



NEXGEN Building Products

MAXTERRA®

MgO Fire- And Water-Resistant
Backer Board

NEXGEN

www.nexgenbp.com

Tomorrow's Building Solutions, Today.

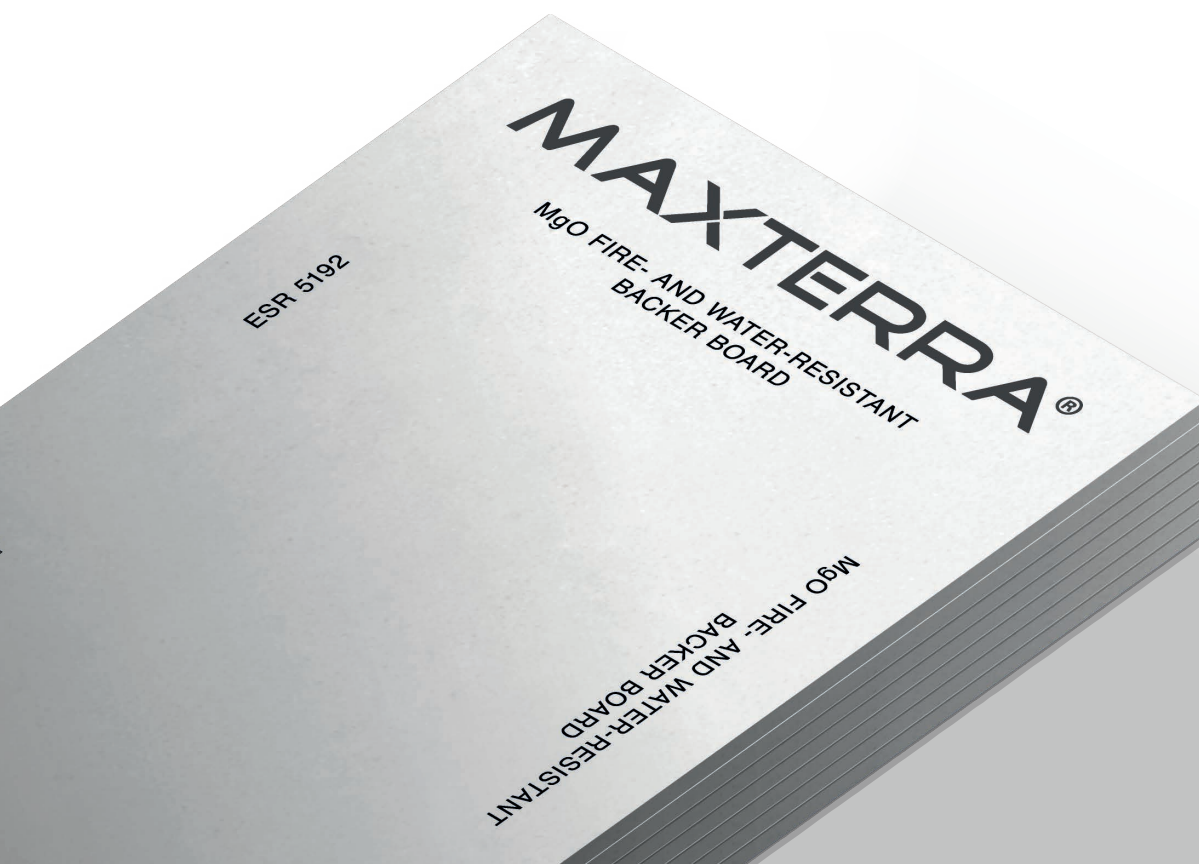
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Introduction

Welcome to **MAXTERRA® Fire- and Water-Resistant Backer Board**, our premier solution for moisture-prone areas. 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 various project conditions and emphasizes adherence to the highest standards set by NEXGEN Building Products, Inc., 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 important to follow all installation guidelines and ensure proper fastening and waterproofing techniques, especially in moisture-sensitive areas. For additional guidance, please contact NEXGEN Building Products. Invest in MAXTERRA® for quality and success—Tomorrow's Building Solutions, Today.



