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1/2-INCH ZIP SYSTEM R-SHEATHING

CSI Sections:

- 06 12 00 Structural Panels
- 06 16 00 Sheathing

1.0 RECOGNITION

1/2-inch ZIP System R-Sheathing panels, manufactured by Huber Engineered Woods, LLC, were evaluated for use with wood framing as prescriptive bracing to resist lateral in-plane wind and seismic forces. The structural properties of the sheathing were evaluated for compliance with the following codes:

- 2021, 2018, and 2015 International Residential Code® (IRC)

2.0 LIMITATIONS

Use of the 1/2-inch ZIP System R-Sheathing panels recognized in this report is subject to the following limitations:

- 2.1** 1/2-inch ZIP System R-Sheathing is limited to use in buildings constructed under the IRC.
- 2.2** Walls sheathed with R-Sheathing panels shall be sealed to resist water in accordance with the manufacturer’s installation instructions, covered with an approved cladding, and shall not be subject to wetting in service. Ground or horizontal surface clearance shall be provided in accordance with IRC Section R317.1 for wood sheathing not protected against decay.
- 2.3** In areas of “Very Heavy” termite infestation probability, protection against termites is required in accordance with IRC Section R318.4.
- 2.4** Use of ZIP System R-Sheathing in fire-resistance rated assemblies is outside the scope of this report. R-Sheathing shall not be used in lieu of other wood structural panel (WSP) sheathing in fire-resistance rated assemblies.
- 2.5** Minimum ½-inch-thick (12.7 mm) gypsum wallboard shall be installed as a thermal barrier on the interior side of walls sheathed with R-Sheathing, in accordance with code.

2.6 1/2-inch ZIP System R-Sheathing is not for use to resist wind uplift only or combined uplift and shear forces. Any metal straps, ties, or other connectors used to resist uplift forces shall be in contact with and fastened directly to the structural framing.

2.7 Segments of walls built using 1/2-inch ZIP System R-sheathing panels that contain openings shall not be counted in braced wall lengths or as shear walls.

2.8 ZIP System R-Sheathing is produced by Huber Engineered Woods. The foam plastic is laminated in Camp Hill, PA; Diboll, TX; Northglenn, CO; Toronto, ONT, CAN; and East Moline, IL.

3.0 PRODUCT USE INSTRUCTIONS

1/2-inch ZIP System R-Sheathing panels are used as wall sheathing to resist wind pressures and transfer lateral loads to the underlying structure, and to resist shear loads due to wind and seismic forces. R-Sheathing is also used as a nailing base for exterior cladding fasteners where the cladding is not required by the cladding manufacturer’s instructions and Tables R703.15.1 and R703.15.2 of the IRC to be fastened directly to the underlying framing.

3.1 Installation

The manufacturer’s ZIP System R-Sheathing Installation Manual, this evaluation report, and the applicable provisions of the IRC shall be followed when using and installing this product. Where there is a conflict between these documents, the more restrictive shall govern.

The ZIP System R-Sheathing shall be installed with the foam plastic insulation layer inward against the framing, and the water resistive barrier layer facing out. Fasteners shall be long enough to penetrate beyond the depth of the sheathing and foam plastic layers, and into the framing a minimum of 1½ inches (38.1 mm). Table 1 of this report describes the thickness of each panel layer, the minimum fastener, spacing, and distance from panel edges required for installation. During installation, care shall be exercised to make sure the fasteners are driven into the framing members at the required spacing and distance from panel edges.

R-Sheathing panels used as wall bracing shall have all edges backed by solid framing or blocking. The framing may be of any species prescribed by the IRC for use with wood structural panels in the prescriptive WSP Intermittent Bracing Method. The panels may be installed either vertically or horizontally and panel joints shall be gapped in accordance with the manufacturer’s installation instructions.

The product described in this Uniform Evaluation Service (UES) Report has been evaluated as an alternative material, design or method of construction in order to satisfy and comply with the intent of the provision of the code, as noted in this report, and for at least equivalence to that prescribed in the code in quality, strength, effectiveness, fire resistance, durability and safety, as applicable, in accordance with IBC Section 104.11. This document shall only be reproduced in its entirety.





