DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES  
Section: 06 50 00—Structural Plastics  
Section: 06 53 00—Plastic Decking

REPORT HOLDER:  
RENEW PLASTICS,  
A DIVISION OF N.E.W. PLASTICS CORPORATION

EVALUATION SUBJECT  
EVOLVE® PLASTIC LUMBER DECKING (ALSO KNOWN AS PERMA-POLY DECKING)

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:
- 2012, 2009 and 2006 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

1.2 Evaluation to the following green code(s) and/or standards:
- 2016 California Green Building Standards Code (CALGreen), Title 24, Part 11  

Attributes verified:  
See Section 3.1

2.0 USES

The EVOLVE® (also known as Perma-Poly) Plastic Lumber Decking is limited to exterior use applications as deck boards for balconies, porches and decks of one- and two-family dwellings of Type V-B (IBC) construction and dwellings constructed in accordance with the IRC.

3.0 DESCRIPTION

3.1 General:  
EVOLVE® or Perma-Poly Plastic Lumber Decking is made of a plastic composite material that consists of 90 percent recycled high-density polyethylene (HDPE), with the remaining 10 percent being foaming agents and color with ultraviolet inhibitors. The deck boards are manufactured by an extrusion process in the colors black, dove grey, dark green, weatherwood, cherrywood and white. The deck boards are manufactured in 3/4-inch-by-3 1/2-inch (19 by 89 mm), 3/4-inch-by-5 1/2-inch (19 by 140 mm), 3/4-inch-by-6-inch (19 by 152 mm) tongue and groove, 1-inch-by-5 1/2-inch (25.4 by 140 mm), 1-inch-by-6-inch (25.4 by 152 mm) tongue and groove, 1 1/2-inch-by-3 1/2-inch (38 by 89 mm), 1 1/2-inch-by-5 1/2-inch (38 by 140 mm) and 1-inch-by-11 1/4-inch (286 mm) solid profiles. See Figure 1 for typical cross sections.

The attributes of the plastic deck boards have been verified as conforming to the provisions of (i) CALGreen Section A5.406.1.2 for reduced maintenance; (ii) ICC 700-2015 and ICC 700-2012 Sections 602.1.6 and 11.602.1.6 for termite-resistant materials and Sections 601.7, 11.601.7, and 12.1(A).601.7 for site-applied finishing materials; and (iii) ICC 700-2008 Section 602.8 for termite-resistant materials and 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. See Section 5.7 for limitations on termite-resistance use.

3.2 Durability:  
When subjected to weathering, insect attack, and other decaying elements, the material used to manufacture EVOLVE® decking is 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 use 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 board products have a flame-spread index no greater than 200.

4.0 DESIGN AND INSTALLATION

4.1 General:  
Installation of the 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 (Structural):

When used as a deck board, EVOLVE® decking products have an allowable capacity, when installed at a maximum center-to-center spacing of supporting construction, as prescribed in Table 1.

4.3 Installation:

The EVOLVE® deck boards must be spaced at edges and ends in accordance with the manufacturer's published installation instructions. The end of each deck board must be supported by a joist. Double joists are required where decking butt-joints occur. The deck boards must be attached at each joist with two No. 7 by 2 1/4-inch-long (57 mm) corrosion-resistant screws. Minimum fastener edge and end distances must be 1 inch (25.4 mm).

5.0 CONDITIONS OF USE

The EVOLVE® decking 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 EVOLVE® (also known as Perma-Poly) Plastic Lumber Decking is limited to exterior use applications as deck boards for balconies, porches and decks of one- and two-family dwellings of Type V-B (IBC) construction and dwellings constructed in accordance with the IRC.

5.2 Balconies constructed on one- and two-family dwellings in accordance with the 2006 IBC and rated for 60 psf (2874 Pa) must not exceed 100 square feet (9.29 m²) in total area.

5.3 The use of EVOLVE® deck boards as stair treads is outside the scope of this report.

5.4 Installation must comply with this report, the manufacturer's published installation instructions and the applicable code. When the manufacturer's published installation instructions differ from this report, this report governs.

5.5 The use of deck boards as a component of a fire-resistance-rated assembly is outside the scope of this report.

5.6 Only those fasteners and fastener configurations described in this report have been evaluated for installation of the EVOLVE® deck boards. The compatibility of the fasteners with the supporting construction, including chemically treated wood, is outside the scope of this report.

5.7 Adjustment factors outlined in the AF&PA National Design Standard and applicable codes do not apply to the allowable capacity and maximum spans for EVOLVE® deck boards.

5.8 The EVOLVE® decking must be fastened to supporting construction. 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 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 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.

5.9 The EVOLVE® decking is manufactured in Luxemburg, Wisconsin, 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.

7.0 IDENTIFICATION

7.1 The EVOLVE® decking described in this report is identified by a stamp on each individual piece or on the packaging. The stamp includes the manufacturer's name (RENEW Plastics), the product name (EVOLVE® decking), and the ICC-ES evaluation report number (ESR-2497).

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

RENEW PLASTICS,
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112 - 4TH STREET
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LUXEMBURG, WISCONSIN 54217-0480
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www.renewplastics.com
TABLE 1—DECK BOARD SPAN RATINGS

<table>
<thead>
<tr>
<th>DECK BOARD</th>
<th>MAXIMUM SPAN (inches)</th>
<th>ALLOWABLE CAPACITY (lb/ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVOLVE® 3/4-by-3 1/2</td>
<td>12</td>
<td>100</td>
</tr>
<tr>
<td>EVOLVE® 3/4-by-5 1/2</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td>EVOLVE® 1/2-by-6 T &amp; G</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td>EVOLVE® 1-by-5 1/2</td>
<td>16</td>
<td>60</td>
</tr>
<tr>
<td>EVOLVE® 1/2-by-3 1/2</td>
<td>24</td>
<td>60</td>
</tr>
<tr>
<td>EVOLVE® 1/2-by-5 1/2</td>
<td>24</td>
<td>100</td>
</tr>
<tr>
<td>EVOLVE® 1-by-6 T &amp; G</td>
<td>16</td>
<td>100</td>
</tr>
<tr>
<td>EVOLVE® 1-by-11 1/4 Bull Nose</td>
<td>16</td>
<td>100</td>
</tr>
</tbody>
</table>

(used as deck board only)

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

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

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

3 Under the IBC, deck boards not rated for at least 100 lb/ft² are limited to 100 square feet (9.29 m²) in total area.

FIGURE 1—DECK BOARD PROFILES
3/4" x 5/8" Flat
Approximate Unit Weight - 1.76 Lbs./Lin. Ft.

1" x 5 1/2" Flat
Approximate Unit Weight - 1.76 Lbs./Lin. Ft.

1 1/2" x 3 3/8"
Approximate Unit Weight - 1.59 Lbs./Lin. Ft.

FIGURE 1—DECK BOARD PROFILES (Continued)
FIGURE 1—DECK BOARD PROFILES (Continued)