1. General

1.1 Description

- A. NEXGEN MAXTERRA® MgO is a best-in-class, innovative, and versatile mineral-based building material that utilizes magnesium oxysulfate (MOS) cement technology. It is a superior alternative to conventional Portland Cement based backer boards by offering unmatched fire resistance, water resistance, and mold and mildew resistance without the use of harsh chemicals.
- B. **MAXTERRA® Fire- and Water-Resistant Backer Board** high-density magnesium oxide panels can be used as a replacement for traditional Portland Cement Boards and other backer board products.
- C. NEXGEN MAXTERRA® MgO panels can be attached directly to wood or steel framing using corrosion-resistant nails or screws.
- D. Sustainability Characteristics:
 - 1. NEXGEN MAXTERRA® MgO is free from VOCs, quartz silica, and Red List chemicals.
 - 2. The formulation is sulfate-based, which distinguishes it from traditional chloride-based MgO products by addressing corrosion issues and aligning with future safety and environmental compliance standards.

1.2 Storage

- A. Store MAXTERRA® products in a cool, dry location (indoors or in a covered location when possible). Product should be stored off the ground, on a clean and level surface, horizontal and fully supported (panels should be placed on dunnage, pallets, or risers; at least 4-6 inches above ground level). Until they are ready to be used, the product should remain covered with the original plastic wrap (if the wrap is damaged, it should be resealed with a waterproof tarp or plastic sheeting), with proper ventilation provided to avoid trapping any environmental moisture. Consider additional protection during extended adverse weather conditions.
- B. Avoid keeping panels/pallets in freezing temperatures. Freezing may result in panels sticking together. If panels become frozen, allow them to thaw naturally; bring panels/pallets to a location 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;** sand may be used for ice build-up. Covering the panels/pallets with tarps or similar coverings is an effective way to prevent panels from freezing together. To remove accumulated snow, use a plastic edged shovel to prevent panel damage.
- C. See the MAXTERRA® product dimension and weights table for individual products and pallet sizes. Ensure forklifts or other equipment used to move the pallet or load are capable of lifting and moving the pallet or load safely. If it is necessary to lift pallets from the long end, make sure the forks are long enough to safely balance the weight of the lift. It is recommended to limit stacking of pallets to 2 high on job sites and not more than 12 feet high in warehouses so long as the pallets are not damaged.



- D. 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.
- E. Make sure to use two people when handling individual MAXTERRA® Fire- and Water-Resistant Backer Board panels.
- F. Hold the panels along the long length with hands spaced apart to avoid.



1.3 Project Site Conditions

- A. Environmental conditions must comply with local building codes and ANSI A108.11
- B. Product should not be installed until installation areas are enclosed and conditioned.
- C. Prior to installation, store boards for a few days in the prepared space, in order to acclimate to the environmental conditions.

1.4 Safety

- A. Follow all standard industrial safety and hygiene practices during the installation. Wear appropriate personal protective gear. Read SDS and installation information before beginning specification and installation.

1.5 Warranty

- A. Manufacturer's Warranty: Provide the manufacturer's standard limited warranty in effect at the date of purchase for a period of Ten (10) years.

2. Preparation

2.1 Floors

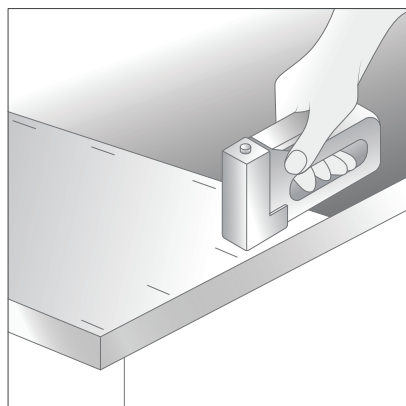
A. Panel Thicknesses: 3/8 in. (9 mm), 1/2 in. (12 mm), or 5/8 in. (16 mm):

1. The structural floor system, such as those described in ESR-5194 utilizing MAXTERRA® Non-Combustible Single-Layer Structural Floor Panels or those that utilize conventional wood structural panels must be designed and installed in accordance with the applicable codes.
2. Clear the subfloor of dust and debris. Make sure the subfloor meets the requirements of the floor covering manufacturer.
3. Make sure the subfloor is flat and level before installing panels.
4. Repair any structural buckling by adding blocking under the subfloor. Fasten the subfloor to the blocking to flatten the subfloor panels.
5. Inspect the area. Make sure all subfloor fasteners are at or below the surface, repair any large gaps or uneven surfaces with leveling compound. For large damaged areas of subfloor, remove and replace the panel section with new subflooring (ensure all edges are fully blocked and attached to structural members according to the project plans / specifications).

