

**SECTION 09380****STONE COUNTERTOPS****PART 1 GENERAL****1.01 SUMMARY****A. Section Includes:**

1. Interior Granite
 - a. Vanity Tops
 - b. Countertops
 - c. Backsplashes
 - d. Aprons

B. Related Sections:

1. Section 07 92 00 (07920) - Joint Sealants
2. Section 09 30 13 (09310) - Ceramic Tiling
3. Section 12 30 00 (06400) - Architectural Woodwork
4. Section 12 36 23 (06415) – Plastic Countertops
5. Section 12 36 40 (09380) - Stone Countertops
6. Section 12 36 61 (09385) - Engineered Stone Countertops
7. Section 12 36 61.13 (09385) – Cultured Marble Countertops
8. Division 22 (15) for Plumbing Fixtures

1.02 SUBMITTALS**A. Submit "Letter of Conformance" in accordance with Section 01 33 00 (01330) with the following supporting data:**

1. Product data for each type of stone, stonework accessory, and other manufactured products required.
2. Shop Drawings detailing fabrication and installation of stone. Include cutting and setting Drawings indicating sizes, dimensions, sections, and profiles of stones, arrangement and provisions for jointing, supporting, anchoring, and bonding stonework, and details showing relationship with, attachment to, and reception of related work.
 - a. Include large-scale details of decorative surfaces and inscriptions.
3. Samples for verification purposes of stone in form of sets for each color, grade, finish, type, and variety of stone required and consisting of stones not less than 12 inches square. Include two or more stones in each set of samples showing the full range of variations in appearance characteristics to be expected in completed work.
 - a. Colored pointing mortar and grout samples for each color required showing full range of exposed color and texture to be expected in completed work.
4. Maintenance Data: For stone tile to include in maintenance manuals.

1.03 QUALITY ASSURANCE

- A. Single-Source Responsibility for Stone:** Obtain each color, grade, finish, type, and variety of stone from a single quarry with resources to provide materials of consistent quality in appearance and physical properties, including the capacity to cut and finish material without delaying the progress of the work.



- B. Single-Source Responsibility for Mortar and Grout Materials: Obtain mortar ingredients uniform quality and from one manufacturer for each cementitious and admixture component and from one source or producer for each aggregate.
- C. Single-Source Responsibility for Other Materials: Obtain each type of stone accessory, sealant, and other materials from one manufacturer for each product.
- D. Installer Qualifications; Engage an experienced installer who has completed stone cladding similar in material, design, and extent to that indicated for project that has resulted in construction with a record of successful in-service performance.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to project site in undamaged condition.
- B. Store and handle stone and related materials to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion, breakage, chipping, or other causes.
 - 1. Do not use pinch or wrecking bars.
 - 2. Lift with wide-belt-type slings where possible. Do not use wire rope or ropes containing tar or other substances that might cause staining. If required to move stone, use wood rollers with cushions at end of wood slides.
 - 3. Store stone on wood skids or pallets covered with nonstaining, waterproof membrane. Place and stack skids and stones to distribute weight evenly and to prevent breakage or cracking of stones.
 - 4. Protect stored stone from weather with waterproof, nonstaining covers or enclosures, but allow air to circulate around stones.
 - 5. Store cementitious materials off the ground, under cover, and in dry location.

1.05 PROJECT CONDITIONS

- A. Do not set stone when air temperature or material temperature is below 50 degrees F. (10 degrees C.).
- B. Maintain minimum ambient temperatures of 50 degrees F. (10 degrees C.) during installation and for seven days after completion, unless higher temperatures are required by fabricator's or supplier's instructions.
- C. Field Measurements: Verify dimensions of construction to receive stone countertops by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the work.
 - 1. Established Dimensions: Where field measurements cannot be made without delaying the work, establish dimensions and proceed with fabricating countertops without field measurements. Provide allowance for trimming at site and coordinate construction to ensure actual dimensions correspond to established dimensions.

