



SECTION 04 21 00
CLAY MASONRY UNITS

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PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Clay Masonry Units
- B. Reinforcement and Anchorage
- C. Expansion Joints
- D. Mortar
- E. Flashing
- F. Weeps

1.2 RELATED SECTIONS

- A. Section 03 30 00 - Cast-in-Place Concrete.
- B. Section 04 05 13.23 - Surface Bonding Masonry Mortaring
- C. Section 04 05 16.26 - Engineered Masonry Grouting.
- D. Section 04 05 19.19 - Masonry Cavity Drainage, Weepholes, and Vents*.
- E. Section 04 20 00 - Unit Masonry.
- F. Section 04 73 00 - Manufactured Stone Masonry.
- G. Section 05 40 00 - Cold-Formed Metal Framing.
- H. Section 05 50 00 - Metal Fabrications.
- I. Section 06 11 00 - Wood Framing.
- J. Section 07 16 00 - Cementitious and Reactive Waterproofing.
- K. Section 07 25 00 - WeatherBarriers.
- L. Section 07 27 26 - Fluid-Applied Membrane Air Barriers .
- M. Section 07 62 00 - Sheet Metal Flashing and Trim.
- N. Section 07 65 26 - Self-Adhering Sheet Flashing.

O. Section 07 90 00 - Joint Protection.

1.3 REFERENCES

- A. ASTM A 82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
- B. ASTM A 153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- C. ASTM A 615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
- D. ASTM A 775 - Standard Specification for Epoxy-Coated Steel Reinforcing Bars.
- E. ASTM A 996 - Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement.
- F. ASTM A 1008 - Standard Specification for Steel Sheet, Cold-Rolled Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
- G. ASTM C 67 - Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile. 9.
- H. ASTM C 144 - Standard Specification for Aggregate for Masonry Mortar.
- I. ASTM C 150 - Standard Specification for Portland Cement.
- J. ASTM C 207 - Standard Specification for Hydrated Lime for Masonry Purposes.
- K. ASTM C 216 - Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale).
- L. ASTM C 270 - Standard Specification for Mortar for Unit Masonry.
- M. ASTM C 652 - Standard Specification for Hollow Brick (Hollow Masonry Units Made from Clay or Shale).
- N. ASTM D 1056 - Standard Specification for Flexible Cellular Materials, Sponge or Expanded Rubber.
- O. Brick Industry Association (BIA) - Technical Note 20, Cleaning Brickwork.
- P. TMS 402 - Building Code Requirements for Masonry Structures.
- Q. TMS 602 - Specification for Masonry Structures.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- 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.
- C. LEED Submittals: Provide documentation of how the requirements of Credit will be met:
 - 1. Product Data for Credit MR 5.1 and Credit MR 5.2: Submit data, including location and distance from Project of material manufacturer and point of extraction, harvest or recovery for main raw material.
 - a. Include statement indicating cost for each regional material and the fraction by

weight that is considered regional.

- D. Selection Samples: For each finish product specified, two complete sets of brick samples showing range of color and texture to be expected.
- E. Verification Samples: For each finish product specified, two samples representing actual color and texture of the brick specified.
- F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten years experience.
- B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five years demonstrated experience in installing products of the same type and scope as specified.
- C. Brick Tests: Sample and test shall be in accordance with ASTM C 67.
- D. Test Reports:
 - 1. Testing and reports shall be completed by an independent laboratory.
 - 2. Test reports for each type of building and facing brick shall be submitted to the Architect for review.
 - 3. Test reports shall indicate:
 - a. Compressive strength.
 - b. 24 hour cold water absorption.
 - c. 5-hour boil absorption.
 - d. Saturation coefficient.
 - e. Initial rate of absorption.
 - f. Efflorescence.
- E. Mock-Up: Provide a mock-up panel for each type of brick specified for evaluation of color, texture and workmanship to be used.
 - 1. Locate in areas designated by Architect.
 - 2. Do not begin installation of brickwork until the Architect approves the mock-up(s).
 - 3. Build as many mock-ups as required to obtain the Architect's acceptance. Remove unacceptable mock-ups from the site.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store materials to prevent damage due to moisture, contamination, breakage, chipping or other causes.
- C. Store materials on pallets or stable aggregate bed to reduce contamination and soiling. Cover with a non-staining waterproof membrane allowing for airflow around brick while protecting it from airborne contaminants and wind-borne dirt.

1.7 ALLOWANCES

- A. Allowances: Include allowance stated under provisions of Section 01 20 00 - Price and Payment Procedures Price and Payment Procedures. Allowance includes furnishing face brick, and hollow brick units. Material allowance and Installation is included in this Section and is part of Contract Sum/Price.

