THIN BRICK

INTERSTATE® BRICK

Taylor Street, San Francisco, CA, Thin Brick custom color blend

BRICK FOR ARCHITECTS

You don't have to sacrifice your design vision because of construction constraints. Interstate Thin Brick is crafted for architects to give you the design flexibility you need.

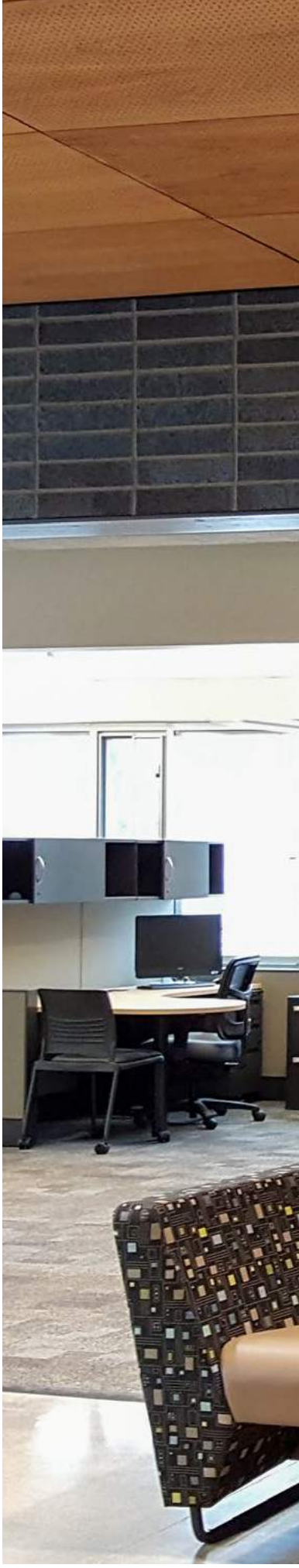
Reduce Wall Costs

Speed Up Installation

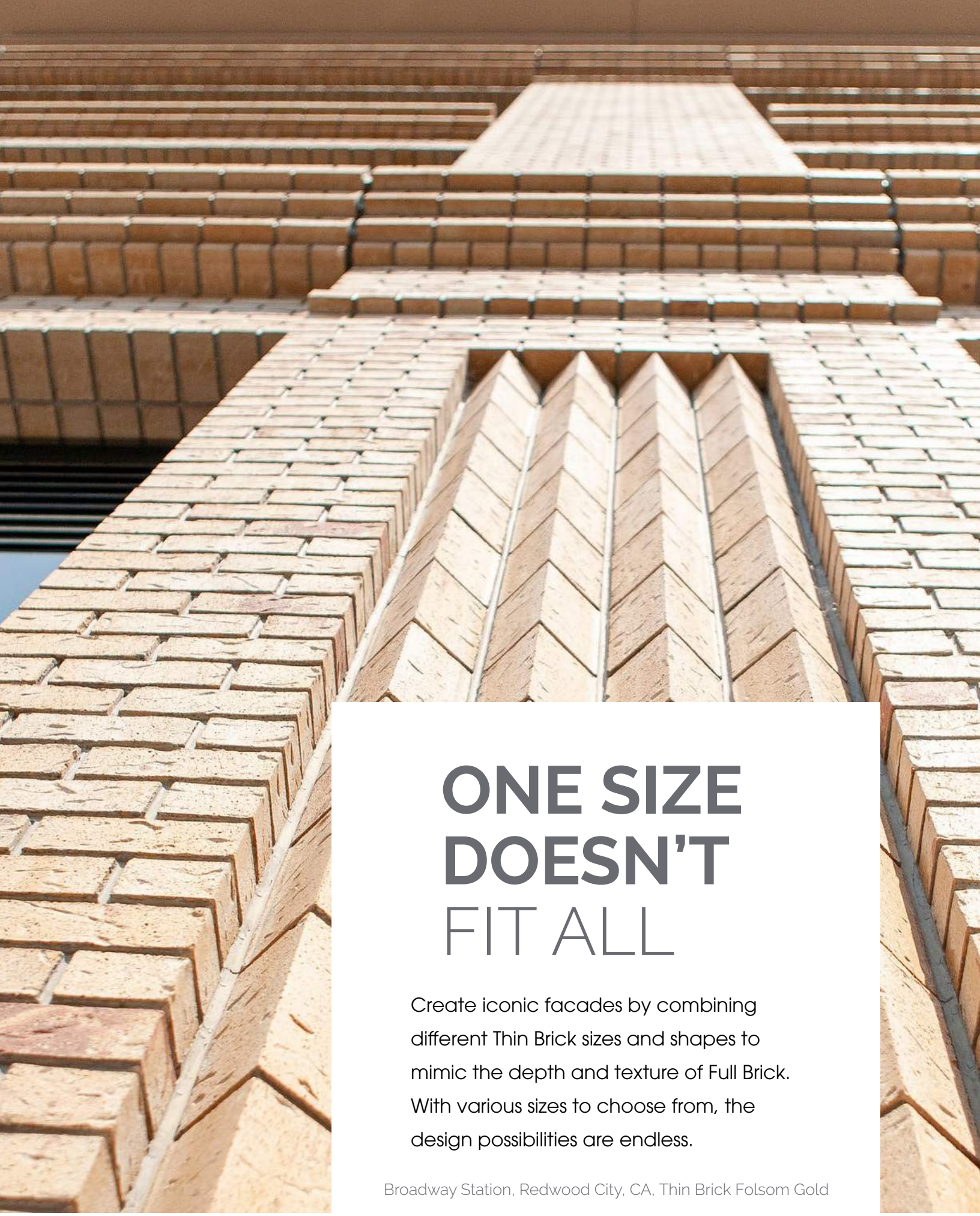
Modified PCI

Whatever size, shape, color or textured Thin Brick you need, we have a solution or can create one so you can bring your vision to life.

More **Sizes**, More **Shapes**, More **Possibilities**



Bates Mohler Advanced Tech Center, Tacoma WA, Thin Brick Obsidian



ONE SIZE DOESN'T FIT ALL

Create iconic facades by combining different Thin Brick sizes and shapes to mimic the depth and texture of Full Brick. With various sizes to choose from, the design possibilities are endless.

Broadway Station, Redwood City, CA, Thin Brick Folsom Gold

THIN BRICK	LENGTH	HEIGHT
Modular	7-5/8"	2-1/4", 2-1/2"
King	9-5/8"	2-5/8"
Standard	8"	2-1/2"
Closure	7-5/8"	3-5/8"
Square	7-5/8"	7-5/8"
Norman	11-5/8"	2-1/4", 2-1/2"
Utility	11-5/8"	3-5/8"
Emperor	15-5/8"	2-1/4", 3-5/8"
Super Emperor	15-5/8"	7-5/8"
Lintel-Edge Cap	7-5/8", 11-5/8"	2-1/4", 2-1/2", 3-5/8"
Corner	All lengths above	2-1/4", 2-1/2", 3-5/8", 7-5/8"
Shapes	Custom (You dream it, we'll make it.)	

For all size, specification and color options go to interstatebrick.com/thin-brick.

FIND YOUR **PERFECT COLOR**

Our color collection has over 100 color variations, so you have the design flexibility to create chromatic masterpieces or structures with a pop of color. See the next couple of pages for color inspiration.

Hercules Public Library, Herc

ules, CA, Thin Brick custom color blend

COLOR **DISCOVERY**

Explore the full line of colors at Interstatebrick.com/colors

Interstate Brick West Jordan - available everywhere


Arctic White


Ash


Pewter


Platinum


Canyon Rose


Ochre Buff


Desert Sand


Copperstone


Terra Cotta


Mountain Red


Park Rose


Ironstone


Granite


Obsidian


Black Opal


Midnight Black

Note: Clay bricks are made from natural raw materials, when fired, brick colors can vary in color from batch to batch. We recommend selecting colors from actual product samples. Contact your Interstate Brick consultant or distributor for your free color samples.

H.C. Muddox Sacramento - available everywhere


Frosted Almond


Tule Fog


Spanish Moss


Bronze Ridge

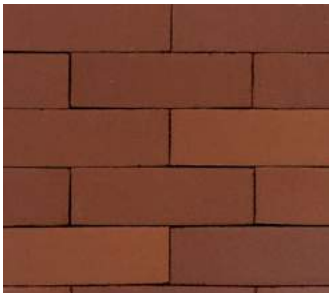

Sutter Gold


Summer Wheat


Dusty Rose


Mountain Rose


Old Town Red


Mission Smooth


Monterey Bay Flashed (Cross Set)


Burnt Rose


Iron Mountain


Carob


Sierra Slate


Ebony

EYE CATCHING **TEXTURES**

Find the right textured look for your next project. From effortless and smooth to crafted with character, visit Interstatebrick.com/texture to explore our full line of Thin Brick texture options.

1. Matte
Matte blades are used creating a nearly smooth and lightly pitted texture to highlight the natural minerals in the clay.

2. Antiqued
The rough random ridges of the Antique texture have the appearance of tree bark making it ideal for accents and banding.

3. Rough
Several wires are used to dig down into the face of the brick giving Rough its deep, wide combed, ridge pattern.

4. Smooth
Clay is extruded through a steel die without blades to create a smooth finish, giving the brick a sleek and modern look.

5. Chipotle
Fast moving custom rollers create Chipotle's rugged rolling wave texture, making each brick different in character.

6. Scratch
Several wires are used to create an engraved impression similar to corduroy.

7. Coated
Different clays are used to create a wet slurry that is applied to the face prior to firing, giving Coated brick its old world charm character.

