Glen-Gery

TECHNICAL PROFILE

Revised 1/2019

Glen-Gery Single Wythe Loadbearing Hollow Clay Brick Guide Specification

The following information has been compiled as a Guide Specification for Glen-Gery single wythe loadbearing hollow clay brick. 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 nominal 8" thick clay brick masonry and is not intended to be all inclusive. Additional technical information related to Glen-Gery Brick and designs utilizing clay brick masonry 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:*** indicates 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 30
GLEN-GERY SINGLE WYTHE LOADBEARING HOLLOW CLAY BRICK GUIDE SPECIFICATION

PART 1: GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

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

1. Building (common) brick
2. Hollow brick
3. Expansion joints
4. Embedded flashing
5. Mortar and grout
6. Steel reinforcing bars
7. Masonry joint reinforcement
8. Anchors
9. Miscellaneous masonry accessories
10. Cleaning
11. Water Repellent Coating

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 04 Section – “Glass Unit Masonry”
3. Division 04 Section – “Cast Stone Masonry”
4. Division 04 Section – “Masonry Anchorage, Reinforcement and Accessories”
5. Division 05 Section – “Metal Fabrications”
6. Division 06 Section – “Rough Carpentry”
7. Division 07 Section – "Water Repellents"
8. Division 07 Section – “Joint Sealants”
9. Division 07 Section – “Thermal Insulation”
10. Division 08 Section – “Wall Vents”

1.3 REFERENCES

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

A. ASTM A 240 – Standard Specification for Chromium and Chromium Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications

B. ASTM C 62 – Standard Specification for Building Brick (Solid Masonry Units Made From Clay or Shale).

C. ASTM C 67 – Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.

D. ASTM C 270 – Standard Specification for Mortar for Unit Masonry.

E. ASTM C 652 – Standard Specification for Hollow Brick (Hollow Masonry Units Made From Clay or Shale).

F. ASTM D 1056 – Standard Specification for Flexible Cellular Materials Sponge or Expanded Rubber.

G. TMS 602/ACI 530.1/ASCE 6 – Specifications for Masonry Structures.

1.4 PERFORMANCE REQUIREMENTS

A. Provide ***[structural]*** unit masonry that develops indicated net-area compressive strengths at 28 days.

B. Determine net-area compressive strength of masonry by testing masonry prisms according to ASTM C 1314.

1.5 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Owner will engage a qualified independent testing agency to perform preconstruction testing indicated below. Retesting of materials that fail to comply with specified requirements shall be done at Contractor’s expense.

1. Hollow Clay Masonry Wall System Prism Test: For each type of wall system required, determine the compressive strength according to ASTM C 1314.

2. Mortar Test (Property Specification only): For each mix provided, according to ASTM C 780. Test mortar for mortar air content and compressive strength.

3. Grout Test (Compressive Strength): For each mix provided, according to ASTM C 1019.

1.6 ACTION 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

NOTE TO SPECIFIER: Delete LEED Submittals if not required.

C. LEED Submittals

1. Product Certificates for Credit MR 5: For products and materials required to comply with requirements for regional material indicating location and distance from Project of material manufacturer and point of extraction, harvest, or recovery of each raw material. Include statement indicating cost for each regional material and the fraction by weight that is considered regional.

D. 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.

E. Samples: Furnish not less than five individual brick as samples for each brick specified, showing extreme variations in color and texture.

1.7 INFORMATIONAL SUBMITTALS

A. Material Certificates: For each type and size of product indicated. Material certificates for the following, certifying that each material is in compliance.

1. Reinforcement
2. Masonry units
3. Mortar materials
4. Grout materials
5. Portland cement-lime mix
6. Colored Portland cement-lime mix
7. Anchors and metal accessories

1.8 QUALITY ASSURANCE

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

NOTE TO SPECIFIER: Include a mock-up and/or sample panel if the project size warrants taking such a precaution. The following is one example of how a sample on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project. Use section B or C below.

B. Sample Panels: Build sample panels to verify selections made under sample submittals and to demonstrate aesthetic effects. Comply with requirements in Section 014000 "Quality Requirements" for mockups.

1. Build sample panels for each type of exposed unit masonry construction approximately ***[Insert size]***.

C. Sample Panels: Build sample panels to verify selections made under sample submittals and to demonstrate aesthetic effects. Comply with requirements in Section 014000 "Quality Requirements" for mockups.

