

SECTION 042000 - UNIT MASONRY –All Projects (Not all products listed apply to all projects. See Exterior Finish Schedule.)

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Concrete masonry units (CMU's).

B. Related Sections:

1. Division 05 Section "Metal Fabrications" for furnishing steel lintels for unit masonry.
2. Division 07 Section "Sheet Metal Flashing and Trim" for furnishing manufactured reglets installed in masonry joints.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples for Verification: For each type and color of exposed masonry unit and colored mortar.

C. Material Certificates: For each type and size of product indicated.

D. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.

1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91 for air content.
2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.

1.3 QUALITY ASSURANCE

A. Masonry Standard: Comply with ACI 530.1/ASCE 6/TMS 602 unless modified by requirements in the Contract Documents.

B. Sample Panels: Build sample panels to verify selections made under sample submittals and to demonstrate aesthetic effects. Comply with requirements in Division 01 Section "Quality Requirements" for mockups.

1. Build sample panels for typical exterior wall in sizes approximately 48 inches by 48 inches high by full thickness.

C. Cast Stone Standard: Comply with the requirements of the Cast Stone Institute Technical Manual

1.4 PROJECT CONDITIONS

A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

B. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

PART 2 - PRODUCTS

2.1 MASONRY UNITS, GENERAL

- A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work.

2.2 CONCRETE MASONRY UNITS

- A. Shapes: Provide shapes indicated and for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
- B. Integral Water Repellent: Provide units made with liquid polymeric, integral water repellent admixture that does not reduce flexural bond strength for exposed units and where indicated.
  - 1. Products: Subject to compliance with requirements, provide the following:
    - a. Grace Construction Products, W. R. Grace & Co. - Conn.; Dry-Block.
- C. CMUs: ASTM C 90.
  - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 1900 psi.
  - 2. Density Classification: Normal weight.

2.3 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
- D. Masonry Cement: ASTM C 91.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Decorative CMU's mortar color; Holcim (US) Inc.; Holcim Mortarmix Masonry Cement, mortar color: Holcim Mortarmix Masonry Cement, Heron S; color to be verified with Owner prior to construction.
- E. Aggregate for Mortar: ASTM C 144.
  - 1. For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.
- F. Aggregate for Grout: ASTM C 404.
- G. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.
  - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Euclid Chemical Company (The); Accelguard 80.
    - b. Grace Construction Products, W. R. Grace & Co. - Conn.; Morset.
    - c. Sonneborn Products, BASF Aktiengesellschaft; Trimix-NCA.

H. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with CMUs containing integral water repellent by same manufacturer.

1. Products: Subject to compliance with requirements, provide one of the following:
  - a. ACM Chemistries; RainBloc for Mortar.
  - b. BASF Aktiengesellschaft; Rheopel Mortar Admixture.
  - c. Grace Construction Products, W. R. Grace & Co. - Conn.; Dry-Block Mortar Admixture.

I. Water: Potable.

## 2.4 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.

1. Do not use calcium chloride in mortar or grout.
2. Use portland cement-lime mortar unless otherwise indicated.
3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
4. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

B. Mortar for Unit Masonry: Comply with ASTM C 270, Property Specification. Provide the following types of mortar for applications stated unless another type is indicated.

1. For masonry below grade or in contact with earth, use Type S.
2. For reinforced masonry, use Type S.
3. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls, and for other applications where another type is not indicated, use Type N.

C. Grout for Unit Masonry: Comply with ASTM C 476.

1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
2. Proportion grout in accordance with ASTM C 476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi.
3. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143/C 143M.

## 2.5 REINFORCEMENT

A. Uncoated Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60.

B. Masonry Joint Reinforcement, General: ASTM A 951/A 951M.

1. Exterior Walls: Hot-dip galvanized, carbon steel.
2. Wire Size for Side Rods: 0.187-inch diameter.
3. Wire Size for Cross Rods: 0.187-inch diameter.
4. Wire Size for Veneer Ties: 0.187-inch diameter.
5. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
6. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units.

C. Masonry Joint Reinforcement for Single-Wythe Masonry: Either ladder or truss type with single pair of side rods.

## 2.6 TIES AND ANCHORS

A. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated.

1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82/A 82M; with ASTM A 153/A 153M, Class B-2 coating.