3.2 Design

1/2-inch ZIP System R-Sheathing panels may be used as an alternative to WSP in the prescriptive WSP Intermittent Bracing method in Section R602.10 of the IRC. The panels may be used to resist seismic loads for buildings located in Seismic Design Category A, B, and C (excluding townhouses in SDC C). The panels may also be used to resist wind loads in areas where wind design is not specifically required per Section R301.2.1.1 of the IRC. Braced walls built using R-sheathing panels may be mixed with other methods compatible with prescriptive Method WSP, in accordance with IRC Section R602.10.4; when mixing methods for braced wall panels, the provisions for WSP shall be used. Serviceability and long-term loading effects shall be considered in design in accordance with the manufacturer's ZIP System R-Sheathing Installation Manual.

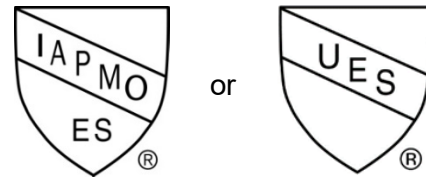
4.0 PRODUCT DESCRIPTION

1/2-inch ZIP System R-Sheathing is a composite of Huber's 1/2-inch-thick (12.7 mm) wood structural panel (WSP) with a phenolic-impregnated sheet laminated to its exterior surface (IAPMO UES ER-544) and a foam plastic insulation laminated to its interior surface. The 1/2-inch-nominal-thickness WSP is an Exposure 1, DOC PS 2 span rated sheathing panel. The insulation layer is Atlas Roofing EnergyShield CGF, a polyisocyanurate foam plastic having nominal density of 2.0 pcf (32 kg/m³), with minimum compressive strength of 20 psi (138 kPa) and having a flame-spread index not more than 75, and a smoke developed index not more than 450. The foam plastic is 1/2-, 1-, 1 1/2-, or 2-inches-thick (12.7 mm, 25.4 mm, 38.1 mm, or 50.8 mm), depending on the R-Sheathing model, and is coated with glass fiber facers on both sides (see Table 1 for details). The panels are 4 feet (1219 mm) wide and available in lengths of 8 to 12 feet (2438 mm to 3658 mm) with square or profiled edges.

5.0 IDENTIFICATION

1/2-inch ZIP System R-Sheathing panels are identified with the manufacturer's name, the product and model name, IAPMO ES Mark of Conformity and the evaluation report number (ER-563).

Either Mark of Conformity may be used as follows:



IAPMO UES ER-563

6.0 SUBSTANTIATING DATA

The following data was reviewed, evaluated, and used to establish recognition of 1/2-inch ZIP System R-Sheathing panels for the uses described in Section 1.0. The test reports are from laboratories in compliance with ISO/IEC 17025.

6.1 Manufacturer's ZIP System R-Sheathing Installation Manual.

6.2 Documentation describing the manufacturer's quality management system.

6.3 Reports of equivalency testing in accordance with AC269.1.

7.0 STATEMENT OF RECOGNITION

This report describes the results of research completed by the IAPMO Uniform Evaluation Service on 1/2-inch ZIP System R-Sheathing panels to assess conformance to the codes listed in Section 1.0 and serves as documentation of the product certification. The R-Sheathing is produced at locations listed in Section 2.8 of this report under a quality control program with periodic inspections under the supervision of IAPMO UES.

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org



TABLE 1 - Fastening Requirements for 1/2-inch ZIP System R-Sheathing as an Alternative to WSP Intermittent Bracing Method in the IRC in Seismic Design Categories A through C⁵

Sheathing Panel Designation	Nominal R-Sheathing Thickness (in.)	Minimum Fastener Penetration into Framing ^{1,3} (in.)	Minimum Fastener Diameter ⁴ (in.)	Fastener Spacing (in.)	
				At Panel Edges ²	In the Field
R-3	1.0	1.5	0.131	3	12
R-6	1.5				
R-9	2.0				
R-12	2.5				

For SI: 1 inch = 25.4 mm, 1 foot = 305 mm

1. Wall framing shall be minimum nominal 2 x 4 dimension lumber. Maximum stud spacing shall be 24 inches-on-center.
2. All fasteners shall be located at least 3/8 inch from panel edges.
3. All panel edges shall be backed by framing or blocking.
4. Fasteners shall be smooth shank common nails with 8d common nail head size (0.281-inch diameter), or equivalent.
5. Buildings located in Seismic Design Categories C shall conform to the provisions in IRC Section R301.2.2.