
LONG FORM SPECIFICATION FOR STRUCTURAL GLAZED BRICK

SECTION 04 21 16 Unit Masonry

CERAMIC GLAZED CLAY MASONRY

1.0 GENERAL, Inches (mm)

1.1 SUMMARY

- A. System Description: Work described in this section covers requirements for Structural Glazed Brick Unit Masonry and its installation and maintenance.
- B. Products installed but not furnished in this section:
 - 1. Section 04 05 13: Masonry Mortaring
 - 2. Section 04 05 23: Masonry Accessories

1.2 REFERENCES

- A. Applicable standards of the following as referenced:
 - 1. American Society for Testing and Materials (ASTM)
 - 2. Brick Industry Association (BIA)
 - 3. Underwriters Laboratories, Inc. (UL)
 - 4. Ceramic Glazed Masonry Institute (CGMI)
 - 5. Building Code Requirements for Masonry Structures (ACI 530-05/ASCE 5-05/TMS 402-05)

1.3 DEFINITIONS

- A. Terms
 - 1. Structural Glazed Brick: Extruded and manufactured clay masonry unit with a ceramic glazed face.
 - 2. Glazed Face: Exposed ceramic glazed face(s) on brick.
 - 3. Bed Joint: Horizontal mortar joint between two brick.
 - 4. Head Joint: Vertical mortar joint between two brick.

1.4 SUBMITTALS:

- A. Strap samples: Submit three samples to indicate the approximate range of color and texture to be expected in the completed wall for each color or texture.
- B. Certificates:
 - 1. Material Safety Data Sheet (MSDS)
 - 2. Certification Letter: Submit a certified letter from manufacturer prior to delivery of Glazed Brick to jobsite for compliance of specification requirements.

1.5 QUALITY ASSURANCE:

- A. Sample Field Panel: Construct a wall panel 4' (1.2m) wide and 4' (1.2m) high for Glazed Brick work. Locate as directed by Architect.
- B. Panel to indicate quality representation of:
 - 1. Glazed Brick color and texture range.
 - 2. Bonding pattern.
 - 3. Mortar color.
 - 4. Joint tooling.
 - 5. Reinforcement/Ties.
 - 6. Workmanship.

- C. Sample Field Panel should be erected at least 14 days prior to shipment of the Glazed Brick to the jobsite. If necessary, additional panels will be erected until Architect approval is received.
- D. Approved Sample Panel shall act as the standard of comparison and quality to be expected throughout the work.
- E. Approved Sample Panel should be maintained through job completion and not destroyed until instructed by the Architect.
- F. Erect separate Sample Panels for each color and texture, mortar color or combinations specified or as indicated on drawings.

1.6 DELIVERY, STORAGE AND HANDLING:

- A. Deliver Glazed Brick to jobsite as packaged by manufacturer. Offload Glazed Brick packages using equipment that will not damage the glazed face(s). Do not place Glazed Brick in direct contact with the ground. Do not double stack pallets of Glazed Brick.
- B. Cover Glazed Brick with non-staining waterproof membrane covering. Keep units dry. Allow air circulation around stacked units. Installation of wet or stained Glazed Brick is prohibited.
- C. Keep Glazed Brick units in the individual cardboard packaging provided by the manufacturer until the unit is ready to be laid in the wall. Never use brick tongs or "pitch" the Glazed Brick to upper levels of scaffolding.

1.7 PROJECT CONDITIONS:

- A. Environmental requirements. Use normal procedures when temperatures are between 100°F to 40°F (37.8°C to 4.4°C) (see current reference BIA Technical Note 1):
 - 1. See Brick Industry Association Technical Note 1, Table 1 "Requirements for Masonry Construction in Hot and Cold Weather" for temperatures outside this range unless specific written approval from Architect. (Reference: BIA Technical Notes for Guide Specifications for Brick Masonry.)
- B. Take all precautions necessary to protect units from damage.
- C. Handle and store in protective cartons or trays until actual installation in the wall.
- D. Damaged units will not be accepted in the wall.