2. Steel Sheet, Galvanized after Fabrication: ASTM A 1008/A 1008M, Commercial Steel, with ASTM A 153/A 153M, Class B coating.
  3. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Wire Ties, General: Unless otherwise indicated, size wire ties to extend at least halfway through veneer but with 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 wide.
1. Wire: Fabricate from 1/4-inch-diameter, hot-dip galvanized steel wire.
- D. Adjustable Anchors for Connecting to Structural Steel Framing: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
1. Anchor Section for Welding to Steel Frame: Crimped 1/4-inch-diameter, hot-dip galvanized steel wire.
  2. Tie Section: Triangular-shaped wire tie, sized to extend within 1 inch of masonry face, made from 0.25-inch-diameter, hot-dip galvanized steel wire.
- E. Adjustable Masonry-Veneer Anchors:
1. General: Provide anchors that allow vertical adjustment but resist tension and compression forces perpendicular to plane of wall, for attachment over sheathing to wood or metal studs, 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 for buildings with continuous rigid insulation.
    - a. Products: Subject to compliance with requirements, provide one of the following:
      - 1) Heckmann Building Products Inc.; Pos-I-Tie w/ Triangle Wire Tie (Use seismic tie where applicable).
      - 2) Hohmann & Barnard, Inc.; X-Seal Anchor.
      - 3) Wire-Bond; 1004, Type III X or RJ-711.
    - b. Anchor Section: Rib-stiffened, sheet metal plate with screw holes top and bottom, having slotted holes for inserting wire tie.
    - c. Fabricate sheet metal anchor sections and other sheet metal parts from 0.075-inch-thick, steel sheet, galvanized after fabrication.
    - d. Wire Ties: Triangular-, rectangular-, or T-shaped wire ties fabricated from 0.25-inch-diameter, hot-dip galvanized steel wire.
- F. Anchor Bolts: Headed or L-shaped steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153/A 153M, Class C; of dimensions indicated.

## 2.7 EMBEDDED FLASHING MATERIALS

- A. Flexible Flashing: Use one of the following unless otherwise indicated:
1. Elvaloy KEE Thermoplastic flexible membrane: Self-adhering 40 mil thick (25 mil Elvaloy sheet bonded to 15 mil rubberized asphalt with release paper. Use only where flashing is fully concealed in masonry).
    - a. Products: Subject to compliance with requirements, provide one of the following:
      - 1) Flex Flash - as manufactured by Hohmann & Barnard, Inc..
      - 2) Hyload Surface Adhered with Drip Membrane – as manufactured by Hyload, Inc.

- b. Include approved primer, termination bar, pre-formed corners and compatible sealants.
- B. Adhesives, Primers, and Sealants for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.
- C. Single-Wythe CMU Flashing System: System of CMU cell flashing pans and interlocking CMU web covers made from UV-resistant, high-density Polypropylene. Cell flashing pans have integral weep spouts designed to be built into mortar bed joints and that extend into the cell to prevent clogging with mortar. Attached web covers will span from pan to pan providing protection over the web and the joints of the CMU
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Mortar Net Solutions; BlockFlash or comparable product.
    - a. For information on BlockFlash refer to <http://www.mortarnet.com/blockflash-product-overview> and <http://www.mortarnet.com/faq/video-library>.

## 2.8 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; formulated from neoprene, urethane or PVC.
- B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 or PVC, complying with ASTM D 2287, Type PVC-65406 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.
- C. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).
- D. Weep/Vent Products: Use the following unless otherwise indicated:
  - 1. Mesh Weep/Vent: Free-draining mesh; made from polyethylene strands, full height and width of head joint and depth 1/8 inch less than depth of outer wythe; in color selected from manufacturer's standard.
    - a. Products: Subject to compliance with requirements, provide the following:
      - 1) Mortar Net USA, Ltd.; Mortar Net Weep Vents.
- E. Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.
  - 1. Products: Subject to compliance with requirements, provide the following:
    - a. Archovations, Inc.; CavClear Masonry Mat.
    - b. Mortar Net USA, Ltd.; Mortar Net.
  - 2. Provide one of the following configurations:
    - a. Strips, full-depth of cavity and 10 inches high, with dovetail shaped notches 7 inches deep.

## 2.9 MASONRY CLEANERS

- A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Diedrich Technologies, Inc.
    - b. EaCo Chem, Inc.

c. ProSoCo, Inc.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION, GENERAL

- A. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- B. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.
- C. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.

