates summarized in this section or shown in Tables 3, 4, 5 and 6, as applicable.

#### 3.7.1 Drill-Tec™ #12 Fastener or Drill-Tec™ #14 Fastener:

The standard Drill-Tec™ #12 Fastener is a #12 diameter by maximum 8-inch-long (203 mm) drill-point screw with a #3 Phillips head. The Drill-Tec™ #14 Fastener is a #14 diameter by maximum 24-inch-long (609 mm) drill-point screw with a #3 Phillips head. The fasteners are coated with a black proprietary coating. The fasteners are for use with Drill-Tec™ 3" Standard Steel Plates for preliminary fastening of insulation boards to plywood, steel and concrete (#14 only) decks. See Tables 3 and 4 for preliminary attachment details.

**3.7.2 Drill-Tec™ XHD Fastener:** The Drill-Tec™ XHD Fastener is a #15 diameter by maximum 22-inch-long (558.8 mm) drill-point screw with a #3 Phillips head. The fasteners are coated with a black proprietary coating. The fasteners must be of sufficient length to penetrate a minimum of 3/4 inch (19 mm) through steel deck or 3/4 inch (19 mm) through plywood sheathing. The fastener is for use with Drill-Tec™

plates for attachment of the EverGuard® membrane to plywood and steel decks. See Tables 3 and 4 for membrane attachment details.

#### 3.7.3 Drill-Tec™ Extra Heavy Duty ASAP Assembled Screw and 2 3/8 in. Steel Plate:

The Drill-Tec™ Extra Heavy Duty ASAP Assembled Screw and 2 3/8 in. Steel Plate is a #15 fastener assembled with Drill-Tec™ 2 3/8 in. Barbed XHD Plate. The fasteners are for preliminary fastening of insulation boards and for attachment of the EverGuard® membrane to steel decks. See Table 4 for attachment details.

#### 3.7.4 Drill-Tec™ 3" Standard Steel Plate and Drill-Tec™ 3" Steel Plate:

The Drill-Tec™ 3" Standard Steel Plate is a 3-inch-diameter (76 mm), 0.020-inch-thick (0.51 mm), Galvalume AZ-55 coated plate. The Drill-Tec™ 3" Steel Plate is a ribbed, 3-inch-diameter (76 mm), 0.020-inch-thick (0.51 mm), Galvalume AZ-55 coated plate. The plates are for use with Drill-Tec™ Standard #12 or #14 Fasteners for preliminary attachment of insulation boards to plywood, steel and concrete (#14 only) decks. See Table 5 and Table 6 for preliminary attachment details.

#### 3.7.5 Drill-Tec™ 2 3/8 in. Barbed XHD Plate and Drill-Tec™ 2 3/4 in. Barbed SXHD Plate:

The Drill-Tec™ 2 3/8 in. Barbed XHD Plate is a 2 3/8-inch-diameter (60 mm), 0.040-inch-thick (1.02 mm), Galvalume AZ-55 coated plate. The Drill-Tec™ 2 3/4 in. Barbed SXHD Plate is a 2 3/4-inch-diameter (70 mm), 0.040-inch-thick (1.02 mm), Galvalume AZ-55 coated plate. The plates have pointed barbs projecting downward 1/8 inch (3.2 mm) from the underside between raised circular stampings. The plates are for use with Drill-Tec™ XHD and SXHD Fasteners for attachment of the EverGuard® membrane to plywood, steel and concrete decks. See Table 4 for membrane attachment details.

#### 3.7.6 Drill-Tec™ AccuTrac® Flat Plate and AccuTrac® Recessed Plate:

The Drill-Tec™ AccuTrac® Flat Plate is a 3-inch-square, 0.018-inch-thick, A2-SS aluminized steel plate. The Drill-Tec™ AccuTrac® Recessed Plate is a 3-inch-square, 0.018-inch-thick, Galvalume coated steel plate. The plates are for use with Drill-Tec™ Standard #12 or #14 Fasteners for preliminary attachment of insulation boards to plywood, steel, and concrete (#14 only) decks. See Table 5 and Table 6 for membrane attachment details.

#### 3.7.7 Drill-Tec™ Eyehook® AccuSeam® Plate:

The Drill-Tec™ Eyehook® AccuSeam® Plate is a 2 3/8-inch-diameter, 0.034-inch-thick, Galvalume coated steel plate used in combination with Drill-Tec™ fasteners for the attachment of single-ply membranes. See Table 4 for preliminary attachment details.

#### 3.7.8 Drill-Tec™ RhinoBond® TPO XHD and XHD TreadSafe® Plate:

The Drill-Tec™ RhinoBond® TPO XHD TreadSafe® plate is a 3-inch-diameter, 0.028-inch-thick, Galvalume steel plate with a thermoplastic polyolefin (TPO) coating. Plate is designed to be used with heat welded single-ply membranes. See Table 3 for membrane attachment details.

#### 3.7.9 Drill-Tec™ 2 in. Double Barbed XHD Plate:

The Drill-Tec™ Double Barbed XHD Plate is a 2 1/8-inch-diameter, 0.030-inch-thick, Galvalume steel plate used with Drill-Tec™ XHD Fastener for the attachment of approved membranes. See Table 4 for preliminary attachment details.

#### 3.7.10 Drill-Tec™ #14 HD or Drill-Tec™ #12 DP Fastener:

The Drill-Tec™ #14 HD and #12 DP Fasteners are carbon steel screws with #3 Phillips drive, modified truss head for use in steel, wood or concrete decks. The fasteners are coated with an epoxy coating. The fasteners are for use with

Drill-Tec™ 3" Flat Steel Plates for preliminary fastening of insulation boards to plywood, steel and concrete (#14 only) decks. See Table 5 and Table 6 for preliminary attachment details.

**3.7.11 Drill-Tec™ #15 EHD Fastener:** The Drill-Tec™ #15 EHD Fasteners are carbon steel screws with #3 Phillips drive, modified truss head for use in steel, wood or concrete decks. The fasteners are coated with an epoxy coating. The fasteners must be of sufficient length to penetrate a minimum of 1/2 inch (13 mm) through steel deck or 3/4 inch (19 mm) through plywood sheathing. The fastener is for use with Drill-Tec™ plates for attachment of the EverGuard® membrane to plywood and steel decks. See Table 4 or membrane attachment details.

**3.7.12 Drill-Tec™ Flat Steel Plate:** The Drill-Tec™ Flat Steel plate is a galvalume steel stress plate. The plates are for use with Drill-Tec™ #12 DP or Drill-Tec™ #14 HD fasteners for preliminary attachment of insulation boards to plywood (#12 DP or #14 HD), steel (#12 or #14 HD) and concrete (#14 HD only) decks.

**3.7.13 Drill-Tec™ 3" Recessed Steel Plate:** The Drill-Tec™ 3" Recessed Steel Plate is a galvalume steel stress plate for use with Drill-Tec™ fasteners.

**3.7.14 Drill-Tec™ 2.4" Barbed Seam Plate:** The Drill-Tec™ 2.4" Barbed Seam Plate is a galvalume steel stress plate for use with Drill-Tec™ fasteners.

### 3.8 Adhesives:

**General** - See Tables 2 through 6 for the specific adhesive to be used with each system and Table 7 for the specific application rate for the following adhesives:

**3.8.1 EverGuard® TPO 1121 Bonding Adhesive, also known as EverGuard® #1121 Bonding Adhesive:** EverGuard® TPO 1121 Bonding Adhesive, also known as EverGuard® #1121 Bonding Adhesive, is a rubber-based, contact bonding adhesive designed for bonding TPO single-ply membranes and flashings to various substrates. The adhesive is applied at a total rate of 1.67 gal/100 ft<sup>2</sup> to both the substrate and the underside of the membrane. The adhesive has a shelf life of 12 months when stored in unopened containers at temperatures between 40°F and 90°F (4°C to 32.2°C).

**3.8.2 EverGuard® TPO 6 Square Low VOC Bonding Adhesive, also known as EverGuard® Low VOC TPO Bonding Adhesive:** EverGuard® TPO 6 Square Low VOC Bonding Adhesive, also known as EverGuard® TPO Low VOC Bonding Adhesive, is a solvent-based, contact bonding adhesive designed for bonding TPO single-ply membranes and flashings to various substrates. The adhesive is applied at a total rate of 0.83 gal/100 ft<sup>2</sup> to both the substrate and the underside of the membrane. The adhesive has a shelf life of 12 months when stored in unopened containers at temperatures between 60°F and 80°F (15.6°C to 26.7°C).

**3.8.3 EverGuard® WB181 Bonding Adhesive:** EverGuard® WB181 Bonding Adhesive is a water-based, contact adhesive designed for bonding single-ply membranes to various substrates. For smooth surfaced TPO membranes, the adhesive is applied at a total rate of 0.83 gal/100 ft<sup>2</sup> to both the substrate and the underside of the membrane. For fleeced backed TPO membranes, the adhesive is applied to the substrate surface only at a coverage rate of 0.83 gal/100ft<sup>2</sup>. The adhesive has a shelf life of 12 months when stored in unopened containers at temperatures between 40°F and 90°F (4°C to 32.2°C)

**3.8.4 LRF Adhesive M and LRF Adhesive O:** LRF Adhesive M and LRF Adhesive O are two component, solvent free, polyurethane foam adhesives designed for bonding fleece back membranes to various substrates. LRF Adhesive M can also be used to adhere insulation to various substrates. Adhesive is applied in 3/4-inch-wide (19 mm) liquid beads spaced at 12-inches (305 mm) on-center. The adhesive has a shelf life of 12 months when stored in unopened containers at temperatures between 45°F and 95°F (7°C to 35°C).

**3.8.5 EverGuard® TPO Quick Spray Adhesive:** EverGuard® TPO Quick Spray Adhesive is a sprayable, solvent-based contact adhesive designed for bonding TPO membranes to various substrates. The adhesive is applied with a coverage rate of 0.705 lb/100 ft<sup>2</sup>. The adhesive has a shelf life of 12 months when stored in unopened containers at temperatures between 50°F and 150°F (10°C to 65.6°C).

**3.8.6 EverGuard® TPO Quick Spray Adhesive LV50:** EverGuard® TPO Quick Spray Adhesive LV50 is a sprayable solvent-based contact adhesive designed for bonding TPO membranes to various substrates. The adhesive is applied with a coverage rate of 0.837 lb/100 ft<sup>2</sup>. The adhesive has a shelf life of 12 months when stored in unopened containers at temperatures between 50°F and 150°F (10°C to 65.6°C).

**3.8.7 OMG Inc. OlyBond 500® and OlyBond 500® Canister Adhesive:** OMG Inc. OlyBond 500® and OlyBond 500® Canister Adhesive is a two-component polyurethane foam adhesive designed to secure insulation or membranes to roof decks. OMG Inc. OlyBond 500® Canister is to be utilized for ribbon or spatter application, and OlyBond 500® is to be used for ribbon application only. For insulation, the adhesive is dispensed in a pre-foamed bead that spreads to several inches before rising 3/4 to 1 inch above the substrate. For roof membranes, the adhesive is applied in a spatter pattern with 50-percent coverage.

