

Recommended Application Guidelines for Adhered Thin Brick Veneer

Interstate® Brick and H.C. Muddox Thin Brick can be installed onto new and existing walls over a variety of different backup substrates. The following are general guidelines for each of the different noted applications. As building code requirements differ from area to area, check with local authority having jurisdiction (building permit) prior to installation.

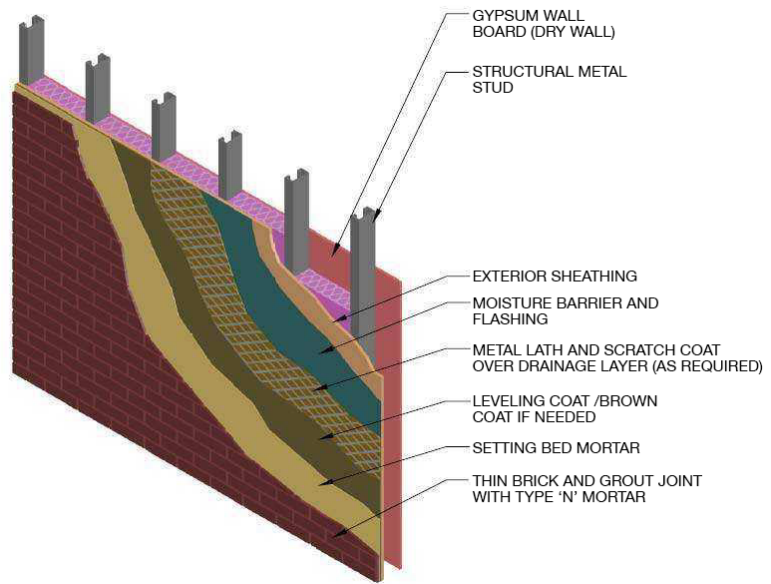
Approved Substrates for Adhered Thin Brick:

Thin brick can be installed over a variety of construction substrates. The most common of these is thin brick over a one-coat (scratch) or two-coat (scratch and brown) cement plaster (stucco) system. Thin brick can also be adhered to Cement Backer Board (CBB), GFRC, CMU, tilt-up concrete panels, poured-in-place concrete walls, sheet metal panels, or other approved cementitious substrates. The following pages describe thin brick installation recommendations for these various systems.

There are a number of options available for installing thin brick over wood and metal framing systems. A typical thin brick application over stucco usually consists of a wall system similar to the wall model image shown.

Thin Brick Adhered to Cement Plaster (Stucco) Over Metal or Wood Studs:

- Size stud framing for all design loads. Design deflections should be as prescribed by code, or L/360, which ever provides a stiffer wall system.
- Size and install sheathing as required for design loads. Sheathing fasteners must be designed to resist all code required applied loads.
- Apply moisture barrier, drainage layer, flashing, and weeps as required to create positive drainage to the exterior.
- Attach lath to framing members, through sheathing, as required for design loads as determined by licensed design professional. Lath must be furred a minimum of 1/4" from the substrate surface. Self-furring lath is available.
- Organize movement/expansion/control joints to accommodate anticipated movements related to irreversible shrinkage or expansion, thermal gradients, framing stiffness changes, steps in framing, and other phenomena, as well as changes in materials or assemblies, building corners, etc. Joints in cement plaster and plaster areas bounded by joints or building corners shall follow the recommendations contained in the PCA Plaster/Stucco handbook, which states: *Joint spacing shall not exceed 18 feet; areas bounded by corners or joints shall not exceed 144 square feet; aspect ratio of areas bounded by building corners or joints shall not exceed 2.5:1.0.* An aspect ratio of 1.5:1.0 will provide better performance.
- Apply cement plaster (stucco scratch coat) a minimum of 1/2" thick to cover and fully engulf furred lath. Apply up to 1-1/2" thick, maximum, for single coat systems, with the thickness in excess of 1/2" used to adjust/correct wall framing anomalies to result in a flat and plumb substrate. Finish with horizontal notched trowel.
- Apply second plaster coat (stucco brown coat) if needed to further adjust wall framing anomalies after first coat has cured a minimum of 24 hours. Total plaster thickness should not exceed 1-1/2". finish with horizontal notched trowel. Allow to cure 7 days prior to adhering thin brick.
- Pre-wetting plaster substrate may be required. Prepare substrate surface to receive thin brick by applying ANSI A118.4 or A118.15 compliant polymer-modified setting bed mortar to the clean surface of the wall using a 3/16" or 1/4" notched trowel. Do not trowel an area larger than can be completed prior to the mortar becoming thumb print hard or unworkable; approximately 10 minutes, depending on ambient conditions.
- During installation select thin brick from multiple cartons/boxes **and** multiple pallets to create a uniform distribution of color hues unless a specific blend has been prescribed.
- "Back butter" (coat - full coverage) the back face of each thin brick unit with the same previously noted setting bed mortar, using a notched trowel, and press into place while slightly shifting laterally or rotating to ensure full contact and until mortar is forced out around the perimeter of the unit. Allow to cure a minimum of 24 hours prior to any further work. Setting bed mortar should end up approximately 3/16" thick.
- Locate and install movement joints in the brick to match those in the backup substrate system. Cut brick as required.
- Fill all joints to receive mortar with Type S or Type N mortar using a mortar board, hawk, or trowel and scraping mortar into the joint, or by using a grout bag to fill the joints. Do not smear grout over the surface of the brick to fill joints as is done with tile work.
- Tool joints when mortar is thumb print hard.
- Clean brick using appropriate cleaning methods*. Do not use non-buffered acids.
- Install backer rod and elastomeric sealant at control/expansion joints.
- Apply water repellents where specified to control moisture and efflorescence. Water repellents will eventually degrade over time and become less effective than when first applied.



