ICC-ES Evaluation Report

ESR-5637

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DIVISION: 06 00 00 – WOOD, PLASTICS AND COMPOSITES **Section: 06 16 26 – Underlayment** **DIVISION: 09 00 00 – FINISHES** **Section: 09 28 13 – Cementitious Backing Boards** **Section 09 28 15 – Magnesium Oxide Backing Boards**	**REPORT HOLDER:** **PRIMESOURCE BUILDING PRODUCTS, INC.**	**EVALUATION SUBJECT:** **GRIP-RITE MORE™ MgO FIRE- AND WATER-RESISTANT BACKER BOARD AND UNDERLAYMENT PANELS**	

1.0 EVALUATION SCOPE

Compliance with the following codes:

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

Property evaluated:

- Durability
- Limited Use as an Alternate to Fire-Retardant Treated Wood Structural Panels
- Surface Burning Characteristics
- Structural

2.0 USES

Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board and Underlayment Panels are intended for use as floor underlayment or as tile backer board on walls, ceilings and floors in the following instances:

2.1 The products are intended for use as flooring underlayment in Types III, IV-C, IV-HT, and V construction under the IBC and all construction types under the IRC.

2.2 The products are intended for use as backer board on ceilings in Types III and V construction under the IBC and all construction types under the IRC.

2.3 The products are intended for use as backer board on walls in all construction types under the IRC.

2.4 The products are intended for use as backer board on walls in the following construction types under the IBC:

2.4.1 Type I and II construction in non-bearing exterior wall assemblies that do not require a fire-resistance rating and non-bearing interior partitions requiring a fire-resistance rating of two hours or less (IBC Section 603.1 Item 1 Subsections 1.1 and 1.2).

2.4.2 Type III construction in exterior wall assemblies requiring a fire-resistance rating of two hours or less (IBC Section 602.3).

2.4.3 Type III construction in interior wall assemblies.

2.4.4 Type V construction in interior and exterior wall assemblies.

3.0 DESCRIPTION

3.1 General:

3.1.1 Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board and Underlayment Panels:

Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board and Underlayment Panels are nominal ¼-inch (6 mm), 3/8-inch (9 mm), ½-inch (12 mm), and 5/8-inch (16 mm) thick magnesium-oxide panels reinforced with multiple embedded fiberglass mesh sheets; the panels utilize a Magnesium Oxysulfate (MOS) chemistry for their formulation. The Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board and Underlayment Panels are available in nominal 4-foot (1.22 m) widths at a nominal length of 8 feet (2.44 m) or nominal 3-foot (0.914 m) widths at a nominal length of 5 feet (1.52 m). The panels are available with square edges or tapered edges along the length of the panels.

3.2 Surface Burning Characteristics:

Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board and Underlayment Panels exhibit a flame spread index of 0 and a smoke developed index of 0 when tested in accordance with ASTM E84. The panels exhibit a Class A interior finish in accordance with Section 803.1.2 of the 2021 and 2018 IBC (Section 803.1.1 of the 2015 IBC).

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 Use as Underlayment:

Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board and Underlayment Panels may be used as floor underlayment on top of a structural subfloor system constructed to meet the applicable building code requirements; see Section 4.2.1 and Tables 1 and 2.

4.1.2 Use as Backer Board on Walls and Ceilings:

Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board and Underlayment Panels may be directly attached to wall studs and ceiling joists in accordance with Section 4.2.2 and Table 3. The panels are suitable for use with ceramic tile, natural stone or dimensional stone veneers on walls in interior dry areas.

4.2 Installation:

Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board and Underlayment Panels must be installed in accordance with the manufacturer's published installation instructions and this report.

4.2.1 Underlayment:

4.2.1.1 General:

Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board Underlayment Panels must be fully supported by a structural floor system, such as conventional wood structural panels designed and installed in accordance with the applicable codes. For all installations, the structural floor system must be designed to limit the deflection, including live and dead loads, to L/360 of the span, in accordance with the applicable code. Any flatness or surface quality requirements of the structural subflooring must be addressed prior to installing the Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board and Underlayment Panels.