### 3.9 Impact Resistance:

The EverGuard® TPO, EverGuard® TPO Fleece-Back Membrane, also known as EverGuard® TPO FB Ultra, and EverGuard Extreme® TPO membrane roofing systems described in this report comply with requirements for impact resistance in the 2021 IBC Section 1504.8 (2018, 2015, and 2012 IBC Section 1504.7) based on testing in accordance with Section 4.6 of FM 4770.

## 4.0 INSTALLATION

### 4.1 General:

Installation of the EverGuard® TPO, EverGuard® TPO Fleece-Back Membrane, also known as EverGuard® TPO FB Ultra, and EverGuard Extreme® TPO roofing membranes described in this report must comply with the applicable code, the manufacturer's published installation instructions and this report. The manufacturer's published installation instructions must be available on the jobsite at all times during installation. EverGuard® TPO products are attached to the roof deck by mechanical fastening systems or adhered to the underlying substrate in accordance with Tables 3,4, 5 and 6. All substrates must be clean, smooth, and free of sharp edges, foreign materials, oil and grease.

The slope of the roof on which the single-ply membranes are installed must be a minimum of 1/4:12 (2 percent slope) and must not be more than the maximum slope indicated for the particular assembly as listed in Tables 1 and 2.

Penetrations and terminations of the roof covering must be flashed and made weathertight in accordance with the

requirements of the membrane manufacturer and IBC Section 1503.2 or IRC Section R903.2, as applicable.

**4.1.1 Mechanically Attached Systems:** Mechanically attached systems consist of insulation boards or cover boards mechanically presecured to noncombustible or combustible roof decks with the fasteners and plates described in Tables 3 and 4. The insulation is covered with one of the EverGuard® TPO membranes, which is mechanically fastened through the insulation and into the roof deck using the fasteners and plates as described in Tables 3 and 4.

**4.1.2 Adhered Systems:** Adhered systems consist of insulation boards or coverboards mechanically or adhesively attached to noncombustible or combustible roof decks with the fasteners and plates, or adhesives as described in Tables 5 and 6. The insulation is covered with one of the EverGuard® TPO membranes, which is adhered to the insulation using the adhesive as described in Tables 5, 6 and 7.

**4.1.3 Lap Joints:** EverGuard® TPO products are lapped and heat-welded in accordance with Table 3.

## 4.2 Fire Classification

**4.2.1 New Construction:** The TPO single-ply membrane roofing systems described in Tables 1 and 2, when installed in accordance with this report, are Class A or Class C roof covering systems in accordance with ASTM E108 or UL 790.

**4.2.2 Reroofing:** The existing deck must be inspected to verify that the structure to be reroofed is structurally sound and adequate to support and secure the roofing membrane. Prior to the installation of new roof coverings, inspection by and written approval from the code official having jurisdiction must be required.

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

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

## 4.3 Wind Uplift Resistance:

**4.3.1 New Construction:** The allowable wind uplift pressures for the single-ply roof covering systems described in this report are noted in Tables 3, 4, 5 and 6. Metal edge securement systems must be listed in accordance with the 2011 edition of ANSI/SPRI/FM4435 ES-1, and designed and installed for wind loads in accordance with the 2021 IBC, Section 1504.6; and 2018 and 2015 IBC Section 1504.5 and IBC Chapter 16 [2003 edition of ANSI/SPRI ES-1, and designed and installed in accordance with 2012, 2009 and 2006 IBC Section 1504.5 and 2012, 2009 and 2006 IBC Chapter 16].

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

## 5.0 CONDITIONS OF USE

The EverGuard® TPO single-ply roof membranes described in this report comply with, or are suitable alternatives to what is specified in, the code indicated in Section 1.0 of this report, subject to the following conditions:

- 5.1** Installation of the roofing systems must comply with the IBC, the manufacturer's published installation instructions and this report. In the event of a conflict between the manufacturer's published installation instructions and this report, this report governs.
- 5.2** The roof-membrane system must be installed by applicators authorized by GAF. Roof classification requirements are as shown in Tables 1 and 2 wind design requirements are as shown in Tables 3, 4, 5 and 6.
- 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 or IRC Section R316.5.2, as applicable, except when use without a thermal barrier is specifically addressed in an ICC-ES evaluation report for the foam plastic insulation.
- 5.4** Foam plastic insulation, where used, must bear the label of an approved agency indicating that the foam plastic has a flame-spread index of not more than 75 when tested, at the maximum thickness intended for use, in accordance with ASTM E 84 or UL 723, subjected to the approval of a code official.
- 5.5** Above-deck thermal insulation board must comply with the applicable standards listed in IBC Table 1508.2 or IRC Table R906.2, as applicable.
- 5.6** Design wind-uplift pressure on any roof area, including edge and corner zones, must not exceed the allowable wind pressure for the system installed in that particular area. Refer to the allowable wind uplift pressure for roof coverings as listed in Tables 3, 4, 5 and 6.
- 5.7** The allowable wind uplift pressures listed in Table 3, 4, 5 and 6 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 IBC.
- 5.8** When application is over existing roofs, documentation of the wind uplift resistance of the composite roof construction must be submitted to the code official for approval at the time of permit application.
- 5.9** Calculations demonstrating that the required wind resistance is less than the allowable wind resistance must be submitted to the code official.
- 5.10** EverGuard® TPO, EverGuard® TPO Fleece-Back Membrane, also known as EverGuard® TPO FB Ultra, and EverGuard Extreme® TPO single-ply roof membranes are manufactured in Cedar City, Utah and Gainesville, Texas; under a quality control program with inspections by ICC-ES.

## 6.0 EVIDENCE SUBMITTED

- 6.1** Data in accordance with the ICC-ES Acceptance Criteria for Membrane Roof-covering Systems (AC75), dated July 2010 (editorially revised April 2021).

## 7.0 IDENTIFICATION

- 7.1** The roof covering membranes (EverGuard® TPO, EverGuard® TPO FB Ultra, and EverGuard Extreme®

TPO); are identified with a label indicating the company name (GAF), the product name, and the evaluation report number (ESR-4676).

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

**GAF**  
**1 CAMPUS DRIVE**  
**PARSIPPANY, NEW JERSEY 07054**  
**800-763-4411**  
[www.gaf.com](http://www.gaf.com)

**TABLE 1—FIRE CLASSIFICATION ASSEMBLIES—MECHANICALLY FASTENED ROOF COVERING SYSTEMS**

SYSTEM NO.	ROOF CLASS	DECK <sup>2</sup>	MAX. ROOF SLOPE	BARRIER BOARD OR SLIP SHEET	INSULATION <sup>1</sup>	COVER BOARD	MEMBRANE
1	A	Min. 15/32 in. Plywood or 1 in. Wood Plank	3/4:12	VersaShield Solo	None	None	EverGuard TPO or EverGuard Extreme TPO
2	A	Min. 15/32 in. Plywood or 1 in. Wood Plank	1/2:12	VersaShield Solo	EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	None	EverGuard TPO or EverGuard Extreme TPO
3	A	Min. 15/32 in. Plywood or 1 in. Wood Plank	2-1/2:12	Min. ¼ inch-thick, DensDeck <sup>®</sup> , DensDeck <sup>®</sup> Prime, SECUROCK <sup>®</sup> Roof Board, or SECUROCK <sup>®</sup> Glass-Mat Roof Board	None	None	EverGuard TPO or EverGuard Extreme TPO
4	A	Min. 15/32 in. Plywood or 1 in. Wood Plank	1/2:12	Min. 1/4 inch thick, DensDeck <sup>®</sup> , DensDeck <sup>®</sup> Prime, SECUROCK <sup>®</sup> Roof Board, or SECUROCK <sup>®</sup> Glass-Mat Roof Board	EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	(Optional) Min. ½-inch-thick, EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, or EnergyGuard NH HD Plus Polyiso Cover Board	EverGuard TPO or EverGuard Extreme TPO
5	A	Min. 15/32 in. Plywood or 1 in. Wood Plank	2-1/2:12	None	Any UL Classified foam plastic insulation board	Min. 1/4 inch thick, DensDeck <sup>®</sup> , DensDeck <sup>®</sup> Prime, SECUROCK <sup>®</sup> Roof Board, or SECUROCK <sup>®</sup> Glass-Mat Roof Board	EverGuard TPO or EverGuard Extreme TPO
6	A	Min. 15/32 in. Plywood or 1 in. Wood Plank	1/2:12	Min. 1/2 inch-thick, EnergyGuard Barrier or EnergyGuard NH Barrier	None	None	EverGuard TPO or EverGuard Extreme TPO
7	A	Min. 15/32 in. Plywood or 1 in. Wood Plank	1/2:12	None	EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Min. 1/2 inch-thick, EnergyGuard Barrier or EnergyGuard NH Barrier	EverGuard TPO or EverGuard Extreme TPO

TABLE 1—FIRE CLASSIFICATION ASSEMBLIES—MECHANICALLY FASTENED ROOF COVERING SYSTEMS (continued)

SYSTEM NO.	ROOF CLASS	DECK <sup>2</sup>	MAX. ROOF SLOPE	BARRIER BOARD OR SLIP SHEET	INSULATION <sup>1</sup>	COVER BOARD	MEMBRANE
8	A	Min. 15/32 in. Plywood or 1 in. Wood Plank	1/2:12	1/2:12	Min. 3 inch-thick, EnergyGuard Ultra Polyiso Insulation or EnergyGuard NH Ultra Polyiso Insulation	None	EverGuard TPO or EverGuard Extreme TPO
9	A	Min. 15/32 in. Plywood or 1 in. Wood Plank	1/2:12	None	EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Min. 3 inch-thick, EnergyGuard Ultra Polyiso Insulation or EnergyGuard NH Ultra Polyiso Insulation	EverGuard TPO or EverGuard Extreme TPO
10	A	Non-Combustible	2-1/2:12	(Optional) Min. 1/2 inch-thick, DensDeck®, DensDeck® Prime, SECUROCK® Roof Board, or SECUROCK® Glass-Mat Roof Board	Any UL Classified foam plastic insulation board	Min. 1/4 inch-thick, DensDeck®, DensDeck® Prime, SECUROCK® Roof Board, or SECUROCK® Glass-Mat Roof Board	EverGuard TPO or EverGuard Extreme TPO
11	A	Non-Combustible	1/2:12	(Optional) Min. 1/2 inch-thick, DensDeck®, DensDeck® Prime, SECUROCK® Roof Board, or SECUROCK® Glass-Mat Roof Board	EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	(Optional) Min. 1/2 inch-thick, EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, or EnergyGuard NH HD Plus Polyiso Cover Board	EverGuard TPO or EverGuard Extreme TPO

For SI: 1 inch = 25.4 mm; 1 ft = 0.305 m; 1 psf = 47.88 Pa.

<sup>1</sup>All foam plastic insulation must be UL classified and limited to minimum 1/2-inch-thick (12.7 mm) and the maximum thickness in accordance with Section 3.5 of this report or the maximum thickness in accordance with this table, whichever is less. Unless otherwise noted, insulation are flat or tapered board of the minimum thickness noted.

