SECTION 04 4313.18 – ADHERED LIMESTONE MASONRY VENEER

PART 1- GENERAL

1.01 SECTION INCLUDES

A. Adhered limestone masonry veneer units and accessories.

1.02 RELATED REQUIREMENTS

A. Section 03 3000 – Cast-in-Place Concrete: **[Inserts] [Weld plates]** in concrete.

B. Section 04 2000 – Unit Masonry: **[Inserts] [Stone trim]** in unit masonry.

C. Section 05 5000 – Metal Fabrications: Steel framing and support fabrications.

D. Section 07 2100 – Thermal Insulation.

E. Section 07 2500 – Weather Barriers: Weather resistant barrier.

F. Section 07 6200 – Sheet Metal Flashing and Trim: Flashing materials.

G. Section 07 9200 – Joint Sealants.

1.03 DEFINITIONS

A. ASTM – American Society for Testing and Materials (www.astm.org).

B. AWS – American Welding Society (www.aws.org).

C. ILIA – Indiana Limestone Institute of America (www.iliai.com).

D. IMI – International Masonry Institute (imiweb.org).

1.04 REFERENCE STANDARDS

A. ASTM C97/C97 - Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone; 2015.

B. ASTM C99/C99M - Standard Test Method for Modulus of Rupture of Dimension Stone; 2015.

C. ASTM C144 – Standard Specification for Aggregate for Masonry Mortar; 2011.

D. ASTM C150/C150M – Standard Specification for Portland Cement; 2016.

E. ASTM C170/C170M - Standard Test Method for Compressive Strength of Dimension Stone; 2016.

F. ASTM C207 – Standard Specification for Hydrated Lime for Masonry Purposes; 2006 (Reapproved 2011).

G. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2014a.

H. ASTM C305 - Standard Practice for Mechanical Mixing of Hydraulic Cement Pastes and Mortars of Plastic Consistency; 2014.

I. ASTM C482 -

J. ASTM C568/C568M – Standard Specification for Limestone Dimension Stone; 2015.

K. ASTM C847 – Standard Specification for Metal Lath; 2014a.

L. ASTM C1063 - Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster; 2016a.

M. ASTM C1242 – Standard Guide for Selection, Design, and Installation of Dimension Stone Attachment Systems; 2016.

N. ASTM C1780 - Standard Practice for Installation Methods for Adhered Manufactured Stone Masonry Veneer; 2016.

1.05 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate limestone masonry assemblies with rain drainage, flashing, sills and trim, and other adjoining work.

B. Preinstallation Meeting:
   1. Attendees:
      a. Owner.
      b. Architect.
      c. Limestone masonry manufacturer's representative.
      d. Installer's whose work interfaces with or affects limestone masonry including installers of **[doors]**, **[windows]**, **[storefront]**, **[curtain wall]**, and **[_____]**.
   2. Review and finalize construction schedule.
   3. Verify availability of materials, installer's personnel, equipment, and facilities needed to maintain schedule.
   4. Review means and methods related to installation, including manufacturer's written instructions.
   5. Examine support conditions for compliance with requirements, including alignment and attachment to structural members.
   6. Review flashings, special masonry details, wall penetrations, openings, and condition of other construction that affects this Work.
   7. Review temporary protection requirements for during and after installation of this Work.

1.06 SUBMITTALS

A. See Section 01 3000 – Administrative Requirements, for submittal procedures.

B. Product Data: Submit manufacturer's product data sheets including certified laboratory test reports for limestone, accessories, and other products required.

C. Shop Drawings: Submit fabrication and installation layouts of limestone masonry units; including exterior elevations, details of edge conditions, joints, profiles, corners, sills, anchorage and attachment system, trim, flashings, closures, accessories, and special details.
   1. Include in shop drawings details as developed by cladding engineer in accordance with specified requirements.
   2. Include large scale details of decorative surfaces and inscriptions.
   3. Include mechanical anchoring and framing of preassembled units showing epoxy joint construction.

D. Samples: Submit [two] or [three] samples for each type of limestone masonry required, [at least 12 inch (305 mm) high by 12 inch (305 mm) wide by 1 inch (25.4 mm) thick] or [in sizes representative of materials specified].
   1. Sets of samples to represent range of variations in color and finish as expected in completed work.
   2. Submit samples of joint sealants for each type and color required.

