

**SECTION 04 20 00
UNIT MASONRY**

 SPEC WRITER NOTES:

1. Use this section only for NCA projects.
2. Delete between //_____// if not applicable to project. Also delete any other item or paragraph not applicable in the section and renumber the paragraphs.
3. Use this section for both reinforced and unreinforced masonry construction or where steel bar reinforcement is used in cells of hollow masonry units, bond beams, lintel units, and between wythes of unit masonry in engineered design which is similar to reinforced concrete construction.
4. Follow Specification for Masonry Structures (ACI 530.1/ASCE 6/TMS 602), Brick Industry Associations "Technical Notes on Brick Construction" and National Concrete Masonry Association "TEK Manual for Concrete Masonry Design and Construction".

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies requirements for construction of masonry unit walls.

1.2 RELATED WORK

- A. Mortars and Grouts: Section 04 05 13, MASONRY MORTARING, Section 04 05 16, MASONRY GROUTING.
- B. Steel Lintels and Shelf Angles: Section 05 50 00, METAL FABRICATIONS.
- C. Cavity Insulation: Section 07 21 13, THERMAL INSULATION.
- D. Flashing: Section 07 60 00, FLASHING AND SHEET METAL.
- E. Sealants and Sealant Installation: Section 07 92 00, JOINT SEALANTS.
- F. Color and Texture of Masonry Units: Section 09 06 00, SCHEDULE FOR FINISHES.

1.3 SUSTAINABILITY REQUIREMENTS

- A. Materials in this section may contribute towards contract compliance with sustainability requirements. See Section 01 81 11, SUSTAINABLE DESIGN REQUIRMENTS, for project // local/regional materials, // low-emitting materials, // recycled content, // _____// requirements.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.
- B. Samples:
1. Face brick, sample panel, 200 mm by 400 mm (8 inches by 16 inches,) showing full color range and texture of bricks, bond, and proposed mortar joints.
 2. Concrete masonry units, when exposed in finish work.
 3. Anchors, and ties, one each and joint reinforcing 305 mm (12 inches) long.
- C. Shop Drawings:
1. Indicate special masonry shapes.
 2. Indicate reinforcement, applicable dimensions and methods of hanging soffit or lintel masonry and reinforcing masonry for embedment of anchors for hung fixtures.
 3. Submit shop drawings for fabrication, bending, and placement of reinforcing bars prepared in accordance with ACI 315.
- D. Certificates:
1. Submit certificates signed by manufacturer, including name and address of contractor, project location, and the quantity, and date or dates of shipment of delivery to which certificate applies.
 2. Indicate that the following items meet specification requirements:
 - a. Face brick.
 - b. Solid and load-bearing concrete masonry units.
 3. Identify testing laboratories facilities and qualifications of its principals and key personnel to perform tests specified.
- E. Manufacturer's Literature and Data:
1. Anchors, ties, and reinforcement.
 2. Shear keys.
 3. Reinforcing bars.

SPEC WRITER NOTES:

1. For small projects verify use of following paragraph with the Project Manager.

1.5 SAMPLE PANEL

- A. Before starting masonry, lay up a sample panel in accordance with Masonry Standards Joint Committee (MSJC) and Brick Industry Association (BIA).
1. Use masonry units from random cubes of units delivered on site.

- 2. Include reinforcing, ties, and anchors.
- B. Use sample panels approved by RE/COR for standard of workmanship of new masonry work.
- C. Use sample panel to test cleaning methods.
- D. Sample Panel Size: Minimum 1220mm x 1220mm (4' x 4').

1.6 WARRANTY

- A. Warranty exterior masonry walls against moisture leaks and subject to terms of "Warranty of Construction", FAR clause 52.246-21, except that warranty period to be five years.

1.7 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by the basic designation only. Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.

SPEC WRITER NOTES:

- 1. Remove reference citations that do not remain in Part 2 or Part 3 of edited specification.
- 2. Verify and make dates indicated for remaining citations the most current at date of submittal; determine changes from date indicated on the TIL download of the section and modify requirements impacted by the changes.

