



Glen-Gery Thin Tech® Thin Masonry Support System Guide Specification

The following information has been compiled as a Guide Specification for the Glen-Gery Thin Tech® Thin Masonry Support System. The numbers and titles used to identify this and related specification sections are in accordance with the 2004 Construction Specifications Institute MasterFormat.

This guide specification is intended to assist the Design Professional/Specifier in selecting appropriate products and preparing a project

specification section for the Glen-Gery Thin Tech Thin Masonry Support System and is not intended to be all inclusive. Additional technical information related to Glen-Gery Brick and designs utilizing the Glen-Gery Thin Tech Thin Masonry Support System is available upon request. The Design Professional/Specifier is responsible for the use and application of this information.

Confirm and edit guide specifications to ensure conformance to local building

codes. Sections beginning with **NOTE TO SPECIFIER:** indicate action is required: edit/select/add/delete to suit specific project requirements.

Optional text is indicated by brackets []. Delete unused optional text and brackets in final specification. Coordinate all Sections with other materials and project conditions of the contract.

SECTION 04 25 16

Thin Brick Panel System

SPECIFICATIONS FOR GLEN-GERY THIN TECH® THIN VENEER PANEL SYSTEM

PART 1: GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 general requirements apply to this section.

1.2 SUMMARY

- A. Section Includes:

1. Thin Tech Thin Masonry Support System comprised of:
 - a. Thin Tech Thin Masonry Support Panel
 - b. Thin Brick Adhesive
 - c. Silicone Adhesive and Primer (for Cast Stone/Natural Stone)
 - d. Thin Tech Air Vent
 - e. Thin Tech Starter Angle
 - f. Thin Tech Shim
 - g. Glen-Gery Drainage Mat
 - i. Thin Tech Fasteners
 - j. Transition Tape
 - k. Glen-Gery Mortar
 1. Color Mortar Blend (Portland cement lime mortar)
 2. Type N or Type S Preblended Mortar

2. Related Materials and Procedures:

NOTE TO SPECIFIER: Delete items below not required for project.

- a. Thin Brick
- b. Glazed Thin Brick
- c. Cast Stone/Natural Stone
- d. Cleaning
- e. Embedded Flashing
- f. Weepholes/Vents
- g. Movement Joints
- h. Fasteners
- i. Silicone Sealant
- j. Silicone Sealant Primer

- B. Related Sections:

NOTE TO SPECIFIER: Delete any sections below not relevant to this project; add others as required.

1. Division 03 Section – “Concrete” (Cast-in-Place, Precast)
2. Division 04 Section – “Masonry” (Unit Masonry)
3. Division 05 Section – “Metals” (Structural Framing, Cold-Formed Framing, Metal Fabrications)
4. Division 06 Section – “Wood, Plastics and Composites” (Rough Carpentry, Sheathing)
5. Division 07 Section – “Thermal and Moisture Protection” (Dampproofing and Waterproofing, Flashing and Sheet Metal, Joint Protection)
6. Division 08 Section – “Openings” (Wall Vents)
7. Division 09 Section – “Finishes” (Plaster and Gypsum Board, Tile)
8. Division 13 Section – “Special Construction” (Pre-Engineered Structures)

1.3 REFERENCES

NOTE TO SPECIFIER: Delete references from the list below that are not required.

- A. ANSI A118.4 - Specifications for Modified Dry-Set Cement Mortar
- B. ASTM A 240 – Standard Specification for Chromium and Chromium Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
- C. ASTM A 510 – Standard Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel, and Alloy Steel
- D. ASTM A 653 – Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc Iron Alloy Coated (Galvannealed) by the Hot Dip Process
- E. ASTM A 925 – Standard Specification for Zinc 5% Aluminum Mischmetal Alloy Coated Steel Overhead Ground Wire Strand
- F. ASTM B 117 – Standard Practice for Operating Salt Spray (Fog) Apparatus
- G. ASTM C 67 – Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile
- H. ASTM C 126 – Standard Specification for Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units

- I. ASTM C 270 – Standard Specification for Mortar for Unit Masonry
- J. ASTM C 1088 – Standard Specification for Thin Veneer Brick Units Made From Clay or Shale
- K. ASTM C 1364 - Standard Specification for Architectural Cast Stone
- L. ASTM C 1405 – Standard Specification for Glazed Brick (Single Fired, Brick Units)
- M. ASTM E 2925 - Standard Specification for Manufactured Polymeric Drainage and Ventilation Materials Used to Provide a Rainscreen Function
- N. ASTM D 4716 – Standard Test Method for Determining the (In-plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head
- O. ASTM E 2112 - Standard Practice for Installation of Exterior Windows, Doors and Skylights
- P. TMS 602 (ACI 530.1/ASCE 6) – Specifications for Masonry Structures.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer’s product description, indicating material types and thicknesses and storage and handling requirements.
- B. Samples: Submit samples of each product type proposed for use.
- C. Material Certificates: Prior to delivery, submit to Architect/Engineer certificates indicating compliance with the applicable codes, specifications and criteria herein for **[Thin Brick, including Grade and Type] [and] [Architectural Cast Stone]** listed in this Section.
- D. Thin Brick Test Reports: Submit test reports substantiating compliance with requirements of ASTM C 1088. Sample and test in accordance with ASTM C 67.
 - 1. Testing and reports shall be completed by an independent laboratory.
 - a. Test reports for each type of brick shall be submitted to the Architect/Engineer for review.
 - b. Thin Brick Test reports shall indicate:
 - i.) 5-hour boiling water absorption
 - ii.) Saturation coefficient
 - iii.) Initial rate of absorption
 - iv.) Efflorescence Rating

NOTE TO SPECIFIER: Delete subsection below if glazed thin brick is not required for the project.

- E. Glazed Thin Brick Test Reports: Submit test reports substantiating compliance with requirements of **[ASTM C 1405]** or **[ASTM C 126]** for glazed surfaces applied to thin brick complying with ASTM C 1088. Sample and test in accordance with ASTM C 67 and C 126.
 - 1. Test reports for each type of glazed thin brick shall be submitted to the Architect/Engineer for review.
 - a. Glazed Thin Brick Test reports for the body shall indicate:
 - i.) 24-hour cold water absorption
 - ii.) Saturation coefficient
 - iii.) Initial rate of absorption
 - iv.) Efflorescence Rating
 - b. When specified, Glazed Thin Brick Test reports for the glazed surface shall indicate:
 - i.) Resistance to fading
 - ii.) Resistance to crazing
 - iii.) **[Imperviousness]**
 - iv.) **[Opacity]**

NOTE TO SPECIFIER: Delete subsection below if cast stone is not required for the project.

F. Cast Stone Test Reports: Submit test reports substantiating compliance with requirements of ASTM C 1364. Sample and test in accordance with ASTM C 1364.

1. Test reports for each type of cast stone shall be submitted to the Architect/Engineer for review.

G. Costs of Tests: Cost of tests shall be borne by the purchaser, unless tests indicate that units do not conform to the requirements of the specifications, in which case cost shall be borne by the seller.