E. Delegated Design Submittals: Submit the following data on limestone that has been signed and stamped by Professional Engineer registered in state the project is located who certifies preparing or supervising

the preparation of design data in compliance with specified performance requirements and recognized engineering principles and practices.
1. Engineering calculations.
2. Connection details.

F. Test and Evaluation Reports: Submit on each type of limestone masonry system provided for project based on evaluation of comprehensive tests performed by qualified testing agency.

G. Qualification Statements: Submit evidence of qualifications as indicated.

1.07 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of this section with at least **[ten] [_____]** years of documented experience.

B. Testing Agency Qualifications: Contractor to engage independent testing laboratories to perform preconstruction testing.
1. Test limestone for compliance with specified performance requirements.
2. Conduct tests using specimens randomly selected from proposed materials designated for use in this work.

C. Welder Qualifications: Company with welding operators qualified for processes required for this work in accordance with AWS standard qualification procedures.

D. Mock-Ups: Provide mock-ups to verify selections made under sample submittals and to demonstrate aesthetic effects of each type, color and texture of limestone masonry units, and to establish quality standards for fabrication and installation.
1. Build mock-up of adhered limestone masonry veneer assembly on site, **[as shown on drawings]**, including but not limited to adhesives, mortars, and grouts.
   a. Size and location of mock-up as designated by Architect.
   b. Do not proceed with this Work until Architect approves materials and workmanship.
   c. Rework mock-up as required to produce acceptable limestone masonry assembly.
   d. **[Remove mock-up when directed by Architect.]**
   e. **[Acceptable mock-up may be incorporated into the work.]**

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle materials and products in strict compliance with manufacturer's instructions, recommendations, and industry standards.

B. Store and handle stone and related materials to prevent deterioration and damage.
1. Do not use pinch or wrecking bars on stonework.
2. Lift limestone using wide-belt type slings where possible; do not use wire ropes, or ropes containing tar or other substances that may cause staining.
3. Store limestone on non-staining wood skids or pallets, and cover with non-staining, waterproof membrane.
4. Place and stack skids and limestone to distribute weight evenly and to prevent breakage or cracking of limestone.
5. Store cementitious materials above ground or floor, under cover, and in dry location.

1.09 SITE CONDITIONS

A. Cold Weather Protection: Comply with IMI - Cold Weather Masonry Construction and Protection Recommendations (www.imiweb.org/cold-weather-masonry-construction).

B. Hot and Dry Weather Protection: Dampen substrate and back of veneer units so moisture is not absorbed too quickly from mortar, resulting in improperly hydrated mortar and a weakened bond.

C. Protect limestone masonry work during construction as follows:
   1. Cover top of walls with non-staining waterproof sheeting at end of work each day.
   2. Cover partially completed stonework while work is not in progress.
   3. Extend cover at least 24 inches (610 mm) down both sides and hold securely in place.
   4. Prevent staining of stone from mortar, grout, sealants, and other materials; immediately remove such materials from stone without damaging stonework.
   5. Protect base of walls from rain-splashed mud and mortar splatter using approved coverings spread on ground and applied over wall surface.
   6. Protect sills, ledges and projections, windows, doors, floors, and other cladding materials from droppings of mortar and sealants.

PART 2- PRODUCTS

2.01 MANUFACTURER

A. Polycor:
   1.
   2. Phone:
   3. Office:
   4. Fax:
   5. Website: www.polycor.com
   6. Contact for Regional Managers: www.polycor.com/contact-us/
   7. Regional Manager: **[_____]**.

B. Provide limestone for entire project from the following Polycor quarries:
   1. Supply limestone from either the Empire Quarry or Victor Oolitic Quarry.
      a. Empire Quarry, located at 301 Main Street, Oolitic, Indiana 47451.
      b. Victor Oolitic Quarry, located at 7850 South Victor Pike, Bloomington, Indiana 47403.

2.02 LIMESTONE MATERIALS

A. Limestone: Complies with ASTM C568/C568M, Type II (Medium Density) Classification.
   1. Variety: Indiana Limestone.
   2. Absorption by Weight: 7.5 maximum percentage; ASTM C97/C97M.
   3. Density: 135 lbs/cu ft (2160 kg/cu m), minimum; ASTM C97/C97M.
   4. Compressive Strength: 4000 psi (28 MPa), minimum; ASTM C170/C170M.
   5. Modulus of Rupture: 700 psi (3.4 MPa), minimum; ASTM C99/C99M.

