

PermaBASE™ Foam Tile Backer

09 28 00 / NGC

Technical Information
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DESCRIPTION

PermaBASE™ Foam Tile Backer is an exceptionally lightweight, durable waterproof tile backer board designed for interior tile and stone applications. It is ideally suited for walls, floors, ceilings, showers, tub surrounds, backsplashes and countertops.

BASIC USES

Applications

PermaBASE Foam Tile Backer is ideally suited as a substrate for interior tile applications in wet areas where waterproofing is required or desired. It is approved for walls, floors, showers, tub surrounds, backsplashes and countertops.

Advantages

- **Waterproof:** Passes ANSI A118.10 for waterproofness.
- **Easy Installation:** PermaBASE Foam Tile Backer is easy to handle, cut and install, making your work easier and more efficient.
- **Performance:** Made from a high-density foam with specially coated facers, PermaBASE Foam Tile Backer is ultra-lightweight, yet durable enough for demanding applications.
- Complies with ASTM C1289 Type II, Class 4, Grade 1.
- Mold resistant per UL 2824 as validated by UL Environment.
- To create a waterproof system, just coat finished joints and fastener heads with liquid waterproofing.
- Achieves UL GREENGUARD Gold Certification for low chemical emissions into indoor air during product usage. For more information, visit: ul.com/gg.

INSTALLATION RECOMMENDATIONS

General: All framing should comply with local building code requirements and be designed to provide support with a maximum allowable deflection of L/360 (L/720 for stone) under all intended loads. Wall framing members shall be spaced a maximum of 16" o.c. and shall be a minimum of 2" x 4" nominal (wood) or 20 gauge (metal). For flooring applications with 16" o.c. floor joists, 5/8" tongue-and-groove exterior-grade plywood or 3/4" tongue-and-groove exterior grade OSB may be used. For 19.2" o.c. and 24" o.c. floor joists, 3/4" tongue-and-groove exterior-grade plywood or OSB must be used. Tile size for floors with 24" o.c. floor joists must be 12" x 12" or larger. The joist and subfloor assembly must meet L/360 (L/720 for stone) as well as the appropriate code tables for live and dead loads. Install tile and tile setting materials in accordance with current ANSI specifications and Tile Council of North America (TCNA) guidelines.

Control joints: Consult TCNA Handbook Installation Method EJ171. Architect, builder or design professional must specify location of all control joints. For interior installations, allow a maximum of 30 lineal feet between control joints. A control joint must be installed but not limited to the following locations: where expansion joints occur in the framing or building (discontinue all cross-furring members located behind joint); when boards abut dissimilar materials; where framing material changes; at changes of building shape or structural system; at each story separation. Place control joints at corners of window and door openings or follow specifications of architect. Control joint cavity shall not be filled with coating or other materials.

Wall framing: Edges of PermaBASE Foam Tile Backer parallel to framing should be continuously supported. Provide additional blocking when necessary to permit proper Tile Backer attachment. Do not install PermaBASE Foam Tile Backer directly over protrusions from stud plane, such as heavy brackets and fastener heads. Studs above a shower floor should either be notched or furred to accommodate the thickness of the waterproof membrane or pan. The surround opening for a tub or precast shower receptor should not be more than 1/4" longer than unit to be installed. In mortar bed (mud bed) applications, apply Foam Tile Backer with ends and edges closely butted but not forced together. Stagger ends joints in successive courses. Drive fasteners into field of board first, working toward ends and edges. Space fasteners maximum 8" o.c. for walls, with perimeter fasteners at least 1/2" and less than 3/4" from ends and edges. Ensure board is tight to framing. Install screws flush with surface, do not overdrive screws.

