NEXGEN Building Products

MAXTERRA®

MgO Non-Combustible Structural Sheathing

NEXGEN

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Tomorrow's Building Solutions, Today.

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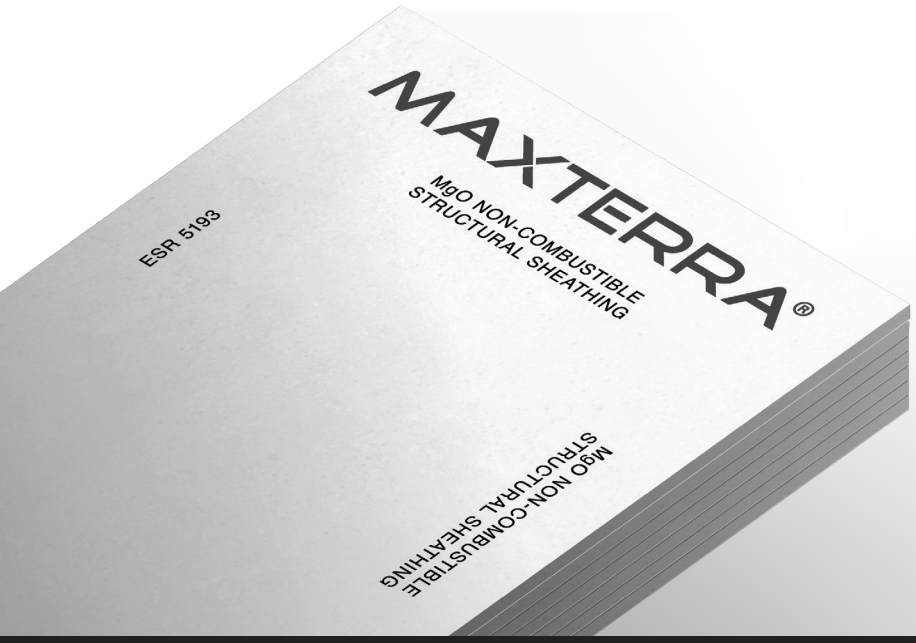
Introduction

Welcome to MAXTERRA® MgO Non-Combustible Structural Wall Sheathing, our premier solution for superior wall construction. At NEXGEN, we champion a safer, stronger, healthier way to build. This manual provides essential information for designers, contractors, and end users. Please thoroughly review this guide and ensure all users are familiar with it before beginning installation.

This guide addresses a variety of project conditions and emphasizes adherence to the highest standards set by NEXGEN Building Products, LLC, as well as local building codes, and guidelines from architects, engineers, and other authorities having jurisdiction. Proper installation requires compliance with the most stringent requirements specified by these sources.

It is the responsibility of the engineer of record to specify the precise strapping and blocking requirements within your structural wall framing elements. Detailed instructions for strapping and blocking materials and methods should be provided, and the General Contractor (GC) must include these requirements in their installation processes.

You are fully responsible for ensuring safety and code compliance. For any additional information, please contact NEXGEN Building Products. Invest in MAXTERRA® for quality and success—Tomorrow's Building Solutions, Today.



Product Overview

Experience the superior performance of MAXTERRA® MgO Non-Combustible Structural Wall Sheathing. These high-density magnesium oxide panels are designed to replace traditional fire-retardant-treated plywood or OSB, as well as exterior gypsum sheathing panels in specific fire-resistant wall assemblies. This manual covers the installation of both nominal 1/2-inch (12mm) and 5/8-inch (16mm) thick panels.

MAXTERRA® MgO Non-Combustible Structural Wall Sheathing is suitable for use in interior or exterior walls of Types I-V Construction. For further details, please refer to the official documentation or contact NEXGEN Building Products.

Available Sizes and Dimensions

Wall sheathing panels are available in nominal 1/2-in. (12mm) and 5/8-in. (16mm) thicknesses.
Panels are manufactured in nominal 48-in (1,220) face width.
Wall sheathing panels are available in nominal 96-in (2,440mm), 108-in. (2,745mm), 120-in (3050mm), and 144-in (3,685mm) lengths.
Panels feature a square edge or tapered edge for interior sheathing.

Uses and Limitations

- Always adhere to and consult with the applicable building code, engineer or architect of record, or any other authority with jurisdiction.
- Panels used for exterior sheathing are only designed to be exposed to weather during construction.
- Panels can be exposed to weather during construction for up to 120 days, depending on the governing warranty.
- Panels do not serve as a water-resistive barrier. They must be covered with a code-compliant water-resistant barrier and exterior cladding for all exterior applications, including corridors and breezeways.
- Panels can be used in certain fire-resistant assemblies. Please see Sound and Fire Assemblies for more information.
- Fasteners and bare metal components in direct contact with panels must be corrosion resistant, coated for corrosion resistance (hot-dipped galvanized or better), or permanently separated by a non-metallic material.
- The project site should be kept clean. Use compressed air or similar tools to frequently blow off floors, walls, tools, or any other areas that can collect the dust that is produced from cutting panels.

Storage

MAXTERRA® panels are designed for convenient storage on manufacturer-provided pallets, ensuring they stay off the ground and fully supported for optimal preservation. Do not store panels vertically.

MAXTERRA® MgO Non-Combustible Structural Wall Sheathing pallets are designed for safe stacking up to a maximum height of 12 feet to prevent the risk of injury effectively.

MAXTERRA® MgO Non-Combustible Structural Wall Sheathing features specialized packaging for optimal storage. To ensure product integrity from the manufacturer, pallets should be stored in a cool, dry environment.

