Glen-Gery Clay Thin Brick Guide Specification
(1/2", 3/4" and 1" thick)

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

While there are many wall systems capable of utilizing clay thin brick, this guide specification is intended to assist the Design Professional/Specifier in selecting appropriate products and preparing a project specification section for nominal 1/2 - 1" thick Clay Thin Brick Masonry and is not intended to be all inclusive. Additional Technical Information related to Glen-Gery Brick and designs utilizing clay thin brick 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 21 00
CLAY UNIT MASONRY

PART 1: GENERAL

1.1 RELATED DOCUMENTS

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 brick units 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. Weepholes/Vents
7. Expansion Joints
8. Metal Lath
9. Fasteners

B. Related Sections

NOTE TO SPECIFIER: Delete 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”
3. Division 04 Section – “Unit Masonry”
4. Division 05 Section – “Structural Metal Framing”
5. Division 06 Section – “Cold Form Metal Framing”
6. Division 06 Section – “Metal Fabrications”
7. Division 06 Section – “Rough Carpentry”
8. Division 06 Section – “Sheathing”
9. Division 07 Section – “Damp proofing 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 – “Portland Cement Plastering”
15. Division 09 Section – “Plaster and Gypsum Board”
16. Division 09 Section – “Tile”
17. Division 13 Section – “Pre-Engineered Structures”

1.3 REFERENCES

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

B. ASTM A 653 – Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc Iron Alloy Coated (Galvannealed) by the Hot Dip Process
C. ASTM A 925 – Standard Specification for Zinc 5% Aluminum Mischmetal Alloy Coated Steel Overhead Ground Wire Strand
F. ASTM C 270 – Standard Specification for Mortar for Unit Masonry
H. ASTM C1405 – Standard Specification for Glazed Brick (Single Fired, Brick Units)
J. ASTM C 1088 – Standard Specification for Thin Veneer Brick Units Made From Clay or Shale
K. ASTM C 1330 – Standard Specification for Preblended Dry Mortar Mix for Unit Masonry
N. 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
   3. Installation methods

C. Shop Drawings
   1. Indicate masonry sizes, layout, patterns, corbels, racking, coursing, color arrangement, perimeter conditions, shape requirements and location, junctions with dissimilar materials, connections, and other related components.
   2. Locate and detail expansion and control joints.

D. Samples: Furnish not less than five individual thin brick as samples for each thin brick specified, 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.

C. Manufacturer Qualifications:
   1. Obtain materials from one manufacturer to ensure compatibility.
   2. Obtain materials from company specializing in manufacturing products specified in this section with a minimum 5 years documented experience.

D. Installer Qualifications:
   1. Proof of a minimum of five years experience with related thin masonry installations.
   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.

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.
      a. Test reports for each type of thin 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 thin brick body and C126 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

H. 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.

I. 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 mock-up 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.

J. 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 of typical wall area as shown on Drawings.

   2. Build Mockup panels for [each type of exposed unit masonry construction] [typical exterior wall] [typical interior wall] [typical exterior and interior walls] in sizes approximately [48" (1200 mm)] [60" (1500 mm)] <Insert size> long by [48" (1200 mm)] <Insert size> high [by full wall thickness].

   3. All thin brick shipped for the sample shall be included in the panel.

   4. Use panel as standard of comparison for all masonry work built of same material.

   5. Where masonry is to match existing, erect panel adjacent and parallel to existing surface.

   6. Clean [one-half of] exposed faces of panel with masonry cleaner as indicated and approved by manufacturer.

   7. Protect accepted panel from the elements with weather-resistant membrane.

   8. 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.

   9. Do not start work until Architect/Engineer/Owner has accepted sample panel.

   10. Do not destroy or move panel until work is completed and accepted by Architect/Engineer/Owner.
1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in dry location in manufacturer’s unopened packaging until ready for installation.

B. Store all materials off the ground to prevent contamination by mud, dust or other materials likely to cause staining or other defects.