<sup>2</sup>Wood deck must be minimum 15/32-inch-thick (11.9 mm) plywood or 1-inch-thick wood plank. Steel deck must be minimum No. 22 gage galvanized steel [0.030 inch (0.76 mm)]. Concrete must have a minimum compressive strength (*f<sub>c</sub>*) of 2500 psi.

TABLE 2—FIRE CLASSIFICATION ASSEMBLIES—ADHERED ROOF COVERING SYSTEMS<sup>3</sup>

SYSTEM NO.	ROOF CLASS	DECK <sup>2</sup>	MAX. ROOF SLOPE	BARRIER BOARD	INSULATION <sup>1</sup>	COVER BOARD	MEMBRANE	ADHESIVE ATTACHMENT
1	A	Non-Combustible	1/4:12	(Optional) Min. 1/2 inch-thick, DensDeck®, DensDeck® Prime, SECUROCK® Roof Board, or SECUROCK® Glass-Mat Roof Board	Min. 3 inch thick, EnergyGuard Polyiso Insulation, EnergyGuard Ultra, EnergyGuard NH, or EnergyGuard NH Ultra adhered with a nominal 3/4 inch bead of LRF Adhesive M or OlyBond Fastening System	(Optional) Min. 1/2 inch thick, EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, or EnergyGuard NH HD Plus Polyiso Cover Board	EverGuard TPO or EverGuard Extreme TPO	EverGuard WB 181 or EverGuard TPO 6 Square Low VOC Bonding Adhesive
2	A	Non-Combustible	2-1/2:12	(Optional) Min. 1/2 inch-thick, DensDeck®, DensDeck® Prime, SECUROCK® Roof Board, or SECUROCK® Glass-Mat Roof Board	None	Min. 1/4-inch-thick, DensDeck®, DensDeck® Prime, SECUROCK® Roof Board, or SECUROCK® Glass-Mat Roof Board	EverGuard TPO, EverGuard Extreme TPO, or EverGuard TPO Fleece-Back Membrane	EverGuard WB 181 Bonding Adhesive
3	A	Non-Combustible	3:12	(Optional) Min. 1/2 inch-thick, DensDeck®, DensDeck® Prime, SECUROCK® Roof Board, or SECUROCK® Glass-Mat Roof Board	None	Min. 1/4 inch-thick, DensDeck®, DensDeck® Prime, SECUROCK® Roof Board, or SECUROCK® Glass-Mat Roof Board	EverGuard TPO, EverGuard Extreme TPO, or EverGuard TPO Fleece-Back Membrane	EverGuard TPO 1121 Bonding Adhesive or EverGuard TPO 6 Square Low VOC Bonding Adhesive
4	A	Non-Combustible	1/2:12	(Optional) Min. 1/2 in. thick, DensDeck®, DensDeck® Prime, SECUROCK® Roof Board, or SECUROCK® Glass-Mat Roof Board	EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	(Optional) Min. 1/2-inch-thick, EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, or EnergyGuard NH HD Plus Polyiso Cover Board	EverGuard TPO or EverGuard Extreme TPO	EverGuard TPO Quick Spray Adhesive (at 3 lb. / 100 sq. ft.) or EverGuard TPO Quick Spray Adhesive LV50 (at 2.7 lb. / 100 sq. ft.)
5	A	Non-Combustible	1/2:12	(Optional) Min. 1/2 inch-thick, DensDeck®, DensDeck® Prime, SECUROCK® Roof Board, or SECUROCK® Glass-Mat Roof Board	EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Min. 1/4-inch-thick, DensDeck®, DensDeck® Prime, SECUROCK® Roof Board, or SECUROCK® Glass-Mat Roof Board	EverGuard TPO or EverGuard Extreme TPO	EverGuard TPO Quick Spray Adhesive (at 3 lb. / 100 sq. ft.) or TPO Quick Spray Adhesive LV50 (at 2.7 lb. / 100 sq. ft.)



TABLE 2—FIRE CLASSIFICATION ASSEMBLIES—ADHERED ROOF COVERING SYSTEMS<sup>3</sup> (continued)

SYSTEM NO.	ROOF CLASS	DECK <sup>2</sup>	MAX. ROOF SLOPE	BARRIER BOARD	INSULATION <sup>1</sup>	COVER BOARD	MEMBRANE	ADHESIVE ATTACHMENT
6	A	Non-Combustible	1/2:12	(Optional) Min. 1/2 inch-thick, DensDeck®, DensDeck® Prime, SECUROCK® Roof Board, or SECUROCK® Glass-Mat Roof Board	EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	(Optional) Min. 1/2-inch-thick, EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, or EnergyGuard NH HD Plus Polyiso Cover Board	EverGuard TPO Fleece-Back Membrane	LRF Adhesive M, LRF Adhesive O, or OlyBond 500 Canister
7	A	Non-Combustible	2-1/2:12	(Optional) Min. 1/2 inch-thick, DensDeck®, DensDeck® Prime, SECUROCK® Roof Board, or SECUROCK® Glass-Mat Roof Board	Any UL classified polyisocyanurate, EPS or EPS foam plastic insulation boards adhered with a nominal 3/4-inch bead of LRF Adhesive M, LRF Adhesive O, or OlyBond Fastening System.	Min. 1/4 inch-thick, DensDeck®, DensDeck® Prime, SECUROCK® Roof Board, or SECUROCK® Glass-Mat Roof Board	EverGuard TPO Fleece-Back Membrane	LRF Adhesive M, LRF Adhesive O, or OlyBond 500 Canister
8	C	Min. 15/32 in. Plywood or 1 in. Wood Plank	1/4:12	None	Min. 3-inch-thick, EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	None	EverGuard TPO or EverGuard Extreme TPO	EverGuard WB 181 Bonding Adhesive

For SI: 1 inch = 25.4 mm; 1 ft = 0.305 m; 1 psf = 47.88 Pa.

<sup>1</sup>All foam plastic insulation must be UL classified and limited to minimum 1/2-inch-thick (12.7 mm) and the maximum thickness in accordance with Section 3.5 of this report or the maximum thickness in accordance with this table, whichever is less. Unless otherwise noted, all insulations are flat or taper board of the minimum thickness noted.

<sup>2</sup>Wood deck must be minimum 15/32-inch-thick (11.9 mm) plywood or 1-inch-thick wood plank. Steel deck must be minimum No. 22 gage galvanized steel [0.030 inch (0.76 mm)]. Concrete must have a minimum compressive strength (*f<sub>c</sub>*) of 2500 psi.

<sup>3</sup> Adhesive and adhesive application rates to be as specified in Section 3.8 and Table 7, unless the adhesive application rate is described in the system detailed in Table 2.

TABLE 3—WIND RESISTANCE—WELDED ROOF COVERING

SYSTEM NO	DECK <sup>2</sup>	BARRIER BOARD OR SLIP SHEET	BASE INSULATION <sup>1</sup>	TOP INSULATION <sup>1</sup>	ROOF COVER <sup>5</sup>			ALLOWABLE WIND UPLIFT PRESSURE (psf)
			Type	Type	Membrane	Fasteners and Plates <sup>3,4</sup>	Contributory Area per Fastener Max. Fastener Spacing (inches)	
NC-1	Min. 22 ga, type B, Grade 33 steel or min. 2,500 psi concrete	(Optional) Min. 0.5 in. thick DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board or ¾ in. thick EnergyGuard Perlite Roof Insulation (Homogeneous).	Min. 1.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	(Optional) Min. 0.25 in. DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, min. 0.5 in. EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, EnergyGuard NH HD Plus Polyiso Cover Board, or Structodek™ High Density Fiber Board Roof Insulation	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 <sup>2</sup>  (6 Fasteners per 48 x 96 in. Board)	45
NC-2	Min. 22 ga, type B, Grade 33 steel or min. 2,500 psi concrete	(Optional) Min. 0.5 in. thick DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board or ¾ in. thick EnergyGuard Perlite Roof Insulation (Homogeneous)	Min. 1.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	(Optional) Min. 0.25 in. DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, min. 0.5 in. EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, EnergyGuard NH HD Plus Polyiso Cover Board, or Structodek™ High Density Fiber Board Roof Insulation	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)	2.0 ft <sup>2</sup>  (8 Fasteners per 48 x 96 in. Board)	60

TABLE 3—WIND RESISTANCE—WELDED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	BARRIER BOARD OR SLIP SHEET	BASE INSULATION <sup>1</sup>	TOP INSULATION <sup>1</sup>	ROOF COVER <sup>5</sup>			ALLOWABLE WIND UPLIFT PRESSURE (psf)
			Type	Type	Membrane	Fasteners and Plates <sup>3,4</sup>	Contributory Area per Fastener Max. Fastener Spacing (inches)	
NC-3	Min. 22 ga, type B, Grade 33 steel or min. 2,500 psi concrete	(Optional)  Min. 0.5 in. thick DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board or ¼ in. thick EnergyGuard Perlite Roof Insulation (Homogeneous)	Min. 1.5 in. thick EnergyGuard Polyiso Insulation EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	(Optional) Min. 0.25 in. DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, min. 0.5 in. EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, EnergyGuard NH HD Plus Polyiso Cover Board, or Structodek™ High Density Fiber Board Roof Insulation	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 #15 XHD Fasteners (steel deck only)	2.67 ft <sup>2</sup>  (12 Fasteners per 48 x 96 in. Board)	68
C-1	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. 0.25 in. thick DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, or SECUROCK® Glass-Mat Roof Board  OR  Min. 0.5 in. thick EnergyGuard Barrier or EnergyGuard NH Barrier	None	None	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)	Fasteners secured 12 in. o.c. into the structural lumber supports (max. 12 x 96 in. grid)	30

TABLE 3—WIND RESISTANCE—WELDED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	BARRIER BOARD OR SLIP SHEET	BASE INSULATION <sup>1</sup>	TOP INSULATION <sup>1</sup>	ROOF COVER <sup>5</sup>			ALLOWABLE WIND UPLIFT PRESSURE (psf)
			Type	Type	Membrane	Fasteners and Plates <sup>3,4</sup>	Contributory Area per Fastener Max. Fastener Spacing (inches)	
C-2	Min. 15/32 in. Plywood or 1 in. Wood Plank Secured to Structural Lumber Supports Spaced Max. 48 in. o.c.	VersaShield Solo Fire Resistant Slip Sheet  OR  Min. 0.25 in. thick DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, or SECUROCK® Glass-Mat Roof Board  OR  Min. 0.5 in. thick EnergyGuard Barrier or EnergyGuard NH Barrier	None	None	EverGuard TPO or EverGuard Extreme TPO	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)	Fasteners secured 24 in. o.c. into the structural lumber supports (max. 24 x 48 in. grid)	38
C-3	Min. 15/32 in. Plywood or 1 in. Wood Plank	VersaShield Solo Fire Resistant Slip Sheet  OR  Min. 0.25 in. thick DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, or SECUROCK® Glass-Mat Roof Board  OR  Min. 0.5 in. thick EnergyGuard Barrier or EnergyGuard NH Barrier	None	None	EverGuard TPO or EverGuard Extreme TPO	Drill-Tec RhinoBond TPO XHD Plates and Drill-Tec #14 Fasteners secured into the plywood at a rate of 12 fasteners per 4 x 8 ft. board (2.67 ft <sup>2</sup> per fastener).	(2.67 ft <sup>2</sup> per fastener)	53