ARCHITECT **RESOURCES**

We have a variety of tools and services to help make your job easier.

Revit & BIM

With Revit and BIM you can save time and easily create specs using Interstate Brick products.

Installation Methods

See our website for Thin Brick installation options to find the best solution for your project.

Learn & Earn Seminars

Our AIA Continuing Education seminars are an easy and efficient way for architects, engineers, interior designers, and LEED APs to gain their CE hours. Submit an AIA seminar request today!

Hamilton Street, Redwood City, CA, Thin Brick Old Town Red and Mountain Rose

Find the right tools for your next project at Interstatebrick.com/resources

Masonry Designer

Incorporate Interstate Brick into your wall designs, examine the impact of mortar color and other design elements, and export the results to your modeling programs or email.

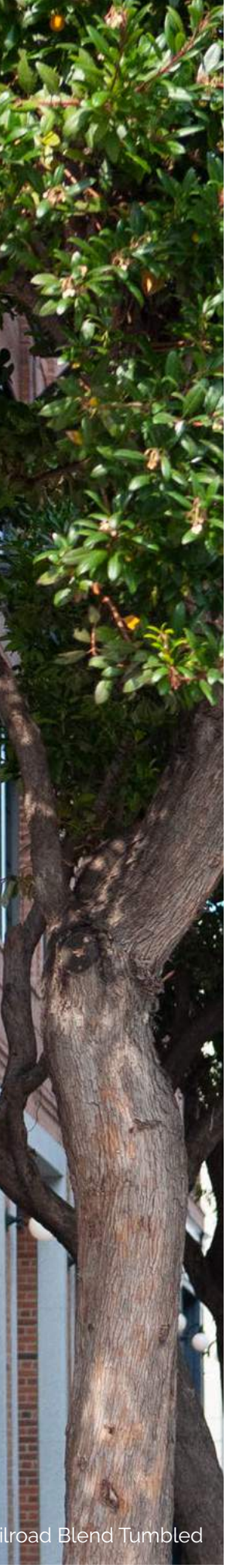
Modified PCI

We offer a modified PCI compliance in Modular, Norman, and Utility size in several mix designs (colors). We have passed the rigorous testing protocol process to meet PCI standards for every mix design at the Interstate Brick Plant. Please contact us for Modified PCI compliance.

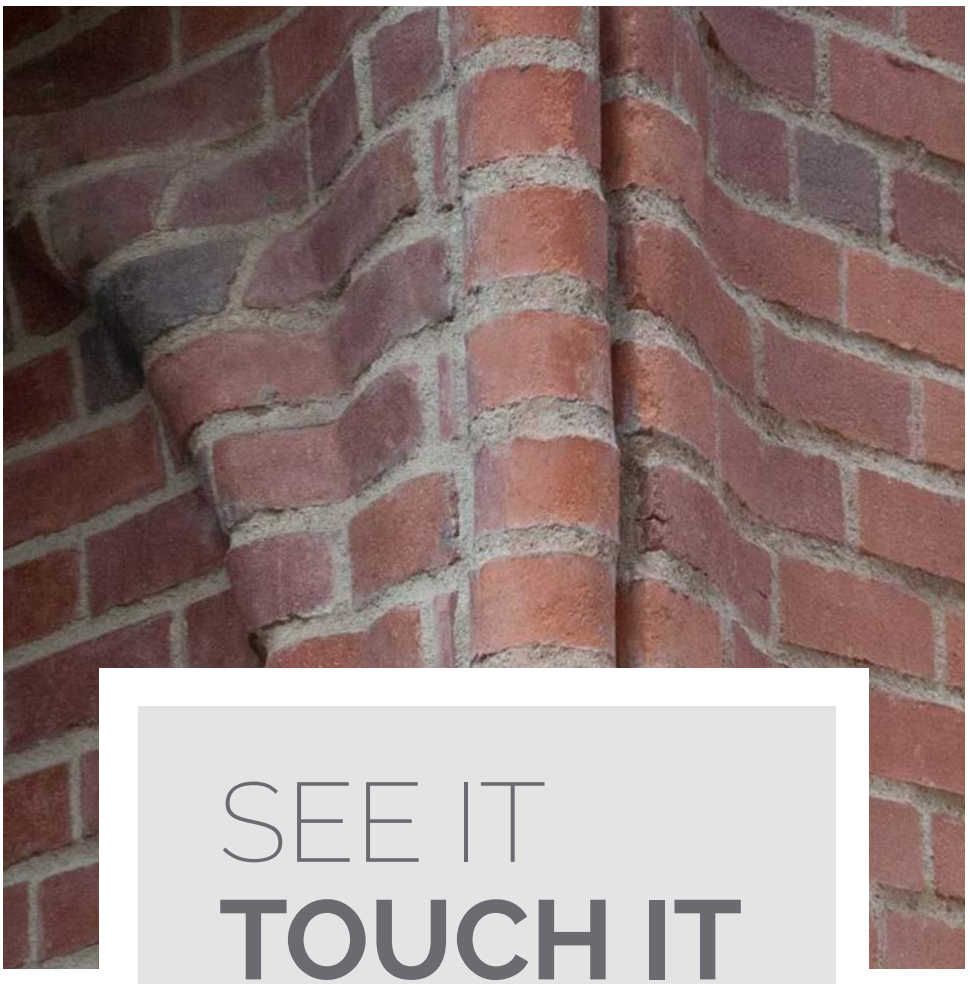
Visions Realized

At Interstate Brick we know that when you design projects you like to have your visions realized, not changed. We provide guidance during the design phases and offer customizable solutions so that the material selection you choose won't be substituted during construction.

Bryant Street, San Francisco, CA, Thin Brick Old Sacramento and Ra

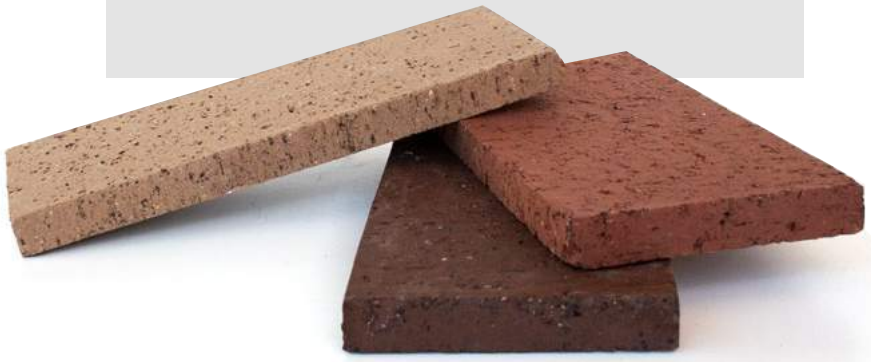


ilroad Blend Tumbled



SEE IT
TOUCH IT

We want you to see and feel the quality of our brick. Contact your Interstate Brick consultant or distributor for your free sample kit. Or visit us online to find a team member near you.
Interstatebrick.com/contact us



Broadway Station, Redwood City, CA, Thin Brick Folsom Gold

More **Sizes,** More **Shapes,** More **Possibilities**

INTERSTATE® BRICK
More Sizes, More Shapes, More Possibilities

Interstate Brick
9780 South 5200 West
West Jordan, UT 84081
(800) 233-8654

H.C. Muddox
4875 Bradshaw Rd
Sacramento, CA 95827
(916) 859-6320

follow us

interstatebrick.com

TECHNICAL BULLETIN 4

Brick Cleaning Recommendations

General

An important phase of constructing a masonry wall is cleaning. Sometimes walls are determined unacceptable because of poor cleaning. Failure to properly clean the brick after construction or use of aggressive cleaning products and/or methods can cause many problems. Mortar smear, white scum, efflorescence, green stain, etched bricks and mortar joints, removal of brick coatings, discolored masonry, acid burn, corrosion of reinforcing, pitting of window frames, and metal staining of the masonry are a few of the common problems associated with poor and/or improper cleaning.

The intent of this bulletin is to provide general brick cleaning guidelines that, when followed, will reduce or eliminate the problems mentioned above. Although **EaCo Chem** and **Prosoco Prosoco Sure Klean®** products are identified in this bulletin; it does not preclude the use of other acceptable brick cleaning products. For additional information refer to BIA Technical Note # 20. (www.gobrick.com)

All information presented in this document is for general information only, representing what is deemed 'best practice'. This information should not under any circumstances be relied upon for any specific project cleaning applications of brick installations without independent evaluation by an experienced brick cleaning professional familiar with the products, means, and methods noted. Anyone making use of this information does so at their own risk and assumes any and all liability resulting from such use.

Methods

There are three acceptable methods for cleaning brick recommended by the Brick Industries Association (BIA). These are: (1) 'Bucket and Brush' hand cleaning, and/or Low-Pressure water/detergent spray; (2) High- Pressure water spray; and, (3) Abrasive Blasting. **Interstate Brick®** and **H.C. Muddox** strongly recommend that options (2) and (3) be reserved for only those projects in which the other methods have failed to properly clean the masonry, and the owner accept the condition of the brick after such cleaning.

Products

Pre-mixed commercial cleaners are recommended over job blended mixtures of acids and detergents. Pre-blended cleaners reduce the risk of acid burn, metal staining, scum, corrosion, and etching.

Not all cleaning agents react the same on all brick and mortar. Some products are formulated to control manganese, iron, vanadium, and other metals found in brick. Use caution when specifying commercial cleaners to insure compatibility with the brick, mortar, and surrounding materials.

EaCo Chem NMD 80 is a buffered detergent-based solution designed for the cleaning of new masonry structures. **EaCo Chem SOS 50** is a buffered detergent-based solution in which hydrochloric acid has been substituted with an organic salt and can be used for cleaning new masonry structures where uses of acidic solutions are precluded.

