

SECTION 04 21 19
STRUCTURAL CLAY TILE MASONRY

SECTION 04 21 19

STRUCTURAL CLAY TILE MASONRY

PART 1 GENERAL

4.01 REFERENCE STANDARDS

- A. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2018.
- B. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2018.
- C. ASTM C212 - Standard Specification for Structural Clay Facing Tile; 2022.
- D. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2019a, with Editorial Revision.

4.02 GENERAL REQUIREMENTS

- A. All work shall conform to the latest industry practices and standards as applicable.
- B. All work shall be performed by competent workmen trained and experienced in the particular type of work.
- C. All measurements required for proper execution of the contract work is the Contractor's responsibility. Before submitting bid, examine all existing conditions, which may impact on the work and include them in the bid price. No extra compensation will be allowed to the Contractor because of failure to collect full information as to the conditions affecting the contract work.

4.03 SCOPE OF WORK

- A. The Work of this Section includes to complete the unit masonry restoration and related work at Janitor's Closets as indicated on the Drawings and/or specified herein including, but not limited to, the following:
 - 1. Replace existing structural facing tile masonry units damaged during replacement of metal stairs, as required; at Entrance Lobby/First Floor Janitor's Closet enclosures (assume replacement of 5% of existing affected masonry areas for bidding purposes). Provide all other labor and materials as may be reasonably inferred to make the Work of this Section complete.

4.04 RELATED WORK SPECIFIED ELSEWHERE

- A. The following additional Sections contain requirements that relate to the Work of this Section:
 - 1. Section 02 41 19 – Selective Demolition and Removal
 - 2. Section 09 91 23 – Interior Painting

4.05 SUBMITTALS

- A. The following Catalog Cuts, Material Samples and other data pertaining to the Work of this Section shall be submitted in accordance with Division 01 – General Requirements, Section 01 33 00 Submissions:
 - 1. Manufacturer's Catalog Cuts: For each product/material specified.
 - 2. Sample of structural facing tile masonry unit.

4.06 DELIVERY / STORAGE / HANDLING

- A. Materials shall be new and shall be delivered to the job site in the manufacturer's original, unopened containers, with the brands and names clearly marked thereon. Opened or partially used sacks of mortar materials will not be accepted.
- B. Deliver, store and handle all materials to prevent inclusion of foreign matter and water, and avoid deterioration or damage. Until time of use, packaged materials shall be kept in original, unopened containers, with the seals unbroken and labels intact. Materials in broken containers

or in packages showing watermarks or other evidence of deterioration shall not be used and shall be immediately removed from the job site.

- C. All masonry units and cementitious materials shall be stored on elevated platforms, under cover and in a dry location to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion, and other causes. If masonry units become wet, do not install until they are in an air-dried condition.
- D. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

4.07 PROJECT CONDITIONS

- A. Stain Prevention (General): Prevent mortar and related materials from staining the surface of adjacent existing construction/finishes to remain. Immediately remove any such materials that come in contact with adjacent surfaces.

PART 2 PRODUCTS

5.01 UNIT MASONRY (GENERAL)

- A. Masonry work shall meet the requirements of Reference Standards RS 10-1 and RS 10-2 of the New York City Building Code, and the Board of Standards and Appeals, as applicable.
- B. Masonry work shall meet the requirements of the Ceramic Glazed Masonry Institute (CGMI).
- C. Masonry shall be new, sound and hard of the highest quality and conform to the requirements of this Section.
- D. Masonry manufacturer shall be approved by the Authority.

5.02 STRUCTURAL FACING TILE (SFT)

- A. Classification: Non-load bearing fired clay tile conforming to ASTM C212 and to match existing (Contractor to verify in field). Tile shall be free from defects that would mar the appearance or affect the structural strength of the wall, complying with all applicable NYC Building Code requirements
- B. Size: 12" x 5" nominal face dimensions x 4" nominal thickness to match existing masonry units (Contractor to verify in field).
- C. Finish: Natural clay finish (unglazed) to match existing tile (Contractor to verify in field).

5.03 MORTAR MATERIALS

- A. General: Mortar for all masonry shall conform to ASTM C270, Type N. Mortar shall consist of one (1) part Portland cement, one (1) part hydrated lime and five (5) parts damp, loose sand. The compressive strength of the mortar shall be 750 psi at 28 days. Admixtures shall not be utilized. Mortar shall be accurately proportioned; retempering shall not be permitted.
- B. Cement: Portland cement conforming to ASTM C150, Type I.
- C. Lime: Quick soaking, hydrated, high calcium lime conforming to ASTM C207.
- D. Sand: For mortar shall conform to ASTM C144.
- E. Water: Shall be clean, fresh and free from oils, acids, alkalis and organic matter.

