

Division 4

Section 4A

Concrete Unit Masonry

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DIVISION 4

SECTION 4A

CONCRETE UNIT MASONRY

1.0 SCOPE

This Specification Section includes the furnishing and erection of concrete unit masonry work all as indicated on the drawings and described in the specification.

2.0 GENERAL

2.1 Codes and Standards

The Work shall conform to the latest edition and latest addenda thereto, as of date of award, of the following codes and standards:

.1 American Society for Testing and Materials

A153 Zinc-Coating (Hot-Dip) on Iron and Steel Hardware

C90 Hollow Load Bearing Concrete Masonry Units

C129 Hollow Non-Load Bearing Concrete Masonry Units

C150 Portland Cement

c270 Mortar for Unit Masonry

C331 Lightweight Aggregates for Concrete Masonry Units

.2 Federal Specifications

QQ-S-632 Steel Bar, Reinforced (for concrete)

3.0 DETAILED REQUIREMENTS

3.1 Materials

3.1.1 Concrete Masonry Units

All concrete masonry units shall be manufactured from lightweight expanded shale, clay or slag aggregates conforming to ASTM C-331.

Non-load bearing concrete masonry units shall conform to ASTM C-129, Type 1.

Load bearing concrete masonry units shall conform to ASTM C-90, Grade G-1.

Concrete masonry units shall be of modular dimensions and shall include all closers, bond beam units, jamb units, headers, and special shapes and sizes required to complete the work shown on the drawings. Vertical external units exposed to view shall have a 1-inch radius bullnose. Units exposed to view shall be of the same appearance and shall be cured by the same process. Units shall be sound and free from cracks, chipped edges or other defects that would interfere with their proper setting or impair the strength, appearance or durability of the construction. Units shall be free of any deleterious matter that will stain paint or corrode metal. Concrete masonry units generally used shall be 7-5/8 inches high by 15-5/8 inches long by thickness shown on drawings.

3.1.2 Mortar

Mortar shall comply with the proportion specifications for Type S mortar as set forth in ASTM C-270. Tests shall be done by an approved commercial testing laboratory at the expense of Contractor.

3.1.3 Water

Water shall be clean, free of injurious amounts of impurities, and shall be water used for drinking purposes.

3.1.4 Portland Cement

Portland cement shall be a brand approved by Engineer, light in color, and shall conform to ASTM C-150, Type I.

3.1.5 Hydrated Lime

Hydrated lime shall be a brand approved by Engineer and shall conform to ASTM C-207.

3.1.6 Sand

Sand shall be of an acceptable color and shall conform to ASTM C-144.

3.1.7 Joint Reinforcement

Joint reinforcement shall be "DUR-O-WALL", as manufactured by Dur-O-Wall National, Inc., Cedar Rapids, Iowa, or equal approved by Engineer. Reinforcing shall be "Standard" type, of zinc coated steel. Width of reinforcing shall be approximately 2 inches less than thickness of wall.

3.1.8 Reinforcing Rods

Reinforcing steel rods shall conform to Federal Specification QQ-S-632b, Type II, Grades C, D, E, or G.

3.1.9 Rigid Steel Anchors

Rigid steel anchors, were called for on drawings, shall be 1-4 inch wide by 4 inch thick with each end turned down not less than 3 inches for setting into filled cells unless otherwise shown on drawings, with not less than 24 inches between the downturned ends. Anchors shall be zinccoated in conformance with ASTM A-153.

3.1.10 Control Joint Material

Control joint meterial shall be "Wide Flange Rapid Control Joint" manufactured by Dur-O-Wall National, Inc., Cedar Rapids, Iowa, or equal approved by Engineer.

4.0 INSTALLATION

4.1 Mortar

4.1.1 Mixing of Mortar

Mortar shall be freshly mixed and the quantity of each batch shall not be in excess of the amount that will be

used before it has started to set. No retempering of mortar will be permitted. The ingredients for each batch shall be accurately measured and combined in the proportions specified, all parts being measured by volume. Mortar shall be mixed in approved mechanically operated mortar batch mixers of the drum type. The drum shall be completely emptied after each batch. No mortar shall be mixed on the ground or floors, and hand mixing shall be permitted only for small quantities when approved by Engineer.