NMD 80 and SOS 50 can be used on any type of brick, block, stone, cast stone, and pre-cast. No scrubbing is necessary. Both products help prevent efflorescence, manganese and vanadium stains and are safe for glass and anodized aluminum when used as directed.

Prosoco Sure Klean® 600 is a safe, effective general-purpose cleaner formulated of surface acting acids, chelating and wetting agents to clean excess mortar grout and job dirt. When properly applied, this product will not discolor or damage the surface. **Prosoco Sure Klean® Vana Trol®** is a blend of organic and inorganic acids with special inhibitors which control oxidation of vanadium, manganese, molybdenum and other metallic salts common in most light colored brick. **Vana Trol®** removes mortar and grout stains, and other new construction stains and controls efflorescence. **Vana Trol®** is also recommended for colored mortars as it will not bleach the mortar.

Use **EaCo Chem** or **Prosoco Sure Klean®** products as defined in the following table titled "Recommended Cleaners" or an approved equivalent.

Limitations

1. High-pressure spray application of the cleaning solution is not recommended.
2. High-pressure spray is not recommended for all brick surfaces and may cause damage.
3. Brick cleaning should not be performed on wall surfaces in which the ambient air temperature falls below 40°F (Fahrenheit degrees).
4. Where a pressure sprayer is used, the masonry wall shall be allowed to cure for 7 days for **EaCo Chem** products and 14 days for **Prosoco Sure Klean®** before cleaning.
5. Surface coated brick:
EaCo Chem: Use EC Jet or low pressure (50 psi or lower) application and low-pressure rinsing.
Prosoco Sure Klean®: Use low-pressure (50 psi or lower) or the bucket and brush method application and low-pressure rinsing. Post-fired coatings on brick may wash off with aggresive cleaning means and methods, and over time.
6. Do not use unbuffered or non-buffered acidic solutions to clean brick.

During Construction

1. Proper care should be taken during construction to keep the wall free of mortar and grout smears. Grout left on

the wall for even short periods of time become difficult to remove. Use a soft bristle brush immediately after tooling to remove excessive mortar. Avoid cleaning motions that press the mortar and grout into the face.

2. Cover the wall at the end of each working day. Failure to prevent moisture from entering the wall may result in efflorescence and other leaching problems.

3. Protect the wall from dirt and mortar splatter.

4. Store brick above the ground to protect from soil contamination.

Application

Follow the manufacturers' instruction for application and cleaning (www.eacoChem.com, www.prosoco.com) . The following steps are only guidelines.

1. The cleaning operation should be undertaken within 7 to 28 days when using **EaCo Chem** products; and 14 to 28 days when using **Prosoco Sure Klean®** Products, after the masonry construction. Cleaning before the wall has properly cured may weaken the masonry. Prolonged curing prior to cleaning may create more permanent stains which may become difficult to remove.
2. Test panel: Test proposed cleaning means and methods to ensure acceptable results.Test a small area of wall in an inconspicuous location using the cleaning mixture specified. A 16 sq. foot area may be sufficient. Where field panels are required, they should be cleaned using the product and procedures specified for the project. This can alert the owner's representative and contractor of any adverse reactions prior to cleaning the wall. Allow the test area to dry for one week prior to evaluating the effectiveness of the solution. The architect or owners' representative shall evaluate and approve the test area prior to cleaning the remainder of the wall. If the cleaning procedure is not effective, contact the manufacturer of the cleaner for further recommendations.
3. Mask or protect metal, glass, wood and other materials that may be adversely affected by the cleaning solution.
4. Pre-wet the area of wall to be cleaned and the area directly below. This will prevent absorption of the dissolved particles into the brick.
5. Use EC Jet or low pressure (50 psi or lower) spray to apply **EaCo Chem** products. Use a soft-fibered brush or a low-pressure spray to apply **Prosoco Sure Klean®** products. **DO NOT USE HIGH-PRESSURE SPRAY.**
6. **EaCo Chem:** Allow the solution to remain on the wall for 5 minutes and reapply. Allow solution to remain on the wall for additional 5 minutes after reapplication. **DO NOT ALLOW THE CLEANING SOLUTION TO DRY ON THE BRICK**.
Note: Depending on the mortar type or age a third application of **NMD 80** and **SOS 50** may be required.

Prosoco Sure Klean®: Allow the solution to remain on the wall for 1 to 3 minutes. Immediately reapply cleaning solution and remove heavy buildups of mortar and grout. **DO NOT ALLOW THE CLEANING SOLUTION TO DRY ON THE BRICK**.
7. Rinse thoroughly with clean water. Remove all cleaning solution from the area cleaned and any rundown. Failure to remove all cleaning solution may result in streaking, staining, and scumming.

Coverage

NMD 80: Dilute 1 part concentrate to 4 parts water

SOS 50: Dilute 1 part concentrate to 4 parts water

600: Dilute 1 part concentrate to 4 to 12 parts water

Vana Trol®: Dilute 1 part concentrate to 4 to 8 parts water

The test panel will help to identify the actual coverage rate required.

Precautions

Masonry cleaners are acidic and should be handled with caution. Applicators should wear goggles, rubber gloves, suits, etc. to avoid contact with the skin. To remove special stains refer to the BIA Technical Note # 20 for additional brick cleaning recommendations.

Recommended Cleaners

INTERSTATE® BRICK
H.C. MUDDOX PLANT

All brick colors can be cleaned using EaCo Chem NMD80 or PROSOCO Sure Klean® Vana Trol.

INTERSTATE® BRICK
WEST JORDAN, UT PLANT

All brick colors can be cleaned using EaCoChem NMD80 or PROSOCO Sure Klean® Vana Trol. In addition, the following brick colors may also be cleaned with PROSOCO Sure Klean® 600:

Brick Color	EaCo Chem	Prosoco Sure Klean®
Copperstone	NMD 80	600
Ironstone	NMD 80	600
Mojave Brown	NMD 80	600
Monterey	NMD 80	600
Mountain Red	NMD 80	600
Ochre Buff	NMD 80	600
Terra Cotta	NMD 80	600
Walnut	NMD 80	600

INTERSTATE® BRICK

H.C. MUDDOX

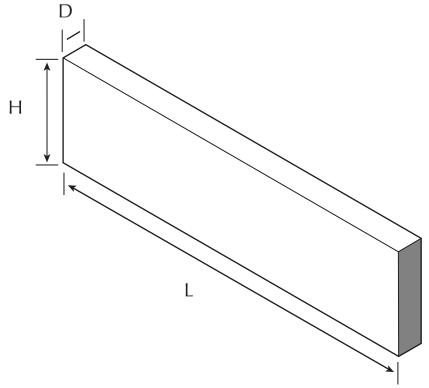
INTERSTATE® BRICK 9780 South 5200 West, West Jordan, UT 84081-5625
Phone: (801) 280-5200 Toll Free (800) 233-8654 www.interstatebrick.com

H.C. MUDDOX 4875 Bradshaw Road Sacramento, CA 95827-9727
Phone: (916) 859-6320 Toll Free (800) 776-1244 www.hcmuddox.com

Revision-0822

INTERSTATE® BRICK
More Sizes, More Shapes, More Possibilities

Thin Brick Specifications



Thin Brick Flats - Dimensions, Weights and Coverage

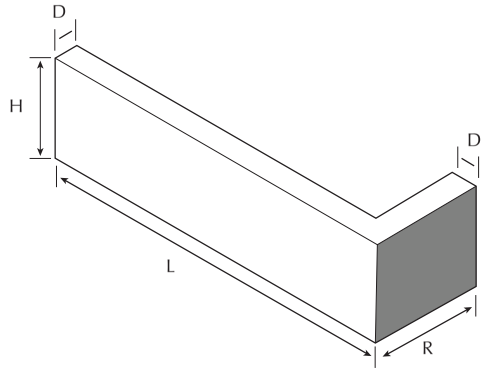
	Depth (D)		Height (H)		Length (L)		Weights		Units/Ft2		Packaging	
Description	in	mm	in	mm	in	mm	lbs.	kg.	Units/ft2	Units/ft2	Type	QTY
King	Note 1	Note 1	2 5/8	67	9 5/8	244	1.0	0.5	4.80	51.7	Box	45
2 ¼" Modular	Note 1	Note 1	2 ¼	57	7 5/8	194	0.7	0.3	6.86	73.8	Box	50
2 ¾" Modular	Note 1	Note 1	2 ¾	70	7 5/8	194	0.8	0.4	5.60	60.3	Box	35
4" Modular	Note 1	Note 1	3 9/16	90	7 5/8	194	1.0	0.5	4.50	48.4	Box	38
2 ¼" Norman	Note 1	Note 1	2 ¼	57	11 5/8	295	1.2	0.5	4.47	48.1	Box	25
4" Norman	Note 1	Note 1	3 9/16	90	11 5/8	295	1.9	0.9	3.00	32.3	Box	25
2 ¼" Emperor®	Note 1	Note 1	2 ¼	57	15 5/8	397	1.6	0.7	2.76	29.7	Box	30
4" Emperor®	Note 1	Note 1	3 9/16	90	15 5/8	397	2.5	1.1	2.25	24.2	Box	19

The Above Brick Manufactured by Interstate Brick comply with the following Specifications:

ASTM C1088: Grade Exterior; Type TBA, TBS or TBX as specified in Purchase Order;
PCI Compliant on some thin brick products - inquire

Note 1: Product thickness is dependent on the manufacturing process used to produce the thin brick; face cut, split-tile, break-a-way, clusters, and ribbons have different thicknesses. Set thicknesses are 5/8'"

Thin Brick Specifications cont.