TABLE 3—WIND RESISTANCE—WELDED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	BARRIER BOARD OR SLIP SHEET	BASE INSULATION <sup>1</sup>	TOP INSULATION <sup>1</sup>	ROOF COVER <sup>5</sup>			ALLOWABLE WIND UPLIFT PRESSURE (psf)
			Type	Type	Membrane	Fasteners and Plates <sup>3,4</sup>	Contributory Area per Fastener Max. Fastener Spacing (inches)	
C-4	Min. 15/32 in. Plywood or 1 in. Wood Plank Secured to Structural Lumber Supports Spaced Max. 24 in. o.c.	VersaShield Solo Fire Resistant Slip Sheet  OR Min. 0.25 in. thick DensDeck®, SECUROK® Gypsum-Fiber Roof Board, or SECUROK® Glass-Mat Roof Board  OR Min. 0.5 in. thick EnergyGuard Barrier or EnergyGuard NH Barrier	None	None	EverGuard TPO or EverGuard Extreme TPO	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)	Fasteners secured 36 in. o.c. into the structural lumber supports (max. 24 x 36 in. grid)	53
C-5	Min. 15/32 in. Plywood or 1 in. Wood Plank Secured to Structural Lumber Supports Spaced Max. 24 in. o.c.	VersaShield Solo Fire Resistant Slip Sheet  OR Min. 0.25 in. thick DensDeck®, SECUROK® Gypsum-Fiber Roof Board, or SECUROK® Glass-Mat Roof Board  OR Min. 0.5 in. thick EnergyGuard Barrier or EnergyGuard NH Barrier	None	None	EverGuard TPO or EverGuard Extreme TPO	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)	Fasteners secured 24 in. o.c. into the structural lumber supports (max. 24 x 24 in. grid)	75

TABLE 3—WIND RESISTANCE—WELDED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	BARRIER BOARD OR SLIP SHEET	BASE INSULATION <sup>1</sup>	TOP INSULATION <sup>1</sup>	ROOF COVER <sup>5</sup>			ALLOWABLE WIND UPLIFT PRESSURE (psf)
			Type	Type	Membrane	Fasteners and Plates <sup>3,4</sup>	Contributory Area per Fastener Max. Fastener Spacing (inches)	
C-6	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. 0.25 in. thick DensDeck®, SECUROK® Gypsum-Fiber Roof Board, or SECUROK® Glass-Mat Roof Board	<b>(One or more of any of the following)</b>  Min. 1.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	None	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)	Fasteners secured 12 in. o.c. into the structural lumber supports (max. 12 x 96 in. grid)	30
C-7	Min. 15/32 in. Plywood or 1 in. Wood Plank Secured to Structural Lumber Supports Spaced Max. 48 in. o.c.	VersaShield Solo Fire Resistant Slip Sheet  OR Min. 0.25 in. thick DensDeck®, SECUROK® Gypsum-Fiber Roof Board, or SECUROK® Glass-Mat Roof Board	<b>(One or more of any of the following)</b>  Min. 1.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	None	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 24 in. o.c. into the structural lumber supports (max. 24 x 48 in. grid)	Fasteners secured 24 in. o.c. (max. 24 x 48 in. grid)	38
C-8	Min. 15/32 in. Plywood or 1 in. Wood Plank	VersaShield Solo Fire Resistant Slip Sheet OR Min. 0.25 in. thick DensDeck®, SECUROK® Gypsum-Fiber Roof Board, or SECUROK® Glass-Mat Roof Board	<b>(One or more of any of the following)</b>  Min. 1.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	None	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 into the plywood or wood plank within a max. contributory area of 2.67 ft <sup>2</sup> per fastener (12 fasteners per 48 x 96 in. board)	2.67 ft <sup>2</sup> per fastener (12 fasteners per 48 x 96 in. board)	53

TABLE 3—WIND RESISTANCE—WELDED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	BARRIER BOARD OR SLIP SHEET	BASE INSULATION <sup>1</sup>	TOP INSULATION <sup>1</sup>	ROOF COVER <sup>5</sup>			ALLOWABLE WIND UPLIFT PRESSURE (psf)
			Type	Type	Membrane	Fasteners and Plates <sup>3,4</sup>	Contributory Area per Fastener Max. Fastener Spacing (inches)	
C-9	Min. 15/32 in. Plywood or 1 in. Wood Plank Secured to Structural Lumber Supports Spaced Max. 24 in. o.c.	VersaShield Solo Fire Resistant Slip Sheet OR Min. 0.25 in. thick DensDeck®, SECUROK® Gypsum-Fiber Roof Board, or SECUROK® Glass-Mat Roof Board	<b>One or more of any of the following)</b>  Min. 1.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	None	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)	Fasteners secured 36 in. o.c (max. 24 x 36 in. grid)	53
C-10	Min. 15/32 in. Plywood or 1 in. Wood Plank Secured to Structural Lumber Supports Spaced Max. 24 in. o.c.	VersaShield Solo Fire Resistant Slip Sheet OR Min. 0.25 in. thick DensDeck®, SECUROK® Gypsum-Fiber Roof Board, or SECUROK® Glass-Mat Roof Board	<b>One or more of any of the following)</b>  Min. 1.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	None	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 24 in. o.c. into the structural lumber supports (max. 24 x 24 in. grid)	Fasteners secured 24 in. o.c. into the structural lumber supports (max. 24 x 24 in. grid)	75
C-11	Min. 15/32 in. Plywood or 1 in. Wood Plank Secured to Structural Lumber Supports Spaced Max. 96 in. o.c.	None	<b>(Optional, One or more of the following)</b>  Min. 1.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Min. 0.25 in. thick DensDeck®, SECUROK® Gypsum-Fiber Roof Board, or SECUROK® Glass-Mat Roof Board	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)	Fasteners secured 12 in. o.c. into the structural lumber supports (max. 12 x 96 in. grid)	30

TABLE 3—WIND RESISTANCE—WELDED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	BARRIER BOARD OR SLIP SHEET	BASE INSULATION <sup>1</sup>	TOP INSULATION <sup>1</sup>	ROOF COVER <sup>5</sup>			ALLOWABLE WIND UPLIFT PRESSURE (psf)
			Type	Type	Membrane	Fasteners and Plates <sup>3,4</sup>	Contributory Area per Fastener Max. Fastener Spacing (inches)	
C-12	Min. 15/32 in. Plywood or 1 in. Wood Plank Secured to Structural Lumber Supports Spaced Max. 48 in. o.c.	None	(Optional, One or more of the following)  Min. 1.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Min. 0.25 in. thick DensDeck®, SECUROCK®, Gypsum-Fiber Roof Board, or SECUROCK® Glass-Mat Roof Board	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)	Fasteners secured 24 in. o.c. into the structural lumber supports (max. 24 x 48 in. grid)	38
C-13	Min. 15/32 in. Plywood or 1 in. Wood Plank Supports Spaced Max. 96 in. o.c.	None	(Optional, One or more of the following)  Min. 1.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Min. 0.25 in. thick DensDeck®, SECUROCK®, Gypsum-Fiber Roof Board, or SECUROCK® Glass-Mat Roof Board	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 into the plywood or wood plank within a max. contributory area of 2.67 ft <sup>2</sup> per fastener (12 fasteners per 48 x 96 in. board)	Fasteners secured into the plywood or wood plank within a max. contributory area of 2.67 ft <sup>2</sup> per fastener (12 fasteners per 48 x 96 in. board)	53
C-14	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. 1.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Min. 0.25 in. thick DensDeck®, SECUROCK®, Gypsum-Fiber Roof Board, or SECUROCK® Glass-Mat Roof Board	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)	Fasteners secured 36 in. o.c. into the structural lumber supports (max. 24 x 36 in. grid)	53



TABLE 3—WIND RESISTANCE—WELDED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	BARRIER BOARD OR SLIP SHEET	BASE INSULATION <sup>1</sup>		TOP INSULATION <sup>1</sup>		ROOF COVER <sup>5</sup>			ALLOWABLE WIND UPLIFT PRESSURE (psf)
			Type		Type		Membrane	Fasteners and Plates <sup>3,4</sup>	Contributory Area per Fastener Max. Fastener Spacing (inches)	
C-15	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. 1.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation		Min. 0.25 in. thick DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, or SECUROCK® Glass-Mat Roof Board		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 24 in. o.c. into the structural lumber supports (max. 24 x 24 in. grid)	Fasteners secured 24 in. o.c. into the structural lumber supports (max. 24 x 24 in. grid)	75

For SI: 1 inch = 25.4 mm; 1 ft = 0.305 m; 1 psf = 47.88 Pa.

<sup>1</sup>All foam plastic insulation must be UL classified and limited to the maximum thickness in accordance with Section 3.5 of this report or the maximum thickness in accordance with this table, whichever is less. Unless otherwise noted, all insulations are flat or taper board of the minimum thickness noted.

<sup>2</sup>Wood deck must be minimum 15/32-inch-thick (11.9 mm) plywood or 1-inch-thick wood plank. Steel deck must be minimum No. 22 gage galvanized steel [0.030inch (0.76 mm)]. Concrete must have a minimum compressive strength ( $f_c$ ) of 2500 psi.

<sup>3</sup>Insulation Plates & Screws: 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)

OR

<sup>4</sup>Drill-Tec™ 3" Recessed Steel Plates or Drill-Tec™ 3" Flat Steel Plates and Drill-Tec™ #12 DP Fasteners (steel deck only) or Drill-Tec™ #14 HD Fasteners (steel or structural concrete), applied within the contributory area specified above.

<sup>5</sup>The membrane side laps are minimum 3.0 in. wide and are sealed with minimum 1.5 in. wide heat welds.