PART 2 PRODUCTS

2.01 MATERIALS, GENERAL

- A. Comply with referenced standards and other requirements indicated applicable to each type of material required.

- B. Provide matched blocks from a single quarry for each type, variety, color, and quality stone required. Extract blocks from a single bed of quarry stratum especially reserved project, unless stones from randomly selected blocks are acceptable to Owner's Representative for aesthetic effect.
- C. Quarry stone in manner to ensure that as-quarried block orientations yield finished stone with required characteristics.
- D. Make quarried blocks available for inspection by Owner's Representative.

2.02 GRANITE

- A. Granite Building Stone Standard: ASTM C568
- B. MANUFACTURERS
 - 1. Approved Manufacturers:
 - a. CA International – Stone Division (913-837-5604)
 - b. Designer Tile & Stone (732-225-1877)
 - c. [EX, Inc.](#) (212-758-2593)
 - d. The Stone Resource (336-889-7800)
 - e. Romala Stone, Inc. (310-201-9696)
- C. Materials, Finish and Color: Refer to Interior Finish Index.

2.03 MORTAR MATERIALS

- A. Portland Cement: ASTM C150, Type I or II, natural color, white, or a blend to produce mortar color indicated.
 - 1. Low-Alkali Cement: Not more than 0.60 percent total alkali when tested according to ASTM C114.
- B. Hydrated Lime: ASTM C207, Type S.
- C. Portland Cement - Lime Mix: Packaged blend of portland cement complying with ASTM C150, Type I or Type III, and hydrated lime complying with ASTM C207.
 - 1. For pigmented mortars, use colored portland cement-lime mix of formulation required to produce color indicated or, if not indicated, as selected from manufacturer's standard formulations. Pigments shall not exceed ten percent of portland cement by weight for mineral oxides nor two percent for carbon black.
- D. Aggregate: ASTM C144
- E. Water: Potable

2.04 ADHESIVES, SEALANTS AND SEALERS

- A. General: Use only adhesives formulated for stone and Ceramic Tiling and recommended by their manufacturer for the application indicated.
- B. Water-cleanable Epoxy Adhesive: ANSI A118.3, water-cleanable, tile-setting epoxy adhesive.
- C. Stone Seam Adhesive: 2-part, epoxy or polyester stone adhesive with an initial set time of not more than 2 hours at 70 deg F.
 - 1. Color: [Match stone](#).
 - 2. Manufacturers:
 - a. Approved Manufacturers:
 - 1) Epoxy Adhesive: "Akepox"; [Akemi North America](#) (877-462-5364).

2) Polyester Adhesive: "Akepox"; [Akemi North America](#) (877-462-5364).

3) Approved Substitution

- D. Sealant for Countertops: Clear silicone sealant complying with requirements of Division 07 Section - "Joint Sealants".
- E. Penetrating Sealer: Penetrating sealer that protects the exposed faces of stone and grout from staining. Sealer shall be UV transparent; non-yellowing; VOC compliant; mold and mildew resistant; and USDA approved as safe on food handling surfaces. Material shall exceed ADA standards for slip resistance at traffic areas.

2.05 GROUT

A. Grout Colors: Provide colors to comply with the following requirements:

- 1. Refer to Interior Finish Index.

2.06 DIMENSION STONE ACCESSORIES

- A. Setting Buttons: Lead or resilient plastic buttons, nonstaining to stone, sized to suit joint thicknesses and bed depths of dimension stonework involved without intruding into required depths of joint sealants or causing third-side adhesion between sealant and setting button.
- B. Direct-mount Fastener System: Stainless steel stone panel fasteners designed to be applied directly to wall surfaces or to wood or metal furring by fastening with self-drilling screws. Fasteners lock into grooves routed into back of interior stone facing panels, eliminating the need for setting spots. Fasteners are secured to wall framing, furring, or sheet metal reinforcing strips built into wall.