4.2 Workmanship

4.2.1 Erection of Concrete Masonry Units

Masonry shall not be erected when the ambient temperature is below 35 degrees Fahrenheit, except when specifically authorized in writing. Masonry shall be protected from freezing for 48 hours after being laid.

Cutting of concrete masonry units shall be accomplished by masonry mechanics using masonry saws. Concrete masonry units shall be dry out.

Concrete masonry units shall not be wetted before laying. Units shall be laid plumb, true to line, with level courses accurately spaced with a story pole and with vertical joints breaking not less than 4 inches over joints in the course next below. Mortar joints shall be approximately 3/8 inches wide. Door frames, anchors, and other items required to be built in with masonry shall be built in as the masonry work progresses. Mortar joints in starting courses on slabs shall be full-bedded under both face shell and webs. Other joints shall have full mortar coverage on horizontal and vertical face shells, but mortar shall not extend through the unit on the web edges. Each course shall be bonded at corners. Block partitions abutting columns or walls shall be anchored thereto with metal anchors spaced not over 16 inches on centers. Jamb units shall be of shapes and sizes required to bond with wall units. No cells shall be left open in face surfaces.

4.2.2 Partitions

Partitions, unless otherwise shown on the drawings, shall be continuous from floor to underside of construction above.

4.2.3 Bond Beams

Bond beams and bond beam lintels shall consist of bond beam blocks filled with Class "A" concrete as specified in Section 3A, CONCRETE, using 2 inch maximum size coarse aggregate, reinforced with steel bars as indicated on drawings. Lintels shall extend at least 8 inches beyond each side of opening.

4.2.4 Joints

Joints in exposed-to-view or painted walls and partitions, except joints to be caulked, shall be tooled slightly concave with a device of as long a length as practicable and so that the mortar will be thoroughly compacted and pressed against the edges of the units. Tooling shall not be done until after the mortar has taken its initial set. Joints in walls to receive ceramic tile shall be flush.

Horizontal joint reinforcement shall be installed in every other course unless otherwise indicated on the drawings. Joint reinforcement at openings shall extend not less than 24 inches beyond the end of lintels or to the end of the panel if less than 24 inches. Reinforcement shall be lapped not less than 6 inches, and the lap shall contain at least one cross wire of each piece of reinforcement.

Joint reinforcement shall be accurately formed around corners at all wall intersections.

4.2.5 Control Joints

Control joints shall be provided at the locations called for on drawings and shall be constructed by using special control-joint material hereinbefore specified or open end stretcher units. Control joints on exposed-to-view or painted interior walls shall be raked to a depth of 4 inch.

4.2.6 Pointing and Cleaning

Before completion of the work, all defects in joints shall be raked out as necessary, filled with mortar and retooled. All masonry surfaces shall be left clean, free of mortar daubs, and with tight mortar joints throughout. No nail or other holes will be permitted in finished joints.

5.0 TESTING

5.1 Testing Laboratory and Inspection Services

The Contractor shall provide testing laboratory as required under Article 6.1 Certificates, of this specification.

6.0 INFORMATION TO BE SUBMITTED

The following information and data shall be submitted.

6.1 Certificates

Contractor shall furnish certificates signed by an authorized officer of the manufacturing company and shall contain the name and address of Contractor, the project location, and the quantity and date or dates of shipment or delivery of the material to which the certificate applies. Concrete masonry units shall be certified for compliance with all specification requirements. Aggregate for concrete masonry units shall be certified for compliance with specification requirements for nonstaining and other properties.

Contractor shall also furnish a certified copy of laboratory-established proportions and tests as evidence that the mortar used in the work meets the requirements of the specification. No change in the laboratory-established proportions shall be made nor shall materials with different physical or chemical characteristics be utilized in mortar used in the work unless Contractor furnishes additional evidence that such mortar meets the requirements of the specification.

6.2 Samples

- | | |
|---|--|
| .1 Concrete Block (cut block approximately one inch thick to show face surface) | 2 |
| .2 Anchors | 2 of each type |
| .3 Joint Reinforcing | 2-24" long showing at least two cross joints |

6.3 Sample Panel

A sample panel of wall approximately 5'-0" long by 4'-0" high shall be erected at the job site before starting masonry work. Panel shall be approved by owner prior to proceeding with the work. If approved by Owner, the sample panel may be incorporated into the work.