

ICC-ES Evaluation Report

ESR-3160

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**DIVISION: 06 00 00—WOOD, PLASTICS AND
COMPOSITES**
Section: 06 50 00—Structural Plastics

REPORT HOLDER:

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EVALUATION SUBJECT:

**TUFboard® TRIM FREE FOAM, TUFboard® TRIM
CELUKA AND TUFboard® TRIM COMPOSITE
MATERIALS MANUFACTURED INTO TUFboard®
MILLWORK, TUFboard® MOULDING AND TUFboard®
SHEET PRODUCTS**

ADDITIONAL LISTEE:

GUARDIAN BUILDING PRODUCTS DISTRIBUTION, INC.
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**PRODUCT NAMES: GUARDIAN TRIM™ FF, GUARDIAN
TRIM™ TB AND GUARDIAN TRIM™ SW (EQUIVALENT
TO TUFboard® TRIM FREE FOAM, TUFboard® TRIM
CELUKA AND TUFboard® TRIM COMPOSITE,
RESPECTIVELY) MATERIALS AVAILABLE IN
MILLWORK, MOULDING AND SHEET PRODUCTS**

1.0 EVALUATION SCOPE**Compliance with the following codes:**

- 2009 *International Building Code*® (IBC)
- 2009 *International Residential Code*® (IRC)

Properties evaluated:

- Weather resistance
- Termite resistance
- Surface burning characteristics
- Structural—negative transverse wind loads

2.0 USES

TUFboard® Millwork, TUFboard® Moulding and TUFboard® Sheet products are used as nonload-bearing exterior and interior trim.

3.0 DESCRIPTION**3.1 General:**

TUFboard® TRIM products include TUFboard® Millwork, TUFboard® Moulding and TUFboard® Sheet. These products are manufactured from TUFboard® TRIM Free Foam, TUFboard® TRIM Celuka and TUFboard® TRIM Composite materials. The materials are rigid cellular PVC (polyvinyl chloride) with solid cross sections. The raw materials used for manufacturing the materials are PVC resin, additives, chemical foaming agents, fillers, pigments and reground finished material, and may include wood powder.

TUFboard® TRIM products can be cut, shaped, routed and mitered with standard woodworking tools. TUFboard® TRIM products are available in wood grain or smooth finishes. See Tables 1, 2 and 3 for availability of TUFboard® TRIM products in TUFboard® TRIM Free Foam, TUFboard® TRIM Celuka and TUFboard® TRIM Composite materials.

3.2 TUFboard® TRIM Free Foam:

TUFboard® TRIM Free Foam is PVC foamed by free expansion. It is white in color.

3.3 TUFboard® TRIM Celuka:

TUFboard® TRIM Celuka is PVC foamed by controlled internal expansion. Due to the controlled expansions, TUFboard® TRIM Celuka has an integral hard skin. It is white in color.

3.4 TUFboard® TRIM Composite:

TUFboard® TRIM Composite is a mixture of wood composite and PVC foam. TUFboard® TRIM Composite is PVC foamed by controlled internal expansion. Due to controlled expansion, TUFboard® TRIM Composite has an integral hard skin. It is tan in color.

3.5 Surface Burning Characteristics:

TUFboard® TRIM Free Foam and TUFboard® TRIM Celuka at the maximum product thickness (actual thickness) of 1 inch (25.4 mm) and TUFboard® TRIM Composite at the maximum product thickness (actual thickness) of ³/₄ inch (19.1 mm) have a flame spread index no greater than 200 when tested in accordance with ASTM E 84.

4.0 DESIGN AND INSTALLATION**4.1 General:**

TUFboard® TRIM products must be installed according to the manufacturer's published installation instructions and this report. The manufacturer's published installation

instructions and this report must be strictly adhered to, and a copy of the instructions must be available at all times on the jobsite during installation. The instructions within this report must govern if there are any conflicts between the manufacturer's published installation instructions and this report.

4.2 Allowable Span:

The TUFboard® TRIM products listed in Table 1 through 3 of this report are limited to a maximum spacing of 16 inches (406 mm) on center.

