Code Compliance Research Report
CCRR-0457

Issue Date: 06-23-2022
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DIVISION: 09 – FINISHES
Section: 09 28 15 – Magnesium Oxide Backing Panels

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

REPORT HOLDER:
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REPORT SUBJECT:
MagMatrix MgO Fire Rated Structural Panel-Perseverance Model

1.0 SCOPE OF EVALUATION

1.1 This Research Report addresses compliance with the following Codes:

- 2021 and 2018 *International Building Code®* (IBC)
- 2021 and 2018 *International Residential Code®* (IRC)

NOTE: This report references the most recent Code editions cited. Section numbers in earlier editions may differ.

1.2 The MagMatrix MgO Fire Rated Structural Panel-Perseverance Model has been evaluated for the following properties (see Table 1):

- Physical properties
- Surface-burning characteristics
- Structural
- Non-combustibility

1.3 The MagMatrix MgO Fire Rated Structural Panel-Perseverance Model has been evaluated for the following uses (see Table 1):

- Use in Types I, II, III, IV, and V construction
- Interior wall finish
- Substrate for decoration with paint, wallpaper, resilient flooring, ceramic tile, natural stone or dimensional stone veneers on floors and walls in interior dry areas
- Exterior wall sheathing

2.0 STATEMENT OF COMPLIANCE

The MagMatrix MgO Fire Rated Structural Panel-Perseverance Model complies with the Codes listed in Section 1.1, for the properties stated in Section 1.2, and uses stated in Section 1.3, when installed as described in this report, including the Conditions of Use stated in Section 6.0.

3.0 DESCRIPTION

3.1 MagMatrix MgO Fire Rated Structural Panel-Perseverance Model: The panel is a 12 mm thick magnesium-oxide sheet, reinforced with multiple fiberglass mesh and non-woven layers on both faces. The panels are available in a 1220 mm (48 in.) width and lengths of 2440 mm (96 in.), 2745 mm (108 in.), and 3048 mm (120 in.).

4.0 PERFORMANCE CHARACTERISTICS

4.1 Physical Properties: The panels comply with the physical property requirements of ICC-ES AC386. Maximum water absorption is 26.4% and maximum moisture movement is 0.18%, when tested in accordance with ASTM C1185.

4.2 Surface Burning Characteristics: The panels achieved a Class A surface burning classification in accordance with 2021 IBC Section 803.1.2, with a flame spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84.

4.3 Racking Shear Resistance: The maximum allowable racking shear load is 126 plf when installed on wood framing as described in Section 5.1 of this report. Allowable racking shear load is ASD values determined by dividing average ultimate test values by a factor of 3.0.

4.4 Resistance to Transverse Loads: The allowable transverse load is 53 psf positive and 22 psf negative when installed on wood framing as described in Section 5.1 of this report. Allowable transverse loads are ASD values determined by dividing average ultimate test values by a factor of 3.0.

4.5 Non-combustibility: The panels comply with ASTM E136.

4.6 Fire-resistance-rated Construction: Fire-resistance-rated construction is outside the scope of this report.

5.0 INSTALLATION

5.1 General: The MagMatrix MgO Fire Rated Structural Panel-Perseverance Model must be installed in accordance with the manufacturer's published installation instructions, the applicable Code, and this Research Report. A copy of the manufacturer's instructions must be available on the jobsite during installation.

The panels may be attached to wood framed walls with framing spaced a maximum of 16 in. on center for interior or exterior applications. The sheathing must be attached to wood framing with minimum 0.11 in. x 2.5 in. ring shank nails spaced a maximum of 8 in. on center.

Wood framing must have a minimum specific gravity of 0.5. The allowable deflection of framing members is L/360.

When used on exterior walls, the MagMatrix panels must be covered with an approved wall covering.

When the panels are used as flooring underlayment, the subfloor must have tongue and groove edges or blocked edges in accordance with IBC Table 2304.8(3).

6.0 CONDITIONS OF USE

6.1 Installation must comply with this Research Report, the manufacturer's published installation instructions, and the applicable Code. In the event of a conflict, this report governs.

6.2 The panels are limited to use on interior surfaces as defined in IBC Section 202 and must not be used in wet areas as defined in IBC Section 2509. Under the IRC, the panels must not be used in showers.

6.3 Support framing shall be designed for a maximum allowable assembly deflection of L/360 under seismic or wind loads for exterior or interior walls.

6.4 A vapor retarder shall be installed in exterior walls when required.

6.5 Recognition as listed protective assemblies, as referenced in Section 308 of the International Mechanical Code, is outside the scope of this report.

6.6 The MagMatrix MgO Fire Rated Structural Panel-Perseverance Model is manufactured under a quality control program with inspections by Intertek Testing Services NA, Inc.

7.0 SUPPORTING EVIDENCE

7.1 Reports of tests in accordance with ASTM E84-18b, ASTM E136-19a.

7.2 Data in accordance with the ICC-ES AC 386, Acceptance Criteria for Fiber-reinforced Magnesium-Oxide-Based Sheets, dated October 2007 (editorially revised February 2016).

7.3 Data in accordance with ICC-ES AC376, Acceptance Criteria for Reinforced Cementitious Sheets Used as Wall and Ceiling Sheathing and Floor Underlayment, dated August 2012 (editorially revised February 2016).

7.4 Data in accordance with ICC-ES AC378, Acceptance Criteria for Fiber-Cement Interior Substrate Sheets Used in Wet and Dry Areas, dated August 2012 (editorially revised 2016)

7.5 Intertek Listing Report "Jincheng Magnesium Matrix (Jiangsu) International Trade Co., Ltd. - MagMatrix MgO Fire Rated Structural Panel-Perseverance Model," on the Intertek Directory of Building Products.

8.0 IDENTIFICATION

The MagMatrix MgO Fire Rated Structural Panel-Perseverance Model is identified with the manufacturer's name (Jincheng Magnesium Matrix (Jiangsu) International Trade Co., Ltd.), the product name, the Intertek Mark as shown below, the Intertek Control Number and the Code Compliance Research Report number (CCRR-0457).

9.0 OTHER CODES

This section is not applicable.

10.0 CODE COMPLIANCE RESEARCH REPORT USE

10.1 Approval of building products and/or materials can only be granted by a building official having legal authority in the specific jurisdiction where approval is sought.

10.2 Code Compliance Research Reports shall not be used in any manner that implies an endorsement of the product by Intertek.

10.3 Reference to the https://bpdirectory.intertek.com is recommended to ascertain the current version and status of this report.

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TABLE 1 - PROPERTIES EVALUATED

PROPERTY	2021 IBC SECTION [1]	2021 IRC SECTION [1]
Physical Properties	104.11	R104.11
Surface Burning Characteristics	803.1.2	R302.9
Non-combustible Material	703.3	Not applicable
Wind Resistance	1609	R702.3.5
Shear Resistance	2306.3	R602.10.4

[1] Section numbers may be different for earlier versions of the International Codes