2.0 PRODUCTS:

2.1 STRUCTURAL GLAZED BRICK:

- A. Pattern or Type:
 - 1. As detailed and required (running bond or stack bond).
- B. Characteristics
 - 1. Glazed Brick shall be Bed Depth: 3-5/8" (92mm), unless otherwise noted.
Face dimensions as required in inches (mm) (Series, Size, Grade, Type, Class, Division see below):
 - a. Modular (4S Series) – 2-1/4" (57mm) height X 7-5/8" (194mm) length; and complies with ASTM C-1405, Grade S, Type I & II, Class Exterior, Division Solid.
 - b. Standard Modular (SS Series) – 2-1/4" (57mm) height X 8" (203mm) length; and complies with ASTM C-1405, Grade S, Type I & II, Class Exterior, Division Solid.
 - c. Norman (6S Series) – 2-1/4" (57mm) height X 11-5/8" (295mm) length; and complies with ASTM C-1405, Grade S, Type I & II, Class Exterior, Division Solid.
 - d. Engineer Modular (4J Series) – 2-5/8" (67mm) height X 7-5/8" (194mm) length; and complies with ASTM C-1405, Grade S, Type I & II, Class Exterior, Division Solid.
 - e. King (5J Series) – 3" (76mm) Bed Depth X 2-5/8" (67mm) height X 9-5/8" (244mm) length; and complies with ASTM C-1405, Grade S, Type I & II, Class Exterior, Division Solid.
 - f. Engineer Standard (JX Series) – 2-3/4" (70mm) height X 8" (203mm) length; and complies with ASTM C-1405, Grade S, Type I & II, Class Exterior, Division Solid.
 - g. Closure Modular (EN/4P Series) – 3-5/8" (92mm) height X 7-5/8" (194mm) length; and complies with ASTM C-1405, Grade S, Type I & II, Class Exterior, Division Solid or H40V (option of manufacturer).

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- h. Utility (EN-6P Series) – 3-5/8" (92mm) height x 11-5/8" (295mm) length; and complies with ASTM C-1405, Grade S, Type I & II, Class Exterior, Division Solid or H40V (option of manufacturer).
 - i. 8-Square (4W Series) – 7-5/8" (194mm) height x 7-5/8" (194mm) length; and complies with ASTM C-1405, Grade S, Type I & II, Class Exterior, Division Solid or H40V (option of manufacturer).
 - j. Double Meridian (8W Series) – 7-5/8" (194mm) height x 15-5/8" (396mm) length; and complies with ASTM C-1405, Grade S, Type I, Class Exterior, Division H40V.
 - k. 12-Square (6Y Series) – 11-5/8" (295mm) height x 11-5/8" (295mm) length; and complies with ASTM C-1405, Grade S, Type I, Class Exterior, Division H40V.
2. Must meet ASTM C-84 (UL723) requirements and rated zero flame spread, zero smoke developed and zero fuel contribution. Also will not release any toxic or noxious fumes when burned at 2000°F (1093°C)
 3. Shapes: Furnish as shown on the plans in accordance with manufacturer's current standard production. All external corners, jambs and lintels shall be square (bullnose) unless otherwise noted. Sills shall be sloped away from mortar joints at windows/openings for proper drainage.
 4. Color(s) and Texture to be selected by Architect from Elgin Butler Company current standard offering.
 5. Approved manufacturer:
 - a. Elgin Butler Company, Elgin, Texas, (512) 285-3356.
 - b. Or approved equal.

2.2 ACCESSORIES:

- A. Mortar: As specified in mortar section.
- B. Wall Ties in Masonry Cavity Wall construction: Use corrosion resistant metal tie with no drips, as specified in Masonry Accessories section. Use 2" (50mm) cavity space (maximum cavity 4" [114mm]). Installed as per BIA recommendations in Technical Notes 21 Series and 44B-Table 2, and/or ACI 530, MSJC Code and all local building codes.
 1. Typical between wythes of masonry, 2" (50mm) cavity:
 - a. Unit Ties placed in maximum area one W2.8 tie (MW18), per 4-1/2 ft² (0.42 m²) of wall area. Maximum spacing of 24" (610mm) vertical and 36" (914) horizontal spacing.
 1. For vertical-cell hollow masonry unit ties shall be rectangular.
 2. For solid (or fully grouted) vertical-cell masonry unit ties shall be rectangular or Z-shaped.
 - b. Adjustable Unit Ties: Use two-piece Adjustable Unit Ties; Maximum area one unit tie per 1.77 ft² (0.16m²). Maximum spacing of 16" (406mm) vertical and 16" (406) horizontal spacing, or as required.
 - c. Additional unit ties around openings larger than 16" (406mm).
 2. Typical between wythes of masonry and non-masonry walls, such as veneer brick over steel stud back-up systems:
 - a. Provide at least one adjustable two-piece anchor, anchor of wire size W 1.7 (MW11) or 22 gage (0.8mm) corrugated sheet-metal anchor for each 2.67 ft² (0.25m²) of wall area. Maximum spacing of 18" (457mm) vertical and 32" (813mm) horizontal spacing.
 - b. Additional anchors around openings larger than 16" (406mm).
 3. Joint Reinforcement:
 - a. Use continuous horizontal joint reinforcement in lengths of 10 to 12 ft (3 to 4 m). Use #9 gauge wire or 3/16" (5 mm) diameter wire. Ladder-type (or Tab-type) horizontal joint reinforcement 16" (400mm) maximum spacing, recommended for stack bond applications.
- C. Lateral support, as required.