- B. American Society for Testing and Materials (ASTM):

A615/A615M-22	Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
A675/A675M-R19	Steel Bars, Carbon, Hot-Wrought, Special Quality, Mechanical Properties
A951/A951M-16e1	Steel Wire for Masonry Joint Reinforcement
C67/C67M-21	Sampling and Testing Brick and Structural Clay Tile
C90-22	Load bearing Concrete Masonry Units
C216-22	Facing Brick (Solid Masonry Units Made From Clay or Shale)
C476-22	Grout for Masonry
C612-14(2019)	Mineral Fiber Block and Board Thermal Insulation
D1056-20	Flexible Cellular Materials - Sponge or Expanded Rubber

- C. American Welding Society (AWS):

- D1.4/D1.4M-11 Structural Welding Code - Reinforcing Steel
- D. Brick Industry Association - Technical Notes on Brick Construction
(BIA) :
- 11-2001 Brick Masonry, Part I
- 11A-1988 Brick Masonry, Part II
- 11B-1988 Brick Masonry, Part III Execution
- 11C-1998 for Brick Masonry Engineered Brick Masonry,
Part IV
- 11D-1988 Brick Masonry Engineered Brick Masonry, Part IV
continued
- 11E-1991 Brick Masonry, Part V
- E. Masonry Industry Council:
Hot and Cold Weather Masonry Construction Manual, 2018
- F. Masonry Standards Joint Committee; Specifications for Masonry
Structures (TMS 602-11/ACI 530.1-11/ASCE 6-11) (MSJC)
- G. American Concrete Institute (ACI) :
SP-66(2004) ACI Detailing Manual

1.8 PRE-INSTALLATION CONFERENCE

- A. Convene a meeting on site, after submittals are received and approved but before any work, to review drawings and specifications, submittals, schedule, manufacturer instructions, site logistics and pertinent matters of coordination, temporary protection, governing regulations, tests and inspections; participants to include RE/COR and all parties whose work is effected or related to the work of this section.

PART 2 - PRODUCTS

SPEC WRITER NOTES:

1. Make product requirements agree with applicable requirements specified in the referenced Applicable Publications.
2. Update and specify in both only which applies to the project.
3. Delete items not used in subsequent text.
4. See Brick Industry Association Tech Note 10B for definition of non-modular size and specify other, dimensions or detail in metric and English units.
5. Coordinate and specify in Section 09 06 00, SCHEDULE FOR FINISHES brick designations from at least two manufacturers.

2.1 BRICK

A. Face Brick:

1. ASTM C216, Grade SW, Type FBS.
2. ASTM C216, Grade SW, Type FBX.
3. Brick when tested in accordance with ASTM C67: Classified slightly efflorescent or better.
4. Size:
 - a. Modular.

2.2 CONCRETE MASONRY UNITS

A. Hollow and Solid Load-Bearing Concrete Masonry Units: ASTM C90.

1. Unit Weight: // Normal weight // medium weight // lightweight //

SPEC WRITER NOTES:

1. See National Concrete Masonry Association "TEK Series" for shapes, names and functions.
2. Use of modular size is preferred.
3. Coordinate with Section 09 06 00, SCHEDULE FOR FINISHES to specify colored and special shapes. Detail customized masonry units.

2. Sizes: Modular.

2.3 REINFORCEMENT

A. Steel Reinforcing Bars: ASTM A615, deformed bars, 420 MPa (Grade 60) for bars No. 10 to No. 57 (No. 3 to No. 18), except as otherwise indicated.

SPEC WRITER NOTES:

1. Delete below if none shown.

B. Where 6 mm diameter (No. 2) bars are shown, provide plain, round, carbon steel bars, ASTM A675, 550 MPa (Grade 80).

C. Joint Reinforcement:

1. Form from wire complying with ASTM A951.
2. Galvanized after fabrication.
3. Width of joint reinforcement 40 mm (1 5/8-inches) less than nominal width of masonry wall or partition.
4. Cross wires welded to longitudinal wires.
5. Joint reinforcing at least 3000 mm (10 feet) in length.
6. Joint reinforcing in rolls is not acceptable.
7. Joint reinforcing that is crimped to form drip is not acceptable.
8. Maximum spacing of cross wires 400 mm (16 inches) to longitudinal wires.
9. Ladder Design:

- a. Longitudinal wires deformed // 4 mm (0.16 inch) // 5 mm (0.20 inch) diameter wire.
 - b. Cross wires // 2.6 mm (0.10 inch) // 4 mm (0.16 inch) diameter.
10. Trussed Design:
- a. Longitudinal and cross wires not less than 4 mm (0.16-inch nominal) diameter.
 - b. Longitudinal wires deformed.

