Code Compliance Research Report
CCRR-0457

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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:
Jiangsu Jinpeng FireProof Board Co., Ltd.
No. 9 Daiwang Road, Taixing City,
Jiangsu Province, China
https://www.jinpenggroups.cn

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

ADDITIONAL LISTEE:
R.H. Tamlyn & Sons Inc.
13623 Pike Road,
Stafford, TX 77477 USA
800-334-1676
www.tamlyn.com

ADDITIONAL LISTEE SUBJECT:
TamlynMgO

ADDITIONAL LISTEE:
Malbastone Inc.
130B 21st Ave E
Seattle, WA 98112 USA
(847)-732-7330

ADDITIONAL LISTEE SUBJECT:
Malbastone Nominal 1/2 Inch (12mm) Thick Sheathing Panel

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.).

The MgO panels are labeled as TamlynMgO for R.H. Tamlyn & Sons Inc.

The MgO panels are labeled as Malbastone Nominal 1/2 Inch (12mm) Thick Sheathing Panel for Malbastone Inc.

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 2024 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: When installed on wood framing in accordance with Section 5.2 of this report, the allowable design racking shear load is 125 plf. The limits are for a maximum wall height of 8 feet and a shear wall height-to-length aspect ratio of 1-to-1.

When installed on steel framing in accordance with Section 5.3 of this report, the allowable design racking shear load is 131 plf. The limits are for a maximum wall height of 10 feet and a shear wall height-to-length aspect ratio of 1.25-to-1.

Use of the panels as shear wall sheathing is limited to resisting wind loads and seismic loads in Seismic Design Categories A, B, and C.

4.4 Resistance to Transverse Loads: When installed on wood framing in accordance with Section 5.2 of this report, the allowable transverse load is 53 psf positive and 22 psf negative.

When installed on steel framing in accordance with Section 5.3 of this report, the allowable transverse load is 65 psf positive and 40 psf negative. 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.

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).

5.2 Wood Framing: The panels are attached to wood framed walls (nominal 2 in. x 4 in. and specific gravity of 0.5) with framing spaced a maximum of 16 in. on center for interior or exterior applications. The sheathing must be installed using minimum 0.11 in. x 2.5 in. ring shank nails at 8 in. maximum on center spacing around the board. Fasteners are to be installed with a minimum 1/2 in. edge distance, and a minimum distance of 1/2 in. from the panel corners.

5.3 Steel Framing: The panels are attached to cold-formed steel framed walls (3.5 in. depth by 1.625 in. flange by 0.0451 thickness complying with ICC-ES ESR-4540 or equivalent) spaced a maximum of 24 in. on center for interior or exterior applications. The sheathing must be installed using Grip Rite #6 x 1-1/4 in. self-drilling drywall screw fasteners at 2 in. maximum on center spacing around the board perimeter, and 6 in. maximum on center spacing in the field. Fasteners are to be installed with a minimum 1/2 in. edge distance, and a minimum distance of 1/2 in. from the panel corners.

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 may be used on interior surfaces as defined in IBC Section 202. The substrate sheets are suitable in interior dry areas and for interior use in wet areas as permitted in IBC Section 2509.2 and IRC Section R702.4.2.

6.3 When used as a component of shear walls, the substrate sheets are limited to use in Seismic Design Categories A, B, and C, as described in Section 4.3.

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

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

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

6.7 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 "Jiangsu Jinpeng FireProof Board Co., Ltd. - MagMatrix MgO Fire Rated Structural Panel-Perseverance Model," on the Intertek Directory of Building Products.

8.0 IDENTIFICATION

The MgO boards are identified with the manufacturer's or listee's name (Jiangsu Jinpeng FireProof Board Co., Ltd., R.H. Tamlyn & Sons Inc., or Malbastone Inc.), the product name (MagMatrix MgO Fire Rated Structural Panel-Perseverance Model, TamlynMgO, or Malbastone Nominal 1/2 Inch (12mm) Thick Sheathing Panel), 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.

TABLE 1 – PROPERTIES EVALUATED

PROPERTY	2021 IBC SECTION[1]	2021 IRC SECTION[1]
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

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