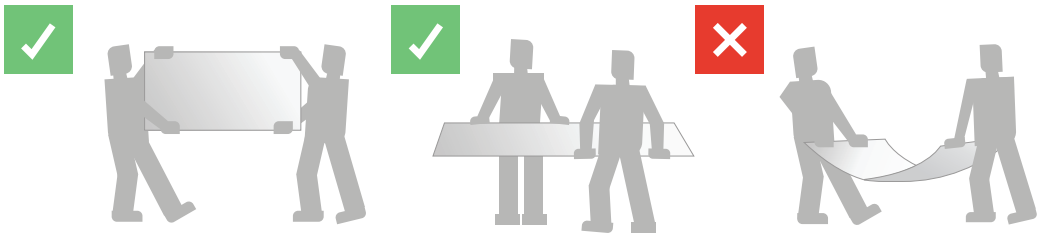
MAXTERRA® MgO Non-Combustible Structural Wall Sheathing requires a protective waterproof covering when stored outside the original packaging to safeguard from environmental conditions, surface contamination, and construction site traffic.

MAXTERRA® MgO Non-Combustible Structural Wall Sheathing should not be stored near standing water or snowpack.

Avoid keeping panels/pallets in freezing temperatures. Freezing may result in panels sticking together. If panels are frozen, allow them to thaw naturally; bring panels/pallets to a place where the temperature is above 32°F (0°C) to allow the ice to melt naturally. Salt or de-icing agents should not be used at any time. Covering the panels/pallets completely with tarps or similar coverings is an easy way to prevent panels from freezing together.

Precautions and Safety

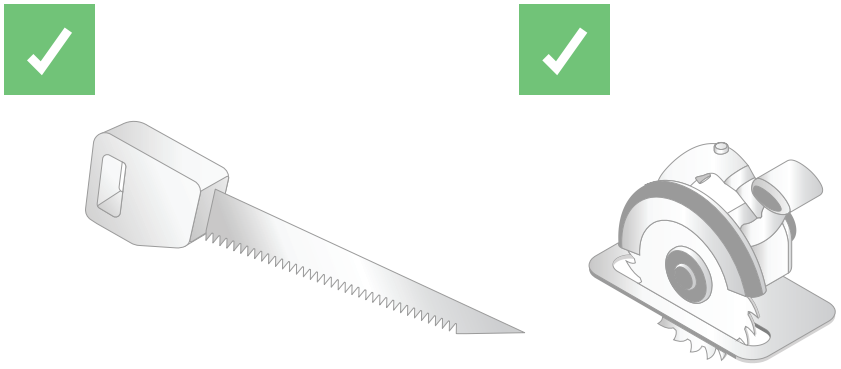
- Always consult the Safety Data Sheets (SDS) for all safety and hazard concerns.
- Wear appropriate personal protective equipment (PPE) for the job. Suggested gear includes but is not limited to:
  - Gloves and long sleeves.
  - Dust mask and/or respirators.
  - Safety glasses or goggles.
- Use best practices to reduce dust build-up, such as
  - Adequate ventilation.
  - Dust collection systems for saws.
  - Frequent job site cleanup.
- Wash hands after handling.
- Observe good industrial hygiene practices.
- Ensure that forklifts or similar equipment are rated to lift and move loads. Forks must extend under the entire load. Take proper precautions while handling to avoid damaging panels and panel edges.
- Best Handling Practices:
  - Make sure to use two people when handling individual panels.
  - Use proper lifting techniques; panels are heavier than typical structural panels.
  - Hold the panel along the long length with hands spaced apart to avoid excessive bending.



- Proper design and material staging are required to avoid unforeseen loading of subflooring during construction. The design professional is responsible for structural support of special loads that may occur during construction or staging.

Cutting

- Avoid scoring and damaging nearby panels by ensuring they're not stacked on top of one another before cutting.
- MAXTERRA® panels can be effortlessly cut using a power saw. Use MAXTERRA® fiber cement blades with power saws for optimal results to achieve cleaner edge cuts, minimal dust production, and extended blade life. Always ensure both ends of the panels are adequately supported during the cutting process.
- Effortlessly perform precision cut-outs in MAXTERRA® panels for plumbing, electrical, HVAC, etc., with simple measures and marks on the smooth side of the panel before cutting. For optimal convenience, use an array of tools, such as jigsaws, hole saws, rotary tools, or equivalent hand tools. Consider carbide blades for a more extended blade lifespan.
- Ensure regular and thorough cleaning of tools to prevent dust accumulation to ensure optimal performance and longevity.



Physical Properties

Thickness and Tolerances	nom. 1/2-in. (12mm) +/- 1/16-in (1.6mm)	nom. 5/8-in. (16mm) +/- 1/16-in (1.6mm)
Width and Tolerances	nom. 48-in. (1,220 mm) +/- 1/8-in (3.125mm)	nom. 48-in. (1,220 mm) +/- 1/8-in (3.125mm)
Length and Tolerances	nom. 96-in. (2,440mm) nom. 108-in. (2,745mm) nom. 120-in. (3,050mm) nom. 144-in. (3,685mm) +/- 1/8-in (3.125mm)	nom. 96-in. (2,440mm) nom. 108-in. (2,745mm) nom. 120-in. (3,050mm) nom. 144-in. (3,685mm) +/- 1/8-in (3.125mm)
Squareness	+/- 1/64-in (0.4mm)	+/- 1/64-in (0.4mm)
Straightness	+/- 1/64-in (0.4mm)	+/- 1/64-in (0.4mm)
Weight	Approx. 2.83 lbs/sf	Approx. 3.77 lbs/sf
Non-combustible	Passed E136	Passed E136
Surface Burning Characteristics [1,2]	0/0 Flame spread index/smoke developed. (ASTM E84 / UL 723/ NFPA 255/ UBC 8-1)	0/0 Flame spread index/smoke developed. (ASTM E84 / UL 723/ NFPA 255/ UBC 8-1)
Fire Resistance	Fire resistant (ASTM E119/UL263/ESL 1568)	Fire resistant (ASTM E119/UL263/ESL 1568)
Water Vapor Permeable	≥ 13 perms (ASTM E96 Method B) ≥ 5 perms (ASTM E96 Method A)	≥ 13 perms (ASTM E96 Method B) ≥ 5 perms (ASTM E96 Method A)
Mold Resistance	0 Mold Growth Observed (ASTM G21) [4]	0 Mold Growth Observed (ASTM G21) [4]
Resistance to Rapid Freezing and Thawing	No Disintegration following 25 Cycles	No Disintegration following 25 Cycles
Humidified Deflection	Less than 0.0639-in (1.62 mm).	Less than 0.0639-in (1.62 mm).
Mortar Shear Bond Strength	Dry-Set Portland Cement: Greater Than 50psi Latex-Portland Cement Mortar: Greater Than 50psi	Dry-Set Portland Cement: Greater Than 50psi Latex-Portland Cement Mortar: Greater Than 50psi

