

DIVISION 04 - MASONRY

04 00 00 MASONRY

1. Specify materials and products that contribute to meeting the requirements of LEED-NC 2.2 MR Credits 4 and 5

04 01 00 MAINTENANCE OF MASONRY

04 01 20 MAINTENANCE OF UNIT MASONRY

04 01 20.51 UNIT MASONRY MAINTENANCE

- 1 No brick sills.
- 2 No exposed rowlock courses on top of brick walls or parapets.
- 3 Face Brick: Grade SW, type FBS or better as standard of quality. The University Executives may participate in brick selection. Preferred choice is dense, hard-burned brick with low water absorption and low dimensional tolerances. Avoid brick with face color different from body of brick, "flashed" finishes, rug faces, or other characteristics which will not weather well. Use only concave tool joints with standard mortar color.
- 4 Do not specify or permit the application of colorless coatings (sealers) on brick masonry without Design Professional and University approval. Only penetrating sealers using silanes or silaxane are acceptable for consideration.
- 5 The design and construction of concrete and brick masonry shall conform to NCMA and BIA.
- 6 The Design Professional shall submit, for University review, the following:
 - A Initial test report submittal from brick manufacturer. Test report must be for the product manufactured in the most recent 12-month period. Supplied by Manufacturer.
 - B Final test report submittal for actual product manufactured for specific project. Supplied by Manufacturer.
 - C Site test: Test of brick performed upon delivery to site.
 - D All tests, stated above, shall be conducted in accordance with ASTM C-67. Test reports shall delineate the following criteria with associated results meeting minimum and maximum values as stipulated below:
 - 1) Efflorescence Rating: "No Efflorescence".
 - 2) Minimum Compressive Strengths (SW):
 - (a) Individual Brick; 2500 psi
 - (b) Average of 5 brick; 3000 psi
 - 3) Maximum Water Absorptions:
 - (a) 5 Hr. Boil:
 - (i) Individual Brick; 20.0%
 - (ii) Average of 5 brick; 17.0%
 - 4) Maximum Saturation Coefficients:
 - (a) Individual Brick; .80 (waivers not allowed)
 - (b) Average of 5 brick; .78 (waivers not allowed)

The University may choose to select a brick that does not comply with the maximum saturation coefficients above but complies with ASTM C-216's "absorption alternate". The sample brick must meet the compressive strength requirements listed above and any of the five samples used for the 24 hr. cold water submersion test does not have absorption exceeding eight (8%) percent by weight. The University has **the sole discretion** to accept brick based on the bricks performance according to this alternate standard. If the University, **in it's sole discretion**, rejects a brick based upon this "absorption alternate" the brick proposed MUST meet the ASTM criteria outlined in Section 04 01 20.51 (6) (D1-D4)

5) Maximum Permitted Intial rate of Absorption:

(a) 30 grams/min/30si tested in accordance with ASTM C-67; Laboratory Test.

- 7 All brick provided and installed for the project shall be free of efflorescence, and the Architects specifications shall explicitly state this requirement.
- 8 Masonry units, upon delivered to the project site, shall not be stored in direct contact with the ground
- 9 Required test data shall be submitted and approved by Design Professional and University before for brick is delivered.
- 10 An exterior wall mock-up panel, minimum of 8 ft. long x 6 foot high, shall be erected on site prior to the start of masonry work. Mock-up(s) shall include entire wall system construction with all components and sub-assemblies including any stone or brick accent features.
- 11 The approved mock-up panel will establish the basis for acceptable quality of the masonry work. Additonal mock-ups may be required, at Contractor expense, until quality of finished product is approved by the University and the Design Professional.
- 12 The mock-up panel is to be constructed on site, at a location so as to allow it to remain in place until the completion of all masonry work for the project. If it becomes necessary to move the mock-up panel, the Contractor shall do so in such a manner so as to maintain the structural integrity of the panel, causing it no damage, and shall pay for all associated costs of the move.
- 13 The mock-up panel shall be protected sufficiently to prohibit the panels degradation due to weather.

04 01 20.52 UNIT MASONRY CLEANING

- 1 The mason shall keep brick clean of excess mortar droppings, smears and stains while laying brick. Dry brush clean or use clean water as necessary.
- 2 No acid based cleaners shall be used.
- 3 Use only cleaning products approved by the brick manufacturer. Such approval shall be obtained in writing and a copy provided to the University.