2.2 Countertops

A. Panel Thicknesses: 1/4 in. (6 mm), 3/8 in. (9 mm), 1/2 in. (12 mm), or 5/8 in. (16 mm):

1. Use a minimum 3/4 in. (19 mm). APA span-rated plywood or OSB with an Exposure 1 classification or better or MAXTERRA® MgO Non-Combustible Single Layer Structural Floor Panels (ICC-ES ESR-5194).



2. Cover the base with an approved waterproofing membrane, such as 4 mil polyethylene or 15-lb felt paper. Attach with 1/4 in. (6.4 mm) galvanized staples, or in accordance with the waterproofing membrane manufacturer's instructions.

2.3 Walls and Ceilings

A. Panel Thicknesses: 1/4 in. (6 mm), 3/8 in. (9 mm), 1/2 in. (12 mm), or 5/8 in. (16 mm):

	1/4 inch (6 mm)	3/8 inch (9 mm)	1/2 inch (12 mm)	5/8 inch (16 mm)
Walls	Yes	Yes	Yes	Yes
Ceilings	No	Yes	Yes	Yes

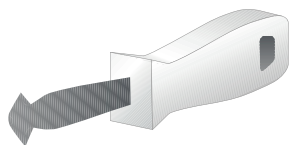
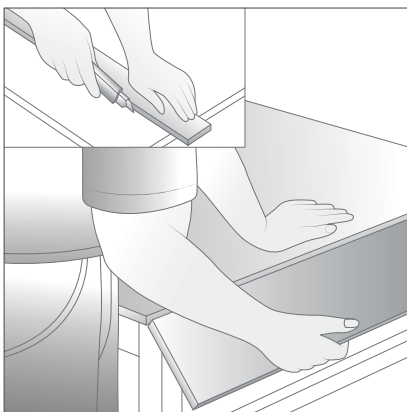
- 1. Maximum stud or joist spacing of 24 in. (610 mm) on center (o.c.).
- 2. Refer to the Fastening Schedule table to select the appropriate fasteners for the application.

2.4 Examine the Installation Site

- A. Examine the project conditions and verify that the area is ready to install the backer boards.
- 1. Make sure that the wall, ceiling, and/or subfloor is structurally sound.
 - 2. Confirm that the wall, ceiling, and/or subfloor framing quality is within tolerances.
 - 3. Make sure all surfaces are clean and level.
- B. Correct any deficiencies or conditions that would allow improper installation of the panels.
- 1. Proceed with the installation only after all conditions have been determined to meet the above conditions.

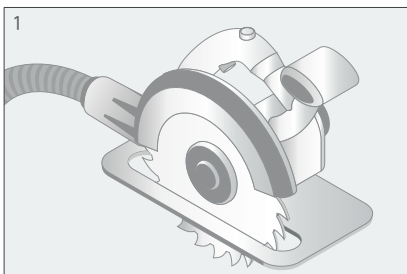
2.5 Cutting

A. Backer board panels can be cut to size with a utility knife and a straight edge.



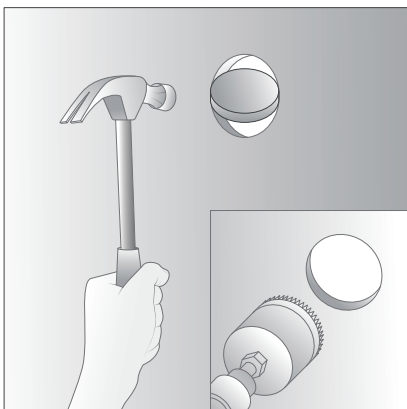
1. Line up the intended cut with the straight edge.
2. Score the panel face with a utility knife or backer board scoring knife, pressing hard enough to cut through the glass fiber reinforcing mesh.
3. Once it has been scored, snap the panel on the score line.
4. For a clean edge, line up the straight edge on the back side with the snapped panel and cut through the mesh.
5. Use a rasp to smooth out any rough spots along the edges.