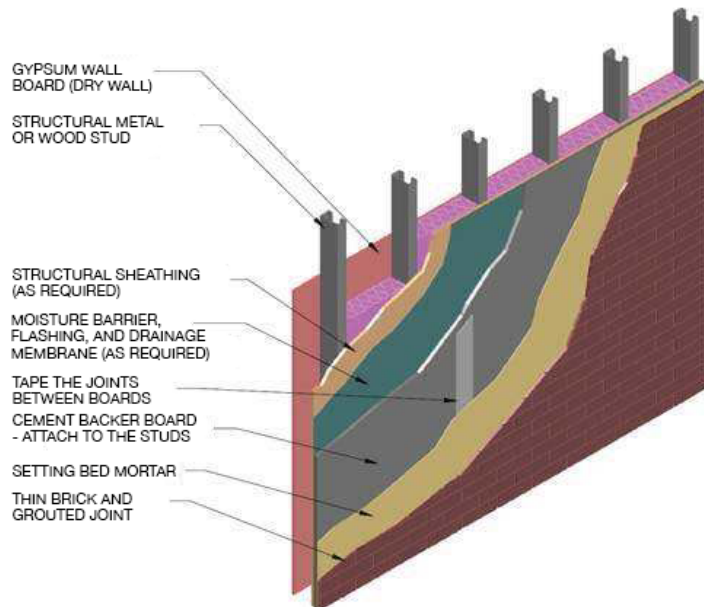
*: Use only cleaning solutions recommend by brick manufacturer from new, unopened containers. Do not use high pressure spray. Do not use non-buffered acids, diluted or otherwise. Use the least aggressive cleaning means and methods that produce the desired result, starting with 'bucket and brush', using a mild, recommended cleaning solution. Test cleaning materials, means, and methods at an inconspicuous location and receive approval prior to mass cleaning.

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Thin Brick Adhered to Cement Backer Boards (CBB) Over Metal or Wood Studs:

Cement Board can also serve as an excellent substrate for the application of adhered thin brick veneer. The benefit to this type of substrate is that the cement board can be fastened to the structure, and the application of the Thin Brick can begin immediately. The cement board substrate will eliminate the drying and curing time necessary for a scratch and brown stucco substrate system.

- Size stud framing for all design loads. Design deflections should be as prescribed by code, or L/360, which ever provides a stiffer wall system.
- Size and install sheathing as required for design loads. Sheathing fasteners must be designed to resist all code required applied loads.
- Apply moisture barrier, drainage layer, flashing and weeps as required to create positive drainage to the exterior.
- Mechanically fasten CBBs to studs as required for designs loads as determined by a licensed design professional.
- Locate and install control joints in CBB seams at corners, changes in wall heights, adjacent to changes in materials, and at spacing not to exceed 15 ft on center in any direction.
- Tape all seams except at movement joints.
- Prepare substrate surface by applying ANSI A118.4 or A118.15 compliant polymer-modified setting bed mortar to the clean surface of the wall using a 3/16" or 1/4" notched trowel. Do not trowel and area larger than can be completed prior to the mortar becoming thumb print hard or unworkable; approximately 10 minutes, depending on ambient conditions.
- During installation select thin brick from multiple cartons/boxes **and** multiple pallets to create a uniform distribution of color hues unless a specific blend has been prescribed.
- "Back butter" (coat - full coverage) the back face of each thin brick unit with the same previously noted setting bed mortar, using a notched trowel, and press into place while slightly shifting laterally or rotating to ensure full contact and until mortar is forced out around the perimeter of the unit. Allow to cure a minimum of 24 hours prior to any further work. Setting bed mortar should end up approximately 3/16" thick.
- Locate and install movement joints in the brick to match those in the backup.
- Fill all joints to receive mortar with Type S or Type N mortar using a mortar board, hawk, or trowel and scraping mortar into the joint, or by using a grout bag to fill the joints. Do not smear grout over the surface of the brick to fill joints as is done with tile work.
- Tool joints when mortar is thumb print hard.
- Clean brick using appropriate cleaning methods*. Do not use non-buffered acids.
- Install backer rod and elastomeric sealant at control/expansion joints.
- Apply water repellents where specified to control moisture and efflorescence. Water repellents will eventually degrade over time and become less effective than when first applied.

