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ESR-3771

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DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES

SECTION: 06 50 00—STRUCTURAL PLASTICS

SECTION: 06 53 00—PLASTIC DECKING

REPORT HOLDER:

SYLVANIX OUTDOOR PRODUCTS, INC.

**2529 MARTINGAIL DRIVE
COVINA, CA 91724**

EVALUATION SUBJECT:

**SYLVANIX EMBELLISH TRADITIONAL AND ARCHITECTURAL
COMPOSITE DECK BOARDS**



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**DIVISION: 06 00 00—WOOD, PLASTICS AND
COMPOSITES****Section: 06 50 00—Structural Plastics****Section: 06 53 00—Plastic Decking****REPORT HOLDER:****SYLVANIX OUTDOOR PRODUCTS, INC.**
2529 MARTINGAIL DRIVE
COVINA, CALIFORNIA 91724
(626) 353-4841
www.sylvanix-products.com**EVALUATION SUBJECT:****SYLVANIX EMBELLISH TRADITIONAL AND
ARCHITETURAL COMPOSITE DECK BOARDS****1.0 EVALUATION SCOPE****Compliance with the following codes:**

- 2015 and 2012 *International Building Code*® (IBC)
- 2015 and 2012 *International Residential Code*® (IRC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)[†]

[†]The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

Properties evaluated:

- Structural
- Durability
- Surface-burning Characteristics

2.0 USES

The Sylvanix Embellish Traditional (Model HLSC-001A) and Architectural (Model HLSC-010A) composite deck boards, described in this evaluation report are limited to exterior use as deck boards for balconies, porches, and decks. The deck boards can also be used as stair treads of buildings of Type V-B (IBC) construction and dwellings constructed in accordance with the IRC.

3.0 DESCRIPTION**3.1 General:**

The Sylvanix Embellish Traditional and Architectural composite deck boards are manufactured composite products consisting of wooden powder, high-density polyethylene (HDPE) and other processing additives. The deck boards are manufactured by a co-extrusion process with an integrated shell heat-pressed onto the core of the deck boards in accordance with the approved quality-control manual. The Traditional deck boards are solid,

while the Architectural deck boards are solid with grooves at board edges. The deck boards have a wood grain texture finish and are available in Teak, Ipe, and Light Grey colors. See Figures 1 and 2 for typical cross-sections of deck board profiles.

The deck boards are manufactured in nominally 1-inch-thick-by-5.25-inch-wide (25.4 by 135 mm) [actually 0.945 inch (24 mm) by 5.24 inches (133 mm)]. The deck boards are manufactured in various lengths.

3.2 Durability:

When subjected to weathering, insect attack, and other decaying elements, the deck boards are equivalent in durability to preservative-treated or naturally durable lumber when used in locations described in Section 2.0 of this report. The deck boards have been evaluated for structural capacity when exposed to temperatures from -20°F to 125°F (-29°C to 52°C).

3.3 Surface-burning Characteristics:

When tested in accordance with ASTM E84, the Sylvanix Embellish deck boards have a flame spread index no greater than 200.

4.0 DESIGN AND INSTALLATION**4.1 General:**

Installation of the Sylvanix Embellish composite deck boards must comply with this report and the manufacturer's published installation instructions. The manufacturer's published installation instructions must be available at the jobsite at all times during installation. When the manufacturer's published installation instructions differ from this report, this report governs.

4.2 Design:

The Sylvanix Embellish Traditional and Architectural composite deck boards have an allowable capacity of 100 psf (4.79 MPa) when installed at a maximum center-to-center spacing of the supporting construction as prescribed in Table 1. The allowable fastener head pull-through load and allowable fasteners withdrawal load of the No. 10-by-2³/₄-inch-long (69.8 mm) stainless steel deck screws are 235 lbf (1045 N) and 290 lbf (1300 N), respectively. The Sylvanix Pro Clip hidden fastener with No. 8 by 1⁵/₈-inch-long (41.3 mm) stainless steel screws has an uplift rating of 150 psf (7180 Pa) for deck boards installed at a maximum span of 16 inches (406 mm).

