ICC-ES Evaluation Report

ESR-3487

Reissued April 2025

Subject to renewal April 2027

ICC-ES Evaluation Reports are not to be construed as representing aesthetics or any other attributes not specifically addressed, nor are they to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by ICC Evaluation Service, LLC, express or implied, as to any finding or other matter in this report, or as to any product covered by the report.

Copyright © 2025 ICC Evaluation Service, LLC. All rights reserved.

DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES Section: 06 50 00—Structural Plastics	REPORT HOLDER: NEWTECHWOOD CORPORATION	EVALUATION SUBJECT: NEWTECHWOOD ULTRASHIELD US01, UH01 AND UH02 WOOD-PLASTIC COMPOSITE DECK BOARDS	

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2021, 2018, 2015 and 2012 *International Building Code®* (IBC)
- 2021, 2018, 2015 and 2012 *International Residential Code®* (IRC)

Property evaluated:

- Structural
- Durability
- Surface-burning characteristics

1.2 Evaluation to the following green code(s) and/or standards:

- 2022 *California Green Building Standards Code (CALGreen)*, Title 24, Part 11
- 2020, 2015, 2012 and 2008 ICC 700 *National Green Building Standard™* (ICC 700-2020, ICC 700-2015, ICC 700-2012 and ICC 700-2008)

Attributes verified:

- See Section 3.1

2.0 USES

The NewTechWood UltraShield US01, UH01 and UH02 wood-plastic composite deck boards described in this evaluation report are limited to exterior use as deck boards for balconies, porches, and decks. US01 and UH02 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 NewTechWood UltraShield US01, UH01 and UH02 wood-plastic composite deck boards are manufactured composite products consisting of rice hulls, 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 deck boards have been shown to comply with ASTM D7032, except for slip resistance, which is not required

by ICC-ES AC174. The deck boards are available in solid and hollow profiles with grooves along the board edges, various colors, sizes, and textures per each product as described in Sections 3.1.1, 3.1.2 and 3.1.3. The NewTechWood Hidden Fastening System is described in Section 3.1.4.

The attributes of the composite deck boards have been verified as conforming to the provisions of (i) 2022 CALGreen Section A5.406.1.2 for reduced maintenance; (ii) ICC 700-2020, ICC 700-2015 and ICC 700-2012 Sections 602.1.6 and 11.602.1.6 and ICC 700-2008 Section 602.8 for termite-resistant materials and (iii) ICC 700-2020 Sections 601.7 and 11.601.7; (iv) ICC 700-2015 and ICC 700-2012 Sections 601.7, 11.601.7, and 12.1(A).601.7; and (v) ICC 700-2008 Section 601.7 for site-applied finishing materials. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

3.1.1 The US01 Deck Boards: The US01 deck boards are nominally 1-inch-thick-by-6-inch-wide [actually 0.866 inch (22.5 mm) thick by 5.433 inches (138 mm) wide]. The US01 deck boards have a solid profile with grooves along the longitudinal board edges; have a wood grain texture; and have a Walnut color. See Figure 1 for typical cross section of the deck board profile.

3.1.2 The UH01 Deck Boards: The UH01 deck boards are nominally 1-inch-thick-by-6-inch-wide [actually 0.807 inch (20.5 mm) thick by 5.55 inch (141 mm) wide]. The UH01 deck boards have a hollow profile with grooves along the longitudinal board edges; have a wood grain texture; and have a Walnut color. See Figure 1 for typical cross section profile.

3.1.3 The UH02 Deck Boards: The UH02 deck boards are nominally 1-inch-thick-by-6-inch-wide [actually 0.866 inch (22.5 mm) thick by 5.433 inches (138 mm) wide]. The UH02 deck boards have a hollow profile, with grooves along the longitudinal board edges; and are available in seven colors: Maple, Antique, Teak, Ipe, Walnut, Redwood, and Light Grey. See Figure 1 for typical cross section profile.

3.1.4 Hidden Fastening System: NewTechWood Hidden Fastening System is designed specifically for installing US01 and UH02 deck boards to the supporting framing joists and consists of a stainless steel locking clip, TC-10, or a TPO polymer clip, TC-2, and corrosion-resistant, flat head, cross type countersink tapping screws having a head diameter of 0.315 inch (8 mm), major diameter of 0.15 inch (3.81 mm), minor diameter of 0.104 inch (2.64 mm) and overall length of 1.5 inches (38.1 mm).

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 deck boards have a flame spread index no greater than 200.

4.0 DESIGN AND INSTALLATION

4.1 General:

Installation of the NewTechWood UltraShield US01, UH01 and UH02 wood-plastic 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 NewTechWood UltraShield US01, UH01 and UH02 wood-plastic composite deck boards have an allowable capacity of 100 psf (4.79 kN/m^2) when installed at a maximum center-to-center span of the supporting framing members as prescribed in Table 1.