1. ASTM E84 / UL 723 / NFPA 255 / UBC 8-1 Standard Method for Surface Burning Characteristics of Building Materials conducted on 1/2-in (12mm), 5/8-in (16mm), and 3/4-in (20mm) MAXTERRA® panel thicknesses.
2. MAXTERRA® panels may be used in specific fire-resistance-rated assemblies as tested in accordance with ASTM E119/UL 263. Follow published fire-resistance-rated assembly requirements and consult local building codes for fire-resistant design requirements.
3. ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials conducted on 1/2-inch MAXTTERA® MgO Non-Combustible Structural Sheathing.
4. ASTM G21 Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi conducted on 1/2-in (12mm) and ¾-in (20mm) MAXTERRA® panels.

Structural & Mechanical Properties

Product	nom. 1/2-in. (12mm)	nom. 5/8-in. (16mm)
Framing Members	24-in O.C. Maximum	24-in O.C. Maximum
Flexural Strength	Greater than 580psi	Greater than 580psi
Falling Ball Impact	No Damage at 12-in drop	No Damage at 12-in drop
Compression Indentation	Less Than 0.05-in (1.27 mm)	Less Than 0.05-in (1.27 mm)

1. Shear wall designs using MAXTERRA® panels are limited to designs controlled by wind or seismic design categories A, B, and C.
2. Shear walls using MAXTERRA® panels are limited to a maximum height-to-length aspect ratio of 2:1.
3. Minimum 2x4 framing members not spaced more than 24-inches on center.
4. All panel edges must be backed with framing or blocking.
5. Install any metal straps, ties or other connectors designed to resist uplift, shear or diaphragm loading directly to the framing PRIOR to installing MAXTERRA® MgO wall sheathing.
6. MAXTERRA® MgO wall sheathing panels are not approved to resist uplift forces. Uplift forces must be resisted by other means as specified by applicable building code(s), engineer or architect of record or other authority having jurisdiction.

Maximum Allowable Uniform Shear Loading for Wood Framed Walls

		Fastening Requirements				
Nominal Panel Thickness	Framing	Fastener Specification	Panel Edge Distance (inches)	On-Center Spacing (Perimeter / Field) (inches)	Wall Height (feet)	Allowable Shear Capacity (plf)
1/2" (12mm)	Minimum 2"x4"; Specific gravity of 0.42, spaced at 24-in O.C.	0.113-inch x 2-inches galvanized ring-shank nails	1/2	4/8	8	237
			1/2	4/8	10	195
		#8 x 1-5/8" stainless steel screw	1/2	4/8	8	288
5/8" (16mm)	Minimum 2"x4"; Specific gravity of 0.42, spaced at 24-in O.C.	0.113-inch x 2-inches galvanized ring-shank nails	1/2	4/8	8	237
			1/2	4/8	10	195
		#8 x 1-5/8" stainless steel screw	1/2	4/8	8	288

Allowable Transverse Wind Loads

		Fastening Requirements			
Nominal Panel Thickness	Framing	Fastener Specification	Fastener On-Center Spacing (Perimeter / Field)	Allowable Wind Load (psf)	
				Positive	Negative
1/2" (12mm)	Minimum 2"x4"; Specific gravity of 0.42, spaced at 24-in O.C.	0.113-inch x 2-inches galvanized ring-shank nails	4/8	47	35
		#8 x 1-5/8" stainless steel screw	4/8	45	37
5/8" (16mm)	Minimum 2"x4"; Specific gravity of 0.42, spaced at 24-in O.C.	0.113-inch x 2-inches galvanized ring-shank nails	4/8	47	35
		#8 x 1-5/8" stainless steel screw	4/8	45	37

Installing **MAXTERRA®** MgO Non-Combustible Structural Wall Sheathing

General

- Ensure proper staging of the materials to prevent concentrated loads, as the responsibility lies with the General Contractor.
- MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels must be installed in accordance with the instructions contained in this Installation Manual and the applicable fire-resistant-rated design assembly. Should these instructions contradict, the most stringent requirements shall govern.
- Install MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels either vertically (long dimension parallel to studs) or horizontally (long dimension perpendicular to studs). Shear wall values contained in this guide are limited to vertical applications.
- MAXTERRA® MgO Non-Combustible Structural Wall Sheathing must be butted tight to one another.
- MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels shall not be installed less than 6 in. from exposed earth unless an approved method of protection against termites and decay is approved by the local building official.
- MAXTERRA® MgO Non-Combustible Structural Wall Sheathing used on the exterior side of exterior walls must be protected by a code-compliant water-resistive barrier. The water-resistive barrier shall be attached with flashing in such a manner as to be continuous behind the exterior wall veneer.
- Follow ICC-ES Listing Report ESL-1568 instructions for fire-resistant assemblies.

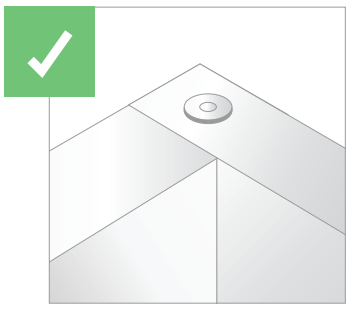
Framing

Ensure all wall framing members are plumb and in-plane. MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels will not correct out-of-plane irregularities in wall framing members. To achieve a smooth and level installation, replace all warped, crooked, or bowed framing members.

