

ITEM 10560.01 M – DIMENSION STONE MASONRY AND ANCHORS

DESCRIPTION:

The work shall consist of completely furnishing, placing, erecting and installing dimension stone masonry for the new Control house, the new NW gatehouse, the new NE gatehouse, the new SE gatehouse and the new Generator House. The work shall include all stone and anchors indicated on the drawings and as specified herein.

Concrete work for the walls shall be specified under a separate item number.

MATERIALS:

Materials shall meet the material requirements of the following sections, subsections and as noted herein and as indicated in the contract plans.

Dimension Stone Masonry and Stone Anchors:

The dimension stone masonry and anchorage system shall consist of all dimension stone units, supports, anchors, and inserts, as indicated on the drawings. The dimension stone veneer system shall conform to the design as indicated on the drawings including locations of joints, sizes, shapes, colors and textures of the stones. All detailing including arches, keystones, quoins, sills and lintels, shall be included as part of the dimension stone masonry veneer system. Stone units shall be free from cracks and seams.

Stone shall conform to the following:

Marble Institute of America (MIA)

National Building Quarries Association, Inc. (NBQA)

American Society for Testing and Materials (ASTM)-ASTM C99

The structural design shall comply with all requirements for seismic design, wind loading and thermal movement.

Anchors shall conform to the following American Society of Testing Materials (ASTM) standards:

ASTM A167	– Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
ASTM A240	– Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
ASTM A82	– Steel Wire, Plain, for Concrete Reinforcement
ASTM A580	– Stainless Steel Wire

Anchors shall be a combination of dovetail slots, flexible ties, rigid bars, and split anchors. All anchors shall be type 304 stainless steel. Anchors shall be attached with self-tapping screw fasteners.

The contractor shall provide an anchorage system design certified by a New York state licensed professional engineer. The structural design shall comply with all requirements for seismic design, wind loading and thermal movement. As prescribed by:

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1. AASHTO Standard Specifications for Highway Bridges, 1996 edition
2. Building Code of New York State, 2002 edition
3. NYS Steel Construction Manual, latest edition

All required calculations shall be provided.

Stone Types:

Stone types and colors shall be as indicated on the drawings.

Mortar:

Mortar shall be type M and shall meet the requirements of ASTM C 270.

Compressive Strength: 17.2 Mpa
Water Retention Maximum: 75%
Air Content Maximum: 18%

Mortar joints shall be concave with a combination of 13mm and 9.5mm joint widths, as indicated on the drawings.

Mortar color shall be selected by the engineer from manufacturer's palette of standard colors.

Weep/Vent Holes: Weep/vent holes shall be honeycomb type that allows passage of moisture from cavity and restricts ingress of other foreign matter. Size shall be as indicated on drawings.

Provide sample section of the masonry wall as indicated and described on the drawings.

CONSTRUCTION DETAILS:

Contractor shall submit shop drawings indicating all dimensions for all stones, stone anchor types and dimensions, and stone details, to the engineer for approval.

Samples: Provide samples of each stone that represents the type, color and texture as indicated on the drawings. Provide shop drawings indicating dimensions anchorages, layouts and construction and setting details.

A mock-up shall be provided for approval by the Engineer. The mock-up shall be as indicated on the drawings, indicating all specified stones, finishes, anchorage's, setting beds and sealants.

Stone supplier shall have a minimum of 10 years of experience specializing in supplying the required specified types of stones. The stone installer shall have a minimum of 5 years of experience specializing in the installation of the stone cladding.

Stones of a given color range and grain, shall come from a single quarry.

Cut stone to the required dimension and profiles as indicated on the drawings. Provide all sinkages for anchors, fasteners, and supports required for stone installation.

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All stones shall be stored in a manner to ensure against cracking, staining and discoloration. Prior to start of work inspect work of other trades for suitability for installation of stone. Install all supports and attachments as per approved shop drawings. Install stones that are free of chips, voids stains and other defects. Stones shall be cleaned prior to installation. Do not use wire brushes or implements which will mark or damage surfaces. Establish lines, levels and coursing as indicated on the approved shop drawings. Stone Tolerances shall be as indicated on the shop drawings.

Anchors shall be spaced as required, based upon the anchorage system design, including anchors at corners, expansion joints and around openings. Unless otherwise required by the structural anchorage system design, anchors shall be positioned as follows: at corners, expansion joints and around openings anchors shall be positioned a maximum of 203mm from the edges. In the stone field, anchors shall be spaced 406mm maximum on center, both horizontally and vertically. Anchors shall extend a minimum of half the depth of stone.

Stones shall be set accurately, plumb and true to line unless otherwise shown on the drawings. Set stones on anchors embedded in mortar joints. Tool mortar joints for a concave finish.

Clean stone after setting and pointing. Remove excess mortar and other encrusted material.

Clean stone surface as required with mild detergent and water. Surface shall be scrubbed with non-metallic tools.

METHOD OF MEASUREMENT:

Dimension stone masonry will be measured as the number of square meters (including joints within the dimension masonry) measured on the plane of all the exposed surfaces of the dimension stone masonry incorporated in the work.

BASIS OF PAYMENT:

The unit price bid shall include the cost of furnishing all labor, materials and equipment necessary to complete the work as indicated herein, as shown on the contract drawings and in accordance with the Specifications.