H. Installation Instructions: Submit copy of manufacturer's product installation instructions.

I. Manufacturer's Details: Submit individual drawings to be approved by Architect for special shaped thin brick units.

1.5 CLOSEOUT SUBMITTALS

A. Warranty Documentation:

1. Product warranty documentation specified under Section 3.12 shall be supplied to contractor (for subsequent provision to building owner) upon completion of building construction.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Maintenance:

1. Installer shall supply to contractor (for subsequent provision to building owner) copy of manufacturer's pertinent documentation relating to typical repair of thin veneer system once occupancy commences.

1.7 QUALITY ASSURANCE

A. Masonry Standard: Comply with TMS 602 (ACI 530.1/ASCE 6) unless modified by requirements in the Contract Documents.

B. Comply with all applicable codes, regulations, and standards. Where provisions of applicable codes, regulations and standards conflict with requirements of this section, the more demanding shall govern.

NOTE TO SPECIFIER: Insert additional qualifications below if required.

C. Manufacturer Qualifications:

1. Obtain materials from one manufacturer to ensure compatibility.
2. Thin Masonry Support Panel:
 - a. Documented qualifications and capabilities that fully describe the ability to provide the required metal panel system and technical support to the Owner.
 - b. At least five (5) completed projects over the last two years, illustrating system performance equal to or exceeding the criteria listed in this specification.

D. Installer Qualifications:

NOTE TO SPECIFIER: Insert additional qualifications below if required.

1. All products listed in this Section shall be installed by a Glen-Gery trained Thin Tech installer or installer providing proof of a minimum of three years' experience with a related thin masonry system.
2. At least one supervisory journeyman, who has completed Glen-Gery Thin Tech Training, shall be present at all times during execution of work, who shall be thoroughly familiar with design requirements, types of materials being installed, reference standards and other requirements, and who shall direct all Thin Tech related work performed at jobsite.

NOTE TO SPECIFIER: Include a sample panel and/or mockup panel if the project size warrants taking such a precaution. The following is one example of how a mock up panel on a large project might be specified.

- E. Sample/ Mock-Up Panels: Sample/mock-up panels shall be used to review installation process as well as [thin brick] [cast stone] [natural stone] and mortar color selections and serves as the standard of workmanship for the Project.
1. Build Mock-up panels for Thin Tech Masonry Support System in sizes approximately [48 in. (1,200 mm)] [60 in. (1,500 mm)] <Insert size> long by [48 in. (1,200 mm)] <Insert size> high by full wall thickness.
 2. Build [sample] [mock-up] panel for walls to receive Glen-Gery Thin Tech Masonry Support System as shown on drawings.
 - a. All thin brick shipped for the sample shall be included in the panel.
 - b. Use [sample] [mock-up] panel as standard of comparison for all masonry work built of same material.
 - c. Where masonry is to match existing, erect panel adjacent and parallel to existing surface.
 - d. Clean [one-half of] exposed faces of panel with masonry cleaner as indicated and approved by [brick] [cast stone] [natural stone] manufacturer.
 - e. Approval of panel is for color, texture, and blending of masonry units; relationship of mortar to masonry unit colors; tooling of joints; and aesthetic qualities of workmanship.
 - f. Protect approved panel from the elements.
 - g. Do not start work until Architect/Engineer/Owner has approved [sample] [mock-up] panel.
 - h. Do not destroy or move panel until work is completed and accepted by Architect/Engineer/Owner.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in manufacturer's unopened packaging.
- B. Inspect all materials upon arrival and notify supplier if any damage is observed. Store products in manufacturer's packaging or according to manufacturer's recommendations until ready for installation.
- C. Store Glen-Gery Thin Tech Panels, masonry units, mortar, and accessories off the ground to prevent contamination by mud, dust or other materials likely to cause staining or other defects.
- D. Protect materials from contamination, moisture, freezing, overheating or other damage in accordance with manufacturer's instructions. Cover all materials with a non-staining waterproof membrane material when necessary to protect from elements.
- E. Store different types of materials separately.
- F. Store adhesive and mortar additive above 32° Fahrenheit and below 86° Fahrenheit temperatures.
- G. Store and dispose of solvent-based materials and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.
- H. Panels must be stored to prevent permanent distortion and kept dry before installation. Panels and accessories should be covered at all times prior to installation.
- I. Dry panels exposed to water or condensation prior to installation or application of thin brick. The presence of moisture on the brick or metal panels may adversely affect adhesive performance.

1.9 PROJECT CONDITIONS

- A. Comply with requirements of referenced standards and recommendations of material manufacturers for environmental conditions before, during and after installation.
- B. Protection of Work:
 1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's limits.

2. Stain Prevention:

- a. Prevent adhesive and mortar from staining the face of masonry.
- b. To avoid smearing of adhesive or mortar on the face of masonry, allow adhesive and mortar on face of installed masonry to become firm before trying to remove.
- c. Protect all sills, ledges and projections from droppings of adhesive or mortar.
- d. Protect the wall from rain-splashed mud and mortar splatter.

NOTE TO SPECIFIER: Weather conditions affect application and drying time of adhesive and mortar. Hot or dry conditions limit working time and accelerate drying and may require adjustments in the scheduling of work to achieve desired results. Cool or damp conditions extend working time and retard drying and additional measures may be required to protect against wind, dust, dirt, rain and freezing.

C. Cold Weather Requirements:

1. Do not use frozen masonry materials or materials mixed or coated with ice or frost.
2. Do not build on frozen substrates.
3. Comply with cold-weather construction requirements contained in TMS 602 (ACI 530.1/ASCE 6).

D. Hot Weather Requirements:

1. Comply with hot-weather construction requirements contained in TMS 602 (ACI 530.1/ASCE 6).
2. Protect mortar from uneven and excessive evaporation.
 - a. The face of the installed thin brick may be dampened with water prior to mortar installation to reduce the absorption of moisture from the mortar joint and increase bond.
 - b. Veneer may be fogged with water to prevent drying prior to proper hydration of mortar. Apply only enough moisture to consistently dampen the wall without allowing water to run down the face of the masonry.

PART 2: PRODUCTS

2.1 MANUFACTURER

- A. Acceptable Manufacturer: Glen-Gery Corporation located at 1166 Spring Street, P.O. Box 7001, Wyomissing, PA 19610; Tel: 610-562-3076; Email: info@glengery.com; Web: www.glengery.com
- B. Substitutions: Not permitted.

