Force Engineering & Testing, Inc.
19530 Ramblewood Drive
Humble, Texas 77338
Phone: (281) 540-6603
Fax: (281) 540-9966
www.forceengineeringtesting.com

Project Number : 524-0208T-13

Test Report Date : October 3, 2013

Test Material Austin Profit Ledge Stone Veneer Wall Assembly

Test Protocol : E 330-02
STANDARD TEST METHOD FOR THE STRUCTURAL PERFORMANCE OF EXTERIOR WINDOWS, CURTAIN WALLS, AND DOORS BY UNIFORM STATIC AIR PRESSURE DIFFERENCE.

Test Location : Force Engineering & Testing, Inc.
19530 Ramblewood
Humble, TX 77338

Report by:

Brandon Jasek, P.E.
Lab Manager

Reviewed by:

Terrence E. Wolfe, P.E.
Director of Operations

ACCREDITED LABORATORY TL-417

ACCREDITED LABORATORY

TEXAS DEPARTMENT OF INSURANCE ACCREDITED LABORATORY

Project Number: 524-0208T-13

PURPOSE:

This test method covers the evaluation of the structural performance of the stone veneer wall assembly under uniform static air pressure difference using a test chamber.

TEST DATES:

September 20, 2013

TEST SPECIMEN:

Stone Manu: Colorstone Manufacturing
9709 Clay Road
Houston, TX 77080

Stone Installer: Laticrete International, Inc.
1 Laticrete Park North
Bethany, CT 06524

Wall System: 4'x8' Test Specimen (Interior to Exterior)

- 2"x4" SYP #2 Wood Studs at 16" O.C.
- ½" Cement Board by PermaBase Sheathing attached to wood framing with #9-15 x 1 5/8" Rock-on Cement Board fastener by Buildex at 6" O.C.
- (2) Coats of Laticrete Air & Water Barrier, applied to Cement Board with roller.
- Mortar: Laticrete "Thin Brick Mortar," mixed with water per manufacture instructions. Apply mortar to back of stone approximate 1/4"-3/8" thick. The stone was then placed on the wall. No joints.
- Stone Veneer: Austin Profit Ledge Stone manufactured stone by Colorstone MFG, Austin color, 2 ¼"-4 ½" tall, 7"-14" long, 1"-1 ½" thick.

Cure Time: The wall cured for 28 days before testing.

Project Number: 524-0208T-13

RESULTS/CONCLUSIONS:

The Test Assembly successfully passed a design pressure of +65.0 psf / - 75.0 psf with no failures. A safety factor of 2.0 was used for the test pressure.

Test Deflections:
Test Pressure (Design Pressure) = +65.0 psf
Deflection = 0.2500"
Permanent Set = 0.0156"

Test Pressure (2 x Design Pressure) = +130.0 psf
Deflection = 0.7500"
Permanent Set = 0.0625"

Test Pressure (Design Pressure) = -75.0 psf
Deflection = 0.5938"
Permanent Set = 0.0000"

Test Pressure (2 x Design Pressure) = -150.0 psf
Deflection = 1.2813"
Permanent Set = 0.0469"

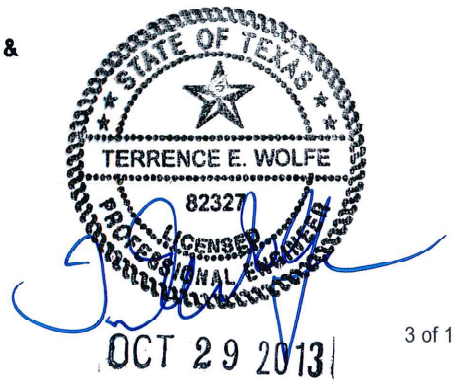
Deflection was taken at the center of the test specimen.

Note: During this test, tape and plastic were used to seal against air leakage. The tape and plastic had no restrictive influence on the test.

STATEMENT OF INDEPENDENCE:
Force Engineering & Testing, Inc. or any persons employed by them do not have any financial interest in Colorstone Manufacturing or Laticrete International, Inc.

Force Engineering & Testing, Inc. is not owned, operated or controlled by Colorstone Manufacturing or Laticrete International, Inc.

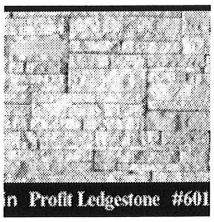
Force Engineering &
Testing, Inc.
State of Texas
Reg. # F-4611



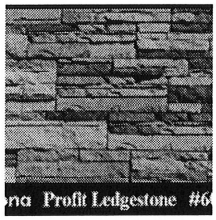
Appendix

Profit Ledge Stone

Pro-Fit ledge stone is a branded product. The stone it is layered close together to create a unique style and has a particular look and features a patented interlocking joints for secure adhesion without the need for grouted joints. Our cast panels have low-relief stones compressed together creating a more uniform effect than its counterparts (ledge stone and country ledge stone). Our cast Pro-fit stone panels are ideal to use for outdoor siding, indoor kitchens and fireplaces and many different ideas. Choose from six available colors to create a stunning effect for your home interior or outside space.



Austin #601



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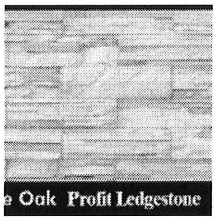
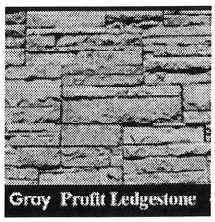
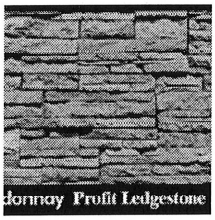


White Oak #603



Earth Gray #604



Chardonay #605

Virginia #606

TESTED STONE

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The wide variety of colors and sizes at Color Stone allowed me to find a perfect selection for the house I was building....

