



ICC-ES Listing Report ESL-1290

Reissued March 2025

This listing is subject to renewal March 2026.

CSI: DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
Section: 06 16 00—Sheathing

Product Certification System:

The ICC-ES product-certification system includes evaluating reports of tests of standard manufactured product, prepared by accredited testing laboratories and provided by the listee, to verify compliance with applicable codes and standards. The system also involves factory inspections, and assessment and surveillance of the listee's quality system.

Product: EXACOR®: NOMINAL 1/2-IN. (12 MM ACTUAL) AND 5/8-IN. (16 MM ACTUAL) THICK MAGNESIUM OXIDE SHEATHING PANELS

Listee: HUBER ENGINEERED WOODS LLC

Evaluation: EXACOR®: Nominal 1/2-inch (12 mm actual) and 5/8-inch (16 mm actual) thick magnesium oxide sheathing panels were evaluated based on tested load bearing wall assemblies consisting of building-material components described in the Design Listings, tested in accordance with the following standards:

- ASTM E119-18B, ASTM E119-16, ASTM E119-12a and ASTM E119-08a, Standard Test Methods for Fire Tests of Building Construction and Materials.
- UL 263-11 (with revisions through March 2018), UL 263-11 (with revisions through October 2015), UL 263-11 and UL 263-03 (with revisions through October 2007), Standard for Fire Tests of Building Construction and Materials, Underwriters Laboratories, Inc.
- NFPA 285 (-19, -12 and -06), Standard Fire Test Method for the Evaluation of Fire Propagation Characteristics of Exterior Non-load-bearing Wall Assemblies Containing Combustible Components, National Fire Protection Association.

Findings: Evaluation of EXACOR® nominal 1/2-inch (12 mm actual) and 5/8-inch (16 mm actual) thick magnesium oxide sheathing panels as components of the assembly is based on testing in accordance with the applicable test method as referenced in each ICC Design No., and as referenced in the applicable sections of the following code editions:

- 2021, 2018, 2015, and 2012 *International Building Code*® (IBC)
Applicable Section: 703.2, 2603.5.5
- 2021, 2018, 2015, and 2012 *International Residential Code*® (IRC)
Applicable Section: R301.1.3, R302

Identification:

1. Each panel must be identified by a stamp or label on the panel that includes the name of the report holder (Huber Engineered Woods LLC), identification of the manufacturing facility, production date or lot number, the ICC-ES evaluation report number ([ESR-4635](#)) and/or the ICC-ES listing report number ([ESL-1290](#)) and when applicable, the ICC-ES listing mark.

2. The report holder's contact information is the following:

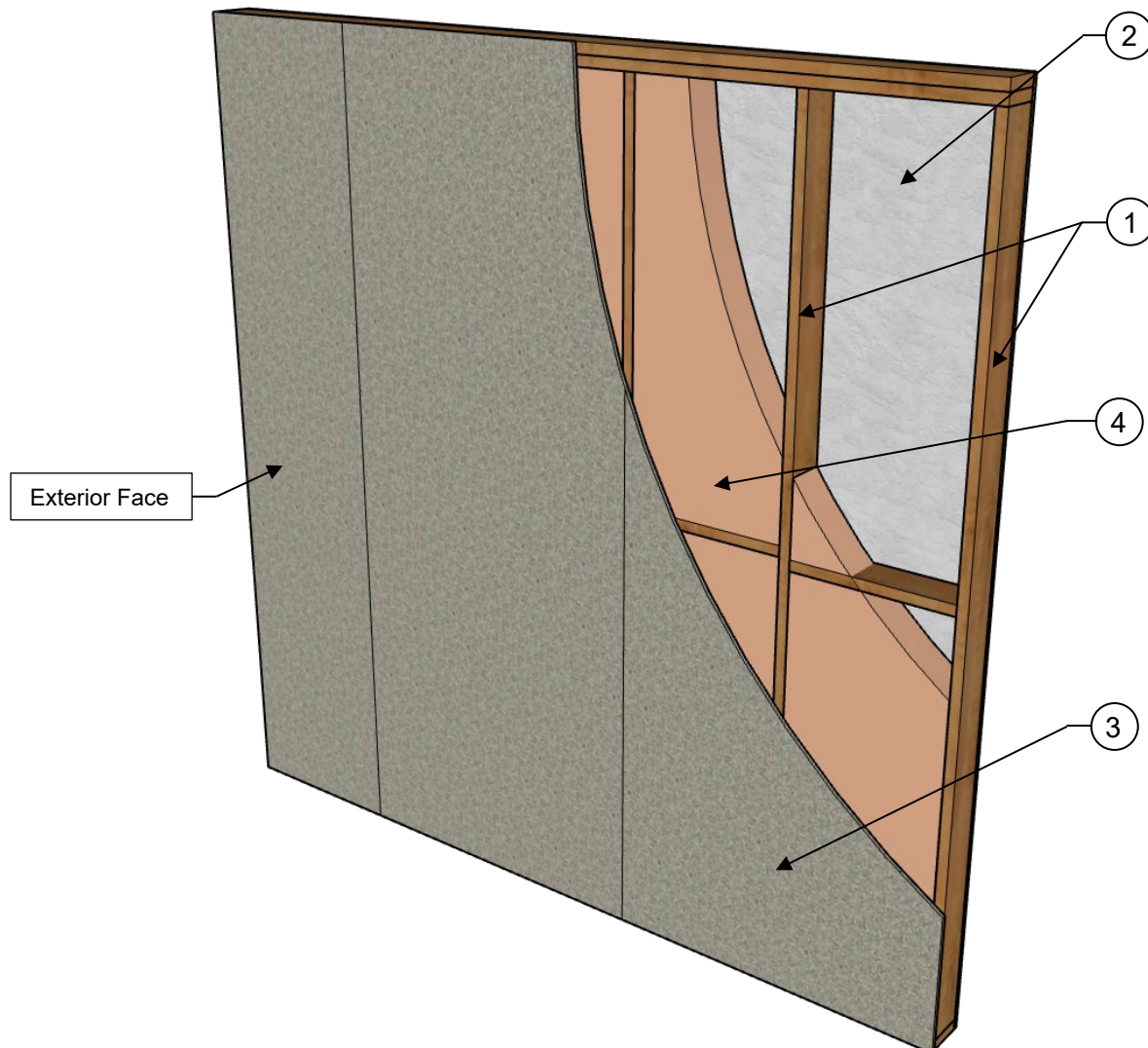
HUBER ENGINEERED WOODS LLC
10925 DAVID TAYLOR DRIVE, SUITE 300
CHARLOTTE, NORTH CAROLINA 28262
(800) 933-9220
www.huberwood.com

Installation: The EXACOR®: Nominal 1/2-inch (12 mm actual) and 5/8-inch (16 mm actual) thick magnesium oxide sheathing panels must be installed in accordance with the Huber Engineered Woods LLC published installation instructions and applicable codes.

Conditions of Listing:

1. The listing report addresses only conformance with the standards and code sections noted above.
2. Approval of the product's use is the sole responsibility of the local code official.
3. The listing applies only to the materials tested and as submitted for review by ICC-ES.
4. The design loads (ASD) used in testing for the load-bearing wood-framed walls are based on the allowable axial load of the wall framing studs and support bracing (if applicable), assuming the sheathing provides full lateral bracing to the wall framing in the weak-axis throughout the wall height, in accordance with the NDS (National Design Specification for Wood Construction), unless noted otherwise.
5. Greater stud sizes (depths) shall be permitted to be used in metal- or wood-stud systems in accordance with Section 12.5.2 of ASTM E2032 (Standard Guide for Extension of Data from Fire Resistance Tests Conducting in Accordance with ASTM E119) and the principles pertaining to the fire resistance rating of wall assemblies.
6. For an assembly tested in accordance with ASTM E119, the Assembly Rating shall apply to both sides of the assembly (fire from either face of the wall), unless noted otherwise.
7. For Design Nos. MOS-1290-07A and MOS-1290-07B, load-bearing double wall assemblies, the respective portion of the design load intended to be supported by each wall section, shall be applied individually to each wall section in accordance with Section 7.4.1.1(2) of ASTM E119.
8. Huber Engineered Woods LLC's EXACOR® Nominal 1/2-inch (12 mm actual) and 5/8-inch (16 mm actual) thick magnesium oxide sheathing panels are manufactured in Nantong, China under a quality control program with inspections by ICC-ES.

