

*(Specifier Note: The purpose of this guide specification is to assist the Specifier in correctly specifying cement board supported adhered masonry. The Specifier needs to edit these guide specifications to fit the needs of each specific project. Contact a **National Gypsum or LATICRETE** representative to assist in appropriate product selections. Throughout the guide specification, there are Specifier Notes to assist in the editing of the file. Brackets [ ]; "**AND/OR**"; and "**OR**" have been used to indicate when a selection is required, in most cases the first option is the standard feature.*

*References have been made within the text of the specification to current MasterFormat Section numbers and titles. The Specifier needs to coordinate these numbers and titles with sections included for the specific project.*

## **SECTION 04 30 16**

### **CEMENT BOARD SUPPORTED ADHERED MASONRY VENEER**

Propriety Specification for National Gypsum PermaBase® Cement Board and LATICRETE MVIS

#### **PART 1 - GENERAL**

##### **1.1 SECTION INCLUDES**

- A. Cement board
- B. Waterproof air barrier system
- C. Installation materials including adhesives, mortars, pointing mortars, and sealants
- D. Masonry: [**Thin Brick Veneer**] [**Manufactured Stone Veneer**] [**Natural Stone Veneer**] [**Insert type of masonry to be used**]

##### **1.2 REFERENCES**

- A. American National Standards Institute (ANSI)
  - 1. ANSI A118 - Specifications for the Installation of Ceramic Tile.
- B. ASTM International (ASTM)

*(Specifier Note: Regarding ASTM D1970 the Air Barrier Association of America specifically references the version ASTM D1970-01)*

- 1. ASTM C67 - Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.
- 2. ASTM C91 - Standard Specification of Masonry Cement.

3. ASTM C109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars.
  4. ASTM C270 - Standard Specification for Mortar for Unit Masonry.
  5. ASTM C473 - Standard Test Methods for Physical Testing of Gypsum Panel Products.
  6. ASTM C794 - Standard Test Methods for Adhesion in Peel of Elastomeric Joint Sealants.
  7. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
  8. ASTM C1002 - Standard Specification for Steel Self Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
  9. ASTM C1325 - Standard Specification for Non Asbestos Fiber Mat Reinforced Cementitious Baker Units.
  10. ASTM D751- Standard Test Methods for Coated Fabrics
  11. ASTM D1970 - Standard Specification for Self Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
  12. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
  13. ASTM E72 - Standard Test Methods of Conducting Strength Test of Panels for Building Construction
  14. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials
  15. ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
  16. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials
  17. ASTM E2357 - Standard Test Method for Determining Air Leakage of Air Barrier Assemblies.
- C. ICC - International Code Council Evaluation Service (ICC-ES):
1. ICC-ES AC 376: Acceptance Criteria for Reinforced Cementitious Sheets Used As Wall Sheathing and Floor Underlayment
  2. ICC-ES AC 212: Acceptance Criteria for Water-Resistive Coatings used as Water-Resistive Barriers on Exterior Sheathing.
- D. ISO - International Organization for Standardization
1. ISO - 13007: Ceramic Tiles -- Grouts and adhesives

### 1.3 ADMINISTRATIVE REQUIREMENTS

*(Specifier Note: Preinstallation meeting is critical for this work result. Coordinate requirements with Division 01 Section - Project Management and Coordination.)*

- A. Preinstallation Meeting: At the Project site [**a minimum of one week prior to commencing Adhered Masonry Work**].

### 1.4 SUBMITTALS

- A. Refer to Section [**01 33 00 Submittal Procedures**] [**Insert section number and title**].
- B. Manufacturer Warranty: Submit project specific letter of intent to provide specified warranty of installation system.
- C. Product Data: Submit current product literature for each product used in assembly.
- D. Samples: Masonry and Mortar selection.
- E. Reports:
  - 1. Third party building code evaluation report indicating cement board is approved for use in exterior application in accordance with ICC-ES AC 376.

