

ARCHITECTURE & ENGINEERING

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**BuildingName**

**The Description of the Project**

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**SPECIFICATION DIVISION 4**

NUMBER                      SECTION DESCRIPTION

**DIVISION 04 MASONRY**

SECTION 042010 - UNIT MASONRY ASSEMBLIES (LIMITED APPLICATIONS)

**END OF CONTENTS TABLE**



**DIVISION 04 MASONRY**

**SECTION 042010 - UNIT MASONRY ASSEMBLIES (LIMITED APPLICATIONS)**

*EDITOR NOTES ARE IN 'PINK' AND ARE NOT MEANT TO BE PRINTED.*

**HIGHLIGHTED** *ITEMS INDICATE UPDATE FROM PREVIOUS VERSION.*

*THIS SECTION HAS BEEN PRE-EDITED TO APPLY ONLY TO INTERIOR MASONRY WORK LIMITED TO MODIFYING EXISTING CMU ASSEMBLIES. USE MASTERSPEC SECTION 042000 "UNIT MASONRY ASSEMBLIES" OR AIA MASTERSPEC SECTION OF SAME NAME AND NUMBER FOR MORE SUBSTANTIAL PROJECTS.*

*12/1/2017 - ADDED IDENTIFICATION REQUIREMENTS.*

*8/22/2025 - UPDATED FIRE RATED WALL IDENTIFICATION REQUIREMENT UNDER PART 3*

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Extent of masonry work consists of modifying existing concrete masonry unit structures and is indicated on drawings and by provisions of this Section.
- B. Section Includes:
  - 1. Concrete masonry units (CMU's).
  - 2. Steel reinforcement.
- C. Related Sections Includes:
  - 1. Division 05 Section "Metal Fabrications" for steel lintels.

**1.2 SUBMITTALS**

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For reinforcing steel. Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement."

**1.3 QUALITY ASSURANCE**

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

**1.4 DELIVERY, STORAGE, AND HANDLING**

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

## 1.5 PROJECT CONDITIONS

- A. Stain Prevention: Prevent grout and mortar from staining the face of masonry. Immediately remove grout and mortar that come in contact with masonry.
  - 1. Protect floor and base of walls from mortar splatter by spreading coverings on floor and over wall surface.
  - 2. Protect sills, ledges, and projections from mortar droppings.
  - 3. Protect floors and adjacent walls from mortar droppings.
  - 4. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.

## 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 use units where such defects will be exposed in the completed Work.
- B. Fire-Resistance Ratings: Where indicated, provide units that comply with requirements for fire-resistance ratings indicated as determined by testing according to ASTM E 119, by equivalent masonry thickness, or by other means, as acceptable to authorities having jurisdiction.

### 2.2 CONCRETE MASONRY UNITS

**SECTION IS PRE-EDITED FOR NEW BLOCK IN AREAS WITH EXISTING BLOCK. IF NO EXISTING BLOCK, SECTION WILL REQUIRE ADDITIONAL INFORMATION.**

- A. Concrete Masonry Units: Provide new concrete masonry units, mortar, and accessories that match the existing installation in every respect, including size, texture and strength.
- B. Concrete Masonry Units: ASTM C 90
  - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 1900 psi.
  - 2. Density Classification: Medium weight.

**INDICATE NOMINAL WIDTHS ON DRAWINGS.**

- 3. Size: Nominal face dimension of 16 inches long x 8 inches high (15-5/8 inches x 7-5/8 inches actual) x 3/8 inch less than nominal widths indicated on Drawings.
- C. Shapes: Provide shapes indicated and for lintels, corners, jambs, control joints and other special conditions.

### 2.3 MORTAR AND GROUT MATERIALS

**BELOW ARE TYPICAL SELECTIONS FOR INTERIOR APPLICATIONS.**

- A. Portland Cement: ASTM C 150, Type I.

- B. Hydrated Lime: ASTM C 207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
- D. Masonry Cement: ASTM C 91.
- E. Mortar Cement: ASTM C 1329.
- F. Aggregate for Mortar: ASTM C 144.
- G. Aggregate for Grout: ASTM C 404.
- H. Water: Potable.

## 2.4 CONCRETE AND MASONRY LINTELS

- A. General: Provide the following:

*SELECT ONE OF THE FOLLOWING OR EDIT ABOVE TO STATE "ONE OF THE FOLLOWING" AND ALLOW CONTRACTOR TO SELECT.*

*FOR CONCRETE MASONRY UNIT WALLS WHERE LINTEL IS EXPOSED TO VIEW, USE PREFABRICATED OR BUILT-IN-PLACE BOND BEAM LINTELS.*

*FOR CONCRETE MASONRY UNIT WALLS WHERE LINTEL IS NOT EXPOSED TO VIEW USE EITHER CONCRETE LINTELS OR BOND BEAM LINTELS*

1. Concrete Lintels: ASTM C 1623, matching CMUs in color, texture, and density classification; and with reinforcing bars indicated. Provide lintels with net-area compressive strength not less than CMUs.
2. Masonry Lintels: Prefabricated or built-in-place masonry lintels made from bond beam CMUs with reinforcing bars placed as indicated and filled with coarse grout.

## 2.5 REINFORCEMENT

- A. Masonry Joint Reinforcement, General: ASTM A 951.

