

Montgomery County Public Schools Facilities Guide

DIVISION 4 – MASONRY

SECTION 04810

UNIT MASONRY

**PART 1 - GENERAL**

1.01 QUALITY ASSURANCE

- A. Installation and material to comply with "Specification for the Design and Construction of Load Bearing Concrete Masonry" by the National Concrete Masonry Association, the American National Standard "Building Code Requirements for Masonry" ANSI A41.1 and ANSI A41.2 and applicable ACI and ASTM standards.

1.02 SCOPE & PREFERENCES

- A. Exterior walls shall be brick faced. Wall section shall contain exterior wythe, insulated cavity with minimum of 1-1/2 inch air space and concrete masonry back up in required thicknesses. No brick rowlock or stone cap. Omit or minimize projecting brick shapes. Walls may be load bearing. R-value of wall section shall be not less than required by energy code.
- B. No glazed masonry shall be used on the exterior facade but materials such as pre-cast concrete panels, stucco, assembled systems such as dryvit, metals, etc. may be considered if approved by MCPS's Division of Construction. Use of more than three (3) exterior finishes will be discouraged.
- C. Interior partitions to be Concrete Masonry Units (CMU) nonload bearing in academic sections and generally 6 inches or greater in thickness. Use of 4 inch thick walls should be minimal because of the blocks limited core space. NOTE: Use of gypsum board and metal stud partitions may be considered in office type areas, provided privacy sound control is addressed.
- D. Use of glass block shall be minimized. Architect shall obtain the MCPS Division of Construction approval if use needs to be considered.
- E. Structural glazed tile or glazed concrete masonry units shall be used for wall base material in corridors, cafeterias, all-purpose, locker room lockers and other designated areas as agreed by MCPS Division of Construction. Base shall not be covered.
- F. Structural retaining walls shall be reinforced concrete and not masonry concrete block. No brick rowlock or stone caps.
- G. Masonry or ceramic tile walls where chalk and tackboard are scheduled to be removed (renovation projects) shall be inspected. If units are applied with mastic or plaster, the masonry wall shall be removed and replaced in areas not scheduled to receive new chalk and tackboards.
- H. Use decorative fencing in lieu of masonry around Kindergarten play areas and minimize solid low masonry walls if possible.
- I. MCPS Acoustical Consultant to verify if additional measures are required for LEED EQp3 Minimal Acoustical Performance.

1.03 SUBMITTALS

- A. Submit location of manufacture and of extraction/ recovery of masonry materials.
- B. Submit recycled-content information for steel reinforcing, designating percentages of post-consumer and pre-consumer waste material.
- C. Submit MSDS for any applicable products used.

**PART 2 PRODUCTS**

2.01 BRICK

- A. Provide Grade SW soft mud brick selected from the following companies, manufacturing products of primary materials extracted/ recovered with a 500-mile radius of the project site:

(Standard manufacturers colors shall be selected.)

1. Calvert Brick - Redland Brick "Cushwa Plant", Williamsport, MD 21795
  2. Old Virginia Brick Co., Inc., P.O. Box 508, Salem, VA 24153
  3. Baltimore Brick Co., P.O. Box 72009, Baltimore, MD 21237
  4. Oxford Brick - Glen-Gary Corp., PO Box 3410, Manassas, VA 22110.
  5. Belden- Sugar Creek, Ohio
- B. Size of brick shall range from 2-1/4 inches X 7-5/8 inches X 3-5/8 inches to 3-5/8 inches X 11-5/8 inches X 3-5/8 inches.
1. Consider if possible larger sizes for cost savings.
  2. Minimize number of special shapes.
  3. Brick features that project out shall be of solid brick.
- C. Face brick shall extend a minimum of 8 inches below finish grade.
- D. Special brick shapes shall use standard factory fabricated units.
- E. Clearly indicate locations where brick is to be patched.

## 2.02 CONCRETE MASONRY UNITS-HOLLOW CORE & SOLID

- A. Nominal face size shall be 8 inches X 16 inches of various thicknesses. Aggregate shall conform to ASTM C331. Units shall be high or low pressure steam cured and selected from one of the following:
1. Expanded slag aggregate CMU by Ernest Maier, Inc.
  2. Limestone or solite aggregate CMU by Betco Supreme
  3. Lightweight aggregate CMU by York Building Products
    - a. Recycled-Content: Subject to meeting or exceeding ASTM C 331, provide bottom ash for 10 percent of lightweight aggregate in light-and medium-weight block.
- B. Grade S shall be used above and below grade in exterior walls that have weather protective coatings and in walls not exposed to weather. Mortar test shall be periodically conducted to assure grade of mortar.
- C. Provide pre-cast lintels where required. Openings with masonry above, require pre-cast lintels, steel angle lintels or hung plates. Lintels shall extend 8" on each side of opening. Surface texture of pre-cast lintels shall match adjacent CMU.
- D. Provide special shapes as required. Outcorners shall be rounded corner bullnose units except window jambs and as otherwise directed. Provide solid bullnose CMU at all windows.
- E. Provide products manufactured and of primary materials extracted/ recovered with a 500-mile radius of the project site.

