

BuildingName
The Description of the Project
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SPECIFICATION DIVISION 4

NUMBER SECTION DESCRIPTION

DIVISION 04 MASONRY

SECTION 042000 - UNIT MASONRY

END OF CONTENTS TABLE

DIVISION 04 MASONRY
SECTION 042000 - UNIT MASONRY

THIS SECTION HAS BEEN PRE-EDITED TO APPLY ONLY TO VERY SMALL INTERIOR PROJECTS. USE AIA MASTERSPEC SECTION OF SAME NAME AND NUMBER FOR EXTERIOR OR LOADBEARING MASONRY CONSTRUCTION.

FOR MINOR PATCHING OF CMU, REFER TO SECTION 042010 "UNIT MASONRY ASSEMBLIES (LIMITED APPLICATIONS)".

PART 1 - GENERAL

1.1 SUMMARY

EDIT LIST BELOW TO SUIT PROJECT.

- A. Types of masonry work include the following:
1. Face brick.
 2. Structural Glazed Facing Tile.
 3. Concrete masonry units.
 4. Prefaced concrete masonry units.

INCLUDE THE FOLLOWING IF APPLICABLE.

- B. Related Sections include the following:
1. Division 01 Section "Allowances" for face brick allowance.
 2. Division 08 Section "Louvers and Vents" for through-wall louvers and vents.

1.2 SUBMITTALS

- A. Product Data: Submit mfr's data indicating that each type of masonry unit and accessory complies with specified requirements.

INCLUDE PARAGRAPH BELOW IF FACE BRICK IS INCLUDED.

- B. Brick Certification: Submit manufacturer's certification that face brick meets requirements of ASTM C 216, with exceptions indicated in "Quality Assurance" article of this Section.
- C. Samples: Provide the following samples:
1. Face Brick: Submit 12-inch by 12-inch face brick sample cards including entire range of color for preliminary selection.
 - a. Submit first set of face brick sample cards within two weeks from award of Contract.
 - b. As many as three separate manufacturers/color ranges may be selected by the Architect to be built into mock-up panels.

DELETE ABOVE OR BELOW OR BOTH AS APPLICABLE.

2. Structural Glazed Facing Tile (SGFT): Submit sample card for Architect's preliminary color selection. Submit one full size sample each, of as many as four separate colors selected by Architect.

1.3 QUALITY ASSURANCE

- A. Standards: Comply with recommendations of Brick Institute of America (BIA), National Concrete Masonry Association (NCMA) and with ACI 530/ASCE 5 and ACI 530.1/ASCE 6.

DELETE BELOW IF NO FACE BRICK.

- B. Face brick Standard: ASTM C 216, except as follows:
 - 1. Provide cored brick only; frogged brick is not acceptable.

INCLUDE BELOW FOR EXTERIOR PROJECTS.

- C. Cold Weather and Hot Weather Construction: Comply with requirements specified in ACI unit masonry standard.

INCLUDE BELOW FOR PROJECTS WITH FACE BRICK.

- D. Job Mock-up: Before ordering face brick, erect sample wall panel mock-up using materials, bond, mortar and joint tooling required for final work. Build mock-up panel at site, in location indicated by Owner, of approximately 4 feet by 4 feet, indicating proposed range of color and workmanship expected in completed work.
 - 1. Obtain Architect's acceptance of visual qualities of the mock-up and during construction use mock-up as a standard for judging completed masonry work.
 - 2. Do not alter, move or destroy mock-up until directed by Owner.
 - 3. Provide one brick mock-up panel for each selected brick mfr/color range selected by Architect.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Store cementitious materials off the ground and under cover in a dry location.
- B. Store masonry accessories to prevent corrosion and accumulation of dirt and oil.

DELETE BELOW IF NO FACE BRICK.

- C. Brick Storage: Store brick on platforms or pallets above ground. Cover with canvas or similar weatherproof material to dirt and water away from brick.

PART 2 - PRODUCTS

2.1 FACE BRICK

- A. Face Brick: ASTM C 216, Grade SW, Type FBX, cored except as follows:
 - 1. In locations where top or bottom of brick units will be exposed weather or view in completed construction, provide noncored units.

USE AIA BASIC IN LIEU OF THESE IF BRICK DOES NOT NEED TO SIMPLY MATCH EXISTING.