2.2 THIN MASONRY VENEER SUPPORT SYSTEM

- A. Thin Masonry Veneer Support Panel: Metal support panel consisting of 26 gauge (16 mil) architectural grade (structural grade 33), stucco embossed, textured steel with angled ties providing structural mechanical support for interior or exterior thin masonry veneer, installed by fastening to concrete, masonry, metal or wood frame construction.
 1. All Metal Panels for thin brick support specified and shown on drawings shall be [Elite Thin Tech Panel] [or] [Classic Thin Tech Panel] as manufactured by the Glen-Gery Corporation.
 2. Exterior Finish: [G90 Galvanized with thermal set coating] [Stainless steel]

NOTE TO SPECIFIER: Delete support tie options not required for project. Standard panels include 3/8 in. (10 mm) support ties. 5/8 in. (16 mm) support ties are required for panels supporting thin brick or masonry units thicker than 1 in. (25 mm) as well as units 3/4 in. (19 mm) thick or greater with a height exceeding 3-5/8 in. (92 mm). Additional sizes may be available; verify availability with local Glen-Gery Representative. All panels are designed to support a maximum weight of 15 psf.

3. Support ties: [3/8 in. (10 mm)], [5/8 in. (16 mm)]
4. Flat Panels: 4 ft. x 4 ft. (16 sq. ft., 1.44 m² nominal – actual dimensions except as noted: 48 in. x 47-15/16 in. [1,219 mm x 1,218 mm]) masonry support panels for flat wall areas, shall be for unit heights as follows:

NOTE TO SPECIFIER: Delete size options and panel type not required for project. Additional sizes may be available; verify availability with local Glen-Gery Representative. For masonry unit sizes not listed below call for availability.

- a. 2-1/4 in. (57 mm) for Modular, Standard, Norman, and other 2-1/4 in. (57 mm) high units. Three (3) courses equal 8 in. (203 mm).
[Classic] [Elite]
- b. 2-1/4 in. (57 mm) for Modular, Standard, Norman, and other 2-1/4 in. (57 mm) high units. Joints are 3/8 in. (10 mm), one course equals 2-5/8 in. (67 mm) and three (3) courses equals 7-7/8 in. (200 mm). Panel height is 47-1/4 in.
[Classic] [Elite]
- c. 2-3/4 in. (70 mm) for Engineer, Handmade Oversize, and other 2-3/4 in. (70 mm) high units. Five (5) courses equal 16 in. (406 mm).
[Classic] [Elite]
- d. 3-5/8 in. (92 mm) for Econo, Utility and other 3-5/8 in. (92 mm) high units.
[Classic] [Elite]
- e. 7-5/8 in. (194 mm) for 8-Square and other 7-5/8 in. (194 mm) high units. Elite with 5/8 in. (16 mm) support tie.
- f. 11-5/8 in. (295 mm) for 11-5/8 in. (295 mm) high units. Elite with 5/8 in. (16 mm) support tie.

NOTE TO SPECIFIER: Left- and right- hand corner panels may be used to establish vertical stagger of panel joints. Left-hand corners available in all panel sizes. Right-hand corners available for panels accommodating 2-1/4 in. high units. Additional sizes may be available; verify availability of other sizes with local Glen-Gery representative. Additional framing or strapping may be required to ensure proper attachment to substrate.

- 5. Pre-Bent Corner Panels: 16 sq. ft. (1.44 m²) masonry support panels for external corner applications 48 in. (1,219 mm) high with 31-15/16 in. (811 mm) leg and 15-15/16 in. (405 mm) left-hand [right-hand] return.

B. Fasteners (For Masonry Support Panel)

NOTE TO SPECIFIER: Fastener suitability and required length are dependent upon substrate construction and depth of substrate. Multiple fastener types may be required on a single project. Glen-Gery fasteners require pre-drilled pilot holes for masonry/concrete substrates. REVIEW construction conditions and DELETE fasteners that are unnecessary or inappropriate for specific project.)

NOTE TO SPECIFIER: Consult a corrosion specialist to determine the best fastener for project conditions.

- 1. Screw fasteners as supplied by Glen-Gery: Self-tapping, pan head fasteners with a drilling capacity of 0.035 to 0.175 in., a minimum #10, (0.190 in., 4.8 mm) shank diameter and corrosion resistance provided by tri-layered ceramic surface coating with a minimum protection of 1000 hrs. when tested according to ASTM B117.

NOTE TO SPECIFIER: Delete subparagraphs below that are unnecessary or inappropriate for specific project.

- 2. Fastener Length:
 - a. Wood stud fasteners: [1-1/2 in. (38 mm)] [2-1/4 in. (57 mm)] [3-1/2 in. (89 mm)] [4-1/2 in. (114 mm)]. Screws shall penetrate the studs a minimum of 1 in. (25 mm).
 - b. Metal framing/support member fasteners: [1-1/2 in. (38 mm)] [3-1/2 in. (89 mm)] [5-3/4 in. (146 mm)]. Screws shall penetrate not less than member thickness plus three threads (3/16 in., 5 mm).
 - c. [Masonry] [or] [Concrete] fasteners: [1-1/2 in. (38 mm)] [2-1/4 in. (57 mm)] [3-1/2 in. (89 mm)] [4-1/2 in. (114 mm)]. Screws shall penetrate the substrate a minimum of 1 in. (25 mm).

NOTE TO SPECIFIER: Starter angle listed below for use as flashing for Glen-Gery Thin Tech Panel. Delete flashing options not required for project or referenced in specification Division 07. Where Thin Tech panels are installed over continuous insulation and sheathing, and starter angle is installed behind continuous insulation, select starter angle with horizontal leg at least 1 in. (25 mm) greater than insulation thickness. Additional thicknesses not listed below may be available. Verify availability with local Glen-Gery representative.

C. Starter Angle Flashing:

- 1. Glen-Gery Thin Tech Starter Angle:

- a. Stainless steel conforming to ASTM A 240/A 240M, Type 304, 0.018 in. (0.45 mm) (26 gauge) pre-bent in 10 ft. (3.05 m) lengths.
- b. Depth: [1 in. (25 mm)] [2 in. (51 mm)] [3 in. (76 mm)] [4 in. (102 mm)].

NOTE TO SPECIFIER: Delete subsection below if assembly does not require a water resistive barrier (e.g. interior applications). For exterior building walls, comply with building code requirements for water-resistive barriers. Where permitted, Glen-Gery Drainage Mat or Thin Tech Elite panels provide a drainage space and may eliminate the need for (the equivalent of) two layers of a code approved water-resistive barrier. Climatically specific moisture vapor flow must also be considered in the selection of materials for the water resistive barrier. Determine if the potential for condensation exists within the wall and make necessary changes to the wall design as needed. Check local codes for additional requirements.

D. Water-Resistive Barrier

1. Provide water resistive barriers as designated in Division 07.
2. Water resistive barrier shall be:
 - a. For Thin Tech Classic Panels: [Laticrete's MVIS Air & Water Barrier] [Two layers of water-resistive barrier equal to or complying with ASTM E2556, Type I] [One layer of water resistive barrier equal to or complying with ASTM E2556, Type II and 0.25 in. (6 mm) Glen-Gery Drainage Mat].
 - b. For Thin Tech Elite Panels: [Laticrete's MVIS Air & Water Barrier] [Water-resistive barrier complying with ASTM E2556, Type II] [Two layers of water-resistive barrier equal to or complying with ASTM E2556, Type I].