TABLE 4—WIND RESISTANCE —MECHANICALLY FASTENED ROOF COVERING SYSTEMS

SYSTEM NO	DECK <sup>2</sup>	BARRIER BOARD OR SLIP SHEET	BASE INSULATION <sup>1</sup>		TOP INSULATION <sup>1</sup>		ROOF COVER <sup>5</sup>						ALLOWABLE WIND UPLIFT PRESSURE (psf)	
			Type	Att ach.	Type	Att ach.	Membran e	Fasteners and Plates <sup>3,4</sup>	Min. Lap Width	Min. Weld Width	Max. Lap Spacing	Max. Fast ener Spacing		
C-16	Min. 15/32 in. Plywood or 1 in. Wood Plank	VersaShield Solo Fire Resistant Slip Sheet OR Min.0.25 in. thick DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, or SECUROCK K® Glass-Mat Roof Board (not required when used as coverboard)	Min. 0.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Pre limi narily se cure d per ma nuf act ure r's inst alla tion inst ruct ions	(Optional)  Min. 0.25 in. thick DensDeck®, SECUROCK Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, min. 0.5 in. thick EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, EnergyGuard NH HD Plus Polyiso Cover Board, Structodek High Density Fiberboard Roof Insulation, EnergyGuard Perlite Recover Board or min. 0.75 in. thick EnergyGuard Perlite Roof Insulation		Prelim inarily se cure d per manuf act ure r's inst alla tion inst ruct ions	EverGuard TPO or EverGuard Extreme TPO	Drill-Tec 2 in. Double Barbed XHD Plates, 2-3/8 in. Barbed XHD or Eyehook AccuSeam Plates and Drill-Tec #14 Fasteners OR Drill-Tec™ 2.4" Barbed Seam Plates or Drill-Tec™ 2.4" Scoop Seam Plates and Drill-Tec #14 HD Fasteners	6 in.	1.5 in.	54 in.	9 in.	30

TABLE 4—WIND RESISTANCE —MECHANICALLY FASTENED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	BARRIER BOARD OR SLIP SHEET	BASE INSULATION <sup>1</sup>		TOP INSULATION <sup>1</sup>		ROOF COVER <sup>5</sup>						ALLOWABLE WIND UPLIFT PRESSURE (psf)
			Type	Attach.	Type	Attach.	Membrane	Fasteners and Plates <sup>3,4</sup>	Min. Lap Width	Min. Weld Width	Max. Lap Spacing	Max. Fastener Spacing	
C-17	Min. 19/32 in. Plywood or 1 in. Wood Plank	VersaShield Solo Fire Resistant Slip Sheet  OR Min. 0.25 in. thick DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, or SECUROCK® Glass-Mat Roof Board (not required when used as coverboard)	Min. 0.5 in. thick Energy Guard Polyiso Insulation, Energy Guard Ultra Polyiso Insulation, Energy Guard NH Polyiso Insulation, or Energy Guard NH Ultra Polyiso Insulation	Preliminarily secured per manufacturer's installation instructions	(Optional)  Min. 0.25 in. thick DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, min. 0.5 in. thick EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, EnergyGuard NH HD Plus Polyiso Cover Board, Structodek High Density Fiberboard Roof Insulation, EnergyGuard Perlite Recover Board, or min. 0.75 in. thick EnergyGuard Perlite Roof Insulation	Preliminarily secured per manufacturer's installation instructions	EverGuard TPO or EverGuard Extreme TPO	Drill-Tec 2 in. Double Barbed XHD Plates, 2-3/8 in. Barbed XHD or Eyehook AccuSeam Plates and Drill-Tec™ #14 Fasteners  OR Drill-Tec™ 2.4" Barbed Seam Plates or Drill-Tec™ 2.4" Scoop Seam Plates and Drill-Tec™ #14 HD Fasteners	6 in.	1.5 in.	54 in.	8 in.	45
C-18	Min. 15/32 in. Plywood or 1 in. Wood Plank	Min. 0.25 in. thick DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, or SECUROCK® Glass-Mat Roof Board	None	Preliminarily secured per manufacturer's installation instructions	None	None	EverGuard TPO or EverGuard Extreme TPO	Drill-Tec 2 in. Double Barbed XHD Plates, 2-3/8 in. Barbed XHD Plates or Eyehook AccuSeam Plates and Drill-Tec #14 Fasteners  OR Drill-Tec™ 2.4" Barbed Seam Plates or Drill-Tec™ 2.4" Scoop Seam Plates and Drill-Tec™ #14 HD Fastener	6 in.	1.5 in.	54 in.	9 in.	30

TABLE 4—WIND RESISTANCE —MECHANICALLY FASTENED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	BARRIER BOARD OR SLIP SHEET	BASE INSULATION <sup>1</sup>		TOP INSULATION <sup>1</sup>		ROOF COVER <sup>5</sup>					ALLOWABLE WIND UPLIFT PRESSURE (psf)	
			Type	Attach.	Type	Attach.	Membrane	Fasteners and Plates <sup>3,4</sup>	Min. Lap Width	Min. Weld Width	Max. Lap Spacing		Max. Fastener Spacing
C-19	Min. 19/32 in. Plywood or 1 in. Wood Plank	Min. 0.25 in. thick DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, or SECUROCK® Glass-Mat Roof Board	None	Preliminarily secured per manufacturer's installation instructions	None	Preliminarily secured per manufacturer's installation instructions	EverGuard TPO or EverGuard Extreme TPO	Drill-Tec 2 in. Double Barbed XHD Plates, 2-3/8 in. Barbed XHD Plates or Eyehook AccuSeam Plates and Drill-Tec #14 Fasteners  OR Drill-Tec™ 2.4" Barbed Seam Plates or Drill-Tec™ 2.4" Scoop Seam Plates and Drill-Tec™ #14 HD Fasteners	6 in.	1.5 in.	54 in.	8 in.	45
C-20	Min. 19/32 in. Plywood or 1 in. Wood Plank	None	Min. 0.5 in. thick Energy Guard Polyiso Insulation, Energy Guard Ultra Polyiso Insulation, Energy Guard NH Polyiso Insulation, or Energy Guard NH Ultra Polyiso Insulation	Preliminarily secured per manufacturer's installation instructions	<b>(Optional)</b> Min. 0.25 in. thick DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, min. 0.5 in. thick EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, EnergyGuard NH HD Plus Polyiso Cover Board, Structodek High Density Fiberboard Roof Insulation, EnergyGuard Perlite Recover Board, or min. 0.75 in. thick EnergyGuard Perlite Roof Insulation	Preliminarily secured per manufacturer's installation instructions	EverGuard TPO or EverGuard Extreme TPO	Drill-Tec 2 in. Double Barbed XHD Plates, 2-3/8 in. Barbed XHD Plates or Eyehook AccuSeam Plates and Drill-Tec #14 Fasteners  OR Drill-Tec™ 2.4" Barbed Seam Plates or Drill-Tec™ 2.4" Scoop Seam Plates and Drill-Tec™ #14 HD Fasteners	6 in.	1.75 in.	54 in.	6 in.	53

TABLE 4—WIND RESISTANCE —MECHANICALLY FASTENED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	BARRIER BOARD OR SLIP SHEET	BASE INSULATION <sup>1</sup>		TOP INSULATION <sup>1</sup>		ROOF COVER <sup>5</sup>					ALLOWABLE WIND UPLIFT PRESSURE (psf)	
			Type	Attach.	Type	Attach.	Membrane	Fasteners and Plates <sup>3,4</sup>	Min. Lap Width	Min. Weld Width	Max. Lap Spacing		Max. Fastener Spacing
NC-4	Min. 33 ksi Steel or Structural Concrete	Min. 0.5 in. thick DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, or 0.75 in. thick EnergyGuard Perlite Roof Insulation	Min. 1.5 in. thick Energy Guard Polyiso Insulation, Energy Guard Ultra Polyiso Insulation, Energy Guard NH Polyiso Insulation, or Energy Guard NH Ultra Polyiso Insulation	Preliminarily secured per manufacturer's installation instructions	(Optional)  Min. 0.25 in. DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, min. 0.5 in. EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, EnergyGuard NH HD Plus Polyiso Cover Board, Structodek High Density Fiber Board Roof Insulation, EnergyGuard Perlite Recover Board, or min. 0.75 in. thick EnergyGuard Perlite Roof Insulation)	Preliminarily secured per manufacturer's installation instructions	EverGuard TPO or EverGuard Extreme TPO	Drill-Tec 2 in. Double Barbed XHD Plates, 2-3/8 in. Barbed XHD Plates 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)  OR  Drill-Tec™ 2.4" Barbed Seam Plates or Drill-Tec™ 2.4" Scoop Seam Plates and Drill-Tec™ #14 HD Fasteners (structural concrete deck only) or Drill-Tec™ #15 EHD Fasteners (steel deck only)	6 in.	1.5 in.	114 in.	12 in.	30 psf

TABLE 4—WIND RESISTANCE —MECHANICALLY FASTENED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	BARRIER BOARD OR SLIP SHEET	BASE INSULATION <sup>1</sup>		TOP INSULATION <sup>1</sup>		ROOF COVER <sup>5</sup>						ALLOWABLE WIND UPLIFT PRESSURE (psf)
			Type	Attach.	Type	Attach.	Membrane	Fasteners and Plates <sup>3,4</sup>	Min. Lap Width	Min. Weld Width	Max. Lap Spacing	Max. Fastener Spacing	
NC-5	Min. 33 ksi Steel or Structural Concrete	Min. 0.5 in. thick DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, or 0.75 in. thick EnergyGuard Perlite Roof Insulation	Min. 1.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Preliminarily secured per manufacturer's installation instructions	(Optional)  Min. 0.25 in. DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, min. 0.5 in. EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, EnergyGuard NH HD Plus Polyiso Cover Board, Structodek High Density Fiber Board Roof Insulation, EnergyGuard Perlite Recover Board, or min. 0.75 in. thick EnergyGuard Perlite Roof Insulation	Preliminarily secured per manufacturer's installation instructions	EverGuard TPO or EverGuard Extreme TPO	Drill-Tec 2 in. Double Barbed XHD Plates, 2-3/8 in. Barbed XHD Plates 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 Plates (steel deck only)  OR  Drill-Tec™ 2.4" Barbed Seam Plates or Drill-Tec™ 2.4" Scoop Seam Plates and Drill-Tec™ #14 HD Fasteners (structural concrete deck only) or Drill-Tec™ #15 EHD Fasteners (steel deck only)	6 in.	1.5 in.	114 in.	6 in.	53

TABLE 4—WIND RESISTANCE —MECHANICALLY FASTENED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	BARRIER BOARD OR SLIP SHEET	BASE INSULATION <sup>1</sup>		TOP INSULATION <sup>1</sup>		ROOF COVER <sup>5</sup>						ALLOWABLE WIND UPLIFT PRESSURE (psf)
			Type	Attach.	Type	Attach.	Membrane	Fasteners and Plates <sup>3,4</sup>	Min. Lap Width	Min. Weld Width	Max. Lap Spacing	Max. Fastener Spacing	
NC-6	Min. 80 ksi Steel or Structural Concrete	Min. 0.5 in. thick DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, or 0.75 in. thick EnergyGuard Perlite Roof Insulation	Min. 1.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Preliminarily secured per manufacturer's installation instructions	(Optional) Min. 0.25 in. DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, min. 0.5 in. EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, EnergyGuard NH HD Plus Polyiso Cover Board, Structodek High Density Fiber Board Roof Insulation, EnergyGuard Perlite Recover Board or min. 0.75 in. thick EnergyGuard Perlite Roof Insulation	Preliminarily secured per manufacturer's installation instructions	EverGuard TPO or EverGuard Extreme TPO	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 Plates (steel deck only)  OR Drill-Tec™ 2.4" Barbed Seam Plates or Drill-Tec™ 2.4" Scoop Seam Plates and Drill-Tec™ #14 HD Fasteners ( structural concrete deck only) or Drill-Tec™ #15 EHD Fasteners ( steel deck only)	6 in.	1.5 in.	54 in.	18 in.	30