2. Manufacturer/Style: Match existing face brick size, color, texture, and strength as closely as possible.

DELETE BELOW IF NO SGFT. BELOW IS ONE EXAMPLE. ADD OTHERS AS REQUIRED TO SUIT PROJECT.

2.2 STRUCTURAL GLAZED FACING TILE

- A. Structural Glazed Facing Tile (SGFT): ASTM C 126; standard and special shapes; and as follows:

1. Size: 12-inch by 5-1/2-inch, to match existing; thickness as indicated.
2. Cores: Horizontal or vertical.
3. Facing: Type I (single side).
4. Base: Non-recessed, coved to match existing.
5. Color: Match existing as closely as possible.
6. Manufacturer/Style: Except where otherwise indicated, or where required to match existing adjacent conditions, provide bull-nose shapes at outside corners. Provide products of the following:
 - a. Stark Ceramics Inc.; No. *insert cat no. and select color.*

DELETE BELOW IF NO CMU.

2.3 CONCRETE MASONRY UNITS

GRADE N-I BELOW IS ONLY UNIT LIKELY TO BE AVAILABLE LOCALLY.

- A. Concrete Masonry Units (CMU): Grade N-I, "medium weight" units (min. 105 pcf). Provide units which have been cured not less than 28 days prior to delivery. In addition, comply with the following:

DELETE TYPES BELOW NOT RELEVANT TO PROJECT.

1. Hollow loadbearing CMU: ASTM C 90.
2. Size: Provide units that are 15-5/8 inches by 7-5/8 inches by width indicated on drawings, or if not indicated as follows:
 - a. Width: 11-5/8 inches.
 - b. Width: 9-5/8 inches.
 - c. Width: 7-5/8 inches.
 - d. Width: 5-5/8 inches.
 - e. Width: 3-5/8 inches.

SELECT ONE OF THE 2 FOLLOWING.

3. Ends and Corner Units: Finished and bull nosed.
4. Ends and Corner Units: Finished and square cornered.
5. Block Lintels: Provide pre-cast masonry lintels reinforced with 4 bars, two top and two bottom sized as follows:

EDIT BELOW TO SUIT PROJECT.

- a. No. 4 bars for spans to 4 feet, 8 inches.
- b. No. 5 bars for spans to 6 feet.

- c. No. 6 bars for spans to 7 feet, 4 inches.

DELETE BELOW IF NO PATTERNED UNITS.

- 6. Patterned Concrete Masonry Units: Provide units with the following pattern:
 - a. Single-score units (nominal 8-inch by 8-inch pattern).
 - b. Double-score units (nominal 5.33-inch by 8-inch pattern).

DELETE BELOW IF NO PREFACED CONCRETE BLOCK.

- 7. Prefaced Concrete Block: Lightweight concrete units indicated below with manufacturer's standard smooth resinous tile facing complying with ASTM C 744:

REVISE BELOW TO SUIT PROJECT.

- a. Color/Pattern No.: "Spectra-Glaze II", "Standard Colors" No. select color name and number; and as follows:
 - 1) Nonscored units.
 - 2) Single-score units (nominal 8-inch by 8-inch pattern).
 - 3) Double-score units (nominal 5.33-inch by 8-inch pattern).
- b. Products: Subject to compliance with requirements, provide one of the following:
 - 1) Spectra-Glaze II; Burns and Russell Co.
 - 2) Astra-Glaze; Trenwyth Industries.

DELETE BELOW IF NO SOUND-ABSORBING BLOCK UNITS - REFER TO CATALOG FOR ADDITIONAL OPTIONS/FEATURES.

- 8. Sound-Absorbing Concrete Masonry Units: Provide units with NRC range of 0.60 to 0.70, of indicated thickness, and capable of providing indicated fire-rated assembly.
 - a. Products: Subject to compliance with requirements, provide "Type RR" (or other as required to achieve indicated fire rating); the Proudfoot Co.

2.4 STONE

- A. Limestone: ASTM C 568, of the following classification and variety:
 - 1. Oolitic limestone/Category II (medium density) quarried in Lawrence, Monroe, and Owens counties, IN, of the grade, color, and finish matching existing, adjacent units.