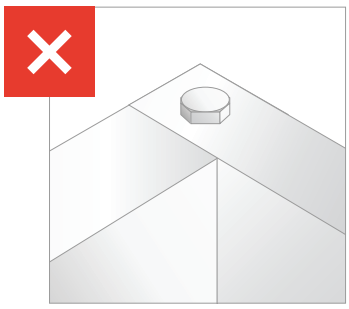
Install MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels with the smooth side out. The rough side must be in contact with the framing member.

Wood framing members must be a minimum of 1-1/2-in. wide, spaced no more than 24-in (610mm) O.C., when installing MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels.

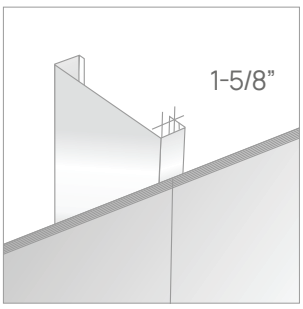
Metal framing must be a minimum of G60 Galvanized Coating, Minimum 1-5/8-in Flange Width, 33mils (20g), 33ksi yield, spaced no more than 24-in (610mm) OC, when installing MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels. Use low profile fasteners on supporting flange; use of hex head or other high profile fasteners is not permitted.



Flat head fastener



Hex head fastener



Minimum 1-5/8” wide

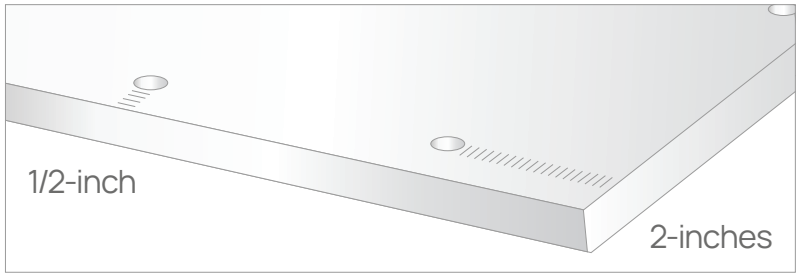
Fastening

Fasteners must be code-recognized or the subject of an ICC-ES Evaluation Report and shall be inherently resistant to corrosion or coated for corrosion resistance. (ASTM B117 1,000hr +).

Install fasteners straight and perpendicular to MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels and framing.

See Product Application section for fastening schedule.

Fasteners must be spaced 1/2-inch from all edges, as stated in the shear wall table, and no closer than 2-inches from a corner.



Please refer to page 10 for specific fastener spacing.

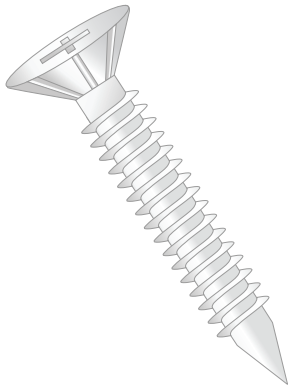
All fasteners shall be flush or slightly driven below the surface of the MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels. Any fasteners that are proud of the panel surface shall be driven flush.

Nails

Always use a code-recognized corrosion-resistant nail, such as hot-dipped galvanized, to attach MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels to framing. Min. 0.113-in. x 2-in. (50.8mm) ring shank nails with a maximum on-center spacing of 4-in along the perimeter and 8-in in the field to be used when attaching 1/2-in. (12mm) and 5/8-in. (16mm) MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels for non-shear wall applications. Refer to the nailing requirements for Shear Wall applications in the Shear Wall Application Table.

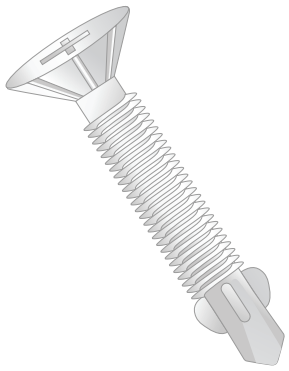
Wood Screw

Always use code-recognized corrosion-resistant screws, such as hot-dipped galvanized, 305 S.S., 316 S.S., or Proprietary Coated, such as Grabber (GHS8158LG) to attach MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels to framing. Must use Min. #8, x 1-5/8-in, flat head with nibs/ribs on the underside of the head to countersink, with a maximum on-center spacing of 4-in along the perimeter and 8-in in the field to be used when attaching 1/2-in. (12mm) and 5/8-in. (16mm) MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels for non-shear wall applications. Refer to fastening schedule for shear wall applications in shear wall application table.



Light Gauge Screw

Always use code-recognized corrosion-resistant screws, such as Proprietary Coated like Grabber (CGH8158LG) ESR-4223, to attach MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels to framing. Must use Min. #8, x 1-5/8-in, flat head with nibs/ribs on the underside of the head to countersink, with a maximum on-center spacing of 4-in along the perimeter and 8-in in the field to be used when attaching 1/2-in. (12mm) and 5/8-in. (16mm) MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels for non-shear wall applications. Refer to fastening schedule for shear wall applications in shear wall application table.



Product Application

- Wall systems designed with MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels shall be consistent with the applications as described in this section.
- When panels are NOT used as part of a shear wall, braced wall or to resist wind load, MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels can be installed on framing spaced a maximum of 24-in. O.C. with fasteners spaced a maximum of 6-in. O.C. around the perimeter of the panel and 12-in. O.C. in the field of the panel.
- When used in fire rated construction, follow all details and requirements as set forth in the applicable fire-resistance rated design.