John Anderson

View More >>

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Houston, Texas
77080

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Local:
713-690-3100

All major credit cards accepted

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Thin Brick Mortar

DS-248.0-0412

1. PRODUCT NAME

LATICRETE® Thin Brick Mortar

2. MANUFACTURER

LATICRETE International, Inc.
1 LATICRETE Park North
Bethany, CT 06524-3423 USA

Telephone: +1.203.393.0010, ext. 235
Toll Free: 1.800.243.4788, ext. 235
Fax: +1.203.393.1684
Internet: **www.laticrete.com**

3. PRODUCT DESCRIPTION

LATICRETE Thin Brick Mortar is a multi-use, polymer fortified adhesive mortar built on the LATICRETE Water Dispersion Technology (WDT) platform. WDT provides for the complete dispersion of water within the mix allowing users to achieve the desired application consistency. LATICRETE Thin Brick Mortar offers tremendous utility including non-sag wall installations, medium bed build up of up to 3/4" (19 mm) and thin-set applications on floors. In addition, LATICRETE Thin Brick Mortar is manufactured using LATICRETE
DUST LOCK™ Technology. This unique way of manufacturing our adhesives incorporated with LATICRETE plastic packaging dramatically reduces mess both during transportation of the product as well as during mixing.

Uses

- For wall installations of interior and exterior thin brick, masonry veneer, stone, and tile
- Can be used as a medium bed mortar for flooring installations
- Ideal for most types of thin-set flooring applications

Advantages

- Incredible non-sag performance, including large and/or heavy thin brick, stone, masonry veneer, or tile
- Excellent medium bed performance, 3/4" (19 mm) thick without shrinkage
- Utilizes Water Dispersion Technology allowing for different mortar consistencies
- LATICRETE DUST LOCK Technology dramatically reduces mess both during transportation of the product as well as during mixing
- Smooth and creamy consistency
- "Extra Heavy" rating per ASTM C627 (TCNA)
- Exceeds ANSI A118.4 & 118.11 Shear Bond Strength Requirements
- Bonds to many suitable substrates

Suitable Substrates

- Cement mortar (Scratch & brown coat)
- Masonry and brick
- Exterior glue plywood*
- Concrete
- Concrete block
- Cement backer board**
- Existing ceramic tile and stone

* Interior use only.
**Consult cement backer board manufacturer for specific installation recommendations and to verify acceptability for exterior use.

Packaging

50 lb (22.7 kg) bag

Colors: Grey

Approximate Coverage

50 lb (22.7 kg) bag

Trowel Size	ft^2	m^2
1/4" x 3/8" (6 mm x 9 mm) notched trowel	60 – 70	5.6 – 6.5
1/2" x 1/2" (12 mm x 12 mm) notched trowel	40 – 47	3.7 – 4.4
Adhered Masonry Veneer Application Method	30 – 35	2.8 – 3.2

Shelf Life

Factory sealed containers of this product are guaranteed to be of first quality for one (1) year* if stored off the ground in a dry area.
* High humidity will reduce the shelf life of bagged product.

Limitations

- Mastics, adhesive mortars and pointing mortars for thin brick, masonry veneer, stone, ceramic tile and pavers, are not replacements for waterproofing membranes or air and water barriers. When a waterproofing membrane or air and water barriers is required, use LATICRETE® Air & Water Barrier (see Section 10 FILING SYSTEM).
- For veneer installations using this product, consult local building code requirements regarding limitations and installation system specifications.
- Not for use directly over OSB, particle board, luan, Masonite® or hardwood floors.
- Not for use over VAT, VCT, cutback adhesive, vinyl and plastic laminates.
- Not for use in submerged applications. For these applications, use LATICRETE Hi-Bond Masonry Veneer Mortar
- Use LATAPOXY® 300 Adhesive for installing green marble, resin backed on water sensitive tile, stone and agglomerates (refer to DS 633.0 for more information)
- **Note:** Surfaces must be structurally sound, stable and rigid enough to support ceramic/stone tile, thin brick and similar finishes. Substrate deflection under all live, dead and impact loads, including concentrated loads, must not exceed L/360 for thin bed ceramic tile/brick installations or L/480 for thin bed stone installations where L=span length. For exterior vertical installations over steel or wood framed construction, the substrate deflection under all live, dead and impact loads, including concentrated loads, must not exceed L/600 where L=span length (except where local building codes specify more stringent deflection requirements).

Cautions

Consult MSDS for more safety information.

- Some marbles and other stones have low flexural strength and might not be suitable for installation over wood floors.
- During cold weather, protect finished work from traffic until fully cured.
- Contains portland cement and silica sand. May irritate eyes and skin. Avoid contact with eyes or prolonged contact with skin. In case of contact, flush thoroughly with water.
- DO NOT take internally. Silica sand may cause cancer or serious lung problems. Avoid breathing dust. Wear a respirator in dusty areas.
- For white and light–colored stones, conduct test area to ensure no shadowing or staining is observed.
- Keep out of reach of children.

4. TECHNICAL DATA

Applicable Standard

ASTM C270, ANSI A118.4, ANSI A118.11

Physical Properties

Mixed with 5.25 qts of [5 l]

Test	Test Method	Results
Shear Bond, Vitreous Tile, 28 day	ANSI 5.2.4	300–350 psi (2.1–2.4 MPa)
Shear Bond, Quarry Tile/Plywood, 28 day	ANSI A118.11 4.1.1.2	160–180 psi (1.0–1.1 MPa)
Sag on Wall	ISO 13007-2	0 mm
28 day cure compressive strength	ASTM C109	>2000 psi (13.8 MPa)

Working Properties

Pot Life	4 hours
Time To Traffic	24 hours

Specifications subject to change without notification. Results shown are typical but reflect test procedures used. Actual field performance will depend on installation methods and site conditions.