2.4 ANCHORS, TIES, AND REINFORCEMENT

SPEC WRITER NOTES:

- 1. Change anchor type for projects with rigid insulation in cavity space.

A. Adjustable Veneer Anchor for Frame Walls:

- 1. Two-piece, adjustable anchor and tie.
- 2. Anchor and tie may be either type; use only one type throughout.
- 3. Loop Type:
 - a. Anchor: Screw-on galvanized steel anchor strap 2.75 mm (0.11 inch) by 19 mm (3/4 inch) wide by 225 mm (9 inches) long, with 9 mm (0.35 inch) offset and 100 mm (4 inch) adjustment. Provide 5 mm (0.20 inch) hole at each end for fasteners.
 - b. Ties: Triangular tie, fabricated of 5 mm (0.20 inch) diameter galvanized cold drawn steel wire. Ties long enough to engage the anchor and be embedded not less than 50 mm (2 inches) into the bed joint of the masonry veneer.
- 4. Angle Type:
 - a. Anchor: Minimum 2 mm (16 gage) thick galvanized steel angle shaped anchor strap. Provide hole in vertical leg for fastener. Provide hole near end of outstanding leg to suit upstanding portion of tie.

B. Rigid Anchors: Fabricate from steel bars bent to configuration indicated.

SPEC WRITER NOTES:

- 1. Corrugated wall ties should only be included for structures with short design service life.

C. Corrugated Wall Tie:

- 1. Form from 1.5 mm (0.0598 inch) thick corrugated, galvanized steel 30 mm (1-1/4 inches) wide by lengths so as to extend at least 100 mm (4 inches) into joints of new masonry plus 38 mm (1-1/2 inch) turn-up.
- 2. Provide 5 mm (3/16 inch) hole in turn-up for fastener attachment.

2.5 PREFORMED COMPRESSIBLE JOINT FILLER

- A. Thickness and depth to fill the joint as specified.
- B. Closed Cell Neoprene: ASTM D1056, Type 2, Class A, Grade 1.
- C. Non-Combustible Type: ASTM C612, Type V, 1800 degrees F.

2.6 ACCESSORIES

- A. Weeps: Glass fiber ropes, 10 mm (3/8 inch) minimum diameter, 300 mm (12 inches) long.

SPEC WRITER NOTES:

1. Select paragraph above or below for masonry weeps; below offers greater opportunity for cavity to pressure equalize.
- B. Mesh Weep/Vent: Free-draining mesh; made from polyethylene strands, of length required to extend from exterior face of stone to cavity behind, in color selected from manufacturer's standard.
 - C. Cavity Drain Material: Recycled polyester/polyethylene mesh trapezoidal shaped to maintain cavity air flow and drainage while suspending mortar droppings at unequal heights.
 - D. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells with loops for holding reinforcing bars in center of cells. Units are formed from 0.148-inch steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.
 - E. Masonry Cleaner:
 1. Detergent type cleaner selected for each type of masonry used.
 2. Acid cleaners are not acceptable.
 3. Use soap-less type specially prepared for cleaning brick or concrete masonry as appropriate.

PART 3 - EXECUTION**3.1 JOB CONDITIONS**

- A. Protection:
 1. Cover tops of walls with non-staining waterproof covering, when work is not in progress; secure to prevent wind blow off.
 2. On new work protect base of wall from mud, dirt, mortar droppings, and other materials that will stain face, until final landscaping or other site work is completed.
- B. Cold Weather Protection:
 1. Masonry may be laid in freezing weather when methods of protection are utilized.

