

Innovation MgO™

**WALL**

Panels



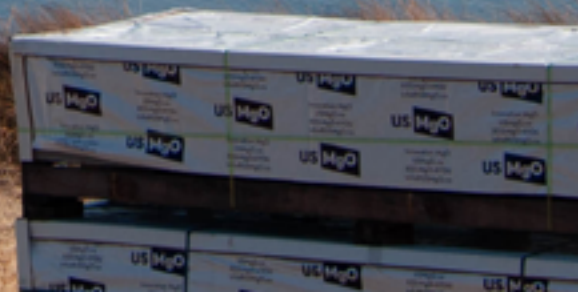
**US MgO**

# Installation Manual

**Innovation MgO™ Wall Panels**

**Nominal 48" x 96" x ½" (~12mm)**

WALL, FLOOR, AND SUBFLOOR SHEATHING PANELS  
FOR COMMERCIAL & MULTIFAMILY BUILDINGS





US-MgO.com  
info@US-MgO.com  
1-855-646-4968

# Table of Contents

1. Product Overview	3
2. Uses and Limitations	4
3. Storage, Handling, and Cutting	5
4. Physical Properties	6
5. Installation	7



# Installation Manual Overview

This Installation Manual is intended to provide general product and proper installation instructions to designers, installers, and end users of Innovation MgO™ Wall Panels. These instructions should be read in their entirety by all parties involved in the design and installation of Innovation MgO™ Wall Panels prior to installation.

This Installation Manual is a general document and does not include information on every installation scenario. Proper installation as defined in this Installation Manual is subject to the most restrictive requirements specified by US MgO Company.

Readers of this Installation Manual, installers of Innovation MgO™ Wall Panels, and end users of Innovation MgO™ Wall Panels are fully and solely responsible for meeting all safety and code compliance requirements. Contact US MgO Company for additional information.



# 1 Product Overview

Innovation MgO™ Wall Panels are durable, fire-rated, structural wall sheathing panels comprised primarily of magnesium oxide (MgO) cement. Sheets are provided in 48" wide x 96" long x 1/2" (nominal ~12mm) thick panels with a straight/square edge profile.

Panels are approved for use in all building types I, II, III, IV, and V in various exterior and interior applications.

In exterior wall applications, Innovation MgO™ panels are ideal replacements for fire-retardant-treated wood (FRTW) sheets, wood based sheathings, Portland cement, and gypsum-based panels.

In interior applications, Innovation MgO™ panels offer advantages to wood and gypsum-based materials in elevator shafts, tile backer boards, stairwells, demising/common walls, and high-traffic areas.



# 2 Uses and Limitations

Always consult applicable building code(s), engineer or architect of record, or other authority having jurisdiction.

## A. BUILDING TYPES

Panels are <b>approved</b> for use in:	Panels are <b>not approved</b> for use in:
<ul style="list-style-type: none"><li>» All building types I, II, III, IV, and V per IAPMO UES ER 1029</li></ul>	<ul style="list-style-type: none"><li>» Exterior roof systems</li><li>» Below grade applications</li></ul>

## B. WALL TYPES

Panels are <b>approved</b> for use in:	Panels are <b>not approved</b> for use in:
<ul style="list-style-type: none"><li>» Exterior walls (including open corridors and breezeways) that will not be exposed to weather after construction and that are covered with an approved water-resistive barrier (WRB) and cladding material.</li><li>» Exterior open-jointed wall systems when covered by an approved WRB.</li><li>» Exterior wall systems whereby Innovation MgO™ Wall Panels are used as an element to resist lateral loading. In these cases, follow guidance in the Lateral Force Resisting Systems section below and applicable Evaluation Report (ER).</li><li>» Fire-rated assemblies tested in accordance with:<ul style="list-style-type: none"><li>– ASTM E119 (ICC-ES ESL-1610)</li><li>– ASTM E84/E2768 (ICC-ES ESL-1610)</li><li>– NFPA 285 (ICC-ES ES ESL-1610)</li><li>– AC386 (IAPMO UES ER 1029)</li></ul></li></ul>	<ul style="list-style-type: none"><li>» Exterior walls that will be directly exposed to weather post-construction (e.g. without cladding material) and/or that are not coated with an approved WRB.</li></ul>

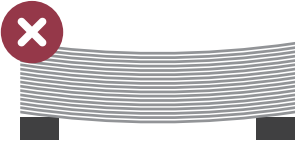
Panels can be exposed to weather conditions during construction for up to 180 days when installed on a vertical plane but are not to be used as a WRB. [See Installation](#) section for more information.