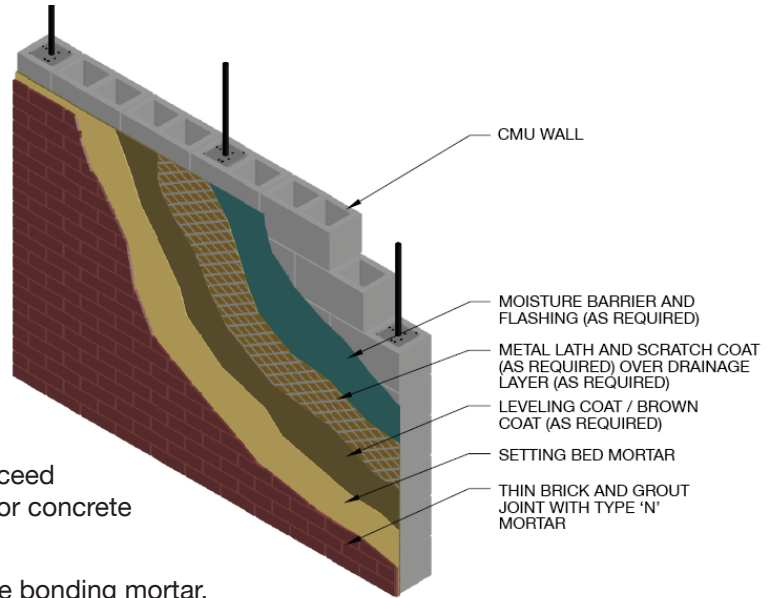


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Recommended Application Guidelines for Adhered Thin Brick Veneer

Thin Brick Adhered to CMU, Tilt-Up, or Poured in Place Concrete Walls, or GFRP Panels:

- Size reinforced concrete/masonry substrate system for all design loads. Clean and remove all bond breaking materials from surface to receive thin brick. (Where cleaning is omitted or moisture barrier is required, metal lath with cement plaster/stucco (see page 1) must be installed). For Tilt-up and Poured-inplace concrete walls, the most important factor in achieving a proper bond to the concrete is the complete removal of any and all bond breaker used in the construction of the walls. This will likely require abrasive blasting or chemical removal. If the bond breakers are not completely removed from the concrete substrate, the thin brick will not properly adhere to the concrete walls.
- Where setting bed mortar is applied to a cmu wall, install control/expansion joints to match movement joints in the substrate, and at changes in wall heights, and adjacent to changes in materials. Do not exceed 20 ft on center horizontally or vertically.
- Where setting bed mortar is applied directly to concrete wall surfaces, place control/expansion joints in the brick to match those in the backup, and at changes in wall heights, and adjacent to changes in materials. Do not exceed 20 ft on center horizontally or vertically.
- Where setting bed mortar is applied to GFRP panels, allow GFRP panels to undergo initial shrinkage and allow to cure for at least 28 days prior to applying setting bed mortar. Then proceed following the same installation recommendations for CBB, CMU, or concrete substrates.
- Substrate may need to be moistened to prevent desiccation of the bonding mortar.
- Prepare substrate surface by applying ANSI A118.4 or A118.15 compliant polymer-modified setting bed mortar to the clean surface of the wall using a 3/16" or 1/4" notched trowel. Do not trowel and area larger than can be completed prior to the mortar becoming thumb print hard or unworkable; approximately 10 minutes, depending on ambient conditions.
- During installation select thin brick from multiple cartons/boxes **and** multiple pallets to create a uniform distribution of color hues unless a specific blend has been prescribed.
- "Back butter" (coat - full coverage) the back face of each thin brick unit with the same previously noted setting bed mortar, using a notched trowel, and press into place while slightly shifting laterally or rotating to ensure full contact and until mortar is forced out around the perimeter of the unit. Allow to cure a minimum of 24 hours prior to any further work. Setting bed mortar should end up approximately 3/16" thick.
- Fill all joints to receive mortar with Type S or Type N mortar using a mortar board, hawk, or trowel and scraping mortar into the joint, or by using a grout bag to fill the joints. Do not smear grout over the surface of the brick to fill joints as is done with tile work.
- Tool joints when mortar is thumb print hard.
- Clean brick using appropriate cleaning methods*. Do not use nonbuffered acids.
- Install backer rod and elastometric sealant at control/expansion joints.
- Apply water repellents where specified to control moisture and efflorescence. Water repellents will eventually degrade over time and become less effective than when first applied.

