DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
SECTION: 06 12 00—STRUCTURAL PANELS

REPORT HOLDER:

FOUR SEASONS SOLAR PRODUCTS

EVALUATION SUBJECT:

CONSERVADECK STRUCTURAL INSULATED PANELS

“2014 Recipient of Prestigious Western States Seismic Policy Council (WSSPC) Award in Excellence”

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1.0 EVALUATION SCOPE
Compliance with the following codes:

Property evaluated:
Structural

2.0 USES
Conservadeck Structural Insulated Panels (SIPs) are used as structural insulated floor panels of enclosed structures installed over nonhabitable space.

3.0 DESCRIPTION
3.1 General:
Conservadeck SIPs are factory-assembled sandwich panels consisting of oriented strand board (OSB) facings with an expanded polystyrene (EPS) foam plastic core material. The panels are 4 feet (1.2 m) wide and vary in length from 8 feet to 16 feet (2.4 m by 4.9 m). Panel thicknesses are 6 1/2, 7, 8 3/8, and 8 7/8 inches (165, 178, 213, and 225 mm). The 6 1/2- and 8 3/8-inch-thick panels are faced with a single layer of OSB on each side, while the 7- and 8 7/8-inch-thick panels are faced with an additional layer of OSB on the top (walking surface) side.

3.2 Materials:
3.2.1 Expanded Polystyrene: The core thicknesses are 5 3/4 and 7 3/4 inches (143 and 187 mm) for 6 1/2- and 7-inch-thick panels, and for 8 3/8- and 8 7/8-inch-thick panels, respectively. The core material is a nominal 1.0-pound-per-cubic-foot (16 kg/m³), Type I, expanded polystyrene foam plastic board complying with ASTM C578. The board is supplied by the manufacturer identified in the approved quality control documentation. The foam plastic has a flame-spread index of 25 or less and a maximum smoke-developed index of 450 or less when tested in accordance with ASTM E84.

3.2.2 Facings: The facing material (both factory- and jobsite-applied) of the panels is 1/16-inch-thick (11 mm) OSB sheathing classified as Exposure 1, having a span rating of 117 and complying with U.S. DOC PS 2 and the requirements in the approved quality documentation.

3.2.3 Adhesive: The facing material is factory-laminated to the panel core with a Type II, Class 2, adhesive as described in the approved quality control documentation that complies with the ICC-ES Acceptance Criteria for Sandwich Panel Adhesives (AC05).

3.2.4 Splines and Plates: Splines and plates must be minimum No. 2 grade, sawn Douglas fir-larch lumber with a minimum nominal specific gravity of 0.50. The splines and plates must be nominally 2-by lumber, fitted for each EPS foam plastic core thickness.

4.0 DESIGN AND INSTALLATION
4.1 Design:
4.1.1 Allowable Loads: For use in allowable stress design, the allowable uniform gravity (dead and live) loads and upward wind loads for the panels are as set forth in Tables 1 and 2. Use of the panels to resist any other load conditions (such as axial compression or tension forces due to horizontal wind loads, or use as a floor diaphragm to resist seismic or horizontal-wind loads) is outside the scope of this report.

4.1.2 IRC: When panels are installed under the IRC, an engineered design is required in accordance with IRC Section R301.1.3.

4.2 Installation:
4.2.1 General: Conservadeck SIPs must be installed as the floor of the enclosed structure with the panel length perpendicular to the supporting members and without transverse joints. The panels must be connected to each other along the panel edges by insertion of the lumber splines described in Section 3.2.4. The lumber spline and plates must be secured between the panels with 8d cooler (0.113-inch-diameter-by-2 1/8-inch-long (2.9 mm x 60 mm)] nails at 8 inches (203 mm) on center. The top surface of the floor panels must be covered by a thermal barrier approved by the code official, such as 1/4-inch-thick (19.1 mm) plywood installed on the top surface.

Each end of the panel span must be provided with a minimum 1-inch (25.4 mm) continuous bearing support, to
resist downward gravity loads and upward wind loads. As an alternative, the panels may be fastened to the supporting structure through a ledger and support block as shown in Figure 1 of this report. The connection of the ledger and support block to the supporting structure must be designed in accordance with the IBC. For supporting panels subject to uplift forces, an alternative is to install metal fasteners at a maximum of 12 inches (305 mm) on center. The connection must be designed to resist the applicable forces.

The underside of the panel must have a minimum clearance of 18 inches (457 mm) above finish grade.

4.2.2 Installation of Additional OSB Layer: Panels having an additional layer of OSB placed on the top of the Conservadeck SIPs must have the OSB's strength axis perpendicular to the Coservadeck panel span. This layer of OSB is fastened in the field to the splines using 10d box nails at 8 inches (203 mm) on center (staggered offset from the 8d cooler nails used to fasten the facings to the splines and plates, as described in Section 4.2.1, above) and 12 inches (305 mm) on center in the field in two rows spaced 16 inches (406 mm) on center apart across the width of the panel.

5.0 CONDITIONS OF USE

The Conservadeck Structural Insulated Panels 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 panels are fabricated, identified and erected in accordance with this report and the manufacturer's published installation instructions. Where differences exist between this report and the manufacturer's published installation instructions, this report governs.

5.2 The panels must be installed in interior dry locations, subject to approval by the code official.

5.3 Design loads to be resisted by the panels must be determined in accordance with the applicable code, and must not exceed the allowable panel loads noted in this report. The design calculations and details must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed, and submitted to the code official for approval.

5.4 The panels are limited to use in buildings of Group R occupancies of Type V-B construction under the IBC, and nonfire-resistance-rated construction under the IRC.

