DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
SECTION: 06 12 00—STRUCTURAL PANELS
SECTION: 06 16 00—SHEATHING
DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
SECTION: 07 21 00—THERMAL INSULATION
SECTION: 07 25 00—WATER-RESISTIVE BARRIERS/WEATHER BARRIERS
SECTION 07 27 00—AIR BARRIERS

REPORT HOLDER:

HUBER ENGINEERED WOODS, LLC

ONE RESOURCE SQUARE
10925 DAVID TAYLOR DRIVE, SUITE 300
CHARLOTTE, NORTH CAROLINA 28262

EVALUATION SUBJECT:

ZIP SYSTEM® R-SHEATHING (INSULATING SHEATHING)
DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES  
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Section: 06 16 00—Sheathing  

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ZIP SYSTEM® R-SHEATHING (INSULATING SHEATHING)  

1.0 EVALUATION SCOPE  
Compliance with the following codes:  
- 2015, 2012 and 2009 International Residential Code® (IRC)  
Properties evaluated:  
- Structural  
- Thermal resistance  
- Air leakage  
- Weather resistance  

2.0 USES  
ZIP System® R-Sheathing panels are used as combination wall sheathing and continuous insulation in conventional light wood-framed walls of Type V construction (IBC) and dwellings constructed in accordance with the IRC. R-Sheathing is used to resist transverse loads in accordance with the PS-2 span rating shown on the panels. The panels are used to satisfy the continuous insulation and insulated sheathing allowances of 2015 IRC Table N1102.1.2, 2012 IRC Table N1102.1.1 or 2009 IRC Table N1102.1.2 and 2015 IECC Tables R402.1.2 and C402.1.3, 2012 IECC Tables R402.1.1 and C402.2, or 2009 IECC Tables 402.1.1 and 502.2(1), as applicable. When installed with ZIP System™ Flexible Flashing seam tape, R-Sheathing may be used as an alternative to the water-resistant barrier required by IBC Section 1404.2 and IRC Section R703, and to address air leakage in the building envelope as required by Sections R402.4 and C402.5 of the 2015 IECC, Sections R402.4 and C402.4 of the 2012 IECC or Sections 402.4.1 and 504.3 of the 2009 IECC.  

ZIP System R-Sheathing panels may be used as intermittent wall bracing panels within designated braced wall lines (2009 IRC only) in accordance with Section 4.5, and as shear wall panels in accordance with Section 4.6, of this report.  

3.0 DESCRIPTION  
ZIP System® R-Sheathing is an insulated sheathing made by combining 1/4-inch-thick ZIP System® Wall Sheathing recognized in ESR-1474 with a layer of maximum 2-inch-thick (25.4 mm) rigid foam plastic insulation laminated to its interior face using polyvinyl alcohol (PVA) adhesive. The ZIP System® Wall Sheathing is OSB complying with U.S. DOC PS 2 for wood structural panels as Exposure 1 with a 24/0, 24/16, or Wall 24 span rating, and is overlaid on the exterior side with a Grade D water-resistive barrier. The rigid foam plastic insulation is Rboard® recognized in ESR-1375 which complies with the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12). The foam plastic insulation boards have a nominal density of 2.0 pcf, compressive strength of 20 psi (138 kPa), vapor permeance of less than 1.0 perm, a flame-spread index of 75 or less and a smoke-developed index of 450 or less. The ZIP System® R-Sheathing panels are nominally 4 feet wide by 8, 9, 10, 11 or 12 feet long and have a square-finished-edge or machined-edge profile.  

4.0 INSTALLATION  
4.1 General:  
ZIP System® R-Sheathing panels must be installed over wood-framed walls with minimum nominally “2-by” framing spaced at a maximum of 24 inches (406 mm) on center. In accordance with the manufacturer's published installation instructions, it is recommended that the square edges of the panels be installed with a gap between adjacent panels and that the panels be separated from...
The panels are recognized as equivalent to wood structural panels used in Bracing Method WSP and may be used with amounts of bracing (lengths) specified in 2009 IRC Table R602.10.2(1), entitled “Bracing Requirements Based on Wind Speed.” The minimum effective braced wall panel length must be 48 inches (1219 mm) for wall heights up to 10 feet (3048 mm), 4 feet 5 inches (1346 mm) for walls not exceeding 11 feet (3352 mm) in height, and 4 feet 10 inches (1473 mm) for walls not exceeding 12 feet (3658 mm) in height. For prescriptive wall bracing using this section (Section 4.5), recognition is limited to use in areas where the design wind speed is less than 110 mph and in Seismic Design Categories (SDC) A, B, and C (Exception: SDC A and B only for townhouses); use of the sheathing in other conditions is outside the scope of this report. Holes and notches in wood framing are permitted in accordance with 2009 IRC Section R602.6.

