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DIVISION: 06—WOOD AND PLASTICS
Section: 06500—Structural Plastics

REPORT HOLDER:

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EVALUATION SUBJECT:

LDI COMPOSITES GEODECK™ COMPOSITE DECKING SYSTEM

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2003 *International Building Code*® (IBC)
- 2003 *International Residential Code*® (IRC)
- 1997 *Uniform Building Code*™ (UBC)

Properties evaluated:

- Structural
- Durability
- Surface-burning characteristics

2.0 USES

The GEODECK™ Composite Decking System evaluated in this report is limited to exterior use as a deck board for balconies, porches, stair treads and decks of Use Group R buildings of Type V-B (IBC) and Type V-N (UBC) construction and structures constructed in accordance with the IRC.

3.0 DESCRIPTION

3.1 General:

GEODECK™ Composite Decking is a wood thermoplastic composite lumber (WTCL) product consisting of high-density polyethylene, rice hulls, and a mineral filler with additives and color. The product specifications are listed in the approved quality control manual. The GEODECK™ Composite Decking System components are manufactured by an extrusion process in three colors: cedar, mahogany and driftwood.

3.2 Deck Board:

3.2.1 General: GEODECK™ Composite Decking is manufactured in three hollow profiles in 12-, 16- and 20-foot (3658, 4877, and 6096 mm) lengths. The three profiles are GEODECK™ Decking $\frac{5}{4}$ by 6 Traditional Board, GEODECK™ Decking $\frac{5}{4}$ by 6 Tongue and Groove Board and

GEODECK™ 2x8 Heavy Duty Commercial Plank. The walking surface of the GEODECK™ Decking System is wirebrushed to provide a coarse surface.

GEODECK™ Decking $\frac{5}{4}$ by 6 Traditional Board (profile ID number 1015) is 5.50 inches (140 mm) wide and 1.27 inches (32 mm) thick. The wall thickness of the profile is 0.26 inch (6.6 mm). The decking profile has four ribbed cell openings created by three stiffeners which are 0.20 inch (5.1 mm) thick. See Figure 1 for the profile of this decking system component. The traditional board is also used for stair treads.

GEODECK™ Decking $\frac{5}{4}$ by 6 Tongue and Groove Board (profile ID number 1016) is 5.50 inches (140 mm) wide and 1.27 inches (32 mm) thick. The wall thickness of the profile is 0.26 inch (6.6 mm). The decking profile has three ribbed cell openings created by two stiffeners which are each 0.235 inch (6 mm) thick. The decking board profile is shaped to interlock with adjacent decking boards. See Figure 2 for the profile of this decking system component.

GEODECK™ 2 by 8 Heavy Duty Commercial Decking Plank (profile ID number 1017) is 8.10 inches (206 mm) wide and 1.55 inches (39 mm) thick. The wall thickness of the profile is 0.26 inch (6.6 mm). The decking profile has five ribbed cell openings created by four stiffeners which are each 0.20 inch (5.1 mm) thick. See Figure 3 for the profile of this decking system component.

3.2.2 Durability: When subjected to weathering, insect attack and other decaying elements, GEODECK™ decking material is equivalent in durability to preservative-treated or naturally durable lumber. Accordingly, it is permitted to be used as an alternative to preservative-treated or naturally durable lumber on exterior decks, porches and balconies.

3.2.3 Surface-burning Characteristics: When tested in accordance with ASTM E 84, GEODECK™ decking has a flame-spread index of no greater than 200.

4.0 INSTALLATION AND DESIGN

4.1 Installation:

Installation of GEODECK™ Composite Decking System shall comply with this report and the manufacturer's published installation instructions. The manufacturer's published installation instructions shall be available at the jobsite at all times during installation. When the manufacturer's published installation instructions differ from this report, this report shall govern. The allowable loads are valid for boards exposed to ambient air temperatures between -20°F (-29°C) and 125°F (52°C).

Tongue and Groove/Traditional Decking Board shall be installed by one of the following methods: (1) No. 10 by 2.5-inch-long (63.5 mm) deck screw; (2) hand nailing with No. 8d, 2.5-inch-long (63.5 mm) stainless steel or coated ring shank nails on every joist and deck board point of contact; or (3) pneumatic nailing with No. 8d, 2.5-inch-long (63.5 mm)

stainless steel or coated ring shank nails on every joist and deck board point of contact.