Comment [SLE1]: It's not clear whether cinder reference precludes use of bottom ash as suggested below:

## 2.03 GLAZED MASONRY UNITS (CMU) OR GLAZED STRUCTURAL FACING TILE (GSFT)

- A. Generally used for straight base materials in main corridors, cafeterias and all-purpose areas.
- B. Glazed masonry units shall be Spectra Glaze II as manufactured by Burns & Russell Co., or Astra-glaze as manufactured by Trendwyth Industries/Old Castle.
- C. Glazed Structural Facing Tile shall be as manufactured by Stark Ceramic, Inc.
- D. Sizes of both shall be nominal 16 inches X 8 inches.
- E. Use of these materials may be considered in other areas such as showers, toilets, kitchens, etc. if approved by MCPS Division of Construction.
- F. Provide products manufactured and of primary materials extracted/ recovered with a 500-mile radius of project site.

## 2.04 ACOUSTICAL CONCRETE MASONRY UNITS (ACMU)

- A. Conform to ASTM C90 Grade N Type II.
- B. Manufactured by:
  1. "Soundblox" by Proudfoot Company, Inc.
  2. "Acousiwal" by Nabco Glazed Products.
- C. ACMU not to be used below 7'-0 from the floor
- D. Provide products manufactured and of primary materials extracted/ recovered with a 500-mile radius of the project site.

## 2.05 REINFORCING

- A. Joint reinforcing, wire ties, anchors, adjustable ties, etc. shall be mill galvanized coating. Hot dip shall be required on exterior walls.
  - 1. Reinforcing bars shall contain minimum 95 percent total recycled-content including at least 60 percent post-consumer material.
- B. Size, type, and shapes shall be in accordance with ASTM standards and to be manufactured by one of the following: (Truss type reinforcing shall be used on exterior cavity walls.)
  - 1. Dur-O-Wal, Inc. (1-800-368-2035)
  - 2. Hohmann & Barnard, Inc. (301-317-0090)
  - 3. AA Wire Products Company, LLC (312-586-6700)
  - 4. Heckman Building Products (800-621-4140)
  - 5. National Wire Production (410-477-1700)
  - 6. Masonry Reinforcing Corp of America (800-438-5145)

## 2.06 FLASHING

- A. At roof level:
  - 1. Thru wall flashing shall be soldered .015 inch stainless steel. (Coordinate with roofing contractor).
- B. All other areas - Nervastral HD 30 mil. as manufactured by Rubber & Plastic Compound Co., Inc. or "Fiberweb 200", 8mil reinforced polyester as manufactured by Dur-O-Wal, Inc. Contractor responsible for protecting and sealing damaged flashing.

## 2.07 CAVITY WALL INSULATION

- A. Phenolic Foam shall not be used or foam products that absorb moisture.

## 2.08 WEEP HOLES

- A. Provide weep holes with 3/8" cotton rope, 16" o.c.

## 2.09 MORTAR CONTROL DEVICES

- A. "Mortar Net"; 10 inches high x 1 inch thick x 12 inches (1-800-664-6638) or equal, continuous at bottom of cavity and at lintels.
- B. Provide a deduct alternate to replace "Mortar Net" with pea gravel 8 inches high x 16 inches center on weep holes.

# PART 3 EXECUTION

## 3.01 SAMPLE MASONRY PANELS

- A. Masonry work shall not commence until sample panels, erected in accordance with direction of Architect, and has been approved by Architect and Owner.

## 3.02 LAYING OF MASONRY

- A. Conform to applicable industry standards, including ACI 530 and Brick Industry Association.
- B. Variation from plumb (vertical) and level (horizontal) shall be not more than 1/4 inch in 10 ft., 3/8 inch in 20 ft., 1/2 inch in 40 ft. or more.
- C. Variation from plan line and straightness 1/2 inch in 20 ft., 3/4 inch in 40 ft. or more.
- D. Fill hollow metal door and window frames with mortar. At exterior door frame shall have security box outs, keep mortar out of the box.
- E. Secure cavity wall insulation to interior wythe with compatible mastic.
- F. Masonry modular size shall be utilized if possible when dimensioning masonry wall locations on floor plans.
- G. Provide control joints maximum of 30' spacing or as shown on drawings.
- H. Provide a minimum of 1/2 inch sealant joint between side walks and masonry walls.
- I. Provide an attendant if propane heaters are used.

- J. Low retaining walls shall not be tied into building.
- K. Provide drainage in planter structures. Planter walls shall be tied into structural foundation with reinforcing.
- L. Strike joints, including those below grade and above ceilings.

### 3.03 CLEANING

- A. High pressure wash system shall not be used.
- B. Protect existing adjacent materials.
- C. Cleaning solvents such as "Sure Klean", Foran Masonry and Grays Ferris may be used only on well hardened mortar or as recommended by solvent manufacturer.

### 3.04 WASTE MANAGEMENT

- A. Recycle or salvage waste masonry and steel materials in accordance with Division 1 "Construction Waste Management" requirements.

**END OF SECTION**