*(Specifier Note: Sustainable Design Submittals may be required for projects pursuing certification by a 3rd party such as USGBC LEED program or Green Globes.*

- F. Sustainable Design Submittals
  - 1. Documentation indicating products manufactured within 500 mile radius of the Project Site.
  - 2. VOC content of adhesive materials.

### 1.5 QUALITY ASSURANCE

- A. Mock-ups

*(Specifier Note: DELETE if mock-ups are not desired for specific project.)*

- 1. Adhered masonry mock-up shall incorporate surrounding construction, including wall assembly, fasteners, flashing, and other related accessories installed in accordance with manufacturer's installation methods.
  - a. Mock-up size: [**Insert size**] [**As indicated on drawings.**]
  - b. Mock-up may [**not**] remain as part of the work.

## 1.6 DELIVERY, STORAGE AND HANDLING

- A. Refer to Section **[01 60 00 Product Requirements]** **[Insert section number and title]**.
- B. Protect masonry to prevent staining, chipping, spalling or contamination caused by water, freezing, foreign matter, and other adverse conditions.
- C. Store installation materials in a dry location, in accordance with manufacturers' recommendations.

## 1.7 FIELD CONDITIONS

- A. Maintain ambient temperature to comply with manufacturers requirements, during installation and for a minimum of seven days after completion of adhered masonry work.

***(Specifier Note: Exposure to carbon dioxide can cause a chemical change in cementitious products. This will affect both the Cement Board and potentially the masonry.)***

- B. Vent temporary heaters to the exterior to prevent carbon dioxide damage to cementitious products.

## 1.8 WARRANTY

- A. Refer to Section **[01 78 36 Warranties]** **[Insert section number and title]**.
- B. Provide manufacturer 15 Year Warranty for the Exterior Cement Board Supported Adhered Masonry Veneer wall assembly

## PART 2 - PRODUCTS

***(Specifier Note: Product Information is proprietary to National Gypsum Company and LATICRETE®. If additional products are required for competitive procurement, a multi-proprietary specification section is available or contact National Gypsum Company or LATICRETE for assistance in listing competitive products that may be available.)***

## 2.1 CEMENT BOARD

- A. PermaBase® Brand Cement Board by National Gypsum Company, Charlotte, NC
- B. Characteristics

1. Manufactured in accordance with ASTM C1325 and ANSI 118.9
2. Shear Bond Strength: greater than or equal to 200 psi, when tested in accordance with ANSI 118.4
3. Approved for exterior use in accordance with ICC-ES AC 376
4. Mold resistant panel score of 10 when tested in accordance with ASTM D3273
5. Core consisting of cement, polystyrene beads and aggregates. Both faces to have embedded fiberglass mesh.
6. Face Finish:
  - a. Unexposed face: smooth finish
  - b. Exposed face: cementitious finish
7. Moisture absorption of less than 8 percent when tested in accordance with ASTM C473.
8. Thickness: **[1/2 inch (13 mm)] [5/8 inch (16 mm) ]**

C. Accessories

1. Tape: [**PermaBase Tape by National Gypsum Company, Charlotte, NC** ] [**4 inch (102 mm) wide polymer-coated (alkali resistant) mesh tape**].
2. Fasteners: [**PermaBase Screws by National Gypsum Company, Charlotte, NC** ] [**Drill point screws (No. 8) wafer head, corrosion-resistant, Type S-12 screws or equivalent, complying with ASTM C1002. Minimum 1-5/8 inches (41 mm) long.**]

## 2.2 WATERPROOFING AND AIR BARRIER

A. LATICRETE® Air and Water Barrier by LATICRETE International, Inc., Bethany CT

B. Characteristics

1. Single component, load bearing, fluid applied, waterproofing, crack isolation, air barrier membrane.
2. Water Vapor Permeance: Class II vapor permeable; 1 perm or less when tested in accordance with ASTM E96 Procedure B.
3. Water Penetration of openings: Passes when tested in accordance with ASTM E331
4. Fastener Sealability: Passes when tested in accordance with ASTM D1970.
5. Racking Shear Test: Passed when tested in accordance with ASTM E72
6. Air Permeance: Passes when tested in accordance with ASTM E2178 and ASTM E2357.