Board joints must be in moderate contact, in a staggered brick pattern. Grip-Rite MORE™ MgO Fire- and Water- Resistant Underlayment Panel edges must be staggered from subfloor joints, and four corners of the backer board sheets must not meet at one point. Additionally, joints in the panels must be provided where existing structural joints (such as building control joints) occur and where changes in direction occur, such as in L-shaped rooms. Underlayment edges must be kept 1/8 inch (3.2 mm) away from rigid structures such as walls and cabinet bases, and cut edges of underlayment must face towards the outside (toward the

wall / cabinet base / other rigid structure), as applicable. Installation must be in accordance with the manufacturer's installation instructions and the applicable codes. Fastening must be in accordance with Table 1 of this report when used with floor finishes other than tile. For use with tile finishes, follow instructions in Section 4.2.1.2 and the fastening schedule in Table 2 of this report.

4.2.1.2 Use as underlayment with tile floor finishes:

For tile applications, Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board and Underlayment Panels [3/8-inch (9 mm), ½-inch (12 mm), and 5/8-inch (16 mm) thick] must be installed in accordance with the underlayment instructions outlined in Section 4.2.1.1 and the applicable provisions of ANSI A108.11. For large, tiled areas, joints must be provided in accordance with ANSI A108.01, as applicable. The backer board must be adhered to the subfloor with mortar in accordance with ANSI A108.11. Fastening must be in accordance with Table 2 of this report.

4.2.2 Backer Board (Walls and Ceilings)

Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board and Underlayment Panels must be installed in accordance with the fastening schedule shown in Table 3 of this report and the applicable provisions of ANSI A108.11. When installed in accordance with Table 3 of this report, the minimum interior uniform load requirement of 5 psf outlined in Section 1607.16 of the 2021 IBC (Section 1607.15 of the 2018 IBC and Section 1607.14 of the 2015 IBC) as well as the deflection limit of L/360 outlined in Table 1604.3 of the IBC and Table R301.7 of the IRC have been considered. Backer boards installed on walls must be placed with a minimum 1/4-inch (6.4 mm) clearance from floor surfaces and other horizontal tile termination locations. The gap must be free from adhesives or mortar and must be filled with a flexible sealant. For large, tiled areas, joints must be provided in accordance with ANSI A108.01, as applicable.

4.2.3 Finishes:

4.2.3.1 Floor Finishes When Used as Underlayment:

Flooring systems, such as carpet or resilient flooring, installed on Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board Underlayment Panels must be installed in accordance with the flooring manufacturer's published installation instructions. For tile finishes, see Section 4.2.3.2.1 of this report.

4.2.3.2 Finishes When Used as Backer Board:

Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board and Underlayment Panels used as interior substrate sheets may be decorated with paint, wallpaper, ceramic tile, natural stone or dimensional stone veneers on walls and ceilings in interior dry areas.

4.2.3.2.1 Tile, Natural Stone, and Dimensional Stone Veneer Installations:

For tile, natural stone and dimensional stone veneers, only those that are compatible with dry-set Portland cement mortars complying with ANSI A118.1 or latex modified thin set mortars complying with ANSI A118.4 may be used. Prior to setting the covering, all panel joints must be filled with the same mortar used to set the covering. Spread the mortar until it extends approximately 1-1/2 inches (38.1 mm) on each side of the joint. While the mortar is still wet, 2 inch-wide (51 mm), high strength, coated, alkali resistant, glass fiber reinforcing tape must be embedded into the wet mortar prior to applying the mortar to the field of the panel and subsequent tile covering materials.

4.2.3.2.2 Use with Paint or Wallpaper:

A flush-joint procedure must be used on the panels. Gypsum board joint compounds complying with ASTM C474 and ASTM C475 must be troweled into the joints. Paper joint tape must be embedded into the wet joint compound and allowed to thoroughly dry. Additional coatings of joint compound over the joint tape must be applied as needed to acquire the desired level of finish. Fastener heads in the field of the panels must also be covered with joint compound. Once the panels have been finished to the desired level, primer and paint or wallpaper may be applied in accordance with the primer and paint or wallpaper manufacturer's instructions.