Applicant: HUBER ENGINEERED WOODS LLC
Product: EXACOR®: NOMINAL 5/8-IN. (16 MM ACTUAL) THICK MAGNESIUM OXIDE SHEATHING PANELS
Standard: ASTM E119 (UL 263)
Assembly Rating: 2-Hour
Load: Load Bearing (90% Design Load)
MOS = Magnesium Oxide Sheathing



COMPONENTS OF CONSTRUCTION:

1. **Framing** – Nominal 2-inch by 6-inch (50.8 mm by 152.4 mm) wood studs, spaced maximum 24 inches (609.6 mm) on center, are secured to top and bottom plates with 16d – 3½-inch (88.9 mm) long x 0.131-inch (3.33 mm) diameter smooth shank framing nails. A double top plate is secured to the first top plate with 3-inch (76.2 mm) long x 0.131-inch (3.33 mm) diameter nails spaced 16 inches (406.4 mm) on center. Nominal 2-inch by 6-inch (50.8 mm by 152.4 mm) full-depth blocking is installed between each stud, secured with 3-inch (76.2 mm) long x 0.131-inch (3.33 mm) diameter nails, behind all horizontal sheathing joints.

Note: See Conditions of Listing Items 4 and 5 of [ESL-1290](#).

2. **Interior Sheathing** – Two layers of minimum 5⁄8-inch (15.9 mm) Type X or Type C gypsum board in accordance with ASTM C1396 must be secured to the framing on the interior side of the wall assembly. The base layer must be secured to the framing using 17⁄8-inch (47.6 mm) long 6d ring shank nails spaced at 6 inches (152.4 mm) on center along the perimeter and in the field of the gypsum board. The face layer, with panel joints staggered from the base layer, must be secured to the framing using 23⁄8-inch (60.3 mm) long 8d ring shank nails spaced at 6 inches (152.4 mm) on center along the perimeter and in the field, with the face layer nails staggered from the base layer nails. All joints on the face layer must be covered using 2-inch (50.8 mm) wide paper joint tape and two layers of joint compound. All fastener heads must be covered using joint compound. Where square edge gypsum boards are used, edge joints are permitted to be left uncovered without joint compound and fastener heads are permitted to be left exposed.

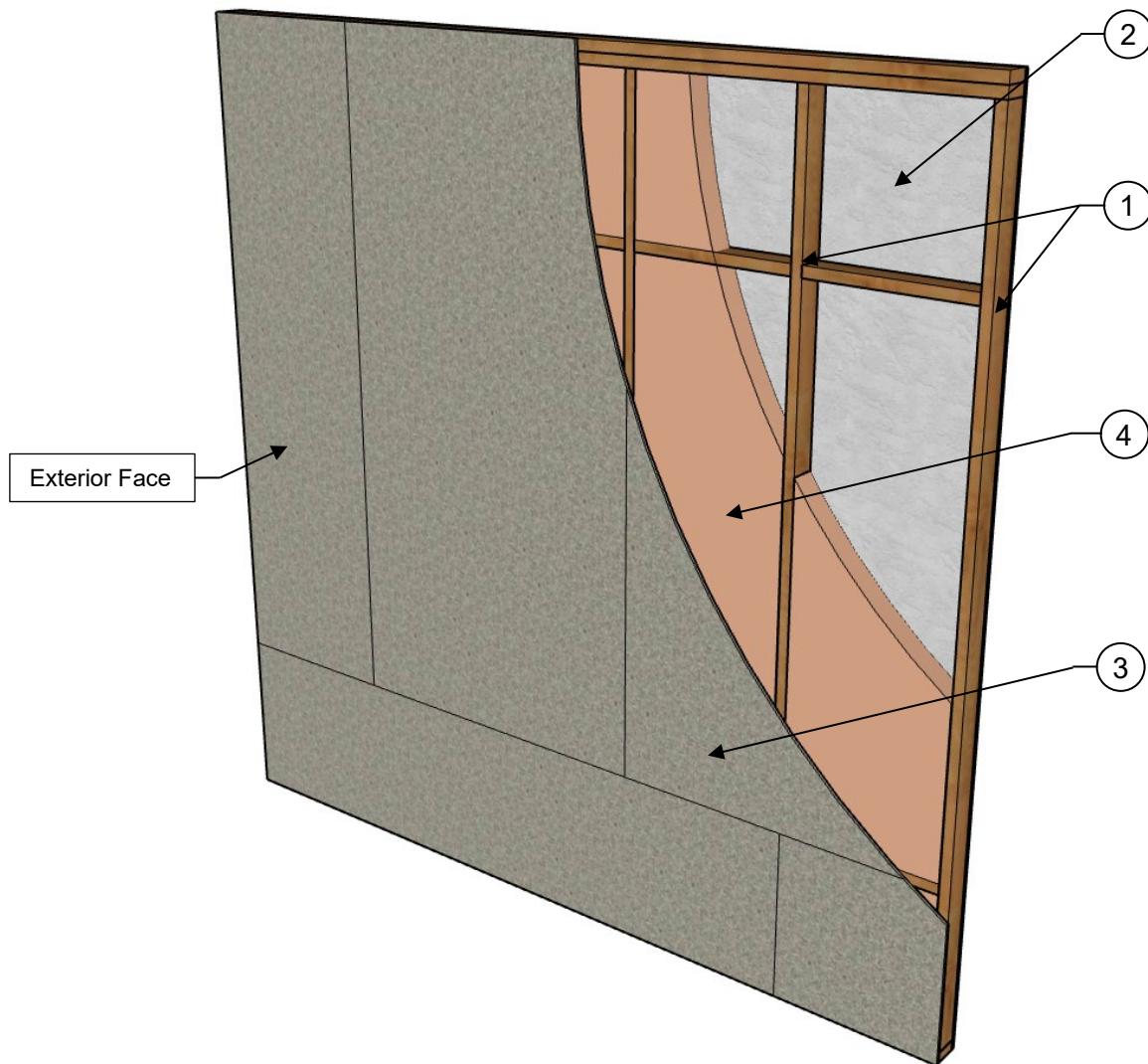
Optional Fastening – Type W bugle-head steel screws may be used in lieu of nails. The base layer must be secured to the framing using 17⁄8-inch (47.6 mm) long Type W bugle-head steel screws spaced at 8 inches (203.2 mm) on center along the perimeter and in the field of the gypsum board. The face layer, with panel joints staggered from the base layer, must be secured to the framing using 23⁄8-inch (60.3 mm) long Type W bugle-head steel screws spaced at 8 inches (203.2 mm) on center along the perimeter and in the field, with the face layer nails staggered from the base layer nails.

3. **Exterior Sheathing** – One layer of EXACOR® nominal 5⁄8-inch (16 mm actual) thick sheathing panel (finish rating 21 minutes) must be secured to the framing using 23⁄8-inch (60.3 mm) long 8d ring shank exterior nails on the exterior side of the wall assembly. Fasteners are spaced 6 inches (152.4 mm) on center in the field and along the perimeter of the panel. EXACOR® sheathing panels must be installed with the long dimensions parallel or perpendicular to the studs. All seams must be staggered from one side of the assembly to the opposite sides of the assembly by a minimum of 12 inches for horizontal seams or one stud cavity for vertical seams. Horizontal and vertical EXACOR® sheathing panel edge joints are permitted to be left uncovered without joint compound. Fastener heads are permitted to be left exposed.

