PFS TECO Research Report 0118

TYPE OF ACCEPTANCE: Product Material - Wood and Plastics
CSI Specification Division 060000 (Structural Plastic) and Section 065300 (Plastic Decking)

MANUFACTURER IDENTIFICATION:
Green Bay Decking
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RESEARCH REPORT SUBJECT: Green Bay Decking deck boards and Stair Treads for Exterior Applications Installation on construction complying with the International Residential Code (IRC) or with the International Building Code (IBC).

DESCRIPTION OF BUILDING COMPONENTS:

A. Deck Boards

Green Bay Decking deck boards are thermoplastic composite lumber product consisting of plastic (HDPE), filler (minerals and rice hulls) plus additives and color. The product specifications are listed in the approved quality control manual. The Green Bay Decking deck boards are manufactured in several colors by the co-extrusion process and will have capping covering three (3) sides of the deck boards.

1. Deck Boards: Solid

(a) The ***Optima Square Edge*** deck board is rectangular in shape, has rounded edges, is completely solid and has cap stock on three (3) sides of the deck board. See attached drawing in Table 1.

2. Deck Boards: Solid with Side Grooves

(a) The ***Optima Grooved*** deck board is rectangular in shape, has rounded edges, is completely solid, has a groove on each side of the board and has cap stock on three (3) sides of the deck board. See attached drawing in Table 1.

3. Green Bay Decking deck boards must be installed as indicated in the manufacturer's published installation instructions dated October 5, 2017.

APPLICABLE CODES:

- 2015 *International Building Code®* (IBC)
- 2012 *International Building Code®* (IBC)
- 2009 *International Building Code®* (IBC)
- 2006 *International Building Code®* (IBC)
- 2015 *International Residential Code® (IRC)*
- 2012 *International Residential Code® (IRC)*
- 2009 *International Residential Code® (IRC)*
- 2006 *International Residential Code® (IRC)*

APPLICABLE CHARACTERISTICS REVIEWED:

B. Deck Board(s) See Section A – 1(a) and 2(a) above for identification and descriptions of the deck boards reviewed.

1. Deck Board: Structural Performance

(a) The deck boards have been reviewed for uniform load, maximum span and deck board direction when installed on support framing members. See attached Table 1.

(b) The deck boards have been reviewed for wind uplift resistance and have an uplift load rating when installed as indicated in Table 1 in this report.

(c) The deck boards used as stair treads meet the code prescribed load requirements including the concentrated load of 300 lbf when installed in accordance with the manufacturers' installation instructions and Table 1 in this report.

2. Deck Board: Fastening

(a) Deck Boards, solid and with side grooves, must be fastened to the structural supporting members in accordance with the manufacturer's installation instructions and Table 1 in this report. When manufacturer's installation instructions differ from this report, this report governs.

(b) When deck boards are used as stair treads, they must be installed in accordance with the manufacturer's installation instructions and Table 1 in this report. When the manufacturer's installation instructions differ from this report, this report governs.

3. Deck Board Durability: Temperature

(a) The deck boards have been reviewed for the temperature range of -20 degrees F (-29 degrees C) to +125 degrees F (52 degrees C).

4. Deck Board Flame Spread Index:

(a) The flame spread rating for the deck boards, described in this report was less than 200 when tested with ASTM E84 "Standard Test Method for Surface Burning Characteristics of Building Materials."

5. Deck Board Decay Resistance:

(a) The deck boards reviewed for this report have been deemed comparable to naturally durable wood for resistance to fungal decay.

6. Deck Board Termite Resistance:

(a) The deck boards reviewed for this report have been deemed comparable to preservative treated wood for resistance to termite attack.

7. UV Testing:

(a) The UV testing was conducted, and an appropriate adjustment factor was applied in accordance with ASTM D 7032-10 "Standard for Establishing Performance Ratings for Wood-Plastic Composite Deck Boards and Guardrail Systems (Guards or Handrails)".