5.0 CONDITIONS OF USE:

5.1 Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board and Underlayment Panels must be installed in accordance with this report and the manufacturer's published installation instructions. In the event of a conflict between this report and the manufacturer's published installation instructions, this report governs.

5.2 For use as underlayment, the structural floor system must be designed for a maximum allowable assembly deflection of L/360 for the applicable design loads.

5.3 For use as backer board on walls or ceilings, the framing must be designed for a maximum allowable assembly deflection of L/360 for the applicable design loads.

5.4 Compatibility of resilient flooring and any applicable adhesives is outside of the scope of this report.

5.5 Compatibility of organic adhesives is outside of the scope of this report.

5.6 Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board and Underlayment Panels may be used in non-weather exposed locations where fire-retardant treated wood structural panels are allowed in the applicable codes for the end uses noted in Sections 2.4.1 and 2.4.2 of this report.

5.7 Use of Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board and Underlayment Panels in fire-resistance rated construction is outside of the scope of this report.

5.8 Use of Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board and Underlayment Panels to resist in-plane racking shear loads or horizontal diaphragm loads is outside of the scope of this report.

5.9 Compatibility of primer, paint, and wallpaper / wallpaper adhesive with the panels is outside of the scope of this report.

5.10 Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board and Underlayment Panels are limited to use on interior surfaces as defined in IBC Section 202. The panels must not be used in wet areas as defined in IBC Section 2509; under the IRC, the panels must not be used in showers.

5.11 Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board and Underlayment Panels are manufactured under a quality-control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with the ICC-ES Acceptance Criteria for Fiber-reinforced Magnesium-oxide-based Sheets AC386 (24) 3rd Edition, published April 2025, excluding Appendix A regarding the corrosion effects in contact with common metals requirements.

6.2 Data in accordance with applicable sections of the ICC-ES Acceptance Criteria for Reinforced Cementitious Sheathing and Floor Underlayment (AC376), dated August 2012 (editorially revised December 2024).

6.3 Data in accordance with applicable sections of the ICC-ES Acceptance Criteria for Fiber-Cement Interior Substrate Sheets Used in Wet and Dry Areas (AC378), dated August 2012 (editorially revised January 2021).

6.4 Test data in accordance with ASTM E84, extended for an additional 20-minute period.

7.0 IDENTIFICATION

7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-5637) along with the product name (Grip-Rite MORE™ MgO Fire- and Water- Resistant Backer Board and Underlayment Panels), registered trademark, or registered logo of the report holder must be included in the product label.

7.2 The report holder's contact information is the following:

PRIMESOURCE BUILDING PRODUCTS, INC.
1321 GREENWAY DRIVE
IRVING, TX 75038
(972) 999-8500
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TABLE 1 – FLOOR UNDERLAYMENT FASTENER CONFIGURATIONS (Non-Tile Applications)

Panel Thickness	Fastener Type[1,2]	Perimeter Spacing[3]	Field Spacing
¼" (6 mm) 3/8" (9 mm)	¼" crown chisel point staple[4]	2-inches O.C.	4-inches O.C.
	3d (.083-in. dia.) x 1-1/4 in. ring shank nails		
½" (12 mm) 5/8" (16 mm)	0.113-in. dia. x 1-1/2 in. to 2 in. ring shank nails	6-inches O.C.	12-inches O.C.
	#8 x 1-1/2 in. to 2 in. wafer head screws		

For SI: 1 inch =25.4 mm

[1]Fasteners must be corrosion resistant (electrogalvanized, hot-dipped galvanized, or stainless).
[2]Fasteners must be set flush or just below panel surface.
[3]Fasteners must be placed a minimum of 1/2-inch from edges and 2-inches from corners.
[4]Staple length must be selected such that it embeds at least 85% of the thickness of the subfloor but does not protrude from the bottom of the subfloor panel.
For example: 1" length staples should be used with ¼-inch thick underlayment and ¾-inch thick subfloor; 7/8" length staples should be used with ¼-inch thick underlayment and 5/8-inch thick subfloor.