DELETE ABOVE AND SELECT BELOW WHEN NOT SPECIFYING UNITS TO MATCH EXISTING.

- 2. Oolitic limestone/Category II (medium density) quarried in Lawrence, Monroe, and Owens counties, IN, of the following grade, color, and finish matching standards established by the Indiana Limestone Institute (ILI):

REFER TO AIA MASTERSPEC FOR INSTRUCTIONS ON IDENTIFYING CHARACTERISTICS BELOW.

- a. Grade: insert.
- b. Color: insert.

c. Finish: insert.

2.5 MORTAR MIX

GENERALLY, TYPE N MORTAR BELOW IS SUITABLE FOR INTERIOR APPLICATIONS. USE TYPE S FOR EXTERIOR FACE BRICK APPLICATIONS. USE TYPE N OR SEALANT JOINTS WITH EXTERIOR LIMESTONE. REFER TO AIA MASTERSPEC OR OTHER REFERENCES FOR FULL SELECTION.

- A. Mortar: Comply with ASTM C 270, Type N, and the following:
1. Masonry Cement: ASTM C 91, Type II; or, at Contractor's option, the following:
 - a. Portland Cement: ASTM C 150 or ASTM C 175 (air-entraining).
 - b. Hydrated lime: ASTM C 207, Type S.
 2. Sand: ASTM C 144.
- INCLUDE BELOW ONLY WITH LIMESTONE.*
- a. For white pointing mortar, use selected natural white sand or ground white stone sand.
 3. Water: Clean and potable.
- B. The use of calcium chloride or admixtures containing calcium chloride in mortar is not permitted.

2.6 ACCESSORIES

- A. Horizontal Joint Reinforcing: Provide galvanized reinforcing, with coating thickness as required by specified masonry standard for application indicated, and as follows:
1. Interior Walls and Partitions: Ladder or truss type; 9 gage side rods and cross rods.
 2. Exterior Face Brick with Block Back-Up: Ladder design (truss not permitted); 9 gage side and cross rods. Fabricate units in 10 foot lengths, with one side rod for each face shell of hollow concrete masonry units more than 4-inches in width, and one side rod for face brick wythe ("tri-rod").
- DELETE BELOW IF NO CORRUGATED TIES.*
- B. Corrugated Wall Ties: 0.8 oz. hot-dipped galvanized in lengths shown on drawings. Equal to Dur-O-Wall "D/A CWT" ties.
- DELETE BELOW IF NO LIMESTONE.*
- C. Limestone Accessories: Comply with the following:
1. Where in direct contact with stone, provide ASTM A 666, AISI Type 304 stainless steel anchors and attachments, of temper required to support loads imposed by limestone elements.
 2. Setting Buttons: Plastic or lead.
 3. Dampproofing: Cementitious or bituminous formulations recommended by ILI, non-staining to stone, compatible with joint sealants, and noncorrosive to anchors and attachments.

DELETE BOTH BELOW IF MORTAR JOINTS ARE SPECIFIED.

4. Sealant for Vertical Joints: One-part low modulus nonacid curing silicone sealant, as specified in Division 07 Section "Joint Sealants".
5. Sealant for Filling Kerfs: One-part high modulus nonacid curing silicone sealant.

DELETE BELOW IF NO WEEP HOLES REQUIRED.

- D. Weeps: Form by omission of head joints. Cotton wicks and plastic tubes are not permitted.

2.7 FLASHING

- A. Rubberized Asphalt Sheet Flashing: Manufacturer's standard composite flashing product consisting of 32-mil-thick pliable and highly adhesive rubberized asphalt compound bonded completely and integrally to 8-mil-thick, high-density, cross-laminated polyethylene film to produce an overall thickness of 40 mils.
- B. Adhesive for Flashings: Of type recommended by manufacturer of flashing material for use indicated.
- C. Products: Subject to compliance with requirements, provide one of the following:
 1. Rubberized Asphalt Sheet Flashing:
"Perm-A-Barrier Wall Flashing," W.R. Grace & Co.

2.8 INSULATION

- A. Extruded Polystyrene Board Insulation: Rigid cellular polystyrene thermal insulation with closed cells and integral high-density skin, formed by the expansion of polystyrene base resin in an extrusion process to comply with ASTM C 578, Type IV; in manufacturer's standard lengths and widths; and as follows:
 1. Thickness: 2-inches.