5.5 The panels are fabricated in Holbrook, New York, under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Sandwich Panels (AC04), dated February 2012 (editorially revised July 2015).

7.0 IDENTIFICATION

7.1 Each panel must be identified by a stamp or label on the panel that includes the name and address of the manufacturer (Four Seasons Solar Products), and the evaluation report number (ESR-2445).

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

FOUR SEASONS SOLAR PRODUCTS
5005 VETERANS MEMORIAL HIGHWAY
HOLBROOK, NEW YORK 11741
(631) 563-4000
www.fourseasonssunrooms.com
### TABLE 1—ALLOWABLE LOADS FOR 57/8-INCH-THICK EPS FOAM CORE CONSERVADECK FLOOR PANELS\(^1,2\) (psf)

<table>
<thead>
<tr>
<th>PANEL SPAN (ft)</th>
<th>3 psf SUPERIMPOSED DEAD LOAD</th>
<th>7 psf SUPERIMPOSED DEAD LOAD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gravity Loads</td>
<td>Wind Uplift Load</td>
</tr>
<tr>
<td></td>
<td>Allowable Floor Live Load</td>
<td>Allowable Floor Live Load Double OSB(^2)</td>
</tr>
<tr>
<td>7</td>
<td>85</td>
<td>84</td>
</tr>
<tr>
<td>8</td>
<td>71</td>
<td>72</td>
</tr>
<tr>
<td>9</td>
<td>56</td>
<td>62</td>
</tr>
<tr>
<td>10</td>
<td>45</td>
<td>49</td>
</tr>
<tr>
<td>11</td>
<td>N/A</td>
<td>40</td>
</tr>
</tbody>
</table>

### TABLE 2—ALLOWABLE LOADS FOR 77/8-INCH-THICK EPS FOAM CORE CONSERVADECK FLOOR PANELS\(^1,2\) (psf)

<table>
<thead>
<tr>
<th>PANEL SPAN (ft)</th>
<th>3 psf SUPERIMPOSED DEAD LOAD</th>
<th>7 psf SUPERIMPOSED DEAD LOAD</th>
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<td>Allowable Floor Live Load Double OSB(^2)</td>
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<td>7</td>
<td>85</td>
<td>83</td>
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<td>50</td>
</tr>
<tr>
<td>12</td>
<td>46</td>
<td>45</td>
</tr>
<tr>
<td>13</td>
<td>40</td>
<td>N/A</td>
</tr>
</tbody>
</table>

For SI: 1 inch = 25.4 mm; 1 foot = 305 mm; 1 psf = 47.9 Pa.

Notes:

1. All allowable loads provided are uniform applied loads.
2. Deflection limit for live load is L/360. Deflection limit for dead plus live load is L/240. Deflection limit for wind load is L/360. Minimum allowable live load presented is 40 psf.
3. See Section 4.2.2 for installation requirements.
**FIGURE 1**

**A**  
*Typical Framing Connection at Exterior Dropped Girder*

- **Existing Structure**
- **Flashing as Required**
- **6d Coated Nails @ 4" O.C. (By Others)**
- **Conservadeck**
- **Isolator Tape**
- **2x4 Ledge Attached w/ 3/8" x 9" Lag Bolts, (Actual design of these connections must be determined by others)**
- **2x12 Ledge Fastened to Supporting Structure (2x12 Ledge for 8" Panels)**
- **With (2) 3/8" x 9" Lag Bolts, (Actual design of these connections must be determined by others)**

**B**  
*Details*

- **(2) 2x Continuous Band Around Entire Floor Perimeter (Design by Others)**
- **Isolator Tape (PM: HHS 330)**
- **Post Cap**
- **Drop Girder (Actual design of these members must be determined by others)**
- **Framing Connection**
- **See Detail**

**C**  
*Typical Framing Connection at Ledger to Supporting Structure*

- **Existing Structure**
- **Flashing as Required**
- **6d Coated Nails @ 4" O.C. (By Others)**
- **Isolator Tape**
- **2x4 Ledge Attached w/ 3/8" x 9" Lag Bolts, (Actual design of these connections must be determined by others)**
- **2x12 Ledge Fastened to Supporting Structure (2x12 Ledge for 8" Panels)**
- **With (2) 3/8" x 9" Lag Bolts, (Actual design of these connections must be determined by others)**

**NOT TO SCALE**
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1.0 REPORT PURPOSE AND SCOPE

Purpose:
The purpose of this evaluation report supplement is to indicate that the Conservadeck Structural Insulated Panels, recognized in ICC-ES master evaluation report ESR-2445, have also been evaluated for compliance with the codes noted below.

Applicable codes:
- 2016 and 2013 California Building Code® (CBC)
- 2016 and 2013 California Residential Code® (CRC)

2.0 CONCLUSIONS

2.1 CBC:
The Conservadeck Structural Insulated Panels, described in Sections 2.0 through 7.0 of the master evaluation report ESR-2445, comply with 2016 and 2013 CBC Chapters 3, 8, 23 and 26, provided the design and installation are in accordance with the 2015 and 2012 International Building Code® provisions, respectively, noted in the master report and the additional requirements of 2016 or 2013 CBC Chapters 3, 8, 23 and 26, as applicable.

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

2.2 CRC:
The Conservadeck Structural Insulated Panels, described in Sections 2.0 through 7.0 of the master evaluation report ESR-2445, comply with 2016 and 2013 CRC Chapter 3, provided the design and installation are in accordance with the 2015 and 2012 International Residential Code® provisions, respectively, noted in the master report and the additional requirements of 2016 or 2013 CRC Chapter 3, as applicable.

The Conservadeck Structural Insulated Panels have not been evaluated under CRC Section R327 for use in the exterior design and construction of new buildings located in any 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, reissued August 2018.