B. A power saw may be used if it is equipped with a dust-collection device. Always wear a NIOSH/MSH approved mask and eye protection when cutting panels.



1. Use a low RPM portable saw equipped with a carbide tipped fiber cement blade.

C. Cutouts for pipes and fixtures:



1. Use a utility knife to cut through the mesh on both sides of the panel then use a hammer to carefully punch out the desired hole from the back side of the panel, OR
2. Use an electric drill with a hole-saw bit or jigsaw.

WARNING: If using an electric drill, wear appropriate breathing protection to avoid inhaling the panel dust. See SDS for more information.

Framing and Fastening Requirements for Wall and Ceiling Applications

Panel Thickness	Framing Type	Framing Spacing	Fastener Type	Fastener Configuration	Maximum Weight of Tile - Ceiling Applications ⁶
1/4 in (6mm)	2 x lumber ¹	16-inches O.C.	11 ga x 3/8 in. HD Roofing Nails ³ -Or- #8-18 x 3/8 in. HD ribbed wafer head screws ³ .	8" O.C. (Walls)	Not suitable
3/8 in (9mm)				6" O.C. (Ceilings)	10 psf ^{4,5}
1/2 in (12mm)					
5/8 in (16mm)					
1/4 in (6mm)	Cold-Formed Steel ²	16-inches O.C.	#8-18 x 3/8 in. HD ribbed wafer head screws ⁴ .	8" O.C. (Walls)	Not suitable
3/8 in (9mm)				6" O.C. (Ceilings)	10 psf ⁴
1/2 in (12mm)					
5/8 in (16mm)					
1/4 in (6mm)	2 x lumber ¹	24-inches O.C.	Grabber® GCB8158HL Pro-Twist® CB158	6" O.C. (Perimeter)	Not suitable
3/8 in (9mm)				x 12" O.C. (Field)	10 psf
1/2 in (12mm)					
5/8 in (16mm)					
1/4 in (6mm)	Cold-Formed Steel ²	24-inches O.C.	Grabber® GCB8158HL. Pro-Twist® CB158	6" O.C. (Perimeter)	Not suitable
3/8 in (9mm)				x 12" O.C. (Field)	10 psf ⁴
1/2 in (12mm)					
5/8 in (16mm)					

For SI:

1 inch = 25.4 mm, 1 psf = 47.88 Pa

¹ Minimum Specific Gravity of 0.42.

² Minimum 20 gauge (0.033 in.; 0.84 mm) thick ASTM A653 G60 galvanized. Minimum depth of 3-1/2 in. (89 mm) for residential applications or 3-5/8 in. (92 mm) for commercial applications.

³ Fastener must be of sufficient length to achieve minimum embedment depth in to stud of 3/4-inch (19 mm).

⁴ Fastener must be of sufficient length to achieve minimum embedment depth in to stud of 1/4-inch (6 mm).

⁵ Panels must be attached to minimum 20 gauge (0.033 in.; 0.84 mm) thick ASTM A653 G60 galvanized furring channels with # 8-18 x 3/8 in. (9.5 mm) HD ribbed wafer head screw with minimum embedment depth into furring channel of 1/4-inch (6 mm). Furring must be attached in accordance with the project plans / specifications.

⁶ Weight of panels has been considered; weight of tile / mortar is in addition to the weight of the panels.