**5.0 CONDITIONS OF USE**

The ZIP System® R-Sheathing 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 ZIP System® R-Sheathing panels must be manufactured, identified and installed in accordance with this report and the manufacturer’s published installation instructions. In the event of a conflict between the instructions and this report, this report governs.

5.2 When required by the code official, this evaluation report and the manufacturer’s published installation instructions must be submitted at the time of permit application.

5.3 Walls sheathed with the panels must not be used to resist in-plane horizontal loads from concrete or masonry walls.

5.4 The ZIP System® R-Sheathing panels must be covered with a code-complying exterior wall covering or one that is recognized in a current ICC-ES evaluation report.

5.5 Siding installed over R-Sheathing must be installed in accordance with code and with the siding manufacturer’s recommendations. Siding installers must account for any extra fastener length required to attach siding through the foam backed panel and into framing.
5.6 Where foam plastic is used in areas where the probability of termite infestation is “very heavy,” safeguards must be followed in accordance with the protection against subterranean termite provisions in Chapter 26 of the IBC or Chapter 3 of the IRC, as applicable.

5.7 Fire-resistance-rated construction is outside the scope of this report.

5.8 Under the 2015 IBC, special inspection must be provided in accordance with IBC Sections 1704.3 and 1705.11 for sheathing installed in shear walls on buildings in Exposure B locations where $V_{ASD}$ is 120 mph (53.6 m/s) or greater and in Exposures C and D locations where $V_{ASD}$ is 110 mph (49.2 m/s) or greater. Under the 2012 IBC, special inspection must be provided in accordance with IBC Sections 1704.3 and 1705.10 for sheathing installed in shear walls on buildings in Exposure B locations where $V_{ASD}$ is 120 mph (53.6 m/s) or greater and in Exposures C and D locations where $V_{ASD}$ is 110 mph (49.2 m/s) or greater. Under the 2009 IBC, special inspection must be provided in accordance with IBC Sections 1705.1, 1705.2 and 1705.4 for sheathing installed in shear walls on buildings in Exposure B locations where the basic wind speed is 120 mph (53.6 m/s) or greater and in Exposures C and D locations where the basic wind speed is 110 mph (49.2 m/s) or greater. A statement of special inspections complying with 2015 or 2012 IBC Section 1704.3 or 2009 IBC Section 1705 (as applicable) must be provided to the code official (this includes addressing requirements in 2015 IBC Sections 1704.3.3 and 1705.11 or 2012 IBC Sections 1704.3.3 and 1705.10 or 2009 IBC Sections 1705.4.1 and 1705.4.2, as applicable).

5.9 Cutting openings and penetrations in designated braced wall panels is not permitted.

5.10 Gypsum wallboard is required to be installed on the side of the wall opposite the proprietary sheathing in accordance with 2009 IRC Section R602.10.2.1.

5.11 Use of ZIP System® R-Sheathing panels to resist combined wind uplift and shear must be approved by the code official.

5.12 ZIP System® R-Sheathing panels are laminated at facilities located in Camp Hill, Pennsylvania, Diboll, Texas, Crystal Hill, Virginia, Broken Bow, Oklahoma, and East Moline, Illinois, under a quality-control program with inspections provided by ICC-ES.

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with the ICC-ES Acceptance Criteria for Water-resistive Membranes Factory-bonded to Wood-based Structural Sheathing, Used as Water-resistive Barriers (AC310), dated May 2008 (editorially revised, August 2015).

6.2 For recognition under the 2015, 2012 and 2009 IBC and IRC for use in shear walls, data in accordance with the ICC-ES Acceptance Criteria for Proprietary Sheathing Jobsite-attached to Wood Light-frame Wall Construction Used as Shear Walls (AC269.2), dated October 2013 (editorially revised, February 2016).

6.3 For recognition under the 2009 IRC for use as an alternative to prescriptive intermittent braced wall panels, data in accordance with the ICC-ES Acceptance Criteria for Proprietary Sheathing Attached to Wood Light-frame Wall Construction Used as Braced Wall Panels under the IRC (AC269.1), dated February 2013 (editorially revised, February 2014).