(Optional) – Wood Structural Panels (WSP) may be added as a base layer underneath the exterior sheathing or as a face layer over the exterior sheathing without reducing the fire resistance rating. Where installed as the base layer, the WSP must be secured to the framing, and fastener penetration into the framing shall be, at a minimum, the same depth as the exterior sheathing fastening. Where installed as the face layer, the WSP must be secured through the exterior sheathing to the framing, and fastener penetration into the framing shall be, at a minimum, the same depth as the exterior sheathing fastening. Face layer fasteners shall be staggered from the base layer fasteners.

4. **Insulation** – Non-combustible, mineral wool insulation batts with nominal thickness of 5½ inches (139.7 mm) and a minimum density of 2.0 lbs./ft³ (32 kg/m³) complying with Type I per ASTM C665 is friction-fit into each stud cavity.
5. **Exterior Cladding (Not Shown)** – Where the assembly is used as an exterior wall, any exterior cladding may be included, as authorized by the authority having jurisdiction, and must be installed in accordance with the manufacturer's installation instructions.

Applicant: HUBER ENGINEERED WOODS LLC
Product: EXACOR®: NOMINAL 1/2-IN. (12 MM ACTUAL) THICK MAGNESIUM OXIDE SHEATHING PANELS
Standard: ASTM E119 (UL 263)
Assembly Rating: 1-Hour
Load: Load Bearing (90% Design Load)
MOS = Magnesium Oxide Sheathing



COMPONENTS OF CONSTRUCTION:

1. **Framing** – Nominal 2-inch by 4-inch (50.8 mm by 101.6 mm) wood studs, spaced maximum 24 inches (609.6 mm) on center, are secured to top and bottom plates with 3-inch (76.2 mm) long x 0.131-inch (3.33 mm) diameter nails. A double top plate is secured to the first top plate with 3-inch (76.2 mm) long x 0.131-inch (3.33 mm) diameter nails spaced 16 inches (406.4 mm) on center. Nominal 2-inch by 4-inch (50.8 mm by 101.6 mm) full-depth blocking is installed between each stud, secured with 3-inch (76.2 mm) long x 0.131-inch (3.33 mm) diameter nails, behind all horizontal sheathing joints.

Note: See Conditions of Listing Items 4 and 5 of [ESL-1290](#).

2. **Interior Sheathing** – One layer of minimum $\frac{5}{8}$ -inch (15.9 mm) Type X or Type C gypsum board in accordance with ASTM C1396 must be secured to the framing on the interior side of the wall assembly using $2\frac{1}{2}$ -inch (63.5 mm) long 8d ring shank exterior nails spaced at 6 inches (152.4 mm) on center along the perimeter and in the field of the gypsum board. All joints must be covered using 2-inch (50.8 mm) wide paper joint tape and two layers of joint compound. All fastener heads must be covered using joint compound. Where square edge gypsum boards are used, edge joints are permitted to be left uncovered without joint compound and fastener heads are permitted to be left exposed.

Optional Fastening – Type W bugle-head steel screws may be used in lieu of nails. The gypsum board must be secured to the framing using $2\frac{1}{2}$ -inch (63.5 mm) long Type W bugle-head steel screws spaced at 8 inches (203.2 mm) on center along the perimeter and in the field of the gypsum board.

Note: Where Resilient Channels are used (see Component #5), the gypsum boards must be secured to the Resilient Channels using 1-inch (25.4 mm) long No. 6 Type S bugle-head steel drywall screws spaced at 8-inches (203.2 mm) on center along the perimeter and in the field of the gypsum board. The vertical joints of the gypsum boards must be located midway between the stud framing.

3. **Exterior Sheathing** – One layer of EXACOR® nominal $\frac{1}{2}$ -inch (12 mm actual) thick sheathing panel (finish rating 12 minutes) must be secured to the framing using $2\frac{1}{2}$ -inch (63.5 mm) long 8d ring shank exterior nails on the exterior side of the wall assembly. Fasteners are spaced 6 inches (152.4 mm) on center in the field and along the perimeter of the panel. EXACOR® sheathing panels must be installed with the long dimensions parallel or perpendicular to the studs. All seams must be staggered from one side of the assembly to the opposite sides of the assembly by a minimum of 12 inches for horizontal seams or one stud cavity for vertical seams. Horizontal and vertical EXACOR® sheathing panel edge joints are permitted to be left uncovered without joint compound. Fastener heads are permitted to be left exposed.

(Optional) – Wood Structural Panels (WSP) may be added as a base layer underneath the exterior sheathing or as a face layer over the exterior sheathing without reducing the fire resistance rating. Where installed as the base layer, the WSP must be secured to the framing, and fastener penetration into the framing shall be, at a minimum, the same depth as the exterior sheathing fastening. Where installed as the face layer, the WSP must be secured through the exterior sheathing to the framing, and fastener penetration into the framing shall be, at a minimum, the same depth as the exterior sheathing fastening. Face layer fasteners shall be staggered from the base layer fasteners.

4. **Insulation** – Minimum R-13 Kraft paper-faced fiberglass batt insulation with nominal thickness of $3\frac{1}{2}$ inches (88.9 mm) installed in the stud cavities and secured to the studs with $\frac{1}{2}$ -inch (12.7 mm) crown staples. Insulation shall comply with ASTM C665 Type II.

(Optional) – In lieu of using fiberglass batt insulation, non-combustible, mineral wool insulation batts with nominal thickness of $3\frac{1}{2}$ inches (88.9 mm) and a minimum density of 2.0 lbs./ft³ (32 kg/m³) complying with Type I per ASTM C665 is friction-fit into each stud cavity.

5. **Resilient Channel (Optional. Not Shown)** – Minimum 25-gauge (17.9 mils) thick galvanized steel resilient channel, installed perpendicular to framing members on the interior side of the wall assembly and spaced maximum 24 inches (609.6 mm) on center vertically, must be secured using $1\frac{1}{2}$ -inch (38.1 mm) long No. 8 Type W bugle-head steel screws at each stud.
6. **Exterior Cladding (Not Shown)** – Where the assembly is used as an exterior wall, any exterior cladding may be included, as authorized by the authority having jurisdiction, and must be installed in accordance with the manufacturer's installation instructions.