Repair

- MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels imperfections and minor divots can be easily corrected through patching with an elastomeric compound, explicitly designed for concrete and masonry substrates. Follow the manufacturer's instructions for achieving optimal gap filling and applications.
- For damage that is greater than small imperfections / minor divots that create a hole in the panel, the impacted area and surrounding area should be replaced with a new piece of MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels. Replace damaged areas with new MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels ensuring a minimum width of 24-inches of coverage that spans a minimum of two spans (three wall studs), add nominal 2x blocking at the panel seams. When MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels are used as an element to resist lateral loading, the panels shall be installed in accordance with the Lateral Force Resisting Systems section above and in accordance with applicable evaluation service report.
- If damage to a panel occurs in a fire-rated wall assembly, contact your local authority having jurisdiction and NEXGEN™ Building Products for guidance on potential repair options.

Fire-Rated Assemblies

- Follow all local building code requirements for fire-resistance rated construction.
- MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels have been evaluated in specific fire-resistance rated designs in accordance with ASTM E119/ANSI UL 263. Please refer to the MAXTERRA® MgO Non-Combustible Structural Wall Sheathing Sound & Fire Assemblies for additional information.

Exterior Finish Wall Coverings

- Depictions provided are for illustration purposes only and should not be used for design or specification.
- MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels used on the exterior side of exterior walls must be covered with a code-compliant water-resistive barrier and exterior cladding in all exterior wall sheathing applications, including open corridors and breezeways.
- MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels support a wide range of exterior sidings, claddings, and wall coverings such as vinyl, composite, metal, stone, brick, and wood.
- Installation of finish cladding materials must adhere to cladding manufacturer guidelines and applicable building codes.
- Fasteners for exterior wall coverings must be attached to solid framing.

Water-Resistive Barriers

- A code-compliant water-resistive barrier must always be applied over MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels used on the exterior side of exterior walls before installing the finish exterior wall covering.
- All water-resistive barriers and accompanying flashing must be installed according to the manufacturer's written instructions.
- It is recommended to incorporate rainscreens with MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels for all cladding types where applicable. Follow exterior cladding manufactures installation guidelines. Rainscreens, or back-venting, create a physical gap between the water-resistive barrier and the finish claddings, which promote enhanced drainage and drying capabilities in the wall system.
- Refer to the Stucco and Adhered Masonry Veneers section for additional requirements when applying stucco or adhered stone over MAXTERRA® panels.

Conventional Mechanically Fastened Sheet Membranes / Wraps

Conventional mechanically fastened sheet membranes or wraps require installation using plastic-capped corrosion-resistant fasteners to ensure durability and proper performance. The plastic cap helps distribute the load and prevents the fastener from tearing the membrane, while the corrosion-resistant material ensures the fastener does not rust or degrade over time, maintaining the integrity of the installation.

Self-Adhered Sheet and Fluid-Applied Membranes

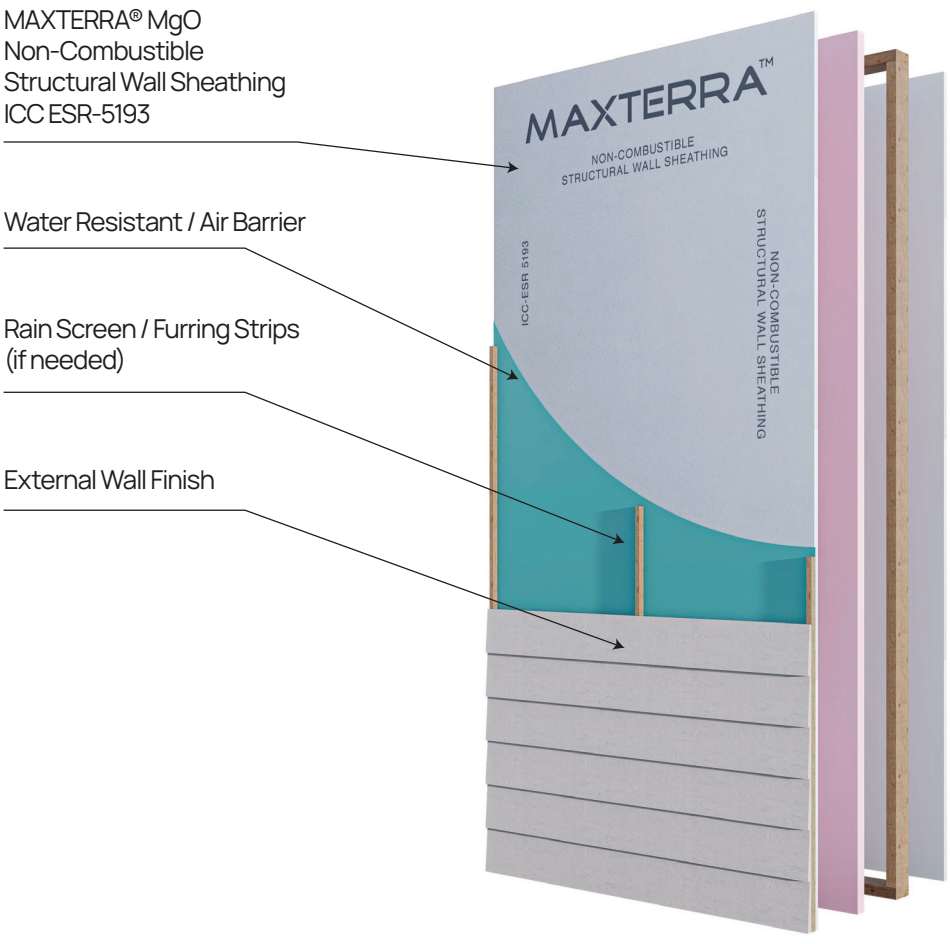
When applying any water or air resistive barrier that relies on adhesion to its substrate, it is essential to ensure that all panel surfaces are dry, clean, sound, and free of any dust, dirt, oil, or grease left over from cutting, sanding, or general construction site activities. This preparation helps achieve the best possible adhesion and longevity of the barrier. Always check the water-resistive barrier manufacturer's adhesion requirements with the compatibility of the sheathing, and wall cladding to ensure proper application and performance.

