



Updated 2/2012

Glen-Gery Thin Tech™ Support Tie Ledge Panel Guide Specification

The following information has been compiled as a Guide Specification for Glen-Gery Thin Tech™ Support Tie Ledge Panel. 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 Glen-Gery Thin Tech™ Support Tie Ledge Panel and is not intended to be all inclusive. Additional Technical Information related to Glen-Gery Brick and designs utilizing the Glen-Gery Thin Tech™ Support Tie Ledge Panels 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 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 1 general requirements apply to this section.

1.2 SUMMARY

- A. Section Includes: Thin Tech™ Thin Veneer Panel System and related materials.

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

1. Thin Brick.
2. Glazed Thin Brick
3. Mortar
4. Cleaning
5. Embedded flashing
6. Weapholes/Vents
7. Expansion and Control Joints
8. Fasteners

- B. Related Sections:

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

1. Division 03 Section – “Cast-in-Place Concrete”
2. Division 03 Section – “Precast Concrete”

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3. Division 04 Section – “Unit Masonry”
4. Division 05 Section – “Structural Metal Framing”
5. Division 05 Section – “Cold Form Metal Framing”
6. Division 05 Section – “Metal Fabrications”
7. Division 06 Section – “Rough Carpentry”
8. Division 06 Section – “Sheathing”
9. Division 07 Section – “Dampproofing and Waterproofing”
10. Division 07 Section – “Thermal Protection”
11. Division 07 Section – “Flashing and Sheet Metal”
12. Division 07 Section – “Joint Protection”
13. Division 08 Section – “Wall Vents”
14. Division 09 Section – “Plaster and Gypsum Board”
15. Division 09 Section – “Tile”
16. Division 13 Section – “Pre-Engineered Structures”

1.3 REFERENCES

NOTE TO SPECIFIER: Delete references from the list below that are not required by the text of the edited section.

- A. ASTM C 67 – Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.
- 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 653 – Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc Iron Alloy Coated (Galvannealed) by the Hot Dip Process.
- D. ASTM A 925 – Standard Specification for Zinc 5% Aluminum Mischmetal Alloy Coated Steel Overhead Ground Wire Strand.
- E. ASTM B 117 – Standard Practice for Operating Salt Spray (Fog) Apparatus.
- F. ASTM C 126 – Standard Specification for Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units.
- G. ASTM C 270 – Standard Specification for Mortar for Unit Masonry.
- H. ASTM C 847 – Standard Specification for Metal Lath.
- I. ASTM C 1714 – Standard Specification for Preblended Dry Mortar Mix for Unit Masonry.
- J. ASTM C 1088 – Standard Specification for Thin Veneer Brick Units Made From Clay or Shale.
- K. ASTM D 226 – Standard Specification for Asphalt Saturated Organic Felt Used in Roofing and Waterproofing
- L. ASTM D 1056 – Standard Specification for Flexible Cellular Materials Sponge or Expanded Rubber.
- M. TMS 602/ACI 530.1/ASCE 6 – Specifications for Masonry Structures.

1.4 SUBMITTALS

- A. Submit under provisions of Section 013000.
- B. Product Data: Manufacturer’s data sheets on each product to be used, including:
 1. Preparation instructions and recommendations.
 2. Storage and handling requirements and recommendations.

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3. Installation methods.

C. Shop Drawings

1. Indicate masonry layout, patterns, color arrangement, perimeter conditions, shape requirements, junctions with dissimilar materials, connections, and other related components.

2. Locate and detail expansion and control joints.

D. Samples: Furnish not less than five (5) individual masonry units as samples, showing extreme variations in color and texture.

1.5 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 provision 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. Metal Panel:

a. A history of corporate experience with metal supported unit masonry panels.

b. Documented qualifications and capabilities that fully describe the ability to provide the required metal panel system and technical support to the Owner.

c. At least five (5) completed projects over the last two years, illustrating system performance equal or greater to the criteria listed in this specification.

i. Include the project location, award date, the completion date, the contract value, and the name and telephone number of a person employed by the Owner who has personal knowledge of the manufacturer's contractual and technical performance.

D. Installer Qualifications:

NOTE TO SPECIFIER: Insert additional qualifications below if required.

1. Authorized Glen-Gery Thin Tech™ installer or proof of a minimum of five years experience with a related thin masonry support panel system.