Thin Brick Corners - Dimensions, Weights and Coverage

	Depth (D)		Height (H)		Length (L)		Return (R)		Weights		Units/Ft2		Packaging	
Description	in	mm	in	mm	in	mm	in	mm	lbs.	kg.	Units/ft2	Units/ft2	Type	QTY
King	Note 1	Note 1	2 5/8	67	9 5/8	244	3	76	1.0	0.5	4.80	51.7	Pallet	500
2 ¼" Modular	Note 1	Note 1	2 ¼	57	7 5/8	194	3 5/8	92	0.7	0.3	6.86	73.8	Pallet	500
2 ¾" Modular	Note 1	Note 1	2 ¾	70	7 5/8	194	3 5/8	92	0.8	0.4	5.60	60.3	Pallet	500
4" Modular	Note 1	Note 1	3 9/16	90	7 5/8	194	3 5/8	92	1.0	0.5	4.50	48.4	Pallet	500
2 ¼" Norman	Note 1	Note 1	2 ¼	57	11 5/8	295	3 5/8	92	1.2	0.5	4.47	48.1	Pallet	400
4" Norman	Note 1	Note 1	3 9/16	90	11 5/8	295	3 5/8	92	1.9	0.9	3.00	32.3	Pallet	400
2 ¼" Emperor®	Note 1	Note 1	2 ¼	57	15 5/8	397	3 5/8	92	1.6	0.7	2.76	29.7	Pallet	400
4" Emperor®	Note 1	Note 1	3 9/16	90	15 5/8	397	3 5/8	92	2.5	1.1	2.25	24.2	Pallet	400

The Above Brick Manufactured by Interstate Brick comply with the following Specifications:

ASTM C1088: Grade Exterior; Type TBA, TBS or TBX as specified in Purchase Order;
PCI Compliant on some thin brick products - inquire

Note 1: Product thickness is dependent on the manufacturing process used to produce the thin brick; face cut, split-tile, break-a-way, clusters, and ribbons have different thicknesses. Set thicknesses are 5/8", 7/8" and 1" [nominal] (16mm, 22mm, and 25mm [nominal]) - inquire

SECTION 042150

ADHERED THIN BRICK VENEER UNITS

SECTION 042150

ADHERED THIN BRICK VENEER UNITS

NOTE TO SPECIFIER:

Editing Conventions:

Coordinate requirements in the Specifications containing **indicated on the Drawings** with the Drawings.

Verify that items in red are used on the project or are referred to the right section of the specification and code.

The information presented in this document is for general information only. It should not under any circumstances be relied upon for specific without independent review and evaluation by a licensed design professional familiar with its specific use and application. Anyone making use of this information does so at their own risk and assumes any and all liability resulting from such use.

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Thin Brick masonry veneer units.
B. Related Sections:
1. Section 013119 - Project Meetings.
2. Section 033000 - Concrete Substrate
3. Section 040513 - Masonry mortaring
4. Section 054000 - Cold-Formed Metal Framing
5. Section 061000 - Rough Carpentry (wood framing)
6. Section 071000 – Weather Resistive Barrier
7. Section 071900 - Water Repellents
8. Section 076000 - Flashing and Sheet Metal
9. Section 079000 - Expansion and Control Joints
10. Section 079200 - Joint Sealants
11. Section 092400 - Cement Plastering (Stucco)
12. Section 092813 – Cement Backing Boards
13. Section 092900 - Gypsum Board

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM):
1. A 525 – Steel Sheet Zinc-Coated – hot dip galvanized
2. C 33 - Specification for Concrete Aggregates.
3. C 67 - Test Methods of Sampling and Testing Brick and Structural Clay Tile.
4. C 79 – Gypsum Sheathing board
5. C 270 - Specification for Mortar for Unit Masonry.
6. C 578 – Preformed Cellular Polystyrene Thermal Insulation
7. C 482-02 Standard Test Method for Bond Strength of Ceramic Tile to Portland Cement
8. C 270 - Specification for Mortar for Unit Masonry.

9. C 1019 - Method of Sampling and Testing Grout.
10. C 1088 - Standard Specification for Thin Veneer Brick Units Made from Clay or Shale.
11. C 1325 – Standard specification for Non-Asbestos Fiber-Mat Reinforced Cementitious Backer Units
12. C 1780 – Standard Practice for Installation Methods for Adhered Manufactured Stone Masonry Veneer.

B. ANSI
1. A108.11 Installation of cementitious backer units.
2. A108.13 Installation of waterproof membranes for thin-set brick.
3. A118.1 Dry-set Portland cement mortar.
4. A118.4 latex Portland cement mortar.
5. A118.9 Cementitious backer units.
6. A118.10 Waterproof membranes for thin-set brick.
7. A136.1 Organic Adhesives, Type I and Type II

C. International Building Code (ICC), adopted addition.
D. Building Code Requirements and Specification for Masonry Structures (TMS 402/602), adopted addition.
E. PCA Plaster and Stucco Handbook, latest edition
F. TCNA Handbook for Ceramic, Glass, and Stone Tile Installations, latest edition.
G. Masonry Veneer Manufacturers Association Installation Guide and Detailing for Compliance with ASTM C1780, latest edition

1.03 SUBMITTALS

A. Submit under provisions of Section 013300.
B. Product Data, and Evaluation Reports as required for installation.
C. Shop Drawings: Include elevations of each wall indicating type and layout of units.
D. Samples: Include samples of stretcher units in sufficient quantity to illustrate color range and texture.
E. Test Reports from an independent testing laboratory showing compliance with applicable specifications.
F. Provide manufacturer's specification, data, and installation for review prior to fabrication of work.
G. Submit installer's coordination drawings indicating the work of this section with that of related work of other sections for proper interface of the completed work. Installer shall coordinate and obtain approvals from the work of other related sections prior to submitting to the Architect

1.04 QUALITY ASSURANCE

A. Continuous Inspection:
1. Employ a qualified masonry inspector for continuous inspection of the masonry work. Acceptance by a State or municipality having a program of examining and certifying masonry inspectors will be considered adequate qualifications. The masonry inspector shall be at the site during all masonry construction and perform the following duties:
   a. Review Drawings and Specifications and meet with the CONTRACTOR to discuss requirements before work commences.
   b. Before masonry work commences, CONTRACTOR and the Contractor's Quality Control Representative shall attend meeting with ENGINEER to

review the requirements for surveillance and quality control of the masonry work.
c. Check brand and type of cement, lime (if used), and source of sand.
d. Ensure that the backing is continuous, rough, and moisture resistant to receive units.
e. Observe field proportioning of mortar. Visually check aggregate to determine uniformity of grading, cleanliness, and moisture.
f. Ensure that joints are full of mortar and kept tight during work.
g. Continuously observe placing of grout.
h. Perform or supervise performance of required sampling and testing.

2. Keep complete record of inspections. Report daily to the Contractor's Quality Control Representative the progress of the masonry inspection.

B. Mock-up:
1. Prior to starting construction of masonry, construct minimum 4 foot square mock-up.
2. Use accepted materials, containing each different kind and color of brick masonry units to illustrate wall design.
3. Show color range, texture range, bond, mortar color, joint tooling, critical design details and quality of workmanship.
4. Masonry construction may not proceed until the Architect./ Engineer approves mock-up.
5. When not accepted, construct another mock-up.
6. When accepted, mock-up will remain intact during construction, will be the standard of comparison for the remainder of masonry work.
7. Upon completion and acceptance of Project, dispose of mock-ups in legal manner at offsite location.

C. Pre-installation Conference: Conduct as specified in Section 013119.

D. Certification: Furnish manufacturer's certification that clay thin brick units provided meet or exceed the requirements of this specification.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store masonry units above ground to prevent contamination by mud, dust or other materials likely to cause staining or other defects.
B. Cover and protect masonry units from inclement weather to maintain quality control and physical requirements.
C. Transport and handle brick masonry units as required to prevent discoloration, chipping, and breakage.
D. Locate storage piles, stacks, and bins to protect materials from heavy traffic.
E. Remove chipped, cracked, and otherwise defective units from jobsite upon discovery.

1.06 PROJECT CONDITIONS

A. Cold Weather Requirements:
1. In accordance IBC Section 2104.3.
2. Provide adequate equipment for heating masonry materials when air temperature is below 40 degrees Fahrenheit (4 degrees Celsius).

B. Hot Weather Requirements:
1. In accordance with IBC Section 2104.4.
2. When ambient air temperature exceeds 100 degrees Fahrenheit (38 degrees Celsius), or when ambient air temperature exceeds 90 degrees Fahrenheit (32

degrees Celsius)and wind velocity is greater than 8 miles per hour, implement hot weather protection procedures.

3. Wet mortar board before loading and cover mortar to retard drying when not being used.
4. Do not spread mortar beds more than 48 inches (1.22 m) ahead of placing masonry units.
5. Place masonry units within one minute of spreading mortar.

C. Wetting of Brick: shall be required at the time of laying if the unit's initial rate of absorption (IRA) exceeds 30 grams per 30 square inches per minute or 1 g/ 645mm$^{2.}$

PART 2 PRODUCTS

2.01 THIN BRICK MASONRY UNITS

A. Manufacturers:
   1. Interstate Brick/HC Muddox: www.interstatebrick.com; www.hcmuddox.com
      a. Sales Representative:
         1) Name
         2) Phone
         3) Email

B. Type: ASTM C 1088, Grade Exterior, Type TBS thin veneer brick.

C. Surface Texture: To be selected by Architect/ENGINEER from manufacturer's full range of available textures.

D. Colors:
   1. Color as selected by Architect/ENGINEER from standard colors.

E. Size: $^{9}/_{16}$ in. thick x 2 ¼ in. high x 8 in. long, unless otherwise **indicated on the drawings**.

F. Special Sizes and Shapes: As required for window and door locations and custom sills where indicated, corners, and other special applications to minimize cutting.