04 05 00 COMMON WORK RESULTS FOR MASONRY

04 05 19 MASONRY ANCHORING AND REINFORCING

04 05 19.13 CONTINUOUS JOINT REINFORCING

- 1 **Single Wythe:** 9 GA x 9 GA truss consisting of two or more parallel longitudinal deformed rods weld connected to a continuous diagonally oriented cross rod which forms a truss design. The cross rods are electrically butt welded to deformed side rods in a single plane. Examples of acceptable products are DA3100 Truss by Dur-O-Wall; #120 Truss by Hohmann & Barnard Inc.

EXCEPTION: Where the projects structural design calls for numerous locations of full height vertical reinforcing in masonry walls, as part of an engineered wall system, ladder style reinforcing may be used. Examples of acceptable products are DA3200 Ladur by Dur-O-Wall; #220 Ladder by Hohmann & Barnard Inc.

Multiple Wythe Adjustable: 9 GA x 9 GA truss type is designed to tie multiwythe masonry walls and provide joint reinforcement in the back-up wall while allowing for adjustability between wythes. Adjustability is provided by rectangular eyes or tabs with restraint bar of 3/16-inch wire which are welded to one longitudinal rod at 16 inches on center. Pintles or Ties of 3/16-inch wire are engaged in the Eyes or Tabs and laid in the bed joint of the veneer. Finish shall be hot dipped galvanized in conformance with ASTM A153 -Class B2, 1.50 ounce. Examples of acceptable products are A3700 Dur-O-Eye by Dur-O-Wall; #170 Truss by Hohmann & Barnard Inc.

04 05 19.16 MASONRY ANCHORS

- 1 **Anchoring to concrete framework:** Use dovetail anchor slot, stainless steel with foam filler, 1 inch x 1 inch with 5/8-inch throat. Use dovetail triangular ties, hot dipped galvanized, with 12 ga. Dovetail clip and 3/16 -inch diameter wire tie. Ties to fall no more than 1 inch short of masonry face.
- 2 **Anchoring to metal and wood stud framework:** Use vertical anchor plates, minimum 14 ga. With minimum 3/16 inch diameter pintile hook. For attachment to metal studs, use only stainless steel self-tapping sheet screws.
- 3 **Anchoring structural steel column framework:** Use vertical rod welded to steel column. Minimum 14-inch diameter x 9-inch long rod with 3/8 inch offset providing minimum of 4-inch vertical adjustment. Use with 3/16 inch diameter hot dipped galvanized triangle ties
- 4 Corrugated metal ties are prohibited.

04 05 23 MASONRY ACCESSORIES

04 05 23.13 MASONRY CONTROL AND EXPANSION JOINTS

- 1 **Expansion Joint:** Use neoprene filler strip complying with ASTM D 1056, Grade RE41 with minimum 50% compression. Minimum 3/8-inch thick x 3-inch depth.
- 2 **Control Joint:** Use Styrene-butadiene rubber compound complying with ASTM D 2000, 2AA-805 or polyvinyl chloride complying with ASTM D2287, Type PVC 654-4. Provide with fused joints, corner and tee accessories.
- 3 **Resilient Wall Pads:** Use below floor/roof decks at top of masonry walls. For non-rated walls use compressible foam pad cut to profile of deck ribs. For rated walls use compressible fiber pad conforming to ASTM E-84, ASTM E-119.

04 05 23.16 MASONRY EMBEDDED FLASHINGS

- 1 **Flexible Sheet Flashing:** Use high density, 40 mills thick cross laminated polyethylene film. Material to be fully adhering, self-adhering, through wall flashing membrane, 36 inch wide with silicone coated release paper.
- 2 **Stainless Steel:** when required by project use .018-inch thick #304 with #2B finish.

04 05 23.19 MASONRY CAVITY DRAINAGE, WEEPHOLES AND VENTS

- 1 Weeps and Vents: Use injection molded polyvinyl chloride grilles, insect resistant in off-set "T". Color to match mortar.

04 70 00 MANUFACTURED MASONRY

04 72 00 CAST STONE MASONRY

- 1 Cast stone products shall conform with ASTM C1364. Dry pack/cast stone is prohibited on University projects.

END OF SECTION