3. Tips and Tricks

3.1 Things to keep in mind when installing MAXTERRA®

- A. **MAXTERRA® Fire- and Water-Resistant Backer Board** is used across many different wall and floor projects because it is suitable for shower, countertop, backsplash and floor installations.
- B. Backer board in both water-resistant and waterproof options with waterproof membranes makes this ideal for renovations in water prone areas.
- C. Installing cement board in a renovation requires the removal of the existing surface material before installing backer board over the studs.
- D. **MAXTERRA® Fire- and Water-Resistant Backer Board** can also be used for tile countertops. However, the process does involve using an extra sheet of backer board.
- E. Always use certified corrosion-resistant cement board screws (rated ASTM B117 Salt Spray 1000+ hours).
- F. Proper installation of **MAXTERRA® Fire- and Water-Resistant Backer Board** on floors is an important step when preparing to lay tile. It creates a smooth, solid foundation for your tile.

4. Installation for Floors and Countertops

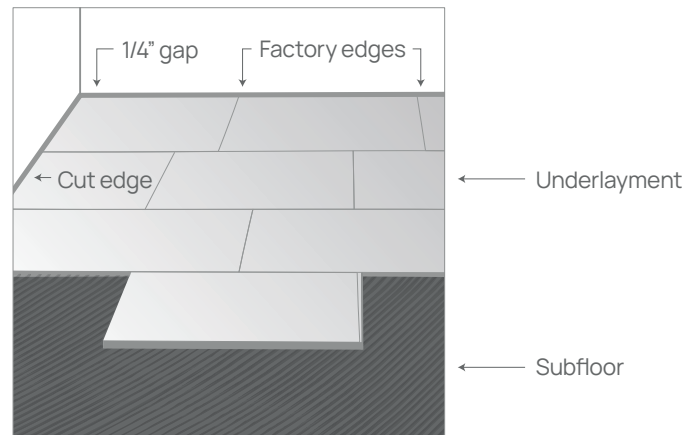
1/4 in. (6 mm), 3/8 in. (9 mm), 1/2 in. (12 mm), or 5/8 in. (16 mm)

4.1 Waterproofing

- A. An approved waterproofing membrane complying with ANSI A118.10 should be used in wet areas (such as showers) and any other locations where waterproofing is desired. Install per the manufacturer's

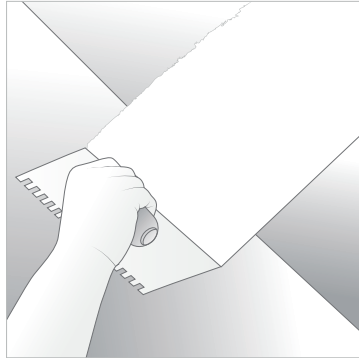
4.2 Plan the Placement

- A. Plan the placement of the MgO backer board sheets.
 - 1. Lay the sheets so the joints in the backer board do not line up with the joints in the subfloor [(off-set backer board joints from subfloor joints by a minimum of 4 inches (102 mm)]. The backer board should completely cover the subfloor joints. Stagger the board placements a bit like bricks.
- B. Do a dry run and lay out the backer board to fully cover the area you plan to tile.
- C. If needed, cut the backer board to fit in small spaces or around obstructions.
- D. Snap a grid to the subfloor or underlayment using a chalk line to mark your cement board placement.



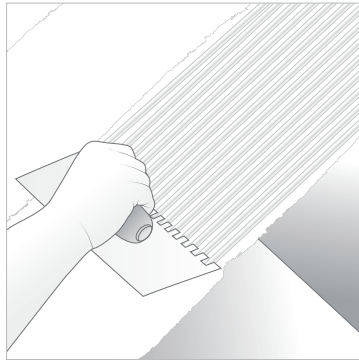
4.3 Spread Mortar

- A. Use thin-set mortar when installing cement backer board. Thin-set dries cures slowly, allowing you to fix and readjust backer board sheets as needed. Mortar must be compliant with ANSI A118.1 (dry-set) or ANSI A118.4 (latex-modified).

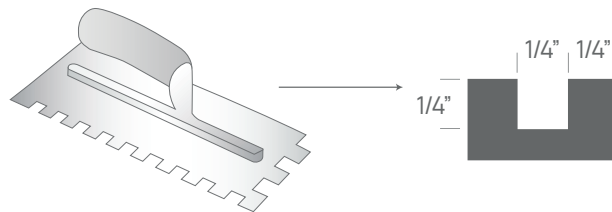


- B. With the smooth side of a 1/4-inch (6.4 mm) notched trowel, spread enough mortar for one sheet.