2. Comply with MSJC and "Hot and Cold Weather Masonry Construction Manual".

3.2 CONSTRUCTION TOLERANCES

- A. Lay masonry units plumb, level and true to line within the tolerances as per MSJC requirements and as follows:
- B. Maximum variation from plumb:
 1. In 3,000 mm (10 feet) - 6 mm (1/4 inch).
 2. In 6,000 mm (20 feet) - 10 mm (3/8 inch).
- C. Maximum variation from level:
 1. In any bay or up to 6,000 mm (20 feet) - 6 mm (1/4 inch).
 2. In 12,000 mm (40 feet) or more - 13 mm (1/2 inch).
- D. Maximum variation from linear building lines:
 1. In any bay or up to 6,000 mm (20 feet) - 13 mm (1/2 inch).
 2. In 12,000 mm (40 feet) or more - 19 mm (3/4 inch).
- E. Maximum variation in cross-sectional dimensions of columns and thickness of walls from dimensions shown:
 1. Minus 6 mm (1/4 inch).
 2. Plus 13 mm (1/2 inch).
- F. Maximum variation in prepared opening dimensions:
 1. Accurate to minus 0 mm (0 inch).
 2. Plus 6 mm (1/4 inch).

3.3 INSTALLATION GENERAL

- A. Keep finish work free from mortar smears or spatters and leave neat and clean.
- B. Anchor masonry as specified in Paragraph, ANCHORAGE.
- C. Wall Openings:
 1. Fill hollow metal frames built into masonry walls and partitions solid with mortar as laying of masonry progresses.
 2. If items are not available when walls are built, prepare openings for subsequent installation.
- D. Tooling Joints:
 1. Do not tool until mortar has stiffened enough to retain thumb print when thumb is pressed against mortar.
 2. Tool while mortar is soft enough to be compressed into joints and not raked out.
 3. Finish joints in exterior face masonry work with a jointing tool, and provide smooth, water-tight concave joint unless specified otherwise.

4. Tool Exposed interior joints in finish work concave unless specified otherwise.

E. Lintels:

1. Lintels are not required for openings less than 1,000 mm (3 feet 4 inches) wide that have hollow metal frames.
2. Openings 610 mm (2 feet 0 inches) wide to 1600 m (5 feet 4 inches) wide with no structural steel lintel or frames, require a lintel formed of concrete masonry lintel or bond beam units filled with grout per ASTM C476 and reinforced with 1- #15m (1-#5) rod top and bottom for each 100 mm (4 inches) of nominal thickness unless shown otherwise.
3. Use steel lintels, for openings over 1600 m (5 feet 4 inches) wide, and brick masonry unless shown otherwise.
4. Provide length for minimum bearing of 100 mm (4 inches) at ends.

- F. Before connecting new masonry with previously laid, remove loosened masonry or mortar, and clean and wet work in place as specified under wetting.

- G. When new masonry partitions start on existing floors, machine cut existing floor finish material down to concrete surface.

H. Wetting and Wetting Test:

1. Test and wet brick in accordance with BIA 11B.
2. Do not wet concrete masonry units before laying.

3.4 ANCHORAGE

A. Veneer to Frame or Masonry Walls:

1. Use adjustable veneer anchors.
2. Fasten anchor to stud through sheathing with self-drilling and tapping screw, one at each end of loop type anchor. In masonry backup stagger ties in alternate courses.
3. Space anchors not more than 400 mm (16 inches) on center vertically at each stud or 600 mm (24 inches) maximum horizontally.

3.5 REINFORCEMENT

A. Joint Reinforcement:

1. Use as joint reinforcement in CMU wythe of combination brick and CMU, cavity walls, and single wythe concrete masonry unit walls or partitions.
2. Reinforcing may be used instead of individual ties for anchoring brick facing to CMU backup in exterior masonry walls.

SPEC WRITER NOTES:

1. Joint Reinforcement in brick required by Structural Division. Verify structural drawings indicate joint reinforcement spacing.
 3. Brick veneer over frame backing walls does not require joint reinforcement.
- B. Steel Reinforcing Bars:
1. Install in cells of hollow masonry units where required for vertical reinforcement and in bond beam units for lintels and bond beam horizontal reinforcement. Install in wall cavities of reinforced masonry walls where shown.