4.3 Installation:

4.3.1 Deck Boards: The Sylvanix Embellish Traditional deck boards must be installed perpendicular to the supporting joists with two No.10-by-2³/₄-inch-long

(69.8 mm) stainless steel deck screws per board per support joist. The fasteners must be placed through the pre-drilled pilot holes into the supporting joists at a minimum distance of $1\frac{1}{4}$ inch (31.8 mm) from the end of each board and $\frac{3}{4}$ inch (19.1 mm) from edges of each board. Pilot holes are pre-drilled using No. 8 countersink drill tool for all fasteners. A minimum of $\frac{1}{8}$ -inch (3.2 mm) gap must be left between ends of boards at butt joints and a minimum of $\frac{1}{16}$ -inch (1.6 mm) gap must be left between the edges of boards. Multiple joists or blocking must be used to provide adequate surface for fastener embedment of board ends. See Figure 1 for a typical Traditional deck board profile.

The Sylvanix Embellish Architectural deck boards must be installed perpendicular to the supporting joists with the proprietary hidden Pro Clip Fasteners (See Figure 2). A Pro Clip Fastener contains a T-shaped clip and a screw. The T-shaped clips are fastened with No. 8-by- $1\frac{3}{4}$ -inch-long (35 mm) stainless steel deck screws at each joist along the length of the deck boards. Starter Architectural deck boards are installed to the supporting joists with two No.10-by- $2\frac{3}{4}$ -inch-long (69.8 mm) stainless steel deck screws per board per supporting joist. The fasteners must be placed through the pre-drilled pilot holes on the solid part of the starter deck boards into the supporting joists at a minimum distance of $\frac{3}{4}$ inch (19.1 mm) from edges of the starter deck boards. See Figure 1 for a typical Architectural deck board profile.

4.3.2 Deck Boards Used as Stair Treads: The Sylvanix Embellish Traditional and Architectural deck boards, when used as a stair treads, are satisfactory to resist the code-prescribed concentrated load of 300 lbf (1.33 kN) when installed at a maximum center-to-center spacing of the supporting construction as shown in Table 2.

5.0 CONDITIONS OF USE

The Sylvanix Embellish Traditional and Architectural deck boards 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 The deck boards are limited to exterior use as deck boards for balconies, porches, decks and stair treads of Type V-B (IBC) construction and dwellings constructed in accordance with the IRC.
- 5.2 Installation must comply with this report, the manufacturer's published installation instructions and the applicable code. Only those fasteners and fastener configurations described in this report have been evaluated for the installation of the Sylvanix Embellish Traditional and Architectural deck boards. When the manufacturer's published installation instructions differ from this report, this report governs.

- 5.3 The use of the deck boards as a component of a fire-resistance-rated assembly is outside the scope of this report.
- 5.4 The compatibility of the fasteners, metal post mount components and other metal hardware with the supporting structure, including chemically treated wood, is outside the scope of this report.
- 5.5 Adjustment factors outlined in the AWC or AF&PA *National Design Specification*[®] (NDS) for Wood Construction, as applicable, and applicable codes must not be applied to the allowable capacity and maximum spans for the deck boards.
- 5.6 The Sylvanix Embellish Traditional and Architectural deck boards must be directly fastened to supporting joists in accordance with Section 4.3.1. Where required by the code official, engineering calculations and construction documents consistent with this report must be submitted for approval. The calculations must verify that the supporting structure 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 must contain details of the attachment to the supporting structure consistent with the requirements of this report. The documents must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.
- 5.7 The Sylvanix Embellish Traditional and Architectural deck boards are produced in Ningbo, Zhejiang Province, China, under a quality-control program with inspections by ICC-ES.

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 January 2012 (editorially revised December 2014).

7.0 IDENTIFICATION

The Sylvanix Embellish Traditional and Architectural deck boards described in this report are identified by a label on each individual piece, or on the packaging, bearing the manufacturer's name (Sylvanix Outdoor Products, Inc.) and address, the product name (Sylvanix Embellish Traditional or Architectural deck boards), the date of manufacturing, the span rating for use as a deck board and stair tread, as applicable, and the ICC-ES evaluation report number (ESR-3771).

TABLE 1—DECK BOARD SPAN RATINGS

PRODUCT NAME	MAXIMUM SPAN (inches) ¹	ALLOWABLE LIVE LOAD CAPACITY (lbf/ft ²) ²
Traditional	16	100
Architectural	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 has been adjusted for durability. No further increases are permitted.

TABLE 2—MAXIMUM STAIR TREAD SPANS^{1, 2}

PRODUCT NAME	MAXIMUM SPAN (inches)
Traditional	11
Architectural	11

For **SI**: 1 inch = 25.4 mm.