# 3 Storage, Handling, and Cutting



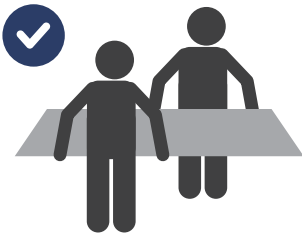
## A. STORAGE

- » Interior storage in a covered and dry environment in original manufacturer’s packing is preferred.
- » Store panels on original or similar pallets off the ground. Ensure pallets are fully supported underneath to avoid sagging.
- » If storing outside or if packaging is damaged, cover panels with a waterproof tarp or similar material.
- » Panels and pallets shall not have direct contact with water or wet surfaces.
- » Panels should be stored horizontally, not vertically, to avoid damage to edges.
- » Do not stack panels higher than 6 units/ pallets. Stacked units shall be level and aligned vertically.

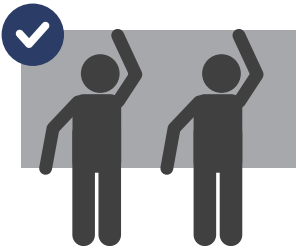


## B. PRECAUTIONS + SAFE HANDLING

- » Consult the Safety Data Sheet (SDS) for information on safety, first aid instructions, and potential hazards to avoid.
- » Wear appropriate Personal Protective Equipment (PPE) when handling panels:
  - Hand gloves
  - Long sleeves
  - Dust mask and/or respirator
  - Safety glasses or goggles

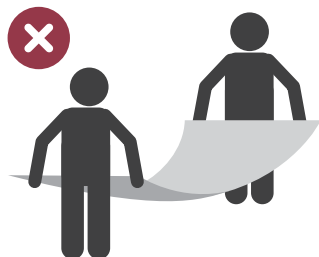


- » Reduce dust by ensuring adequate ventilation, collecting dust, and maintaining a clean jobsite.
- » Wash hands and/or arms after handling to avoid skin irritation. Follow all jobsite hygiene practices and policies.
- » Ensure that lifting equipment is rated for handling loads. Forks must extend completely under the pallet when lifting.
- » When lifting by hand, two persons are recommended. Carry vertically or horizontally with hands on the long sides. Avoid carrying horizontally with hands on the short sides. Always follow proper lifting techniques.



## C. CUTTING

- » Panels may be cut using a variety of standard tools including fine-tooth handsaw, drywall saw, circular saw, jig saw, table saw, and articulating saw. Fiber-cement blades are recommended for power saws and can provide cleaner edges and reduced dust.
- » Cut-outs for electrical and plumbing penetrations and other holes or notches may be performed using a jigsaw, hole saw, rotary tool, or similar. Carbide tip blades are recommended but not required in these cases.
- » Panels may be scored and snapped using a scoring tool.
- » Use compressed air or similar tool to collect and remove dust residue when cutting Innovation MgO™ Wall panels.



# 4 Physical Properties

Provided below are key physical properties related to the installation of Innovation MgO™ Wall Panels. Review the Data Sheet for additional technical information.

