

PERMABASE® BRAND CEMENT BOARD

MANUFACTURER

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DESCRIPTION

PermaBase® BRAND Cement Board is a rigid substrate made of Portland cement, aggregate and glass mesh that provides an exceptionally hard, durable surface that is able to withstand prolonged exposure to moisture.

BASIC USES

PermaBase is ideally suited as an underlayment or backing surface for tub and shower surrounds, countertops, flooring and a variety of other interior and exterior applications.

ADVANTAGES

- Long wrapped tapered edges are formed smooth and shatter-proof using the double-wrapped EdgeTech® technology.
- Highly moisture resistant, will not rot, disintegrate or swell when exposed to water.
- Can be used in both interior and exterior applications.
- Impact resistant with excellent overall flexural, compressive and tensile strength characteristics.
- Cut to size using a utility knife and straight edge.

LIMITATIONS

- Joints should be treated with alkali resistant fiberglass mesh tape set in a latex-Portland cement mortar.
- Conventional paper drywall tape, joint compound and drywall nails or screws should not be used.

- Maximum wall framing spacing should not exceed 16" o.c. and must be designed to limit deflection to L/360 under all live and dead loads.
 - Steel framing must be 20 ga. (galvanized) or heavier—16" o.c.
 - 1/4" PermaBase should not be used on walls or ceilings.
 - PermaBase Cement Board is not a water barrier. Consult local building code for moisture barrier requirements.
 - Not recommended for use with vinyl flooring.
 - For exterior and interior finishes applied direct to PermaBase, reinforcing mesh must be embedded in basecoat. Consult finish manufacturer for additional requirements.
 - PermaBase Cement Board should not be exposed to temperatures over 220°F (105°C).
- Bonding materials:* Treat joint and set facing material preferably with latex-Portland cement mortar or with dry-set (thin-set) mortar. All mortars should comply with ANSI A118.1 or A118.4 standards. Type I organic adhesive meeting ANSI A-136.1 may be utilized for interior use only.
- Fasteners:* Galvanized roofing nails, 1-1/2" long with hot dipped galvanized coating, for use with wood framing. Nails should meet Federal Specification #FF-N105B/type 2 style 20.
- PermaBase corrosion resistant screws or equivalent, 1-1/4" or 1-5/8" long, for use with wood framing. Type S-12 screws or equivalent, 1-1/4" or 1-5/8" long, for use with 20 ga. or heavier steel framing.

COMPOSITION

Cementitious Backer Unit (CBU): PermaBase Cement Board is a nailable, screwable backer-board or underlayment panel which is composed of Portland cement, aggregates and reinforcements that has a significant ability to remain unaffected by prolonged exposure to moisture. PermaBase complies with ASTM C 1325 and ANSI A118.9.

SIZES

Thickness: 1/4" (6.3 mm)
(counters/floors only)
1/2" (12.7 mm)
5/8" (15.9 mm)
* 1" (25.4 mm)
* 3/4" (19.1 mm)
* 3/8" (9.7 mm)

Widths: 32" (813 mm)
36" (914 mm)
48" (1219 mm)

Lengths: 48" (1219 mm)
60" (1524 mm)
72" (1829 mm)
96" (2438 mm)

Note: Custom thicknesses and lengths available with minimum quantity.

*Special order sizes

APPLICABLE STANDARDS

Exceeds ASTM C 1325 and ANSI A118.9 specifications.

(Continued next page)

Job Name _____

Contractor _____ Date _____

Submittal Approvals: (Stamps or Signatures)

TECHNICAL DATA

FIRE RESISTANCE RATINGS

One-hour rating: The one-hour wall assembly consists of 3-5/8" steel studs, 16" o.c., one layer of 1/2" PermaBase attached horizontally or vertically with 1-1/4" long cement board screws, 8" o.c. in the field and perimeter on one side and one layer of 5/8" Fire-Shield® BRAND Gypsum Board attached vertically, on opposite side, with joints staggered to those of opposite side, with 1-1/4" long drywall screws 8" o.c. in the field and perimeter side, with 3" thick mineral fiber insulation batts in the stud cavities. UL #V452 and ITS/WHI Report No. J99-4001.