4.3 Fasteners:

Fasteners must be a minimum of 8d common nails, stainless steel or hot-dipped galvanized, with a minimum shank diameter of 0.12 inch (3.05 mm). Fasteners must penetrate into flat, solid wood substrate or a framing member a minimum of 1³/₈ inches (34.9 mm). Two fasteners per framing member must be installed a minimum of ³/₄ inch (19.1 mm) from the edges and a maximum of 2 inches (50.8 mm) from the end of TUFboard® TRIM products. Fastener spacing must never exceed 16 inches (406 mm) along the length nor 10¹/₂ inches (305 mm) along the width of a member. Predrilling is required when temperatures are below 32°F (0°C) and when larger fasteners are used.

4.4 Temperature Changes—Expansion and Contraction:

To allow for expansion and contraction, ¹/₈ inch (3.18 mm) of space must be provided between the end of TUFboard® TRIM products and any solid substrates.

4.5 Wind Load Assemblies Using TUFboard® Trim:

TUFboard® TRIM products must be installed on minimum 2-by-8, No. 2 grade, spruce-pine-fir (SPF) spaced at a maximum of 16 inches (406 mm) on center. TUFboard® TRIM products must be placed with the long direction perpendicular to the wood framing. Fasteners must be a minimum of 8d round headed Bostitch® framing stick nails, stainless steel or hot-dipped galvanized, with a minimum shank diameter of 0.12 inch (3.05 mm). Fasteners are installed approximately ³/₄ inch (19.1 mm) from edges. Installation of fasteners must be at a maximum spacing of 16 inches (406 mm) in the long direction and 10¹/₂ inches (267 mm) in the short direction.

Installation of TUFboard® TRIM products made from TUFboard® TRIM Free Foam and TUFboard® TRIM Celuka products is limited to a maximum thickness of 1 inch (25.4 mm). The minimum length of fasteners must be 2³/₈ inches (60.3 mm) and the minimum embedment depth must be 1³/₈ inches (34.9 mm).

Installation of TUFboard® TRIM products made from TUFboard® TRIM Composite is limited to a maximum thickness of ³/₄ inch (19.1 mm). Fasteners must be at least 2³/₈ inches (60.3 mm) long and must have a minimum embedment depth of 1³/₈ inches (34.9 mm).

The allowable design pressure of TUFboard® TRIM products installed as flat trim sheets assembled in accordance with this section (Section 4.5) is 59 psf (2.82 kN/m²) suction or negative wind load.

5.0 CONDITIONS OF USE

TUFboard® TRIM products described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 This evaluation report and the manufacturer's published installation instructions, when required by the code official, must be submitted at the time of permit application.
- 5.2 The product must be limited to the following construction types:
 - Nonload-bearing exterior trim on buildings of Type VB construction under the IBC.
 - Combustible architectural trim on exterior walls of buildings of Type I, II, III and IV construction under the IBC, limited to: 10 percent of an exterior wall surface area where the fire separation distance is less than 5 feet (1.52 m); and 40 feet (12 192 mm) in height above grade, backed by noncombustible material.
 - All buildings permitted under the IRC.
- 5.3 The product must be installed over solid backing material, such as approved exterior sheathing covered with an approved water-resistant barrier or approved exterior wall covering.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Rigid Cellular PVC Nonload-bearing Exterior Trim (AC227), dated December 2004 (editorially revised January 2011).

7.0 IDENTIFICATION

Each package of TUFboard® TRIM products described in this report must be labeled with the Inteplast Group Ltd. name and address; the product trade name; and the evaluation report number (ESR-3160).