NOTE TO SPECIFIER: Glen-Gery Drainage Mat recommended for use with Classic Panel – not required for Elite Panel.

E. Drainage Mat/Rainscreen shall be:

- a. Glen-Gery Drainage Mat
 1. Filter fabric laminated to spun and heat welded entangled geomatrix, 0.25 in. (6 mm) two-ply polypropylene core mesh with cornrow configuration.
 2. Permits moisture drainage and creates airspace.
 3. Hydraulic Transmissivity, Machine Direction, ASTM D 4716:
 - a. Flow Rate: 3.70 GPM/ft. width.
 - b. Transmissivity: 7.65E-03 m²/s.
 4. Air Transmissivity, ASTM D 4716, Modified:
 - a. Estimated Flow Rate: 15.8 cu ft./min/ft. width.
 - b. Incremental Transmissivity: 6.97E-04 m²/s.

NOTE TO SPECIFIER: Shims are only used in Elite panel applications. Delete subsection below for Classic panel applications.

- F. Shims: 1-1/4 in. (32 mm) wide by 48 in. (1,219 mm) long, manufactured from G90 hot dipped galvanized, 26 gauge (16 mil) architectural grade (structural grade 33) steel with thermal set coating, stucco embossed texture and centered channel.

NOTE TO SPECIFIER: Delete adhesive options not required for project.

G. Adhesives and Primer

1. Adhesive for thin brick (maximum 1 in. [25 mm] thick) as supplied by Glen-Gery:
 - a. High-strength mastic exceeding ASTM D 3498 and ASTM C 557 specifications with less than 70 grams of VOC per liter with a shear value between the thin veneer and the panel greater than 50 PSI (10.5 kg/cm²).
2. Adhesive for [cast stone] [natural stone] [and] [thin brick units more than 1 in. (25 mm) thick] [and] [thin brick units with heights over 3-5/8 in. (92 mm)] when not otherwise mechanically attached (e.g. with Glen-Gery Thin Tech support channels or clips) as supplied by Glen-Gery:
 - a. Silicone meeting or exceeding the following: TT-S-00230C, Class A, ASTM C 920, Class 50, Type S, Grade NS, Use G,A,M,O; Type I & II, ASTM C 1184-05, AAMA 805.2, AAMA 802.3 & 808.3, ASTM C 1248.

3. Primer for cast/natural stone as supplied by Glen-Gery:
 - a. One-component, colorless, non-yellowing polyisocyanate compatible with silicone sealants, porous and non-porous substrates.

H. Installation Hardware

NOTE TO SPECIFIER: Channels are only used in conjunction with cast/natural stone profiles and thin brick shapes. Delete channel size options not required for project. Verify availability with local Glen-Gery representative. Include rear offset ribs selection when using Elite panels.

1. Support Channels: 8 ft. (2.44 m) long, manufactured from 26 gauge (18 mil) [stainless steel] with 1/2 in. (13 mm) support leg, 3/4 in. (19 mm) wide by 1/2 in. (13 mm) high clip **[and 1/4 in. (6 mm) rear offset ribs]**.
 - a. 3-3/4 in. (95 mm) Type 1 **[Classic] [Elite]** Channel for 3-5/8 in. (92 mm) high units.
 - b. 7-3/4 in. (197 mm) Type 2 **[Classic] [Elite]** Channel for 7-5/8 in. (194 mm) high units.
 - c. 11-3/4 in. (298 mm) Type 3 **[Classic] [Elite]** Channel for 11-5/8 in. (295 mm) high units.
 - d. 2-3/8 in. (60 mm) Type 4 **[Classic] [Elite]** Channel for 2-1/4 in. (57 mm) high units.
 - e. 2-3/8 in. (60 mm) Type 5 **[Classic] [Elite]** Channel for 2-1/4 in. (57 mm) high units.

NOTE TO SPECIFIER: Clips are only used in conjunction with cast/natural stone trim. Delete clip options not required for project. Verify availability with local Glen-Gery representative.

2. Cast/Natural Stone Sill Clips: Manufactured from Type 304 stainless steel.
 - a. SE1 Side Clip: 14 ga. (75 mil), Type 304 stainless steel split-end bent plate, 2 in. (51 mm) high x 3/4 in. (19 mm) wide with 1/2 in. (13 mm) split bend.
 - b. WC1 Sill Clip: 22 ga. (30 mil) channel, 3-3/4 in. (95 mm) high x 3 in. (76 mm) long with 1/2 in. (13 mm) support leg and 1/2 in. (13 mm) clip.
 - c. WC2 Sill Clip: 22 ga. (30 mil) channel 5 in. (127 mm) high x 3 in. (76 mm) long x 3/4 in. (19 mm) wide with 1/2 in. (13 mm) support leg and 1/2 in. (13 mm) clip.
 - a. Z1 Z Clip: 14 ga. (75 mil) Type 304 stainless steel bent plate, 2 in. (51 mm) wide x 2 in. (51 mm) high x 3/4 in. (19 mm) wide bent plate with 1/2 in. (13 mm) clip.

NOTE TO SPECIFIER: Delete subsection below if not required. Glen-Gery Thin Tech air vent is recommended when using Glen-Gery Thin Tech Elite Panel and should be installed per manufacturer's instructions where the panel meets the starter angle to ensure proper ventilation and facilitate water drainage. Standard weeps for draining wall panels formed by omitting mortar/sealant will not allow ventilation behind the Elite Panel.

I. Weepholes/Vents:

1. Glen-Gery Thin Tech Air Vent: Impact resistant polypropylene copolymer. Density 2,000 grams/sq. meter. Size: 3/8 in. (10 mm) x 1/2 in. (13 mm) x 48 in. (1.22 m).

2.3 MASONRY UNITS, GENERAL

- A. Masonry unit weight may not exceed 15 psf.
- B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other imperfections exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed work.

2.4 CLAY UNIT MASONRY

- A. Manufacturer: Glen-Gery Corporation located at 1166 Spring Street, P.O. Box 7001, Wyomissing, PA 19610; Tel: 610-562-3076; e-mail: info@glengery.com; Web: www.glengery.com
- B. Substitutions: Not permitted.
- C. General: Provide shapes indicated and as follows:

NOTE TO SPECIFIER: Standard shapes such as corners, edge caps, 1/2 flats, 1/2 corners and thicker units for corbelling or accents, as well as custom shapes are often available. Verify shapes availability with local Glen-Gery representative.

1. Provide special shapes for applications where flats (stretcher units) cannot accommodate special conditions, including those at corners and openings.
 2. Provide special shapes for applications requiring thin brick of size, form, color and texture on exposed surfaces that cannot be produced by sawing.
 3. Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.
- D. Provide brick similar in texture, color and physical properties to those available for inspection at the Architect/Engineer's office and/or as supplied on the approved sample panel.