Heavy Duty Commercial Decking Plank shall be installed by one of the following methods: (1) No. 10 by 2.5-inch-long (63.5 mm) deck screw or (2) hand nailing with No. 10d, 3.0-inch-long (76 mm) stainless steel or coated ring shank nails on every joist and deck board point of contact. A minimum of three nails on every joist shall be applied.

4.2 Design:

4.2.1 Deck Boards: The GEODECK™ Composite Decking System, when used as a deck board, has an allowable capacity (span rating) as shown in Table 1 of this report.

4.2.2 Deck Boards Used as Stair Treads: GEODECK™ Composite Decking $\frac{5}{4}$ by 6 Traditional Board, when used as a stair tread, is satisfactory to resist the code-prescribed concentrated loads of 300 lbf (kN) when installed at a maximum center-to-center spacing of the supporting construction as shown in Table 1 of this report. The other two profiles are not used as stair treads.

5.0 CONDITIONS OF USE

The GEODECK™ Composite Decking System described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 This product shall be limited to exterior use as a deck board for balconies, porches, decks, stair treads and similar appendages of Group R Occupancy buildings of Type V-B (IBC) and Type V-N (UBC) construction and structures constructed in accordance with the IRC.
- 5.2 Installation shall comply with this report, the manufacturer's published instructions and the applicable code. When the manufacturer's published installation instructions differ from this report, this report shall govern.
- 5.3 The use of the GEODECK™ Composite Decking as a component of a fire-resistance-rated assembly is outside the scope of this report.

5.4 Only those fasteners and fastener configurations described in this report have been evaluated for the installation of the GEODECK™ Composite Decking. The compatibility of the fasteners with the supporting construction, including chemically treated wood, is outside the scope of this report.

5.5 GEODECK™ Composite Decking shall be directly fastened to supporting construction. Where required by the code official, engineering calculations and construction documents consistent with this report shall be submitted for approval. The calculations shall verify that the supporting construction complies with the applicable building code requirements and is adequate to resist the loads imparted upon it from the products and systems discussed in this report. The documents shall contain details of the attachment to the supporting structure consistent with the requirements of this report. The documents shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

5.6 GEODECK™ Composite Decking components are produced in Green Bay, Wisconsin, under a quality control program with inspections by PFS Corporation (AA-652).

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Deck Board Span Ratings and Guardrail Systems (Guards and Handrails) (AC174), dated April 2002 (editorially revised July 1, 2004; corrected December 2004).

7.0 IDENTIFICATION

The GEODECK™ Composite Decking described in this report shall be identified on each individual piece by a stamp bearing the manufacturer's name (LDI Composites Company), the product type, the name of the inspection agency (PFS Corporation) and the evaluation report number (ESR-1369).

TABLE 1— DECK BOARD SPAN RATING

PRODUCT NAME	MAXIMUM SPAN ¹ (inches)	ALLOWABLE CAPACITY ² (lbf/ft ²)
GEODECK™ Decking $\frac{5}{4}$ by 6 Traditional Board (Hollow)	16	100
GEODECK™ Decking $\frac{5}{4}$ by 6 Tongue & Groove Board (Hollow)	16	100
GEODECK™ Decking 2 by 8 Heavy Duty Commercial Plank (Hollow)	16	100

For SI: 1 inch = 25.4 mm; 1 lbf/ft² = 47.9 Pa.

¹Maximum span is measured center-to-center of the supporting construction.

²Maximum allowable capacity is adjusted for durability. No further increases are permitted.

