SECTION 047000

ARCHITECTURAL STONE VENEER

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Architectural simulated stone veneer and trim.

1.2 RELATED SECTIONS

A. Section 05400 - Cold Formed Metal Framing.

B. Section 06160 - Sheathing.

C. Section 07600 - Flashing and Sheet Metal.

D. Section 07920 - Joint Sealants.

E. Section 09240 - Portland Cement Plastering.

1.3 REFERENCES

A. American National Standards Institute (ANSI): ANSI A118.4 Specifications for Latex-Portland Cement Mortar.

B. American Society for Testing and Materials (ASTM):
1. ASTM C 39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
2. ASTM C 67 - Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.
3. ASTM C 144 - Standard Specification for Aggregate for Masonry Mortar.
4. ASTM C 177 - Standard Test Method for Steady-State Head Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
5. ASTM C 207 - Standard Specification for Hydrated Lime for Masonry Purposes.
6. ASTM C 270 - Standard Specification for Mortar for Unit Masonry.
7. ASTM C 482 - Standard Test Method for Bond Strength of Ceramic Tile to Portland Cement.
8. ASTM C 567 - Standard Test Method for Determining Density of Structural Lightweight Concrete.
9. ASTM C 847 - Standard Specification for Metal Lath.
10. ASTM C 932 - Standard Specification for Surface-Applied Bonding Compounds for Exterior Plastering.
11. ASTM C 979 - Standard Specification for Pigments for Integrally Colored Concrete.
12. ASTM C 1032 - Standard Specification for Woven Wire Plaster Base.
13. ASTM C 1059 - Standard Specification for Latex Agents for Bonding Fresh To Hardened Concrete.
14. ASTM D 226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.

C. International Code Council (ICC):
1. ICC Evaluation Service - Evaluation Report AC51- Acceptance Criteria for Precast Stone Veneers.
2. ICC Evaluation Service - Evaluation Report ESR-1215 - Eldorado Stone, Eldorado Brick and Eldorado Adobe Veneers and Eldorado Accents.

D. Underwriter's Laboratory (UL): Building Materials Directory.

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Masonry Veneer Manufacturers Association (MVMA) see masonryveneer.org:
1. Preparation instructions.
2. Storage and handling requirements.
3. Installation methods.

C. Selection Samples: Standard sample board consisting of small-scale pieces of veneer units showing full range of textures and colors.

D. Verification Samples: Following initial sample selection submit "laid-up" sample board using the selected stone and mortar materials and showing the full range of colors expected in the finished Work; minimum sample size: 3 feet by 3 feet (1 m by 1 m).

E. Quality Assurance/Control Submittals:
1. Qualifications:
a. Proof of manufacturer qualifications.
b. Proof of installer qualifications.
2. Regulatory Requirements: Evaluation reports.
3. Installation instructions for related materials.

F. Closeout Submittals: Reference Section 01780 - Closeout Submittals; submit following items:
1. Maintenance Instructions.
2. Special Warranties.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Experienced mason familiar with installation procedures for manufactured veneer.

B. Product Certifications:
1. ICC Evaluation Service - Evaluation Report ESR-1215.
2. UL - Classification listing in Building Materials Directory: UL 546T (F8002).

C. Mock-Up: Provide a mock-up for evaluation of final appearance.
1. Prepare 4 foot by 4 foot (1220 mm by 1220 mm) sample at a location on the structure as selected by the Architect. Use approved selection sample materials and colors.
2. Obtain Architect's approval.
3. Protect and retain sample as a basis for approval of completed manufactured stone work. Approved sample may be incorporated into completed work.
4. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
5. Refinish mock-up area as required to produce acceptable work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction..

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.8 WARRANTY

A. Manufacturer warranty: Period of fifty years against manufacturing defects when used on structures conforming to local building codes and when installed in accordance with manufacturer's written instructions.
   1. Warranty coverage specifically excludes damage resulting from wall movement, settlement of the building, contact with chemicals or paint, discoloration due to contaminates, staining or oxidation.
   2. Warranty coverage is limited to replacement or repair of defective materials only and does not cover labor to remove or replace materials. Warranty coverage is limited to the original purchaser.