APPLICABLE USES:

The Green Bay Decking deck boards evaluated in this report are limited to exterior applications for balconies, porches, stair treads, walking surfaces and decks.

LIMITATIONS OF ACCEPTANCE:

The Green Bay Decking deck boards described in this report comply with those codes listed in Applicable Codes section above and are subject to the following conditions:

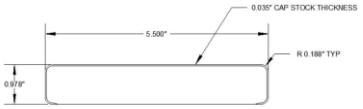
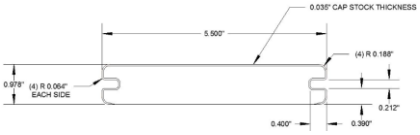
1. The deck board products must be limited to Type V-B (IBC) and residential construction in accordance with the IRC for exterior use as a deck board for balconies, porches, decks and stair treads.
2. Installation of the deck boards must comply with this report, the manufacturer's published installation instructions (see Section A-3 in this report), and the applicable code. When deck board manufacturer's installation instructions differ from this report, this report governs.

3. The fasteners described in this report have been evaluated for the installation of the Green Bay Decking deck boards only. Compatibility of the fasteners to the treated supporting construction has not been evaluated.
4. The Green Bay Decking deck boards indicated in the report must be fastened to the supporting construction as indicated in the manufacturer's installation manual and outlined in this report. When deck board manufacturer's fastening instructions differ from this report, this report governs.
5. When required, the structural deck board layout must be designed by a professional and submitted to the authority having jurisdiction for final acceptance.
7. The Green Bay Decking deck boards have not been evaluated as a member of a fire-resistance-rated assembly.
8. The structural design for code compliance of supporting members for the deck boards, have not been evaluated and is not a part of this research report.
9. Green Bay Decking has a Third-Party inspection program provided by PFS Corporation.

DOCUMENTATION SUBMITTED:
Submitted data was provided in accordance with PFS TECO 1601 (Quality control manual, Specifications, Manufacturer's installation instructions, Test data and Descriptive information) and the products have been evaluated in accordance with "Acceptance Criteria for Deck Board Span Ratings and Guardrail Systems (AC174)."

PRODUCT IDENTIFCATION:
The Green Bay Decking deck boards evaluated in this Research Report must be identified with a label, stamp, or laser imprint on every deck board. The required information is as follows: Green Bay Decking, product identification, compliance to ASTM D7032 including the maximum deck board span (inches on center spacing of supports) and loading (psf), the Research Report number (RR 0118), and PFS Certification Mark. Deck boards without this information are not covered under this report.

Table 1: Span Table and Fastening Schedule for Deck Boards

Product Trade Name	***Deck Board Profile***	***Shape***	***Maximum Span Rating (in/psf) with Deck Board Orientation to Support Joists***		***Fastening Schedule [1] and Uplift Values***	***Maximum Stair Tread Span (in)***
			90 º	***45 º***		
Optima Square Edge		Solid Edge	16 / 100	12 / 100	100 psf with two 2-3/4" Composite Deck Screws at each joist	12
Optima Grooved		Slotted Edge	16 / 100	12 / 100	89 psf with Optima-Clip hidden fastening system at each joist	- n/a -

for SI conversion: 1 in = 25.4 mm, 1 psf = 47.9 Pa, 1 lbf = 0.0044 kN

[1] Deck boards installed with Optima-Clip hidden fasteners attached to each joist with a fastener as per manufacturer's installation instructions. Deck boards installed as stair tread must be continuous over 3 or more supports fastened with two 2-3/4" composite deck screws on each stringer.

The joist to which the deck boards are attached must have a minimum specific gravity of 0.50 or better (treated Southern Pine) or the fastening must be designed.

No duration of load increase is allowed for the uplift values noted in Table 1 in this report.

Optima Clip with 1-3/4" Screw

#10 2-3/4" Composite Deck Screw