C. Protect materials from contamination, dampness, freezing, or overheating in accordance with manufacturer’s instructions.

D. Store different types of materials separately.

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 material manufacturers for optimum results. Do not install products under environmental conditions outside manufacturer’s absolute limits.

2. Stain Prevention:

a. Prevent grout or mortar from staining the face of masonry.

b. Remove immediately grout or mortar in contact with face of such masonry.

c. Protect all sills, ledges and projections from droppings of mortar.

d. Protect the wall from rain-splashed mud and mortar splatter by spreading coverings on ground and over wall surface.

e. 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 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.


D. Hot Weather Requirements:


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.
PART 2: PRODUCTS

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 install units where such defects will be exposed in the completed work.

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 • Web: www.glengery.com

B. Substitutions: Not permitted.

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.

1) Modular Size: 2-1/4" (57.2 mm) high, 7-5/8" (193.7 mm) long
2) Engineer Modular: 2-3/4" (69.9 mm) high, 7-5/8" (193.7 mm) long
3) Standard Size: 2-1/4" (57.2 mm) high, 8" (203.2 mm) long
4) Engineer Standard Size: 2-3/4" (69.8 mm), 8" (203.2 mm) long
5) Handmade Oversize: 2-3/4" (69.8 mm), 8-1/2" (215.9 mm)
6) Econo Size: 3-5/8" (92.1 mm) high, 7-5/8" (193.7 mm) long
7) 8-Square: 7-5/8" (193.7 mm) high, 7-5/8" (193.7 mm) long
8) Norman Size: 2-1/4" (57.2 mm) high, 11-5/8" (295.3 mm) long
9) Utility Size: 3-5/8" (92.1 mm) high, 11-5/8" (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 thin brick), corbelled areas and other applications. Verify availability with local Glen-Gery representative.

c. Thickness: [1/2" (13 mm)] [3/4" (19 mm)] [or] [1" (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 C126 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" (57.2 mm) high, 7-5/8" (193.7 mm) long
2) Engineer Modular: 2-3/4" (69.9 mm) high, 7-5/8" (193.7 mm) long
3) Standard Size: 2-1/4" (57.2 mm) high, 8" (203.2 mm) long
4) Engineer Standard Size: 2-3/4" (69.8 mm), 8" (203.2 mm) long
5) Econo Size: 3-5/8" (92.1 mm) high, 7-5/8" (193.7 mm) long
6) 8-Square: 7-5/8" (193.7 mm) high, 7-5/8" (193.7 mm) long
7) Norman Size: 2-1/4" (57.2 mm) high, 11-5/8" (295.3 mm) long
8) Utility Size: 3-5/8" (92.1 mm) high, 11-5/8" (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 thin brick), corbelled areas and other applications. Verify availability with local Glen-Gery representative. Glazed thin brick is not available in 1/2" thickness.

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

D. Provide thin 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.
2.4 MORTAR

**NOTE TO SPECIFIER:** Delete mortar, or mortar type, if 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]**


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

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

2.5 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 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>

2.6 RELATED MATERIALS

**NOTE TO SPECIFIER:** Edit the subsections (materials) based on project needs, local usage and building code requirements. Delete materials specified in separate sections; or that are unnecessary or inappropriate for specific project.

A. Embedded Flashing Materials

**NOTE TO SPECIFIER:** Delete flashing options that are inappropriate or unnecessary for specific project or are referenced in Division 7.