NOTE: Ensure that a uniform application of mortar is placed over an area large enough to fully bed the backer board and provide uniform support between the backer board and the subfloor. The mortar manufacturer's recommendations should also be followed for these steps.



- C. Ridge the mortar with the notched side of the trowel, which creates parallel lines in the thin-set. A 1/4" x 1/4" (6.4 mm x 6.4 mm) square notch trowel should be used (see image).



4.4 Lay the Backer Board

- A. While the mortar is still wet, place a sheet of backer board onto it.
- B. Repeat this process, spreading mortar and laying the backer board one sheet at a time.
- C. Leave a 1/4-inch (6.4 mm) gap between the backer board and the wall or any other vertical surfaces, such as cabinets, shower pans, or bathtubs.
- D. Leave a 1/8-inch (3.2 mm) gap between each backer board sheet. The corners and edges of the sheets should not touch one another.

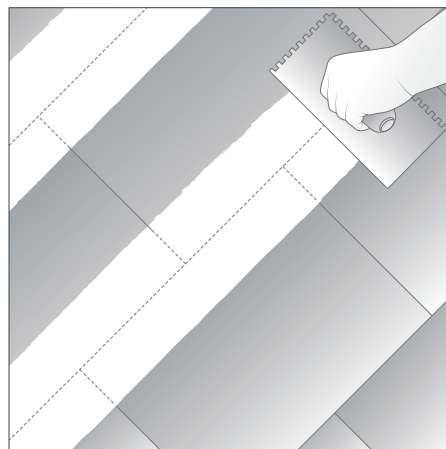
4.5 Secure the Backer Board

Caution: On countertop installations, verify that fasteners do not exceed the total thickness of the backer board and plywood base to prevent the sharp ends of the fasteners from extending through the base.

- A. The size and type of fasteners must comply with jurisdictional requirements.
 - 1. Use corrosion resistant fasteners equal to or better than Class D, ASTM A153 hot-dipped galvanized.
 - 2. 0.113-in. (2.9 mm) diameter ring shank nails or #8 wafer head screws are recommended. Fastener length of 1-1/2in. (38 mm) to 2in.(51 mm) are recommended for flooring applications.
- B. The fasteners should be attached while the mortar is still wet.
 - 1. Fasteners should be placed 8 in. (203 mm) o.c. around the perimeter and across the field of the board.
- C. Begin fastening at one end of the panel and fan out across the panel. Do not fasten all the corners first.
- D. Position the screws fasteners at least 1/2-inch (13 mm), but no more than 2 inches (51 mm), from the edge of the sheet.
- E. Drive the screws fasteners in so that the heads are slightly below the surface of the backer board sheet - DO NOT OVERDRIVE FASTENERS.

4.6 Fill the Joints with Mortar

- A. Use the flat side of a notched trowel to fill the joints between the backer board sheets.
- B. Smooth the mortar so it extends about 1-1/2 inches (38 mm) on each side of the joint. (The extra mortar will make it easier to embed the fiberglass tape.)

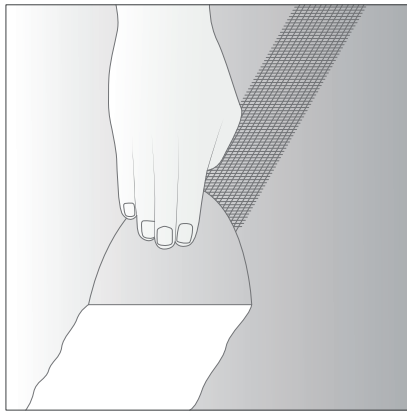


4.7 Cover Joints with Fiberglass Tape

- A. Cut the fiberglass seam tape to length with the thin side of your trowel.
- B. Use the trowel to push the tape into the joint mortar.
- C. Once the tape is embedded, scrape off any excess mortar.