## 2.3 INSTALLATION MATERIALS

### A. LATICRETE Polymer Fortified Veneer Mortar

#### 1. LATICRETE® Thin Brick Mortar by LATICRETE International, Inc., Bethany CT

##### a. Characteristics:

- 1) Preblended and Bagged Latex-Portland Cement Mortar
- 2) Weather, frost, shock resistant, and non-flammable
- 3) Non Sag, medium bed performance, 3/4 inch (19 mm) thick without shrinkage
- 4) Compressive strength per ASTM C270: greater than or equal to 2000 psi when tested in accordance with ASTM C109.
- 5) Shear Bond Strength: greater than or equal to 300 psi when tested in accordance with ANSI A118.4
- 6) Sag on Wall: 0.0 inch (0.0 mm) in accordance with ISO 13007.

#### 2. LATICRETE® Hi-Bond Masonry Veneer Mortar by LATICRETE International, Inc., Bethany CT

##### a. Characteristics:

- 1) Preblended and Bagged Latex-Portland Cement Mortar
- 2) Weather, frost, shock resistant, and non-flammable
- 3) Compressive strength per ASTM C270: greater than or equal to 2400 psi when tested in accordance with ASTM C109.
- 4) Shear Bond Strength: greater than or equal to 450 psi when tested in accordance with ANSI A118.4
- 5) Sag on Wall: 0.0 inch (0.5 mm) in accordance with ISO 13007.

#### 3. LATICRETE® Masonry Veneer Mortar by LATICRETE International, Inc., Bethany CT

##### a. Characteristics

- 1) Preblended and Bagged Latex-Portland Cement Mortar
- 2) Weather, frost, shock resistant, and non-flammable
- 3) Compressive strength per ASTM C270: greater than or equal to 2400 psi when tested in accordance with ASTM C109.
- 4) Shear Bond Strength: greater than or equal to 300 psi when tested in accordance with ANSI A118.4
- 5) Sag on Wall: 0.0 mm in accordance with ISO 13007.

### B. Pointing Mortar

#### 1. LATICRETE® Masonry Pointing Mortar by LATICRETE International, Inc., Bethany CT

2. Characteristics:

- a. Compressive Strength: Minimum 3000 psi in accordance with ASTM C91
- b. Color: **[46 Quarry Red]** **[24 Natural Grey]** **[44 Bright White]** **[45 Raven]** **[66 Chestnut Brown]** **[38 River Rock]** **[40 Latte]** **[39 Mushroom]** **[58 Terra Cotta]** **[Custom Color]**

C. Potable Water

2.4 MASONRY VENEER

*(Specifier Note: Many types of masonry may be used in the assembly including thin brick, thin stone and manufactured stone. EDIT characteristics to match project specific requirements.)*

A. **[Thin Brick]** **[Manufactured Stone]** **[Natural Stone Veneer]**: **[Product Name and Manufacturer]**.

1. Obtain **[Thin Brick]** **[Manufactured Stone]** **[Natural Stone Veneer]** from a single source.

B. Characteristics:

1. Maximum Veneer Unit Weight: 15 psf.
2. Compressive Strength: 5 sample avg. 2,200 psi. 1500 psi minimum for individual unit.
3. Shear Bond Strength Between Stone Unit, Latex-Portland Cement Mortar, and Cement Substrate: greater than or equal to 300 psi when tested in accordance with ANSI A118.4.
4. Freeze/Thaw: ASTM C67, no disintegration and less than 3 percent weight loss.
5. Grade:**[Insert desired grade]**
6. Size:**[Insert size]**
7. Edge: **[Insert edge type]**
8. Finish: **[Insert Finish if applicable]**
9. Color: **[Insert selected color]**

