

SECTION 04 42 00

EXTERIOR STONE CLADDING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This Section describes the requirements for furnishing and installing exterior slab stone veneer at site retaining walls, site stair walls, at new exterior exit stair (Broadway side) and as indicated.

1.02 SUBMITTALS

- A. General: As specified in Section 01 33 00.
- B. Samples: Two samples, minimum 12-inch x 12-inch, of each type, color, grade and finish of stone required. Show range of color, pattern, and finish.
- C. Shop Drawings: Show stone sizes, dimensions, sections and profiles, arrangement and provisions for jointing, anchoring, and fastening stone in place, back-up support system including framing, bracing, angles, and other supports, and details for lifting devices and reception of other work. Show location of inserts for stone anchors and supports to be built into other work.
- D. Calculations: Furnish for information only, calculations signed by a registered structural engineer, showing that stone, anchorage, and setting materials comply with code requirements. Include test data and/or reports to verify characteristics of materials as required by codes.
- E. Maintenance Instructions: Include recommended frequency and materials for cleaning and sealing stonework.

1.03 QUALITY ASSURANCE

- A. Fabricator Qualifications: Successfully fabricated stone similar to the specified quality for a period of not less than 5-years and equipped to furnish the quantity required.
- B. Tolerances:
 - 1. Variation from Plumb:
 - a. For lines and surfaces of columns, walls and arises, do not exceed 1/4-inch in 10-feet, 3/8-inch in a story height or 20-foot maximum, or 1/2-inch in 40-feet or more.
 - b. For external corners, expansion joints and other lines, do not exceed 1/4-inch in any story or 20-feet maximum, or 1/2-inch in 40-feet or more.
 - c. Faces of slab stone shall be free from waves, projections, or depressions and shall not vary from a true plane in excess of 3/16-inch.
 - 2. Variation from Level: For grades required for exposed horizontal grooves and other lines, do not exceed 1/4-inch in 20-feet, or 3/4-inch in 40-feet or more.
 - 3. Variation of Linear Building Line: For position in plan and related portion of walls and partitions, do not exceed 1/2-inch in 20-feet maximum, or 3/4-inch in 40-feet or more.
 - 4. Variation in Mortar Joint Thickness: Do not exceed bed joint thickness by more than 1/16-inch.
- C. Attachment of stone shall be designed in accordance with the design criteria stated in the California Building Code.

- D. Stone fabricator shall engineer structural mounting system supporting stone to structural steel. Do not commence with stone fabrication until shop drawings are approved by the County's Representative and Structural Engineer.
- E. Mock-Up: After approval of samples, provide a minimum of 3 sample panels of stone proposed to be used showing range of color, texture and workmanship to be expected in the completed work. Show full range of color variation of the stone and pattern, joint treatment, and color of joint mortar or sealant. Modify as directed until mock-up is approved by the County's Representative. Each sample panel shall be constructed of a minimum of four 12-inch x 12-inch stone pieces with grout joints.
 - 1. Locate mock-ups on the site in locations where directed by the County's Representative.
 - 2. Retain during construction as a standard for judging completed work. Demolish and remove from the site when directed by the County's Representative.

1.04 DESIGN CRITERIA

- A. General: The requirements for design of stone veneer attachment and support system includes the requirement for cooperative and coordinated work with the County's Representative to develop the connections, support, and back-up structure required for fastening and support of stone veneer. The drawings are diagrammatic and intended to indicate the external dimensions, organization of units, profiles, conditions, and scope. The Developer Design/Builder is responsible for compliance with the design criteria.
- B. Structural Loads: The design of stone anchorage and back-up system shall conform to the loads specified in the Uniform Building Code and applicable state and local codes.
- C. Anchorage and Support: Work under this Section includes back-up structure required for the support of stone veneer, including but not limited to, framing, angles, and bracing, and supports and anchors required for securing the stone veneer in place. Back-up structural support, anchors, and fastening system shall be designed by a [California](#) registered structural engineer employed by the Developer Design/Builder.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. General: As specified in Section 01 61 00.
- B. Protect stone during storage and construction against moisture, soiling, staining and physical damage.
- C. Handle stone to prevent chipping, breakage, soiling and other damage.
 - 1. Do not use pinch or wrecking bars without protecting edges of stone with wood or other rigid materials.
 - 2. Lift with wide-belt type slings; do not use wire rope or ropes containing tar or other substances which might cause staining.
 - 3. If required, use wood rollers and provide cushion at end of wood slides.
- D. Store stone on wood skids or pallets, covered with non-staining, waterproof membrane.
 - 1. Place and stack skids and stones to distribute weight evenly and to prevent breakage or cracking.
 - 2. Protect from weather with waterproof, non-staining covers or enclosures, allow air to circulate around stones.
- E. Protect mortar materials and accessories from weather, moisture and contamination with earth and other foreign materials.

1.06 JOB CONDITIONS

- A. Review installation procedures and coordination with other work affected by stonework.
- B. Cold Weather Protection: Install stone when temperature in area surrounding work is 40-deg. F. or above. Provide suitable means to heat materials, protect work from cold. Maintain temperature of work above 40-deg. F. for at least 24-hours after installation.

PART 2 - PRODUCTS

2.01 STONE

- A. Stone: Granite veneer to match existing Hall of Justice, 1 ½-inch thick, mechanically fastened.