Applicant: HUBER ENGINEERED WOODS LLC

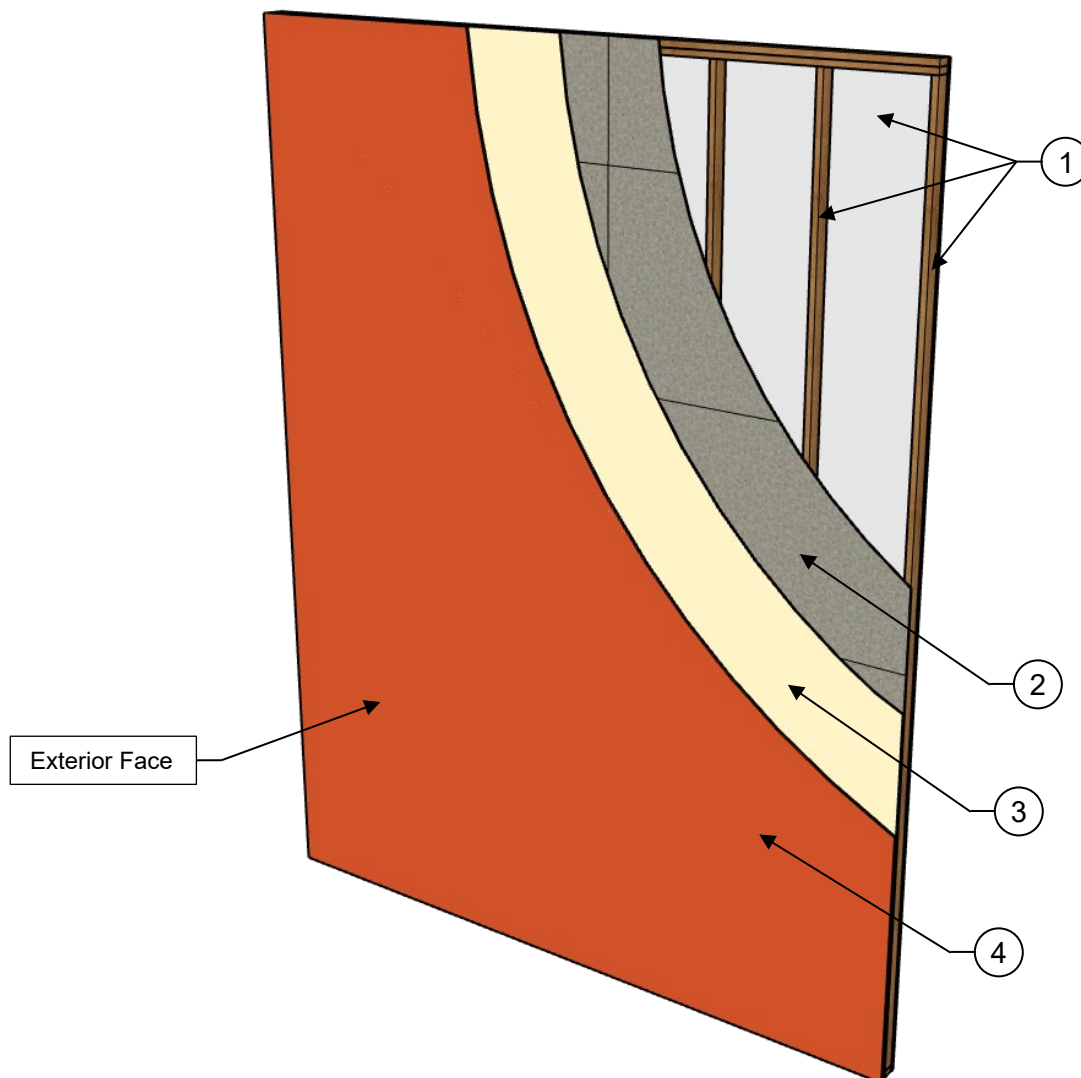
Product: EXACOR®: NOMINAL 1/2-IN. (12 MM ACTUAL) THICK MAGNESIUM OXIDE SHEATHING PANELS

Standard: NFPA 285

Assembly

Rating: 30 minutes

MOS = Magnesium Oxide Sheathing



COMPONENTS OF CONSTRUCTION:

ITEM NO.	WALL COMPONENTS	MATERIALS
1	Base Wall System – Use either A or B	<p>A – Steel Studs (minimum 3 ⁵/₈-inch deep, minimum 20-gauge (37.5 mils), spaced maximum 24 inches on center, laterally braced every 4 feet vertically), with (1) layer of nominal ⁵/₈-inch thick Type X gypsum wallboard on the interior side of the stud wall. ^{Footnote 1}</p> <p>B – FRT Wood Stud (minimum 2x4, spaced maximum 24 inches on center, laterally braced every 4 feet vertically), with (1) layer of nominal ⁵/₈-inch thick Type X gypsum wallboard on the interior side of the stud wall. ^{Footnotes 1, 2}</p>
	Floorline Firestopping (Not Shown) – Use A if 1A System Use B if 1B System	<p>A – Non-combustible mineral wool safing (minimum density of 4.0 lbs./ft³) in each stud cavity and at each floorline. Mineral wool to be attached with z-clips or friction-fit into each stud cavity.</p> <p>B – Fire retardant treated (FRT) lumber (minimum 1½-inch thick). ^{Footnote 2}</p>
	Base Wall Cavity Insulation ³ (Not Shown) – Use either A, B, C or D	<p>A – None</p> <p>B – Non-combustible insulation complying with ASTM E136.</p> <p>C – Mineral-fiber (faced or unfaced) complying with applicable code.</p> <p>D – Fiberglass batt insulation, Class A (faced or unfaced) complying with applicable code.</p>
2	Exterior Sheathing –	EXACOR [®] – (1) layer of minimum ½-inch thick sheathing panel (ESR-4635).
3	Water-Resistive Barrier (WRB) ⁵ – Use A through M Note: WRB must be applied over the exterior sheathing.	<p>A – None ^{Footnote 4}</p> <p>B – Minimum wet film thickness (WFT) of 40 mils of Tremco ExoAir[®] 230 (Fluid Applied)</p> <p>C – WrapShield SA[®] Self-Adhered – VaproShield[®]</p> <p>D – WrapShield – VaproShield[®]</p> <p>E – Tyvek[®] CommercialWrap[®] – Dupont[™] (ESR-2375)</p> <p>F – Tyvek[®] Fluid Applied WB – Dupont[™]</p> <p>G – R-Guard[®] VB – Prosoco (ESR-1233)</p> <p>H – R-Guard Spray Wrap MVP – Prosoco (ESR-4191)</p> <p>I – Sto Gold Coat[®] (ESR-1233)</p> <p>J – Super Jumbo Tex 60 Minute[®] - Henry (ESR-1027)</p> <p>K – MasterSeal[®] AWB 660 – Master Builders Solutions[®] (ESR-3209)</p> <p>L – 3M[™] Vapor Permeable Air Barrier 3015VP</p> <p>M – 3M[™] Non-Permeable Air Barrier 3015NP</p>
4	Exterior Cladding – Use A through K with a maximum 2-inch air gap, unless noted otherwise. Restriction: Claddings L and M must be fire blocked as detailed in footnote.	<p>A – Fiber cement vertical side panels⁶ – Minimum ⁵/₁₆-inch thick with maximum ³/₈-inch open joint installation.</p> <p>B – Brick – Standard nominal 4-inch thick, clay brick. Use standard brick veneer anchors installed vertically on each stud and spaced a maximum of 24-inch on center, creating a 2-inch maximum air gap between the exterior sheathing/WRB and brick.</p> <p>C – Stucco⁷ – Minimum ¾-inch thick, exterior cement plaster and lath. An optional secondary water-resistive barrier must not be full-coverage asphalt or butyl-based self-adhered membranes.</p> <p>D – Limestone – Minimum 2-inch thick, using any standard closed joint installation technique.</p> <p>E – Natural stone veneer – Minimum 2-inch thick, using any standard closed joint installation technique.</p> <p>F – Cast Artificial Stone – Minimum 1 ½-inch thick complying with ICC-ES AC51 (Adhered Manufactured Stone Masonry Veneer), using any standard closed joint installation technique.</p> <p>G – Terracotta⁷ Cladding – Minimum 1 ¼-inch thick, using any standard closed joint installation technique.</p> <p>H – Thin Brick / Cultured Stone – Minimum ¾-inch thick, set in thin-set adhesive and metal lath that has been tested in accordance with ASTM E119 (exterior cladding exposed to the furnace) and remained in place for a minimum of 30 minutes, or has successfully passed an NFPA 285 test. An optional secondary water-resistive barrier can be installed between the exterior insulation and the lath. The secondary water-resistive barrier must not be full-coverage asphalt or butyl-based self-adhered membranes.</p> <p>I – Autoclaved Aerated Concrete (AAC) panels – Use any AAC panel system that has been successfully tested by the panel manufacturer and meets the requirements of the NFPA 285 test method. Installed using standard installation techniques. Evidence of testing in accordance with NFPA 285 and/or an ICC-ES report must be submitted to the code official.</p> <p>J – One-Coat Stucco – Minimum thickness as stated in a current ICC-ES evaluation report where the one-coat stucco has been qualified for compliance under AC11.</p> <p>K – Fiber-cement siding – Minimum ¼-inch thick, using any standard open or closed joint installation.</p> <p>L – Metal Composite Material (MCM) System – Use any MCM system that has been successfully tested by the panel manufacturer and meets the requirements of the NFPA 285 test method. Installed using standard installation techniques. Evidence of testing in accordance with NFPA 285 and/or an ICC-ES report must be submitted to the code official. ^{Footnote 8}</p> <p>M – Uninsulated metal building panels – Use any uninsulated metal building panel system that has been successfully tested by the panel manufacturer and meets the requirements of the NFPA 285 test method. Installed using standard installation techniques. Evidence of testing in accordance with NFPA 285 and/or an ICC-ES report must be submitted to the code official. ^{Footnote 8}</p>
	Window Detail (Not Shown) –	<p>For Base Wall Framing: Minimum 20-gauge (37.5 mils) thick steel stud framing or minimum 1½-inch thick FRT wood window buck around the perimeter of the window within the base wall.</p> <p>For Exterior of Base Wall to the outside of the Cladding: Minimum 26-gauge (18.8 mils) thick sheet steel flashing or minimum 1½-inch thick FRT wood window buck installed at all openings to completely cover the opening header, jambs, and sill.</p>

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pcf = 16.01 kg/m³.