1. Sample Panel: Mock-up or sample panels shall be used to review brick and mortar color and serve as the standard of workmanship for the Project.

2. Build sample panels for each type of exposed unit masonry construction in sizes approximately 4' (1.2 m) long by 3' (0.9 m) high showing the proposed color range, texture, bond, mortar and workmanship. All brick shipped for the sample shall be included in the panel. Do not start work until Architect/Engineer has accepted sample panel.

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

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

5. Clean exposed faces of panel with masonry cleaner as indicated and approved by manufacturer.

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

7. 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.

8. Do not destroy or move panel until work is completed and accepted by Architect/Owner.

1.9 DELIVERY, STORAGE, AND HANDLING

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

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

C. Cover all materials with a nonstaining waterproof membrane material when necessary to protect from elements.

D. Store different types of materials separately.

1.10 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. Wall Covering:

a. During erection, cover top of wall with strong nonstaining waterproof membrane at end of each day or shutdown.

b. Cover the masonry and airspace of partially completed walls when work is not in progress to prevent excess moisture penetration and ensure clean cavity.

c. Extend cover minimum of 24" (610 mm) – down both sides when applicable.

d. Hold cover securely in place.

2. Load Applications:

a. Construction loads: Do not apply construction loads that exceed the safe load capacity of the masonry and any shores.

1) Do not apply uniform floor or roof loading for at least 12 hours after building masonry columns or wall.

2) Do not apply concentrated loads for at least 3 days after building masonry columns or walls.

3. 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 base of 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.

C. Cold-Weather Requirements: Comply with cold weather construction requirements of TMS 602/ACI 530.1/ASCE 6.

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: Comply with hot-weather construction requirements of TMS 602/ACI 530.1/ASCE 6.

E. Construction loads: Do not apply construction loads that exceed the safe load capacity of the masonry and any shores.

PART 2: PRODUCTS

2.1 MASONRY UNITS, GENERAL

A. Referenced masonry unit standards allow a portion 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 to view in the completed work.

B. Fire-Resistance Ratings: Provide units that comply with requirements for fire-resistance ratings indicated as determined by equivalent masonry thickness, or by any other means, as acceptable to authorities having jurisdiction.

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

NOTE TO SPECIFIER: Delete Regional Materials if not desired and LEED submittals are not required.

A. Regional Materials: Brick shall be manufactured within 500 miles of Project site from materials that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles of Project site.

B. General: Provide shapes indicated and as follows:

1. Provide bond beam units as noted on project drawings.

C. Hollow clay brick: ASTM C 652, Class H40V.

1. Products: Subject to compliance with requirements, provide the following:

a. Glen-Gery Corporation; ***[Insert name of product]***.

2. Size

NOTE TO SPECIFIER: Delete sizes not required.

a. Double Titan Plus; 7-5/8" (193.7 mm) x 7-5/8" (193.7 mm) x 15-5/8" (396.9 mm).

b. Regent; 7-5/8" (193.7 mm) x 3-5/8" (92.1 mm) x 11-5/8" (295.3 mm).

c. Titan Plus; 7-5/8" (193.7 mm) x 3-5/8" (92.1 mm) x 15-5/8" (396.9 mm).

3. Grade: SW

4. Type: ***[HBX] [or] [HBS]***

5. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of ***[Insert required strength or delete requirement]***.

6. Efflorescence: Provide bricks that have been tested according to ASTM C 67 and are rated "not effloresced."

D. Building (Common) Brick: ASTM C 62, Grade SW.

1. Products: Subject to compliance with requirements, provide the following:

a. Glen-Gery Corporation

2. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of ***[Insert required strength or delete requirement]***.

3. Size: As required.

2.4 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction.

1. Provide white cement for white mortar.

B. Hydrated Lime: ASTM C 207, Type S.

C. Portland Cement-Lime Mix: Bagged pre-blended mix consisting of Portland cement and hydrated lime meeting the requirements listed herein and no other ingredients.

1. Products: Subject to compliance with requirements, provide the following:

a. Portland Cement-Lime Mix: Glen-Gery Color Mortar Blend No Color; Glen-Gery Corporation.

NOTE TO SPECIFIER: Retain first paragraph below for colored cement or for pigments added at Project site.

b. Mortar Pigments: ASTM C 979.

1) Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortar.

2) Shall not exceed 10 percent of Portland cement by weight.