2.02 MORTAR AND GROUT

- A. Portland Cement: ASTM C150, Type I, white or grey as required for mortar color.
- B. Masonry Cement: ASTM C91, non-staining.
- C. Hydrated Lime: ASTM C207, Type S.
- D. Sand: ASTM C144, except graded with 100-percent passing the No. 16 sieve for 1/4-inch and narrower joints.
- E. Water: Clean and potable.
- F. Colored Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with record of satisfactory performance in stone mortars. Color as selected by the County's Representative.
- G. Grout: Sand-portland cement or commercial portland cement, color to match approved mock-ups.

2.03 ACCESSORIES

- A. Stone Veneer Anchors: Type and size required to anchor and fasten stone in place. Fabricate anchors and dowels from AISI Type 302/304 stainless steel.
- C. Anchor Bolts, Nuts and Washers:
 - 1. Fabricate from AISI Type 302/304 stainless steel if in contact with stone.
 - 2. Provide ASTM A307 regular low carbon steel bolts and nuts, hot-dip galvanized, complying with ASTM A153, if not in contact with stone.
- D. Setting Buttons: Lead or plastic buttons, thickness required for the joint size, size required to maintain uniform joint width.
- E. Joint Sealants: As specified in Section 07 92 00.
- F. Cleaner: Marble Techniques "Stone Care 6" or approved equal. Where initial cleaning requires the use of an acid type cleaner, use "Tone Clean 2" or approved equal.
- G. Sealer: Marble Techniques "Marble Seal 3" or approved equal.

2.04 MORTAR AND GROUT MIXING

- A. Mortar: Non-staining, cement/line mortar, complying with ASTM C270, Type S Proportion Specification, using specified materials.
- B. Pointing Mortar and Grout: Mix to match pointing mortar or grout in approved mock-up. Select and proportion pigments with other ingredients to produce color required. Do not exceed pigment-to-cement ratio of 1-to-10, by weight.

2.05 FABRICATION

- A. General: Fabricate as detailed on shop drawings.
 - 1. Provide holes and sinkages cut or drilled for anchors, fasteners, supports and lifting devices required to secure stonework in place.
 - 2. Cut and back-check as required for proper fit and clearance.
- B. Accurately cut slab stone to shape and dimensions indicated on final shop drawings, maintaining fabrication tolerances of applicable stone associations.
 - 1. Dress joints straight and at 90-degree angle to face.
 - 2. Provide quirk-mitered corners. Provide for cramp anchorage in top and bottom bed joints of corner units.
 - 3. Joint Width: As directed by the County's Representative.
- C. Slab Stone Thickness: Provide stone of thickness required for unit sizes. Saw-cut back surfaces which will be concealed in finished work.
- D. Fabricate molded work, to produce stone shapes having a uniform profile throughout their entire length and with precisely formed arrises slightly eased to prevent snapping, and matched joints between units.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Coordination: Furnish installers of other work with drawings and templates showing location of inserts for stone anchors and supports.
- B. Clean stone before setting by scrubbing with fiber brushes followed by drenching with clear water.
 - 1. Use mild cleaning compounds containing no caustic or harsh fillers or abrasives.
 - 2. If not wet at time of setting, drench or sponge stone.

3.02 INSTALLATION

- A. Install stone with skilled mechanics, and employ skilled stone fitters at the site to do field cutting as stone is set.
- B. Ferrous Metal:
 - 1. Apply a heavy coat of bituminous paint on concealed ferrous metal surfaces prior to setting stone.
 - 2. Do not coat ferrous metal exposed in finished work.

3. Do not apply coating to stainless or non-ferrous metals.
- C. Set stone in accordance with drawings and final shop drawings.
1. Provide anchors, supports, fasteners and other attachments required to secure stone in place.
 2. Shim and adjust accessories.
 3. Fill holes, slots and other sinkages for anchors, dowels, fasteners and supports with epoxy during setting.
 4. Install stone with uniform joints. Fill joints in exterior stone with sealant as specified in Section 07 92 00. Fill joints in interior stone with grout.
- D. Erect plumb and true with joints uniform in width and accurately aligned.
1. Use joint spacers to maintain specified joint width.
 2. Field verify existing substrate and notify the County's Representative if expansion joints are required. Submit drawings showing proposed expansion joint locations for County's Representative's review if expansion joints are required.
 3. Joints shall be in straight alignment.
- E. Face of each piece of stone shall be flush with the faces of adjacent pieces of stone to within 1/16-inch total tolerance. Provide grout spots at anchor locations and elsewhere as required to render the installation secure.

3.03 ADJUST AND CLEAN

- A. Remove and replace stone units which are broken, chipped, stained or otherwise damaged.
1. Remove and replace units which do not match adjoining stonework, where directed.
 2. Provide new matching units, install as specified and eliminate evidence of replacement.
 3. Repoint or seal defective and unsatisfactory joints as required to provide a neat, uniform appearance.
- B. Clean stonework not less than 6-days after completion of work, using clean water and stiff-bristle brushes. Do not use wire brushes, acid type cleaning agents or other cleaning compounds with caustic or harsh fillers.
- C. Protect stonework from damage, discolorations, and deterioration during construction and until time of Substantial Completion.

END OF SECTION