NOTE TO SPECIFIER: Insert product name(s) required for project.

- E. All thin brick specified and shown on drawings shall be [Add thin brick product name(s) here] as manufactured by the Glen-Gery Corporation.
1. Thin Brick: Comply with ASTM C 1088, Grade Exterior.

NOTE TO SPECIFIER: Delete types not required. Verify availability with local Glen-Gery Sales Representative.

- a. Type [TBS], [TBX] [or] [TBA]
- b. Size (height, length – actual dimensions listed)

NOTE TO SPECIFIER: Delete size options not required for project. Size availability varies by product and may be available in additional sizes not listed below. Verify availability with local Glen-Gery representative.

- i.) Modular: 2-1/4 in. (57 mm) high, 7-5/8 in. (194 mm) long
- ii.) Standard: 2-1/4 in. (57 mm) high, 8 in. (203 mm) long
- iii.) Norman: 2-1/4 in. (57 mm) high, 11-5/8 in. (295 mm) long
- iv.) Engineer Modular: 2-3/4 in. (70 mm) high, 7-5/8 in. (193 mm) long
- v.) Engineer Standard: 2-3/4 in. (70 mm), 8 in. (203 mm) long
- vi.) Handmade Oversize: 2-3/4 in. (70 mm), 8-1/2 in. (216 mm)
- vii.) Econo: 3-5/8 in. (92 mm) high, 7-5/8 in. (194 mm) long
- viii.) Utility: 3-5/8 in. (92 mm) high, 11-5/8 in. (295 mm) long
- ix.) 8-Square: 7-5/8 in. (194 mm) high, 7-5/8 in. (194 mm) long
- x.) (Other) Size: [add size] inches wide, [add size] inches high, [add size] inches long

NOTE TO SPECIFIER: Delete thickness options below not required for project. Thickness availability varies by product and thicknesses not listed below may be available, including thicknesses for use at corbelled areas and other applications. Verify availability with local Glen-Gery representative. Maximum unit thickness for use on Thin Tech support panels is 1-1/4 in. (32 mm). All units thicker than 1 in. (25 mm) as well as units 3/4 in. (19 mm) thick or greater with a height exceeding 3-5/8 in. (92 mm) require the use of Thin Tech panels with the 5/8 in. (16 mm) support tie, support clips or support channels.

- c. Thickness: [1/2 in. (13 mm)] [3/4 in. (19 mm)] [or] [1 in. (25 mm)]

NOTE TO SPECIFIER: Delete first paragraph and subparagraphs below if no Glazed Thin Brick are required. Glazed brick requires the use of Elite Panel to ensure airflow and the ability to dry from the back face of the panel.

- F. All Glazed Thin Brick specified and shown on drawings shall be [Add thin brick product name(s) here] as manufactured by the Glen-Gery Corporation.

1. Glazed Thin Brick: Comply with [ASTM C 1088, Grade Exterior, Type TBX for the body and ASTM C 126 Grade S, Type 1 for glazed surface requirements] [ASTM C 1405].

NOTE TO SPECIFIER: Delete size options not required for project. Size availability varies by product and may be available in additional sizes not listed below. Verify availability with local Glen-Gery representative.

- a. Size (height, length – actual dimensions listed)
 - i.) Modular: 2-1/4 in. (57 mm) high, 7-5/8 in. (194 mm) long
 - ii.) Standard: 2-1/4 in. (57 mm) high, 8 in. (203 mm) long
 - iii.) Norman: 2-1/4 in. (57 mm) high, 11-5/8 in. (295 mm) long
 - iv.) Engineer Modular: 2-3/4 in. (70 mm) high, 7-5/8 in. (193 mm) long
 - v.) Engineer Standard: 2-3/4 in. (70 mm), 8 in. (203 mm) long
 - vi.) Econo: 3-5/8 in. (92 mm) high, 7-5/8 in. (194 mm) long
 - vii.) Utility: 3-5/8 in. (92 mm) high, 11-5/8 in. (295 mm) long
 - viii.) 8-Square: 7-5/8 in. (194 mm) high, 7-5/8 in. (194 mm) long
 - ix.) (Other) Size: [add size] inches wide, [add size] inches high, [add size] inches long

NOTE TO SPECIFIER: Delete thickness options not required for project. Thickness availability varies by product and additional thicknesses not listed below may be available, including thicknesses for use as corbelled areas and other applications. Verify availability with local Glen-Gery representative. Glazed thin brick is not available in 1/2 in. thickness. Maximum unit thickness for use on Thin Tech support panels is 1-1/4 in. (32 mm). All units thicker than 1 in. (25 mm) as well as units 3/4 in. (19 mm) thick or greater with a height exceeding 3-5/8 in. (92 mm) require the use of Thin Tech panels with the 5/8 in. (16 mm) support tie, support clips or support channels.

- b. Thickness [3/4 in. (19 mm)] [or] [1 in. (25 mm)] [add size]

NOTE TO SPECIFIER: Delete subsection below if no cast stone is required. Maximum unit thickness for use on Thin Tech support panels is 1-1/4 in. (32 mm). All units thicker than 1 in. (25 mm), as well as units 3/4 in. (19 mm) thick or greater with a height exceeding 3-5/8 in. (92 mm) require the use of Thin Tech panels with the 5/8 in. (16 mm) support tie, support clips or support channels.

2.5 CAST STONE MASONRY

- A. Comply with requirements of ASTM C 1364.
 1. Compressive Strength: as tested in accordance with ASTM C 1194.
 2. Absorption, Cold Water: as tested in accordance with ASTM C 1195.
 3. Linear Shrinkage: as tested in accordance with ASTM C 426.
- B. Size: [add size] inches wide, [add size] inches high, [add size] inches long.
- C. Color, Texture and Finish: Match Architect's sample.

2.6 MORTAR

NOTE TO SPECIFIER: Delete mortar not required. Add project specific requirements. Mortar that is to be installed with a grout bag may be more easily installed when mixed with less sand (within the sand/cement proportion limits of ASTM C270).

- A. Cold Weather Additives (including accelerators) shall not be used in mortar.
- B. Mortar for thin brick:
 1. Mortar shall conform to ASTM C 270, Standard Specification for Mortar for Unit Masonry.

- a. Glen-Gery Color Mortar Blend: Color – G [add color] Type [N] [or] [S].
 - 2. Mortar modified with polymer additives and conforming to ANSI A118.4, Standard Specifications for Modified Dry-Set Cement Mortar.
- C. Mortar for cast stone units:
- 1. Comply with masonry unit manufacturer's mortar requirements. Mortar shall conform to ASTM C 270, Standard Specification for Mortar for Unit Masonry.
 - 2. Mortar modified with polymer additives and conforming to ANSI A118.4, Standard Specifications for Modified Dry-Set Cement Mortar.

2.7 ANCILLARY MATERIALS

A. Flashing

NOTE TO SPECIFIER: These are flexible and/or self-adhering flashings designed for used at jambs and sills where applicable. Delete flashing options not required for project or referenced in specification Division 07.