5. INSTALLATION

Surface Preparation

All surfaces should be between 40°F (4°C) and 90°F (32°C) and structurally sound, clean and free of all dirt, oil, grease, paint, concrete sealers or curing compounds. Rough or uneven concrete surfaces should be made smooth with a LATICRETE® Premium Mortar Bed. Dry, dusty concrete slabs or masonry should be dampened and excess water swept off. Installation may be made on a damp surface. New concrete slabs shall be damp cured and 28 days old before application. All slabs must be plumb and true to within 1/4" (6 mm) in 10 ft (3 m). Expansion joints shall be provided through the masonry from all construction or expansion joints in the substrate. Follow ANSI specification A108.01–3.7 "Requirements For Movement Joints: Preparations by Other Trades" or TCNA detail EJ-171 "Movement Joints—Vertical & Horizontal". Do not cover expansion joints with mortar.

1. Installer must verify that deflection under all live, dead and impact loads of interior plywood floors does not exceed industry standards of L/360 for ceramic tile and brick or L/480 for stone installations where L=span length. For exterior vertical installations over steel or wood framed construction, the substrate deflection under all live, dead and impact loads, including concentrated loads, must not exceed L/600 where L=span length.

2. Minimum construction for interior plywood floors.
   SUBFLOOR: 5/8" (15 mm) thick exterior glue plywood, either plain with all sheet edges blocked or tongue and groove, over bridged joints spaced 16" (400 mm) o.c. maximum; fasten plywood 6" (150 mm) o.c. along sheet ends and 8" (200 mm) o.c. along intermediate supports with 8d ring-shank, coated or hot dip galvanized nails (or screws); allow 1/8" (3 mm) between sheet ends and 1/4" (6 mm) between sheet edges at the perimeter; all sheet ends must be supported by a framing member; glue sheets to joints with construction adhesive.

UNDERLAYMENT: 5/8" (15 mm) thick exterior glue plywood fastened 6" (150 mm) o.c. along sheet ends and 8" (200 mm) o.c. in the panel field (both directions) with 8d ring shank, coated or hot dip galvanized nails (or screws); allow 1/8" (3 mm) to 1/4" (6 mm) between sheets and 1/4" (6 mm) between sheet edges and any abutting surfaces; offset underlayment joints from joints in subfloor and stagger joints between sheet ends; glue underlayment to subfloor with construction adhesive. Refer to Technical Data Sheet 152 "Bonding Ceramic Tile, Stone or Brick Over Wood Floors".

Mixing—50 lb (22.7 kg) bag

For Walls and Medium Bed Applications

Place 5.25 qts (5 ℓ) of clean water in a pail and slowly add the entire bag of LATICRETE® Thin Brick Mortar. Mix with slow speed mixer for one minute, a noticeable change will occur when the mix transforms from what appears to be dry consistency to a usable consistency. DO NOT temper with water. Allow to slake for 5 minutes, remix and use. Job site conditions might vary. Add slightly more water within five (5) minutes of completing second mix only to achieve the desired consistency (if necessary). Prior to the water dispersing action taking affect for wall and medium bed applications, mix may seem dry. Dependent upon the strength of the power mixer being utilized, it may be necessary to mix only 1/2 of a bag (25 lbs / 11.4 kg) at one time.

For Thin Bed Applications

Place 6 qts (5.7 ℓ) of clean water in a pail and slowly add the entire bag of LATICRETE Thin Brick Mortar. Mix with slow speed mixer for one minute or until a creamy smooth consistency is reached. Allow to slake for 5 minutes, remix and use.

Application

Walls

See applicable LATICRETE details in LATICRETE Masonry Veneer Installation System Brochure (DS 002.8).

Note: If installing on sheathed wood or steel frame construction with wire lath, use LATICRETE Premium Mortar Bed for the wall render prior to installing applicable waterproofing membrane or LATICRETE Thin Brick Mortar.

If waterproofing is required, install LATICRETE Air & Water Barrier per instructions (see Data sheet DS 663.0 and DS 663.5) to the substrate prior to installation of LATICRETE Thin Brick Mortar.

For adhered stone, thin brick and manufactured stone masonry veneers installations, use a gauging trowel to key a thin coat of LATICRETE Thin Brick Mortar to cover entire back of the veneer unit. Spread additional mortar onto the back of the skim coated veneer unit sufficient to completely fill the space between the veneer and the substrate when compressed against the substrate. Press the mortar covered back of the veneer against the substrate at the desired final position. Slide the unit roughly 1" (25 mm) diagonally from the desired final position and back into the desired position while maintaining even pressure. This should be done in such a manner as to squeeze the mortar to fill the entire space between the veneer and the substrate, allowing excess mortar to extrude on all sides around the veneer unit. Clean excess extruded mortar with trowel and spread onto the next veneer unit to be installed.

Note: Prior to installation, ensure back of veneer units are clean of dust, laitance, loose concrete crumbs and any excess film that could impede bond.

For thin brick, tile, calcium silicate unit and stone installations key LATICRETE® Thin Brick Mortar into the substrate thoroughly. Then, comb on additional mortar with the notched side, use 1/4" x 3/8" (6 mm x 9 mm) or 1/2" x 1/2" (12 mm x 12 mm) loop or notch trowel. Back butter all thin brick, tile and stone veneers 8" x 8" (200 mm x 200 mm) or larger to provide full bedding of the veneer. Place veneer into the mortar and adjust to desired position. Clean any excess mortar between veneers or sides of stone or tile veneer.