2.03 SUPPORT WALL ASSEMBLIES

A. **[Poured-In-Place Concrete] [Precast]** or **[Tilt-Up Wall Panels]**: Ensure that concrete wall assembly is sound, without defects, and properly cured to accept adhered limestone masonry veneer setting material.
   1. Examine and remove contaminants such as dirt, dust, stains, paint, organic matter, form-release agents, or other substances that may inhibit mortar bond.
   2. Ensure surfaces have a Concrete Surface Profile (CSP) of 2 or more for installation of adhered limestone masonry veneer.
   3. Provide capillary break between concrete substrate and limestone veneer units to eliminate prolonged contact with concrete based alkali sources.

B. Concrete Masonry Units (CMU): Ensure that CMU wall assembly is sound, without defects, and properly cured to accept adhered limestone masonry veneer setting material.
   1. Examine and remove contaminants such as dirt, dust, stains, paint, organic matter, form-release agents, or other substances that may inhibit mortar bond.
   2. Provide capillary break between concrete substrate and limestone veneer units to eliminate prolonged contact with concrete based alkali sources.

C. **[Framed Wood]** or **[Metal Stud]** Walls with Sheathing:
   1. Ensure that [**wood]** or **[metal stud]** framed exterior walls that are to receive adhered limestone masonry veneer have stiffness ratio of at least L/1000 in compliance with ASTM C1242.
      a. Adjust movement joint spacing in veneer with support walls less stiff than L/1000.
   2. Single Story Metal Studs: Provide at least 20 gauge metal studs spaced at 16 inches on center.
   3. Verify that interior walls that are to receive adhered limestone masonry veneer have stiffness ratio of at least L/600.
   4. Provide properly protected sheathing over studs with recommended gaps between sheets and movement joints in compliance with sheathing manufacturer for application indicated.
      a. Protected Sheathing: **[As indicated on drawings] [Oriented strand board (OSB)] [Plywood] [Tile backer wallboard]** or **[Cement board]**.
   5. Veneer Wall Sheathing: **[Cement board]** and/or **[tile backer wallboard, interior only]**.
      a. Provide exterior-rated cement board for exterior applications.
      b. Provide cement board for exterior applications over primary protected wall sheathing in compliance with building code and authorities having jurisdiction.
      c. Prepare movement joints in wall assembly as recommended by sheathing manufacturer for both interior and exterior cement board sheathing.
      d. Dampen cement board prior to applying scratch coat.

D. Continuous Insulation: As indicated on drawings, refer to Section 07 2100 for additional requirements.

2.04 PRODUCT TYPES

A. Type (___) - Rockford Estate Blend Thin Veneer:
   1. Finish: Lightly tumbled with split face front, back, and each end; and sawn top and bottom.
   2. Color: Full color blend.
   3. Height: Range of 2 inch (51 mm) to 12 inch (305 mm).
   4. Thickness: 1-1/4 inch (31.8 mm), nominal.
   5. Length, Flats: Range of 8 inch (203 mm) to 18 inch (457 mm).
   6. Length, Corners: Range of 4 inch (102 mm) to 12 inch (305 mm).

B. Type (___) - Berkshire Thin Veneer:
   1. Finish: Split face with sawn back.
   2. Color: **[Full color blend]** and/or **[Buff]**.
   3. Height, with 7-3/4 Inch (197 mm) Maximum: 15 percent at 2-1/4 inch (57 mm) high, 40 percent at 5 inch (127 mm) high, and 45 percent at 7-3/4 inch (197 mm) high coursing heights.
   4. Height, with 10-1/2 Inch (267 mm) Maximum: 10 percent at 2-1/4 inch (57 mm) high, 35 percent at 5 inch (127 mm) high, 40 percent at 7-3/4 inch (197 mm) high, and 15 percent at 10-1/2 inch (267 mm) high coursing heights.
   5. Thickness: 1-1/4 inch (31.8 mm), nominal; (3/4 inch (19 mm) to 1-1/2 inch (38 mm)].
   6. Length, Flats: Random lengths of 8 inch (203 mm) to 40 inch (1016 mm) and jointed on site at lengths conforming to pattern approved by Architect.
   7. Length, Corners: Random lengths of 4 inch (102 mm) to 12 inch (305 mm).