G. Substitutions: None allowed

2.02 BOND-COAT MORTAR

A. Site mixed mortar: Meet requirements of ANSI A118.4 or A118.15.
B. Preblended: Meet requirements of ANSI A118.4 or A118.15.
C. Mortar for use with cement backer board substrate: comply with ANSI A118.4 or A118.15

2.03 POINTING MORTARS

A. Mortar used to grout or tuck-point mortar joints (sometimes called grouting mortars) between thin brick units after they are adhered to the substrate wall. Mix by proportion: 1 part Portland cement (ASTM C150); 1 part hydrated lime (ASTM C207); 6 parts sand (ASTM C144), or Modified Epoxy emulsion mortar/grout conforming to ANSI 118.07.
   1. Site mixed: Meet requirements of ASTM C270 Type N or Type S.
   2. Preblended: Meet requirements of ASTM C1714/C1714M Type N or Type S.

2.04 WEATHER-RESISTIVE BARRIER (WRB) – SEE SECTION 071000 FOR ADDITIONAL INFORMATION

A. Sheet goods: For exterior wall (not roof) applications. compatible with cementitious plaster and mortar capable of bond capacities of 50 psi (0.34 MPa) shear and tension bond
B. Elastomeric liquid/fluid applied: compatible with cementitious plaster and mortar capable of bond capacities of 150 psi (1.03 MPa) shear and tension bond.

2.05 DRAINAGE LAYER

Sheet or roll goods comprised of woven plastic strands, plastic strand mesh, profiled (ribbed, or dimpled) plastic sheeting, all faced with filter fabric. Alternatively, the drainage layer may be created with a filter membrane with dimples, or “buttons”, other protrusions bonded to the surface which create a 3/16” (5 mm) (minimum) air space, or other suitable material to provide a separation that allows water to drain out of the wall system.
A. HydroGap® by Benjamin Obdyke, or equivalent
B. Mortairvent® by Advanced Building Products, or equivalent
C. Sure Cavity™ by MTI, or equivalent

2.06 RIGID EXTERIOR INSULATION – SECTION 072113

A. Type and thickness as defined in the drawings and in specification Section 072113
B. To be installed as part of the exterior adhered thin brick wall system outboard of the WRB

2.07 LATH (FURRED)

A. 3/8” (9.5mm) dimples or ribs, 3.4 lb./yd^2 (1.9kg/m^2) self-furring expanded galvanized metal lath – ASTM C847
B. 1/4” (6.3mm) dimples or ribs, 2.5 lb/yd^2 (1.4kg/m^2) (or heavier) self-furring metal lath – ASTM C874
C. Welded wire lath – ASTM C933
D. Proprietary integral woven fiberglass lath and profiled drainage membrane – See 2.09-F.

2.08 FLASHING

A. Corrosion resistant plastic, copper, stainless steel, painted metal, coated metal as shown on the drawings. See section 076000 for additional information.

2.09 ACCESSORIES

A. Weep screeds: Corrosion resistant with 3.5” (89mm) (minimum) vertical attachment flange (that terminates behind WRB)
   1. Metal weep screed: not less than 26 gage; .0179 inches (0.45mm)
   2. Plastic weep screed: not less than 0.05 inches (1.3mm)
B. Casing beads: Corrosion resistant
   1. Metal weep screed: not less than 26 gage; .0179 inches (0.45mm)
   2. Plastic weep screed: not less than 0.05 inches (1.3mm)
C. Elastomeric sealants. Sized for calculated movement. Section 079200
D. Fasteners: ASTM C1063
   1. For steel studs: corrosion resistant screws; coated or bi-metallic (mild [drill] tip with stainless threaded shank), for fastening drainage plane material and lath material to substrate wall; rated for resistance to moist environments. Penetrate stud to expose 3 full threads through steel studs
   2. For wood studs: corrosion resistant staples, corrosion resistant roofing nails, or corrosion resistant screws and washers, all of sufficient length to penetrate a minimum of ¾” into wall framing members
   3. For concrete or CMU: corrosion resistant concrete screws (with 1¼” minimum penetration into sound substrate) or corrosion resistant powder actuated fasteners (with 1” minimum penetration into sound substrate)
      a. Follow fastener manufacturer’s recommendations for installation into CMU
   4. Fasteners intended to secure lath shall have sufficiently large heads or added corrosion resistant washers large enough to not pull through the lath.
E. Fluid applied bond coat – used on the face of rigid insulation
F. Proprietary Lath Systems – follow manufacturer’s recommendations for installation
   1. Punched galvanized sheet metal: TABS II or equivalent
   2. Thermoset reinforced plastic: Speedymason or equivalent
      a. Mortar set
      b. Peel n’ stick
   3. Profiled expanded rigid foam: Brickwebb by Old Mill or equivalent.
   4. Fiberglass woven lath by SpiderLath, or equivalent. [For non-fire-rated Type V construction]
   5. Fiberglass woven lath bonded to profiled plastic drainage membrane
      a. Delta-Dry and Lath, by Dorken, or equivalent. [For non-fire-rated Type V construction]
G. Proprietary MVIS systems: exterior wall assembly system applied to clean and sound exterior substrate surfaces that has compatible components comprised of: liquid/fluid elastomeric WRB membrane, cementitious plaster substrate, setting/bonding mortar, and pointing mortar (grout) systems designed specifically for adhered exterior masonry veneers, including thin brick. Not applicable where it would be applied directly to a drainage layer.
   1. Laticrete MVIS or equivalent.
      a. 3-part system: fluid WRB + masonry veneer mortar + pointing mortar. Used for thin or thick set applications
      b. 4-part system: fluid WRB + premium mortar bed + masonry veneer mortar + pointing mortar. Used in lieu of stucco substrates
H. Something else

2.10 CEMENT BACKER (CB) OR CEMENT BACKER BOARD (CBB) – SEE SECTION 092813 CEMENT BACKER BOARD

A. Specialty cement backer boards are available that come with rigid polystyrene foam and/or mineral wool of various thicknesses bonded to the cement backer board as an option to provide exterior insulation.

2.11 STUCCO – SEE SECTION 092400 CEMENT PLASTERING

PART 3 EXECUTION

3.01 VENEER SUBSTRATE SURVEY

A. Survey condition of substrate wall or backing to receive thin brick and report all non-conformance issues, including but not limited to: out of tolerance flatness, plumbness, alignment, and location. Report all pertinent issues to the General Contractor prior to initiating any work.

3.02 VENEER SUBSTRATE PREPARATION

A. Concrete, CMU, Cement Backer Board, and Stucco
   1. Remove all deleterious substances (form release, curing compounds, paint, graffiti, etc.)
   2. Wash surface to remove dust and laitance, and allow to dry
   3. Cleaning may be waived/eliminated where new construction makes in unnecessary, and when proprietary lath systems are used, pending acceptance of Architect and lath system manufacturer.

B. Wood sheathing.
   1. Prepare to receive veneer assembly by properly setting all protruding fasteners and fixing fasteners that have punched through the exterior surface of the sheathing.
   2. Remove all deleterious materials from the surface of the sheathing.

C. Prepare substrate surface to receive adhered thin brick as noted above or by any other suitable and approved means and methods that will ensure adequate bond and durability if the thin brick installation. Submit proposed means and methods for review and receive approval prior to initiating any work..

D. Else/other

3.03 CONFIRMATION OF MASONRY LAYOUT

A. Prior to installation of thin brick, layout (dry) coursing to fill surface and note any adjustments that are necessary to produce the desired look, eliminating units that are less than 1/2 of the full unit width. This may require adjusting the location of head joints and using 3/4 length (approx.) units to maintain the desired bonding pattern.

B. Adjust joint widths within established tolerances to accommodate brick tolerances and layout tolerances.

C. Adjustments to layout, including but not limited to partial brick units and joint sizes must be approved by the Architect prior to installation.

3.04 EXTERIOR THICK SET APPLICATION FOR UNEVEN SUBSTRATES (CONCRETE, CMU AND UNEVEN WOOD SHEATHING)

The following guidelines are intended for exterior application over somewhat uneven substrates or when using thin brick with undulating/uneven back surfaces or thin bricks that vary in thickness.

A. Protect adjacent construction with appropriate means from mortar droppings and other effects of laying of brick masonry units.

B. Install flashing at the perimeter of thin brick veneer wall assembly, around openings, and at base of veneer, integrated with the WRB to prevent the moisture from entering the building and to transmit the moisture to the outside of the wall. Install weeps (weep

screeds) at the bottom of the walls, integrated with the WRB to transmit the moisture to the outside face of the wall. Secure flashings with fasteners.

C. Install two layers of WRB sheet or roll goods over the substrate wall, in shingle fashion, starting at the bottom of the wall. Each layer must provide a complete, independent, uninterrupted drainage path. The laps should be 2 in. (51 mm) minimum for horizontal laps and 6 in. (152 mm) minimum for vertical laps. Stagger laps in each layer, in shingle fashion. Secure in place with mastic, adhesive or fasteners. WRB may be reduced to a single layer where drainage layer is used; increase horizontal laps to 3" (76 mm) for single layer WRB sheet goods.
   1. Alternatively, apply liquid or fluid WRB to clean, sound substrate materials.