Floors and Counters: Subfloor or Base: For flooring applications with 16" o.c. floor joists, 5/8" tongue-and-groove exterior-grade plywood or 3/4" tongue-and-groove exterior-grade OSB may be used. For 19.2" o.c. and 24" o.c. floor joists, 3/4" tongue-and-groove exterior-grade plywood or OSB must be used. Tile size for floors with 24" o.c. floor joists must be 12" x 12" or larger. The joist and subfloor assembly must meet L/360 as well as the appropriate code tables for live and dead loads. **Underlayment:** Using a 1/4" square-notched trowel, apply a setting bed of polymer-modified mortar (or thin-set mortar) to the subfloor or counter base. Immediately laminate Foam Tile Backer to subfloor or base leaving a 1/8" space between boards at all joints and corners. Leave a 1/4" gap along walls. Stagger all joints so that they do not line up with underlying substrate joints. Fasten tile backer every 8" o.c. throughout board field and around all edges while setting bed mortar is still workable. Around perimeter of each board, locate fasteners 2" from corners and not less than 3/8" from the edges. Fill all joints solid with bonding material. On non-tapered joints such as butt ends, apply a 6" wide, 1/16" thick coat over the entire joint. For all joints, immediately embed 2" alkali-resistant fiberglass mesh tape fully into applied bonding material; ensure that tape is centered over joint. Apply bonding material over fasteners to fully conceal. Remove all excess bonding material and allow to cure.

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Job Name _____

Contractor _____ Date _____

Submittal Approvals: (Stamps or Signatures)

PermaBASE™
FOAM TILE
BACKER

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TECHNICAL DATA

Physical Properties	Foam Tile Backer
Thickness, Nominal	1/2" (12.7 mm)
Weight, Nominal	.40 lbs./sq. ft. (1.69 k/m ²)
Edges	Square
Compressive Strength ¹	Grade 1
Thermal Resistance ²	R = 2.5
Permeance ³	< 1.5 perm
Water Absorption ⁴ (% of Weight)	< 3.0%
Mold Resistance ⁵ (UL 2824)	Yes
Product Standard Compliance	ASTM C1289
Fire-Resistance Characteristics	
Surface Burning Characteristics ⁶	Class A
Flame Spread ⁶	40
Smoke Development ⁶	<450
Applicable Standards and References	
ANSI A118.9 <i>Test Methods and Specification for Cementitious Backer Units</i>	
ASTM C209 <i>Standard Test Methods for Cellulosic Fiber Insulating Board</i>	
ASTM C518 <i>Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus</i>	
ASTM C1289 <i>Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board</i>	
ASTM D1621 <i>Standard Test Method for Compressive Properties of Rigid Cellular Plastics</i>	
ASTM D2126 <i>Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging</i>	
ASTM E84 <i>Standard Test Method for Surface Burning Characteristics of Building Materials</i>	
ASTM E96 <i>Standard Test Methods for Water Vapor Transmission of Materials</i>	
PermaBASE Building Products, LLC Manufacturer Standards, <i>NGC Construction Guide</i>	

1. Tested in accordance with ASTM D1621.
2. Tested in accordance with ASTM C518.
3. Tested in accordance with ASTM E96.
4. Tested in accordance with ASTM C209.
5. Tested in accordance with UL 2824.
6. Tested in accordance with ASTM E84.

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Ceiling Installation: The deflection of the complete ceiling assembly due to dead load (including insulation, PermaBASE, bonding material and facing material) should not exceed L/360. The dead load applied to the ceiling frame should not exceed 7.5 pounds per square foot. Ceiling joist or furring channel should not exceed 16" o.c. (Edges of foam tile backer parallel to framing should be continuously supported.) Provide additional blocking when necessary to permit proper PermaBASE attachment.

Apply Foam Tile Backer with ends and edges closely butted but not forced together. Stagger end joints in successive courses. For ceiling applications, an approved metal foam board washer is required to be used with the screws to attach Foam Tile Backer. Drive approved fasteners/washers into field of the board first, working toward ends and edges. Space fasteners maximum 6" o.c. with perimeter fasteners at least 3/8" and less than 5/8" from ends and edges. Ensure Foam Tile Backer is tight to framing.

PermaBASE Foam Tile Backer: Cut PermaBASE Foam Tile Backer using a utility knife to score/cut through the entire board. Apply PermaBASE with ends and edges closely butted but not forced together. Stagger end joints in successive courses. Drive fasteners into field of board first, working toward ends and edges. Space fasteners maximum 8" o.c. for walls, with perimeter fasteners at least 1/2" and less than 3/4" from ends and edges. Ensure Foam Tile Backer is tight to framing. Install screws flush with surface, do not overdrive screws.