2.5 WATERPROOF AIR BARRIER ACCESSORY PRODUCTS

A. Flashing Mortar

1. LATAPOXY® Waterproof Flashing Mortar by LATICRETE International, Inc., Bethany CT

2. Characteristics

- a. Epoxy based, 3-component, trowel applied, waterproofing and vapor barrier membrane for seams, joints, and openings.
- b. Breaking Strength: greater than 170 psi in accordance with ANSI A118.10
- c. Waterproofness: no moisture penetration after 48 hours in accordance with ANSI A118.10
- d. Shear bond strength after 7 days: greater than 50 psi in accordance with ANSI A118.10.

B. Joint Sealant

1. LATICRETE MVIS Silicone Sealant
2. Characteristics

- a. Single component, neutral cure, 100% silicone sealant.
- b. In accordance with ASTM C920: Type S, Grade NS, Class 25, Use NT, I, M, and G.
- c. Tensile Strength: 280 psi when tested in accordance with ASTM C794
- d. Hardness per ASTM D751 Shore A: 25 (colored sealant); 15 (clear sealant)
- e. Weather Resistance (QUV Weatherometer): no change in 10000 hours

C. Transition/Expansion Control Material

1. LATICRETE® Waterproofing/Anti-Fracture Fabric
2. LATICRETE® Flexible Sealing Tape
3. LATICRETE® Transition Tape

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify wall assembly has been installed in accordance with Contract Documents including:

*(Specifier Note: Structural design and deflection requirements should be governed by the masonry manufacturer requirements. As a rule of thumb limit deflection to L/600. Revise list of section as appropriate for specific project.*

1. Metal Framing: as specified in [Section 05 40 00 - Cold-Formed Metal Framing]
2. Sheathing: as specified in [Section 06 16 00 - Sheathing]



### 3.2 CEMENT BOARD INSTALLATION

*(Specifier Note: PermaBase Cement Board has been tested and/or approved for use in a variety of fire-rated wall assemblies - adjust the installation requirements when a rated wall is required for a specific project.)*

A. Fasten PermaBase Cement Board horizontally or vertically through sheathing [**and waterproof air barrier**] into framing.

1. Penetrate steel studs a minimum of 3/8 inch (9.53mm) with fastener.

*(Specifier Note: Structural design may require fasteners be spaced closer)*

2. Space fasteners 8 inches (20 cm) on center maximum along perimeter and in field of cement board unless noted otherwise.

3. Place fasteners a minimum of 3/8 inch (9.53 mm) and a maximum of 5/8 inch (16 mm) from the cement board edge.

4. Drive fastener heads flush with the face of the cement board.

B. Stagger vertical joints of the cement board. Locate joints over framing members.

C. Offset horizontal joints in cement board a minimum of 12 inches (30.48 cm) from horizontal joints in sheathing.

D. Offset vertical joints in cement board a minimum of one stud space from vertical joints in sheathing.

E. Offset joints in cement board a minimum of 8 inches from the corners of openings by "L" cutting cement board around openings.

F. Treat cement board joints and corners with 4" wide alkali-resistant fiberglass mesh tape imbedded in LATICRETE® Polymer Fortified Veneer Mortar. Allow the taping treatment to cure for 12 to 24 hours at 70° F (21 °C).

### 3.3 SUBSTRATE TOLERANCES

*(Specifier Note: Coordinate allowable tolerances with masonry manufacturer.)*

A. Maximum deviation in plane: Not to exceed 1/4 inch (6.35 mm) in 10 feet (3.05m), with not more than 1/16 inch (1.6 mm) variation in 1 foot (.305 m)