## A. PRODUCT PROPERTIES

Dimensions	Nominal 48" x 96" x 1/2" (~12mm)
Approximate Weight	± 90 lbs (~2.8 psf)
Length, Width, and Diagonal Deviation	< ± 1/8 in. (~3.2mm)
Thickness and Tolerances	< ± 1/16 in. (~1.6mm)
Density	≥ 1.09 g/cm <sup>3</sup>
Edge Profile	Straight (Square)
Unprotected Exposure Limits	180 days*

\*when installed on a vertical plane

## B. FIRE RESISTANCE PROPERTIES

Innovation MgO™ Wall Panels have been evaluated in accordance with ASTM E84, ASTM E2768, ASTM E119, NFPA 285, and CAN ULC-S101. Refer to ICC-ES ESL-1610 for additional information. Follow all local building code requirements for fire-rated construction.

### Surface Burning Characteristics per ASTM E84 / ASTM E2768

Flame Spread / Smoke Developed	Class A ( <i>Flame Spread Index 0 - 25; Smoke-Developed Index of 0 - 450</i> )
Fire Resistance (ASTM E119)	1-hr and 2-hr Fire-Resistant Rated Assemblies

## C. WATER VAPOR PERMEABILITY PROPERTIES

ASTM E96	≥ 11.5 perms
----------	--------------

## D. STRUCTURAL PROPERTIES

Allowable Stud Spacing	12 in. / 16 in. / 24 in. OC
------------------------	-----------------------------

# 5 Installation

Wall systems designed with Innovation MgO™ Wall Panels shall be consistent with the applications as described in this section. When used in fire-rated construction, follow all details and requirements as set forth in the applicable fire-rated design.

## A. PREPARATION

- » Verify that surfaces and conditions are ready to accept the work of this section.
- » Do not begin installation until exterior walls have been properly prepared.
- » Verify that all exterior wall assembly construction has been completed to the point where the sheathing may correctly be installed.
- » Protect surrounding area from possible damage during installation of structural sheathing.
- » Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.
- » If deficiencies exist, consult Architect. Correct deficiencies in accordance with manufacturer's recommendations.
- » Beginning installation constitutes Contractor's acceptance of existing conditions.

## B. VERIFY FRAMING

Framing may be wood, light-gauge, or heavy-gauge metal and shall not be less than 1-1/2 in. wide. Framing members shall be plumb and in-plane.

## C. POSITION PANELS

- » Panels may be installed to vertically-oriented studs either vertically with the long 96" side parallel to the stud or horizontally with the short 48" side perpendicular to the stud.
- » Install panels with the smooth side facing out and the rough side against framing.
- » Butt square edges of panels tightly to one another on all sides.
- » Back all panel edges with framing or blocking if required.
- » Panels shall not be installed less than 6-in. from exposed earth without a code-approved method of termite protection.



## D. ATTACH PANELS WITH APPROVED FASTENERS

### Fastener Types

- » For exterior and/or interior use: Screws and/or nails that are code-recognized and manufacturer approved for withdrawal resistance, pull-through strength, and resistance to corrosion via inherent material property, coating for corrosion resistance, or permanent separation by a non-metallic material.

### Fastening Methods

- » Fasteners must be spaced a minimum of 3/8-in. from all edges and no closer than 2-in. from a corner.
- » Install fasteners straight and perpendicular to panels.
- » Light and mid-weight claddings may be attached to the panel directly, avoiding framing. Consult US MgO company and cladding manufacturer for limitations with specific cladding types and weights.
- » Other claddings must be through the panel to solid framing.
- » Fasteners shall be flush or slightly driven below the panel surface.
- » Fasteners that are proud of the panel surface should be driven flat with a hammer.
- » Nails must be minimum 0.113 x 2-in. (50.8mm) ring shank nails with a maximum o.c. spacing of 6-in. on edges and 12-in. in the field to be used when attaching 1/2-in. (~12mm) and 5/8-in. (~16mm) panels for non-shear wall applications (such as hot-dipped or stainless steel galvanized nails).

### Fastening Pattern

Panels not used as part of a shear wall or braced wall can be installed on framing spaced a maximum of 24-in. o.c. with nails (pneumatic or by hand) spaced a maximum of 6-in. o.c. around the perimeter of the panel, and 12-in. o.c. at the intermediate stud locations in the field of the panel or by approved screws at 12-in. o.c. at perimeter and field.