Joint Reinforcement: Trowel bonding material to completely fill the board joints and gaps between each panel. Apply a 6" wide, approx. 1/16" thick coat of bonding material over entire joint. For all joints, immediately embed 2" alkali-resistant fiberglass mesh tape fully into applied bonding material and allow it to cure. For outside corners, 4" wide alkali-resistant mesh tape is recommended. Same bonding material should be applied to corners, control joints, trims and other accessories. Feather bonding material over fasteners to fully conceal. Bonding material to be modified dry set mortar compliant with ANSI A118.4 standards. In wet-area installations, apply approved fluid applied waterproofing per manufacturer's recommendations over joints and fastener heads.

Alternate Sealant/Waterproofing Application: Apply continuous bead of approved sealant to the bottom edge of PermaBASE Foam Tile Backer. Install board and ensure that when it is butted at the base, the sealant squeezes out. There must be at least 1/8" gap between PermaBASE Foam Tile Backer and base that is completely filled with sealant. Sealant must extend onto PermaBASE Foam Tile Backer surface a minimum of 1" beyond joint on either side. Fasten PermaBASE Foam Tile Backer to the studs with approved cement board fasteners flush to the surface of the board at a maximum spacing of 6" and within 1/2"–1" of the perimeter edges.

Apply a continuous bead of sealant to the top edge so that when PermaBASE Foam Tile Backer is butted the sealant squeezes out. Ensure a tight seal at the joint. Fasten Tile Backer to the studs and spread any excess sealant with a putty knife across both sides of joint. Sealant must cover joints to at least 1" beyond either side of the joint.

Once all boards have been installed following this procedure, seal all fasteners with approximately a 2" diameter coating of sealant. Seal all corner joints. All joints should be completely filled with sealant and sealant spread minimum 1" beyond either side of joint.

Mortar and Tile Installation

For best performance, apply thin layer of modified thin-set mortar to Foam Tile Backer with a flat-edged trowel. Press the trowel firmly into and across the surface to ensure mortar is working into the surface and bonding to the substrate. Follow up with an additional coat of modified thin-set mortar applied with a notched trowel per mortar manufacturer's recommendations. Set tile in accordance with tile and mortar manufacturer's recommendations.

Handling and Project Conditions

- Avoid water exposure during shipping, handling, storage, installation and after installation of boards to avoid the formation of mold or mildew.
- Store boards off the ground and under cover. Store boards flat. Use sufficient supports extending under the entire length of boards to prevent sagging.
- Keep boards dry to minimize the potential for mold growth. Take adequate care while transporting, storing, applying and maintaining Foam Tile Backer.
- Do not apply boards with visible signs of moisture damage or mold growth. Do not apply boards over other building materials where conditions exist that are favorable to mold growth.

Maintenance Following Application

- Maintain essential elements of sound weather-tight building envelope, including roofing, joint sealants, windows and flashings.
- Take immediate and appropriate remediation measures as soon as water leaks or condensation sources are identified.
- Perform routine cleaning and maintenance operations using methods that prevent moisture saturation of tile backer.
- Maintain final wall finishes to protect the board as well as support the structure.

LIMITATIONS

Interior

- Treat joints with alkali-resistant fiberglass mesh tape set in a modified mortar.
- Do not use conventional paper gypsum board tape, joint compound and gypsum board nails or screws.
- Do not exceed 16" (406 mm) o.c. as maximum wall framing spacing. Must be designed to limit deflection to L/360 under all live and dead loads.
- Steel framing must be minimum 20-gauge (galvanized) (.0312" design thickness) or heavier.

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SIZES AND PACKAGING

Thickness, Width and Length	# of Pcs. per Unit
1/2" x 48" x 5' (12.7 mm x 1,219 mm x 1,524 mm)	60
1/2" x 48" x 8' (12.7 mm x 1,219 mm x 2,438 mm)	60

FOR MORE INFORMATION

Architectural Specifications

PermaBASE Building Products CSI MasterFormat® 3-part guide specifications are downloadable as editable Microsoft® Word documents at: permabase.com.

Latest Technical Information and Update

Visit permabase.com or call National Gypsum Company Construction Services: 1-800-NATIONAL (628-4662).

Technical Information Información Técnica

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