2.9 MASONRY CLEANERS

- A. Job-Mixed Detergent Solution: Trisodium phosphate (1/2 cup dry measure) and laundry detergent (1/2 cup dry measure) dissolved in one gallon of water. Muriatic acid cleaners are not acceptable.

DELETE BELOW IF NO LIMESTONE.

2.10 LIMESTONE FABRICATION

- A. Comply with recommendations of ILI for tolerances, holes and sinkages for anchors, fasteners, lifting devices and supports. Provide chases, reveals, reglets, and openings for continuous work. Control depth of stones and back check to maintain minimum clearances between backs of stones and backup walls or other work behind stones.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Layout walls in advance for accurate spacing of surface bond patterns and with uniform joint widths and to accurately locate openings, movement-type joints, returns and offsets. Avoid use of less-than-half-size units at corners, jambs and wherever possible at other locations.
- B. Lay up walls to comply with specified construction tolerances, with courses accurately spaced and coordinated with other work.
- C. Install (lay) masonry units as indicated:

SELECT 1 BOND PATTERN BELOW.

- 1. Pattern: Bond pattern matching existing units.
- 2. Pattern: Common running bond.
- 3. Pattern: Stack bond.

SELECT 1 COURSING PATTERN BELOW.

- 4. Coursing: Match existing adjacent units.
- 5. Coursing: As shown on drawings.

- D. Cut exposed masonry units, where necessary, with a power saw.
- E. Bond intersecting walls with masonry units or provide anchors spaced 24 inches on center.

DELETE BELOW IF NO SUCH CONDITION.

- 1. Where new masonry walls abut existing masonry construction, tooth into existing masonry and provide cross-bonding, or anchor new masonry work to existing nonmasonry structure with corrugated ties at 16-inches on-center vertically.
- F. Cavities: Strike mortar on cavity side of masonry work smooth. Keep cavity spaces between wythes free of mortar droppings and debris; use follower board if necessary.
- G. Joints: Do not align vertical joints from course to course. Hold uniform joint sizes to suit modular size of masonry units. Cut joints flush and tool slightly concave.
- H. Reinforcing: Install every second course and immediately above and below openings, for a distance of 2 feet beyond jambs of opening. Do not bridge control and expansion joints in the wall system.
 - 1. Overlap adjacent ladder type reinforcing sections not less than 14 inches.
 - 2. At corners, lap 9 gage round deformed galvanized wire with ladder type joint reinforcing not less than 14 inches.
- I. Install concealed flashings where indicated and continuously at shelf angles, lintels and similar obstructions. Comply with Brick Institute of America recommendations for forming, anchoring, joining and adhering flashing.
- J. Install weeps, located as indicated, or if not indicated, 24 inches o.c.

1. Form weep holes by keeping head joints free and clear of mortar.
 2. Fill cavities and air spaces with clean, sharp mason's sand to a height equal to height of first course but not less than 2 inches immediately above flashing embedded in the wall, as masonry construction progresses.
- K. Build other work into the masonry work as shown, fitting masonry units around other work, and grouting for secure anchorage.
- L. Masonry Patching and Infill: Where infill of existing masonry openings is indicated, comply with the following:
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.

DELETE BELOW IF NO LIMESTONE. REMEMBER, THIS IS FOR VERY LIMITED STONE WORK (SUCH AS REPLACING A SILL). DO NOT USE FOR MORE EXTENSIVE WORK.

- M. Install limestone in accordance with drawings, complete with anchors, supports, fasteners and other attachments to secure stonework in place. Set stones on setting buttons or shims to maintain uniform width of joints. Apply dampproofing to backs of limestone surfaces.
1. Sealant Joints: Set stone with sealant joints. Fill anchor holes with sealant.
 2. Mortar Joints: Set stones in mortar. Fill anchor holes with mortar. Rake out joints and point with white mortar. Tool joints concave.

3.2 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 042000 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 excess mortar as work progresses.
- B. Remove large mortar particles by hand using non-metallic scrapers or paddles.
- C. 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.

- D. Dispose of wash water by methods described in Division 01 Section "Closeout Procedures."

END OF SECTION 042000