- 1. **[Self-Adhering]** Stainless Steel Fabric Flashing: Composite flashing product consisting of a 0.003 in. (0.08 mm) single sheet of Type 304 stainless steel **[bonded to a 0.004 in. (0.10 mm) layer of polymeric fabric] [with a butyl block co-polymer adhesive]**.
- 2. Elastomeric Thermoplastic Flashing: Composite flashing product consisting of a polyester-reinforced ethylene interpolymer alloy as follows:
 - a. Monolithic Sheet: Elastomeric thermoplastic flashing, 0.040 in. (1.0 mm) thick.
 - b. Self-Adhesive Sheet: Elastomeric thermoplastic flashing, 0.025 in. (0.6 mm) thick, with a 0.015 in. (0.4 mm) thick non-asphaltic adhesive.
- 3. Butyl Flashing: Self-adhering flashing membrane, minimum 0.016 in. in thickness (0.15 mm) consisting of a polyolefin film and butyl adhesive.
- 4. Adhesives, Primers, and Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for joints or connections to or between water-resistive barrier or air barrier system components.
 - a. Transition Tape:
 - 1. Asphalt free self-adhering membrane, 3 in. (76 mm) wide, consisting of woven polyethylene/polypropylene film bonded to heavy duty synthetic rubber adhesive.
 - 2. Self-adhering tape, 3 in. (76 mm) wide, consisting of a polyolefin film with an acrylic adhesive.
 - b. Primer: As recommended by the manufacturer of the specified product.

B. Control and Expansion Joints

NOTE TO SPECIFIER: Movement joints between Glen-Gery Thin Tech Panels typically require bond breaker tape to prevent adhesion of sealant to the substrate. Backer rod may be needed if depth of joint exceeds 3/4 in. (19 mm) per Division 07 Section "Joint Sealants".

- 1. Bond Breaker Tape: Polyethylene tape, width to match width of movement joint.
- 2. Backer Rod: Non-gassing polyethylene or flexible polyurethane foam rod 25% wider than width of joint to be filled and depth exceeds requirements in as indicated in Division 07 Section "Joint Sealants".
- 3. Sealant: As specified in Division 07 Section "Joint Sealants" and complying with ASTM C 920.

NOTE TO SPECIFIER: Delete subsection if assembly does not include rigid insulation.

2.8 RIGID INSULATION

NOTE TO SPECIFIER: Ensure proper drainage between rigid insulation and substrate. Minimum requirements for substrates behind rigid insulation are as follows. Wood framing shall be spruce-pine-fir or any wood species with a specific gravity of 0.42 or greater in accordance with AWC NDS, spaced no greater than 16 in. o.c. Steel framing shall be 16 in. o.c. with minimum [33 ksi steel for 33 mi and 43 mil thickness] [50 ksi steel for 54 mil thickness]. Thin Tech requires continuous backup support. Attaching Thin Tech to furring strips that project beyond the substrate or insulation without support between is not recommended.

- A. Provide rigid insulation as designated in Division 07.
- B. Closed-cell insulating rigid foam shall have a minimum compressive strength of 15 pounds per square inch and comply with the requirements of [ASTM C578] [or] [ASTM C1289].
- C. Maximum flame spread and smoke development when tested in accordance with ASTM E 84 shall not exceed 25 and 450 respectively.

NOTE TO SPECIFIER: Where more than 2 in. of rigid foam insulation is required, please contact Glen-Gery Technical Services Department for additional information.

- D. Thickness shall not exceed 2 in. (51 mm).

2.9 MASONRY CLEANERS

- A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

NOTE TO SPECIFIER: Contact a Glen-Gery representative to determine recommended cleaning solution and procedure for thin brick specified. Verify acceptability of cleaner for cleaning masonry with pigmented mortar joints. Delete solution(s) not recommended.

- 1. Diedrich Technologies, Inc.
 - a. 202 New Masonry Detergent
 - b. 202V Vana-Stop®
 - c. Green Clean 250 Manufactured Stone Cleaner
- 2. [Other cleaning agent as recommended by masonry unit and mortar manufacturer.]

PART 3: EXECUTION

3.1 EXAMINATION

- A. Do not begin Thin Tech installation until substrates, water-resistive barrier, drainage mat, foundations, rough-ins and built-in construction have been installed according to project specifications and building code requirements.
 - 1. Walls must be structurally sound and the substrate system designed with a wall deflection not greater than L/360.
 - a. Maximum wall frame spacing for stud walls = 24 in. (610 mm) O.C.
 - b. Maximum wall frame spacing for girts = 24 in. (610 mm) O.C.
 - c. Minimum 0.043 in. (18 gauge; 1.09 mm) metal framing for exterior walls.
 - 2. Substrate shall provide continuous support, and be flat, with surface variation not exceeding 1/8 in. (3 mm) within any 4 ft. (1.2 m) square area and have no planar irregularities greater than 1/4 in. (6 mm) in 10 ft. (3.05 m).

NOTE TO SPECIFIER: Glen-Gery recommends that the Thin Tech Panel be supported by a continuous backing of sheathing, masonry, concrete, rigid insulation, etc. in order to prevent oil canning (deformation or buckling of the metal panel) during installation or cracking of the veneer after installation.

Verify specific project needs regarding fire and moisture resistance as well as structural requirements prior to specifying sheathing. Ensure proper drainage between rigid insulation and substrate.

3. Substrate shall be concrete, masonry or one of the following as deemed suitable for specific project conditions:
 - a. [Exterior grade gypsum sheathing] [glass fiber mat-faced sheathing] [or] [cement board] not less than 1/2 in. (13 mm) in thickness.
 - b. Closed-cell insulating rigid foam not less than 1/2 in. (13 mm) thick conforming to ASTM C 578 (min. 15 psi compressive strength and minimum 1.30 lb./cu. ft. [21 kg/cu. m] density) or ASTM C 1289.
 - c. Oriented strand board (OSB) not less than 7/16 in. (11 mm) in thickness.
 - d. Exterior grade plywood not less than 3/8 in. (10 mm) in thickness.
- C. Verify walls are plumb and corners are braced to specifications.
- D. If substrate (including insulation), water-resistive barrier, drainage mat, foundations or flashings (including roof and kickout flashing when applicable) are the responsibility of another installer, notify Architect and General contractor of unsatisfactory preparation before proceeding.
- E. Do not begin installation of Thin Tech panels until unacceptable conditions have been corrected. Installation constitutes acceptance of existing conditions.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation. All surfaces including, but not limited to metal panel and back face of thin brick must be free of water, snow, dirt, mud, oil and other foreign materials prior to application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Trim or flash in place per manufacturer's details and/or BIA Technical Note 28C on Thin Brick Veneer.
- D. Protect the tops of all uncompleted walls to prevent water entry.