2. At least one supervisory journeyman who shall be present at all times during execution of work, who shall be thoroughly familiar with design requirement, type of materials being installed, reference standards and other requirements, and who shall direct all work performed at jobsite.

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

E. Material Certificates: Prior to delivery, submit to Architect/Engineer certificates indicating compliance with the applicable specifications for Thin Brick Grades, Types or Classes included in these specifications.

F. Thin Brick Test Reports: Submit test reports substantiating compliance with requirements: Sample and test in accordance with ASTM C 67.

1. Testing and reports shall be completed by an independent laboratory.

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- a. Test reports for each type of brick shall be submitted to the Architect/Engineer for review.
- b. Thin Brick Test reports shall indicate:
 - 1) 2-hour cold water absorption
 - 2) 5-hour boil absorption
 - 3) Saturation coefficient
 - 4) Initial rate of absorption
 - 5) Efflorescence

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

- G. Glazed Thin Brick Test Reports: Submit test reports substantiating compliance with requirements: Sample and test in accordance with ASTM C 67 for the brick body and C 126 for the glazed surface.
 - a. Test reports for each type of thin brick shall be submitted to the Architect/Engineer for review.
 - b. Glazed Thin Brick Test reports for the body shall indicate:
 - 1) 2-hour cold water absorption
 - 2) 5-hour boil absorption
 - 3) Saturation coefficient
 - 4) Initial rate of absorption
 - 5) Efflorescence
 - c. Glazed Thin Brick Test reports for the glazed surface shall indicate:
 - 1) Imperviousness
 - 2) Opacity
 - 3) Resistance to fading
 - 4) Resistance to crazing
- 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. Shop drawings: Submit individual drawings to be approved by architect for special shaped thin brick units.

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.

- I. Sample Panel: Sample or mock-up panels shall be used to review installation process as well as thin brick and mortar color and serves as the standard of workmanship for the Project
 1. Build **[sample]** **[mock-up]** panel for walls to receive Glen-Gery Thin Tech™ Wall System as shown on drawings.
 2. Build Mock-up panels for Thin Tech™ Wall System in sizes approximately **[48 inches (1200 mm)] [60 inches (1500 mm)] <Insert size>** long by **[48 inches (1200 mm)] <Insert size>** high by full wall thickness.
 - a. All thin brick shipped for the sample shall be included in the panel.
 - b. Use 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 manufacturer.
 - e. Protect accepted panel from the elements with weather-resistant membrane.
 - f. 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.

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- g. Do not start work until Architect/Engineer/Owner has accepted sample panel.
- h. Do not destroy or move panel until work is completed and accepted by Architect/Engineer/Owner.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in manufacturer's unopened containers, identified with name, brand, type, and grade.
- B. Store products in manufacturer's unopened packaging until ready for installation.
- C. Store Glen-Gery Thin Tech™ Panels 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, dampness, freezing, or overheating in accordance with manufacturer's instructions.
- E. Store different types of materials separately.
- F. Mastic and mortar additive are to be stored 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.

1.7 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 absolute limits.
 - 2. Stain Prevention:
 - a. Prevent adhesive, and mortar from staining the face of masonry.
 - b. Remove immediately grout or mortar in contact with face of such masonry.
 - c. To avoid smearing of adhesive on the face of masonry. Allow adhesive on face of installed masonry to set before trying to remove.
 - d. Protect all sills, ledges and projections from droppings of adhesive or mortar.
 - e. Protect the wall from rain-splashed mud and mortar splatter.
 - f. Turn scaffold boards closest to the wall on edge when work is not in progress to prevent rain from splashing mortar and dirt onto masonry.

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 may require additional measures of protection against wind, dust, dirt, rain and freezing.

- C. Cold Weather Requirements:
 - 1. Do not use frozen materials or materials mixed or coated with ice or frost.
 - 2. Do not build on frozen substrates.
 - 3. Remove and replace unit masonry damaged by frost or by freezing conditions.

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4. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.
 5. Comply with adhesive manufactureres application and temperature requirements
- 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 mortar installation to reduce the absorption of moisture from the mortar joint and increase bond.
 - b. Veneer may be fogged with water to allow the mortar enough time to set. Apply only enough moisture to consistently dampen the wall without allowing water to run down the face.
 3. Comply with adhesive manufacturer's application and temperature requirements.

