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NOTE ITEMS THROUGHOUT THE SPECIFICATION WHERE THE SPECIFICATION STATES "SHOWN ON DRAWINGS". THE DRAWINGS NEED TO SHOW THESE ITEMS OR MODIFY THE TEXT.

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SECTION 12 36 40

STONE COUNTERTOPS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Stone countertops.
2. Stone side and backsplashes.

B. Related Sections:

1. Division 05 Section "Metal Fabrications" for steel countertop supports.

1.2 REFERENCES

- A. ASTM C 119-04: Terminology Relating to Dimension Stone
- B. ASTM C 170-90 (1999): Test Method for Compressive Strength of Dimension Stone
- C. ASTM C 615-03: Specification for Granite Dimension Stone
- D. ASTM C 880-98: Test Method for Flexural Strength of Dimensional Stone

1.3 SUBMITTALS

- A. Product Data: For each [**stone type,**] stone accessory, and other manufactured products.
 - 1. Each stone type: Physical properties
- B. Shop Drawings: Include plans, sections, details, and attachments to other work. Show fabrication and installation details for dimension stone cladding:
 - 1. Include dimensions and profiles of stone units.
 - 2. Show locations and details of joints.
 - 3. Show locations and details of anchors and supports.
- C. Stone Samples: (2) Sets for each stone required, exhibiting the full range of color characteristics expected; not less than 12 inches square.
 - 1. Grout Samples: Full range of exposed color and texture.
 - 2. Sealant Samples: For each type and color of joint sealant required.
- D. Sealant Compatibility Test Report: Submit test report from sealant manufacturer, in accordance with Division 07 Section "Joint Sealants" stating that sealants will not stain stone.
- E. Maintenance Data: Provide maintenance manuals for stone countertops. Include stone-care products recommended by stone source.

1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Skilled workers who custom-fabricate stone countertops similar to work of this Project.
- B. Source Limitations for Stone: Obtain each variety of stone from a single quarry.
 - 1. Obtain each variety of stone from a single quarry, whether specified in this Section or in another Section of the Specifications.
 - 2. Make stone slabs available for Architect to examine for appearance characteristics.
 - a. Architect will select aesthetically acceptable slabs and will indicate aesthetically unacceptable portions of slabs.
- C. Mockup: Build mockup to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Build mockup of typical countertop as shown on Drawings.
2. Approved mockup may become part of the completed Work.

1.5 PROJECT CONDITIONS

- A. Field Measurements: Verify dimensions of construction to receive stone countertops by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 STONE SOURCE

- A. Varieties and Source:
 1. Stone: **[Insert stone variety]** by Coldspring.

2.2 STONE MATERIAL

- A. Granite: ASTM C 615.
- B. Cut stone from one block or contiguous, matched blocks in which natural markings occur.
- C. Match Architect's samples.
- D. Granite Type **[insert type]**:
 1. Stone Variety: **[Insert stone variety]** by Coldspring.
 2. Location: Exterior Wall Panels.
 3. Finish:
 - a. [Polished]
 - b. [Honed]
 - c. [Diamond 8]
 - d. [Thermal]
 - e. [Diamond 10].
 4. Thickness: Not less than the following:
 - a. [13/16 inch (+1/8" -1/16")] [20 mm]
 - b. [1-3/16 inches (+1/8" -1/16")] [30 mm]
 - c. [1-9/16 inches (+1/8" -1/16")] [40 mm]
 - d. [1-15/16 inches (+1/8" -1/16")] [50 mm]

2.3 STONE ACCESSORIES

- A. General: Use only adhesives formulated for stone and recommended by manufacturer for the application shown on Drawings.
- B. Water-Cleanable Epoxy Adhesive: ANSI A118.3, with a VOC content of 65 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

- C. Water-Cleanable Epoxy Grout: ANSI A118.3, chemical-resistant, water-cleanable, tile-setting and -grouting epoxy, with a VOC content of 65 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- D. Stone Adhesive: 2-part epoxy or polyester adhesive, formulated specifically for bonding stone to stone, with an initial set time of not more than 2 hours at **70 deg F**, and with a VOC content of 65 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - 1. Color: Match stone.
- E. Sealant for Countertops: Manufacturer's standard sealant of characteristics indicated below that comply with applicable requirements in Division 07 Section "Joint Sealants" and will not stain the stone it is applied to.
 - 1. Single-component, neutral-curing silicone sealant.
 - 2. Color: As selected by Architect.
 - 3. Use sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- F. Stone Cleaner: Cleaner specifically formulated for stone types, finishes, and applications indicated, as recommended by stone producer. Do not use cleaning compounds containing acids, caustics, harsh fillers, or abrasives.
- G. Stone Sealer: Colorless, stain-resistant sealer that does not affect color or physical properties of stone surfaces, as recommended by stone producer for application indicated.

2.4 STONE FABRICATION, GENERAL

- A. General: Fabricate stone per requirements, including Drawings and Shop Drawings.
 - 1. Granite: NBGQA's "Specifications for Architectural Granite."
- B. Select stone for intended use to prevent fabricated units from containing cracks, seams, and starts that could impair structural integrity or function.
 - 1. Repairs that are characteristic of the varieties specified are acceptable provided they do not impair structural integrity or function and are not aesthetically unpleasing, as judged by Architect.
- C. Grade and mark stone for final locations to produce assembled countertop units with an overall uniform appearance.
- D. Fabricate stone countertops in sizes and shapes required to comply with requirements indicated, including details on Drawings and Shop Drawings.
 - 1. Clean sawed backs of stones to remove rust stains and iron particles.
 - 2. Dress joints straight and at right angle to face, unless otherwise indicated.
 - 3. Cut and drill sinkages and holes in stone for anchors, supports, and attachments.
 - 4. Provide openings, reveals, and similar features as needed to accommodate adjacent work.

