

**04 150 MASONRY ACCESSORIES**

- A. Joint Reinforcement:
1. Wire joint reinforcement used for masonry block walls shall be standard weight truss type. Width of reinforcement shall be less than thickness of block walls as required for the side rods to lay fully in the mortar bed. Reinforcement, side rods and cross rods shall be welded units with mill hot dipped galvanized finish. Reinforcement used below grade or against grade shall be hot dip galvanized after fabrication. Corners and tee reinforcements shall be pre-manufactured.
  2. Horizontal joint reinforcement shall be placed in the first and second bed joints, 3" apart, immediately above lintels and below sills at openings, and in bed joints at 16" intervals elsewhere. Reinforcement above openings shall extend 24 inches each side of opening or to end of panel. Splice all sections by overlapping 6". All reinforcing shall be continuous except that it shall not pass through vertical expansion joints.
  3. Cavity wall ties shall be laid in full bed of mortar at 16" vertically and 24" horizontally, and project at least 2" into the brick veneer and block back-up. The ties should not be closer than 3/4" from exterior face of brick veneer.
- B. Stone anchors shall be fabricated from 304-alloy stainless steel, brass, or bronze to fit the conditions detailed or as required to match existing conditions. Channel slot anchors and strap anchors shall be not less than 1/8" thick by 1- 1/2" wide, split and bent at outer end to form 2-way anchorage's extending at least 1" into each stone. Wire loop and dowel type shall be 3/16" diameter. Straps and wire anchors shall be sized to extend not less than 4" into back-up masonry with 1" turn-up.

**04 200 UNIT MASONRY**

- A. Reference Standards: The latest publication of the following standards shall establish the minimum requirements when not otherwise specified in this Section:
1. National Concrete Masonry Association, "Guide Specification for Concrete Masonry".
- B. All mortar additives, where required, must contain not more than 0.1% chloride ions and shall be certified as such by the Contractor.
- C. All colored mortar must be pre-approved along with the brick colors.
- D. Thru-wall flashing in exterior cavity walls shall be minimum 20-ounce lead-coated copper.

- E. Wherever possible, lightweight concrete block shall be used in masonry walls. Four-inch thick CMU walls shall be avoided.
- F. In exterior masonry cavity walls, weep holes shall be provided, spaced not more than 2'-0" o.c. and above all interruptions in the cavity caused by thru-wall flashing. Aluminum weep hole vents shall not be used.
- G. Specification of Sample Panels: Prior to installation of masonry work, the Contractor shall be required to erect sample wall panels representative of completed masonry work required for project with respect to qualities of appearance, materials and construction. As a minimum, the sample panel shall be "L" shaped 4'-0" high by 4'-0" wide with 2'-0" leg. Panels shall show the proposed color range, texture, bond, mortar joints, and workmanship of all facing materials and shall include a sample of the proposed fenestration. If contrasting elements such as doors and frames are proposed, a sample of these materials shall be included in each mockup panel. Sample shall be reviewed by the University prior to start of installation.
- H. Metal caps, such as copings or gravel stops, are preferred. Brick, stone or concrete caps can be used with University approval.
- I. Coursing for both brick and CMU shall be coordinated with windows and door heads so that fractions of courses are avoided.
- J. Should the initial sample panel be unsatisfactory, the Contractor will be required to erect additional samples until the brick work and jointing are acceptable to the University.
- K. No masonry work is to be done when the temperature is below 40°F or predicted to be below 40°F overnight, unless adequate protection against freezing is provided, and suitable means are provided to heat materials.
- L. Coping Stones:
1. All coping stone joints shall be raked to a depth of 1/2" and sealed.
  2. Thru-wall flashing shall be installed beneath all coping stone installations. Flashing should extend beyond the face of the wall and turn down to form a drip. Flashing may be cut off flush with face of wall provided they are inspected prior to cutoff to verify their locations.
- M. Efflorescence: Particular care must be taken in the selection of materials and in design and detailing of exterior walls to prevent efflorescence in brickwork. Certification shall be provided that brick and any masonry trim material has passed the "wick" test (ASTM C 67). Brick shall show no efflorescence.
- N. Refer to the appendix of ASTM C 270 for selection and use of mortar materials.
- O. Use non-staining Portland mortar for stone setting and glazed facing tiles.

- P. Do not use quicklime.
- Q. Shovel measurement of mortar mix is not permitted.
- R. Do not use mortar that is stronger in compression than is required by the structural requirements of the project. Mortar of known higher strength shall not be substituted where a mortar of anticipated lower strength is specified.
- S. Brands of cementitious materials and the source of supply of sand should remain the same throughout the entire job.
- T. Re-tempering of mortars is not allowed.
- U. Careful considerations should be given to location and design of expansion and control joints. Control joints in masonry veneer should not be more than 30' o.c., and shall be shown on the drawing elevations.
- V. Brick: Normally, the Architect/Engineer will select three or more bricks he feels are acceptable for the project and include these in his Specifications. An allowance method is not acceptable.
1. Brick selected should be compatible with surrounding buildings and contribute to a unified expression for the University.
  2. Facing brick shall be Grade MW or SW (exterior locations) and Type FBX with a minimum compressive strength of 8,000 psi. The brick must meet the requirements of ASTM C 216. Absorption factor shall not exceed 7.0.
  3. The size of the brick in all dimensions should be specified and allowances for tolerance will be made from these dimensions.
  4. Exterior brick veneer shall not extend below finished grade.
- W. Block: Normally, the Architect/Engineer will select three or more blocks he feels are acceptable for the project and include these in his Specifications. An allowance method is not acceptable.
1. Block units shall have nominal face dimensions of 16" x 8".
  2. Cinder aggregate is not acceptable.
  3. Block units shall have a linear shrinkage in accordance with ASTM C 90, Table 1. Moisture content shall not exceed 25% of the total absorption before or after delivery to the job site.
- X. Keep top of wall covered with non-staining waterproof coverings when work is not in progress. When work is resumed, top surface of work shall be cleaned of all loose mortar and in drying weather thoroughly wet.

- Y. Dry-brush exposed masonry at the end of each day's work.
- Z. Use of wire brushes, acids, or solutions which might cause discoloration and/or damage to the factory-applied finish is expressly prohibited.
- AA. Finished surface shall not deviate from required line or plane more than 1/8" in any 10-foot dimension.
- BB. Grout hollow metal doorframes full.

**04 400 STONE**

- A. Protection of stone units during storage and handling shall apply to salvaged stone that will be reinstalled.
- B. Limestone used at the University will normally be "Select" grade buff free from cracks, pits, spalls, seams and mineral stains. Corners and edges should be chamfered to lessen chipping.
- C. All stone on a given project shall be obtained from one quarry.
- D. All stone anchors should be nonferrous metal and clearly detailed on the Architect/Engineer's drawings.
- E. Stone which later clouds and shows stains, shall be allowed a reasonable length of time to dry out. If stains remain, stone shall be washed down. Acids or wire brush will not be allowed. If stains remain, stone work in question shall be removed and a new stone installed.

**04 500 MASONRY RESTORATION AND CLEANING**

- A. Cleaning of masonry, be it brick or stone, shall be done using brushes (not those with metal bristles) and water. Diluted detergents may be used. Repeated washings are preferred to fewer washings that are too abrasive or chemically laden.
- B. Sandblasting of masonry is prohibited.
- C. For all historic structures, matching mortar joint profiles and mortar colors is critical.
- D. Waterproof covering of masonry work is required during nonworking hours and for freshly laid masonry during periods of inclement weather.
- E. Experience Clause: A 5-year experience record of the Subcontractor performing any restoration work shall be specified.