



# Code Compliance Research Report CCRR-0216

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## DIVISION: 06 00 00 – WOOD, PLASTICS AND COMPOSITES

Section: 06 50 00 – Structural Plastics

Section: 06 53 00 – Plastic Decking

### Westech Building Products

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### REPORT SUBJECT:

*TruGrain™ Gold Decking*

*TruGrain™ Platinum 5-1/2*

## 1.0 SCOPE OF EVALUATION

This research report addresses compliance with the following Codes:

- 2015 International Building Code (IBC)
- 2015 International Residential Code (IRC)
- 2012 International Building Code (IBC)
- 2012 International Residential Code (IRC)
- 2014 Florida Building Code (FBC) – see Section 4.7 Including High Velocity Hurricane Zone (HVHZ)
- 2016 California Building Code (CBC) – see Section 4.8

*Sections of the IBC and IRC referenced in this report are applicable to CBC, FBC and Florida Residential Code respectively.*

*TruGrain™ Gold and Platinum 5-1/2 boards have been evaluated for the following properties:*

- Structural Performance
- Durability
- Surface Burning
- Decay Resistance
- Termite Resistance

## 2.0 USES

**2.1.** *TruGrain™ Gold* and *Platinum 5-1/2* boards are intended for use as a walking surface on exterior decks, balconies, porches, and walkways, including stairs as further defined herein.

**2.2.** The deck boards identified in this report may be used in One- and Two-Family Dwellings regulated by the IRC and other construction types regulated by the IBC in accordance with IBC Section 1406.3 as follows:

**2.2.1.** Construction Type IIB, IIIB & VB per IBC §1406.3 and Table 601 (No fire resistance rating required for floors); and

**2.2.2.** Construction Type IIIA, IV & VA per IBC §1406.3, Exception 3 (Sprinkler protection required).

## 3.0 DESCRIPTION

### 3.1. Materials and Processes

**3.1.1.** *TruGrain™* deck boards are mono-extruded, hollow, ribbed, composite deck boards consisting of a proprietary formulation.

### 3.2. Profiles

**3.2.1.** *TruGrain™ Gold* deck boards have a hollow cross-section with nominal dimensions of 1" tall and 5.5" wide. The deck boards are finished with a simulated wood-grain pattern provided in one color.

**3.2.2.** *TruGrain™ Platinum 5-1/2* deck boards have a hollow cross-section with nominal dimensions of 1" tall and 5.5" wide. The deck boards are finished with a series of small grooves on the top surface, provided in one color.

## 4.0 PERFORMANCE CHARACTERISTICS

**4.1.** *TruGrain™* deck boards are rated for a uniform live load of 100 lb/ft<sup>2</sup> when installed on support framing spaced at 16 inches on-center. Snow load ratings are identified in Table 1.



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**4.2.** *TruGrain*™ deck boards used as stair treads are rated for the code-prescribed concentrated load equal to 300 lb when installed with a maximum span indicated in Table 1. Deck boards used as stair treads shall be installed in a minimum two-span condition.

**4.3.** *TruGrain*™ deck boards are rated for wind uplift resistance with fastening systems as identified in Table 1, and described in Table 2.

**4.4.** Materials used in the deck boards have a flame spread index not greater than 200, when tested in accordance with ASTM E84, as required by ICC-ES AC174.

**4.5.** Materials are deemed equivalent to preservative treated or naturally durable wood for resistance to weathering effects, attack from termites and fungus decay.

**4.6.** Structural performance has been demonstrated for a temperature range from -20°F to 125°F for live load and -20°F to 70°F for snow load.

**4.7. Florida Building Code**

**4.7.1.** Materials used in the deck boards have been shown to have a self-ignition temperature greater than 650°F when tested in accordance with ASTM D 1929, a smoke development index less than 75 when tested in accordance with ASTM D 2843, and a combustibility classification of C-2 when tested in accordance with ASTM D 635, demonstrating compliance with FBC Section 2614.2.