3.3 INSTALLATION, GENERAL

- A. Install materials in accordance with manufacturer's instructions.
- B. Select and arrange exposed masonry units to produce a uniform blend of color and texture.
 1. Install masonry units from several pallets or cubes as they are placed.
- C. Comply with tolerance requirements in TMS 602 (ACI 530.1/ASCE 6).

3.4 FLASHING

NOTE TO SPECIFIER: *Items in this section apply to Thin Tech starter angle where it functions as through wall masonry flashing. Thin Tech starter angle may be installed in front of insulation, provided that: the top edge is taped to or otherwise integrated with the insulation or WRB surface in accordance with manufacturer's instructions; and other means are provided to address code requirements related to flashing and protection of insulation for the remainder of the assembly.*

- A. Prior to metal panel installation, install starter angle and flashing in accordance with Glen-Gery Thin Tech installation instructions or ASTM E 2112. Prime substrate prior to installation when required by flashing manufacturer.
- B. Seal penetrations in starter angle and/or flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
- C. Extend horizontal through wall flashing vertically up the backing a minimum of 3-1/2 in. (89 mm).
- D. Lap flashing ends a minimum of 3 in. (76 mm).

- E. Seal vertical and horizontal legs of all flashing laps with compatible lap **[cement]** **[sealant]**.
- F. Lap water-resistive barrier over top of flashing.

[or]

[Mechanically attach flashing] **[Seal top edge of flashing]** **[Tape top edge of flashing]** according to manufacturer's instructions to surface of **[water-resistive barrier]** **[backing]** in such a manner as to **[prevent moisture from entering the wall]** **[or]** **[redirect it to the exterior]**.

- G. Turn up the ends of discontinuous (e.g., head, sill and stepped) flashings to form end dams or extend not less than 4 in. (102 mm) beyond edges of openings.
- H. Extend flashing through wall with at least 1/4 in. (6 mm) exposed to form a drip.

3.5 THIN MASONRY SUPPORT PANEL

- A. Install in accordance with manufacturer's written instructions as applicable to each type of substrate required.
- B. Trim, starter angle and flashing shall be installed prior to panel installation.
- C. Panels shall be clean, dry and free of dirt, oil or any other foreign contaminant.
- D. Attach panels flat to the substrate in true and level rows with support ties aligned and level to each other, including at corners.
- E. Stagger vertical support panel joints over sheathing joints. When using pre-bent corner panels, stagger vertical joints of flat panels after corner panel installation.
- F. Install full-size uncut panels when possible. Cut panels using a method resulting in clean, unbent edges when necessary to provide vertical staggered panel joints, to ensure panels are fastened to studs, or to fit specific conditions.
- G. Install panels with 1/16 in. to 1/8 in. (2 to 3 mm) space between the sides of the panels and butt panels vertically.
- H. Do not allow panels to bridge vertical or horizontal movement joints in substrate. The space between metal panels at substrate movement joint locations shall be equal to the thickness of the substrate movement joint.
- I. Stop panel at least 3/8 in. (10 mm) from inside corners, openings and other materials to allow for movement.

NOTE TO SPECIFIER: Minimum clearances of 4 in. (102 mm) from grade, or 2 in. (51 mm) from a paved surface should be maintained for Thin Tech panels supported by stud walls. A minimum 1/2 in. (13 mm) clearance is adequate above paving supported by the same foundation as the stud wall. Where Thin Tech is installed over exterior concrete or CMU walls, maintain a 2 in. (51 mm) clearance from grade or 1/2 in. (13 mm) clearance from paving.

- J. Start panels at least **[4 in. (102 mm) above earth]** **[2 in. (51 mm) above paved areas]**. Maintain a minimum clearance of 2 in. (51 mm) above roof surfaces. Do not install Thin Tech panels below grade.

3.6 FASTENERS (For Thin Masonry Support Panel)

- A. Attach fasteners to framing/support members for framed applications. Do not attach Thin Tech panel to the sheathing alone.
- B. Fasteners for wood studs shall penetrate the studs a minimum of 1 in. (25 mm).
- C. Fasteners for steel studs, girts or purlins shall penetrate a minimum of three threads beyond steel member thickness.
- D. Fasteners for **[masonry]** **[or]** **[concrete]** shall penetrate the substrate a minimum of 1 in. (25 mm).

E. Fastener Installation: Mechanically attach metal panels with a minimum of one fastener per sq. ft. (929 cm²) or not less than 16 fasteners per 4 ft. by 4 ft. panel, reducing fastener spacing along the top and bottom of the wall and around openings, as indicated below.

1. Spacing of pre-punched fastener holes results in the typical recommended fastener spacing of 8 in. (203 mm) vertically and 16 in. (406 mm) horizontally.
2. Horizontal fastener spacing shall not exceed 24 in. (610 mm); vertical fastener spacing shall not exceed 16 in. (406 mm).

NOTE TO SPECIFIER: Fasteners placed behind thin brick units will interfere with thin brick installation. Fasteners properly installed at pre-punched hole locations will not interfere with brick placement.

3. Fasteners should not be installed behind masonry units, except where they are placed within the channels of Elite Panels. Fasteners for Classic panel applications should be installed in areas to receive mortar.
4. Provide additional fasteners around the perimeter of walls and around openings larger than 24 in. (610 mm) in either dimension, as well as building corners not utilizing corner panels as follows:
 - a. Fasteners shall be placed within 8 in. (203 mm) of the top and bottom of the building walls, at a maximum spacing of 12 in. (305 mm) horizontally.
 - b. At vertical ends of walls and openings, fasteners shall be spaced a maximum of 8 in. (203 mm) vertically within 4 in. (102 mm) of the vertical edge of the panel.
 - c. Where the vertical edge of Thin Tech Elite Panel is more than 2 in. (51 mm) from channel, install Thin Tech Shim and fasten for additional support.

3.7 MASONRY UNITS

- A. Back face of [thin brick] [and] [cast stone] [natural stone] and surface of metal panel must be dry and clean; free of dirt, oil or and other contaminants.
- B. Prime cast stone and natural stone masonry units according to manufacturer's instructions.
 1. Apply primer with a brush or roller at least 1 in. (25 mm) wide in vertical lines no more than 6 in. (152 mm) apart prior to adhering to panel.
 2. Do not prime within 1/2 in. to 1 in. (13 to 25 mm) of any stone edges.
 3. Allow primer to dry completely (at least one hour) before applying adhesive. Reapply primer if structural silicone adhesive is not applied within 8 hours.
- C. Prior to installing veneer units with adhesive, establish unit layout to ensure bond patterns with uniform joint thicknesses and to reduce cutting at openings, movement joints, returns, and offsets.
 1. Avoid using less-than-half-size units, particularly at corners and jambs.
 2. Avoid using cut units at heads and sills of opening.
 3. Ensure unfinished or cut faces are not exposed to view upon completion.
- D. Lay masonry in bond pattern as indicated on drawings or general notes.
- E. Select and arrange units for exposed unit masonry to produce a uniform blend of color and texture.
- F. Leave a uniform 3/8 in. to 1/2 in. (10 to 13 mm) space around the perimeter of openings to allow for movement joint installation.