TABLE 4—WIND RESISTANCE —MECHANICALLY FASTENED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	BARRIER BOARD OR SLIP SHEET	BASE INSULATION <sup>1</sup>		TOP INSULATION <sup>1</sup>		ROOF COVER <sup>5</sup>						ALLOWABLE WIND UPLIFT PRESSURE (psf)
			Type	Attach.	Type	Attach.	Membrane	Fasteners and Plates <sup>3,4</sup>	Min. Lap Width	Min. Weld Width	Max. Lap Spacing	Max. Fastener Spacing	
NC-7	Min. 80 ksi Steel or Structural Concrete	Min. 0.5 in. thick DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, or 0.75 in. thick EnergyGuard Perlite Roof Insulation	Min. 1.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Preliminarily secured per manufacturer's installation instructions	(Optional) Min. 0.25 in. DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, min. 0.5 in. EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, EnergyGuard NH HD Plus Polyiso Cover Board, Structodek High Density Fiber Board Roof Insulation, EnergyGuard Perlite Recover Board or min. 0.75 in. thick EnergyGuard Perlite Roof Insulation	Preliminarily secured per manufacturer's installation instructions	EverGuard TPO or EverGuard Extreme TPO	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 Plates (steel deck only)  OR Drill-Tec™ 2.4" Barbed Seam Plates or Drill-Tec™ 2.4" Scoop Seam Plates and Drill-Tec™ #14 HD Fasteners (structural concrete deck only) or Drill-Tec™ #15 EHD Fasteners (steel deck only)	6 in.	1.5 in.	114 in.	12 in.	38

TABLE 4—WIND RESISTANCE —MECHANICALLY FASTENED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	BARRIER BOARD OR SLIP SHEET	BASE INSULATION <sup>1</sup>		TOP INSULATION <sup>1</sup>		ROOF COVER <sup>5</sup>						ALLOWABLE WIND UPLIFT PRESSURE (psf)
			Type	Attach.	Type	Attach.	Membrane	Fasteners and Plates <sup>3,4</sup>	Min. Lap Width	Min. Weld Width	Max. Lap Spacing	Max. Fastener Spacing	
NC-8	Min. 33 ksi Steel or Structural Concrete	Min. 0.5 in. thick DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, or 0.75 in. thick EnergyGuard Perlite Roof Insulation	Min. 1.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Preliminarily secured per manufacturer's installation instructions	(Optional) Min. 0.25 in. DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, SECUROCK® Glass-Mat Roof Board, min. 0.5 in. EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, EnergyGuard NH HD Plus Polyiso Cover Board, Structodek High Density Fiber Board Roof Insulation, EnergyGuard Perlite Recover Board, or min. 0.75 in. thick EnergyGuard Perlite Roof Insulation	Preliminarily secured per manufacturer's installation instructions	EverGuard TPO or EverGuard Extreme TPO	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 Plates (steel deck only)  OR Drill-Tec™ 2.4" Barbed Seam Plates or Drill-Tec™ 2.4" Scoop Seam Plates and Drill-Tec™ #14 HD Fasteners (structural concrete deck only) or Drill-Tec™ #15 EHD Fasteners (steel deck only)	6 in.	1.5 in.	114 in.	6 in.	68
NC-9	22 ga, 33 ksi Steel or Structural Concrete	None	Min. 1.0 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Preliminarily secured per manufacturer's installation instructions	(Optional) 0.75 in. EnergyGuard Perlite Roof Insulation, 0.5 in. EnergyGuard Perlite Recover Board, 0.5 in. EnergyGuard High Density Wood Fiberboard, or 0.25 in. DensDeck	Preliminarily secured per manufacturer's installation instructions	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.	54 in.	12 in.	60



TABLE 4—WIND RESISTANCE —MECHANICALLY FASTENED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	BARRIER BOARD OR SLIP SHEET	BASE INSULATION <sup>1</sup>		TOP INSULATION <sup>1</sup>		ROOF COVER <sup>5</sup>						ALLOWABLE WIND UPLIFT PRESSURE (psf)
			Type	Attach.	Type	Attach.	Membrane	Fasteners and Plates <sup>3,4</sup>	Min. Lap Width	Min. Weld Width	Max. Lap Spacing	Max. Fastener Spacing	
NC-10	22 ga, 33 ksi Steel or Structural Concrete	None	Min. 1.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Preliminary secured per manufacturer's installation instructions	(Optional) 0.75 in. EnergyGuard Perlite Roof Insulation, 0.5 in. EnergyGuard Perlite Recover Board, 0.5 in. EnergyGuard High Density Wood Fiberboard, or 0.25 in. DensDeck	Preliminary secured per manufacturer's installation instructions	EverGuard TPO or EverGuard Extreme TPO	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™ 2.4" Barbed Seam Plates or Drill-Tec™ 2.4" Scoop Seam Plates and Drill-Tec™ #15 EHD Fasteners	6 in.	1.5 in.	54 in.	6 in.	60

For SI: 1 inch = 25.4 mm; 1 ft = 0.305 m; 1 psf = 47.88 Pa.

<sup>1</sup>All foam plastic insulation must be UL classified and limited to the maximum thickness in accordance with Section 3.5 of this report or the maximum thickness in accordance with this table, whichever is less. Unless otherwise noted, all insulations are flat or taper board of the minimum thickness noted.

<sup>2</sup>Wood deck must be minimum 15/32-inch-thick (11.9 mm) plywood or 1-inch-thick wood plank. Steel deck must be minimum No. 22 gage galvanized steel [0.030inch (0.76 mm)]. Concrete must have a minimum compressive strength (*f<sub>c</sub>*) of 2500 psi.

<sup>3</sup>Insulation Plates & Screws: 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)

OR

<sup>4</sup>Drill-Tec™ 3" Recessed Steel Plates or Drill-Tec™ 3" Flat Steel Plates and Drill-Tec™ #12 DP Fasteners (steel deck only) or Drill-Tec™ #14 HD Fasteners (steel or structural concrete), applied within the contributory area specified above.

<sup>5</sup>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" wide heat welds.

TABLE 5—WIND RESISTANCE —ADHERED ROOF COVERING SYSTEMS

SYSTEM NO	DECK <sup>2</sup>	BARRIER BOARD OR SLIP SHEET	INSULATION ATTACHMENT <sup>3,4</sup>	INSULATION <sup>1</sup>	INSULATION ATTACHMENT	ROOF COVER <sup>5</sup>		ALLOWABLE WIND UPLIFT PRESSURE (psf)
						MEMBRANE	MEMBRANE ATTACHMENT <sup>6</sup>	
C-21	Min. 15/32 in. Plywood or 1 in. Wood Plank	VersaShield Solo Fire Resistant Slip Sheet  OR Min. 0.25 in. thick DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, or SECUROCK® Glass-Mat Roof Board	Fastened through insulation and barrier board or slip sheet	Any thickness EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Drill-Tec 3" Steel Plates, Drill-Tec #12 Fasteners, 1.6 ft <sup>2</sup> per fastener (20 fasteners per 4 x 8 ft. board)  OR Drill-Tec 3" Recessed Steel Plates and Drill-Tec #12 DP Fasteners	EverGuard TPO or EverGuard Extreme TPO	EverGuard WB 181 Bonding Adhesive OR EverGuard TPO 1121 Bonding Adhesive OR EverGuard TPO 6 Square Low VOC Bonding Adhesive OR EverGuard TPO Quick Spray Adhesive OR EverGuard TPO Quick Spray Adhesive LV 50	60.0

TABLE 5—WIND RESISTANCE —ADHERED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	BARRIER BOARD OR SLIP SHEET	INSULATION ATTACHMENT <sup>3,4</sup>	INSULATION <sup>1</sup>	INSULATION ATTACHMENT	ROOF COVER <sup>5</sup>		ALLOWABLE WIND UPLIFT PRESSURE (psf)
						MEMBRANE	MEMBRANE ATTACHMENT <sup>6</sup>	
C-22	Min. 15/32 in. Plywood or 1 in. Wood Plank	VersaShield Solo Fire Resistant Slip Sheet  OR Min. 0.25 in. thick DensDeck <sup>®</sup> , SECUROCK <sup>®</sup> Gypsum-Fiber Roof Board, or SECUROCK <sup>®</sup> Glass-Mat Roof Board	Fastened through insulation and barrier board or slip sheet	Min. 2.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Drill-Tec 3" Steel Plates and Drill-Tec #12 Fasteners, 1.78 ft <sup>2</sup> per fastener (18 fasteners per 4 x 8 ft. board)  OR Drill-Tec 3" Recessed Steel Plates and Drill-Tec #12 DP Fasteners	EverGuard TPO or EverGuard Extreme TPO	EverGuard WB 181 Bonding Adhesive OR EverGuard TPO 1121 Bonding Adhesive OR EverGuard TPO 6 Square Low VOC Bonding Adhesive OR EverGuard TPO Quick Spray Adhesive OR EverGuard TPO Quick Spray Adhesive LV 50	52.5
C-23	Min. 15/32 in. Plywood or 1 in. Wood Plank	None	N/A	Min. 1.0 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	OlyBond 500 or LRF Adhesive M applied in 0.75-1.00 in. wide ribbons spaced 6 in. o.c.	EverGuard TPO or EverGuard Extreme TPO	EverGuard WB 181 Bonding Adhesive OR EverGuard TPO 1121 Bonding Adhesive OR EverGuard TPO 6 Square Low VOC Bonding Adhesive OR EverGuard TPO Quick Spray Adhesive OR EverGuard TPO Quick Spray Adhesive LV 50	75.0
C-24	Min. 15/32 in. Plywood or 1 in. Wood Plank	None	N/A	Min. 1.0 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	OlyBond 500 or LRF Adhesive M applied in 0.75-1.00 in. wide ribbons spaced 12 in. o.c.	EverGuard TPO or EverGuard Extreme TPO	Adhered with EverGuard WB 181 Bonding Adhesive OR EverGuard TPO 1121 Bonding Adhesive OR EverGuard TPO 6 Square Low VOC Bonding Adhesive OR EverGuard TPO Quick Spray Adhesive OR EverGuard TPO Quick Spray Adhesive LV 50	67.5

For SI: 1 inch = 25.4 mm; 1 ft = 0.305 m; 1 psf = 47.88 Pa.

<sup>1</sup>All foam plastic insulation must be UL classified and limited to the maximum thickness in accordance with Section 3.5 of this report or the maximum thickness in accordance with this table, whichever is less. Unless otherwise noted, all insulations are flat or taper board of the minimum thickness noted.

<sup>2</sup>Wood deck must be minimum 15/32-inch-thick (11.9 mm) plywood or 1-inch-thick wood plank. Steel deck must be minimum No. 22 gage galvanized steel [0.030 inch (0.76 mm)]. Concrete must have a minimum compressive strength (*f<sub>c</sub>*) of 2500 psi.