TABLE 2 – FLOOR UNDERLAYMENT FASTENER CONFIGURATIONS (Tile Applications)[4,5]

Panel Thickness	Fastener Type[1,2]	Perimeter Spacing[3]	Field Spacing
3/8" (9 mm) ½" (12 mm) 5/8" (16 mm)	0.113-in. dia. x 1-1/2 in. to 2 in. ring shank nails	8-inches O.C.	8-inches O.C.
	#8 x 1-1/2 in. to 2 in. wafer head screws		

For SI: 1 inch =25.4 mm

[1]Fasteners must be corrosion resistant (electrogalvanized, hot-dipped galvanized, or stainless).
[2]Fasteners must be set flush or just below panel surface.
[3]Fasteners must be placed a minimum of 1/2-inch from edges and 2-inches from corners.
[4]Underlayment must be adhered to subfloor with mortar in accordance with ANSI A108.11.
[5]Joints must be filled with mortar and 2 inch-wide (51 mm), high strength, coated, alkali resistant, glass fiber reinforcing tape must be embedded into the wet mortar.

TABLE 3 – BACKER BOARD FASTENER CONFIGURATIONS (Walls and Ceilings)

Panel Thickness	Framing and Fastening Requirements for Wall and Ceiling Applications						
	Framing Type	Framing Spacing	Fastener Type[6,7]	Fastening Pattern for Walls		Fastening Pattern for Ceilings	
				Perimeter Spacing	Field Spacing	Perimeter Spacing	Field Spacing
¼" (6 mm)	Minimum 2 x 4 lumber	16-inches O.C.	11 ga x 3/8 in. Head Diameter Roofing Nails[3] -Or- # 8-18 x 3/8 in. Head Diameter ribbed wafer head screws[3]	8" O.C.	8" O.C.	Not Suitable	
3/8" (9 mm)						6" O.C.[5]	6" O.C.[5]
½" (12 mm)							
5/8" (16 mm)							
¼" (6 mm)	Cold-Formed Steel[2]	16-inches O.C.	# 8-18 x 3/8 in. Head Diameter ribbed wafer head screws[4]	8" O.C.	8" O.C.	Not Suitable	
3/8" (9 mm)						6" O.C[5]	6" O.C[5]
½" (12 mm)							
5/8" (16 mm)							
¼" (6 mm)	Minimum 2 x 4 lumber[1]	24-inches O.C.	Pro-Twist® CB158	6" O.C.	12" O.C.	Not Suitable	
3/8" (9 mm)						6" O.C	12" O.C
½" (12 mm)							
5/8" (16 mm)							

For SI: 1 inch =25.4 mm, 1 psf = 47.88 Pa

[1] Minimum Specific Gravity of 0.42.

[2] Minimum 20 gauge (0.33 in.) thick ASTM A653 G60 galvanized. Minimum depth of 3-1/2 in. for residential applications or 3-5/8 in. for commercial applications.

[3] Fastener must be corrosion resistant (electrogalvanized, hot-dipped galvanized, or stainless). For attachment to ceilings, the screws must be at least 1-5/8 in. long, and nails must be at least 1-1/2 in. long. For attachment to walls, the fasteners must be of sufficient length to achieve minimum embedment depth in to stud of 3/4-inch.

[4] Fastener must be corrosion resistant (electrogalvanized, hot-dipped galvanized, or stainless). For attachment to ceilings, the screws must be at least 1-1/4 in. long. For attachment to walls, the screws must be of sufficient length to achieve minimum embedment depth in to stud of 1/4-inch.

[5] Panels may also be attached to minimum 20 gauge (0.33 in.) thick ASTM A653 G60 galvanized furring channels with # 8-18 x 3/8 in. HD ribbed wafer head screws of sufficient length to achieve minimum embedment depth in to furring channel of 1/4-inch. Attachment of furring channels to framing is outside of the scope of this report.

[6] Fasteners must be set flush or just below panel surface.

[7] Fasteners must be placed a minimum of 1/2-inch from edges and 2-inches from corners.