D. Colored Portland Cement-Lime Mix: Bagged pre-blended mix consisting of Portland cement, hydrated lime, and mortar pigments meeting the requirement listed herein and no other ingredients.

1. Products: Subject to compliance with requirements, provide the following:

a. Colored Portland Cement-Lime Mix: Glen-Gery Color Mortar Blend ***[Insert color]***; Glen-Gery Corporation.

1) Mortar Pigments: ASTM C979.

a) Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortar.

b) Shall not exceed 10 percent of Portland cement by weight.

E. Aggregate for Mortar: ASTM C 144.

1. Aggregates for white mortar: White sand or crushed white stone.

F. Aggregate for Grout: ASTM C 404.

G. Cold-Weather Admixture: Non-chloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M, Type C, and recommended by product manufacturer for use in masonry mortar.

H. Water: Potable.

2.5 MASONRY LINTELS AND BOND BEAMS

A. Prefabricated or built-in-place masonry lintels and bond beams made from hollow bricks with reinforcing bars placed as indicated and filled with fine grout.

2.6 REINFORCEMENT

A. Reinforcing steel: Provide deformed reinforcing bars that conform to one of the following:

1. ASTM A 615/A 615M, ***[Insert Grade]***

2. ASTM A 706/A 706M, ***[Insert Grade]***

3. ASTM A 767/A 767M, ***[Insert Grade]***

4. ASTM A 775/A 775M, ***[Insert Grade]***

5. ASTM A 996/A 996M, ***[Insert Grade]***

2.7 ANCHORS

A. Materials: Provide anchors specified in this article that are made from materials that comply with the following unless otherwise indicated.

1. Wire anchors: ASTM A 82/A 82M; with ASTM A 153/A 153M, Class B-2 coating.

2. Sheet metal anchors: ASTM A 1008/A 1008M; with ASTM A 153/A 153M, Class B-2 coating.

3. Plate and bent-bar anchors: ASTM A 36/A 36M.

B. Adjustable Anchors for Connecting to Structural Steel Framing: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.

1. Anchor Section for Welding to Steel Frame: Crimped 1/4"- (6.35-mm-) diameter, hot-dip galvanized steel wire.

2. Tie Section: Triangular-shaped wire tie, sized to extend within 1" (25 mm) of masonry face, made from 0.187"- (4.76-mm-) diameter, hot-dip galvanized steel wire.

C. Adjustable Anchors for Connecting to Concrete: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.

1. Connector Section: Dovetail tabs for inserting into dovetail slots in concrete and attached to tie section; formed from 01.05"- (2.66-mm-) thick, steel sheet, galvanized after fabrication.

D. Rigid Anchors: Fabricate from steel bars 1-1/2" (38 mm) wide by 1/4" (6.35 mm) thick by 24" (610 mm) long, with ends turned up 2" (51 mm) or with cross pins unless otherwise indicated.

1. Corrosion Protection: Hot-dip galvanized to comply with ASTM A 153/A 153M.

E. Anchor Bolts: Headed or L-shaped steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153/A 153M, Class C; of dimensions indicated.

2.8 EMBEDDED FLASHING MATERIALS

NOTE TO SPECIFIER: Delete flashing options not required for project and coordinate with flashings requirements referenced in specification Division 7.

A. Metal Flashing:

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

2. 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.

3. Fabricate continuous flashings in sections 96" (2400 mm) long minimum, but not exceeding 12' (3.7 m). Provide splice plates at joints of formed, smooth metal flashing.

4. Fabricate through-wall flashing with snaplock receiver on exterior face where indicated to receive counter flashing.

5. 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.

6. Fabricate through-wall flashing with sealant stop ***[where] [unless otherwise]*** indicated. Fabricate by bending metal back on itself 3/4" (19 mm) at exterior face of wall and down into joint 1/4" (6 mm) to form a stop for retaining sealant backer rod.

B. Flexible Flashing:

1. Copper-Laminated Flashing: ***[5-oz./sq. ft. (1.5-kg/sq. m)] [7-oz./sq. ft. (2-kg/sq. m)]*** copper sheet bonded between 2 layers of glass-fiber cloth. Use only where flashing is fully concealed in masonry.

2. Asphalt-Coated Copper Flashing: ***[5-oz./sq. ft. (1.5-kg/sq. m)] [7-oz./sq. ft. (2-kg/sq. m)]*** copper sheet coated with flexible asphalt. Use only where flashing is fully concealed in masonry.