6.4 Air leakage data in accordance with ASTM E2357.

7.0 IDENTIFICATION

Each ZIP System® R-Sheathing panel described in this report must bear a label that includes the manufacturer's name (Huber Engineered Woods, LLC) and address, the product name, the R-Sheathing type, the date of manufacture or a tracking number, the manufacturing plant identifier, and the evaluation report number (ESR-3373).
## PRESCRIPTIVE METHOD (INTERMITTENT WALL BRACING)

### TABLE 1—FASTENING REQUIREMENTS FOR ZIP SYSTEM® R-SHEATHING WITH FRAMING OF DOUGLAS FIR-LARCH FOR WIND OR SEISMIC LOADING UNDER THE 2009 IRC (WSP METHOD)

<table>
<thead>
<tr>
<th>R-SHEATHING TYPE</th>
<th>FRAMING</th>
<th>FASTENING REQUIREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nominal Stud Size (min.)</td>
<td>Maximum Stud Spacing (inches)</td>
</tr>
<tr>
<td>R-3</td>
<td>2-by-4</td>
<td>24</td>
</tr>
<tr>
<td>R-3</td>
<td>2-by-4</td>
<td>16</td>
</tr>
<tr>
<td>R-6</td>
<td>2-by-4</td>
<td>24</td>
</tr>
<tr>
<td>R-9</td>
<td>2-by-4</td>
<td>24</td>
</tr>
<tr>
<td>R-12</td>
<td>2-by-4</td>
<td>24</td>
</tr>
</tbody>
</table>

For SI: 1 inch = 25.4 mm

1All fasteners must be located a minimum of 3/8 inch from panel edges.
2Fasteners must be common nails or equivalent, or staples, of a type generally used to attach wood sheathing.
3Type R-12 R-Sheathing panels have a foam plastic insulation thickness of 2.0 inch. Type R-9 R-Sheathing panels have a foam plastic insulation thickness of 1.5 inch. Type R-6 R-Sheathing panels have a foam plastic insulation thickness of 1.0 inch. Type R-3 R-Sheathing panels have a foam plastic insulation thickness of 0.5 inch.
4All panel edges must be backed by framing.

## ENGINEERED METHOD (SHEARWALL PANELS)

### TABLE 2—FASTENING REQUIREMENTS AND ALLOWABLE SHEAR CAPACITY FOR ZIP SYSTEM® R-SHEATHING WITH FRAMING OF DOUGLAS FIR-LARCH® FOR WIND OR SEISMIC LOADING UNDER THE 2015, 2012 AND 2009 IBC

<table>
<thead>
<tr>
<th>R-SHEATHING TYPE</th>
<th>FRAMING</th>
<th>FASTENING REQUIREMENT</th>
<th>ALLOWABLE SHEAR CAPACITY (plf)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nominal Stud Size (min.)</td>
<td>Maximum Stud Spacing (inches)</td>
<td>Fastener Specifications</td>
</tr>
<tr>
<td>R-3</td>
<td>2-by-4</td>
<td>24</td>
<td>0.131-inch shank nails</td>
</tr>
<tr>
<td>R-3</td>
<td>2-by-4</td>
<td>24</td>
<td>0.131-inch shank nails</td>
</tr>
<tr>
<td>R-3</td>
<td>2-by-4</td>
<td>16</td>
<td>16ga staples, 7/16-inch crown, 2-inch length</td>
</tr>
<tr>
<td>R-6</td>
<td>2-by-4</td>
<td>24</td>
<td>0.131-inch shank nails</td>
</tr>
<tr>
<td>R-6</td>
<td>2-by-4</td>
<td>24</td>
<td>0.131-inch shank nails</td>
</tr>
<tr>
<td>R-9</td>
<td>2-by-4</td>
<td>24</td>
<td>0.131-inch shank nails</td>
</tr>
<tr>
<td>R-12</td>
<td>2-by-4</td>
<td>24</td>
<td>0.131-inch shank nails</td>
</tr>
</tbody>
</table>

For SI: 1 inch = 25.4 mm, 1 plf = 14.6 N/m.

1All fasteners must be located a minimum of 7/16 inch from panel edges.
2For framing of other species, the shear value above must be multiplied by the Specific Gravity Adjustment Factor = 1 - (0.50 – SG), where SG is the specific gravity of the framing lumber in accordance with the AWC NDS. This adjustment factor must not be greater than 1.
3Fasteners must be common nails or equivalent, or staples, of a type generally used to attach wood sheathing.
4Type R-6 R-Sheathing panels have a foam plastic insulation thickness of 1.0 inch. Type R-3 R-Sheathing panels have a foam plastic insulation thickness of 0.5 inch.
5The maximum height-to-width aspect ratio of shear walls is 2:1.
6The allowable shear capacity may be increased by 40% for wind in Allowable Stress Design in accordance with Section 2306.3 of the 2015, 2012 and 2009 IBC.
7All panel edges must be backed by framing.