1.8 PROJECT CONDITIONS

- A. Follow hot weather and cold weather requirements in the masonry code and specifications, TMS 402 and TMS 602.
- B. Cold Weather Procedures:
 - 1. Preparation:
 - a. If ice or snow has formed on the masonry bed, remove it by carefully applying heat not to exceed 120 degrees F until the surface is dry to the touch.
 - b. Remove any brick units or mortar that is frozen or damaged.
 - c. When the clay masonry unit suction exceeds 30 grams per minute per 30 square inches, sprinkle with heated water as follows:
 - 1) When units are 32 degrees F or above, heat water to 70 degrees F or above.
 - 2) When units are below 32 degrees F, heat water to 130 degrees F or above.
 - 2. Work in Progress:
 - a. Air temperature 40 degrees F to 32 degrees F:
 - 1) Heat sand or mixing water to produce mortar temperatures that match air temperature.
 - b. Air temperature 32 degrees F to 25 degrees F:
 - 1) Heat sand and mixing water to produce mortar temperatures between 40 degrees F and 120 degrees F.
 - 2) Maintain temperature of mortar on boards above freezing.
 - 3) Installation in colder air temperatures will require heat sources on the wall and the use of windbreaks or tents to create a controlled environment suitable for proper bonding and curing.
 - 3. Completed Work and Work Not in Progress:
 - a. Mean daily air temperature of 40 degrees F to 32 degrees F: Protect masonry from rain and snow for 24 hours by covering with a weather-resistive membrane.
 - b. Mean daily air temperature of 32 degrees F to 25 degrees F: Cover masonry with a weather-resistive membrane for 24 hours.
 - c. Mean daily air temperature of 25 degrees F to 20 degrees F: Cover masonry with insulating blankets for 24 hours.
- C. Hot Weather Procedures:
 - 1. When ambient temperature exceeds 90 degrees F and wind exceeds 8 miles per hour:
 - a. Maintain temperature of mortar and grout between 70 degrees F and 120 degrees F.
 - b. Limit the spread of the mortar bed to 4 feet and place units within 1 minute of spreading mortar.
 - c. Control moisture evaporation in partially or newly completed walls by fog spraying with potable water, covering with opaque plastic or canvas or both.
 - 2. Protection of Work in Progress:
 - a. Covering:
 - 1) Cover tops of walls with a strong waterproof membrane at the end of each day or work shutdown. Extend the waterproof membrane cover a minimum of 24 inches down the side of each wall.
 - 2) Hold cover securely in place.
 - b. Load Application:
 - 1) Do not apply uniform floor or roof loading for at least 12 hours after completing columns and walls.
 - 2) Do not apply concentrated loads for at least 3 days after completing columns and walls.

- c. Staining:
 - 1) Prevent grout and mortar from staining the face of masonry.
 - 2) Remove grout and mortar that comes in contact with masonry units immediately.
 - 3) Protect sills, ledges and projections from mortar droppings.
 - 4) Protect base of wall from rain-splashed mud and mortar splatter.
 - 5) Turn scaffold boards on edge when work is not in progress to lessen splattering.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Meridian Brick, which is located at: 200 Mansell Court E. Suite 305; Roswell, GA 30076; Toll Free Tel: 800-526-7255; Email:[request info \(AskMeridian@meridianbrick.com\)](mailto:request_info@meridianbrick.com); Web:www.meridianbrick.com
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 CLAY MASONRY UNITS

- A. Facing Brick: ASTM C 216, Grade SW,
 - 1. Collection: _____.
 - 2. Color Family: _____.
 - 3. Type:
 - a. Type FBS.
 - b. Type FBA.
 - 4. Size: _____ by _____ by _____ (t by h by l)
- B. Hollow Brick: ASTM C 652, Grade SW.
 - 1. Collection: _____.
 - 2. Color Family: _____.
 - 3. Type:
 - a. Type HBS.
 - b. Type HBA.
 - 4. Size: _____ by _____ by _____ (t by h by l)
- C. Minimum Compressive Strength: _____.
- D. Maximum Initial Rate of Absorption (IRA): _____.
- E. Provide brick similar in texture, color and physical properties to those available for inspection at the Architect's office and/or as supplied on the approved sample panel.
- F. Shapes: Special shapes are required to be used per architectural detail(s).
- G. All brick supplied shall be pre-blended by the manufacturer.

2.3 REINFORCEMENT AND ANCHORAGE

- A. Steel Reinforcement:
 - 1. Billet Steel Deformed Bars: ASTM A 615.
 - 2. Rail Steel Deformed Bars: ASTM A 996.
 - 3. Axle Steel Deformed Bars: ASTM A 996.
 - 4. Epoxy Coated Steel Bars: ASTM A 775.