Footnotes:

¹See Condition of Listing Item 5 of [ESL-1290](#).

²Fire retardant treated (FRT) lumber must comply with 2021 or 2018 IBC Section 2303.2.

³Insulation must comply with the applicable requirements of 2021, 2018, 2015 or 2012 IBC Section 720.2.

⁴A water-resistive barrier is required to be installed over EXACOR[®] panels used as wall sheathing for compliance with [ESR-4635](#).

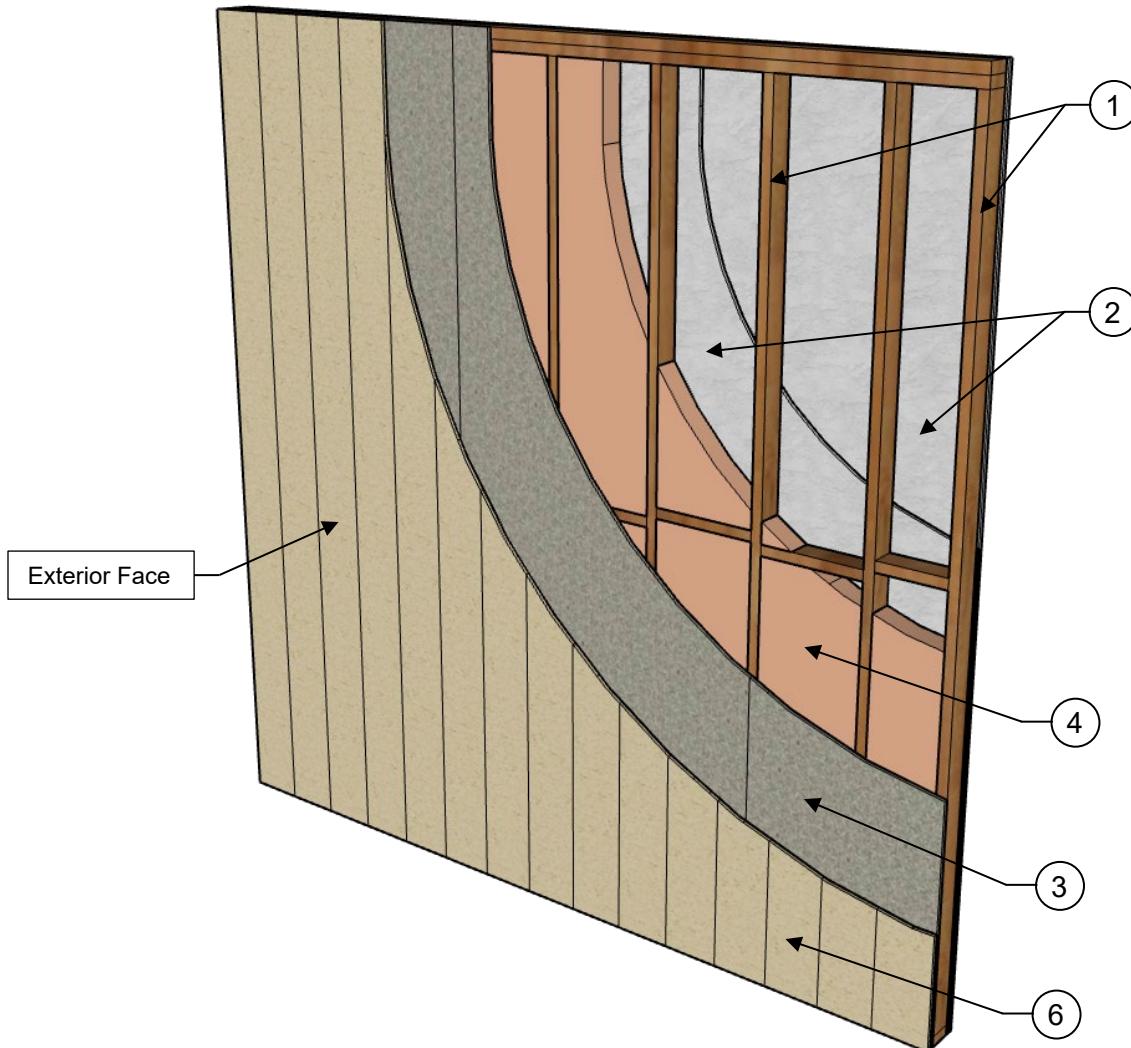
⁵Water-resistive barrier (WRB) must be applied in accordance with the manufacturer's published application instructions, the ICC-ES evaluation report (if applicable) and the applicable code.

⁶FRT furring strips or noncombustible furring channels (e.g., resilient channel, Z-Girt, hat channel), with a maximum 2-inch depth, may be used with fiber cement panels.

⁷Cladding fasteners must penetrate into wood or steel framing, and the system must be designed to handle cladding load and wind load, per applicable code.

⁸Framing for Exterior Cladding consists of minimum 18-gauge (50 mils) galvanized steel 2-inch (50.8 mm) wide Z-girt with 2-inch legs (50.8 mm) installed horizontally and secured through exterior sheathing to studs at 24-inches (610 mm) on center

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Product: EXACOR®: NOMINAL 1/2-IN. (12 MM ACTUAL) THICK MAGNESIUM OXIDE SHEATHING PANELS
Standard: ASTM E119 (UL 263)
Assembly Rating: 2-Hour from the Interior Face, 1-Hour from the Exterior Face
Load: Load Bearing (80% Design Load)
MOS = Magnesium Oxide Sheathing



COMPONENTS OF CONSTRUCTION:

1. **Framing** – Nominal 2-inch by 4-inch (50.8 mm by 101.6 mm) wood studs, spaced maximum 16 inches (406.4 mm) on center, are secured to top and bottom plates with 3-inch (76.2 mm) long x 0.131-inch (3.33 mm) diameter nails. A double top plate is secured to the first top plate with 3-inch (76.2 mm) long x 0.131-inch (3.33 mm) diameter nails spaced 16 inches (406.4 mm) on center. Nominal 2-inch by 4-inch (50.8 mm by 101.6 mm) full-depth blocking is installed between each stud at mid-height of the wall assembly, secured with 3-inch (76.2 mm) long x 0.131-inch (3.33 mm) diameter nails.