2.07 DIMENSION STONE FABRICATION

- A. General: Fabricate dimension stonework in sizes and shapes required to comply with requirements indicated, including details on Drawings and final Shop Drawings.
 - 1. For granite, comply with recommendations of National Building Granite Quarries Association's (NBGQA) "Specifications for Architectural Granite".
- B. Cut and drill sinkages and holes in stones for anchors, fasteners, supports, and lifting devices as indicated or needed to set dimension stonework securely in place. Set beds to fit supports.
- C. Cut stones to produce pieces of thickness, size, and shape indicated to comply with fabrication and construction tolerances recommended by applicable stone association or, if none, by stone source, for faces, edges, beds, and backs.
 - 1. Clean sawn backs of stones to remove rust stains and free iron particles.
- D. Contiguous Work: Provide chases, reveals, reglets, openings, and similar features as required to accommodate contiguous work.
- E. Fabricate molded work, including washes and drips, to produce stone shapes having a uniform profile throughout their entire length and with precisely formed arises slightly eased to prevent snapping, and matched at joints between units.
- F. Carve and cut decorative surfaces and inscriptions to conform with Drawings. Use skilled stone carvers experienced in the successful performance of work similar to that indicated.
- G. Finish exposed faces and edges of stones to comply with requirements indicated for finish under each type and application of stone required and to match approved samples and field-constructed mock-ups.

- H. Carefully inspect finished stones at fabrication plant for compliance with requirements relative to qualities of appearance, material, and fabrication. Replace defective stones with ones that do comply.

1. Grade and mark stones for overall uniform appearance when assembled in place. Natural variations in appearance are acceptable if installed stones match range of colors and other appearance characteristics represented in approved samples and field-constructed mock-ups.

2.08 STONE COUNTERTOP FABRICATION

- A. General: Fabricate stone countertops in sizes and shapes required to comply with requirements indicated, including details on Drawings and Shop Drawings.
- B. Thickness: Provide thickness indicated, but not less than the following:
1. Nominal Thickness: Refer to Drawings and Interior Finish Index
 2. Edge Detail: Provide edge detail indicated on Drawings.
- C. Seams: Fabricate countertops without seams, if seams are required, fabricate sections indicated for joining in field, with seams as follows:
1. Bonded Seams: 1/32 inch or less in width.
- D. Cutouts and Holes for Lavatories, Sinks, and Fittings:
1. Undercounter Lavatories: Make cutouts for undercounter lavatories in shop using template or pattern furnished by lavatory manufacturer. Form cutouts to smooth, even curves with edges at right angles to top. Ease juncture of cutout edges with tops, and finish edges to match tops.
 2. Fittings: Drill countertops in shop for plumbing fittings, undercounter soap dispensers, and similar items.

2.09 MORTAR AND GROUT MIXES

- A. General: Comply with referenced standards and with manufacturers' instructions relative to mix proportions, mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures needed to produce mortars and grouts of uniform quality and with optimum performance characteristics.
1. Do not add admixtures including coloring pigments, air-entraining agents, accelerators, retarders, water repellent agents, antifreeze compounds, or calcium chloride, unless otherwise indicated.
 2. Mixing: Combine and thoroughly mix cementitious materials, water, and aggregates in a mechanical batch mixer, unless otherwise indicated. Discard mortars and grout when they have reached their initial set.
- B. Portland Cement/Lime Setting Mortar for Non-paving Installations: Comply with ASTM C270, Proportion Specification, for types of mortars and stone indicated below:
1. Set stone with Type S mortar.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine surfaces to receive dimension stonework, and conditions under which dimension stonework will be installed, with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of dimension stonework. Do not proceed with installation until unsatisfactory conditions have been corrected.



1. For the record, prepare written report, endorsed by installer, listing conditions detrimental to performance of dimension stonework.