PART 2: PRODUCTS

2.1.1 METAL MASONRY SUPPORT PANEL, GENERAL

- A. Metal Masonry Support Panel intended for the interior or exterior structural mechanical support of thin veneer on concrete, masonry, metal or frame construction. Structural grade 33 (.018) steel with G90 galvanized thermal set coating and stucco embossed texture with angled support ties.

2.1.2 MANUFACTURERS

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

2.1.3 METAL MASONRY SUPPORT PANELS

- A. All Metal Panels for Thin Brick Support specified and shown on drawings shall be *[Elite Thin Tech™ Panel]* *[or]* *[Classic Panel]* as manufactured by the Glen-Gery Corporation.
1. Flat Panels: 16-square foot (1.44 m²) masonry support panels for flat wall areas 48-inch (1,219.2 mm) x 48-inch (1,219.2 mm) nominal (see below), shall have support spacing as follows (actual dimensions listed):

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.

Available Support Tie Sizes: 19/64" (7.5 mm), 3/8" (9.5 mm), 5/8" (17.1mm)

- a. 2-5/8 inch (66.675 mm) for Modular, standard, Norman, and other 2-1/4" (57.2mm) high units.
Classic panel size: 47-13/16" (1,214.45 mm) x 47-1/4" (1,200.15 mm) • Elite panel size: 48" (1,219.2 mm) x 47-1/4" (1,200.15 mm)
- b. 2-5/8 inch (66.675 mm) for Modular, standard, Norman, and other 2-1/4" (57.2mm) high units.
Classic panel size: 15-3/4" (400.05 mm) x 47-13/16" (1,214.45 mm) • Elite panel size: 15-3/4" (400.05 mm) x 48" (1,219.2 mm)
- c. 3-1/8 inch (79.375 mm) for Engineer and other 2-3/4 inches (95.2 mm) high units.
Classic panel size: 47-13/16" (1,214.45 mm) x 46-7/8" (1,190.625 mm) • Elite panel size: 48" (1,219.2 mm) x 46-7/8" (1,190.625 mm)
- d. 3-3/8 inch (92.075 mm) for Handmade Oversize and other 3" (66.675) with 1/2" high mortar joints.
Classic panel size: 47-13/16" (1,214.45 mm) x 47-1/4" (1,200.15 mm) • Elite panel size: 48" (1,219.2 mm) x 47-1/4" (1,200.15 mm)
- e. 4-inch (101.6 mm) for Econo, Utility and other 3-5/8" (92.1 mm) high units.
Classic panel size: 47-13/16" (1,214.45 mm) x 48" (1,219.2 mm) • Elite panel size: 48" (1,219.2 mm) x 48" (1,219.2 mm)
- f. 8-inch (203.2 mm) for 8-Square and other 7-5/8" (193.7 mm) high units.
Classic panel size: 47-13/16" (1,214.45 mm) x 48" (1,219.2 mm) • Elite panel size: 48" (1,219.2 mm) x 48" (1,219.2 mm)

- g. 12-inch (304.8 mm) for 11-5/8" (295.3 mm) high units.
Classic panel size: 47-13/16" (1,214.45 mm) x 48" (1,219.2 mm) • Elite panel size: 48" (1,219.2 mm) x 48" (1,219.2 mm)
- h. 16-inch (406.4 mm) for stone or tile products.
Classic panel size: 47-13/16" (1,214.45 mm) x 48" (1,219.2 mm) • Elite panel size: 48" (1,219.2 mm) x 48" (1,219.2 mm)
- i. 24-inch (609.6 mm) for stone or tile products.
Classic panel size: 47-13/16" (1,214.45 mm) x 48" (1,219.2 mm) • Elite panel size: 48" (1,219.2 mm) x 48" (1,219.2 mm)

NOTE TO SPECIFIER: Delete corner panels if not required. Corner panels are recommended to reduce possibility of cracking due to differential movement, particularly in wood stud applications. Additional sizes may be available; verify availability with local Glen-Gery representative.

- B. Pre-Bent Corner Panels: 16-square foot (1.44 m²) masonry support panels for external corner applications 48-inch high (nominal) with 16-inch (406 mm) leg and 32-inch (813 mm) leg.

1). Support spacing to match flat panels specified above.

2.2.1 MASONRY UNITS, GENERAL

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

2.2.2 MANUFACTURERS

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

2.2.3 CLAY MASONRY UNITS

- A. 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, movement joints, bond beams, sashes, shelf angles and lintels. Mitered units shall not be used at standard corners.
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.