<sup>3</sup>Insulation Plates & Screws 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)

OR

<sup>4</sup>Drill-Tec™ 3" Recessed Steel Plates or Drill-Tec™ 3" Flat Steel Plates and Drill-Tec™ #12 DP Fasteners (steel deck only) or Drill-Tec™ #14 HD Fasteners (steel

or structural concrete), applied within the contributory area specified above.

<sup>5</sup>The membrane is adhered to the insulation with the selected adhesive per GAF or the adhesive manufacturer's published installation instructions. Membrane side laps are min. 3.0 in. wide and sealed with min. 1.5" wide heat welds.

<sup>6</sup> Adhesive and adhesive application rates to be as specified in Section 3.8 and Table 7, unless the adhesive application rate is described in the system detailed in Table 5.

**TABLE 6—WIND RESISTANCE —ADHERED ROOF COVERING SYSTEMS**

SYSTEM NO	DECK <sup>2</sup>	INSULATION <sup>1</sup>	INSULATION ATTACHMENT <sup>3,4</sup>	COVER BOARD AND/OR INSULATION	COVER BOARD AND/OR INSULATION ATTACHMENT	ROOF COVER <sup>5</sup>		ALLOWABLE WIND UPLIFT PRESSURE (psf)
						MEMBRANE	MEMBRANE ATTACHMENT <sup>6</sup>	
C-25	Min. 15/32 in. Plywood or 1 in. Wood Plank	(Optional)  Min 0.5 in. EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Loose Laid	0.25 in. thick USG SECUROCK® Gypsum-Fiber Roof Board	Drill-Tec 3" Standard Steel Plates and Drill-Tec # 12 Fasteners, 18 per board OR Drill-Tec 3" Recessed Steel Plates and Drill-Tec #12 DP Fasteners, (18 fasteners per board	EverGuard TPO Fleece-Back Membrane	Adhered with EverGuard WB 181 Bonding Adhesive OR OlyBond 500 Canister OR LRF Adhesive O or LRF Adhesive M	60.0
C-26	Min. 15/32 in. Plywood or 1 in. Wood Plank	(Optional)  Min 0.5 in. EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Loose Laid	0.25 in. thick DensDeck Prime Roof Board	Drill-Tec 3" Standard Steel Plates and Drill-Tec #12 Fasteners, 18 per board OR Drill-Tec 3" Recessed Steel Plates and Drill-Tec #12 DP Fasteners, 2.67 ft <sup>2</sup> per fastener (12 fasteners per 4 x 8 ft. board board)	EverGuard TPO Fleece-Back Membrane	EverGuard WB 181 Bonding Adhesive OR OlyBond 500 Canister OR LRF Adhesive O or LRF Adhesive M	52.5
NC-11	22 ga, 33 ksi Steel or Structural Concrete	Min 1.5 in. EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	2.67 ft <sup>2</sup> per fastener (12 fasteners per 4 x 8 ft. board board) See Footnotes 3 and 4 for fasteners	(Optional)  Min. 0.25 in. thick DensDeck® Prime, SECUROCK® Gypsum-Fiber Roof Board, EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, or EnergyGuard NH HD Plus Polyiso Cover Board	LRF Adhesive M or OlyBond 500	EverGuard TPO or EverGuard Extreme TPO	EverGuard WB 181 Bonding Adhesive OR EverGuard® #1121 Bonding Adhesive OR EverGuard TPO 6 Square Low VOC Bonding Adhesive OR EverGuard TPO Quick Spray Adhesive OR EverGuard TPO Quick Spray Adhesive LV 50	38

TABLE 6—WIND RESISTANCE —ADHERED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	INSULATION <sup>1</sup>	INSULATION ATTACHMENT <sup>3,4</sup>	COVER BOARD AND/OR INSULATION	COVER BOARD AND/OR INSULATION ATTACHMENT	ROOF COVER <sup>5</sup>		ALLOWABLE WIND UPLIFT PRESSURE (psf)
						MEMBRANE	MEMBRANE ATTACHMENT <sup>6</sup>	
NC-12	22 ga, 33 ksi Steel or Structural Concrete	Min 1.5 in. EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	2.0 ft <sup>2</sup> per fastener (16 fasteners per 4 x 8 ft. board) See Footnotes 3 and 4 for fasteners	(Optional)  Min. 0.25 in. thick DensDeck® Prime, SECUROCK® Gypsum-Fiber Roof Board, EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, or EnergyGuard NH HD Plus Polyiso Cover Board	LRF Adhesive M or OlyBond 500	EverGuard TPO or EverGuard Extreme TPO	EverGuard WB 181 Bonding Adhesive OR EverGuard TPO 1121 Bonding Adhesive OR EverGuard TPO 6 Square Low VOC Bonding Adhesive OR EverGuard TPO Quick Spray Adhesive OR EverGuard TPO Quick Spray Adhesive LV 50	45
NC-13	22 ga, 33 ksi Steel or Structural Concrete	Min 2.0 in. EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	4.0 ft <sup>2</sup> per fastener (8 fasteners per 4 x 8 ft. board) See Footnotes 3 and 4 for fasteners	(Optional)  Min. 0.25 in. thick DensDeck® Prime, SECUROCK® Gypsum-Fiber Roof Board, EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, or EnergyGuard NH HD Plus Polyiso Cover Board	LRF Adhesive M or OlyBond 500	EverGuard TPO or EverGuard Extreme TPO	Adhered with EverGuard WB 181 Bonding Adhesive OR EverGuard TPO 1121 Bonding Adhesive OR EverGuard TPO 6 Square Low VOC Bonding Adhesive OR EverGuard TPO Quick Spray OR EverGuard TPO Quick Spray Adhesive LV 50	30

TABLE 6—WIND RESISTANCE —ADHERED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	INSULATION <sup>1</sup>	INSULATION ATTACHMENT <sup>3,4</sup>	COVER BOARD AND/OR INSULATION	COVER BOARD AND/OR INSULATION ATTACHMENT <sup>3,4</sup>	ROOF COVER <sup>5</sup>		ALLOWABLE WIND UPLIFT PRESSURE (psf)
						MEMBRANE	MEMBRANE ATTACHMENT <sup>6</sup>	
NC-14	22 ga, 33 ksi Steel or Structural Concrete	Min 2.0 in. EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	2.9 ft <sup>2</sup> per fastener (11 fasteners per 4 x 8 ft. board) See Footnotes 3 and 4 for fasteners	(Optional) Min. 0.25 in. thick DensDeck <sup>®</sup> Prime, SECUROCK <sup>®</sup> Gypsum-Fiber Roof Board, EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, or EnergyGuard NH HD Plus Polyiso Cover Board	LRF Adhesive M or OlyBond 500.	EverGuard TPO or EverGuard Extreme TPO	Adhered with EverGuard WB 181 Bonding Adhesive OR EverGuard TPO 1121 Bonding Adhesive OR EverGuard TPO 6 Square Low VOC Bonding Adhesive OR EverGuard TPO Quick Spray Adhesive OR EverGuard TPO Quick Spray Adhesive LV 50	45
NC-15	22 ga, 33 ksi Steel or Structural Concrete	Min 1.5 in. EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	2.67 ft <sup>2</sup> per fastener (12 fasteners per 4 x 8 ft. board) See Footnotes 3 and 4 for fasteners	(Optional) Min. 0.25 in. thick DensDeck <sup>®</sup> Prime, SECUROCK <sup>®</sup> Gypsum-Fiber Roof Board, EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, or EnergyGuard NH HD Plus Polyiso Cover Board	LRF Adhesive M or OlyBond 500	EverGuard TPO Fleece-Back Membrane	Adhered with EverGuard WB 181 Bonding Adhesive OR EverGuard TPO 1121 Bonding Adhesive. OR EverGuard TPO 6 Square Low VOC Bonding Adhesive OR EverGuard TPO Quick Spray Adhesive OR EverGuard TPO Quick Spray Adhesive LV 50	38
NC-16	22 ga, 33 ksi Steel or Structural Concrete	Min 1.5 in. EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	2.0 ft <sup>2</sup> per fastener (16 fasteners per 4 x 8 ft. board) See Footnotes 3 and 4 for fasteners	(Optional) Min. 0.25 in. thick DensDeck <sup>®</sup> Prime, SECUROCK <sup>®</sup> Gypsum-Fiber Roof Board, EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, or EnergyGuard NH HD Plus Polyiso Cover Board	LRF Adhesive M or OlyBond 500	EverGuard TPO Fleece-Back Membrane	Adhered with EverGuard WB 181 Bonding Adhesive OR OlyBond 500 Canister OR LRF Adhesive O or LRF Adhesive M	45

TABLE 6—WIND RESISTANCE —ADHERED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	INSULATION <sup>1</sup>	INSULATION ATTACHMENT <sup>3,4</sup>	COVER BOARD AND/OR INSULATION	COVER BOARD AND/OR INSULATION ATTACHMENT <sup>3,4</sup>	ROOF COVER <sup>5</sup>		ALLOWABLE WIND UPLIFT PRESSURE (psf)
						MEMBRANE	MEMBRANE ATTACHMENT <sup>6</sup>	
NC-17	22 ga, 33 ksi Steel or Structural Concrete	Min 2.0 in. EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	4.0 ft <sup>2</sup> per fastener (8 fasteners per 4 x 8 ft. board) See Footnotes 3 and 4 for fasteners	(Optional) Min. 0.25 in. thick DensDeck® Prime, SECUROCK® Gypsum-Fiber Roof Board, EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, EnergyGuard NH HD Plus Polyiso Cover Board	LRF Adhesive M or OlyBond 500	EverGuard TPO Fleece-Back Membrane	EverGuard WB 181 Bonding Adhesive OR EverGuard TPO 1121 Bonding Adhesive OR EverGuard TPO 6 Square Low VOC Bonding Adhesive OR OlyBond 500 Canister OR LRF Adhesive O or LRF Adhesive M	30
NC-18	22 ga, 33 ksi Steel or Structural Concrete	Min 2.0 in. EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	2.9 ft <sup>2</sup> per fastener (11 fasteners per 4 x 8 ft. board) See Footnotes 3 and 4 for fasteners	(Optional) Min. 0.25 in. thick DensDeck® Prime, SECUROCK® Gypsum-Fiber Roof Board, EnergyGuard HD Polyiso Cover Board, EnergyGuard HD Plus Polyiso Cover Board, EnergyGuard NH HD Polyiso Cover Board, or EnergyGuard NH HD Plus Polyiso Cover Board	LRF Adhesive M or OlyBond 500	EverGuard TPO Fleece-Back Membrane	EverGuard WB 181 Bonding Adhesive OR EverGuard TPO 1121 Bonding Adhesive OR EverGuard TPO 6 Square Low VOC Bonding Adhesive OR OlyBond 500 Canister OR LRF Adhesive O or LRF Adhesive M	45
NC-19	22 ga, 33 ksi Steel or Structural Concrete	Min 1.0 in. EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Loose laid	Min. 0.25 in. thick DensDeck® Prime, SECUROCK® Gypsum-Fiber Roof Board, or SECUROCK® Glass-Mat Roof Board	4.0 ft <sup>2</sup> per fastener (8 fasteners per 4 x 8 ft. board): 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. OR Drill-Tec 3" Recessed Steel Plates or Drill-Tec 3" Flat Steel Plates and Drill-Tec #12 DP Fasteners (steel deck only) or Drill-Tec #14 HD Fasteners (steel or structural concrete)	EverGuard TPO, EverGuard Extreme TPO, or EverGuard TPO Fleece-Back Membrane	EverGuard WB 181 Bonding Adhesive OR EverGuard TPO 1121 Bonding Adhesive OR EverGuard TPO 6 Square Low VOC Bonding Adhesive OR EverGuard TPO Quick Spray Adhesive OR EverGuard TPO Quick Spray Adhesive LV 50	30