Note: Use proper sized notched trowel to ensure full bedding of the veneer. Spread only enough mortar that can be covered with tile within 15–20 minutes. Adjust as necessary. Check mortar for complete coverage by periodically removing veneer units and inspecting the transfer onto the back of the tile. The size and weight of the veneer will vary. Conduct a small test area for non-sag performance. Due to job site conditions and differences in finish material types; ledger boards, shims, wedges or spacers may be required to maintain finish levels and heights.

Medium Bed

Key the mortar to the substrate with the flat side of the trowel. Press firmly to work into the surface. Comb on additional mortar with the notched side. Use 1/2" x 1/2" (12 mm x 12 mm) or 3/4" (19 mm) half loop trowel.

Note: Use the proper sized notched trowel to ensure full bedding of the veneer. Spread as much mortar as can be covered with thin brick in 15–20 minutes. Back butter larger veneer units (8" x 8" [200 mm x 200 mm]) to provide full bedding and firm support. Place veneer into wet sticky mortar and beat in using a beating block and rubber mallet to embed bricks and adjust until level. Check mortar for complete coverage by periodically removing a thin brick and inspecting bedding mortar transfer onto back of veneer unit. If mortar is skinned over (not sticky), remove and replace with fresh mortar.

Pointing

Point installation after a minimum of 24 hours curing time at 70°F (21°C). Point with LATICRETE Epoxy Pointing Mortar (conduct test area to determine suitability and acceptability with veneer) LATICRETE Premium Masonry Pointing Mortar mixed with water or LATICRETE Masonry Pointing Mortar mixed with LATICRETE Mortar Enhancer or water.

Cleaning

Clean tools with water.

6. AVAILABILITY AND COST

Availability

LATICRETE and LATAPOXY® materials are available worldwide.

For Distributor information, call:

Toll Free: 1.800.243.4788
Telephone: +1.203.393.0010

For on-line Distributor Information, visit LATICRETE at **www.laticrete.com**.

Cost

Contact a LATICRETE Distributor in your area.

7. WARRANTY

See 10. FILING SYSTEM
DS 230.13: LATICRETE Product Warranty

A component of:

DS 230.15SPD: LATICRETE 15Year System Warranty – SPD (For Steel or Wood Framed Exterior Facades)

8. MAINTENANCE

LATICRETE® and LATAPOXY® grouts and pointing mortars require routine cleaning with a neutral pH soap and water. All other LATICRETE and LATAPOXY materials require no maintenance but installation performance and durability may depend on properly maintaining products supplied by other manufacturers.

9. TECHNICAL SERVICES

Technical Assistance

Information is available by calling the LATICRETE Technical Service Hotline (hours 8:00 AM to 5:30 PM EST):

Toll Free: 1.800.243.4788, ext. 235
Telephone: +1.203.393.0010, ext. 235
Fax: +1.203.393.1948

Technical and Safety Literature

To acquire technical and safety literature, please visit our website at **www.laticrete.com.**

10. FILING SYSTEM

Additional product information is available on our website at **www.laticrete.com**. The following is a list of related documents:

DS 230.13: LATICRETE Product Warranty
DS 230.15SPD: LATICRETE 15Year System Warranty – SPD (For Steel or Wood Framed Exterior Facades)
DS 633.0: LATAPOXY 300 Adhesive
DS 661.0: LATICRETE Air & Water Barrier
DS 228.0: LATICRETE Masonry Pointing Mortar
DS 274.0: LATICRETE Premium Masonry Pointing Mortar
DS 277.0: LATICRETE Mortar Enhancer
DS 002.8 LATICRETE Masonry Veneer Installation System Brochure
DS152.0: Bonding Ceramic Tile, Stone and Brick Over Wood Floors

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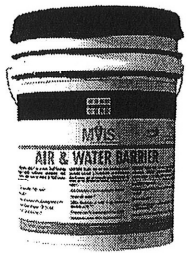
Air & Water Barrier

DS-661.0-0513

Globally Proven Construction Solutions



1. PRODUCT NAME

LATICRETE® Air & Water Barrier

2. MANUFACTURER

LATICRETE International, Inc.
1 LATICRETE Park North
Bethany, CT 06524-3423 USA

Telephone: +1.203.393.0010, ext. 235
Toll Free: 1.800.243.4788, ext. 235
Fax: +1.203.393.1684
Internet: **www.laticrete.com**

3. PRODUCT DESCRIPTION

LATICRETE Air & Water Barrier is single component, load bearing, fluid applied, waterproofing, crack isolation, air barrier membrane. LATICRETE Air & Water Barrier produces a seamless, monolithic elastomeric coating and bonds directly to a wide variety of substrates. LATICRETE Air & Water Barrier is a low VOC, self-curing, water – based formula containing antimicrobial technology used in construction where air & water barriers are required to improve building efficiencies & durability. Air & Water Barrier is a vital component of the LATICRETE Building Envelope Systems (BES) designed to enhance building longevity, save energy and increase building occupant comfort.

Uses

- Designed for use as an air and water barrier behind exterior wall claddings.
- Performs as a component of air barrier assembly when used with other wall components within the building envelope.
- Bridges up to 1/4" (6mm) gaps on sheathing board joints with LATICRETE Waterproofing/Anti-Fracture Fabric.
- Creates an air and water barrier coating for applications to glass mat gypsum exterior sheathing panels, exterior glue plywood, OSB, cement board sheathing and other approved substrates.
- Consult LATICRETE Technical Services Department for further options.