4.8 Cover Fiberglass Tape with Mortar

- A. Spread a thin layer of mortar over the fiberglass tape with the flat side of the trowel or a paint scraper.
- B. Feather the edges of the mortar across each board so the surface is as smooth as possible.



4.9 Install the Flooring or Countertop

- A. Install the desired flooring or countertop per the manufacturer's recommendations.

5. Installation for Walls and Ceilings

	1/4 in (6mm)	3/8 in (9 mm)	1/2 in (12 mm)	5/8 in (16 mm)
Walls	Yes	Yes	Yes	Yes
Ceilings	No	Yes	Yes	Yes

5.1 Waterproofing

- A. An approved waterproofing membrane that complies with ANSI A118.10 should be used in wet areas (such as showers) and any other locations where waterproofing is desired. Install per the manufacturer's recommendations.

5.2 Plan the Placement

- A. Plan the placement of the cement backer board sheets.
 - 1. Lightly butt the panels to each other. Do not leave a gap or force the panels together.

5.3 Shim

- A. Place a 1/4 in. (6 mm) spacer strip or shim at the base of the wall or around the lip of the bathtub or shower pan to hold the bottom edge of the panel away from the floor or fixture.

5.4 Secure the Backer Board

- A. The size and type of fasteners must comply with jurisdictional requirements.
 - 1. Use corrosion resistant fasteners equal to or better than Class D, ASTM A153 hot-dipped galvanized.
 - 2. See Fastening Schedule table for suggested fasteners and fastener spacing.
- B. Fasten to studs. Fasteners should be placed in accordance with the fastening schedule on page 9.
- C. Begin fastening at one end of the panel and fan out across the panel. Do not fasten all the corners first.
- D. Drive the fasteners so the heads are flush or slightly below the surface of the board. Do not overdrive the fasteners.



5.5 Fill the Joints with Mortar

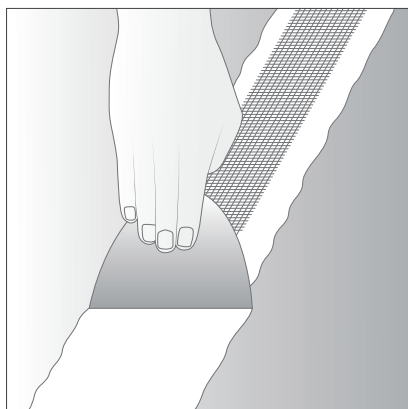
- A. Fill all joints prior to installation of tile or other finish materials. Use a method that is compatible with other compounds applied on previous / successive coats.
- B. Tape all joints before beginning the installation of tiles or other finish material. Use a 2-inch (51 mm) wide high-strength alkali-resistant, fiberglass mesh joint tape.
- C. Use the flat side of a notched trowel to fill the joints between the backer board sheets.
- D. Smooth the mortar so it extends about 1-1/2 inches (38 mm) on each side of the joint. (The extra mortar will make it easier to embed the fiberglass tape.)

5.6 Cover Joints with Fiberglass Tape

- A. Cut the fiberglass seam tape to length with the thin side of your trowel.
- B. Use the trowel to push the tape into the joint mortar.
- C. Once the tape is embedded, scrape off any excess mortar.

5.7 Cover Fiberglass Tape with Mortar

- A. Spread a thin layer of mortar over the fiberglass tape with the flat side of the trowel or a paint scraper.
- B. Feather the edges of the mortar across each board so the surface is as smooth as possible.
- C. Once the tape is embedded, scrape off any excess mortar.



5.8 Install the Wall or Ceiling Tile

- A. Install the wall or ceiling tile per the manufacturer's recommendations.

NEXGEN

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Technical Support

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NOTICE

The product must be stored and handled according to NEXGEN's instructions at all times between purchase and installation and must be installed according to NEXGEN's printed installation instructions and all applicable building codes adopted by federal, state or local governments or government agencies. NEXGEN's Limited Warranty does not cover damage, claims, or defects resulting from or in any way attributable to the improper use, storage, shipping, handling or installation of the product.

For all terms and conditions see www.nexgenbp.com/resources