C. Type (___) – Vanderbilt Thin Veneer:
   1. Finish: Smooth face with sawn back.
   2. Color: Full color blend.
   3. Height: **[3-5/8 inch (92 mm)] [7-5/8 inch (194 mm)] [11-5/8 inch (295 mm)]** and/or **[15-5/8 inch (397 mm)]**.
   4. Thickness: 1-3/16 (30 mm) inch nominal.
   5. Lengths: Flats 23-5/8 inch (600 mm).
   6. Lengths: Corners 23-5/8 inch (600 mm) featuring a quirk miter.

2.05 PERFORMANCE REQUIREMENTS

A. Physical Properties: Provide limestone with physical properties that meet or exceed values listed in ILIA Indiana Limestone Handbook, latest edition.

B. Safety Factors: Provide safety factors for design loads and stresses of limestone masonry assembly that meet or exceed values indicated in ILIA Technote on Safety Factors.

C. Design Loads: Design cladding, support assemblies, and adherence systems in compliance with following design loads with safety factors as specified.
   1. Wind Loads, Dead and Live Loads **[, and Seismic Loads]**: Comply with local building code requirements and authorities having jurisdiction.

D. Corrosion and Stain Control: Prevent galvanic and other types of corrosion or staining by isolating metals and other materials from direct contact with incompatible materials, or by applying suitable coatings; staining of stone and joint surfaces is not permitted.

2.06 MORTAR

A. Setting Mortar for Adhered Limestone Masonry Veneer: ASTM C270, Proportion Specifications, Type S, polymer-modified, non-staining and sag-resistant, for both scratch coat and setting beds in proportions as recommended by manufacturer.

B. Epoxy Polymer Mortar Compounds: ASTM C1242, and compatible with stone and substrate and do not exhibit long-term creep or staining.

C. Joint Width: Provide 3/8 inch (9.5 mm) minimum width, 1/2 inch (12.7 mm) maximum width concave mortar joints, unless otherwise noted.
   1. Locate movement joints as indicated on the drawings, and in compliance with ASTM C1242 vertical movement joints shall be spaced at 15 feet on-center, maximum, unless otherwise noted.
   2. Vertical and horizontal movement joints shall align with expected movement locations in supporting wall.

D. Portland Cement: ASTM C150/C150M, Type I.
   1. Provide gray or white cement as necessary for selected mortar color.
   2. For cold weather applications, use ASTM C150/C150M, Type III (high early strength).

E. Hydrated Lime: ASTM C207, Type S (special hydrated lime for masonry purposes).

F. Aggregate: ASTM C144; for mortar joints narrower than 1/4 inch (6.4 mm) provide with 100 percent passing No. 8 Sieve and 95 percent passing No. 16 Sieve.

G. Water: Clean, non-alkaline, and potable.

H. Mixing: Combine and thoroughly mix cementitious materials, aggregates, and water in a mechanical batch mixer; comply with ASTM C305 for mixing time and water content, unless noted otherwise.

I. Do not add mixtures such as coloring pigments, air-entraining agents, accelerators, retarders, water repellents, anti-freeze compounds, or calcium chloride, unless noted otherwise.

2.07 LATH

A. Metal Lath: Galvanized, expanded diamond metal lath, 3.4 lbs/sg yd (1.8 kg/sq m), minimum, in compliance with ASTM C847.

B. Non-Metallic Lath: Comply with standards of ASTM C1780, and acceptable to authorities having jurisdiction.

C. Provide self-furring lath or attach lath with self-furring fasteners that allows at least 1/4 inch (6.4 mm) of mortar behind front of lath.

2.08 ACCESSORIES

A. Sealants: Non-staining type, refer to Section 07 9200 for additional requirements.

B. Setting Shims: Sized to suit stone joint thicknesses and bed depths without intruding into depths required for joint sealants.
   1. Materials: Lead, stainless steel, or plastic shims; non-staining to limestone.

C. Concealed Flashing: Fabricate from **[stainless steel]** or **[materials as indicated in Section 07 6200]**, with minimum thickness of 0.015 inch (0.38 mm).

D. Weep Vents: Corrosion resistant, 24 inches (610 mm) on center, extending from interior cavity out to exterior face of veneer units.

E. Rope Wicks: Corrosion resistant, 16 inches (406 mm) on center, extending from interior cavity out to exterior face of veneer units.

F. Weather Resistant Barrier (WRB): Provide WRB in compliance with local building code and the authorities having jurisdiction within wall assembly to control condensation and other moisture in wall.
   1. Refer to Section 07 2500 for additional requirements.

