

SECTION 04 43 00
NATURAL STONE VENEER

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies requirements for construction of natural stone veneer.

1.2 RELATED WORK

- A. Mortars and grouts: Section 04 05 13, MASONRY MORTARING, Section 04 05 16, MASONRY GROUTING.
- B. Steel lintels and shelf angles: Section 05 50 00, METAL FABRICATIONS.
- C. Sealants and sealant installation: Section 07 92 00, JOINT SEALANTS.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.
- B. Samples:
 - 1. Replacement Stone Veneer (as applicable), sample, 8 inches by 16 inches, showing full color range and texture of stone. Only required for replacement stone when government-provided stone is not able to be reused.
 - 2. Anchors, and ties, one each and joint reinforcing 48 inches long.
- C. Certificates:
 - 1. Certificates signed by manufacturer, including name and address of contractor, project location, and the quantity, and date or dates of shipment of delivery to which certificate applies.
 - 2. Indicating that the following items meet specification requirements:
 - a. Stone veneer.
- D. Manufacturer's Literature and Data:
 - 1. Anchors, ties, and reinforcement.
 - 2. Reinforcing bars.

1.4 WARRANTY

- A. Warrant exterior masonry walls against moisture leaks and subject to terms of "Warranty of Construction", FAR clause 52.246-21, except that warranty period shall be five years.

1.5 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only.
- B. American Society for Testing and Materials (ASTM):
- A82.....Standard Specification for Steel Wire, for
Concrete Reinforcement
 - A153.....Standard Specification for Zinc Coating (Hot-
Dip) on Iron and Steel Hardware
 - A951.....Steel Wire for Masonry Joint Reinforcement
 - C119.....Standard Terminology Relating to Dimension Stone
 - C568.....Standard Specifications for Limestone Dimension
Stone
 - C615.....Standard Specification for Granite Dimension
Stone
 - C616Standard Specification for Quartz-Based
Dimension Stone
 - C1242..... Standard Guide for Selection, Design, and
Installation of Dimension Stone Anchoring
Systems
 - C1353..... Standard Test Method for Abrasion Resistance of
Dimension Stone Subjected to Foot Traffic Using
a Rotary Platform, Double-Head Abraser
 - C1515.....Standard Guide to Cleaning of Exterior Dimension
Stone, Vertical and Horizontal Surfaces, New or
Existing
 - C1528.....Standard Guide for Selection of Dimension Stone
for Exterior Use
 - D1056.....Standard Specification for Flexible Cellular
Materials - Sponge Expanded Rubber
 - D7089.....Standard Practice for Determination of the
Effectiveness of Anti-Graffiti Coating for Use
on Concrete, Masonry, and Natural Stone Surfaces
by Pressure Washing
- C. Masonry Industry Council:
All Weather Masonry Construction Manual, 2000.
- D. Federal Specifications (FS):
FF-S-107C-00.....Screws, Tapping and Drive

- E. International Masonry Industry All Weather Council (IMIAC): Recommended Practices and Guide Specification for Cold Weather Masonry Construction

PART 2 - PRODUCTS

2.1 ACCEPTABLE STONE PRODUCTS

- A. Limestone Veneer: Meet ASTM C 568, Classification: Category II (Medium Density), furnished in type and pattern to match existing stone used on existing columbarium.
1. Face Size: As indicated
 2. Color Range, finish, manufacturer/producer to match existing.

2.2 REINFORCEMENT AND ANCHORAGES

- A. Materials: Provide ties and anchors specified in subsequent paragraphs that are made from materials that comply paragraphs below, unless otherwise indicated.
1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A82; with ASTM A153/153M, Class B-2 coating.
- B. The list below of anchor and tie systems is not all inclusive; Contractor may be able to propose an alternate anchoring system to be approved by the Contracting Officer's Representative (COR) Memorial Service Network (MSN) Engineer.
- B. Wire Ties, General: Unless otherwise indicated, size wire ties to extend at least halfway through veneer but at least 5/8 inch cover on outside face. Outer ends of wires are bent 90 degrees and extend 2 inches parallel to face of veneer.
- C. Individual Wire Ties: Rectangular units with closed ends and not less than 4 inches.
1. Where withes do not align or are of different materials, use adjustable ties with pintle-and-eye connections having a maximum adjustment of 1-1/4 inches.
 2. Wire: Fabricate from 3/16 inch diameter, hot-dip galvanized steel wire. Mill-galvanized wire ties may be used in interior walls, unless otherwise indicated.
 3. Acceptable Product: Heckman Building Products Inc.; No. 262.
- D. Adjustable Masonry-Veneer Anchors