3. 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)]***.

4. EPDM Flashing: Sheet flashing product made from ethylene-propylene-diene-monomer, complying with ASTM D 4637, 0.040" (1.0 mm) thick.

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.

2.9 MISCELLANEOUS MASONRY ACCESSORIES

A. Expansion Joints

NOTE TO SPECIFIER: Delete expansion joint types not required.

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.

B. Weep/Vent Products: Use one of the following unless otherwise indicated:

NOTE TO SPECIFIER: Delete weephole types not required.

1. Open Head Joint

2. Cellular Plastic Weep/Vent

3. Mesh Weep/Vent

2.10 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 brick specified. Verify acceptability of cleaner for cleaning masonry with pigmented mortar joints. Delete solution(s) not recommended.

1. Manufacturers: Subject to compliance with requirements, provide the following:

a. Diedrich Technologies, Inc.

1) 202 New Masonry Detergent
2) 202V Vana Stop

2.11 WATER REPELLANT CHEMICALS

A. Water-based siloxane water repellant

1. Diedrich Technologies, Inc 300S-7 Siloxseal Siloxane Water Repellant with 7% siloxane solids

2.12 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.

1. Use Portland cement-lime mortar.

2. Use Portland cement-lime grout.

3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.

4. Do not use calcium chloride in mortar or grout.

B. Preblended, Dry Mortar Mix: Contractor may furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

NOTE TO SPECIFIER: Glen-Gery typically recommends proportion mixes. The combination of the very high unit strengths of clay brick and a proportion Type S mortar produces higher prism strength than a property Type S mortar. See Appendix X1 in ASTM C 270 and BIA Technical Notes 8A and 8B for recommendations; coordinate with requirements for masonry compressive strengths.

C. Mortar for Unit Masonry: Comply with ASTM C 270, ***[Proportion] [Property]*** Specification. Provide the following types of mortar for applications stated unless another type is indicated.

1. For masonry below grade or in contact with earth, use Type S.

2. For reinforced masonry, use Type S.

3. For exterior, above-grade load-bearing walls and parapet walls; for interior load-bearing walls, use Type S.

4. For interior non-load-bearing partitions; and for other applications where another type is not indicated, use Type N.

NOTE TO SPECIFIER: Delete pigmented mortar if not required.

D. Pigmented Mortar: Use colored, preblended, dry mortar mix. Do not add pigments to colored, preblended dry mortar mix.

1. Application: Use pigmented mortar for exposed mortar joints where shown on the drawings.

E. Grout for Unit Masonry: Comply with ASTM C 476.

1. Use fine grout.

2. Proportion grout in accordance with ASTM C 476, Table 1, but not less than 2000 psi (14 MPa).

3. Provide grout with a slump of 8 to 11" (203 to 279 mm) as measured according to ASTM C 143/C 143M.

4. Self-consolidating grout may be used when approved by the Architect.

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.

B. Verify reinforcing dowels are properly placed.

C. If substrate, foundation or reinforcement preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Cleaning Reinforcement and anchor bolt shank; removing mud, loose rust, ice and other coatings from reinforcement which would interfere with bond at the time mortar and grout is placed.

C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

D. Prior to placing masonry, remove laitance, loose aggregate, and anything else that would prevent mortar from bonding to the foundation.

E. Place reinforcement in grout spaces prior to grouting.

F. Provide cleanouts in the bottom course of masonry for each grout pour when the grout pour height exceeds 5 feet (1.5 m).

1. After cleaning, close cleanouts with closures braced to resist grout pressure.

G. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. (30 g/194 sq. cm) per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.

3.3 INSTALLATION, GENERAL

A. Install in accordance with manufacturer's instructions.

B. Select and arrange units for exposed masonry to produce a uniform blend of colors and textures.

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 REINFORCED UNIT MASONRY INSTALLATION

A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.

1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.

2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other loads that may be placed on them during construction.

B. Laying Masonry:

1. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

2. Lay masonry in one-half running bond. Do not use units with horizontal face dimensions less than the nominal thickness of the units at corners or jambs.

3. Lay all brick plumb and true to lines.

4. Place clean units while the mortar is soft and plastic. Remove and relay in fresh mortar any unit disturbed to the extent that the initial bond is broken after initial positioning.