NOTE TO SPECIFIER: Dabs of adhesive approximately 1 in. (25 mm) in diameter are appropriate for adhering thin brick units. Specify primer and vertical beads of silicone adhesive spaced no more than 6 in. (152 mm) apart for cast stone or natural stone units. Delete options not applicable to project.

- G. Apply [1 in. (25 mm) diameter dabs of specified adhesive, not more than 6 in. (152 mm) apart to the back of thin brick] [and] [3/8 in. (10 mm) wide vertical beads of specified adhesive not more than 6 in. (152 mm) apart to the back of cast/natural stone units.] and adhere units to panel. No less than two dabs/beads shall be applied to each full length unit. Corner units shall have at least one dab/bead of adhesive applied to the head/return.
1. Do not apply adhesive in horizontal streams.
 2. Do not use excessive adhesive as this may cause veneer units to tilt away from wall prior to adhesive set.
 3. Do not apply silicone adhesive within 1/2 in. to 1 in. (13 to 25 mm) of any stone edges.
- H. Masonry units shall be applied to dry panel within 5 to 10 minutes after adhesive has been applied and before film begins to form on the adhesive.
- I. When adjustment is necessary to be made after adhesive begins to harden, remove hardened adhesive and replace with fresh adhesive.
- J. Keep areas intended to receive sealant clear of thin brick, adhesive and other materials during construction.
- K. Do not allow masonry units to bridge movement joints in substrate.

3.8 MORTAR INSTALLATION AND JOINTING

- A. After adhesive has set a minimum of 6 hours, completely fill head and bed joints intended to receive mortar.
- B. Discard mortar after two hours or when too stiff to work. Retempering within two hours is permitted, but may contribute to mortar color variation.
- C. Do not fill movement joints to receive sealant.

NOTE TO SPECIFIER: Delete subparagraph below if air vent not required.

- D. Do not fill joints above starter angles to receive Glen-Gery Thin Tech Air vent.
- E. For Classic panel installations, form weep holes (head joints free of mortar) as required in Section 3.9.B, spaced horizontally every 24 in. (610 mm) immediately above starter angles and flashings.

NOTE TO SPECIFIER: Delete joint profiles not required.

- F. Tool exposed joints when thumbprint hard to joint [concave] [V-shaped] [grapevine] profile.

NOTE TO SPECIFIER: Delete subparagraph below if no glazed thin brick are required.

- G. For glazed thin brick, use nonmetallic jointer.
- H. Flush cut all joints not tooled.
- I. When repointing, completely remove mortar, and refill solidly with mortar and tool joints.

3.9 WEEPHOLES/VENTS

NOTE TO SPECIFIER: Delete options not required for project. Vents are required with Elite Panels and also function as weeps. Vents are optional for Classic Panel.

- A. Vents for Elite Panel: Apply 3 dabs of Glen-Gery supplied adhesive on the back face of each vent (center and both ends) and install Thin Tech air vent where the panel meets the starter angle or flashing; unless otherwise indicated.
- B. Weepholes for Classic Panels (where vents are not installed or specified): Install weepholes in bed joints immediately above the starter angles and flashings at the base of the wall, horizontal expansion joints and above all openings.

NOTE TO SPECIFIER: *Glen-Gery Thin Tech air vents used as weeps should be installed by adhering the back of the vent to the panel with a small dab of adhesive near the top and leaving the bottom open for drainage.*

1. Form weepholes by [omitting mortar from] [or] [installing vents cut to 1-1/2 in. (38 mm) minimum height and installed vertically in] head joints.
2. Spacing of weepholes shall not exceed a maximum of 24 in. (610 mm) on center horizontally for units 12 in. (305 mm) or less in length and a maximum of 32 in. (813 mm) on center for larger units, in the joint between the flashing and masonry units above or in the lower third of the head joints immediately above the starter angles and flashings, including the base of the wall, at horizontal expansion joints and above all openings.

C. Keep vents and weepholes free of mortar or other obstructions.

3.10 MOVEMENT JOINTS

A. Locate movement joints where indicated on drawings.

B. Provide vertical and horizontal movement joints where indicated by leaving a continuous space no less than 3/8 in. (10 mm) wide between Thin Tech panels, installing bond breaker tape or backer rod as specified and installing sealant as specified in Division 07 Section "Joint Sealants."

1. Provide and install bond breaker tape at movement joints prior to installing masonry units 1 in. (25 mm) or less in thickness. Install backer rod where thickness of masonry unit exceeds 1 in. (25 mm).

C. Keep entire length of movement joint clear of mortar, Thin Tech adhesive and debris.

D. Install movement joints between Thin Tech wall assemblies and other materials, including around windows and doors.

E. Install movement joints at changes in substrate and where movement joints occur in substrate or foundation.

NOTE TO SPECIFIER: *Walls with openings typically need more vertical movement joints than walls without openings. Movement joints should be placed where stresses related to volume changes are expected. Refer to BIA Technical Note 18A for additional recommendations. The spacing of horizontal movement joints should not exceed the length to height ratio of 1.5 for a particular wall, or portion of a wall. Maximum vertical movement joint spacing is 24 ft., including the distance from one control joint to the next around a corner.*

F. Install movement joints at changes in wall height or thickness.

G. Spacing of vertical movement joints must not exceed 24 ft. (7.3 m) on center in walls without openings.

H. Install movement joints at inside corners and within 2 to 4 ft. (0.6 to 1.2 m) of outside corners where intersecting walls (with Thin Tech applied to each) are longer than 4 ft. (1.2 m).

I. Install no less than one horizontal movement joint per story, with height between horizontal movement joints not exceeding 18 ft. (5.5 m).

J. Install horizontal movement joints below all starter angles above the base of the wall.

3.11 CLEANING

A. In-Progress Cleaning: Clean unit masonry as work progresses with a dry, non-metallic brush to remove adhesive as well as mortar fins and smears before tooling joints.

B. Final Cleaning: After mortar is set and cured, clean exposed masonry as follows:

1. Cut out all defective mortar joints and holes in exposed masonry and fill with new mortar.
2. Clean preselected sample wall area with specified cleaning product as per brick manufacturer's recommendations. Do not use muriatic or hydrofluoric acid. Do not proceed with cleaning until approved by Architect/Owner.

3. Clean thin brick in accordance with cleaning product manufacturer's written instructions.
4. Protect adjacent stone and non-masonry surfaces from contact with cleaner.

3.12 WARRANTY

- A. Provide manufacturer's 50 year warranty against material defects in Thin Tech Elite panels and accessories.
- B. Provide manufacturer's 25 year warranty against material defects in Thin Tech Classic panels and accessories.
- C. Warranty applies only to the original purchaser. See warranty and application requirements for detailed information on terms, conditions and limitations.

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