Two-hour fire rating: The two-hour wall assembly consists of 3-5/8" steel studs 16" o.c., on one side, base layer of 1/2" Fire-Shield C Gypsum Board attached vertically with 1" drywall screws 24" o.c. in the field and perimeter and face layer of 1/2" PermaBase attached vertically with 1-5/8" cement board screws, 8" o.c. in the field and perimeter.

Two layers of 1/2" Fire-Shield C Gypsum Board applied vertically to opposite side, base layer attached with 1" drywall screws 24" o.c. in the field and perimeter and face layer attached with 1-5/8" drywall screws 12" o.c. in the field and perimeter, with 3" thick mineral fiber insulation batts in the stud cavities. All joints staggered between face and base layer. UL #V452 and ITS/WHI Report No. J98-32931.

(Tests were conducted pursuant to ASTM E 119, as a non load-bearing wall, fire rated both sides under the supervision of Underwriters Laboratories and Intertek Testing Services NA, Inc., respectively.)

Additional Assemblies are available.

RECOMMENDATIONS

INTERIOR APPLICATIONS

General: All framing should comply with local building code requirements and be designed to provide support with a maximum allowable deflection of L/360 under all intended loads. Framing

members should be spaced a maximum of 16" o.c.

Note: Cut or score PermaBase on rough side of panel. Install tile and tile setting materials in accordance with current ANSI specifications and Tile Council of America (TCA) guidelines.

Tile, thin brick and other facing materials: Installation of tile or similar facing materials should comply with ANSI A108 standard specifications.

Control joints: For interior installations, allow a maximum of 30 lineal feet between control joints. A control joint must be installed but is 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.

WALLS & CEILINGS

Wall framing: Edges of PermaBase parallel to framing should be continuously supported. Provide additional blocking when necessary to permit proper PermaBase attachment.

Do not install PermaBase directly over protrusions from stud plane such as heavy brackets or fastener heads. Studs above a shower floor should be either 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" larger than unit to be installed.

Ceiling framing: 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 10 psf. Ceiling joist or furring channel should not exceed 16" o.c. (Edges of PermaBase parallel to framing should be continuously supported.) Provide additional blocking when necessary to permit proper PermaBase attachment.

PermaBase Cement Board: Apply PermaBase with ends and edges closely butted but not forced together. Stagger end joints in successive courses. Drive fasteners into field of cement board first, working toward ends and edges. Space fasteners maximum 8" o.c. for walls, 6" o.c. for ceilings with perimeter fasteners at least 3/8" and less than 5/8" from ends and edges. Ensure PermaBase is tight to framing.

Joint reinforcement: Trowel bonding material to completely fill the tapered recessed board joints and gaps between each panel. On non-tapered joints apply a 6" wide, approx. 1/16" thick, coat of bonding material over entire joint. Immediately embed 2" alkali-resistant fiberglass mesh tape fully into applied bonding material and allow to cure. Same bonding material should be applied to corners, control joints, trims or other accessories. Feather bonding material over fasteners to fully conceal.

PHYSICAL PROPERTIES

Property	Test Method	PermaBase	1/4" PermaBase
Water Absorption % by weight /24 hrs.	ASTM C 473	< 8	< 8
Flexural Strength (psi)	ASTM C 947	750	1250
Fastener Holding (Wet and Dry, lbs.)	ASTM D 1037 (0.400" head diameter)	125	125
Weight (psf)	ASTM C 473	3	2
Freeze/Thaw (cycles) per ASTM C 1325	ASTM C 666 Procedure A	50	50
Compressive Strength (psi) (Indentation)	ASTM D 2394	2250	2250
Flame Spread/Smoke Developed	ASTM E 84	0/0	0/0
Wind Load (psf, studs 16" o.c.)	ASTM E 330	40	-
Thermal "R"/k Value	Property of Material	0.2/2.7	0.1/2.7
Bending Radius (ft.)	Property of Material	5	-
Standard Method for evaluating ceramic floor installation system	ASTM C 627	Light Commercial	Light Commercial
Falling Ball Impact (12" drop)	ASTM D 1037	pass	pass
Shear Bond Strength, 7 days (psi)	Dry-Set Portland Cement Mortar	204	-
	Latex-Portland Cement Mortar	241	-
	Organic Adhesives Type 1	159	-
Linear Variation (Due to change in moisture content)	ASTM D 1037	0.05%	-
Mold Growth on Surface	ASTM D 3273	0 (No growth)	0 (No growth)
Fungus Resistance	ASTM G 21	0 (No growth)	0 (No growth)