**4.7.2.** Sufficient weathering resistance of plastics with outdoor exposure when tested to ASTM G 155 and ASTM D 2565 for a period of 4500 hours and subsequent testing demonstrating compliance with FBC Section 2614.2.

**4.8. California Building Code**

**4.8.1.** The *TruGrain*™ Gold and *TruGrain*™ Platinum 5-1/2 products have been evaluated for compliance with the International Wildland-Urban Interface Code for the performance requirements of SFM 12-7A-4 (Part A). Decking must be attached to an exterior wall covering that is either noncombustible or ignition-resistant material to comply with CBC Section 709A and CRC Section R327.9.

## 5.0 INSTALLATION

Installation shall be in accordance with the manufacturer's installation instructions and this report. Where differences occur between this report and the manufacturer's installation instructions, this report shall govern.

**5.1.** *TruGrain*™ deck boards are fastened with the fastening systems as described in Table 1.

## 6.0 SUPPORTING EVIDENCE

**6.1.** Manufacturer's drawings and installation instructions.

**6.2.** Reports of testing in accordance with ICC-ES AC174, Acceptance Criteria for Deck Board Span Ratings and Guardrail Systems (Guards and Handrails), revised December 2014.

**6.3.** Reports of testing and engineering evaluation demonstrating compliance with the performance requirements of ASTM D 7032-08, Standard Specification for Establishing Performance Ratings for Wood-Plastic Composite Deck Boards and Guardrail Systems (Guards or Handrails).

**6.4.** Reports of testing demonstrating compliance with the underdeck flame test performance requirements of the State Fire Marshall (SFM) Standard 12-7A-4 (Part A).

**6.5.** Engineering calculations for snow load analysis by a licensed Professional Engineer.

**6.6.** Documentation of an Intertek approved quality control system for the manufacturing of products recognized in this report.

## 7.0 CONDITIONS OF USE

The *TruGrain*™ deck board applications identified in this report are deemed to comply with the intent of the provisions of the referenced building codes subject to the following conditions.

**7.1.** Deck boards placed at an angle other than 90 degrees to the supporting joist will require support framing at a reduced spacing such that the span of the deck board does not exceed the Table 1 span ratings.

**7.2.** The wind uplift resistance rating recognized in this report is based on attachment to treated Southern Pine framing (specific gravity,  $G=0.55$ ). Installation on wood framing with a lesser specific gravity may result in a lower wind uplift rating.

7.3. Where required by the building official, engineering calculations and details shall be provided. The calculations shall verify that the anchorage complies with the building code for the type of framing and condition of the supporting construction.

7.4. Compatibility of the supporting construction materials with all fasteners, metal post mount components, and other hardware components is subject to approval by the code official.

7.5. Only those types of fasteners and fastening methods described in this report have been evaluated for the installation of the *TruGrain*™ deck boards; other methods of attachment are outside the scope of this report.

7.6. The *TruGrain*™ deck boards are manufactured in Mount Vernon, Indiana by Westech Building Products in accordance with the manufacturer's approved quality control system with inspections by Intertek.

## 8.0 IDENTIFICATION

The *TruGrain*™ deck boards described in this Research Report are identified by a marking bearing the report holder's name (Westech Building Products), the Intertek Mark, the Code Compliance Research Report number (CCRR-0216) and the following statement:

"See CCRR-0216 at [www.ati-es.com](http://www.ati-es.com) for uses and performance levels."



## 9.0 CODE COMPLIANCE RESEARCH REPORT USE

9.1. Approval of building products and/or materials can only be granted by a building official having legal authority in the specific jurisdiction where approval is sought.

9.2. Code Compliance Research Reports shall not be used in any manner that implies an endorsement of the product by Intertek-ATI.

9.3. Reference to the Intertek website address at [whdirectory.intertek.com](http://whdirectory.intertek.com) is recommended to ascertain the current version and status of this report.