Advantages

- Meets ASTM E2357 Air Leakage of Building Assemblies.
- Adhered Exterior veneers may be installed to membrane using LATICRETE MVIS Polymer Fortified Masonry Veneer Mortars over concrete, brick, cement plaster and cement backer board.
- Excellent bond strength
- Contribute to overall building energy efficiency
- Contains Microban® antimicrobial product protection
- Works together with LATICRETE Transition Tape and LATICRETE Flexible Sealing Tape to provide a seamless protection of the building envelope.
- Meets ASTM D 1970 Nail Sealability requirements
- Lighter color for ease of inspection
- Safe—no solvents and non-flammable
- LATICRETE Air & Water Barrier is an Air Barrier Association of America (ABAA). Evaluated Material and is part of an ABAA Evaluated Assembly.

Suitable Substrates

- Concrete & Brick Masonry †
- Cement Plaster †
- Oriented Strand Board (OSB) *
- Exterior Glue Plywood *
- Cement Backer Board * †
- Glass Mat Gypsum Exterior Sheathing Panels *

†Suitable as a load bearing substrate for installation of direct adhered masonry veneers.
*Consult panel manufacturer for specific installation recommendations and to verify acceptability for intended use.

Packaging

Commercial Unit
5 gal (18.9 ℓ) pail liquid (36 commercial units/pallet)

Approximate Coverage

Commercial Unit: 250 ft² (23.2 m²)
Each wet coat thickness is 15 – 22 mils, 0.015" – 0.022" (0.4 – 0.6mm); use wet film gauge to check thickness; consumption/coat is approximately 0.01 gal/ft² (0.4 L/m²); coverage/coat is approximately 100 ft²/gal (2.5 m²/L). Applied in two coats for a total dry coat thickness of 20-30 mils, 0.02-0.03" (0.5-0.8mm); for a total of 250 ft² per 5 gallons/23.2m² per (18.9 L) pail.

Shelf Life

Factory sealed containers of this product are guaranteed to be of first quality for two (2) years* if stored at temperatures >32°F (0°C) and <110°F (43°C).

Limitations

- Do not bond to OSB, particle board, luan, Masonite® or hardwood surfaces
- Do not install over structural cracks, cracks with vertical movement or cracks with >1/8" (3 mm) horizontal movement.
- Do not use as a primary roofing membrane over occupied space.
- Based on information provided in the Technical Data Table – Section 4 of this document. The design professional / specifier should detail and specify vapor barrier layer material type and location within the installation assembly and in accord with local building codes and to determine suitability of LATICRETE® Air & Water Barrier within the installation assembly.
- Do not expose to negative hydrostatic pressure, rubber solvents or ketones.
- Do not expose membrane directly to sun or weather for more than 30 days.
- Do not use below grade.
- LATICRETE Air & Water Barrier is a secondary weather barrier. The outer façade finish is the primary weather barrier and must be installed and maintained per manufacturer's guidelines in order to ensure the proper performance of LATICRETE Air & Water Barrier.
- Do not install if surface or air temperature is below 50°F (10°C) or above 90°F (32°C).
- Not for use beneath cement or other plaster finishes. Consult with plaster manufacturer for their recommendations when waterproofing membrane is required under plaster finishes.

Cautions

Consult MSDS for more safety information.

- Wet coat thickness is 0.015 to 0.022" (0.4 to 0.6 mm) per coat. Use a wet film thickness gauge to check thickness.
- The LATICRETE Air & Water Barrier will go from a light sage green to a darker olive green when fully cured. The second coat should not be applied until the first coat is dry to the touch.
- Review local building codes and obtain any required approvals before using LATICRETE Air & Water Barrier. Placement of LATICRETE Air & Water Barrier in a wall assembly to be determined by project design professional.
- Allow wet mortars/plasters to cure for a minimum of 72 hours at 70°F (21°C) / 50% R.H. prior to installing LATICRETE Air & Water Barrier.
- Mechanical anchors, brick ties, furring strips, finish cladding supports or other penetrations through LATICRETE Air & Water Barrier should be sealed and made air and water tight.
- For all finishes: The successful performance and installation of exterior finishes is dependent upon the proper design and construction of the finish, adjacent building materials and systems of the assembly. Follow all applicable industry guidelines and building codes for the respective utilized finish.
- When LATICRETE Air & Water Barrier is installed in conjunction with other building materials; it must be properly integrated so that water is diverted to the exterior of the wall system.
- Use of certain additives, coatings or cleansers on or in the façade system may impact the performance of LATICRETE Air & Water Barrier. It is the user's responsibility to determine the proper construction materials needed.
- For adhered veneer applications, substrates must be structurally sound, stable and rigid enough to support the intended finish. Substrate deflection under all live, dead and impact loads, including concentrated loads, must not exceed L/600 where L=span length.
- Placement of LATICRETE Air & Water Barrier in a wall assembly to be determined by project design professional.

4. TECHNICAL DATA

Applicable Standard

ASTM E 2357: Standard Test Method for Determining Air Leakage of Air Barrier Assemblies.

ICC – ES AC212: Acceptance Criteria for Resistive Coatings us as Water Resistive Barrier over Exterior Sheathing.

ICC – ED AC38: Acceptance Criteria for Water-Resistive Barriers

Total VOC content pounds/gallon (grams/liter) of product in unused form is 0.02lb/gal (2.39 g/ℓ).