3.0 EXECUTION:

3.1 PREPARATION:

- A. Protection of work:
 1. Protect the surfaces of the installed Glazed Brick. Cover freshly laid weather exposed masonry at the end of each day or the start of each shut down period, with non-staining waterproof material in such a manner which will

ensure that the covering will overhang the masonry not less than 2' (50mm) on each side of the masonry. Anchor on each side of wall. Finished walls to be covered with 15# (6.8kg) felt paper and erect wooden barriers to protect walls at areas that are subject to large amounts of construction traffic or material movement. Protect glazed face from exposure to welding burns, stains, etc.

3.2 INSTALLATION

- A. Workmanship:
 - 1. Lay only dry masonry units.
 - 2. Lay masonry plumb, level and true to line.
 - 3. Lay units in bonding pattern, as specified.
 - 4. Cut units with masonry saw using a wet diamond blade. Do not use units less than 4" (101mm) in length.
- B. Build in work of other trades indicated to be built-in with Glazed Brick as work progresses.
- C. Glazed Brick wall construction recommendations (Reference: BIA Technical Note 13, revised December 2005).
 - 1. Vented cavity wall construction.
 - 2. Install flashing, vents (weep holes), and vapor barrier.
 - 3. Provide flexible anchorage to columns and beams.
- D. Mortar Joints:
 - 1. Lay joints of each first course in full width bed of mortar.
 - 2. Vertically cored units:
 - a. Lay Glazed Brick units with coring laying vertical to allow for drainage to vents via flashing.
 - b. Fill full head and face shell thickness on bed joints.
 - 3. Remove and replace mortar with fresh mortar where adjustment must be made after mortar has started to set.
 - 4. Keep bed and head joints uniform in width, except for minor variations required to maintain bond and locate returns.
 - 5. Both bed and head mortar joints standard thickness:
 - a. Use 3/8" (10mm), +/- 1/16" (1.6mm), or to course out with existing material.
- E. Joint Treatment:
 - 1. Tool or strike mortar joints on exposed face when they are "thumb print" hard.
 - 2. Tool all Glazed Brick joints concave using a non-metallic tool 1" (25mm) in diameter or larger unless otherwise noted.

3.3 APPLICATION:

- A. Acceptable Tolerances:
 - 1. Walls must be straight in plane.
 - 2. Maximum variation from plumb: 1/4" (6mm) in 10' 0" (3.05m); not exceeding 3/8" (10mm) in 20' 0" (6.1m).
 - 3. Maximum variation from level: 1/4" (6mm) in 20' 0" (6.1m); not exceeding 1/2" (13mm) in 40' 0" (12.2m) or more.
 - 4. Maximum variation in linear building line from location indicated: 1/4" (6mm) in 20'0" (6.1m).

3.4 CLEANING:

- A. It is intended that with careful adherence to this specification that extensive final cleaning will not be necessary. During construction, wipe glazed surface clean after tooling of joints or within 30 minutes after laying, with course rag. Keep wall clean as work progresses to avoid more difficult cleanup later. Use no metal scrapers, abrasive powders or unauthorized cleaning agents. Use wooden paddles or scrapers to clean away mortar residue or lumps. Wash with clean water. A mild detergent may be used. Rinse with clean water. Wipe with clean cloths, sponges or similar item.
- B. In event of unexpected contamination of Glazed Brick walls, perform any cleaning with other than a nonmetallic scraper, stiff nylon or natural bristled brush or wooden paddle only after approval by Architect and necessary tests to insure against any wall damage.