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

- B. 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: ASTM C 1088, Grade Exterior

NOTE TO SPECIFIER: Delete types not required.

- 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.

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- 1) Modular Size: 2-1/4 inches (57.2 mm) high, 7-5/8 inches (193.7 mm) long
- 2) Engineer Modular: 2-3/4 inches (69.9 mm) high, 7-5/8 inches (193.7 mm) long
- 3) Standard Size: 2-1/4 inches (57.2 mm) high, 8 inches (203.2 mm) long
- 4) Engineer Standard Size: 2-3/4 inches (69.8 mm), 8 inches (203.2 mm) long
- 5) Handmade Oversize: 2-3/4 inches (69.8 mm), 8-1/2 inches (215.9 mm)
- 6) Econo Size: 3-5/8 inches (92.1 mm) high, 7-5/8 inches (193.7 mm) long
- 7) 8-Square: 7-5/8 inches (193.7 mm) high, 7-5/8 inches (193.7 mm) long
- 8) Norman Size: 2-1/4 inches (57.2 mm) high, 11-5/8 inches (295.3 mm) long
- 9) Utility Size: 3-5/8 inches (92.1 mm) high, 11-5/8 inches (295.3 mm) long
- 10) (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 may be available in additional thicknesses not listed below including thicknesses for use as soaps (1/2 brick), corbelled areas and other applications. Verify availability with local Glen-Gery representative.

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

NOTE TO SPECIFIER: Delete first paragraph and subparagraphs below if no Glazed Thin Brick are required.

- C. 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: ASTM C 1088, Grade Exterior, Type TBX for the body and ASTM C 126 Grade S, Type 1 for glazed surface requirements.

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 (actual dimensions listed)

- 1) Modular Size: 2-1/4 inches (57.2 mm) high, 7-5/8 inches (193.7 mm) long
- 2) Engineer Modular: 2-3/4 inches (69.9 mm) high, 7-5/8 inches (193.7 mm) long
- 3) Standard Size: 2-1/4 inches (57.2 mm) high, 8 inches (203.2 mm) long
- 4) Engineer Standard Size: 2-3/4 inches (69.8 mm), 8 inches (203.2 mm) long
- 5) Econo Size: 3-5/8 inches (92.1 mm) high, 7-5/8 inches (193.7 mm) long
- 6) 8-Square: 7-5/8 inches (193.7 mm) high, 7-5/8 inches (193.7 mm) long
- 7) Norman Size: 2-1/4 inches (57.2 mm) high, 11-5/8 inches (295.3 mm) long
- 8) Utility Size: 3-5/8 inches (92.1 mm) high, 11-5/8 inches (295.3 mm) long
- 9) (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 may be available in additional thicknesses not listed below including thicknesses for use as soaps (1/2 brick), corbelled areas and other applications. Verify availability with local Glen-Gery representative. Glazed Thin Brick is not available in 1/2" thickness.

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b. Thickness **[3/4 inch (19 mm)] [or] [1inch (25 mm)]**

- 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.

2.3 MORTAR

NOTE TO SPECIFIER: Delete mortar not required. Add Project specific requirements.

- A. Mortar for thin brick

1. Mortar shall conform to ASTM C 270 Standard Specification for Mortar for Unit Masonry under the guidelines provided in BIA Technical Notes #8 Series.

a. Type **[S] [or] [N]**

[OR]

2. Mortar shall conform to ASTM C 1714 – Standard Specification for Preblended Dry Mortar Mix for Unit Masonry.

a. Type **[S] [or] [N]**

- B. Mortar for thin **[concrete] [or] [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.

- C. Cold Weather Additives (including accelerators) shall not be used in thin brick mortar mix.

2.4 EMBEDDED FLASHING MATERIALS

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 7.

- A. Metal Flashing:

1. Glen-Gery Thin Tech™ Starter Angle: Minimum **[Galvanized sheet steel: ASTM A653 0.024 inch (0.61) (26 gauge), minimum ASTM A925 G-60 coating] [or] [Stainless Steel: ASTM A 240/A 240M, Type 304, 0.019 inch (0.45mm) (24 gauge)]** pre-bent in 10 ft. (304.8 cm) lengths.