Physical Properties

Physical Property	Test Method	LATICRETE® Air & Water Barrier™
Fastener Sealability	ASTM D1970-01	Pass
Flatwise Tensile Strength to Aluminum	ASTM C297	546 psi (3.8 MPa)
Flatwise Tensile Strength to Copper	ASTM C297	216 psi (1.5 MPa)
Flatwise Tensile Strength to Galvanized Steel	ASTM C297	530 psi (3.7 MPa)
Flatwise Tensile Strength to Polyvinyl Chloride (PVC)	ASTM C297	273 psi (1.9 MPa)
Tensile Strength Painted Aluminum	ASTM C297	368 psi (2.5 MPa)
Freeze Thaw Glass Mat Gypsum Exterior Sheathing Panels	AC212 Sec. 4.2	Pass 10 Cycles
Freeze Thaw Cement Board	AC212 Sec. 4.2	Pass 10 Cycles
Water Resistance Test Glass Mat Exterior Gypsum Sheathing Panels	ASTM D2247	Passed 14 Day Exposure
Water Resistance Test Cement Board	ASTM D2247	Passed 14 Day Exposure
Pull-Off Strength CMU	ASTM D4541-02	223 PSI
Pull-Off Strength Glass Mat Gypsum Exterior Sheathing Panels	ASTM D4541-02	47 PSI
Water Vapor Transmission Rate	ASTM E96-00e1 (Procedure A) Desiccant Method	1.081 gm/24 hr.m^2
Water Vapor Permeance	ASTM E96-00e1 (Procedure A) Desiccant Method	0.157 (grains/hr.in.Hg.ft^2) (Perms)
Water Vapor Transmission Rate	ASTM E96-00e1 (Procedure B) Water Method	6.8 gm/24 hr.m^2
Water Vapor Permeance	ASTM E96-00e1 (Procedure B) Water Method	1.002 (grains/hr.in.Hg.ft^2) (Perms)
Water Penetration Test	ASTM E331	Pass
Transverse Load (Structural) Test	ASTM E1233	Pass
Racking Shear Test	ASTM E72	Pass
Restrained Environmental Conditioning	AC212 Sec. 4.7.3	Pass
Weathering Test	AC212 SEC. 4.8	Pass
Ultraviolet Exposure	AC212	Pass
Accelerated Aging	AC212	Pass
Hydrostatic Pressure Test	AATCC 127	Pass
Air Permeance Test	ASTM E 2178	Pass

5. INSTALLATION

See LATICRETE® Air & Water Barrier How to Install Instructions DS 661.5 for complete installation instructions.

LATICRETE Air & Water Barrier can be applied using airless spray equipment or paint roller. All areas must have two coats to ensure proper coverage. Substrate will not show through LATICRETE Air & Water Barrier if coated with 0.020–0.030" (0.5–0.8 mm) of dried membrane. Color changes from a light sage to olive green when fully cured.

Surface Preparation

Surface temperature must be 50–90°F (10–32°C) during application and for 24 hours after installation. All substrates must be structurally sound, clean and free of dirt, oil, grease, paint, laitance, efflorescence, concrete sealers or curing compounds. Dampen hot, dry surfaces and sponge off excess water—installation may be made on a damp surface. Remove loose aggregates, concrete, nails, screws or other sharp protrusions that may interfere with or compromise the adhesion of the LATICRETE Air & Water Barrier.

- Install sheathing boards and panels per board/panel manufacturer's installation instructions.
- Installer must verify that deflection under all live, dead and impact loads is L/600 for all exterior adhered veneer applications where L=span length.

Cleaning

While wet, LATICRETE Air & Water Barrier can be washed from tools with water.

6. AVAILABILITY AND COST

Availability

LATICRETE and LATAPOXY® materials are available worldwide.

For Distributor information, call:

Toll Free: 1.800.243.4788, ext. 235
Telephone: +1.203.393.0010

For on-line Distributor Information, visit LATICRETE at **www.laticrete.com.**

Cost

Contact a LATICRETE Distributor in your area.

7. WARRANTY

See 10. FILING SYSTEM.

DS 230.13: LATICRETE Product Warranty

A component of:

DS 230.15-SPD: LATICRETE 15 Year System Warranty – SPD For Steel or Wood Framed Exterior Facades
DS 025.0-SPD: LATICRETE 25 Year System Warranty – SPD

8. MAINTENANCE

Non-finish LATICRETE and LATAPOXY installation materials require no maintenance but installation performance and durability may depend on properly maintaining products supplied by other manufacturers.

9. TECHNICAL SERVICES

Technical Assistance

Information is available by calling the LATICRETE Technical Service Hotline:

Toll Free: 1.800.243.4788, ext. 235
Telephone: +1.203.393.0010, ext. 235
Fax: +1.203.393.1948

Technical and Safety Literature

To acquire technical and safety literature, please visit our website at **www.laticrete.com.**

10. FILING SYSTEM

Additional product information is available on our website at **www.laticrete.com**. The following is a list of related documents:

DS 230.13: LATICRETE Product Warranty
DS 230.15-SPD: LATICRETE 15 Year System Warranty – SPD For Steel or Wood Framed Exterior Facades
DS 025.0-SPD: LATICRETE 25 Year System Warranty – SPD
DS 070.0: LATAPOXY Waterproof Flashing Mortar
DS 237.0: LATICRETE Waterproofing/Anti-Fracture Fabric
DS-233.0: LATICRETE MVIS Silicone Sealant
DS 661.5: How to install instructions – LATICRETE Air & Water Barrier
TDS 410M: Spraying LATICRETE Air & Water Barrier

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PERMABASE® BRAND CEMENT BOARD