G. Drainage Mats: Provide rigid drainage mats in compliance with local building code and authorities having jurisdiction within wall assembly to allow moisture to flow downward and out weeps system providing a rapid drying capacity.
   1. Thickness: 3/16 inch (4.8 mm) minimum to 3/4 inch (19 mm) maximum.

H. Casing Beads: Corrosion resistant, used to cover exposed scratch coat and setting bed at edge of wall panels, or to define movement joints in scratch coat or setting bed.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine surfaces to receive adhered limestone masonry veneer and conditions under which limestone masonry will be installed, with Installer present, for compliance with specified requirements.
   1. Verify that supporting components and design drawings are in compliance with local building code for areas having adhered limestone masonry veneer installations.

B. Examine veneer units for cracks, damage, consistent thickness, cleanliness, and excessive over-cut corner pieces, to be less than 1/3 stone depth.

C. Submit written report, validated by Installer, listing any conditions that are not in compliance with specified requirements.

D. Do not proceed with installation until surfaces and conditions comply with specified requirements for limestone masonry or other related work that affects this Work.

3.02 PREPARATION

A. Advise installers of related work about specific requirements for proper placement and installation of inserts, flashing reglets, and other necessary items to be used for anchoring, supporting, and flashing of this Work.
   1. Provide installers of related work with drawings or templates showing proper locations of these items.
   2. Installer of weld-plates and other embedded materials used for connection of limestone masonry to provide drawings to installer of limestone masonry work indicating accurate locations of these materials.

B. Prior to setting, clean limestone surfaces that have become dirty or stained by removing soil, stains, and other foreign materials.
   1. Thoroughly clean limestone by scrubbing stones with fiber brushes followed by thorough drenching with clean clear water, and using only mild cleaning compounds that do not contain any acids, caustic or abrasive materials.

3.03 INSTALLATION

A. Thin Veneer Lath Installation: Comply with Polycor's "Thin Veneer Installation Guide", latest edition.
   1. Install metal lath with cup profile facing up to prevent mortar from sagging and to ensure physical bond in compliance with ASTM C1063.
      a. Install lath so that upon swiping hand down the face of lath it will feel rough, and upon swiping up the face of lath it will feel smooth.
   2. Lap metal lath at least 1 inch (25.4 mm) on each side and ends, with staggered ends of adjoining sheets of lath.
   3. Install lath tight against supporting substrate to prevent spring back effect.
   4. Tightly wrap metal lath at least 12 inches (305 mm) around corners and fasten to framing member.
   5. Install corrosion resistant fasteners in compliance with ASTM C1063 and as follows:
      a. Wood Studs: Penetrate at least 1-1/4 inch (31.8 mm).
      b. Metal Studs: Penetrate at least 3/8 inch (9.5 mm).
      c. Provide with at least 7/16 inch (11 mm) diameter non-corrosive washer or head to prevent lath pull out.
      d. Continuous Exterior Insulation Less Than 1/2 inch (12.7 mm) Thick: Space fasteners at 7 inch (178 mm) on center, maximum, vertically and 16 inch (406 mm) on center, maximum, horizontally.
      e. Continuous Exterior Insulation Greater Than 1/2 inch (12.7 mm) Thick: Provide sheathing and lath fasteners spacing and type to carry dead and live loads as established by licensed structural engineer.
   6. Adhered Limestone Veneer Exceeding 25 PSF: Provide non-corrosive Z-furring channels to support adhered limestone masonry veneer, and install Z-furring perpendicular to wall framing to minimize thermal bridging.

B. Scratch Coat: Use traditional hardened scratch coat method as follows:
   1. Encapsulate lath with 1/2 inch (12.7 mm) to 3/4 inch (19 mm) thick mortar.
   2. Provide horizontal texture in scratch coat with steel comb or 1/8 inch (3.1 mm) notched trowel.
   3. Allow scratch coat to dry for 24 to 48 hours.
   4. Dampen scratch coat with potable water prior to installation of veneer.

C. Scratch Coat: Use "Scratch and Go" method for construction sequencing purposes as follows:
   1. Encapsulate lath with 1/2 inch (12.7 mm) to 3/4 inch (19 mm) thick mortar.
   2. Limit work area to 10 sq ft (0.93 sq m) to prevent mortar from fully setting on wall prior to placement of veneer.
   3. Back-butter and install veneer units.
   4. Use shims to prevent veneer from sagging.