- B. Fabricated Steel Lintels: Requirements for loose steel lintels are specified in Section 05 50 00 - Metal Fabrications.
- C. Brick Anchors and Ties: Provide to sizes and types indicated on the Drawings.
 - 1. Corrugated Ties: ASTM A 1008, 20 gauge, galvanized in accordance with ASTM A 153, Class B-2.
 - 2. Joint Reinforcement: ASTM A 82, galvanized in accordance with ASTM A 153, Class B-2.
 - 3. Wire Wall Ties, ASTM A 82:
 - a. Galvanized in accordance with ASTM A 153, Class B-2.
 - 4. Dovetail Anchors, ASTM A 1008:
 - a. Galvanized in accordance with ASTM A 153, Class B-2.
 - b. Galvanized in accordance with ASTM A 153, Class B-2.

2.4 ACCESSORIES

- A. Expansion Joints:
 - 1. Premolded Foam: ASTM D 1056, Type 2, Class A, Grade 1
 - 2. Neoprene: ASTM D 1056, Type 2, Class A, Grade 1.
 - 3. Sealant: Shall be in accordance with Section 07 90 00 - Joint Protection.
- B. Mortar: Mortar should be mixed by proportion according to ASTM C 270 for Type N mortar
 - 1. Portland Cement: ASTM C150, Type I.
 - 2. Hydrated Lime: ASTM C207, Type S.
 - 3. Sand: ASTM C144.
 - 4. Water: Potable.
- C. Flashing: Build in all flashings which enter the masonry as the work progresses Flashing are specified in Section 07 62 00 - Sheet Metal Flashing and Trim Sheet Metal Flashing and Trim and Section 07 65 26 - Self-Adhering Sheet Flashing Flexible Flashing..
- D. Weeps: Weeps are to be used in conjunction with flashing materials for proper functioning of the masonry wall drainage system. The specified weep material is:
 - 1. Cotton sash cord, 12 inches long with end laid in air cavity.
 - 2. Plastic tube, 1/4 inch minimum diameter.
 - 3. Plastic vents or cells.
 - 4. Aluminum vents or cells.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Verify items provided by other Sections of work are properly sized and located.
- C. Verify that built in items are in proper location, and ready for roughing into masonry work.
- D. If backup substrate and other preparation work is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Remove mud, loose rust, ice and contaminants that may interfere with mortar-to-unit bonding or mortar-to-footing/brick ledge bonding.
- B. Furnish temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent support.

3.3 INSTALLATION

- A. Coursing:
 - 1. Establish lines, levels, and coursing indicated. Protect from displacement.
 - 2. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
 - 3. Lay brick units in bond indicated on the Drawings.
- B. Laying Clay Masonry Units:
 - 1. Lay brick making sure head joints and bed joints are full of mortar.
 - 2. Lay brick units plumb and true to line.
 - 3. Where fresh mortar joins partially set mortar, remove loose brick and mortar and lightly wet the exposed surface of set masonry.
 - 4. When adjustment must be made after mortar begins to harden, remove hardened mortar and replace it with fresh mortar.
 - 5. Remove excess mortar as Work progresses.
- C. Masonry Reinforcing: Install as indicated and as specified in Section 04 05 19.29 - Stone Anchors.
- D. Tooling and Pointing:
 - 1. Tool mortar joints to shape(s) indicated on the Drawings.
 - 2. Tool exposed joints when they are thumbprint hard.
 - 3. Flush-cut all joints when they are not tooled.
 - 4. When re-pointing a section in a wall, rake the mortar joints to a depth of not less than 1/2 inch. Fill the joint completely with pointing mortar and tool to match the surrounding masonry.
- E. Flashing:
 - 1. Build in all flashings that enter the masonry, as the work progresses. Install as indicated and as specified in Section 07 62 00 - Sheet Metal Flashing and Trim Sheet Metal Flashing and Trim and Section 07 65 26 - Self-Adhering Sheet Flashing Flexible Flashing.
 - 2. Remove any projections on the brick surface or mortar bed that might puncture the flashing material.
 - 3. Place through-wall flashing on a bed of mortar so that the flashing projects 1/4 inch from wall face and forms a drip edge. Overlap flashing a minimum of 6 inches.
 - 4. Cover flashing with mortar.
- F. Weeps:
 - 1. Install weeps in the head joints of the first brick course immediately above the through-wall flashing. Place weeps at not more than 24 inches on center horizontally.
 - 2. Keep the air cavity free of mortar as much as possible. Expansion Joints:
- G. Control And Expansion Joints:
 - 1. Install control and expansion joints as indicated on Drawings.
 - 2. Keep joints free of mortar and any debris that may hinder movement.
 - 3. Install expansion joint material and finish the joint with a sealer.

3.4 CLEANING

- A. Cut out defective mortar joints and holes in exposed masonry and re-point with mortar.
- B. Clean a sample wall area. Do not proceed with cleaning without Architect's approval.
- C. Clean brick in accordance with BIA Technical Note Number 20 and the proprietary cleaning product manufacturer's recommendations.

3.5 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged work before Substantial Completion.

END OF SECTION