5. When adjustment is necessary to be made after mortar begins to harden, remove hardened mortar and replace with fresh mortar. When the bearing of masonry is less than two-thirds of the wythe thickness, notify the Architect.

6. Stop work by racking back units in each course from those in course below; do not tooth.

7. Cut exposed edges or faces of masonry units so that exposed faces or edges are unaltered manufactured surfaces.

8. As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

9. Fill spaces between hollow metal door frames and masonry with mortar or grout unless otherwise indicated.

10. Fill cores with grout 24" (600 mm) under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

C. Placing Reinforcement: Comply with requirements in TMS 602/ACI 530.1/ASCE 6.

D. Grouting: Comply with the requirements in TMS 602/ACI 530.1/ASCE 6

1. Limit height of vertical grout pours to not more than 12.67' (3.86 m).

2. Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.

3.5 MORTAR BEDDING AND JOINTING

A. Lay hollow brick as follows:

1. Fully bed face shells in mortar.

2. Mortar head joints to a depth equal to bed joints.

3. Fill webs with mortar in all courses of piers, columns, and pilasters, in starting course on foundations, and when required to confine grout or loose-fill insulation.

4. Fully align vertical cells to be grouted. Provide unobstructed openings for grout.

B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

NOTE TO SPECIFIER: Delete joint profiles not required.

C. 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.

D. Flush cut all joints no tooled, including hidden joints.

3.6 FLASHING

A. General: Install embedded flashing, metal drip edges, with weep holes in masonry at lintels, ledges, floors, and other obstructions to downward flow of water in wall, and where indicated.

B. Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

C. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.

D. Carry flashing vertically as detailed, but not less than 6" (150 mm) above horizontal plane.

E. Lap flexible flashing a minimum of 6" (152 mm).

F. Seal all flashing laps with compatible lap cement.

G. Extend head and sill flashings not less than 6" (150 mm) beyond edges of openings and turn up to form watertight pan; seal with mastic.

H. All discontinuous flashing shall be turned up minimum 1" into the head joint at flashing ends to form an end dam.

I. Project flashing from face of wall approximately 1/4" (6 mm) to form a drip. Flexible flashing shall be cut back to the face of the wall after inspection, if the drip is deemed objectionable by Architect or if the flashing is subject to UV degradation.

3.7 WEEPHOLES

A. Install specified ***[weep holes] [or] [open head joints]*** in head joints of the first brick course immediately above through wall flashing by placing weeps 24" (610 mm) on center (maximum) horizontally for units 12" (305 mm) or less in length and no more than 32" (813 mm) on center for larger units; unless otherwise indicated.

3.8 EXPANSION JOINTS

A. Keep clean of all mortar and debris.

B. Install expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span expansion joints without provision to allow for in-plane wall or partition movement.

C. Provide vertical joints where indicated by inserting a compressible filler of width required for installing backer rod and sealant specified in Division 07 Section “Joint Sealants,” but not less than 3/8" (10 mm).

3.9 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage a testing agency to perform tests and inspections and prepare reports.

B. Contractor shall allow and facilitate inspectors’ access to the construction site.

1. Furnish necessary labor to assist the testing agency in obtaining and handling samples.

2. Provide and maintain adequate facilities for the sole use of the testing agency.

C. Retesting of materials that fail to comply with specified requirements will be done at Contractor’s expense.

D. Inspections: Level B special inspections according to TMS 602/ACI 530.1/ASCE 6.

1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.

2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.

3. Place grout only after inspectors have verified proportions of site-prepared grout.

E. Testing Frequency: One set of tests for each 5,000 sq. ft. (464 sq. m) of wall area or portion thereof.

1. Prism Test: For each wall system, compressive strength in accordance with ASTM C 1314.

2. Mortar Test (Property Specification only): For each mix provided, according to ASTM C 780. Test mortar for mortar air content and compressive strength.

3. Grout Test (Compressive Strength): For each mix provided, according to ASTM C 1019.

3.10 CLEANING

A. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove 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. Do not proceed with cleaning until approved by Architect.

3. Clean brick as outlined in BIA Technical Notes 20 Revised II and Glen-Gery Technical Profile “Cleaning New Brickwork.”

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.

3.11 APPLICATION OF WATER REPELLANT CHEMICALS

A. After masonry has been cleaned but before windows, doors, glazing, light fixtures, and similar materials have been installed, apply water repellant chemical to masonry in accordance with chemical manufacturer's instructions.

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