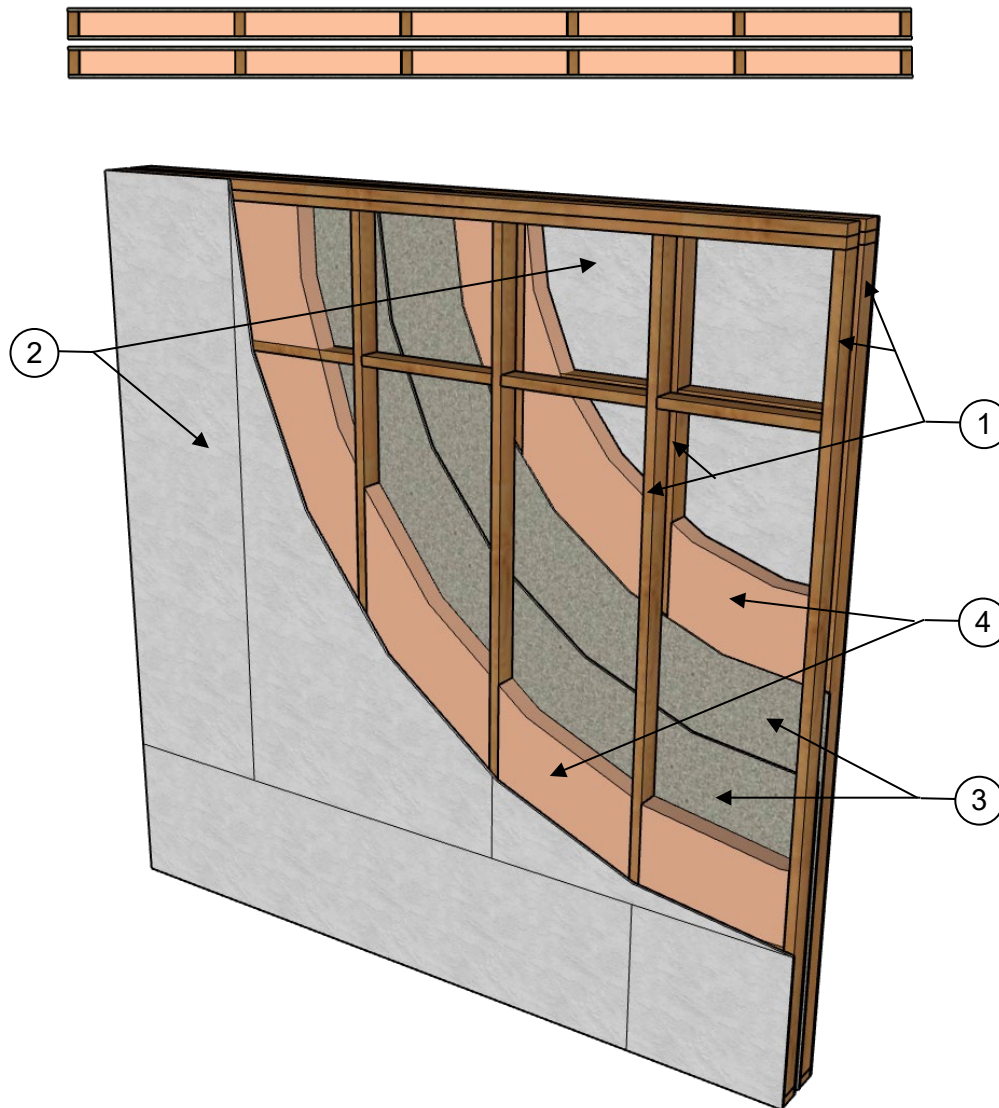
Note: See Conditions of Listing Items 4 and 5 of [ESL-1290](#).

2. **Interior Sheathing** – Two layers of minimum $\frac{5}{8}$ -inch (15.9 mm) thick Type X gypsum wallboard in accordance with ASTM C1396 must be installed with the long dimensions parallel to the studs on the interior side of the wall assembly. The base layer must be secured to the framing using #6 – $1\frac{5}{8}$ -inch (41.3 mm) long Type W screws spaced at 6 inches (152.4 mm) on center along the perimeter and in the field of the gypsum wallboard. The face layer, with vertical panel joints staggered from the base layer, must be secured to the framing using #8 – $2\frac{1}{2}$ -inch (63.5 mm) long Type W screws spaced at 6 inches (152.4 mm) on center along the perimeter and in the field, with the face layer screws staggered from the base layer screws. All face layer joints must be covered using 2-inch (50.8 mm) wide paper joint tape and two layers of joint compound. All fastener heads must be covered using joint compound. Where square edge gypsum boards are used, edge joints are permitted to be left uncovered without joint compound and fastener heads are permitted to be left exposed.
3. **Exterior Sheathing** – One layer of EXACOR® nominal $\frac{1}{2}$ -inch (12 mm actual) thick sheathing panel (finish rating 12 minutes) must be secured to the framing using 8d – $2\frac{3}{8}$ -inch (60.3 mm) long by 0.113-inch (2.87 mm) diameter ring shank nails on the exterior side of the wall assembly. Fasteners are spaced 6 inches (152.4 mm) on center in the field and along the perimeter of the panel. EXACOR® sheathing panels must be installed with the long dimensions parallel to the studs. All seams must be staggered from one side of the assembly to the opposite sides of the assembly by a minimum of one stud cavity for vertical seams. EXACOR® sheathing panel edge joints are permitted to be left uncovered without joint compound. Fastener heads are permitted to be left exposed.
4. **Insulation** – Minimum R-13 Kraft paper-faced fiberglass batt insulation with nominal thickness of $3\frac{1}{2}$ inches (88.9 mm) installed in the stud cavities and secured to the studs with $\frac{1}{2}$ -inch (12.7 mm) crown staples. Insulation shall comply with ASTM C665 Type II.

(Optional) – In lieu of using fiberglass batt insulation, non-combustible, mineral wool insulation batts with nominal thickness of $3\frac{1}{2}$ inches (88.9 mm) and a minimum density of 2.0 lbs./ft³ (32 kg/m³) complying with Type I per ASTM C665 is friction-fit into each stud cavity.

5. **Exterior Insulation (Not Shown)** – (Optional) Polystyrene insulation boards complying with ASTM C578, faced polyisocyanurate insulation boards complying with ASTM C1289, or spray-applied foam plastic insulation complying with ICC-ES AC377 may be installed between the exterior sheathing and the exterior cladding. Exterior insulation must be installed in accordance with the manufacturer's installation instructions.
6. **Exterior Cladding** – installed in accordance with the manufacturer's installation instructions. If exterior insulation (optional) is a component of the construction, the exterior cladding attachment through the insulation to the wood framing shall be in accordance with Section 2603.13 of the IBC.
 - 6a. Minimum $\frac{3}{8}$ -inch (9.53 mm) thick engineered wood exterior wall covering panels or lap siding (OSB-based).
 - 6b. Minimum $\frac{3}{8}$ -inch (9.53 mm) APA exterior-rated plywood siding.
 - 6c. Minimum $\frac{5}{16}$ -inch (7.94 mm) thick fiber-cement lap siding or vertical panel siding conforming to the requirements of ASTM C1186, Type A (or ISO 8336, Category A).
 - 6d. Minimum $\frac{3}{8}$ -inch (9.53 mm) thick cementitious stucco (portland cement-based) conforming to the requirements of ASTM C926, insulated or uninsulated in accordance with ICC-ES AC11, with self-furring metal lath per ASTM C1063.
 - 6e. Standard nominal 4-inch (101.6 mm) thick clay brick. Standard brick veneer anchors shall be installed vertically on each stud and spaced a maximum of 16 inches (406.4 mm) on center.

Applicant: HUBER ENGINEERED WOODS LLC
Product: EXACOR®: NOMINAL 1/2-IN. (12 MM ACTUAL) THICK MAGNESIUM OXIDE SHEATHING PANELS
Standard: ASTM E119 (UL 263)
Assembly Rating: 2-Hour
Load: Load Bearing (90% Design Load) – See Conditions of Listing Items 4 and 7
MOS = Magnesium Oxide Sheathing



COMPONENTS OF CONSTRUCTION:

1. **Wall Framing (Double Wall)** – Each wall section consists of nominal 2-inch by 4-inch (50.8 mm x 101.6 mm) wood studs, spaced maximum 24 inches (609.6 mm) on center, secured to top and bottom plates with 3-inch (76.2 mm) long x 0.131-inch (3.33 mm) diameter nails. A double top plate is secured to the first top plate with 3-inch (76.2 mm) long x 0.131-inch (3.33 mm) diameter nails spaced 16 inches (406.4 mm) on center. Nominal 2-inch by 4-inch (50.8 mm by 101.6 mm) full-depth blocking is installed between each stud, secured with 3-inch (76.2 mm) long x 0.131-inch (3.33 mm) diameter nails, behind all horizontal sheathing joints. Wood studs are permitted to be staggered between wall sections. No minimum air space is required between wall sections in the double wall assembly.

Note: See Conditions of Listing Items 4 and 5 of [ESL-1290](#).