5.04 MASONRY CLEANERS

- A. Manufacturer's standard-strength, general-purpose cleaners designed for removing excess mortar stains/smears, efflorescence and other construction stains from new exposed SFT surfaces without resulting in discoloration or damage to the new masonry. Cleaning agents shall be expressly approved for intended use by manufacturer of masonry units being cleaned. Subject to compliance with requirements, products that may be used to clean unit masonry surfaces shall include, but are not limited to, the following (wherever possible, non-acidic cleaners shall be used):
 1. Enviro Klean Mortar & Grout Remover as manufactured by Prosoco, Inc. (environmentally safe cleaner without harsh, inorganic acids to be mixed with water at the job site and

intended for use on new masonry surfaces within 24 – 72 hours after completion of installation).

2. Sure Klean 600 Detergent as manufactured by Prosoco, Inc. (concentrated acidic cleaner safer than muriatic acid intended for use with cold water rinse on new masonry surfaces with no acid burning or streaking).
 3. or Equal.
- B. Water for cleaning shall be clean, potable, free of oils, acids, alkalis, salts and organic matter. Where warm water is required, heat to temperature of 140 deg. F to 180 deg. F.

PART 3 EXECUTION

6.01 MASONRY INSTALLATION (GENERAL)

- A. Workmanship
1. Lay all new masonry plumb, true to line, with level and accurately spaced courses complying with all specified construction tolerances. Break each course joint with joint below. Bond shall be kept plumb throughout. Alignment of head joints shall be such that when plumb line is dropped from top to bottom of entire surface, the line shall show within the width of every head joint in any line of joints.
 2. Where required to fit adjoining existing construction, cut units with approved type masonry saw to provide clean, sharp and unchipped edges. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
 3. Masonry units shall be handled in such a manner as to prevent undue chipping and breakage. No damaged units shall be laid in exposed faces of the work.
- B. Mortar Joints
1. Horizontal joint thickness in all new masonry work shall match and align with adjacent existing joints (Contractor to verify in field). Vertical joints in new masonry work shall match and align with adjacent existing joints (Contractor to verify in field). A slight variation in vertical joints is acceptable where necessary to maintain bond pattern and where inconspicuous.
 2. All masonry work shall be set in soft plastic mortar spread smooth and even without furrowing to obtain proper embedment and bond. Mortar shall not be spread so far ahead of masonry being laid that it becomes stiff and loses its plasticity. Ends of masonry units shall be buttered with sufficient mortar to completely fill head joints.
 3. When mortar has become stiff enough to resist the pressure of a thumb, it should be properly tooled. Exposed masonry shall have full joints tooled concave. Tooling shall be done in such a manner as to compact the surface mortar and close shrinkage cracks. Joints for concealed masonry shall be cut off flush.
 4. If voids are found in any portion of the new masonry, remove that portion of the wall immediately and replace with new work. Mortar that has started to harden shall be replaced with fresh mortar.
- C. Cleaning
1. Where new masonry work adjoins existing masonry, Contractor shall properly clean and lightly wet exposed surfaces of set masonry to remain, removing all traces of old mortar and other foreign substances to ensure a proper bond.
 2. Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears prior to tooling joints.
 3. After mortar is thoroughly set and cured, clean exposed masonry by removing large mortar particles by hand with wooden paddles and non-metallic scrape hoes or chisels.
 4. Perform final cleaning of new exposed masonry surfaces using approved type masonry cleaner as specified in accordance with the manufacturer's recommendations. Wet masonry surfaces with water prior to application of cleaner and remove cleaners promptly by rinsing thoroughly with clear water. Protect adjacent existing surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film or waterproof masking tape.

5. When cleaning new SFT masonry surfaces, care shall be taken to protect adjacent existing painted SFT masonry to remain.

D. Finishes

1. Prepare new SFT for painting as specified in Section 09 91 23 – Interior Painting.

6.02 STRUCTURAL FACING TILE RESTORATION

- A. After removal of existing metal stairs, including stringers, above Janitor's Closets, carefully remove any masonry units damaged during the stair removal procedure. When removing existing SFT, the Contractor shall take care not to damage adjoining existing installations/finishes to remain.
- B. After cleaning and preparation as required of adjacent existing masonry to remain, install new SFT to match removed units. New SFT units shall be installed in a running bond pattern properly "keyed-in" to adjacent existing masonry as specified. New horizontal joints shall align with adjacent existing coursing. Top of new SFT units shall be cleanly cut with a masonry saw as required to match the angle of adjacent units and the new stair stringers above.
- C. Clean and paint new masonry as specified.

6.03 3.03 CLEANING / PROTECTION

- A. Upon completion of the work of this Section, all excess unused materials, containers, equipment, scaffolding, etc. shall be promptly removed from the job site. Masonry waste and other debris shall be removed and legally disposed of off the property.
- B. All existing walls and other adjacent surfaces that are stained or damaged by the work shall be repaired or restored at no additional cost to the Authority. All work and adjacent surfaces shall be left in a clean and undamaged condition acceptable to the CM.

END OF SECTION 04 21 19