#### 3.2 TOLERANCES

- A. Dimensions and Locations of Elements:
  - 1. For dimensions in cross section or elevation do not vary by more than plus 1/2 inch or minus 1/4 inch.
  - 2. For location of elements in plan do not vary from that indicated by more than plus or minus 1/2 inch.
  - 3. For location of elements in elevation do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.
- B. Lines and Levels:
  - 1. For bed joints and top surfaces of bearing walls do not vary from level by more than 1/4 inch in 10 feet, or 1/2 inch maximum.
  - 2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
  - 3. For vertical lines and surfaces do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.
  - 4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
  - 5. For lines and surfaces do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.
- C. Joints:
  - 1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch.
  - 2. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch or minus 1/4 inch.
  - 3. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch.

#### 3.3 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- C. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
- D. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.

### 3.4 MORTAR BEDDING AND JOINTING

- A. Lay hollow CMUs as follows:
  - 1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
  - 2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
  - 3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
  - 4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.
- B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Tool exposed joints flush when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.
- D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.

### 3.5 MASONRY JOINT REINFORCEMENT

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.
  - 1. Space reinforcement not more than 16 inches o.c.
  - 2. Space reinforcement not more than 8 inches o.c. in foundation walls and parapet walls.
  - 3. Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond openings in addition to continuous reinforcement.
- B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.
- C. Provide continuity at corners by using prefabricated L-shaped units.

### 3.6 ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE

- A. Anchor masonry to structural steel and concrete where masonry abuts or faces structural steel or concrete to comply with the following:
  - 1. Provide an open space not less than 1 inch wide between masonry and structural steel or concrete unless otherwise indicated. Keep open space free of mortar and other rigid materials.
  - 2. Anchor masonry with anchors embedded in masonry joints and attached to structure.
  - 3. Space anchors as indicated, but not more than 24 inches o.c. vertically and 36 inches o.c. horizontally.

### 3.7 ANCHORING MASONRY VENEERS

- A. Anchor masonry veneers to wall framing with masonry-veneer anchors to comply with the following requirements:
  - 1. Fasten screw-attached anchors through sheathing to wall framing with metal fasteners of type indicated. Use two fasteners unless anchor design only uses one fastener.
  - 2. Embed tie sections, connector sections and continuous wire in masonry joints. Provide not less than 1 inch of air space between back of masonry veneer and face of sheathing.
  - 3. Locate anchor sections to allow maximum vertical differential movement of ties up and down.
  - 4. Space anchors as indicated, but not more than 16 inches o.c. vertically and 16 inches o.c. horizontally with not less than 1 anchor for each 2.67 sq. ft. of wall area. Install additional anchors within 12 inches of openings and at intervals, not exceeding 36 inches, around perimeter.

### 3.8 FLASHING, WEEP HOLES, CAVITY DRAINAGE, AND VENTS

- A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

- B. Install flashing as follows unless otherwise indicated:
  - 1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
  - 2. At lintels and shelf angles, extend flashing a minimum of 6 inches into masonry at each end. At heads and sills, extend flashing 6 inches at ends and turn up not less than 2 inches to form end dams.
  - 3. At openings, install metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall and adhere flexible flashing to top of metal drip edge.
  - 4. Stop flexible flashing 1/2 inch back from outside face of wall and adhere flexible flashing to top of metal flashing termination.
- C. Install weep holes in head joints in exterior wythes of first course of masonry immediately above embedded flashing and as follows:
  - 1. Use specified weep/vent products to form weep holes.
  - 2. Space weep holes 24 inches o.c. unless otherwise indicated.
  - 3. Cover cavity side of weep holes with plastic insect screening at cavities insulated with loose-fill insulation.
- D. Place cavity drainage material in cavities to comply with configuration requirements for cavity drainage material in "Miscellaneous Masonry Accessories" Article.

### 3.9 REINFORCED UNIT MASONRY INSTALLATION

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
  - 1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
  - 2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other loads that may be placed on them during construction.

### 3.10 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner may engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas, as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.
- B. Inspections: Level 2 special inspections according to the "International Building Code."
  - 1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
  - 2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
  - 3. Place grout only after inspectors have verified proportions of site-prepared grout.
- C. Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, according to ASTM C 780.
- D. Mortar Test (Property Specification): For each mix provided, according to ASTM C 780. Test mortar for mortar air content and compressive strength.
- E. Grout Test (Compressive Strength): For each mix provided, according to ASTM C 1019.