1. General: Provide anchors that allow vertical adjustment but resist tension and compression forces perpendicular to plane of wall and as follows:
 - a. Structural Performance Characteristics: Capable of withstanding a 100 lbf load in both tension and compression without deforming or developing play in excess of 0.05 inch.
2. Screw-Attached, Masonry-Veneer Anchors: Units consisting of a wire tie and a metal anchor section.
 - a. Anchor Section: Zinc-alloy barrel section with flanged head with eye and corrosion-resistant, self-drilling screw. Eye designed to receive wire tie and to serve as head for drilling fastener into framing; Barrel length to suit sheathing thickness, allowing screw to seat directly against framing with flanged head covering hole in sheathing.
 - b. Wire Ties: Triangular-, rectangular-, or T-shaped wire ties fabricated from 0.188 inch diameter, hot-dip galvanized steel wire.
 - c. Acceptable Products:
Heckmann Building Products, Inc.; No.75 Pos-I-Tie.
Hohmann and Barnard, Inc., Concrete Seal Tie.
3. Channel Slot, Masonry Veneer Anchors: Units consisting of a vertical channel slot and metal flat-plate anchors.
 - a. Channel Slot: Vertical channel slot bolted to backup face, secured with bridge plates; designed to receive slotted flat-plate anchors.
 - b. Slotted Flat-Plate Anchors: Fabricated from 1/8-inch, hot-dipped galvanized steel.
 - c. Acceptable Products:
Heckmann Building Products, Inc.; No.133 Long Channel Slot, No.135 Channel Slot Stone Anchor, and No.133-P Bridge Plates.
Hohmann and Barnard, Inc., 362-C Gripstay Channel system.

2.3 ACCESSORIES

- A. Joint Sealant: Refer to Section 07 92 00, JOINT SEALANTS.
- B. Nailing Strips: Western softwood, preservative treated, sized to masonry joints.
- C. Weep Holes: 1/4-inch diameter, PVC.
- D. Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.

1. Strips, full-depth of cavity and 10 inches wide, with dovetail shaped notches 7 inches deep that prevent mesh from being clogged with mortar droppings.

E. Mortar: Refer to Section 04 05 13, MASONRY MORTARING.

F. Expansion Joint Fillers: ASTM D1056 Class RE-11.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Verify items provided by other Sections of work are properly sized and located.
- C. Verify that built-in items are in proper location, and ready for roughing into masonry work.
- D. Beginning of installation means installer accepts existing conditions.

3.2 PREPARATION

- A. Verify items provided by other Sections of work are properly sized and located.
- B. Establish lines, levels, and coursing. Protect from disturbance.
- C. Provide temporary bracing during erection of masonry work. Maintain in place until building structure provides permanent bracing.
- D. Scaffolding: Provide, erect, maintain, move, and finally remove scaffolding and staging as required for masonry installation. Construct and maintain scaffolding in compliance with applicable ordinances, laws, rules and regulations. Scaffolding shall be sufficiently substantial to support workmen, and necessary materials and equipment. Provide adequate guard rails for protection of property, workmen, and passerby.

3.3 COURSING

- A. Place masonry to lines and levels identical to coursing and pattern original to veneer before removal.

- B. Arrange and trim stones for adequate fit in a range ashlar Pattern with course heights as indicated, random lengths, uniform joint widths with offset between vertical joints as indicated.

3.4 PLACING AND BONDING

- A. Lay masonry in full bed of mortar (horizontal, vertical, and collar joints), properly jointed with other work. Buttering corners of joints and deep or excessive furrowing of mortar joints is not permitted.
- B. Fully bond intersections, and external and internal corners.
- C. Do not shift, or tap masonry units after mortar has taken initial set. Where adjustment must be made, remove mortar and replace.
- D. Remove excess mortar on surface and in cavities.
- E. Perform job site saw cutting with proper tools to provide straight unchipped edges. Take care to prevent breaking masonry unit corners or edges.

3.5 TOLERANCES

- A. Alignment of Columns: Maximum of 1/4 inch from true line.
- B. Variation from Unit to Adjacent Unit: 1/32 inch maximum.
- C. Variation from Plane of Wall: 1/4 inch in 10 feet and 1/2 inch in 20 feet or more.
- D. Variation from Plumb: 1/4 inch per story non-cumulative, 1/2 inch in two stories or more.
- E. Variation from Level Coursing: 1/8 inch in 3 feet; 1/4 inch in 10 feet); 1/4 inch maximum.
- F. Variation of Joint Thickness: 1/8 inch in 3 feet.
- G. Maximum variation from Cross Sectional Thickness of Walls: Plus or minus 1/4 inch.

3.6 REINFORCEMENT AND ANCHORAGES

- A. Attach wall ties to wall studs (or other solid and secure framing members) for veneer construction at maximum 16 inches oc vertically and 16 inches oc horizontally.
- B. Anchor stone veneer to unit masonry with metal veneer anchors as follows:
 - 1. Follow anchor system manufacturer's recommendations.

3.7 WEEPS AND VENTS

Install weep holes in veneer at 12 inches on center horizontally at bottom of walls.

3.8 BUILT-IN WORK

- A. As work progresses, build-in anchor bolts, plates, and other items to be built in the work supplied by other Sections.
- B. Build-in items plumb and level.
- C. Do not build-in organic materials subject to deterioration.

3.9 CUTTING AND FITTING

- A. Obtain approval prior to cutting or fitting any area not indicated or where appearance or strength of masonry work may be impaired.

3.10 CLEANING

- A. Remove excess mortar and smears.
- B. Replace defective mortar. Match adjacent work.
- C. Clean soiled surfaces with non-acidic solution which will not harm masonry or adjacent materials. Consult masonry manufacturer for acceptable cleaners. Leave surfaces thoroughly clean and free of all mortar and other soiling.
- D. Use non-metallic tools in cleaning operations.
- E. ASTM C1515 and D7089.

3.11 PROTECTION

- A. Maintain protective boards at exposed external corners which may be damaged by construction activities.
- B. Provide protection without damaging completed work.
- C. Keep expansion joint voids clear of mortar.

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