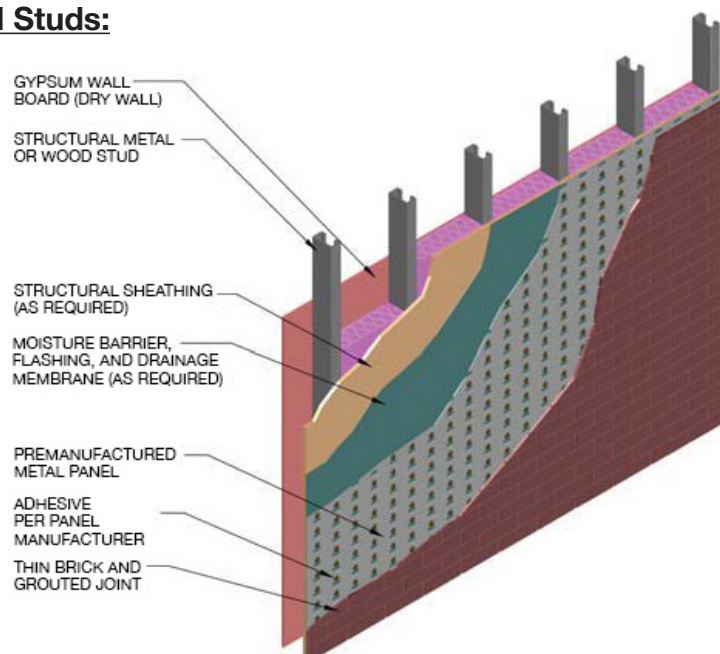


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Recommended Application Guidelines for Adhered Thin Brick Veneer

Thin Brick Adhered to Metal Panel Over Metal or Wood Studs:

- Size stud framing for all design loads.
- Design deflections should be as prescribed by code, or L/360, which ever provides a stiffer wall system.
- Size and install sheathing as required for design loads. Sheathing fasteners must be designed to resist all code required applied loads.
- Apply moisture barrier or rain screen, flashing and weeps as required to create positive drainage to the exterior.
- Attach metal panel to studs as required for design loads.
- Locate and install control/expansion joints at corners, changes in wall heights, adjacent to change in materials, and at spacing not to exceed 15 ft on center in any direction.
- Locate and install movement joints in the brick to match those in the backup.
- During installation select thin brick from multiple cartons/boxes **and** multiple pallets to create a uniform distribution of color hues unless a specific blend has been prescribed.
- Adhere thin brick materials, means, and methods following panel manufacturer's recommendations. Prior training and certification may be required
- Fill all joints to receive mortar with Type S or Type N mortar using a mortar board, hawk, or trowel and scraping mortar into the joint, or by using a grout bag to fill the joints. Do not smear grout over the surface of the brick to fill joints as is done with tile work.
- Tool joints when mortar is thumb print hard.
- Clean brick using appropriate cleaning methods*. Do not use nonbuffered acids.
- Install backer rod and elastometric sealant at control/expansion joints.
- Apply water repellents where specified to control moisture and efflorescence. Water repellents will eventually degrade over time and become less effective than when first applied.



Additional Information: Installation

- Proper layout of the thin brick and coursing is generally specified in the construction documents and special attention should be given to the specific job exterior wall details. Bonding patterns, corner and lintel details, and placement of soldier and header courses all affect the overall layout strategy. The attention to detail in this area is critical to a quality application.
- Prior to application of setting bed mortar or adhering brick, dry layout one or two brick courses to anticipate where coursing adjustments will be required. Adjust head joint layout as need to avoid using units smaller than one-half of a full size unit, while maintaining the intended bond pattern.
- Start at the outside corner of walls. Use corner units, full units and half units to obtain the desired bonding patterns
- Laying courses level via a level sting line (as is done in traditional masonry), a level laser level mark, or a level chalk line is considered best practice. Using tile spacers or rope to space thin brick is not recommended. As thin brick units are being placed, routinely and frequently sweep over the brick surface with a 48-inch long (min) straight edge, mason's level, or darby to ensure all brick are placed in the same flat and plumb plane. Adjust or 'humor' brick units as needed, prior to losing mortar workability and while maintaining full setting bed mortar coverage, to eliminate protruding corners or edges, while maintaining level layout.
- It is important to use standard brick mortar for grouting joints. Do not use setting bed mortar to fill brick-to-brick joints. Polymer-modified mortars are very difficult to remove from the face of the brick.
- For additional information, contact your local Interstate Brick or H.C. Muddox representative.

For additional information on Adhered Brick Veneer:

DIRECT ADHERED CERAMIC TILE, STONE AND THIN BRICK FACADES
TECHNICAL DESIGN MANUAL, Richard P. Glodberg, Architect AIA, CSI

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