2. **Sheathing (Gypsum Wallboard)** – One layer of minimum $\frac{5}{8}$ -inch (15.9 mm) Type X or Type C gypsum board in accordance with ASTM C1396 must be secured to the framing on each wall section using $2\frac{1}{2}$ -inch (63.5 mm) long 8d ring shank exterior nails spaced at 6 inches (152.4 mm) on center along the perimeter and in the field of the gypsum board. All joints must be covered using 2-inch (50.8 mm) wide paper joint tape and two layers of joint compound. All fastener heads must be covered using joint compound. Where square edge gypsum boards are used, edge joints are permitted to be left uncovered without joint compound and fastener heads are permitted to be left exposed.

Optional Fastening – Type W bugle-head steel screws may be used in lieu of nails. The gypsum board must be secured to the framing using $2\frac{1}{2}$ -inch (63.5 mm) long Type W bugle-head steel screws spaced at 8 inches (203.2 mm) on center along the perimeter and in the field of the gypsum board.

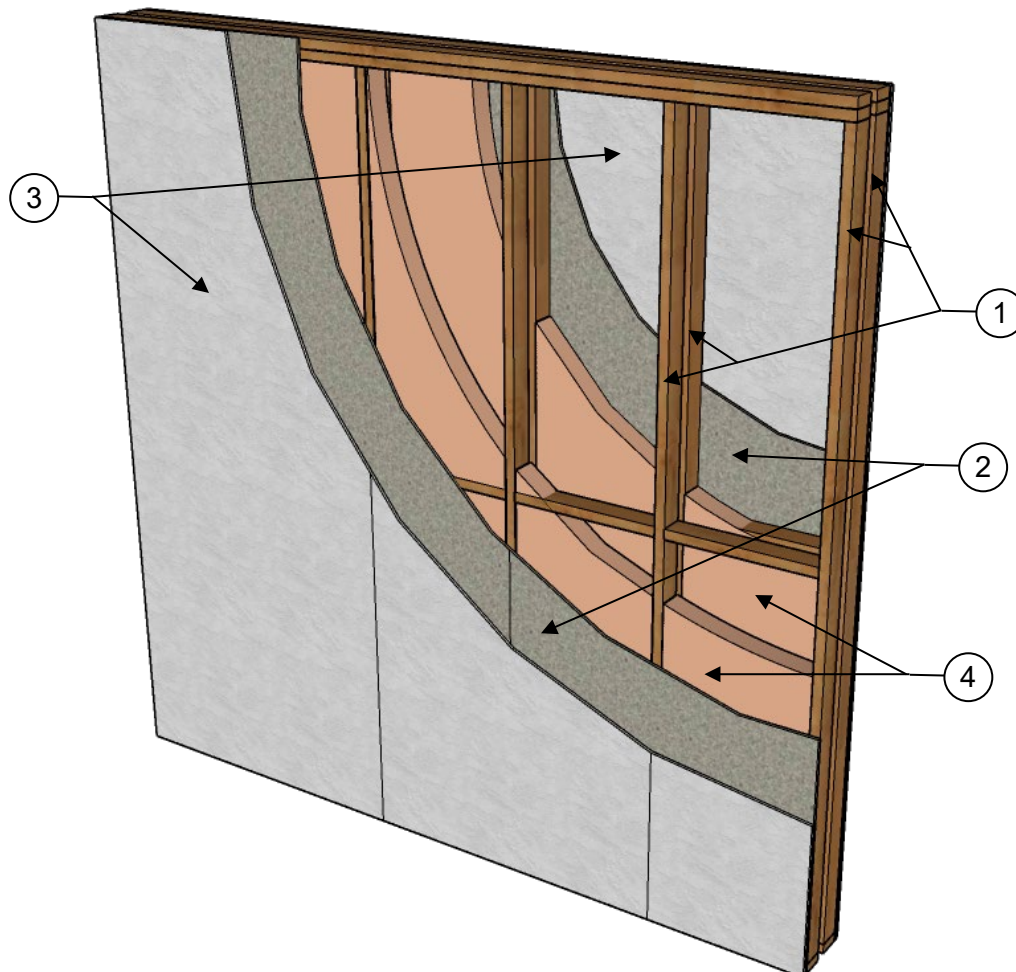
Note: Where Resilient Channels are used (see Component #5), the gypsum boards must be secured to the Resilient Channels using 1-inch (25.4 mm) long No. 6 Type S bugle-head steel drywall screws spaced at 8-inches (203.2 mm) on center along the perimeter and in the field of the gypsum board. The vertical joints of the gypsum boards must be located midway between the stud framing.

3. **Sheathing (EXACOR®)** – One layer of EXACOR® nominal $\frac{1}{2}$ -inch (12 mm actual) thick sheathing panel (finish rating 12 minutes) must be secured to the framing on each wall section using $2\frac{1}{2}$ -inch (63.5 mm) long 8d ring shank exterior nails. Fasteners are spaced 6 inches (152.4 mm) on center in the field and along the perimeter of the panel. EXACOR® sheathing panels must be installed with the long dimensions parallel or perpendicular to the studs. All seams must be staggered from one side of each wall section to the opposite side of the same wall section by a minimum of 12 inches for horizontal seams or one stud cavity for vertical seams. Horizontal and vertical EXACOR® sheathing panel edge joints are permitted to be left uncovered without joint compound. Fastener heads are permitted to be left exposed.
4. **Insulation** – Minimum R-13 Kraft paper-faced fiberglass batt insulation with nominal thickness of $3\frac{1}{2}$ inches (88.9 mm) installed in the stud cavities and secured to the studs with $\frac{1}{2}$ -inch (12.7 mm) crown staples. Insulation shall comply with ASTM C665 Type II.

(Optional) – In lieu of using fiberglass batt insulation, non-combustible, mineral wool insulation batts with nominal thickness of $3\frac{1}{2}$ inches (88.9 mm) and a minimum density of 2.0 lbs./ft³ (32 kg/m³) complying with Type I per ASTM C665 is friction-fit into each stud cavity.

5. **Resilient Channel (Optional. Not Shown)** – Minimum 25-gauge (17.9 mils) thick galvanized steel resilient channel, installed perpendicular to framing members on the interior side of each wall section and spaced maximum 24 inches (609.6 mm) on center vertically, must be secured using $1\frac{1}{2}$ -inch (38.1 mm) long No. 8 Type W bugle-head steel screws at each stud.

Applicant: HUBER ENGINEERED WOODS LLC
Product: EXACOR®: NOMINAL 1/2-IN. (12 MM ACTUAL) THICK MAGNESIUM OXIDE SHEATHING PANELS
Standard: ASTM E119 (UL 263)
Assembly Rating: 2-Hour
Load: Load Bearing (100% Design Load) – See Conditions of Listing Items 4 and 7
MOS = Magnesium Oxide Sheathing