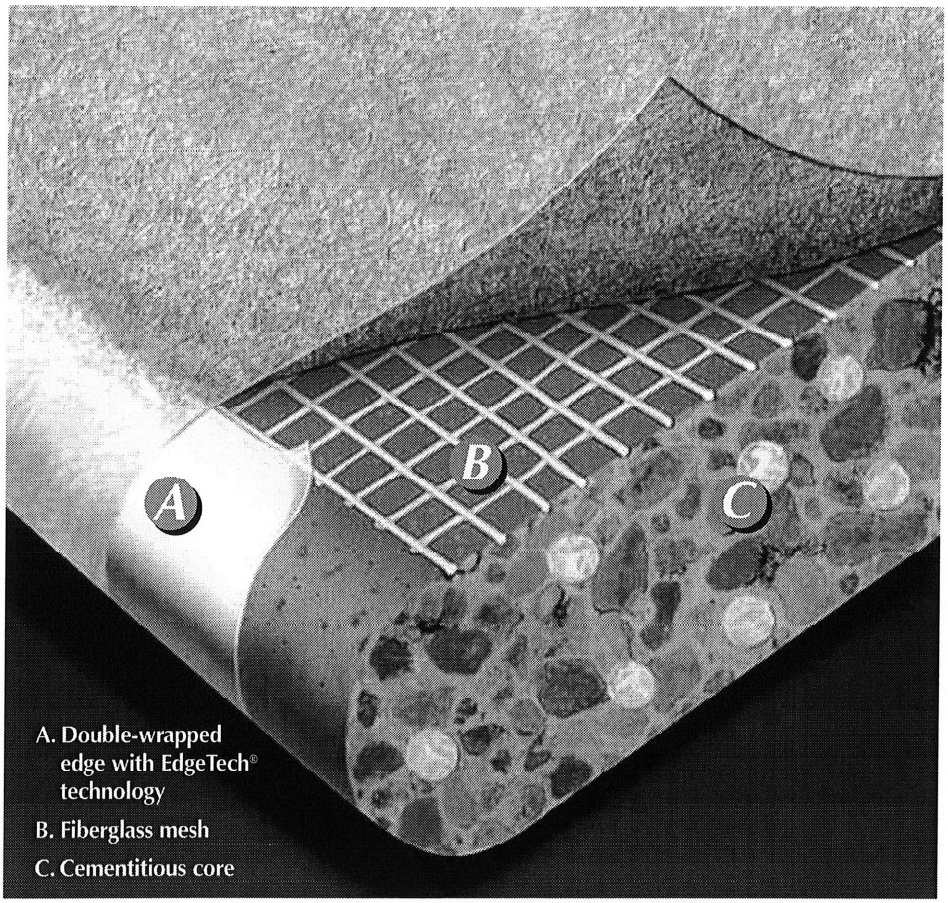
DESCRIPTION

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.

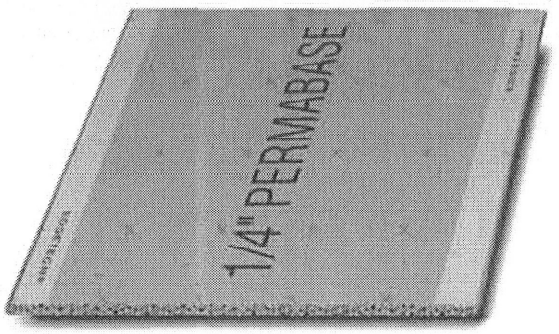
PermaBase offers a competitive advantage over similar products on the market with its patented EdgeTech® technology. The tapered, double-wrapped edge design allows for closer nail or screw application to the edge.

FEATURES/BENEFITS

- Double-wrapped edge with EdgeTech technology allows for closer fastener application of nails or screws at the edge without crumbling or spinout.
- IRC and IBC 2006 Compliant – Meets ASTM C 1325.
- PermaBase resists the growth of mold and mildew achieving a panel score of 10, the highest score possible, per ASTM D 3273.*
- Homogeneous core has fewer voids and provides a very easy and clean score and snap.
- Can be cut utilizing a standard utility knife and straightedge. With PermaBase's unique core composition, little or no additional labor is needed to clean the edge after a cut.
- PermaBase is impact resistant, extremely durable and dimensionally stable. It has excellent overall flexural, compressive and tensile strength characteristics.
- PermaBase is highly moisture resistant, and will not rot, disintegrate or swell when exposed to water.
- 1/2" PermaBase may be used in 1 hour and 2 hour rated assemblies and is UL Classified.



- PermaBase has a smoother finish than other brands and has no open edges, which reduces hand chafing.
- 1/4" PermaBase is ideal for remodeling applications because it can be applied directly over a variety of existing countertop surfaces.
- As a floor underlayment 1/4" PermaBase eliminates the need to modify adjacent thresholds when abutting to carpeting, wood flooring and other common flooring materials.
- Lowest water absorption of any cement board per ASTM C 473.
- Can be used in residential and commercial saunas and steam rooms.



- Available in various widths, lengths and thicknesses.
- Can be used in 24" o.c. floor truss construction, with specific requirements.
- Suitable for both interior and exterior applications.

GridMarX®

1/4" PermaBase Underlayment has GridMarX, a pre-printed fastening pattern that ensures the proper number of fasteners while taking the guesswork out of spacing, layout and trimming.

*When tested by an independent laboratory per ASTM D 3273 ("Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber"), PermaBase achieved a panel score of 10, the highest score possible, indicating no mold growth under the laboratory test conditions. The use of PermaBase in actual installations may not produce the same results as were achieved in controlled laboratory conditions. No material can be considered "mold proof," nor is it certain that any material will resist mold indefinitely.

WARRANTY

- 30-year limited warranty for interior applications.
- 10-year limited warranty for exterior applications.

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 wall 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).

COMPOSITION

CEMENTITIOUS BACKER UNIT (CBU): PermaBase Cement Board is a nailable, screwable backerboard and 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.

ACCESSORIES

JOINT REINFORCEMENT: PermaBase mesh tape must be used on all edges and cuts made to size. Use 2" wide polymer-coated (alkali resistant) mesh tape for interior applications and 4" wide polymer-coated (alkali resistant) mesh tape for exterior applications.

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 1 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.