TABLE 1—TUFBOARD® SHEET PRODUCTS^{1,2}

PRODUCT	TUFBOARD® TRIM MATERIAL	FINISH	THICKNESS (inch)	WIDTHS (inches)	LENGTH (feet)
Standard Trimboard	Free Foam, Celuka, Composite	Wood Grain, Smooth	⁵ / ₈ (⁵ / ₈)	2 (1 ¹ / ₂), 3 (2 ¹ / ₂), 4 (3 ¹ / ₂), 5 (4 ¹ / ₂), 6 (5 ¹ / ₂), 8 (7 ¹ / ₄), 10 (9 ¹ / ₄), 12 (11 ¹ / ₄)	18
			1 (³ / ₄)		
			⁵ / ₄ (1)		
Standard Sheet	Free Foam, Celuka, Composite	Wood Grain, Smooth	³ / ₈ (³ / ₈)	48 (48)	8, 12
			¹ / ₂ (1 ¹ / ₂)		
			⁵ / ₈ (⁵ / ₈)	48 (48)	8, 12, 18
			³ / ₄ (³ / ₄)	48 (48)	8, 12, 16, 18, 20
			1 (1)		

For SI: 1 inch = 25.4mm.

¹Actual sizes listed in parentheses.

²See manufacturer's literature for product shapes.

TABLE 2—TUFBOARD® MILLWORK PRODUCTS^{1,2}

PRODUCT	TUFBOARD® TRIM MATERIAL	FINISH	THICKNESS (inch)	WIDTHS (inches)	LENGTH (feet)
Beadboard	Free Foam, Celuka	Smooth	¹ / ₂ (1 ¹ / ₂)	6 (5 ¹ / ₂)	18
			⁵ / ₈ (⁵ / ₈)	4 (3 ¹ / ₂)	
Window Surround	Celuka	Wood Grain	⁵ / ₄ (1)	4 (3 ¹ / ₂)	18
				6 (5 ¹ / ₂)	
Corner Board	Free Foam, Celuka	Wood Grain, Smooth	⁵ / ₄ (1)	4x4 (3 ¹ / ₂ x3 ¹ / ₂)	10, 20
				6x6 (5 ¹ / ₂ x5 ¹ / ₂)	
J-Channel	Free Foam, Celuka	Wood Grain	⁵ / ₄ (1)	4x4 (3 ¹ / ₂ x3 ¹ / ₂)	10, 20
				6x6 (5 ¹ / ₂ x5 ¹ / ₂)	
Starter Board	Free Foam, Celuka	Wood Grain	⁵ / ₄ (1)	4 (3 ¹ / ₂)	18
				6 (5 ¹ / ₂)	
				8 (7 ¹ / ₄)	
				10 (9 ¹ / ₄)	

For SI: 1 inch = 25.4mm.

¹Actual sizes listed in parentheses.

²See manufacturer's literature for product shapes.

TABLE 3—TUFBOARD® MOULDING PRODUCTS^{1,2}

PRODUCT	SIZES (inches)	LENGTH (feet)
4" Crown	⁹ / ₁₆ X 3 ⁵ / ₈	18
5" Crown	¹¹ / ₁₆ X 4 ⁵ / ₈	
Base Board	¹¹ / ₁₆ X 2 ⁵ / ₈	18
Chair Rail	¹¹ / ₁₆ X 2 ⁵ / ₈	18
Brick Mold	1 ¹ / ₄ X 2	7, 18
Thermo	⁷ / ₁₆ X 2	7, 18
Drip Cap	¹¹ / ₁₆ X 1 ⁵ / ₈	18
Historic Sill	1 ³ / ₄ X 2 ¹ / ₃₂	18
Planking	¹ / ₄ X 7 ¹ / ₂	7, 8
Base Cap	¹¹ / ₁₆ X 1 ¹ / ₈	18
Bed Moulding	⁹ / ₁₆ X 1 ³ / ₄	18
Quarter Round	³ / ₄ X ³ / ₄	18
Scotia	³ / ₄ X ³ / ₄	18
Door Jamb	1 ¹ / ₄ X 4 ⁹ / ₁₆	7, 8
Garage Door Jambs	1 ³ / ₁₆ X 5 ¹ / ₂	7, 8, 9, 16
	1 ³ / ₁₆ X 7 ¹ / ₂	

For SI: 1 inch = 25.4 mm.

¹See manufacturer's literature for product shapes.

²Moulding products are only available in Free Foam.