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Table 1 – Span and Uplift Resistance Ratings

Deck Board Description	Span / Load Ratings <sup>(1)</sup>		Maximum Stair Tread Span <sup>(2)</sup>	Fastener <sup>(3)</sup>	Wind Uplift Resistance <sup>(4)</sup>
	Live Load	Snow Load			
<i>TruGrain™ Gold</i>	16" / 100 psf	16" / 200 psf	12" Span	<i>TruGrain™ Metal Hidden Fastener System</i>	202 psf <sup>(5)</sup> 171 psf <sup>(6)</sup>
				<i>TruGrain™ Plastic Deck Fastener System</i>	171 psf <sup>(5)(6)</sup>
				<i>GripRite PrimeGuard Max® stainless steel deck screw <sup>(7)</sup></i>	364 psf
<i>TruGrain™ Platinum 5-1/2</i>	16" / 100 psf	16" / 200 psf	12" Span	<i>TruGrain™ Metal Hidden Fastener System</i>	191 psf <sup>(5)(6)</sup>
				<i>TruGrain™ Plastic Deck Fastener System</i>	147 psf <sup>(5)(6)</sup>
				<i>GripRite PrimeGuard Max® stainless steel deck screw <sup>(7)</sup></i>	364 psf

(1) Span/Load rating is the maximum span in inches and the maximum allowable load (live, and snow) in pounds per square feet (psf). The maximum allowable loads indicated include applicable end use factors. No additional adjustments should be taken.

(2) Stair tread span is based on a continuous deck board over two or more equal spans (3 supports).

(3) See Table 2 for fastener descriptions.

(4) Wind uplift resistance is based on installation as described in Section 5.0. Values have been adjusted for wind load duration and end use. No further adjustments shall be made.

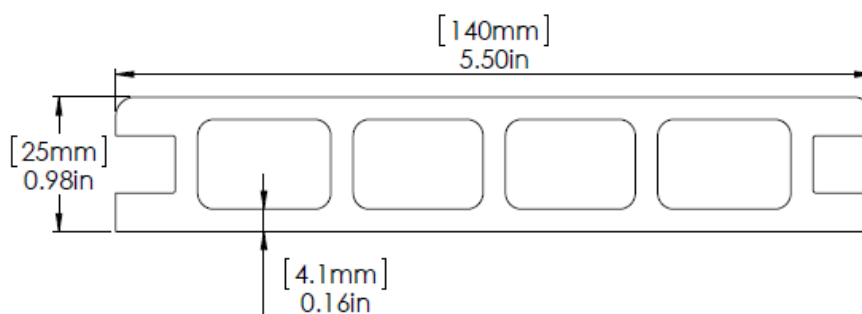
(5) The starting exterior deck boards are face fastened through the bottom wall of the deck board with one #10 x 2-1/2" (0.174" major dia., 0.115" minor dia., 0.130" shank dia., 0.339" head dia.) stainless steel deck screw at each joist. See Figure 6 for installation.

(6) The starting exterior deck boards are installed using an under deck plastic "L" bracket (1" x 1-1/2" by 0.068" thick, Figure 6). The "L" brackets are secured to the runners with two #10 x 3/4" (0.191" major dia., 0.142" minor dia., 0.152" shank dia., 0.351" head dia.) stainless steel screws, and secured to the bottom side of the deck board with two #10 x 3/4" (0.191" major dia., 0.142" minor dia., 0.152" shank dia., 0.351" head dia.) stainless steel screws. See Figure 6 for installation.