SIZES & PACKAGING

Size: Thickness, Width & Length	# of Pcs. Per Unit
PermaBase Cement Board	
1/2" x 32" x 5' (12.7 mm x 813 mm x 1524 mm)	50
1/2" x 36" x 4' (12.7 mm x 914 mm x 1219 mm)	50
1/2" x 36" x 5' (12.7 mm x 914 mm x 1524 mm)	50
1/2" x 36" x 6' (12.7 mm x 914 mm x 1829 mm)	50
1/2" x 36" x 8' (12.7 mm x 914 mm x 2438 mm)	30
1/2" x 48" x 8' (12.7 mm x 1219 mm x 2438 mm)	30
5/8" x 36" x 5' (15.9 mm x 914 mm x 1524 mm)	35
5/8" x 48" x 8' (15.9 mm x 1219 mm x 2438 mm)	24
3/8" x 48" x 8' (9.5 mm x 1219 mm x 2438 mm)	40*
3/4" x 48" x 8' (19.0 mm x 1219 mm x 2438 mm)	20*
1" x 32" x 8' (25.4 mm x 813 mm x 2438 mm)	20*
PermaBase Underlayment	
1/4" x 48" x 4' (7.9 mm x 1219 mm x 1219 mm)	50
1/4" x 36" x 5' (7.9 mm x 914 mm x 1524 mm)	50

* Special order

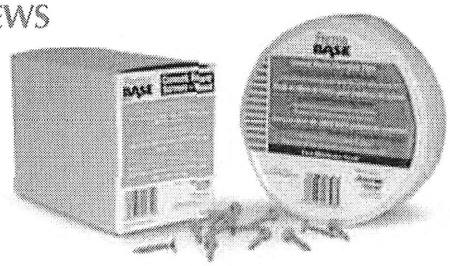
COMPARISON CHART

Physical Feature Benefits	PermaBase	Other Cement Boards	Fiber Cement Boards
Lowest Weight Glass Mesh Cement Board	●	○	○
Double-Wrapped Edge	●	○	○
Fastens Near Edge With No Breakout	●	○	○
Highest Damage Resistancy From Handling	●	○	○
Cleanest To Score And Snap	●	○	○
Lowest Water Absorption	●	○	○
Meets 40 psf Rating Wind Load Test Results (Stud spacing 16" o.c.)	●	○	○
Cuts With Utility Knife vs. Power Tools	●	●	○
Standard Fasteners Countersink Into Board	●	●	○
Can Be Used In Both Residential and Commercial Steam Rooms And Saunas	●	●	○
Fewer Expansion Joints Needed	●	●	○
Inorganic vs. Organic Core	●	●	○
30-Year Warranty For Interior Use	●	●	○
10-Year Warranty For Exterior Use	●	●	○

Product Feature: ●Yes ○No

TAPE & SCREWS

National Gypsum recommends the use of PermaBase Tape and PermaBase Screws to complete your installation.



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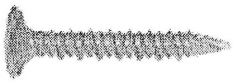
CEMENT BOARD FASTENER

ITW BUILDEX - ITASCA, ILLINOIS
1349 W. Bryn Mawr Avenue
Itasca, IL 60143
(P) 800-BUILDEX
Email:
marketing@itwbuildex.com

Rock-On® Cement Board Fasteners
Check up to five results to perform an action.



larger image

- Rib design under head
  - Countersinks into dense material
  - Preventing stripouts
- Larger head diameter
  - Increases board surface contact
  - Greater pullover resistance.
- Climacoat®
  - Maximum resistance to corrosion
  - Lasts longer

Results1 - 12 of 12 1

Part Number	Size	Point Style	Drive Style	Coating	Material	Material Attachment Range
2151500	9-15x1-1/4"	Type S	Philips 2	Climacoat®	Carbon Steel	Up to 3/4" Material Thickness to Wood; 3/8" - 1" Material Thickness to Steel
2151557	9-15x1-1/4"	Type S	Philips 2	Climacoat®	Carbon Steel	Up to 3/4" Material Thickness to Wood; 3/8" - 1" Material Thickness to Steel
2153500	9-15x1-5/8"	Type S	Philips 2	Climacoat®	Carbon Steel	Up to 1-1/8" Material Thickness to Wood; 3/8" - 1-3/8" Material Thickness to Steel
2153557	9-15x1-5/8"	Type S	Philips 2	Climacoat®	Carbon Steel	Up to 1-1/8" Material Thickness to Wood; 3/8" - 1-3/8" Material Thickness to Steel
2155557	9-15x2-1/4"	Type S	Philips 2	Climacoat®	Carbon Steel	Up to 1-3/4" Material Thickness to Wood; 1" to 1-7/8" Material Thickness to Steel
2155500	9-15x2-1/4"	Type S	Philips 2	Climacoat®	Carbon Steel	Up to 1-3/4" Material Thickness to Wood; 1" to 1-7/8" Material Thickness to Steel
2156500	8-18x1-1/4"	Type S-12®	Philips 2	Climacoat®	Carbon Steel	3/8" to 3/4" Material Thickness
2156557	8-18x1-1/4"	Type S-12®	Philips 2	Climacoat®	Carbon Steel	3/8" to 3/4" Material Thickness
2159500	8-18x1-5/8"	Type S-12®	Philips 2	Climacoat®	Carbon Steel	3/8" to 1-1/4" Material Thickness
2159557	8-18x1-5/8"	Type S-12®	Philips 2	Climacoat®	Carbon Steel	3/8" to 1-1/4" Material Thickness
2139500	8-18x2-	Type S-	Philips 2	Climacoat®	Carbon	1" to 1-7/8" Material Thickness

Photos

SUBSTRATE: AIR & WATER BARRIER / ½" CEMENT BOARD SHEATING / 2x4 WOOD FRAMING

BACK OF STONE WITH MORTAR

STONE INSTALLATION

FINAL STONE VENEER WALL ASSEMBLY