TABLE 6—WIND RESISTANCE —ADHERED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	INSULATION <sup>1</sup>	INSULATION ATTACHMENT <sup>3,4</sup>	COVER BOARD AND/OR INSULATION	COVER BOARD AND/OR INSULATION ATTACHMENT <sup>3,4</sup>	ROOF COVER <sup>5</sup>		ALLOWABLE WIND UPLIFT PRESSURE (psf)
						MEMBRANE	MEMBRANE ATTACHMENT <sup>6</sup>	
NC-20	22 ga, 33 ksi Steel or Structural Concrete	Min 1.0 in. EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Loose laid	Min. 0.25 in. thick DensDeck®, SECUROCK® Gypsum-Fiber Roof Board, or SECUROCK® Glass-Mat Roof Board	3.2 ft <sup>2</sup> per fastener (10 fasteners per 4 x 8 ft. board) 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 OR Drill-Tec 3" Recessed Steel Plates or Drill-Tec 3" Flat Steel Plates and Drill-Tec #12 DP Fasteners (steel deck only) or Drill-Tec #14 HD Fasteners (steel or structural concrete)	EverGuard TPO, EverGuard Extreme TPO, or EverGuard TPO Fleece-Back Membrane	EverGuard WB 181 Bonding Adhesive OR EverGuard TPO 1121 Bonding Adhesive OR EverGuard TPO 6 Square Low VOC Bonding Adhesive OR EverGuard TPO Quick Spray Adhesive OR EverGuard TPO Quick Spray Adhesive LV 50	45
NC-21	22 ga, 33 ksi Steel or Structural Concrete	Min 1.0 in. EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Loose laid	Min. 0.5 in. thick EnergyGuard HD Cover Board, EnergyGuard NH HD Cover Board, EnergyGuard HD Plus Cover Board, or EnergyGuard NH HD Plus Polyiso Cover Board	2.0 ft <sup>2</sup> per fastener (16 fasteners per 4 x 8 ft. board) 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	EverGuard TPO, EverGuard Extreme TPO, or EverGuard TPO Fleece-Back Membrane	EverGuard WB 181 Bonding Adhesive OR EverGuard TPO 1121 Bonding Adhesive OR EverGuard TPO 6 Square Low VOC Bonding Adhesive OR EverGuard TPO Quick Spray Adhesive OR EverGuard TPO Quick Spray Adhesive LV 50	45
NC-22	22 ga, 33 ksi Steel	Min. 2.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Drill-Tec 3" Steel Plates and Drill-Tec #12 Fasteners, 2.0 ft <sup>2</sup> per fastener (16 fasteners per 4 x 8 ft. board)  OR  Drill-Tec 3" Recessed Steel Plates and Drill-Tec #12 DP Fasteners	N/A	N/A	EverGuard TPO or EverGuard Extreme TPO	Adhered with EverGuard WB 181 Bonding Adhesive OR EverGuard TPO 1121 Bonding Adhesive OR EverGuard TPO 6 Square Low VOC Bonding Adhesive OR EverGuard TPO Quick Spray Adhesive OR EverGuard TPO Quick Spray Adhesive LV 50	60

TABLE 6—WIND RESISTANCE —ADHERED ROOF COVERING SYSTEMS (continued)

SYSTEM NO	DECK <sup>2</sup>	INSULATION <sup>1</sup>	INSULATION ATTACHMENT <sup>3,4</sup>	COVER BOARD AND/OR INSULATION	COVER BOARD AND/OR INSULATION ATTACHMENT <sup>3,4</sup>	ROOF COVER <sup>5</sup>		ALLOWABLE WIND UPLIFT PRESSURE (psf)
						MEMBRANE	MEMBRANE ATTACHMENT <sup>6</sup>	
NC-23	22 ga, 33 ksi Steel or Structural Concrete	Min 1.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Drill-Tec 3" Steel Plates and Drill-Tec #12 Fasteners (for steel deck) or Drill-Tec #14 Fasteners (for concrete) OR Drill-Tec #12 DP Fasteners applied at a rate of 16 fasteners per 4'x8' board for min. 1.5 in. thick base insulation, or 8 fasteners per 4'x8' board for min 2.0 in. thick base insulation	Min 1.5 in. thick EnergyGuard Polyiso Insulation, EnergyGuard Ultra Polyiso Insulation, EnergyGuard NH Polyiso Insulation, or EnergyGuard NH Ultra Polyiso Insulation	Olybond 500 Adhesive Fastener or LRF Adhesive M	EverGuard TPO or EverGuard Extreme TPO	EverGuard WB 181 Bonding Adhesive OR EverGuard TPO 1121 Bonding Adhesive OR EverGuard TPO 6 Square Low VOC Bonding Adhesive OR EverGuard TPO Quick Spray Adhesive OR EverGuard TPO Quick Spray Adhesive LV 50	45

For SI: 1 inch = 25.4 mm; 1 ft = 0.305 m; 1 psf = 47.88 Pa.

<sup>1</sup>All foam plastic insulation must be UL classified and limited to the maximum thickness in accordance with Section 3.5 of this report or the maximum thickness in accordance with this table, whichever is less. Unless otherwise noted, all insulations are flat or taper board of the minimum thickness noted.

<sup>2</sup>Wood deck must be minimum 1<sup>5</sup>/<sub>32</sub>-inch-thick (11.9 mm) plywood or 1-inch-thick wood plank. Steel deck must be minimum No. 22 gage galvanized steel [0.030inch (0.76 mm)]. Concrete must have a minimum compressive strength (*f<sub>c</sub>*) of 2500 psi.

<sup>3</sup>Insulation Plates & Screws 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)

OR

<sup>4</sup>Drill-Tec™ 3" Recessed Steel Plates or Drill-Tec™ 3" Flat Steel Plates and Drill-Tec™ #12 DP Fasteners (steel deck only) or Drill-Tec™ #14 HD Fasteners (steel or structural concrete), applied within the contributory area specified above.

<sup>5</sup>The membrane is adhered to the insulation with the selected adhesive per GAF or the adhesive manufacturer's published installation instructions. Membrane side laps are min. 3.0 in. wide and sealed with min. 1.5" wide heat welds.

<sup>6</sup> Adhesive and adhesive application rates to be as specified in Section 3.8 and Table 7, unless the adhesive application rate is described in the system detailed in Table 6.

TABLE 7—ADHESIVE APPLICATION RATE

MEMBRANE ADHESIVE	APPLICATION RATE
GAF EverGuard® TPO 1121 Bonding Adhesive, also known as EverGuard® #1121 Bonding Adhesive	1.67 Gal./100sq. ft. (60 sq. ft./gal.)
GAF EverGuard® TPO 6 Square Low VOC Bonding Adhesive, also known as EverGuard® LOW VOC TPO Bonding Adhesive	0.83 Gal./100 sq. ft. (120 sq. ft./gal.)
GAF EverGuard® WB 181 Bonding Adhesive	0.83 Gal./100 sq. ft. (120 sq. ft./gal.)
GAF EverGuard® TPO Quick Spray Adhesive	0.705 lbs./100 sq. ft.
GAF EverGuard® TPO Quick Spray Adhesive LV50	0.837 lbs./100 sq. ft.
GAF LRF Adhesive M	3/4-inch-wide beads spaced 12" on-center applied parallel to the incline of the roof
GAF LRF Adhesive O	3/4-inch-wide beads spaced 12" on-center applied parallel to the incline of the roof
OMG Inc. OlyBond 500	3/4 - 1inch-wide beads spaced 12" on-center
OMG Inc. OlyBond 500 Canister	Spatter Pattern (50 percent Coverage)



**DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION****Section: 07 54 00—Thermoplastic Membrane Roofing****Section: 07 54 23—Thermoplastic-Polyolefin Roofing****REPORT HOLDER:****GAF****EVALUATION SUBJECT:****EVERGUARD® TPO SINGLE-PLY ROOF MEMBRANE SYSTEMS: EVERGUARD® TPO, EVERGUARD® TPO FLEECE-BACK MEMBRANE, EVERGUARD EXTREME® TPO****1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that the EverGuard® TPO, EverGuard® TPO Fleece-Back membrane and EverGuard® Extreme TPO Single-ply Roof Membrane Systems, described in ICC-ES evaluation report [ESR-4676](#), have also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

**Applicable code editions:**

- 2020 *City of Los Angeles Building Code* (LABC)
- 2020 *City of Los Angeles Residential Code* (LARC)

**2.0 CONCLUSIONS**

The EverGuard® TPO, EverGuard® TPO Fleece-Back Membrane and EverGuard® Extreme TPO Single-ply Roof Membrane Systems, described in Sections 2.0 through 7.0 of the evaluation report [ESR-4676](#), comply with the LABC Chapter 15 and LARC Chapter 9, and are subjected to the conditions of use described in this supplement.

**3.0 CONDITIONS OF USE**

The EverGuard® TPO, EverGuard® TPO Fleece-Back Membrane and EverGuard® Extreme TPO Single-ply Roof Membrane Systems, described in this evaluation report must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-4676](#).
- The design, installation, conditions of use and identification are in accordance with the 2018 *International Building Code*® (IBC) and 2018 *International Residential Code*® (IRC) provisions noted in the evaluation report [ESR-4676](#).
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16 and 17, or LARC Chapter 3, as applicable.
- The EverGuard® TPO, EverGuard® TPO Fleece-Back Membrane and EverGuard® Extreme TPO Single-ply Roof Membrane Systems must not be installed over existing wood shakes or wood shingles in accordance with LABC Section 1511 and LARC Section R908.
- The installation of the EverGuard® TPO, EverGuard® TPO Fleece-Back Membrane and EverGuard® Extreme TPO Single-ply Roof Membrane Systems must comply with City of Los Angeles Information Bulletin P/BC 2020-016, "Dwellings in High Wind Velocity Areas (HWA)".

- Reroofing applications must comply with Sections 4.2.2, 4.3.2 and 5.8 of the evaluation report [ESR-4676](#), LABC Section 1511 or LARC Section R908, as applicable. Where spaced sheathing exists, a minimum of  $\frac{15}{32}$ -inch-thick (11.9 mm) plywood shall be installed prior to roofing installations.
- Where moderate or heavy foot traffic occurs for maintenance of equipment, the roof covering shall be adequately protected.
- The Building Inspector shall be notified 24 hours in advance prior to installation of the roof membranes.

This supplement expires concurrently with the evaluation report, reissued August 2022.