SECTION 042130 - MICROCOTTA

PART 1 - GENERAL

1.1 SUMMARY

A. Provide Architectural Microcotta, cast architectural polymer resin units manufactured in accordance with the Contract Documents.

1.2 WORK INCLUDED

A. Furnish all labor, materials and equipment necessary to perform the specified work in this Section and as shown on the Drawings. The work shall include but not be limited to the following:

1. Scope

a. Project Scope
b. Project Scope
c. Project Scope

1.3 UNIT PRICES

A. Work of this Section is affected by unit prices specified in Division 01 Section "Unit Prices."

1. Unit prices apply to authorized work covered by [**quantity allowances**] [**estimated quantities**].
2. Unit prices apply to additions to and deletions from Work as authorized by Change Orders.

1.4 ALLOWANCES

A. Remove and replace existing masonry unit with Microcotta budget allowance.

1. X Number of Additional Units to be carried in the Base Bid
2. X Number of Additional Molds to be carried in the Base Bid

1.5 SUBMITTALS

A. Product Data: Include manufacturer's specifications and other product data for each manufactured product including instructions for storage, handling and use.

B. Shop Drawings:

1. Include plans, elevations, sections, details, and attachments to other work in compliance with the drawings and specification.
2. The Contractor shall furnish the Microcotta manufacturer with all drawings, details and information necessary for the manufacture of micro cotta units, proposed method of installation and elevations showing location of the units to be replaced.
3. Submit shop, fabrication and setting drawings to the Architect for approval prior to production of any material. Contractor shall be responsible for all field dimension verification.

4. Shop drawings shall show sections, dimensions, and connection with other work and detailed in accordance with good structural practice.
5. Provisions for drainage, expansion joints, or other sealant joints.
6. Provisions for flashing, lighting fixtures, conduits, and weep holes as required.
7. Replacement and repair anchors. Include details of anchors within individual units, with locations of anchors and dimensions of holes and recesses in units required for anchors. The Contractor shall furnish the Microcotta manufacturer with all drawings, details and information necessary for the manufacture of micro cotta units, proposed method of installation and elevations showing location of the units to be replaced.
8. Anchorage: Microcotta unit anchorage shall be coordinated with the Microcotta manufacturer and designed by a structural engineer and submitted to the Architect for approval.

C. Samples for Verification: For the following:

1. Each type of Microcotta unit to be used for replacing existing units. Include sets of Samples as necessary to show the full range of shape, color, and texture to be expected.
    a. Patterns for Microcotta: Before manufacturing Microcotta units, submit the actual patterns from which molds will be made for casting new units. Package and ship to prevent loss or damage or make patterns available for inspection by Architect at fabrication plant.
2. Preliminary Microcotta Color Sample Approval:
    a. Submit two 6” x 6” samples showing typical color range and finish for preliminary acceptance.
3. Final Microcotta Approval:
    a. After approval of the preliminary color sample, submit two (2) final samples at minimum 12” x 12” which when inspected and approved become the standard for quality, color range, texture and color finish.
        1) All materials shall conform to the approved samples within the range.

1.6 QUALITY ASSURANCE

A. The Microcotta installation work shall be performed by a firm having a minimum of five (5) years documented experience in the installation of similar projects of similar size and scope of this Project.

B. The Microcotta manufacturing work shall be performed by a firm having documented experience in the manufacturing of materials specified and on projects of similar size and scope of this Project.

1. **Mockups:** Prepare a working field sample; demonstrate all methods, materials and workmanship required for the Project. Approved field sample will serve as a standard for the balance of micro cotta unit installation procedures. If approved, field sample may or may not remain as part of the finished work.

2. **Replacement Units:** Prepare sample areas not smaller than 48 inches (1200 mm) in least dimension. Erect sample areas in existing walls unless otherwise indicated, to demonstrate quality of materials, workmanship, and blending with existing work. Include a minimum of four Microcotta units.
3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

A. Pre-installation Conference: Conduct conference at [**Project site**] <**Insert location**>.

1. Review methods and procedures related to "Microcotta" installation including, but not limited to, the following:
   a. Construction schedule. Verify availability of materials, personnel, equipment, and facilities needed to make progress and avoid delays.
   b. Materials, material application, sequencing, tolerances, and required clearances.
   c. <**Insert agenda items**>.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver Microcotta components secured to shipping pallets and protected from damage and discoloration.

B. Protect corners from damage. Deliver each piece of Microcotta with code mark or setting number on unexposed face, corresponding to Shop Drawings, using non-staining paint.

C. Deliver other materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.

D. Store Microcotta components and installation materials in accordance with manufacturer’s instructions.

1. Store Microcotta components on pallets with non-staining, waterproof covers.
2. Ventilate under cover to prevent condensation.
3. Prevent contact with dirt.

E. Handling:

1. Protect Microcotta components during handling and installation to prevent chipping, cracking, or other damage.

1.8 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit work to be performed according to manufacturers' written instructions and specified requirements.