## E. INTERIOR FINISH APPLICATIONS

- » Hole saws, jig saws, and roto zip saws may be used to cut holes and penetrations into panels.
- » Seal seams and penetrations with manufacturer-approved materials by following similar methods to



gypsum. The same liquids, sealants, tapes, and tools may be used.

- » After applying sealant and/or tape, allow the material time to dry.
- » Repeat these steps as needed to achieve the desired level of finish.

## F. REPAIR AS NEEDED

- » Use a manufacturer-approved compound or sealant to patch small damages and holes. Follow manufacturer's recommendations for gap filling limitations and applications. Use minor sanding to smooth patched surfaces.
- » Larger damages and holes through the panel must be replaced with a new piece of panel that is blocked with roughly twice the material area at all seams.
- » For damage of a fire-rated assembly,

contact your local code authority and US MgO Company for guidance on potential repair options.

## G. APPLY WATER-RESISTANT BARRIER (WRB)

Innovation MgO™ Wall Panels offer an exposure rating of 180 days (when installed on a vertical wall surface) during which they may be fully exposed without concern for deterioration or diminished strength. Beyond 180 days, panels must be protected from the elements either by temporary closure or by a properly installed Water-Resistant Barrier (WRB) product. This includes applications such as open corridors and breezeways.

- » Ensure that the Innovation MgO™ Wall Panel is dry, clean, and free of any dust or dirt remaining from cutting, sanding, or general construction activities prior to application. Check WRB manufacturer's adhesion requirements and compatibility with cladding materials.

Note from manufacturer: When selecting a WRB and/or cladding, ensure that compliance with codes and standards such as NFPA 285 are met if required. Contact US MgO Company for guidance if needed.

- » Use a manufacturer-approved WRB product and follow manufacturer's instructions:
- » Fluid-Applied Systems: Common fluid-based WRBs include acrylics, hybrid-acrylics, silicones, polyurethanes, and polyethers. Common application methods such as trowelling, spraying, and rolling may be used in accordance with product manufacturer's guidance. Ancillary liquid flashings and sealants may be applied directly to panel surfaces including panel edges that commonly receive such materials at rough openings and control joints.
- » Adhered Membranes: Any code-recognized adhered membrane may be used on Innovation MgO™ Wall Panels. Due to high bond strengths, repositioning may need to be performed quickly. Back-rolling should occur only after the membrane is properly positioned.
- » Papers and Mechanically-Attached WRBs: Building papers and mechanically-attached WRBs offer acceptable weather protection of Innovation MgO™ Wall Panels. Code-recognized insulation boards with integrated WRB systems are also approved. Attached products must be installed per the product manufacturer's installation requirements including proper integration at laps, transitions, fenestrations, and other key interfaces. Avoid excessive fastener penetrations whether by staples or other approved fasteners.

## H. PROTECTION

- » Protect installed products until completion of project.
- » Cover the top and edges of unfinished sheathing work to protect it from the weather and to prevent accumulation of water.
- » Wet panels shall be allowed to completely dry prior to application of WRB.

## I. ATTACH WALL COVERING

- » Attach cladding according to manufacturer's guidelines.
- » Consult cladding manufacturer and US MgO Company for guidance regarding the use of rainscreens or back-venting including the use of furring strips, drainage mats, or other proprietary systems.
- » Most conventional exterior sidings, claddings and wall coverings, including vinyl, composite, fiber cement, metal, stone, brick, and wood may be applied over Innovation MgO™ Wall Panels.
- » Always follow cladding manufacturer and applicable building code requirements for the installation of finish cladding materials.





4500 Morris Park Drive, Mint Hill, NC 28227

1-855-646-4968 | [US-MgO.com](http://US-MgO.com) | [Info@US-MgO.com](mailto:Info@US-MgO.com)

---

For Warranty Information or Service call 1-855-646-4968 or write US MgO Company c/o Warranty, 4500 Morris Park Drive, Mint Hill, NC 28227. Claims must be made to US MgO Company within thirty (30) days of becoming aware of any such claim.