- B. Flexible Flashing:

1. Rubberized-Asphalt Flashing: Composite flashing product consisting of a pliable, adhesive rubberized-asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than **[0.030 inch (0.76 mm)] [0.040 inch (1.02 mm)]**.
2. Elastomeric Thermoplastic Flashing: Composite flashing product consisting of a polyester-reinforced ethylene inter-polymer alloy as follows:
- a. Monolithic Sheet: Elastomeric thermoplastic flashing, 0.040 inch (1.0 mm) thick.
- b. Self-Adhesive Sheet: Elastomeric thermoplastic flashing, 0.025 inch (0.6 mm) thick, with a 0.015-inch- (0.4-mm-) thick coating of rubberized-asphalt adhesive.
3. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.

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

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instructions where the panel meets the starter angle to ensure proper ventilation and facilitate water drainage. Standard weepholes for draining wall panels can be formed by omitting mortar/sealant and will not allow ventilation specific to the Elite Panel.

2.5 WEEPHOLES/VENTS

- A. Glen-Gery Thin Tech™ air vent: Impact resistant polypropylene copolymer, Density 2000 grams/sq meter. Size: 3/8- in. (10mm) x 1/2 in. (13 mm) x 4 ft. (122 cm).

2.6 CONTROL AND EXPANSION JOINTS

NOTE TO SPECIFIER: Typical Glen-Gery Thin Tech™ Panel applications do not require compressible fill. Backer rod may be needed if depth of joint exceeds 3/4-inch (19 mm) per Division 7 Section "Joint Sealants".

- A. 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".

2.7 FASTENERS (For Support Tie Ledge Panel)

NOTE TO SPECIFIER: Fasteners are dependent upon substrate construction. More than one type of fastener may be required on a single project. 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.

- A. Screw fasteners shall be a minimum *[#6, minimum 0.138 inch (3.5 mm) shank diameter] [or] [#8, minimum 0.164 inch (4.2 mm) shank diameter]* with a *[wafer,] [pancake] [or] [bugle]* head and corrosion resistance provided by *[zinc plating] [or] [stainless steel]* with a minimum protection of 800 hrs when tested according to ASTM B 117.

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

- B. Fasteners Length:
 - 1. Wood frame: Fasteners shall penetrate the studs a minimum of 1" (25 mm).
 - 2. *[Masonry] [or] [Concrete]*: Fasteners shall penetrate the substrate a minimum of 1" (25 mm).
 - 3. Steel studs, girts or purlins: Self tapping/self drilling fasteners shall penetrate a minimum 1/4" (6.4 mm), or not less than three exposed threads behind the stud flange, girt or purlin.

2.8 ADHESIVE

- A. Adhesive for thin *[clay brick] [or] [concrete masonry unit]*
 - 1. High-strength mastics must exceed ASTM D3498 and ASTM C557 specifications with less than 70 grams of VOC per liter with a shear value between the thin veneer and the panel greater than 100 PSI (10.5 kg/cm2).

NOTE TO SPECIFIER: Delete sheathing section below if not applicable for specific project.

2.9 SHEATHING

- A. Provide sheathing, as designated in section 060000.

NOTE TO SPECIFIER: Verify specific project needs regarding fire and moisture resistance as well as structural requirements prior to specifying sheathing.

- B. Sheathing shall be one of the following as deemed suitable for specific project conditions:
 - 1. Exterior grade gypsum sheathing or glass fiber mat-faced sheathing or cement board, not less than 1/2-inch. (12.7 mm) in thickness.

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[OR]

2. Closed-cell insulating rigid foam not less than 1/2-inch (12.7 mm) thick conforming to ASTM C 578 or ASTM C 1289.

[OR]

3. Oriented strand board (OSB) not less than 1/2-inch (12.7 mm) in thickness; or exterior grade plywood not less than 3/8-inch (9.5 mm) in thickness.

2.10 WEATHER BARRIER

NOTE TO SPECIFIER: Delete subsection if assembly does not require weather barrier (e.g. concrete or masonry substrate). For frame construction, Glen-Gery recommends a minimum of one Weather Barrier behind Elite Panels and a minimum of two behind Classic Panels. 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.

- A. Provide weather barriers as designated in Division 07.
- B. Weather barriers shall provide a minimum protection equal to No.15 asphalt felt, complying with ASTM D 226 for Type 1 felt or other approved materials.