FLOORS & COUNTERS

Subfloor or base: 5/8" (3/4" for 1/4" PermaBase) exterior grade plywood should be securely glued and fastened to floor joists or on counter base. Floor joists and counter framing should be spaced a maximum of 16" o.c.

Note: Floor trusses or I-joists may be spaced 19.2" o.c. with 3/4" tongue-and-groove subfloor decking.

Underlayment: Using a 1/4" square-notched trowel, apply a setting bed of Latex-Portland Cement mortar or Thin-Set to the subfloor or counter base. Immediately laminate PermaBase to subfloor or base leaving a 1/8" space between boards at all joints and corners. Leave a 1/4" gap along walls. Stagger joints so they do not line up with underlying substrate joints. Fasten PermaBase 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 the 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. Embed 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.

EXTERIOR APPLICATIONS

General: All framing should comply with local building code requirements and be designed to provide support with a maximum allowable deflection of L/360 under all intended live (including wind) and dead loads.

Note: Cut or score PermaBase on rough side of panel. Install tile and tile setting materials in accordance with current ANSI specifications and Tile Council of America (TCA) guidelines.

Control joints: For exterior installations, allow a maximum of 15 lineal feet between control joints. A control joint must be installed but is 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 any coating or other materials.

DECKS

Subfloor: Plywood should be securely glued and fastened to floor joists spaced a maximum of 16" o.c. Subfloor should be sloped at a minimum pitch of 1/4" per foot. The floor surface should be true to plane within 1/8" in 10'.

Underlayment: Using a 1/4" square-notched trowel, apply a setting bed of Latex-Portland Cement mortar to the subfloor. Immediately laminate PermaBase to subfloor leaving a 1/8" space between boards at all joints and corners. Leave a 1/4" gap along walls. Stagger joints so they do not line up with underlying substrate joints. Fasten PermaBase 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 the 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. Embed 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.

Waterproof membrane: Trowel apply waterproof membrane to the entire surface of the PermaBase, following membrane manufacturer's installation instructions in detail.

WALLS & CEILINGS

Wall framing: Studs should be spaced a maximum of 16" o.c. Edges/ends of PermaBase parallel to framing should be continuously supported.

Provide additional blocking when necessary to permit proper PermaBase attachment. Do not install PermaBase directly over protrusions from stud plane such as heavy brackets or fastener heads.

Weather barrier: While PermaBase is unaffected by moisture, a water barrier must be installed to protect the cavity. It should be installed according to the manufacturer's specifications between the PermaBase and the framing members.

Ceiling framing: 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 10 psf. Ceiling joist or furring channel should not exceed 16" o.c. Edges of PermaBase parallel to framing should be continuously supported. Provide additional blocking when necessary to permit proper PermaBase attachment.

PermaBase Cement Board: Apply PermaBase with ends and edges closely butted but not forced together. Stagger end joints in successive courses. Drive fasteners into field of cement board first, working toward ends and edges. Space fasteners maximum 8" o.c. for walls, 6" o.c. for ceilings with perimeter fasteners at least 3/8" and less than 5/8" from ends and edges. Ensure PermaBase is tight to framing.

Joint reinforcement: Trowel bonding material to completely fill the tapered recessed board joints and gaps between each panel. On non-tapered joints apply a 6" wide, approx. 1/16" thick coat of bonding material over entire joint. Immediately embed minimum 3" alkali-resistant fiberglass mesh tape fully into applied bonding material and allow to cure. Same bonding material should be applied to corners, control joints, trims or other accessories. Feather bonding material over fasteners to fully conceal.

National 
Gypsum®

Excellence Across The Board 