1. Metal Flashing: Provide metal flashing [where flashing is exposed or partly exposed and where indicated] complying with Division 07 Section “Sheet Metal Flashing and Trim”.

   a. Stainless Steel: ASTM A 240/A 240M, Type 304, 0.016" (0.40 mm) thick (minimum).

   b. Copper: ASTM B 370, Temper H00, cold-rolled copper sheet, 16-oz./sq. ft. (4.9-kg/sq. m) weight or 0.0216" (0.55 mm) thick or ASTM B 370, Temper H01, high-yield copper sheet, 12-oz./sq. ft. (3.7-kg/sq. m) weight or 0.0162" (0.41 mm) thick.

   c. Galvanized Sheet Steel: ASTM A653 0.024" (0.61 mm) (24-gauge) thick (minimum), with minimum ASTM A925 G-60 coating.

   d. Fabricate through-wall flashing with drip edge [where] [unless otherwise] indicated. Fabricate by extending flashing 1/2" (13 mm) out from wall, with outer edge bent down 30 degrees and hemmed.
2. Flexible Flashing:

a. 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" (0.76 mm) [0.040" (1.02 mm)].

b. Elastomeric Thermoplastic Flashing: Composite flashing product consisting of a polyester-reinforced ethylene interpolymer alloy as follows:

1) Monolithic Sheet: Elastomeric thermoplastic flashing, 0.040" (1.0 mm) thick.

2) Self-Adhesive Sheet: Elastomeric thermoplastic flashing, 0.025" (0.6 mm) thick, with a 0.015"- (0.4-mm-) thick coating of rubberized-asphalt adhesive.

c. 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 instructions where the metal panel meets the starter angle to ensure proper ventilation and facilitate water drainage. Standard weepholes for draining adhered veneer walls can be formed by omitting mortar/sealant.

B. Weepholes/Vents

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

C. Expansion Joints

NOTE TO SPECIFIER: Delete expansion joint materials that are inappropriate or unnecessary for specific project. Typical Thin Brick applications do not require compressible fill. Backer rod may be needed if depth of joint exceeds 3/4" (19 mm) per Division 7 Section “Joint Sealants”.

1. Compressible Filler: pre-molded filler strips complying with ASTM D 1056, Type 2, Class A, Grade 1 formulated from [neoprene] [urethane] [or] [PVC].

2. Backer Rod: Non-gassing polyethylene or flexible polyurethane foam rod 25% wider than width of joint to be filled.

NOTE TO SPECIFIER: Delete gassing polyethylene or flexible polyurethane foam rod 25% wider than width of joint to be filled.

NOTE TO SPECIFIER: Delete subsection if assembly does not require weather resistive barrier (e.g. concrete or masonry substrate). 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.

D. Weather Barriers: Provide material as designated in Division 7.

1. Provide a minimum protection equal to No.15 asphalt felt, complying with ASTM D 226 for Type 1 felt or other approved materials.

NOTE TO SPECIFIER: Delete lath and lath fasteners that are inappropriate or unnecessary for specific project or are referenced in Division 9.

E. Metal Lath: [ASTM C847: minimum 2.5 lb/yd (1.4 kg/m2) expanded metal lath] [or] [ASTM C1032 minimum 18-gauge (1.3 mm) woven wire mesh], as required by local building codes.

F. Fasteners (for Lath):

1. Wood Frame: Minimum 0.120" (3 mm) shank diameter galvanized nails or staples of sufficient length to penetrate 1" (25 mm) minimum into structural members and complying with ASTM C1063.
2. Into Metal Studs, Girts or Purlins: ASTM 1063, Minimum 7/16” (11 mm) head diameter, corrosion-resistant, self-drilling, self tapping, pancake head screws of sufficient length to penetrate 3/8” (10 mm) minimum into the metal and complying with ASTM C1063.

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.
B. Verify substrate including, concrete, masonry or framing as well as sheathing, water resistant barriers are properly installed.
C. 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

A. Install Glen-Gery Thin Brick in accordance with manufacturers written installation instructions.
B. 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.
C. 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.
D. Lay masonry in bond pattern as indicated on drawings or general notes.
E. Comply with tolerances in TMS 602/ACI 530.1/ASCE 6.

3.7 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 by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.

5. All cleaning practices and product used shall be in accordance with cleaning products manufacturer's written instructions.

For further information contact:
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