### 3.11 REPAIRING, POINTING, AND CLEANING

- A. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- B. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

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1. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes.
2. Protect surfaces and light fixtures from contact with cleaner.
3. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
4. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
5. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.
6. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.
7. Any effluent or excess runoff must be treated and released in accordance with all federal state and local requirements.

3.12 MASONRY WASTE DISPOSAL

- A. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.
  1. Do not dispose of masonry waste as fill within 18 inches of finished grade.
- B. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 042000

SECTION 047300 – ADHERED MANUFACTURED STONE VENEER

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
  - 1. Adhered manufactured stone veneer (AMSV) adhered to unit masonry back-up.
  - 2. Adhered manufactured stone veneer (AMSV) adhered to cold formed metal framing and sheathing.
- B. Related Sections:
  - 1. 042000–Unit Masonry for substrate behind AMSV assemblies.
  - 2. 061600–Sheathing for wood sheathing used in AMSV assemblies.
  - 3. 071900–Water Repellents for water repellents used on AMSV.
  - 4. 072500–Weather Barriers used in AMSV assemblies.
  - 5. 079200–Joint Sealants used in AMSV assemblies.

1.02 REFERENCES

- A. American National Standards Institute (ANSI):
  - 1. ANSI A118.4 Specifications for Latex-Portland Cement Mortar.
- B. American Society for Testing and Materials (ASTM):
  - 1. ASTM C 144 – Standard Specification for Aggregate for Masonry Mortar.
  - 2. ASTM C 91 – Standard Specification for Masonry Cement.
  - 3. ASTM C 207 – Standard Specification for Hydrated Lime for Masonry Purposes.
  - 4. ASTM C 270 – Standard Specification for Mortar for Unit Masonry.
  - 5. ASTM C 847 – Standard Specification for Metal Lath.
  - 6. ASTM C150 - Standard specification for Portland cement
- C. City of Los Angeles: Research Report (LARR)
  - 1. Research Report #25589
- D. International Code Council (ICC):
  - 1. ESR Report.

1.03 ACTION SUBMITTALS

- A. Product Data:
  - 1. For each manufactured product used in adhered manufactured stone veneer.
- B. Verification:
  - 1. Verify profile and color blend with the owner prior to placing order.
  - 2. Quality Assurance:
    - a. Qualifications:
      - 1) Proof of manufacturer qualifications.
      - 2) Proof of installer qualifications.
    - b. Regulatory Requirements: Evaluation reports.
    - c. Veneer manufacturer's installation instructions.
    - d. Installation instructions for related materials used in AMSV assemblies.
- C. Laboratory Test Reports: For sealants, primers, adhesives and architectural coatings used, including, documentation indicating that products comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers." Products shall conform to local and regional air quality management standards of the authority with jurisdiction.

1.04 QUALITY ASSURANCE

## ALDI Retail Facility

- A. Qualifications:
  - 1. Manufacturer Qualifications: Manufacturer with a minimum of ten (10) years manufacturing adhered manufactured stone masonry.
  - 2. Installer Qualifications: Experienced contractor with a minimum of five (5) years installing adhered manufactured stone.
- B. Certifications:
  - 1. ICC Evaluation Service – Evaluation Report ESR-1215.
- C. Field Sample:
  - 1. Prepare 4 by 4 foot sample at a location on the structure as selected by Construction Manager.
  - 2. Obtain owner approval.
  - 3. Protect and retain sample as a basis for approval of completed manufactured stone work. Approved sample may be incorporated into completed work.

### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Follow manufacturer's instructions.

### 1.06 PROJECT/SITE CONDITIONS

- A. Environmental Requirements: When air temperature is 40 degrees F (4.5 degrees C) or below, consult local building code for Cold-Weather Construction requirements.
- B. Protection of Stone Masonry: During construction, cover tops of walls, projections, with water proof sheeting at the end of each days work.

### 1.07 WARRANTY

- A. Special Warranty: Manufacturer's standard warranty coverage against defects in materials when installed in accordance with manufacturer's installation instructions.

## PART 2 - PRODUCTS

### 2.01 MANUFACTURER

- A. Acceptable Manufacturer: Cultured Stone® by Boral,® which is located at: 200 Mansell Court E. Suite 305; Roswell, GA 30076; Toll Free Tel: 800-255-1727; Email to request info: cs@culturedstone.com; Web: www.culturedstone.com
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

### 2.02 Materials

- A. Stone Veneer:
  - 1. Profile: See Drawings.
  - 2. Color: See drawings.
- B. Wainscot Sill:
  - 1. Profile: See Drawings.
  - 2. Color: See drawings.
- C. Wall Cap:
  - 1. Profile: See Drawings.
  - 2. Color: See drawings.
- D. Veneer Unit properties: Precast veneer units consisting of portland cement, lightweight aggregates, and mineral oxide pigments.