Conventional Siding

Conventional siding materials such as vinyl, metal, wood, fiber cement and other horizontal siding applications, must be installed in accordance with the manufacturer's published instructions to ensure proper performance and longevity. All cladding must be securely fastened to framing, blocking, or furring with corrosion-resistant fasteners. When using furring strips to install siding, it is important to fasten the board and batten to the furring strips in a manner that allows for proper drainage of the assembly.

To achieve this, horizontal furring strips should never be applied directly to the water-resistive barrier, as this may prevent or impede drainage and may void the warranty of the water-resistive barrier manufacturer. Instead, horizontal furring strips should be applied over vertical furring or proprietary drainage products. All furring strips should be securely fastened to the framing to ensure proper support and stability.

In summary, the installation of Conventional siding materials must be done in accordance with the manufacturer's instructions or applicable building code requirements.

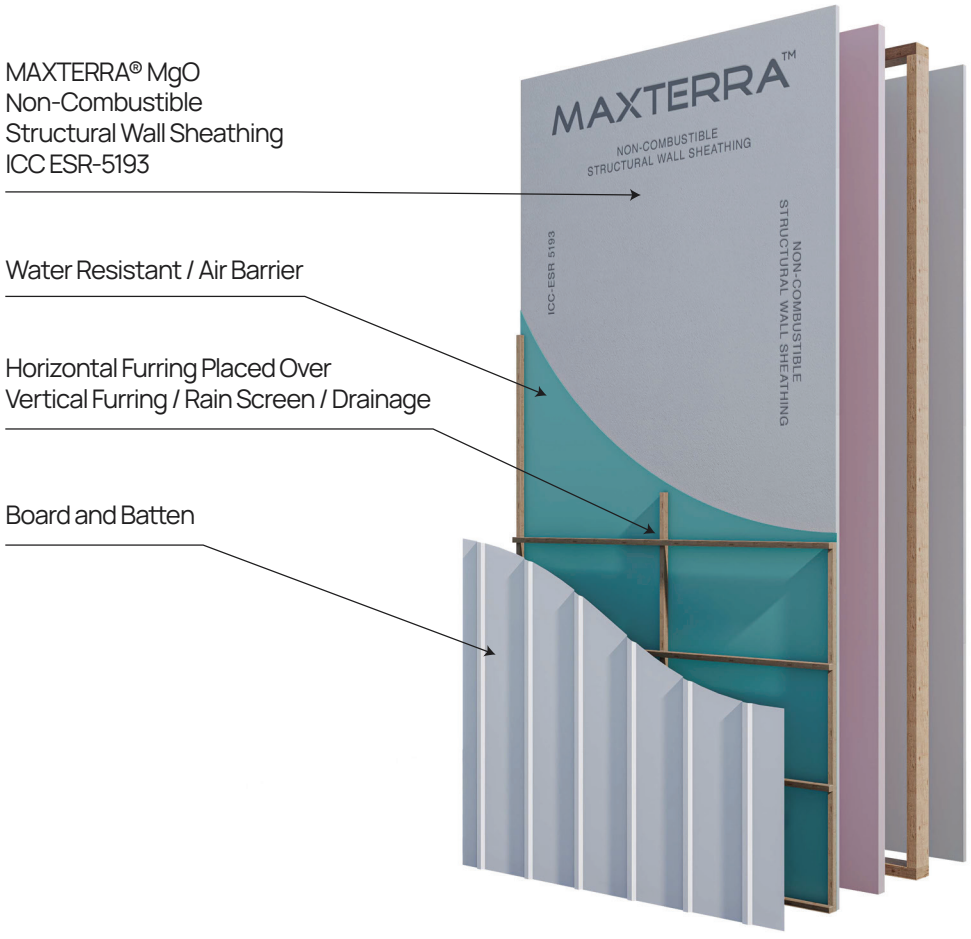


Board and Batten Siding

Board and batten siding, as well as other types of vertically installed siding, must be installed in accordance with the manufacturer's published instructions to ensure proper performance and longevity. When using furring strips to install siding, it is important to fasten the board and batten to the furring strips in a manner that allows for proper drainage of the assembly.

To achieve this, horizontal furring strips should never be applied directly to the water-resistive barrier, as this may prevent or impede drainage and may void the warranty of the water-resistive barrier manufacturer. Instead, horizontal furring strips should be applied over vertical furring or proprietary drainage products. All furring strips should be securely fastened to the framing to ensure proper support and stability.

In summary, the installation of board and batten siding and other types of vertically installed siding must be done in accordance with the manufacturer's instructions, and horizontal furring strips should be applied in a manner that allows for proper drainage and does not impede the performance of the water-resistive barrier.



Stucco and Adhered Masonry Veneers

When applying conventional stucco, adhered masonry veneers, or adhered thin brick systems over MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels, it is important to follow proper detailing and installation techniques to ensure a successful and durable finish. Here are also some key points to consider:

1. **Water Management Layers:** Proper installation of water management layers is crucial when applying stucco, masonry veneers, or thin brick over MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels. This includes the installation of a water-resistive barrier (WRB) in accordance with ASTM C1063, Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster.

2. **Lath Installation:** The installation of lath shall be in accordance with ASTM C1063. Lath shall be securely attached through the MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels with nails or screws into the framing members.

3. **Plastering:** The plastering process shall be in accordance with ASTM C1063. The plaster shall be applied in layers, with each layer allowed to dry before the next is applied. The final layer shall be applied after the lath has been secured and the plaster has been allowed to dry completely.

4. **Warranty Considerations:** Failure to apply water-resistive barriers in accordance with ASTM C1063 may void the warranty when using conventional stucco, adhered masonry veneers, or adhered thin brick systems over MAXTERRA® panels.

5. **Proper Installation:** Proper installation of the stucco, masonry veneers, or thin brick system is critical to ensure a successful and durable finish. This includes proper detailing around windows, doors, and other penetrations, as well as proper finishing and sealing of the joints and edges.