2.11 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 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. *<other as recommended by masonry unit and mortar manufacturer.>*

PART 3: EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates and foundations as well as rough-in and built-in construction have been properly prepared.
 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 = 609.6 mm (24") O.C.
 - b. Maximum wall frame spacing for girts = 762 mm (30") O.C.
 - c. Minimum 0.043 inch (18-gauge; 1.09 mm) studs for exterior walls.
 2. Substrate shall have no planer irregularities greater than 7 mm in 3.05 m (1/4" in 10').
- B. Verify substrate including, concrete, masonry or framing as well as sheathings and weather barrier are properly installed.

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- C. Verify walls are plumb and corners are braced to specifications.
- D. Substrate must be flat, within 1/8-inch (3.2 mm) within any 4-foot (1.2 m) square area with no planar irregularities greater than 1/4" per 10 linear feet.
- E. If substrate, foundations or flashings are the responsibility of another installer, notify Architect and General contractor of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation. All surfaces 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 7A on flashing of Brick Walls.

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. Mix units from several pallets or cubes as they are placed.
- C. Comply with tolerances in TMS 602/ACI 530.1/ASCE 6.

3.4 SUPPORT TIE LEDGE 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. Walls shall be constructed of structurally sound masonry, wood, or steel studs, with an approved building sheathing and weather resistant barriers as required.
- D. Panels shall be clean, free of dirt, oil or any other foreign contaminant.
- E. Lay out panels in advance for accurate spacing of tabs to allow installation of full height masonry units at top and bottom of walls, openings, etc. when possible. Note: Panel sizes will vary depending on spacing.
- F. Attach panels flat to the substrate in true and level rows with support ties aligned and level to each other at flat sections as well as corners.
- G. Stagger metal panel joints over sheathing joints. This requires cutting 1/2 panels when starting at outside or inside corners. When using pre-bent corner panels, stagger joints of flat panels after corner panel installation.
- H. Do not allow panels to bridge movement joints in substrate.
- I. Install full-size uncut panels when possible. When cutting is required to provide staggered panel joints or to fit specific application, cut panels to provide clean, unbent edges.
- J. Install panels to ensure a 1/16" – 1/8" gap between the sides of the panels and butt panels vertically, always leaving a gap at movement joints locations equal to the thickness of the joint.
- K. Stop panel 1/4" to 3/8" from inside corners, openings and other materials to allow for movement.
- L. Fastener Installation: Mechanically attach metal panels with a minimum of one fastener per square foot (900 cm²) increasing spacing along the top and bottom of the wall and around openings.

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1. Horizontal fastener spacing shall not exceed 24 inches; vertical fastener spacing shall not exceed 16 inches.
2. Provide additional anchors around the perimeter of walls as well as openings larger than 24 inches (406 mm) in either dimension, as well as building corners not utilizing corner panels as follows:
 - a. Install fasteners a minimum of 3 per square foot (900 cm²).
 - i. At the top and bottom of the walls, fasteners shall be spaced a maximum of 12 inches (305 mm) horizontally and within the height of a single row or course of masonry.
 - ii. At vertical wall ends of wall and openings, fasteners shall be spaced a maximum of 8 inches vertically within 4 inches of the end of the panel.

3.5 FASTENERS (For Support Tie Ledge Panel)

NOTE TO SPECIFIER: *Revise subparagraphs below to suit Project.*

- A. Attach fasteners to the framing through the sheathing.
- B. Fasteners for wood frame shall penetrate the studs a minimum of 1" (25 mm).
- C. Fasteners for steel studs, girts or purlins shall penetrate a minimum 1/4" (6.4 mm) with not less than three exposed threads behind the steel members.
- D. Fasteners for *[masonry] [or] [concrete]* shall penetrate the substrate a minimum of 1" (25 mm).

3.6 THIN VENEERS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement joints, returns, and offsets.
 1. Avoid using less-than-half-size units, particularly at corners and jambs.
 2. Ensure unfinished or cut faces are not exposed to view upon completion.
- B. Select and arrange units for exposed unit masonry to produce a uniform blend of color and texture.
- C. Lay masonry in bond pattern as indicated on drawings or general notes.
- D. Back face of thin brick must be dry and clean; free of dirt, oil or any other foreign contaminant.
- E. Leave a uniform 3/8 - 1/2-inch (9.5 - 12.7 mm) gap at openings to allow for movement joint installation.
- F. Adhere individual units to panel using specified adhesive placed on the back of the units in two 1/2 - 3/4-inch dabs or vertical strips 3/8-inch wide. For corner brick apply one dab on head and one dab at each end of the long leg.
 1. Do not apply adhesive in a manner that would create horizontal strips of adhesive that may prevent moisture from draining down the wall.
 2. Do not use excessive adhesive as this will cause thin brick to tilt away from wall prior to adhesive set.
- G. Thin veneers shall be applied within 5 to 10 minutes after adhesive has been applied and before film begins to form on the adhesive.
- H. Space thin brick to ensure that the head joints do not exceed 5/8-inch (16 mm) or fall below 1/4-inch (6.4 mm).
- 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 clean of thin brick, adhesive and other materials during construction.
- K. Do not allow masonry units to bridge movement joints in substrate.