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1. Compressive Strength: ASTM C 192 and ASTM C 39, 5 sample average: greater than 1,800 psi (12.4MPa).
  2. Shear Bond: ASTM C 482: 50 psi (345kPa), minimum.
  3. Freeze-Thaw Test: ASTM C 67: Less than 3 percent weight loss and no disintegration.
  4. Thermal Resistance: ASTM C 177: 0.473 at 1.387 inches thick
  5. Weight per square foot: 2012 IBC and 2012 IRC, ASTM C1670, 15 pounds, saturated.
- E. Weather Barriers for CMU Substrates: Refer to Specification Section 072500.
- F. Water Resistant Barrier for Concrete Unit Masonry: Liquid water-air barrier intended for use over CMU substrates for manufactured stone veneer. Product is a single component, load bearing, fluid applied, waterproofing, crack isolation, air barrier membrane and functions as a seamless, monolithic elastomeric coating.
- 1) Products: Subject to compliance with requirements, MVIS Air & Water Barrier by Laticrete International, Inc.
- G. Reinforcing: ASTM C 847, 2.5lb/yd<sup>2</sup> (1.4kg/m<sup>2</sup>) self furring, galvanized expanded metal lath, with an evaluation acceptance report from an accredited evaluation service showing compliance with ICC-ES Acceptance Criteria 275
- H. Fasteners: Corrosion resistant fasteners in accordance with ASTM C1063.
- I. Mortar:
1. Cement: Portland cement complying with ASTM C 1329.
  2. Lime: ASTM C 207.
  3. Sand: ASTM C 144, natural or manufactured sand.
  4. Water: Potable.
  5. Pre-Packaged Latex-Portland Cement Mortar: ANSI A118.4.
- J. Weep Screeds and Casing Beads:
1. Corrosion resistant metal, thickness not less than 0.0179 inches (26 gauge). Weep screeds shall have a minimum vertical attachment flange of 3.5 inches.
- I. Metal Flashing: Corrosion resistant stainless steel sheet metal flashing with hemmed drip edge, thickness not less than 0.0179 inches (26 gauge) extending beyond face of AMSV exterior surface. Flashing shall have a minimum vertical attachment flange of 3.5 inches and integrated with the weather resistant barrier.

### 2.03 MORTAR MIXES

- A. Jointless/Dry-Stacked Installation:
1. Polymer modified mortar complying with ANSI A118.4

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates upon which work will be installed.
- B. Coordinate with responsible entity to perform corrective work on unsatisfactory substrates.
- C. Commencement of work by installer is acceptance of substrate.

### 3.02 PREPARATION

- A. Protection: Protect adjacent work from contact with mortar.
- B. Surface Preparation: Prepare substrate in accordance with manufacturer's installation instructions for the type of substrate being covered.

### 3.03 INSTALLATION

ALDI Retail Facility

- A. Apply water resistant barrier over concrete unit masonry substrates in accordance with water resistant barrier manufacturer's requirements.
- B. Apply double layer of water resistant barrier over wood sheathing substrates in accordance with water resistant barrier manufacturer's requirements. (Refer to specification section 072500)
- C. Install metal lath over concrete unit masonry and sheathing substrates in accordance with ASTM C1063-14a, latest version and ASTM C954.
- D. The application of veneer stone mortar and stone veneer shall be in accordance with the Masonry Veneer Manufacturer's Association's Installation Guide for Adhered Concrete Masonry Veneer.
- E. Arrange stones with color and size variations uniformly dispersed for an evenly blended appearance and in accordance with the approved mock-up.
- F. Provide sealant joints of widths and at locations indicated. Keep sealant joints free of mortar and other rigid materials.
- G. Provide weep screeds, casing beads and embedded flashing at locations indicated.

3.04 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 Efflorescence:
  - 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, contact manufacturer for assistance.

3.05 SEALING

- A. Seal all exposed adhered manufactured stone veneer with associated mortar after final cleaning with clear sealant as specified in section 071900 WATER REPELLENTS.

END OF SECTION 047300