The requirements for water-resistive barriers for stucco and adhered masonry construction are outlined in the International Building Code (IBC) and International Residential Code (IRC). The specific requirements for each climate zone are as follows:

Dry Climates (2015 IBC and 2018 IRC):

1. Two layers of water-resistive barrier with a water resistance equal to or greater than ASTM E2556, Type I, or two layers of 10-minute Grade D paper. The individual layers must be installed independently such that each layer provides a separate continuous plane, and any flashing is installed in a manner to drain between the layers of water-resistive barrier.

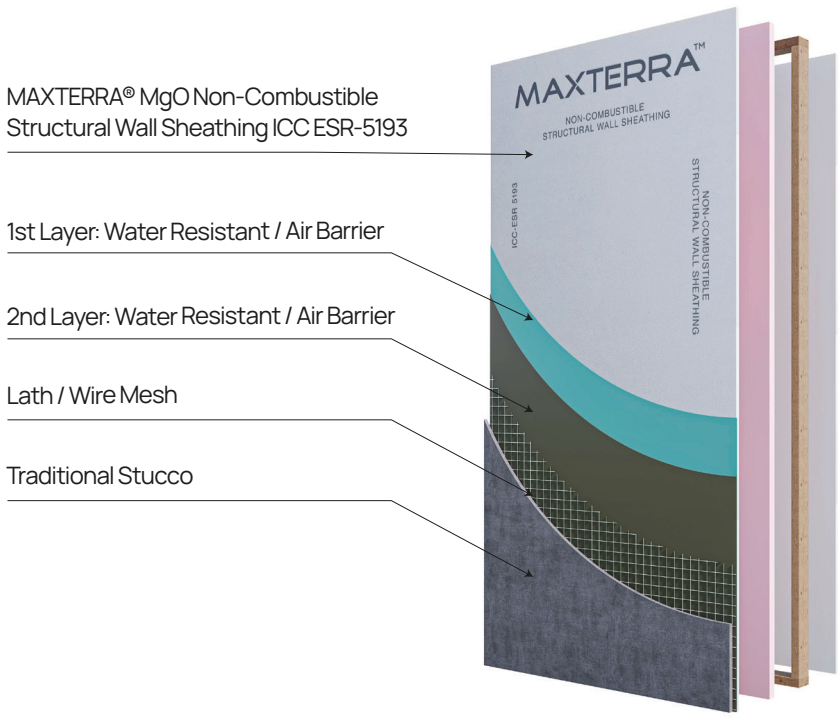
2. One layer of water-resistive barrier with a water resistance equal to or greater than ASTM E2556, Type II, or one layer of 60-minute Grade D paper. The water-resistive barrier must be separated from the stucco by a layer of foam plastic insulating sheathing or other non-water-absorbing layer or designed drainage space.

Moist or Marine Climates (2018 IBC and 2021 IRC/IBC):

In addition to meeting the requirements for dry climates, a space or drainage material not less than 3/16-in. (4.8mm) in-depth must be applied to the exterior side of the water-resistive barrier.

It's important to note that the requirements for water-resistive barriers may vary depending on the specific climate zone and the type of construction. It's always best to consult a licensed architect or engineer to ensure that your stucco and adhered masonry construction meets all applicable building codes and standards.

Following these guidelines and proper installation techniques ensures a durable and long-lasting finish when applying conventional stucco, adhered masonry veneers, or adhered thin brick systems over MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels.



Anchored Masonry Veneer (Brick)

The installation of anchored masonry veneer involves several key requirements to ensure structural integrity and compliance with governing codes:

1. **Clear Airspace:** There must be a minimum clear airspace between the masonry veneer and the MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels. Typically, this airspace is at least 1 inch, although the exact measurement should be verified with local building codes.
2. **Masonry Ties:** Corrosion-resistant masonry ties are essential for anchoring the masonry veneer to the underlying structure. These ties must be securely fastened through the MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels and into the framing using corrosion-resistant fasteners.
3. **Code Compliance:** The installation process, including the spacing and fastening of masonry ties, must comply with the requirements set forth by local building codes, the authority having jurisdiction, and the recommendations of the manufacturer and/or the designer of record.

To summarize, ensuring proper airspace, using appropriate corrosion-resistant materials, and adhering to all relevant codes and guidelines are critical steps in the installation of anchored masonry veneer.

Continuous Exterior Insulation (CEI):

It is important to note that CEI is not suitable for all types of buildings and climates. It is generally recommended for buildings in mild climates and may not be effective in cold or hot climates. It is also important to properly install CEI to ensure that it is effective and to prevent moisture intrusion.

Many state and local building codes have introduced stricter energy efficiency standards, which often include requirements for higher R-value exterior walls. To meet these demands, builders and contractors are increasingly turning to continuous exterior insulation materials, such as expanded polystyrene (EPS), extruded polystyrene (XPS), and polyisocyanurate. These materials are installed on the exterior side of walls to enhance energy efficiency and meet building code requirements. However, it is crucial to ensure that all water-resistive barriers and accompanying flashing materials over the MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels before adding continuous insulation. This is a critical step in the building process to prevent water intrusion and ensure the long-term durability of the wall assembly.

Providing additional drainage between the insulation board and the water-resistive barrier is an important step in ensuring the integrity of the exterior wall assembly. This can be achieved through various methods, including:

1. **Incorporating drainage channels**, such as V-notches or grooves, into the backside of the insulation board. These channels allow water to flow through the insulation and drain away from the wall assembly.

2. **Providing a drainage space between the insulation board and the water-resistive barrier.** This can be achieved by leaving a small gap between the two layers or by using a drainage mat or membrane between them.

3. **Using proprietary building wraps that incorporate drainage capabilities into the material itself.** These wraps can help to direct water away from the wall assembly and prevent it from penetrating the insulation.

It is important to securely fasten all insulation and exterior wall covering materials to the framing or furring with corrosion-resistant fasteners. This will help to prevent water from penetrating the assembly and compromising the integrity of the insulation.