PART 2 PRODUCTS

2.1 MANUFACTURERS

a. Substitutions: Requests for substitutions shall be made in writing <u>at least ten days prior</u> to the date of the Bid Opening and must meet the requirements set forth in Instructions to Bidders.

b. Basis of Design Manufacturer: El Dorado Stone

2.2 STONE VENEER:

A. Veneer Unit Properties: Precast stone veneer units and accent pieces consisting of Portland cement, lightweight aggregates, and mineral oxide pigments.
   1. Compressive Strength: ASTM C 192 and ASTM C 39¸ 5 sample average: greater than 1¸800 psi (12.4MPa).
   2. Shear Bond: ÅSTM C 482: 50 psi (345kPa).
   3. Water Absorption: ICC Evaluation Service AC 51 (Section 4.6 and Table 2): Less than 22 percent when density is less than 85 PCF; less than 18 percent when density is less than 105 PCF.
   4. Freeze-Thaw Test: ÅSTM C 67: Less than 3 percent weight loss and no disintegration.
   5. Thermal Resistance: ÅSTM C 177: 0.473 at 1.387 inches (35 mm) thick.

B. Units:
   1. Profile: Mountain Ledge¸ include matching corner pieces.
      a. Accent Color: Bitteroot
      b. Accent Color: Durango
      c. Accent Color: Mesa Verde
      d. Accent Color: Shasta
      e. Accent Color: Sierra
      f. Accent Color: Yukon

2.3 RELATED MATERIALS

A. Weather Resistive Barrier: ASTM D 226, Type 1, No. 15, non-perforated asphalt-saturated felt paper.

B. Reinforcing: Complying with code agency requirements for the type of substrate over which stone veneer is installed.

1. ÅSTM C 847, 2.5lb/yd2 (1.4kg/m2) galvanized expanded metal lath.
2. ASTM C 847¸ 3.4lb (1.8 kg/m2) galvanized 3/8 inch (9.5 mm) rib lath.
3. ÅSTM C 1032, 18 gauge (1.3 mm) woven wire mesh.

C. Mortar:
1. Cement: Cement complying with ASTM C 270.
2. Lime: ASTM C 207.
3. Sand: ÅSTM C 144¸ natural or manufactured sand.
4. Color Pigment: ASTM C 979¸ mineral oxide pigments.
5. Water: Potable.
6. Pre-Packaged Latex-Portland Cement Mortar: ANSI A118.4.

D. Bonding Agent:
1. Exterior integral bonding agent meeting ASTM C 932.
2. Exterior integral bonding agent meeting ÅSTM C 1059 Type II.

E. Sealer:
1. Water based silane or siloxane masonry sealer¸ clear.
2. Water based silane or siloxane masonry sealer, semi-gloss.

2.4 MORTAR

A. Standard Installation (Grouted Joints):
1. Mix mortar in accordance with ÅSTM C 270¸ Type N or S.
   a. Add color pigment in grout joint mortar in accordance with pigment manufacturer's instructions.
2. Mix mortar in accordance with manufacturer's mortar preparation instructions.
   a. Add color pigment in grout joint mortar in accordance with pigment manufacturer's instructions.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. Examine substrates upon which work will be installed.

C. Commencement of work by installer is acceptance of substrate.

D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Protection: Protect adjacent work from contact with mortar.

B. Clean surfaces thoroughly prior to installation.

C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install and clean stone in accordance with Standard Installation Grouted Joint.

C. Install and clean stone in accordance with Jointless/Dry-Stacked.

D. Apply sealer in accordance with sealer manufacturer's installation instructions.

3.4 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

3.5 FIELD QUALITY CONTROL

A. Manufacturer's Field Services: Manufacturer's Field Service Representative shall make periodic site visits for installation consultation and inspection as requested by Owner.

3.6 CLEANING

A. Remove protective coverings from adjacent work.

B. Cleaning Veneer Units:
1. Wash with soft bristle brush and water/granulated detergent solution.
2. Rinse immediately with clean water.

C. Removing Effloresence:
1. Allow veneer to dry thoroughly.
2. Scrub with soft bristle brush and clean water.
3. Rinse immediately with clean water; allow to dry.
4. If efflorescence is still visible, repeat above procedure using a solution of 1 part household vinegar and 5 parts water.
5. Rinse immediately with clean water.

END OF SECTION