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

²Based on a single-span installation.

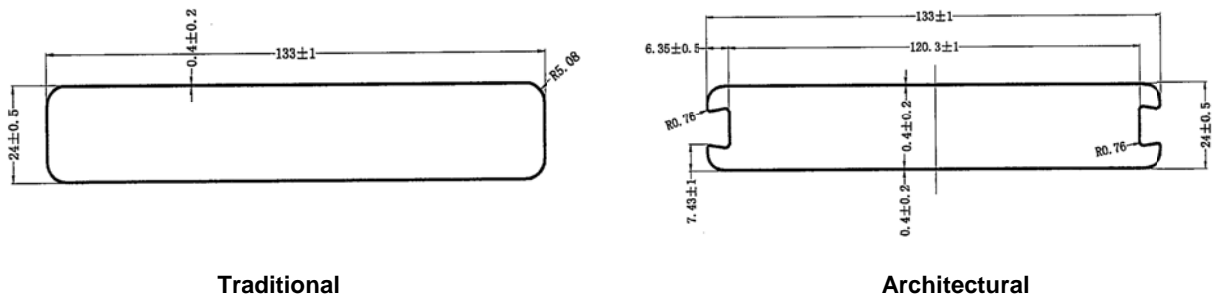


FIGURE 1—SYLVANIX EMBELLISH DECK BOARD PROFILES



FIGURE 2—SYLVANIX PRO CLIP HIDDEN FASTENER

ICC-ES Evaluation Report**ESR-3771 CBC and CRC Supplement**

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Section: 06 50 00—Structural Plastics
Section: 06 53 00—Plastic Decking

REPORT HOLDER:

SYLVANIX OUTDOOR PRODUCTS, INC.
2529 MARTINGAIL DRIVE
COVINA, CALIFORNIA 91724
(626) 353-4841

EVALUATION SUBJECT:**SYLVANIX EMBELLISH TRADITIONAL AND ARCHITECTURAL COMPOSITE DECK BOARDS****1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that Sylvanix Embellish Traditional and Architectural composite deck boards, recognized in ICC-ES master report ESR-3771, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2013 *California Building Code* (CBC)
- 2013 *California Residential Code* (CRC)

2.0 CONCLUSIONS**2.1 CBC:**

The Sylvanix Embellish Traditional and Architectural composite deck boards, described in Sections 2.0 through 7.0 of the master report ESR-3771, comply with the CBC Chapters 8 and 16, provided the design and installation are in accordance with the 2012 *International Building Code*® (IBC) provisions noted in the master report.

The products have not been evaluated under Chapter 7A for use in the exterior design and construction of new buildings located in a Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area.

2.2 CRC:

The Sylvanix Embellish Traditional and Architectural composite deck boards, described in Sections 2.0 through 7.0 of the master report ESR-3771, comply with CRC Chapter 3 and Section R507, provided the design and installation are in accordance with the 2012 *International Residential Code*® (IRC) provisions noted in the master report.

The products have not been evaluated under CRC Section R327.9 for use in the exterior design and construction of new buildings located in a Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area.

The products recognized in this supplement have not been evaluated for compliance with the *International Wildland-Urban Interface Code*®.

This supplement expires concurrently with the master report, issued November 2015.

ICC-ES Evaluation Report**ESR-3771 FBC Supplement**

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Applicable code editions:

- 2014 *Florida Building Code—Building*
- 2014 *Florida Building Code—Residential*

2.0 CONCLUSIONS

The Sylvanix Embellish Traditional and Architectural composite deck boards described in Sections 2.0 through 7.0 of the master report ESR-3771 comply with the 2014 *Florida Building Code—Building* and the 2014 *Florida Building Code—Residential*, provided the design and installation are in accordance with the *International Building Code*® provisions noted in the master report, and under the condition that decks and patios that abut the sidewall of the foundation or structure meet the requirements of Section 2304.11.4.3 of the *Florida Building Code—Building*.

Use of the Sylvanix Embellish Traditional and Architectural composite deck boards for compliance with the High-Velocity Hurricane Zone provisions of the 2014 *Florida Building Code—Building* and the 2014 *Florida Building Code—Residential* has not been evaluated and is outside the scope of this evaluation report.

For products falling under Florida Rule 9N-3, verification that the report holder's quality-assurance program is audited by a quality-assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official, when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the master report, issued November 2015.