*INTERIOR WALLS EXPOSED TO A MEAN RELATIVE HUMIDITY LESS THAN OR EQUAL TO 75% USE MILL GALVANIZED.*

*INTERIOR WALLS EXPOSED TO A MEAN RELATIVE HUMIDITY GREATER THAN OR EQUAL TO 75% USE HOT-DIPPED GALVANIZED.*

*USE 0.187 INCH DIAMETER WIRE SIZE FOR 1/2 INCH THICK JOINTS*

*EDIT BELOW.*

1. Interior Walls: [Mill-] [Hot-dip galvanized], carbon steel
2. Wire Size for Side Rods: [0.148-inch (9 gage)] [0.187-inch] diameter.
3. Wire Size for Cross Rods: [0.148-inch (9 gage)] [0.187-inch] diameter.
4. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
5. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units.

- B. Masonry Joint Reinforcement for Single-Wythe Masonry: Either ladder or truss type with single pair of side rods.

## 2.6 MORTAR AND GROUT MIXES

- A. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated.
  - 1. For interior non-load-bearing partitions: Type N.
  - 2. For interior load-bearing walls: Type S.
- B. Grout for Unit Masonry: Comply with ASTM C 476.
  - 1. Use grout of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Lay masonry units with bond pattern matching existing adjacent units, with face shells fully bedded in mortar and with head joints of depth equal to bed joints and as follows:
  - 1. Vertical Joints: Tooth into adjacent existing block walls; do not vertically align joints at interface of existing and new masonry work.
  - 2. Horizontal Joints: Align coursing to match existing, adjacent units.
- B. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.
- C. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.
- D. Cut exposed masonry units, where necessary, with a power saw. Allow units to dry before laying. Install cut units with cut surfaces and, where possible, cut edges concealed. Avoid the use (by proper layout) of less than half-size units.
- E. Bond intersecting walls with masonry units or provide anchors spaced 24 inches on center.
- F. Reinforcing: Install entire length of longitudinal side rods in mortar with a minimum cover of 1/2 inch on interior walls. Lap reinforcement a minimum of 6 inches. Do not bridge control and expansion joints in the wall system.

*INCLUDE BELOW IF APPROPRIATE.*

*REVISE SUBPARAGRAPHS BELOW IF DIFFERENT SPACING IS REQUIRED;  
DELETE IF SHOWN ON DRAWINGS.*

- 1. Space reinforcement not more than 16 inches o.c.

2. Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond openings in addition to continuous reinforcement.
- G. Build other work into the masonry work as shown, fitting masonry units around other work, and grouting for secure anchorage.

### **3.2 LINTELS**

- A. Provide concrete or masonry lintels where shown and where openings of more than 24 inches are shown without steel or other supporting lintels.
- B. Provide minimum bearing of 8 inches at each jamb.

### **3.3 FIRE RATED WALL IDENTIFICATION**

- A. Provide permanent identification of all assemblies requiring opening protectives including fire walls, fire barriers, fire partitions, and smoke barriers.
- B. Install in accordance with the requirements of Michigan Building Code chapter 7.
- C. Location:
1. Locate in accessible concealed spaces above finished ceiling. In locations without accessible concealed location, coordinate location with architect.
  2. Locate within 15 feet of the end of each wall and at intervals not exceeding 30 feet measured horizontally along the assembly.
- D. Signage requirements:
1. Lettering:
    - a. 3-inch minimum; 3/8-inch stroke width.
    - b. Color: Red on white background
  2. Verbiage incorporating project specific hourly rating:
    - a. FIRE RATED ASSEMBLY ( \_\_HR) - PROTECT ALL OPENING
    - b. SMOKE BARRIER - PROTECT ALL OPENINGS
    - c. SMOKE PARTITION - PROTECT ALL OPENINGS

### **3.4 CONCRETE AND GROUT WASHOUT**

- A. Do Not Discharge concrete/grout washout into storm drains, catch basins, the sanitary sewer system, ditches, or surface waters. Perform washing of concrete trucks and materials clean-up in designated areas or an approved off site location. Use as little water as necessary.
1. See Division 01, Section 015000 - Temporary Facilities and Controls for additional Concrete and Grout Washout requirements.

### **3.5 CLEANING**

**MOST ACIDIC CLEANERS, EVEN PROPRIETARY PRODUCTS LISTED AS "MILD", ARE ACTUALLY QUITE STRONG. THEY MAY CAUSE DAMAGE TO**

MASONRY AND ADJACENT SURFACES AND ARE DIFFICULT TO COLLECT AND DISPOSE OF PROPERLY.

GOOD MASONRY PRACTICE INCLUDES REMOVING MORTAR FROM EXPOSED MASONRY FACES BEFORE SETTING. IF THIS IS NOT DONE, USE OF ACIDIC CLEANERS MAY BE NECESSARY. REFER TO AIA MASTERSPEC SECTION 42010 FOR LISTING OF PROPRIETARY ACIDIC CLEANERS AND READ PRODUCT LITERATURE BEFORE SPECIFYING. INCLUDE IN SPECIFICATION A PROVISION FOR TESTING A SMALL AREA BEFORE GENERAL CLEANING. CONTACT OSEH FOR INFORMATION REGARDING PROPER DISPOSAL.

- A. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.
- B. Clean excess mortar as work progresses.
- C. Remove large mortar particles by hand using non-metallic scrapers or paddles.
- D. Final cleaning: Clean masonry with stiff non-metallic brushes, clean water, and a mild non-acidic soap or detergent, if required. Do not use acids without prior written approval.
  - 1. See Division 01, Section 017700 - Closeout Procedures Controls for additional requirements for disposal of wash water from activities outside buildings.

END OF SECTION 042010