4.3 Installation:

4.3.1 Deck Boards: The NewTechWood UltraShield US01, UH01 and UH02 wood-plastic composite deck boards must be installed perpendicular to the supporting framing members spaced at a maximum span as prescribed in Table 1 and attached with two No. 10 by 2$^1/_2$-inch-long (63.5 mm) corrosion-resistant wood screws per support. The fasteners must be placed through the solid part of the deck boards and into the supporting structure, and not through the grooved edges, at a minimum distance of 1 inch (25.4 mm) from the edge of the deck boards. Fasteners must be placed a minimum of 1 inch (25.4 mm) from the end of each

board, and a minimum $^1/_{16}$-inch (1.6 mm) gap must be left between ends of boards at butt joints. Multiple joists or blocking must be used to provide adequate surface for fastener embedment of board ends. Fasteners located within $1^1/_2$ inches (38 mm) of board ends must be predrilled. A minimum $^1/_{16}$-inch (1.6 mm) gap must be left between deck boards. The deck boards may be installed with the hidden fastening system described in Section 3.1.4 of this evaluation report. The hidden fastening systems must be placed inside the grooves and attached to each support framing member using the fasteners provided with the hidden fastening system.

4.3.2 Deck Boards Used as Stair Treads: The NewTechWood UltraShield US01 and UH02 wood-plastic composite deck boards, when used as 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 span of the supporting framing members as prescribed in Table 2.

4.3.3 Fastening Capacities: For the NewTechWood UltraShield US01, UH01 and UH02 wood-plastic composite deck boards installed in accordance with Section 4.3.1 of this evaluation report with two No. 10 by $2^1/_2$-inch-long (63.5 mm) corrosion-resistant wood screws at ends to each support, the allowable fastener head pull-through capacity for screws is 150 lbf (670 N) per fastener.

For the NewTechWood UltraShield US01 and UH02 wood-plastic composite deck boards installed in accordance with Section 4.3.1 of this evaluation report with the NewTechWood Hidden Fastening System described in Section 3.1.4 of this evaluation report, the hidden fastening system has an uplift load rating of 100 psf (4.79 kN/m^2).

5.0 CONDITIONS OF USE:

The NewTechWood UltraShield US01, UH01 and UH02 wood-plastic composite deck boards 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 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 NewTechWood UltraShield wood-plastic composite deck boards. When the manufacturer's published installation instructions differ from this report, this report governs.

5.3 The use of 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 AF&PA National Design Standard and applicable codes must not be applied to the allowable capacity and maximum spans for the NewTechWood UltraShield wood-plastic composite deck boards.

5.6 The NewTechWood UltraShield wood-plastic composite deck boards must be directly fastened to the supporting structure. 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 use of NewTechWood UltraShield wood-plastic composite deck boards in areas subject to Formosan termites is outside of the scope of this report.

5.8 The NewTechWood UltraShield wood-plastic composite deck boards are produced in Daling, Huidong, Guangdong 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 April 2021).

7.0 IDENTIFICATION

7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-.3487) along with the name, registered trademark, or registered logo of the report holder [and/or listee] must be included in the product label. [Electronic labeling is the ICC-ES web address (www.icc-es.org); specific URL related to the report; or the ICC-ES machine-readable code placed on the aforementioned items.]

7.2 In addition, the NewTechWood UltraShield wood-plastic composite deck boards described in this report are identified by a label on each individual piece, or on the packaging, bearing the manufacturer's name (Newtechwood Corporation) and address, the product name (NewTechWood US01, UH01 or UH02 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-3487).

7.3 The report holder's contact information is the following:

NEWTECHWOOD CORPORATION
NGA PARK, 12 TUO
DALING TOWN, HUIDONG COUNTY
HUIZHOU, GUANGDONG 516321
CHINA
+86-752-6531-999
www.newtechwood.com

TABLE 1—DECK BOARD SPAN RATINGS

PRODUCT NAME	MAXIMUM SPAN (inches)[1]	ALLOWABLE LIVE LOAD CAPACITY (lbf/ft^2)[2]
NewTechWood US01	16	100
NewTechWood UH01	12	100
NewTechWood UH02	16	100

For **SI:** 1 inch = 25.4 mm; 1 lbf/ft^2 = 4.79 kN/m^2.
[1]Maximum span is measured center-to-center of the supporting construction.
[2]Maximum 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)
NewTechWood US01	10
NewTechWood UH02	10

For **SI:** 1 inch = 25.4 mm.
[1]Maximum span is measured center-to-center of the supporting construction.
[2]Based on a single-span installation.

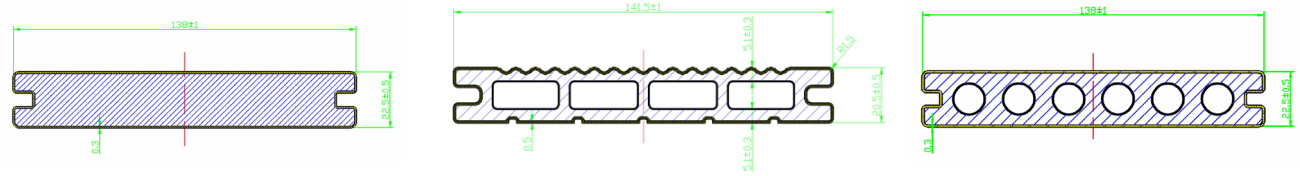

FIGURE 1—NEWTECHWOOD ULTRASHIELD WOOD-PLASTIC COMPOSITE DECK BOARD PROFILES (From Left: US01, UH01 and UH02)

FIGURE 2—NEWTECHWOOD HIDDEN FASTENING SYSTEM AND TYPICAL INSTALLATIONS