### 3.4 APPLICATION OF WATERPROOF AIR BARRIER

A. Joint and opening preparation

1. Fill thru wall gaps, openings, voids, and penetrations with foam backer rod.

2. Flash packed gaps with LATAPOXY Waterproof Flashing Mortar
    - a. Wet film thickness 1-3 mm (40-125 mils).
  3. Tape and fill in-plane joints and seams 1/8 inch to 1/4 inch wide (3.175 mm - 6.35 mm), to a smooth finish with LATICRETE Polymer Fortified Veneer Mortar. Cure for 24 hours.
  4. Apply one coat of LATICRETE Air & Water Barrier to change of plane transitions, inside and outside corners. Embed 6 inch (15.24 mm) wide LATICRETE Waterproofing/Anti-Fracture Fabric and coat with a second coat of LATICRETE Air & Water Barrier using a roller, brush, or trowel.
    - a. Wet coat thickness: 15-22 mils.
  5. Allow prepared joints, seams and openings to dry.
- B. Main Waterproof Air Barrier Application
1. Apply continuous application of LATICRETE Air & Water Barrier over substrate, treated joints, and seams. Allow to dry to the touch.
    - a. Wet coat thickness: 15-22 mils
    - b. Bring application of LATICRETE Air & Water Barrier up to penetrations
  2. Apply second coat of LATICRETE Air & Water Barrier and allow to dry to the touch. Wet coat thickness: 15-22 mils.
  3. Examine coated surface for pinholes, voids, thin-spots and other defects, reapply LATICRETE Air & Water Barrier to provide uniform coat.
- C. Penetration Treatment
1. Flash LATAPOXY Waterproof Flashing Mortar onto the penetration and onto the cured LATICRETE Air & Water Barrier. Overlap a minimum of 2 inches (50.8 mm).

### 3.5 INSTALLATION OF [THIN BRICK] [MANUFACTURED STONE] [NATURAL STONE VENEER]

*(Specifier Note: Adhered masonry can be applied to the substrate in several ways.)*

- A. Apply adhered masonry to substrate using polymer modified mortars as recommended by Masonry Veneer Mortar manufacturer.

**OR**

- B. Apply skim coat of LATICRETE Polymer Fortified Veneer Mortar with a trowel to cover entire back of the veneer unit.

- C. Apply additional mortar to the back of the coated veneer unit sufficient to completely fill the space between the veneer unit and the substrate when compressed against the substrate.
- D. Press the mortar covered unit against the substrate at the desired final position. Slide the unit roughly 1 inch (25.4 mm) diagonally from the desired final position and back into place while maintaining even pressure to ensure space between veneer unit and substrate is filled.
- E. Clean excess extruded mortar with trowel and spread onto next veneer unit to be placed.

**OR**

- F. Key uniform layer of LATICRETE Polymer Fortified Veneer Mortar to cement board substrate.
- G. Comb additional mortar onto substrate with mortar manufacturer recommended notched trowel.
- H. Back butter veneer units 8 inches by 8 inches and larger to provide full bedding of the veneer.
- I. Place veneer into the mortar and adjust to desired position.
- J. Clean excess extruded mortar

### 3.6 MASONRY POINTING

- A. Allow adhered masonry veneer to cure a minimum of 24 hours at 70 degrees F.
- B. Verify grout joints are free of dirt and debris, and remove any water standing in joints.
- C. Install pointing mortar to desired depth, ensuring mortar is forced into voids.
- D. Cure to "thumbprint" hardness and trowel, rake, or brush joint to [**V-groove**] [**insert desired**] finish.

### 3.7 FINISHING PENETRATIONS THROUGH ADHERED MASONRY

- A. Install closed cell backer rod in deep joints and bond breaker tape on shallow joints
- B. Protect veneer face by masking surface

- C. Apply LATICRETE MVIS Silicone sealant into joint or gap, filling completely.
- D. Finish joint for a smooth finish, ensuring sealant contact with sides of joint.
- E. Remove masking and clean veneer surface.

### 3.8 CLEANING

- A. Clean completed adhered masonry work after mortar is set in accordance with masonry and mortar manufacturers' recommended practices.

### **END OF SECTION**