D. Install optional (recommended) drainage layer over WRB. Avoid creating dams or terminations that would impede the flow of water and moisture out of the wall, directing it to the exterior surface. Secure drainage layer with fasteners.
   1. See 3.04-F-1 for alternative.

E. Where exterior insulation is intended, rigid insulation should be chosen, and it should be installed over the optional but recommended drainage layer, secured in place with appropriate fasteners.

F. Install metal lath complying with ASTM C847 on the substrate material, furred a minimum of ¼" (6 mm) off the face of the substrate material. Self-furring lath may be used (recommended). Refer to ASTM C1063 for installation of metal lath for portland cement plastering applications. Secure lath with fasteners. The maximum horizontal spacing for the fasteners is 16 in. (406 mm) o.c. and maximum vertical spacing for fasteners is 6 in. (152 mm) o.c.
   1. Alternative: drainage layer and lath can be provided by proprietary system of lath combined with a drainage layer as noted in 2.07-E.4.

G. Apply ½" to 1" (13 mm to 25 mm) thick cementitious plaster (stucco) scratch coat on clean and dust-free substrate, using Type S mortar, working into lath to completely embed lath into cementitious plaster with at least ¼" coverage on the back of the lath. Mortar 2.02-D -1 above. Scarify surface while moist. Apply ¾" to 1¼" (19 mm to 32 mm) thick cementitious plaster (stucco) over rigid insulation, where occurs.
   1. Contiguous areas of cementitious plaster (stucco) bounded by joints or edges of the plaster should not exceed 144 sq ft (13.4 sq. m), with joint spacing not to exceed 18 feet (5.5 m), and with the aspect ratio of areas bounded by joints or edges of the plaster should not exceed 1.5:1.0.

   Cure scratch coat at least 24 hours prior to the application of subsequent coats. If surface dry, pre-wet surface prior to applying the setting (bonding) mortar. See Section 092400 for additional information.

H. Spread brick setting (bonding) mortar bed onto the clean and dust-free substrate using the flat side of a trowel and comb using a notched trowel (3/16" to ¼" [5 mm to 6 mm] deep notches) to obtain an even setting bed. Use Type S polymer modified mortar (Latex-Portland Cement Mortar, per 2.02-D-2, above).

I. Apply brick setting bed mortar to the back of the veneer units, working into the back of the brick unit using the flat side of a trowel and comb using a notched trowel (as above) and place the unit into the setting bed on the substrate wall. Work the thin brick unit into place by tapping, or sliding slightly back-and-forth, or up-and-down, or rotating slightly, until excess mortar is squeezed out at the edges of the veneer unit, completely filling the space between unit and bonding mortar. The thickness of the setting/bonding mortar bed shall be between $^{3}/_{8}$ in. and ¾" in (10 mm and 19 mm) to accommodate variations in the substrate surface, variations in the brick, and to adjust for plumbness and flatness of the wall. Use of a 48-inch-long straight edge is recommended to ensure a planar installation, sweeping over the surface and humoring (adjusting) the brick as needed to correct for anomalies.

J. Lay units to desired height with joints of uniform thickness. Grout the joints using Type N mortar mix per 2.03 above. Tool the joint when they are thumb print hard.
K. Bond shall be plumb throughout.
L. Lay units to avoid formation of cracks when units are placed.
M. Lay masonry plumb, true to line, with courses level. Keep bond pattern plumb throughout. Care should be taken to produce a flat finished surface where uneven substrates exist or where thin brick thicknesses vary. Lay masonry within the tolerances of ACI 530.1 Section 3.3 G.
N. When positions of units shift after mortar has stiffened, bond is broken, or cracks are formed, remove and reinstall units in new mortar.
O. Avoid laying units where they would bridge active cracks or established movement joints in substrate materials. Cut where necessary to respect jointing in substrate.
P. Avoid mortar staining on the units during installation. Clean any mortar smearing or staining promptly to reduce final cleaning.
Q. Alternate 1: Use a proprietary 4-part MVIS system (2.09-G-1-b) applied to clean, sound concrete or CMU substrates, where no drainage layer is required.

3.05 INTERIOR THICK SET APPLICATION FOR UNEVEN CEMENTITIOUS SUBSTRATES (CONCRETE, CMU) AND UNEVEN WOOD SHEATHING [NO LATH]

The following guidelines are intended for interior thin brick applications over somewhat uneven substrates or when using thin brick with undulating/uneven back surfaces or thin bricks that vary in thickness. No drainage layer required. Intended for dry service applications.

A. Follow Section 3.02, items A, and F through P or Q for cementitious substrates.
B. Follow Section 3.02, items A, C (liquid/fluid WRB), and F through P or Q for wood or exterior gypsum sheathing substrates.
C. A proprietary 4-part Masonry Veneer Installation System (MVIS) (2.09-G-1-b) may be used for interior applications where no drainage layer is required, applied directly to sound substrate of concrete, CMU, CBB, wood, or exterior gypsum board sheathing. Care should be taken to produce a flat finished surface where uneven substrates exist.

3.06 EXTERIOR THIN SET APPLICATION TO FLAT CEMENTITIOUS SUBSTRATE (CONCRETE, CMU, AND CEMENT BACKER BOARD [OVER FRAMED WALLS])

The following guidelines are intended for exterior application over reasonably flat substrates when using thin brick with uniform thickness.

A. Protect adjacent construction with appropriate means from mortar droppings and other effects of laying of brick masonry units.
B. Install flashing at the perimeter of thin brick veneer wall assembly, around openings, and at base of veneer, integrated with the WRB to prevent the moisture from entering the building and to transmit the moisture to the outside of the wall. Install weeps (weep screeds) at the bottom of the walls, integrated with the WRB to transmit the moisture to the outside face of the wall. Secure flashings with fasteners.
C. Apply liquid/fluid WRB membrane to clean concrete substrate surfaces.
    1. If drainage layer is used, WRB may be single layer of sheet or roll goods. Lap sheet goods per 3.02 C.
D. Install optional (recommended) drainage layer over sheet or roll goods WRB or liquid/fluid elastomeric WRB. Avoid creating dams or terminations that would impede the flow of water and moisture out of the wall, directing it to the exterior surface. Secure in place with fasteners.

E. Where exterior insulation is intended, rigid insulation should be chosen, and it should be installed over the optional but recommended drainage layer, secured in place with appropriate fasteners.
F. Apply CBB over WRB sheet or roll goods (or liquid/fluid WRB) and over optional (recommended) drainage layer, and over exterior rigid insulation, where used. Secure cement backer board in place with appropriate fasteners. Tape joints.
G. Spread brick setting (bonding) mortar bed onto the clean and dust-free substrate of concrete or CMU with compatible elastomeric liquid/fluid WRB, or onto CBB over WRB and/or optional (recommended) drainage layer, using the flat side of a trowel and comb using a notched trowel (3/16" to ¼" [5 mm to 6 mm] deep notches) to obtain an even setting bed. Use Type S polymer modified mortar (Latex-Portland Cement Mortar, per 2.02-D-2, above).
H. Apply brick setting bed (bonding) mortar to the back of the veneer units, working into the back of the brick unit using the flat side of a trowel and comb using a notched trowel (as above) and place the unit into the setting bed on the substrate wall. Work the thin brick unit into place by tapping, or sliding slightly back-and-forth, or up-and-down, or rotating slightly, until excess mortar is squeezed out at the edges of the veneer unit, completely filling the space between unit and bonding mortar; 100% coverage on the thin brick units. The thickness of the setting/bonding mortar bed shall be between $^{3}/_{8}$ in. and ¾" in (10 mm and 19 mm) to accommodate variations in the substrate surface, variations in the brick, and to adjust for plumbness and flatness of the wall. Use of a 48-inch-long straight edge is recommended to ensure a planar installation, sweeping over the surface and humoring (adjusting) the brick as needed to correct for anomalies.
I. Lay units to desired height with joints of uniform thickness. Grout the joints using Type N mortar mix per 2.03 above. Tool the joint when they are thumb print hard.
J. Bond shall be plumb throughout.
K. Lay units to avoid formation of cracks when units are placed.
L. Lay masonry plumb, true to line, with courses level. Keep bond pattern plumb throughout. Lay masonry within the tolerances of ACI 530.1 Section 3.3 G.
M. When positions of units shift after mortar has stiffened, when bond is broken, or when cracks are formed, remove and reinstall units in new mortar.
N. Avoid laying units where they would bridge active cracks or established movement joints in substrate materials. Cut where necessary to respect jointing in substrate.
O. Avoid mortar staining on the units during installation. Clean any mortar smearing or staining promptly to reduce final cleaning.
P. Alternate 1: Proprietary lath systems (2.09-F) are suitable for this application in lieu of the setting/bonding mortar application noted above. Apply over WRB and optional (recommended) drainage layer, and over optional insulation. Where proprietary lath system has an integral drainage layer, additional drainage layer is not needed. Where proprietary lath system has integral insulation, additional insulation may not be necessary.
Q. Alternate 2: Proprietary 3-part MVIS systems (2.09-G-1-a) may be used where no drainage layer is required, applied over concrete, CMU, or over CBB that is installed over (optional) drainage and insulation layers.

3.07 INTERIOR THIN SET APPLICATION TO FLAT SUBSTRATE (CONCRETE, CMU, AND CEMENT BACKER BOARD)

The following guidelines are intended for interior thin brick applications over reasonably flat substrates when using thin brick with uniform thickness. No drainage layer required. Intended for dry service interior applications.