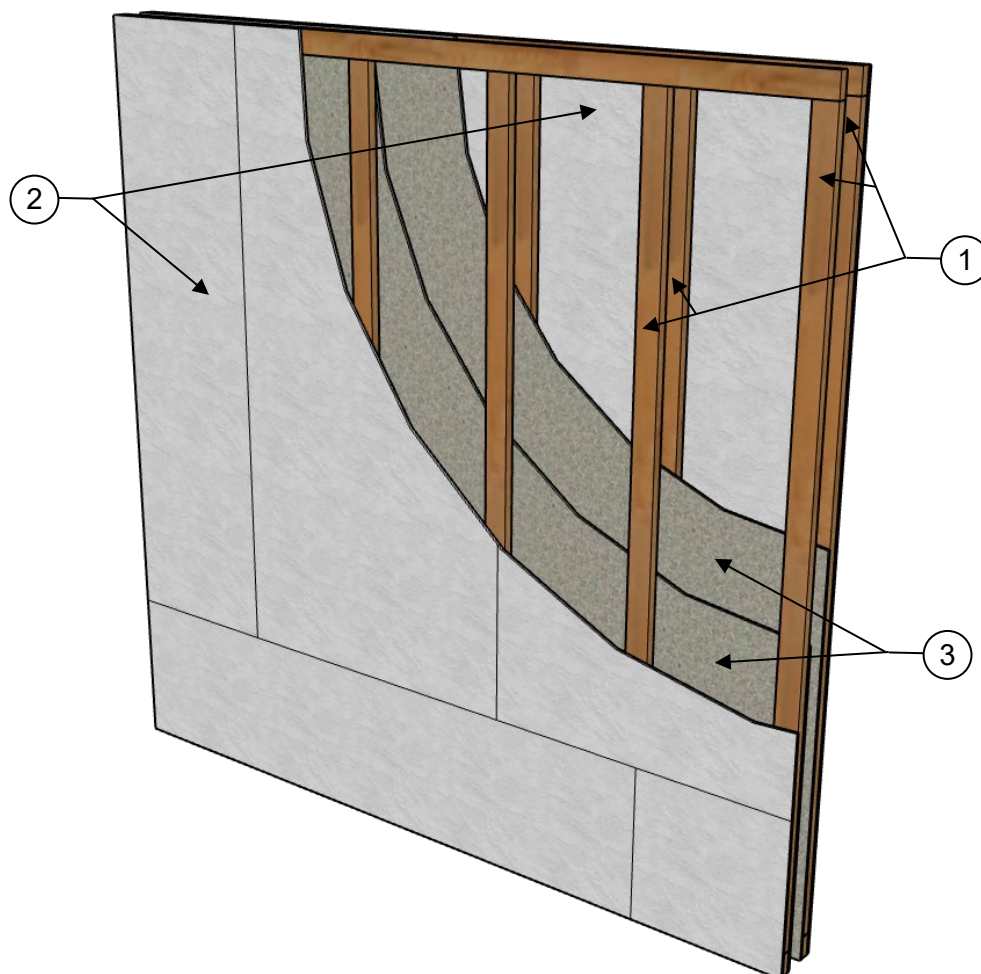
COMPONENTS OF CONSTRUCTION:

1. **Wall Framing (Double Wall)** – Each wall section consists of nominal 2-inch by 4-inch (50.8 mm x 101.6 mm) wood studs, spaced maximum 24 inches (609.6 mm) on center, secured to top and bottom plates with 3-inch (76.2 mm) long x 0.131-inch (3.33 mm) diameter nails. A double top plate is secured to the first top plate with 3-inch (76.2 mm) long x 0.131-inch (3.33 mm) diameter nails spaced 16 inches (406.4 mm) on center. Nominal 2-inch by 4-inch (50.8 mm by 101.6 mm) full-depth blocking is installed between each stud, secured with 3-inch (76.2 mm) long x 0.131-inch (3.33 mm) diameter nails, behind all horizontal sheathing joints. Wood studs are permitted to be staggered between wall sections. A minimum 1-inch (25.4 mm) air space is required between wall sections in the double wall assembly.

Note: See Conditions of Listing Items 4 and 5 of [ESL-1290](#).

2. **Sheathing (EXACOR®)** – One layer of EXACOR® nominal 1/2-inch (12 mm actual) thick sheathing panel (finish rating 12 minutes) serving as the base layer must be secured to the framing on the interior side of each wall section using 2-inch (50.8 mm) long 8d ring shank exterior nails. Fasteners are spaced 6 inches (152.4 mm) on center in the field and along the perimeter of the panel. EXACOR® sheathing panels must be installed with the long dimensions parallel or perpendicular to the studs. Horizontal and vertical EXACOR® sheathing panel edge joints are permitted to be left uncovered without joint compound. Fastener heads are permitted to be left exposed.
3. **Sheathing (Gypsum Wallboard)** – One layer of minimum 5/8-inch (15.9 mm) Type X or Type C gypsum board in accordance with ASTM C1396, serving as the face layer, must be installed with the long dimensions parallel to the studs. The face layer, with vertical panel joints staggered by one stud cavity from the base layer, must be secured to the framing using #8 – 2 1/2-inch (63.5 mm) long Type W screws spaced at 6 inches (152.4 mm) on center along the perimeter and in the field, with the face layer screws staggered from the base layer fasteners. All face layer joints must be covered using 2-inch (50.8 mm) wide paper joint tape and two layers of joint compound. All fastener heads must be covered using joint compound. Where square edge gypsum boards are used, edge joints are permitted to be left uncovered without joint compound and fastener heads are permitted to be left exposed.
4. **Insulation** – Minimum R-11 unfaced fiberglass batt insulation with nominal thickness of 3 1/2 inches (88.9 mm) installed in the stud cavities and secured to the studs with 1/2-inch (12.7 mm) crown staples. Insulation shall comply with ASTM C665 Type I.

Applicant: HUBER ENGINEERED WOODS LLC
Product: EXACOR®: NOMINAL 1/2-IN. (12 MM ACTUAL) THICK MAGNESIUM OXIDE SHEATHING PANELS
Standard: ASTM E119 (UL 263)
Assembly Rating: 2-Hour
Load: Non-Load Bearing
MOS = Magnesium Oxide Sheathing



COMPONENTS OF CONSTRUCTION:

1. **Wall Framing (Double Wall)** – Each wall section consists of nominal 2-inch by 4-inch (50.8 mm x 101.6 mm) wood studs installed in the flatwise direction and spaced maximum 24 inches (609.6 mm) on center. The wood studs are secured to top and bottom plates (installed in the edgewise direction) with 2-inch (50.8 mm) wide by 4-inch (101.6 mm) long 20-gauge galvanized metal truss connector plates. Wood studs are permitted to be staggered between wall sections. A minimum 1-inch (25.4 mm) air space is required between wall sections in the double wall assembly.

Note: See Conditions of Listing Items 5 and 7 of [ESL-1290](#).

2. **Sheathing (Gypsum Wallboard)** – One layer of minimum $\frac{5}{8}$ -inch (15.9 mm) Type X or Type C gypsum board in accordance with ASTM C1396 must be secured to the framing on each wall section using $1\frac{5}{8}$ -inch (41.3 mm) long Type W bugle-head steel screws spaced at 8 inches (203.2 mm) on center along the perimeter and in the field of the gypsum board. All joints must be covered using 2-inch (50.8 mm) wide paper joint tape and two layers of joint compound. All fastener heads must be covered using joint compound. Where square edge gypsum boards are used, edge joints are permitted to be left uncovered without joint compound and fastener heads are permitted to be left exposed.

Note: Where Resilient Channels are used (see Component #5), the gypsum boards must be secured to the Resilient Channels using 1-inch (25.4 mm) long No. 6 Type S bugle-head steel drywall screws spaced at 8-inches (203.2 mm) on center along the perimeter and in the field of the gypsum board. The vertical joints of the gypsum boards must be located midway between the stud framing.

3. **Sheathing (EXACOR®)** – One layer of EXACOR® nominal $\frac{1}{2}$ -inch (12 mm actual) thick sheathing panel (finish rating 12 minutes) must be secured to the framing on each wall section using 2-inch (50.8 mm) long x 0.113-inch (2.9 mm) diameter ring shank exterior nails. Fasteners are spaced 6 inches (152.4 mm) on center in the field and along the perimeter of the panel. EXACOR® sheathing panels may be installed with the long dimensions parallel or perpendicular to the studs. All seams must be staggered from one side of each wall section to the opposite side of the same wall section by a minimum of 12 inches for horizontal seams or one stud cavity for vertical seams. Horizontal and vertical EXACOR® sheathing panel edge joints are permitted to be left uncovered without joint compound. Fastener heads are permitted to be left exposed.
4. **Resilient Channel (Optional. Not Shown)** – Minimum 25-gauge (17.9 mils) thick galvanized steel resilient channel, installed perpendicular to framing members on the interior side of each wall section and spaced maximum 24 inches (609.6 mm) on center vertically, must be secured using $1\frac{1}{2}$ -inch (38.1 mm) long No. 8 Type W bugle-head steel screws at each stud.