3.02 PREPARATION

- A. Advise installers of other work about specific requirements relating to placement of inserts, flashing reglets, and similar items to be used by stonework installer for anchoring, supporting, and flashing of dimension stonework. Furnish installers of other work with Drawings or templates showing locations of these items.
- B. Protect dimension stonework during installation as follows:
 1. Prevent staining of stone from mortar, grout, sealants, and other sources. Immediately remove such materials from stone without damage to latter.
- C. Clean stone surfaces that have become dirty or stained prior to setting to remove soil, stains, and foreign materials. Clean stones by thoroughly scrubbing stones with fiber brushes followed by a thorough drenching with clear water. Use only mild cleaning compounds that contain no caustic or harsh filler or abrasives.

3.03 SETTING DIMENSION STONE, GENERAL

- A. Execute dimension stonework by skilled mechanics, and employ skilled stone fitters at the site to do necessary field cutting as stones are set.
 1. Use power saws to cut stones. For exposed edges, produce edges that are cut straight and true.
- B. Set stones to comply with requirements indicated on Drawings and final Shop Drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure dimension stonework in place. Shim and adjust anchors, supports, and accessories to set stones accurately in locations indicated with uniform joints of widths indicated and with edges and faces aligned according to established relationships and indicated tolerances.
- C. Construction Tolerances: Set stones to comply with the following tolerances:
 1. Variation from Plumb: For vertical lines and surfaces, do not exceed 1/8" in 96", or 1/4" maximum.
 2. Variation from Level: For lintels, sills, chair rails, horizontal bands, horizontal grooves, and other conspicuous lines, do not exceed 1/8" in 10 feet, 1/4" in 20 feet, or 3/8" maximum.

3.04 INSTALLING COUNTERTOPS

- A. General: Install countertops over plywood subtops with a full spread of water-cleanable epoxy adhesive.
- B. Bond seams with stone seam adhesive and draw tight as countertops are set. Mask areas of countertops adjacent to seams to prevent adhesive smears. Use clamps to ensure countertop units are properly aligned and seams are minimum width.
- C. Complete cutouts not finished in shop. Mask areas of countertops adjacent to cutouts while cutting to prevent damage.
- D. Install backsplash and end splash by adhering to wall with water-cleanable epoxy adhesive. Leave 1/16-inch gap between countertop and splash for filling with sealant. Use temporary shims to ensure uniform spacing.
- E. Apply sealant to seams and to gap between countertops and splashes; comply with Section 07 92 00 (07920) "Joint Sealants."



3.05 ADJUSTING AND CLEANING

- A. Remove and replace or repair stonework of the following description:
 - 1. Broken, chipped, stained, or otherwise damaged stones. Broken, chipped, stained, or otherwise damaged stone may be repaired, providing the methods and results are acceptable to Owner's Representative.
 - 2. Defective joints.
 - 3. Stones and joints not matching approved samples.
 - 4. Stonework not complying with other requirements indicated.
- B. Replace in manner that results in stonework matching approved samples and field-constructed mock-ups, complying with other requirements, and showing no evidence of replacement.
- C. Clean stonework not less than six days after completion of work, using clean water and stiff bristle fiber brushes. Do not use wire brushes, acid-type cleaning agents, cleaning compounds with caustic or harsh fillers, or other materials or methods that could damage stone.

3.06 SEALER APPLICATION

- A. All surfaces must be clean and free from all loose grit and debris, satins, dirt, and wax coatings. Surfaces shall remain dry for a minimum of 24 hours before the application of sealer and remain dry for 24 hours after the application of sealer.
- B. Floor surface temperature must be above 50° F. and below 90° F.
- C. Test on a small area before using to determine if the product is acceptable with type of stone.
- D. A uniform coating of sealer shall be applied AFTER installation of stone materials. Install in strict accordance with Sealer manufacturer's recommendations.

3.07 PROTECTION

- A. Provide final protection and maintain conditions in a manner acceptable to fabricator and installer ensuring dimension stonework being without damage or deterioration at time of Substantial Completion.

END OF SECTION