D. Setting of Veneer Units:
   1. Dampen dried scratch coat or cement board sheathing with potable water before applying veneer units; moist surface but not saturated.
   2. Hot Weather Conditions: Dampen back of veneer.
   3. Apply at least 1/2 inch (12.7 mm) thick setting bed to 100 percent of back of veneer unit in compliance with ASTM C1242.

4. Apply slight excess of mortar at stone edges to allow mortar to squeeze out of the stone edges and fill joints when pressure is applied.
5. Apply stone firmly into scratch coat with slight rotating motion.
6. Remove units that are disturbed or moved during installation, and reset with new mortar.
7. Do not install units when other trades working nearby are creating vibration within 24 hour period after units are installed.
8. Total mortar thickness behind stone units shall range from 3/4 inch (19 mm) to 1-1/4 inch (31.8 mm) thick.
9. Install veneer units from top down to assist with keeping units clean.

3.04 TOLERANCES

A. Variations from Plumb:
   1. For lines and surfaces of columns, walls or other vertical surfaces, do not exceed:
      a. 1/4 inch in 10 feet (6.4 mm in 3 m).
      b. 3/8 inch (9.5 mm) in story height, 20 feet (6 m) maximum.
      c. 1/2 inch in 40 feet (12.7 mm in 12.2 m) or more.
   2. For external corners, expansion joints and other conspicuous lines, do not exceed:
      a. 1/4 inch (6.4 mm) in any story, 20 feet (6 m) maximum.
      b. 1/2 inch in 40 feet (12.7 mm in 12.2 m) or more.

B. Variations from Level:
   1. For exposed lintels, sills, parapets, horizontal grooves or other horizontal surfaces, do not exceed:
      a. 1/2 inch (12.7 mm) in any bay, 20 feet (6 m) maximum.
      b. 3/4 inch in 40 feet (19 mm in 12.2 m) or more.

C. Variations of Linear Building Lines:
   1. For positions shown in plan on drawings and related portion of columns, walls and partitions, do not exceed:
      a. 1/2 inch (12.7 mm) in any bay, 20 feet (6 m) maximum.
      b. 3/4 inch in 40 feet (19 mm in 12.2 m) or more.

D. Variations in Cross-Sectional Dimensions:
   1. For columns and thickness of walls from dimensions indicated, do not exceed:
      a. Plus 1/2 inch (12.7 mm), or minus 1/4 inch (6.4 mm).

3.05 ADJUSTING

A. Repair of damaged stone is permitted as some chipping of the stone is expected; repair of small chips is not required if it does not detract from the overall appearance of the work, or impair effectiveness of mortar and sealant installation.

B. Criteria for acceptance of chips and repairs will be based on industry standards and practices, unless other criteria is mutually agreed upon, in writing, by limestone masonry supplier and the Architect.

C. Remove and replace stonework with the following description:
   1. Stones are so damaged that repair is not possible, either structurally or aesthetically.
   2. Joints are defective.
   3. Stones and joints are not in compliance with established standards based on samples and field-constructed mock-ups as approved by the Architect.
   4. Stonework is not in compliance with other specified requirements.

D. Replace defective stonework with materials in compliance with established standards and specified requirements and showing no evidence of replacement.

3.06 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Control, for general requirements for field quality control and inspection.

B. Field Testing: Provide periodic testing of veneer units during installation in compliance with ASTM C1242.
   1. Verify that fully cured veneer units are bonded to wall with at least 50 psi shear strength based on gross unit surface area when tested in accordance with ASTM C1780.

3.07 CLEANING

A. Pre-wet veneer prior to applying cleaning solutions.

B. Clean limestone masonry using clean potable water, and use mild soap powder, detergent, or a mild water and vinegar solution with a soft fiber bristle brush to remove any dirt or mortar smears.

C. Do not use wire brushes, acidic type cleaning agents, or other materials or methods that could damage stone.

D. Mechanical or high pressure cleaning methods may be used if approved in writing by the Architect.

E. Allow mortar droppings on stone veneer face to dry slightly, and then pick-off or carefully brush off so as not to smear.

F. Test cleaning solutions and procedures on mock-up panel.

3.08 PROTECTION

A. Protect veneer from run-down from cleaning of other veneer systems located above.

B. Protect limestone masonry when adjacent brick is being acid-washed.

C. Provide protection and maintain conditions, in a manner acceptable to fabricator and installer that ensures limestone masonry will be without damage or deterioration on Date of Substantial Completion.

END OF SECTION