SPEC WRITER NOTES:

1. Verify drawings show location of brick expansion joints (BEJ) and CMU control joints (CJ).

3.6 BRICK EXPANSION AND CMU CONTROL JOINTS

- A. Provide brick expansion (BEJ) and CMU control (CJ) joints were shown on drawings.
- B. Keep joint free of mortar and other debris.
- C. Where joints occur in masonry walls:
 1. Install preformed compressible joint filler in brick wythe.
 2. Install cross shaped shear keys in concrete masonry unit wythe with preformed compressible joint filler on each side of shear key unless otherwise specified.
 3. Install filler, backer rod, and sealant on exposed faces.
- D. Use standard notched concrete masonry units (sash blocks) made in full and half-length units where shear keys are used to create a continuous vertical joint.
- E. Interrupt steel joint reinforcement at expansion and control joints unless otherwise shown.
- F. Fill opening in exposed face of expansion and control joints with sealant as specified in Section 07 92 00, JOINT SEALANTS.

SPEC WRITER NOTES:

1. Verify drawings clearly differentiate BEJ, CJ, building expansion joint, and seismic joints.

3.7 BUILDING EXPANSION AND SEISMIC JOINTS

- A. Keep joint free of mortar. Remove mortar and other debris.
- B. Install non-combustible, compressible type joint filler to fill space completely except where sealant is shown on joints in exposed finish work.

- C. Where joints are on exposed faces, provide depth for backer rod and sealant as specified in Section 07 92 00, JOINT SEALANTS, unless shown otherwise.

3.8 BRICKWORK

- A. Lay clay brick in accordance with BIA Technical Note 11 series.
- B. Laying:
1. Lay brick in running bond with course of masonry bonded at corners unless shown otherwise. // Match bond of existing building on alterations and additions. //
 2. Maintain bond pattern throughout.
 3. Do not use brick smaller than half-brick at any angle, corner, break or jamb.
 4. Where length of cut brick is greater than one half but less than a whole brick, maintain the vertical joint location of such units.
 5. Lay exposed brickwork joints symmetrical about center lines of openings.
 6. Before starting work, lay facing brick on foundation wall and adjust bond to openings, angles, and corners.
 7. Lay brick for sills with wash and drip.
 8. Build solid brickwork as required for anchorage of items.
- C. Joints:
1. Exterior and interior joint widths: Lay for three equal joints in 200 mm (eight inches) vertically, unless shown otherwise.
 2. Rake joints for pointing with colored mortar when colored mortar is not full depth.
- D. Weep Holes:
1. Install weep holes at 600 mm (24 inches) on center in bottom of vertical joints of exterior masonry veneer or cavity wall facing over foundations, bond beams, and other water stops in the wall.
 2. Form weep holes using wicks made of mineral fiber insulation strips turned up 200 mm (8 inches) in cavity. Anchor top of strip to backup to securely hold in place.
 3. Install cavity drain material.

SPEC WRITER NOTES:

1. Consult Mechanical-Electrical Service before including thermal insulation in exterior cavity-type masonry walls.
2. Coordinate with section building insulation for thickness of insulation

and allowance of air space behind exterior wythe.

3. Where hurricane driven rains are expected in Gulf States coordinate for installing bituminous damp proofing on cavity side of inner wythe. Use paragraph F3.

E. Cavity Type Exterior Walls:

1. Keep air space clean of mortar accumulations and debris.
 - a. Clean cavity by use of hard rubber, wood or metal channel strips having soft material on sides contacting wythes.
 - b. Lift strips with wires before placing next courses of horizontal joint reinforcement or individual ties // or adjustable cavity wall ties. //
- //2. Lay the interior wythe of the masonry wall full height where damp proofing is required on cavity face. Coordinate to install damp proofing prior to laying outer wythe. //
3. Insulated Cavity Type Exterior Walls:
 - a. Install the insulation against the cavity face of inner masonry wythe.
 - b. Place insulation between rows of ties or joint reinforcing or bond to masonry surface with a bonding agent as recommended by the manufacturer of the insulation.
 - c. Lay the outer masonry wythe up with an air space between insulation and masonry units.
4. Veneer Framed Walls:
 - a. Build with 100 mm (4 inches) of face brick over sheathed stud wall with air space.
 - b. Keep air space clean of mortar accumulations and debris.

3.9 CONCRETE MASONRY UNITS

A. Kind and Users:

1. Provide special concrete masonry shapes as required, // including lintel and bond beam units, sash units, and corner units //. Use solid concrete masonry units, where full units cannot be used, or where needed for anchorage of accessories.
2. Provide solid load-bearing concrete masonry units or grout the cell of hollow units at jambs of openings in walls, where structural members impose loads directly on concrete masonry, and where shown.