A. Follow Section 3.04, items A, and G through P or Q for cementitious substrates (concrete of CMU)
B. Follow Section 3.04, items A, and G through P or Q for wood or exterior gypsum sheathing substrates.
C. A proprietary 3-part MVIS systems (2.09-G-1-a) may be used, applied directly to wood or exterior gypsum sheathing, cement, CMU, or CBB substrates, for interior applications where no drainage layer is required.
D. A proprietary lath system, (2.09-F) may be used in lieu of the above, applied directly to wood or exterior gypsum board sheathing, concrete, CMU, or CBB.

3.08 MORTAR JOINTS

A. Make joints straight, clean, smooth, and uniform in thickness.
B. Pointing: Tool exposed joints, slightly concave. Strike concealed joints flush.
C. Tool joints while slightly moist and thumbprint hard.
D. Joint Thickness: Make vertical and horizontal joints as required to achieve nominal dimensions on drawings and within tolerances listed in ACI 530.1 Section 3.3 G.
E. Where fresh masonry joins totally or partially set masonry, clean and roughen set masonry before laying new units.

3.09 BOND PATTERN

A. Install brick masonry units in running bond pattern, unless otherwise **indicated on the Drawings**.

3.10 CUTTING BRICK MASONRY UNITS

A. When possible, use full units of the proper size in lieu of cut units.
   1. Cut units as required to form chases, openings, for anchorage, and for other appurtenances, and at all movement joints and terminations, as required, so as to eliminate units bridging across movement joints (or cracks) in substrate.
B. Cut and fit units with power-driven carborundum or diamond disc blade saw.
C. Clean back of units after cutting to remove dust and other deleterious material(s).
D. Discard units that are damaged during the cutting process, which do not meet the appearance standard of ASTM C1088.

3.11 CONTROL JOINTS / EXPANSION JOINTS

A. Size joints to accommodate anticipated movements with respect to moisture and thermal gradients in addition to building movements commensurate with the movement potential of the joint material(s).
B. Provide in masonry walls where **indicated on the Drawings**.
C. Make full height and continuous in appearance.
D. Control and expansion joints must be continuous through the backing, unless detailed otherwise.
E. Insert control joint filler in joints as wall is constructed.
F. Insert 50% compressible elastomeric (neoprene or equivalent) expansion joint material in properly sized expansion joints.
G. Apply sealant as specified in Section 079000.

3.12 FLASHING

A. Flashing must be installed at all through wall penetrations and at lower boundaries of the adhered thin brick veneer installations.
B. Flashings will be integrated with the WRB materials to provide effective control of moisture exiting the wall assembly, with sealed corners, end dams and other accessories as needed.

3.13 OTHER EMBEDDED ITEMS

A. Build in wall plugs, accessories, flashings, pipe sleeves, and other items required to be built-in as the masonry work progresses.

3.14 PATCHING

A. Patch exposed brick masonry units at completion of the Work and in such manner that patching will be indistinguishable from similar surroundings and adjoining construction.

3.15 MISCELLANEOUS

A. Build in required items, such as anchors, flashings, weep screeds, sleeves, electrical boxes, frames, structural steel, lintels, anchor bolts, and metal fabrications, as required for complete installation.

3.16 WATER REPELLENT (Recommended)

A. Apply water repellent as specified in Section 071900 where directed or specified on drawings.

3.17 FIELD QUALITY CONTROL

A. Have minimum 3 masonry units of each type proposed for Project tested in accordance with ASTM C 67 to verify conformance to Specifications.
B. Tests shall include absorption, Initial Rate of absorption and unit weight.
C. Employ and pay acceptable independent testing laboratory to perform testing
D. Per ASTM C 1088, after brick are placed in usage, the manufacturer or the manufacturer's agent shall not be held responsible for compliance of brick with the requirements of ASTM C 1088 for chippage and tolerances.

3.18 CLEANING

A. Exercise extreme care to prevent mortar splotches.
B. Do not attach construction supports to masonry walls.
C. Use only new cleaning products from previously unopened and untampered containers. Do not mix, or concoct, or blend cleaning materials unless specifically instructed to do so by the cleaning material manufacturer, and then only upon approval by the General contractor, Architect, and owner.
D. Identify a suitable, non-critical location, mutually acceptable to the General Contractor, Architect and Owner, to test cleaning methods for approval prior to mass cleaning of the installation.
E. Wash off brick scum and grout spills before scum and grout set.
F. Remove grout stains from walls using cleaning agent and methods recommended by brick manufacturer.

G. Test clean masonry in selected area with the least aggressive method possible that will attain the desired effect starting with “Bucket and Brush” method. Apply cleaning solution recommended by brick manufacturer in accordance with cleaning solution manufacturer's printed instructions and brick manufacturer’s recommendations.
H. Once the cleaning method is established and approved, proceed to clean the building in total following established procedures.
I. Remove scaffolding and equipment. Dispose of debris, refuse, and surplus material offsite legally.
J. Correct efflorescence on exposed surfaces with commercially prepared cleaning materials acceptable to masonry unit manufacturer.
K. Do not use muriatic or hydrochloric acid as cleaning solutions.
L. Do not use abrasive cleaning equipment or methods.

3.19 FORMS AND SHORES

A. Where required, construct forms to the shapes **indicated on the Drawings**.
   1. Construct forms sufficiently rigid to prevent deflection which may result in cracking or other damage to supported masonry and sufficiently tight to prevent leakage of mortar and grout.
   2. Do not remove supporting forms or shores until the supported masonry has acquired sufficient strength to support safely its weight and any construction loads to which it may be subjected.
      a. Wait at least 16 hours after grouting masonry columns or walls before applying uniform loads.
      b. Wait at least 64 hours before applying concentrated loads.

3.20 PROTECTION

A. Provide temporary protection for exposed masonry corners subject to damage.
B. Bracing:
   1. Adequately brace masonry walls over 8 feet in height to prevent overturning and to prevent collapse unless wall is adequately supported by permanent supporting elements so wall will not overturn or collapse.
   2. Keep bracing in place until permanent supporting elements of structure are in place.
C. Limited Access Zone:
   1. Establish limited access zone prior to start of masonry wall construction.
   2. Zone shall be immediately adjacent to wall and equal to height of wall to be constructed plus 4 feet by entire length of wall on un-scaffolded side of wall.
   3. Limit access to zone to workers actively engaged in constructing wall. Do not permit other persons to enter zone.
   4. Keep zone in place until wall is adequately supported or braced by permanent supporting elements to prevent overturning and collapse.

END OF SECTION

Additional items to coordinate:

CEMENT BOARD – SECTION 092813

1. Exterior: ½” (13mm) (minimum) fiber-reinforced cement board compliant with ASTM C1325. Applied over WRB and exterior sheathing.

2. Interior: 3/8” (10mm) (minimum) fiber reinforced cement board compliant with ASTM C1325. Applied over sheathing.
3. Optional proprietary cement board bonded to rigid foam insulation with integral drainage channels: PRO-GUARD, or equivalent
4. Current “best practice” philosophy is to provide a drainage layer behind the cement board (and insulation, where exists)

LATH – PART OF STUCCO (SECTION 092400)

1. 18 Gauge (43mils; 1.4mm) galvanized woven wire mesh – ASTM C1032
2. 3/8” (9.5mm) rib, 3.4 lb./yd^2 (1.9kg/m^2) self-furring expanded galvanized metal lath – ASTM C847
3. 2.5 lb/yd^2 (1.4kg/m^2) (or heavier) self-furring galvanized metal lath – ASTM C874
4. Welded wire lath – ASTM C933
5. Lath should be furred off the face of the drainage layer/WRB so cementitious plaster fully engulfs the metal lath. Self-furring lath products are available.
6. lath should be fastened through WRB and exterior sheathing into the wall framing members with adequate penetration.

Proprietary lath systems should be included

STUCCO – SECTION 092400

1. For uneven substrates (wood framing) a 2-coat application is best to provide an even and flat substrate for the thin brick veneer.
2. For very flat substrates (steel studs) a single coat stucco is adequate.
3. Roughen surface to receive thin brick bonding mortar (scratch coat).
4. Current “best practice” philosophy is to provide a drainage layer behind the stucco and over the WRB.
5. Follow PCA Plaster and Stucco Handbook guidelines and recommendations. Suggest maximum panel aspect ratio of 1.5:1.0, rather than 2.5:1.0 in handbook.
6. Use weep screeds or other means to eliminate any accumulated water/moisture.

WEATHER RESISTIVE BARRIER – SECTION 071000

1. Suitable as substrate to cementitious plaster (stucco) with minimum bond capacity of 150 psi tensile and shear strength for applications where a stucco substrate is added.
2. Typical sheet or roll goods application as substrate to cementitious plaster/stucco/cement board: Applied in 2 layers, shingle fashion, from the bottom of the wall.
    a. When covered by a drainage layer, then single layer of WRB is adequate.
3. May be liquid/fluid applied membrane barrier suitable for bonding to cementitious plaster (stucco) and mortar where no lath and cementitious plaster is used.

WATER REPELLENT (Recommended)

1. Apply water repellent as specified in Section 071900 where directed or specified on drawings.
2. Water repellant should have a high vapor transmission rate and repel liquid water. Silanes, siloxanes, or combinations of those, are typical.

Recommended Application Guidelines for Adhered Thin Brick Veneer

H. C. Muddox and Interstate Brick thin brick can be installed onto new and existing walls over a variety of different backup substrates. The following are general guidelines for each the different applications. As building code requirements differ from area to area, check with local building departments prior to installation.