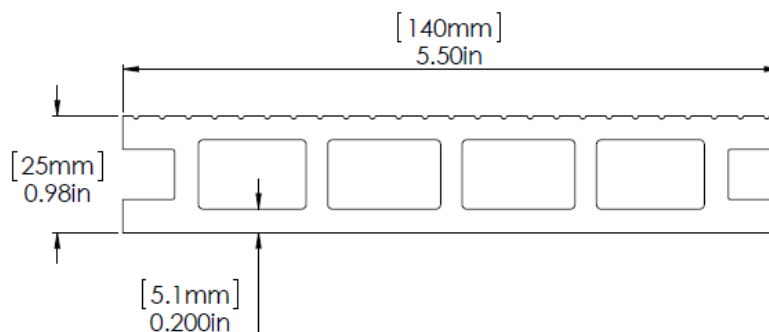
(7) The deck boards are face fastened through the bottom wall of the deck board with two stainless steel deck screws at each joist.

**Table 2 – Fastener Descriptions**

Fastener System	Description
<i>TruGrain™</i> Metal Hidden Fastener System (Figure 4)	Installed with one #10 x 2-5/8" (0.165" major dia., 0.115" minor dia., 0.130" shank dia., 0.230" head dia.) <i>GripRite PrimeGuard Max®</i> stainless steel deck screw.
<i>TruGrain™</i> Plastic Deck Fastener System (Figure 4)	Installed with one #7 x 2-5/8" (0.174" major dia., 0.115" minor dia., 0.130" shank dia., 0.339" head dia.) <i>GripRite PrimeGuard Max®</i> stainless steel deck screw.
<i>GripRite PrimeGuard Max®</i> stainless steel deck screw	#10 x 2-1/2" (0.174" major Dia., 0.115" minor dia., 0.130" shank dia., 0.339" head dia.)



**Figure 1 – TruGrain™ Gold**



**Figure 2 – TruGrain™ Platinum 5-1/2**

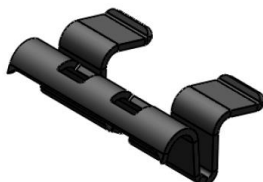


Figure 3 – *TruGrain*™ Metal Hidden Fastener Clip

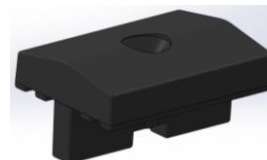


Figure 4 – *TruGrain*™ Plastic Deck Fastener Clip

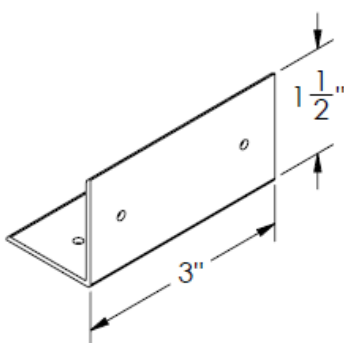
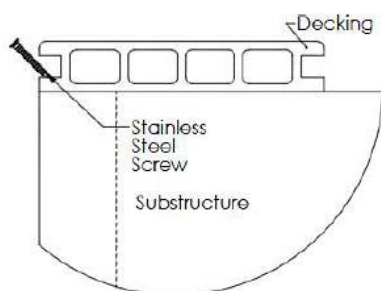
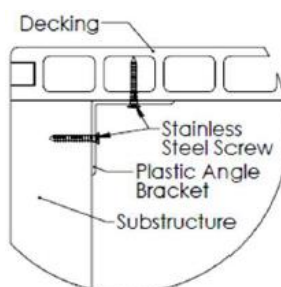


Figure 5 – Westech Under Deck Vinyl Bracket



45 degree start/end installation



Under Deck Plastic "L" Bracket Installation

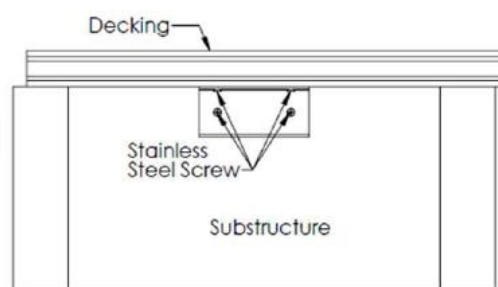


Figure 6 – *TruGrain*™ Gold and *TruGrain*™ Platinum 5-1/2 Deck Board Starting Conditions