B. Laying:

1. Lay concrete masonry units with 10 mm (3/8 inch) joints, with a bond overlap of not less than 1/4 of the unit length.
2. Do not wet concrete masonry units before laying.
3. Bond external corners of partitions by overlapping alternate courses.
4. Lay first course in a full mortar bed.
5. Set anchorage items as work progress.
6. Where ends of anchors, bolts, and other embedded items, project into voids of units, completely fill such voids with mortar or grout.
7. Provide a //6 mm (1/4 inch) open joint// an open joint as indicated in the drawings// for caulking between // existing construction, // exterior walls, // concrete work, // and abutting masonry partitions.
8. Lay concrete masonry units with full face shell mortar beds and fill head joint beds for depth equivalent to face shell thickness.
9. Lay concrete masonry units so that cores of units, which are to be filled with grout, are vertically continuous with joints of cross webs of such cores completely filled with mortar.
10. Do not wedge the masonry against the steel reinforcing. Minimum 13 mm (1/2 inch) clear distance between reinforcing and masonry units.
11. Hold vertical steel reinforcement in place by centering clips, caging devices, tie wire, or other approved methods, vertically at spacing noted.
12. Grout cells of concrete masonry units, containing the reinforcing bars, solid as specified under grouting.

3.10 GROUTING

A. Preparation:

1. Clean grout space of mortar droppings before placing grout.
2. Close cleanouts.

B. Placing:

1. Consolidate each lift of grout after free water has disappeared but before plasticity is lost.
2. Interruptions: When grouting must be stopped for more than an hour, top off grout 40 mm (1-1/2 inch) below top of last masonry course.

3.11 PLACING REINFORCEMENT

- #### A. General:
- Clean reinforcement of loose rust, mill scale, earth, ice or other materials which will reduce bond to mortar or grout. Do not use reinforcement bars with kinks or bends not shown on the Contract

Drawings or final shop drawings, or bars with reduced cross-section due to excessive rusting or other causes.

- B. Position reinforcement accurately at the spacing indicated. Support and secure vertical bars against displacement. Horizontal reinforcement may be placed as the masonry work progresses. Where vertical bars are shown in close proximity, provide a clear distance between bars of not less than the nominal bar diameter or 25 mm (1 inch), whichever is greater.
- C. Splice reinforcement bars where shown; do not splice at other places unless accepted by the RE/COR. Provide lapped splices, unless otherwise indicated. In splicing vertical bars or attaching to dowels, lap ends, place in contact and wire tie.
- D. Provide not less than minimum lap as indicated on shop drawings, or if not indicated, as required by governing code.
- E. Embed metal ties in mortar joints as work progresses, with a minimum mortar cover of 15 mm (5/8 inch) on exterior face of walls and 13 mm (1/2 inch) at other locations.
- F. Embed prefabricated horizontal joint reinforcement as the work progresses, with a minimum cover of 15 mm (5/8 inch) on exterior face of walls and 13 mm (1/2 inch) at other locations. Lap joint reinforcement not less than 150 mm (6 inches) at ends. Use prefabricated "L" and "T" sections to provide continuity at corners and intersections. Cut and bend joint reinforcement as recommended by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures and other special conditions.
- G. Anchoring: Anchor reinforced masonry work to supporting structure as indicated.

3.12 CLEANING AND REPAIR

- A. General:
 - 1. Clean exposed masonry surfaces on completion.
 - 2. Protect adjoining construction materials and landscaping during cleaning operations.
 - 3. Cut out defective exposed new joints to depth of approximately 19 mm (3/4 inch) and repoint.
 - 4. Remove mortar droppings and other foreign substances from wall surfaces.
- B. Brickwork:
 - 1. First wet surfaces with clean water; then wash down with a solution of soap-less detergent. Do not use muriatic acid.

2. Brush with stiff fiber brushes while washing, and immediately thereafter hose down with clean water.
3. Free clean surfaces of traces of detergent, foreign streaks, or stains of any nature.

C. Concrete Masonry Units:

1. Immediately following setting, brush exposed surfaces free of mortar or other foreign matter.
2. Allow mud to dry before brushing.

- - - E N D - - -