5. Fabricate molded edges with machines having abrasive shaping wheels made to reverse contour of edge profile to produce uniform shape throughout entire length of edge and with precisely formed arris slightly eased to prevent snipping, and matched at joints between units. Form corners of molded edges as indicated with outside corners slightly eased, unless otherwise indicated.
 6. Finish exposed faces of stone to comply with requirements indicated for finish of each type of stone required and to match approved Samples and mockups. Provide matching finish on exposed edges of countertops, splashes, and cutouts.
- E. Carefully inspect finished stone units at fabrication plant for compliance with requirements for appearance, material, and fabrication. Replace defective units.

2.5 STONE COUNTERTOPS

- A. General: Comply with recommendations in MIA's "Dimension Stone - Design Manual."
- B. Nominal Thickness: Gage backs to provide units of identical thickness.
1. [13/16 inch (+1/8" -1/16")] [20 mm]
 2. [1-3/16 inches (+1/8" -1/16")] [30 mm]
 3. [1-9/16 inches (+1/8" -1/16")] [40 mm]
 4. [1-15/16 inches (+1/8" -1/16")] [50 mm]
- C. Edge: Straight, slightly eased at top.
- D. Splashes: Provide 13/16 inch thick backsplashes and side splashes.
1. Height: As shown on Drawings.
 2. Top-Edge Detail: As shown on Drawings
- E. Joints: Fabricate countertops in sections for joining in field, with joints at locations shown on Drawings and as follows:
1. Joints: **1/16 inch** in width.
- F. Cutouts and Holes:
1. Undercounter Fixtures: Make cutouts for undercounter fixtures in shop using template or pattern furnished by fixture manufacturer. Form cutouts to smooth, even curves.
 2. Counter-Mounted Fixtures: Prepare countertops in shop for field cutting openings for counter-mounted fixtures. Mark tops for cutouts and drill holes at corners of cutout locations.
 3. Fittings: Drill countertops in shop for plumbing fittings, counter mounted soap dispensers, and similar items.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates indicated to receive stone countertops and conditions under which stone countertops will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.

1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean dirty or stained stone surfaces by removing soil, stains, and foreign materials before setting. Clean stone by thoroughly scrubbing with fiber brushes and then drenching with clear water. Use only mild cleaning compounds that contain no caustic or harsh materials or abrasives. Allow stone to dry before installing.

3.3 CONSTRUCTION TOLERANCES

- A. Variation from Plumb: For vertical lines and surfaces, do not exceed 1/16 inch in 48 inches.
- B. Variation from Level: Do not exceed 1/8 inch in 96 inches, 1/4 inch maximum.
- C. Variation in Joint Width: Do not vary joint thickness more than 1/4 of nominal joint width.
- D. Variation in Plane at Joints (Lipping): Do not exceed 1/64-inch difference between planes of adjacent units.
- E. Variation in Line of Edge at Joints (Lipping): Do not exceed 1/64-inch difference between edges of adjacent units, where edge line continues across joint.

3.4 INSTALLATION OF COUNTERTOPS

- A. Install countertops over plywood subtops with full spread of water-cleanable epoxy adhesive.
- B. Do not cut stone in field. If stone countertops or splashes require additional fabrication not specified to be performed at Project site, return to fabrication shop for adjustment.
- C. Set stone to comply with requirements shown on Drawings and Shop Drawings. Shim and adjust stone to location shown. Install countertops with uniform joints of widths shown and with edges and faces aligned.
- D. Bond joints with stone adhesive and draw tight as countertops are set. Mask areas of countertops adjacent to joints to prevent adhesive smears.
- E. Space joints with **1/16-inch** gap for filling with **[grout] [sealant]**. Use temporary shims to ensure uniform spacing.
- F. 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.
- G. Grout joints to comply with ANSI A108.10. Remove temporary shims before grouting. Tool grout uniformly and smoothly with plastic tool.
- H. Apply sealant to joints; comply with Division 07 Section "Joint Sealants." Remove temporary shims before applying sealant.

3.5 ADJUSTING AND CLEANING

- A. In-Progress Cleaning: Clean countertops as work progresses. Remove adhesive, grout, mortar, and sealant smears immediately.
- B. Remove and replace stone countertops of the following description:
 - 1. Broken, chipped, stained, or otherwise damaged stone. Stone may be repaired if methods and results are approved by Architect.
 - 2. Defective countertops.
 - 3. Defective joints, including misaligned joints.
 - 4. Interior stone countertops and joints not matching approved Samples and mockups.
 - 5. Interior stone countertops not complying with other requirements indicated.
- C. Replace in a manner that results in stone countertops matching approved Samples and mockups, complying with other requirements, and showing no evidence of replacement.
- D. Following installation and after sealants are cured, clean stone countertops using clean water and soft rags.
- E. Sealer Application: Apply stone sealer to comply with stone producer's and sealer manufacturer's instructions.

END OF SECTION 123640