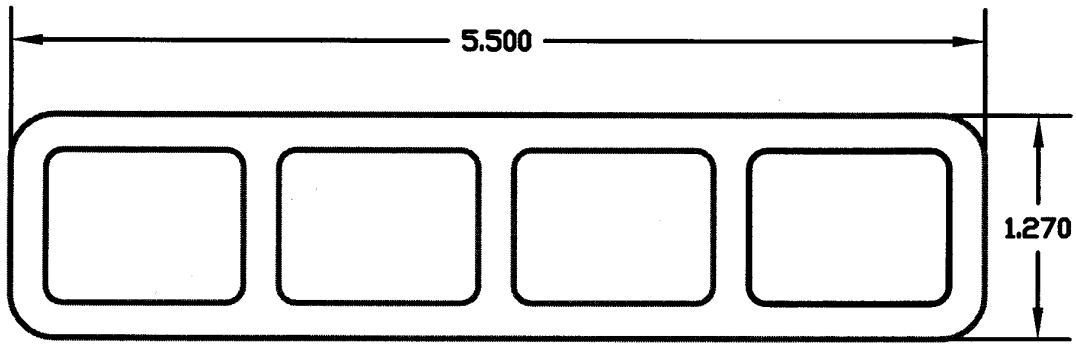
TABLE 2—MAXIMUM STAIR TREAD SPANS²

DECK BOARDS USED AS STAIR TREADS	MAXIMUM SPAN (inches) ¹
GEODECK™ Decking $\frac{5}{4}$ by 6 Traditional Board (Hollow)	16

For SI: 1 inch = 25.4 mm; 1 lbf/ft² = 47.9 Pa.

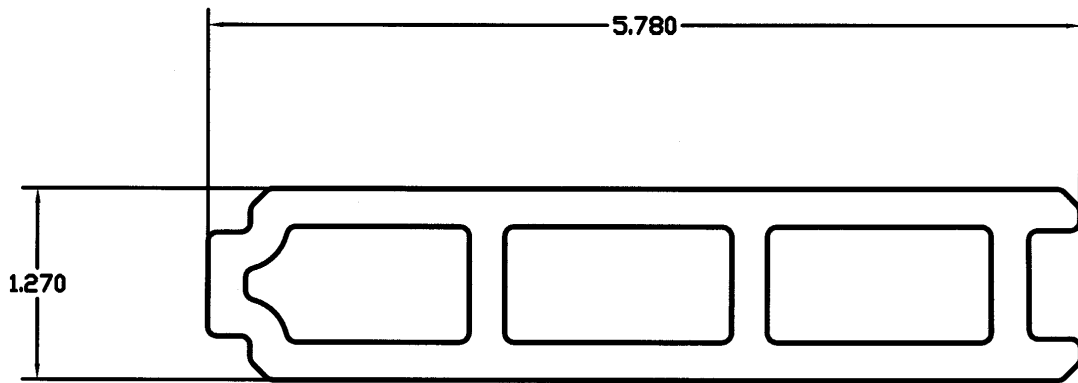
¹Maximum span is measured center-to-center of the supporting construction.

²Based on a minimum 2-span installation.



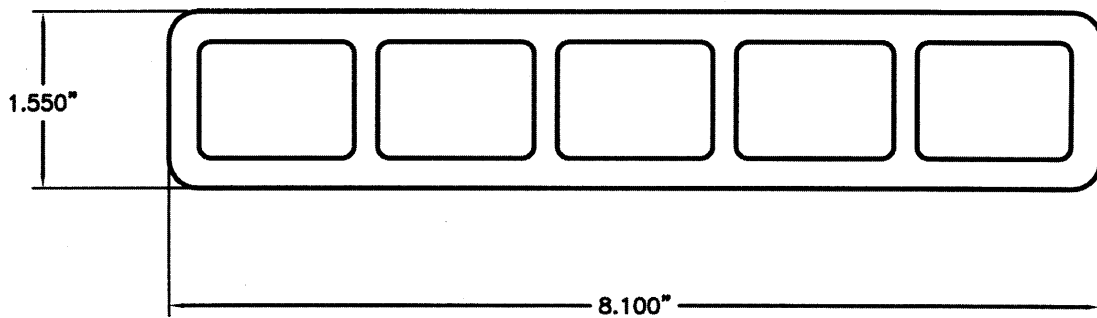
For SI: 1 inch = 25.4 mm.

FIGURE 1—GEODECK™ DECKING 5/4 BY 6 TRADITIONAL BOARD (HOLLOW)



For SI: 1 inch = 25.4 mm.

FIGURE 2—GEODECK™ DECKING 5/4 BY 6 TONGUE & GROOVE BOARD (HOLLOW)



For SI: 1 inch = 25.4 mm.

FIGURE 3—GEODECK™ DECKING 2 BY 8 HEAVY DUTY COMMERCIAL PLANK (HOLLOW)