1.9

PART 2 - PRODUCTS

2.1 MASONRY MATERIALS

A. Replacement Material: Microcotta; Freedom Cement, LLC, 24 East Brookfield Road, North Brookfield, MA 01535. info@freedomcement.com. Phone: 866-254-7277.

1. Provide new Microcotta units to match existing deteriorated terra cotta units in body composition, physical properties, colors, color variation within units, surface texture, unit profile, and dimensions.

a. Physical Properties:

1) Water Absorption: 0.1 % per ASTM D570.

2) Compressive Strength: 4,000 psi per ASTM D695.

3) Coefficient of Linear Expansion: 0.000030 inch per inch per degree F per ASTM D696.

4) Izod Impact Strength: 0.60 ft-lbf per square inch per ASTM D256.

5) Flammability: Pass, UL-94 Horizontal Burn Test

2.2 ACCESSORIES

A. Anchor pins and dowels should be stainless steel. Anchors to be designed by a Professional Structural Engineer.

B. Microcotta Anchors: Type and size indicated or, if not indicated, to match existing anchors in size and type. Fabricate anchors from [**Type 304**] [**Type 316**] stainless steel.

C. Joint Sealant and Backing: As specified in Division 07 Section "Joint Sealants."

2.3 FABRICATION

A. Shapes: Unless otherwise indicated on Drawings, provide the following:

1. Suitable wash on exterior sills, copings, projecting courses, and components with exposed top surfaces.

2. Drips on projecting components, wherever possible.

3. Replicate exact profile and finish of stones submitted to manufacturer for duplication.

B. Reinforcement: Provide reinforcement as required to withstand handling and structural stresses.

1. Comply with ACI 318.

2. Provide reinforcement of a minimum of 0.25 percent of cross-section area.

3. Minimum wall thickness to be 3/4 inch (19 mm).

C. Tolerances: Fabricate "Microcotta" components within specified tolerances.

1. All dimensions: Plus or minus 1/8 inch (3 mm).

2. Maximum Bow, Camber, or Twist: Length/360.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine construction to receive Microcotta components. Notify Architect if construction is not acceptable. Do not begin installation until unacceptable conditions have been corrected.

3.2 INSTALLATION

A. General: Install Microcotta components in conjunction with masonry complying with requirements of Division 04 Section "Unit Masonry."

B. Setting:

1. Do not use equipment in a manner that could damage "Microcotta" components.
2. Fill dowel holes and anchor slots completely with mortar on non-shrink grout.
3. Fill vertical joints with sealant, as specified.
4. Make all joints 3/8 inch (9.5 mm), except as otherwise detailed.
5. Sponge face of each stone to remove excess setting materials.
6. Tool joints to a slight concave profile.

C. Sealant Joints:

1. Comply with requirements of Division 07 Section "Joint Sealants."
2. Prime ends of Microcotta components, insert properly sized foam backing rod, and install sealant using sealant gun.
3. Provide sealant joints at following locations and as otherwise detailed:
    a. Microcotta components with exposed tops.
    b. Joints at relieving angles.
    c. At control and expansion joints.
    d. Perimeters open to weather.

D. Mortar Joints

1. Ensure the face of the joints is clean and free of contamination.
2. Mix the epoxy in accordance with the recommendation as stated on the product data sheet for Sikadur 32 Hi Mod (or approved equal).
3. Use a brush to apply the epoxy to all surfaces to receive mortar.
4. Apply the bedding material while the epoxy is still within its tack free time.
5. Once tack free remove epoxy as it will be a bond breaker.

3.3 TOLERANCES

A. Installation Tolerances: Comply with manufacturers recommendations, unless otherwise specified.

1. Variation from Plumb: Do not exceed 1/8 inch in 10 feet (3 mm in 3 m) or 1/4 inch in 20 feet (6 mm in 6 m) or more.
2. Variation from Level: Do not exceed 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 3/8 inch (9 mm) maximum.
3. Variation in Joint Width: Do not vary joint thickness more than 1/8 inch in 36 inches (3 mm in 900 mm) or 1/4 of nominal joint width, whichever is less.
4. Variation in Plane Between Adjacent Surfaces (Lipping): Do not exceed 1/16-inch (1.5-mm) difference between planes of adjacent units or adjacent surfaces indicated to be flush with units.

3.4 ADJUSTING

A. Surface Repair:

1. Repair chipping and other surface damage noticeable when viewed in direct daylight at 10 feet (3 m).
2. Repair with matching touch-up material provided by manufacturer and in accordance with manufacturer's instructions.
3. Repair methods and results to be approved by Architect and noted on "as-built" drawings for future reference.

3.5 CLEANING

A. In-Progress Cleaning:

1. Clean Microcotta before sealants are applied.
2. Cleaner:
   a. Wet surfaces with water before applying cleaner.
   b. Apply cleaner to Microcotta in accordance with manufacturer's instructions.
   c. Remove cleaner promptly by rinsing thoroughly with clean water.

3.6 PROTECTION

A. Protect Microcotta components from splashing and other damage.

END OF SECTION 042130