Consult the local building code and wall covering manufacturer requirements for proper attachment of siding with continuous insulation.

By incorporating these drainage measures into the exterior wall assembly, you can achieve:

1. **Improved energy efficiency**
   CEI can help reduce heat loss and improve energy efficiency by providing a continuous layer of insulation around the building.
2. **Reduced energy costs**
   CEI can help reduce energy costs and utility bills by reducing heat loss.
3. **Increased comfort**
   CEI can help to maintain a consistent indoor temperature, which can improve comfort and reduce the need for heating and cooling.
4. **Reduced moisture intrusion**
   CEI can help reduce moisture intrusion into the building, reducing the risk of mold and mildew growth.
5. **Improved durability**
   CEI can help to improve the durability of a building by reducing the amount of heat and moisture that can damage the building's exterior.
6. **Reduced maintenance**
   CEI can help to reduce the amount of maintenance required on a building, as it provides a continuous layer of insulation that can help to protect the building from the elements.
7. **Improved indoor air quality**
   CEI can help to improve indoor air quality by reducing the amount of outdoor pollutants that can enter the building.
8. **Reduced noise pollution**
   CEI can help to reduce noise pollution by providing a continuous layer of insulation that can help to block out external noise.

Exterior Insulation and Finish Systems (EIFS)

When installing Exterior Insulation and Finish Systems (EIFS) over MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels, follow these guidelines to ensure proper selection and installation:

1. Air and Water-Resistive Barriers

- Adhere to all EIFS manufacturer requirements and recommendations for selecting and installing air and water-resistive barriers over the MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels.
- For adhesively attached EIFS, verify compatibility and warranty information with the EIFS manufacturer.
- Ensure all panel surfaces are dry, clean, sound, and free of dust, dirt, oil, or grease before applying the air and water-resistive barrier.
- Install all water-resistive barriers and accompanying flashing materials over the MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels before adding continuous insulation.

2. Adhesively Attached EIFS

Confirm compatibility and warranty details with the EIFS manufacturer for adhesively attached systems.

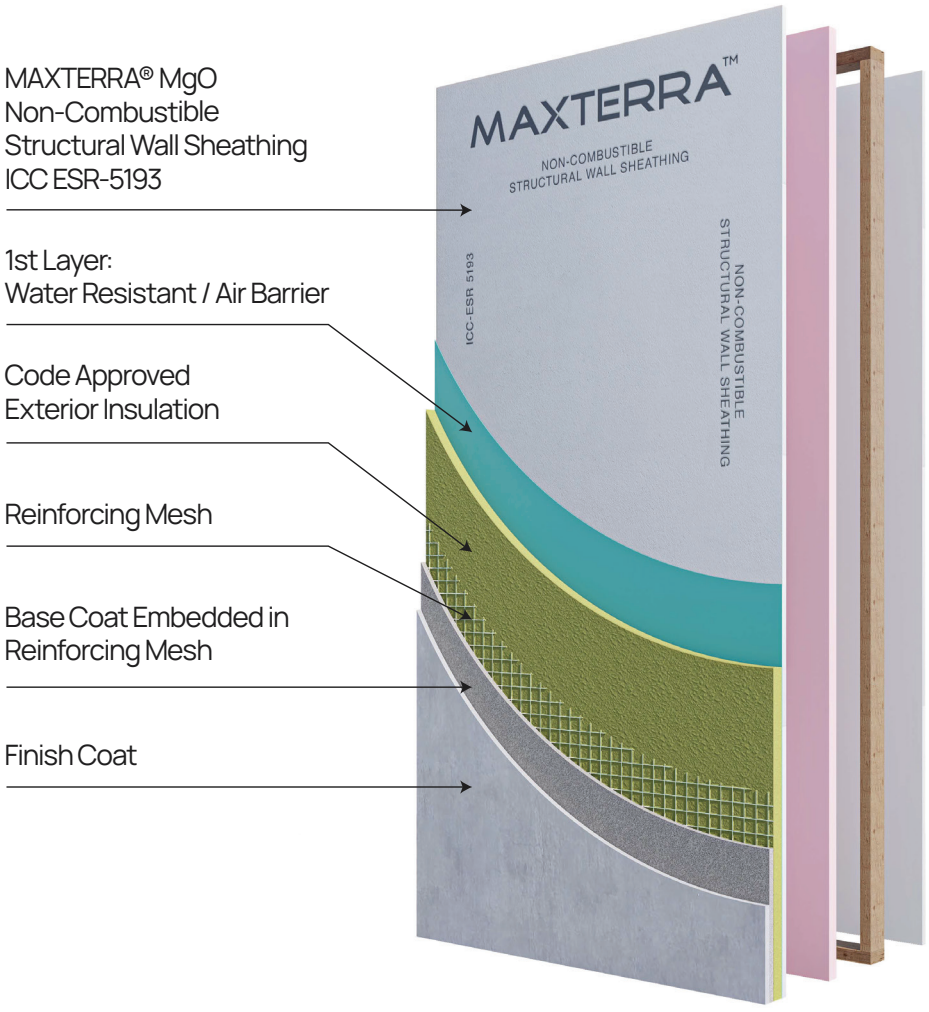
3. Non-Adhered, Mechanically Fastened EIFS

- Provide additional drainage between the insulation board and the water-resistive barrier as required by the manufacturer and building code.
- Ensure all water-resistive barriers and flashing materials are installed over the MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels before installing continuous insulation.

4. Subsequent Layers

- Install layers of continuous insulation, mesh or lath, and mortar coats according to local building codes, manufacturer instructions, or the designer of record's specifications.
- Securely fasten all insulation materials to framing or furring with corrosion-resistant fasteners.

These steps are critical to achieving a durable, code-compliant EIFS installation over MAXTERRA® MgO Non-Combustible Structural Wall Sheathing panels.



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www.nexgenbp.com

For Technical Support:

Email: support@nexgenbp.com
Phone: (727) 620-3334