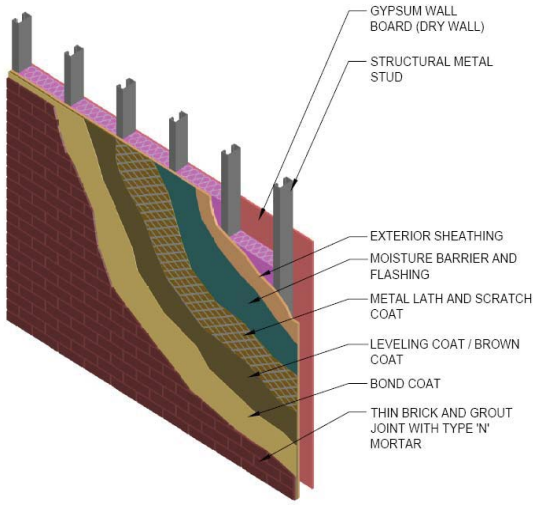
Approved Substrates for Adhered Thin Brick

Thin brick can be installed over a variety of construction substrates. The most common of these is thin brick directly adhered to a substrate of a scratch and brown stucco system. Thin Brick can also be adhered to Metal Panels, Concrete Masonry Units (CMU), Tilt-up or Poured in Place Concrete, Cement board or other approved cementitious substrates.

There are a number of options available for installing thin brick over wood and metal framing systems. A typical Thin Brick application of over a scratch and brown usually consists of a wall system similar to the detail at the right.

Thin Brick adhered to Scratch and Brown Stucco Over Metal or Wood Studs:

- Size stud framing for all design loads. Design deflections should be limited to L/360.
- Size and install sheathing as required for design loads.
- Apply moisture barrier, flashing and weeps as required to create positive drainage to the exterior.
- Attach self furring metal lath 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.
- Apply "scratch" coat of stucco over metal lath - completely embed and cover. Allow to dry 24 hours.
- Apply "brown" or leveling coat of stucco to scratch coat to level and plumb surface. Allow to dry 7 days prior to installing thin brick.
- Blend thin brick from multiple cartons and multiple pallets to create a uniform distribution of color.



- Brown coat substrate may need to be slightly moistened to prevent desiccation from the bonding mortar. Apply thin brick to brown coat using specified Type S bonding mortar. Using a ¼" notched trowel, coat the brown coat with a thin layer of bonding mortar from the substrate. Do not cover an area larger than can be completed in 10 minutes.
- "Back Butter" (coat) the back side of the thin brick and press into place. Allow to dry a minimum of 24 hours.
- Locate and install movement joints in the brick to match those in the backup.
- Grout all joints to receive mortar with Type N Portland cement mortar.
- Tool joint when mortar is thumb print hard.
- Clean brick using appropriate cleaning methods. Use low pressure cleaning method.
- Install backer rod and sealant at control/expansion joints.
- Apply water repellents where specified to control moisture and efflorescence.

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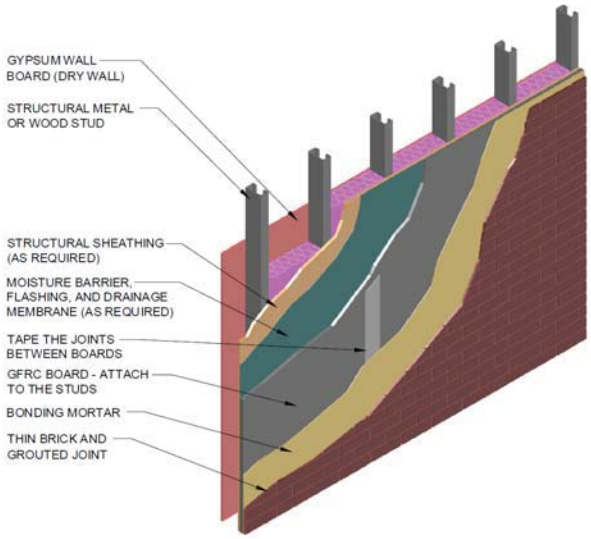
Recommended Application Guidelines for Adhered Thin Brick Veneer

Thin Brick Adhered to Cement Boards (GFRC) 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 limited to L/360.
- Size and install sheathing as required for design loads.
- Apply moisture barrier, rain screen, flashing and weeps as required to create positive drainage to the exterior.
- Mechanically fasten cement board to studs as required for design loads
- Locate and install control joints at cement board seams at corners, changes in wall heights, adjacent to change in materials, and at spacing not to exceed 15 ft on center in any direction.
- Tape all seams between control joints.
- Blend from multiple cartons to create a uniform distribution of color.
- Apply thin brick to cement board using Type S bonding mortar. Using a ¼" notched trowel, coat the cement board. Cement board may need to be moistened to prevent desiccation of the bonding mortar. Do not trowel an area larger than can be completed in 10 minutes.



- "Back Butter" (coat) the back side of the thin brick and press into place. Allow to dry a min of 24 hours.
- Locate and install movement joints in the brick to match those in the backup.
- Grout all joints to receive mortar with Type N Portland cement mortar.
- Tool joint when mortar is thumb print hard.
- Clean brick using appropriate cleaning methods. Use low pressure cleaning method.
- Install backer rod and sealant at control/expansion joints.
- Apply water repellents where specified to control moisture and efflorescence

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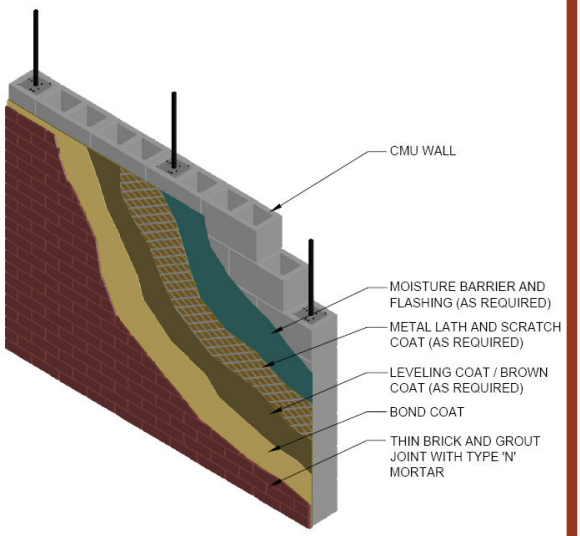
Recommended Application Guidelines for Adhered Thin Brick Veneer

Thin Brick adhered to CMU, Tilt-up, or Poured in Place Concrete walls:

- Size reinforced concrete/masonry 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 scratch and brown coat must be installed). For Tilt-up and Poured-in-place 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 require sand or bead 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 metal lath is applied to the masonry wall, install control/expansion joints to match movement joints in substrate, changes in wall heights, adjacent to change in materials and not to exceed 20 ft on center.
- Where bond coat is applied directly to the masonry wall place control/expansion joints in the brick to match those in the backup, changes in wall heights, adjacent to change in materials and not to exceed 20 ft on center horizontally and vertically.
- Substrate may need to be moistened to prevent desiccation of the bonding mortar.
- Apply thin brick to substrate using Type S bonding mortar using a ¼" notched trowel. Do not trowel an area larger than can be completed in 10 minutes.
- Blend from multiple cartons to create a uniform distribution of color.
- "Back Butter" (coat) the back side of the thin brick and press into place. Allow to dry a min of 24 hours.
- Grout all joints to receive mortar with Type N Portland cement mortar.
- Tool joint when mortar is thumb print hard.
- Clean brick using appropriate cleaning methods. Use low pressure cleaning method.
- Install backer rod and sealant at control/expansion joints.
- Apply water repellents where specified to control moisture and efflorescence.

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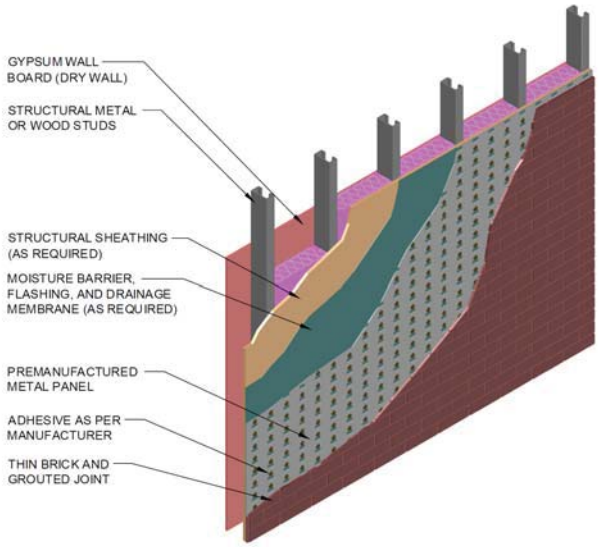
Recommended Application Guidelines for Adhered Thin Brick Veneer

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



- Size stud framing for all design loads. Design deflections should be limited to L/360.
- Size and install sheathing as required for design 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.
- Adhere thin brick to metal panel using approved adhesive.
- Grout all joints to receive mortar with Type N Portland cement mortar.
- Tool joints when mortar is thumb print hard.
- Clean brick using appropriate cleaning methods. Use low pressure cleaning method.
- Install backer rod and sealant at control/expansion joints.
- Apply water repellents where specified to control moisture and efflorescence.

Additional Information: Installation

1. 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.

2. Start at the outside corner of walls. Use corner units, full units and half units to obtain the desired bonding patterns.

3. Bonding mortars shall be ASTM Type S Portland Cement Mortar gauged with an approved latex additive for additional shear bond strength. There are several types of bonding mortars and additives available for specific exterior and interior applications.

4. It is important to use standard brick mortar for grouting joints. If joints are grouted with bonding mortars, the latex additive is very difficult to remove from the face of the brick.

5. For additional information, contact your local H. C. Muddox or Interstate Brick 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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