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3.7 MORTAR INSTALLATION AND JOINTING

- A. After adhesive has set a minimum of 12 hours, completely fill head and bed joints between adhered veneer intended to receive mortar.

NOTE TO SPECIFIER: Delete air vent if not required.

- B. Do not fill joints to receive Glen-Gery Thin Tech™ air vent, above starter angles.
- C. Keep weep holes free of mortar every 24 inches immediately above starter angles and flashings.

NOTE TO SPECIFIER: Delete joint profiles not required.

- D. Tool exposed joints when thumbprint hard to joint profile listed below:
 - 1. Joint Profile: Tool mortar joints to a concave appearance.
 - 2. Joint Profile: Tool mortar joints to a concave V-shaped appearance.
 - 3. Joint Profile: Tool mortar joints to a concave grapevine appearance.

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

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

3.8 FLASHING

- A. Install embedded flashing and weep holes in Glen-Gery Thin Tech™ wall panel assemblies at the base of the wall, above openings, above horizontal movement joints and other obstructions to downward flow of water in wall, and where indicated.
- B. Before covering with wall panel or mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
- C. Carry flashing vertically as detailed, but not less than 3 inches (76 mm) above horizontal plane.
- D. Lap flashing a minimum of 3 inches (76 mm).
- E. Seal all flashing laps with compatible lap cement.
- F. Extend head and sill flashings not less than 6 inches (150 mm) beyond edges of openings; seal with mastic.
- H. Project starter angle from face of wall approximately 1/4-inch (6 mm) to form a drip.

3.9 WEEPHOLES/VENTS

NOTE TO SPECIFIER: Delete options not required for project.

- A. Vents for Elite Panel: Install specified air vent where the panel meets the starter angle or flashing; unless otherwise indicated.
- B. Weepholes (in areas where vents are not installed or specified): Install weepholes to drain moisture from the wall by omitting mortar/sealant a maximum of 24 inches (610 mm) on center horizontally for units 12" (305 mm) or less in length and a maximum of 32" (813 mm) on center for larger units, in the joint between the flashing and thin brick 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.

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3.10 CONTROL AND EXPANSION JOINTS

- A. Keep clean of all mortar, adhesive and debris.
- B. Locate joints where indicated on drawings.
- C. Provide vertical and horizontal pressure-relieving joints where indicated by installing sealant, and inserting a compressible filler when required, as specified in Division 07 Section "Joint Sealants," but not less than 3/8-inch (10 mm). Backer rod may not be required and is dependent upon depth of joint.
- D. Install joints between Thin Tech™ wall assemblies and other materials including around windows and doors.
- E. Install joints at changes in substrate and where movement joints occur in substrate.
- F. Vertical joints must not exceed 16-feet (488 cm) on center in walls without openings; including joint within 4 ft. (122 cm) of the corner.

NOTE TO SPECIFIER: *Revise two subparagraphs below to suit specific project needs.*

- G. Install horizontal joints on wood frame walls at every floor level.
- H. Install horizontal joints on *[steel frame] [or] [masonry] [or] [concrete]* walls every *[1] [or] [2]* stories.

3.11 CLEANING

- A. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove adhesive as well as mortar fins and smears before tooling joints.
- B. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 - 1. Cut out all defective mortar joints and holes in exposed masonry and provide new mortar.
 - 2. Clean preselected sample wall area with specified cleaning solution as per manufacturer's recommendations. Do not proceed with cleaning until approved by Architect.
 - 3. Clean thin brick in accordance with manufacturer's written instructions.
 - 4. Protect adjacent stone and nonmasonry surfaces from contact with cleaner.
 - 5. All cleaning practices and product used shall be in accordance with cleaning products manufacturer's written instructions.

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