

SECTION 042000 - UNIT MASONRY

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 fabrication requirements for metal flashing installed in masonry.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For reinforcing steel. Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement." Show elevations of reinforced walls.
- C. Material Certificates: For each type and size of product indicated. For masonry units include data on material properties.
- 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.

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. 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 unless otherwise indicated.
- C. Integral Water Repellent: Provide units made with integral water repellent.
 - 1. Integral Water Repellent: Liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength. Units made with integral water repellent, when tested according to ASTM E 514 as a wall assembly made with mortar containing integral water-repellent manufacturer's mortar additive, with test period extended to 24 hours, shall show no visible water or leaks on the back of test specimen.
 - a. Products: Subject to compliance with requirements, provide one of the following:
 - 1) ACM Chemistries; RainBloc.
 - 2) BASF Aktiengesellschaft; Rheopel Plus.
 - 3) Grace Construction Products, W. R. Grace & Co. - Conn.; Dry-Block.

2.3 CONCRETE AND MASONRY LINTELS

- A. General: Provide one of the following:
- B. Concrete Lintels: ASTM C 1623, matching CMUs in color, texture, and density classification; and with reinforcing bars indicated. Provide lintels with net-area compressive strength not less than CMUs.
- C. Masonry Lintels: Prefabricated or built-in-place masonry lintels made from bond beam CMUs with reinforcing bars placed as indicated and filled with coarse grout.

2.4 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: Not permitted.
- 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. 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.
- H. Water: Potable.

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. Interior Walls: Hot-dip galvanized, carbon steel.
 - 2. Exterior Walls: Hot-dip galvanized, carbon steel.
 - 3. Wire Size for Side Rods: 0.148-inch diameter.
 - 4. Wire Size for Cross Rods: 0.148-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: Ladder 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. Rigid Anchors: Fabricate from steel bars 1-1/2 inches wide by 1/4 inch thick by 24 inches long, with ends turned up 2 inches or with cross pins unless otherwise indicated.

1. Corrosion Protection: Hot-dip galvanized to comply with ASTM A 153/A 153M.
- C. 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. Metal Flashing: Provide metal flashing complying with Division 07 Section "Sheet Metal Flashing and Trim" and as follows:
 1. Metal Drip Edge for Flexible Flashing: Fabricate from stainless steel. Extend at least 3 inches into wall and 1/2 inch out from wall, with outer edge bent down 30 degrees and hemmed.
- B. Flexible Flashing: Use the following unless otherwise indicated:
 1. Rubberized-Asphalt Flashing: Composite flashing product consisting of a pliable, adhesive rubberized-asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than 0.040 inch.
 - a. Products: Subject to compliance with requirements, provide one of the following:
 - 1) Carlisle Coatings & Waterproofing; CCW-705-TWF Thru-Wall Flashing.
 - 2) Dayton Superior Corporation, Dur-O-Wal Division; Dur-O-Barrier Thru-Wall Flashing.
 - 3) Grace Construction Products, W. R. Grace & Co. - Conn.; Perm-A-Barrier Wall Flashing.
 - 4) Heckmann Building Products Inc.; No. 82 Rubberized-Asphalt Thru-Wall Flashing.
 - 5) Hohmann & Barnard, Inc.; Textroflash.
 - 6) W. R. Meadows, Inc.; Air-Shield Thru-Wall Flashing.
- C. Solder and Sealants for Sheet Metal Flashings: As specified in Division 07 Section "Sheet Metal Flashing and Trim."
- D. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.

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. Round Plastic Weep/Vent Tubing: Medium-density polyethylene, 3/8-inch OD by 4 inches long.

2.9 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.
- B. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion 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 M.
 2. For reinforced masonry, use Type S.
 3. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; for interior non-load-bearing partitions; 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, 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.

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.

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, 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, 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.
- E. Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items 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 slightly concave when thumbprint hard, using a jointer larger than joint thickness 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 wall intersections by using prefabricated T-shaped units.
- D. Provide continuity at corners by using prefabricated L-shaped units.

3.6 FLASHING AND WEEP HOLES

- A. General: Install embedded flashing and weep holes in masonry at 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, 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. 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.
- 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 products to form weep holes.
 - 2. Space weep holes 24 inches o.c. unless otherwise indicated.
 - 3. Extend weeps to exterior face of cast stone veneer.

3.7 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.
- B. Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 602.
- C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
 - 1. Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
 - 2. Limit height of vertical grout pours to not more than 60 inches.

3.8 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:
 - 1. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes.
 - 2. Protect surfaces 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 concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

3.9 MASONRY WASTE DISPOSAL

- A. Masonry Waste: Remove masonry waste and legally dispose of off Owner's property.

END OF SECTION 042000

SECTION 047300 - MANUFACTURED STONE MASONRY

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Manufactured stone veneer (cast stone or simulated stone) and application materials.
- B. Related Sections:
 - 1. Division 06 Section "Sheathing" for weather resistant barrier over sheathing on framed walls.
 - 2. Division 07 Section "Sheet Metal Flashing and Trim" for fabrication requirements for metal flashing installed in manufactured stone masonry.

1.2 SUBMITTALS

- A. Product Data: For manufactured stone masonry and application materials including mortar color charts, and weather resistant barrier.
- B. Shop Drawings: Show fabrication and installation details for cast stone units. Include dimensions, details of reinforcement and anchorages if any, and indication of finished faces.
- C. Samples for Verification: For each type and color of exposed masonry unit and colored mortar.
- D. Material Test Reports:
 - 1. For physical properties for manufactured stone masonry.
 - 2. For each mix required to produce cast stone, based on testing according to ASTM C 1364, including test for resistance to freezing and thawing.
- E. Certificates: ICC-ES Report.
- F. Manufacturer's installation instructions.
- G. Closeout Submittals:
 - 1. Maintenance Instructions.
 - 2. Special Warranties.

1.3 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Manufacturer Qualifications:
 - a. Minimum five years experience in producing manufactured stone masonry.
 - 2. Installer Qualifications: Company with documented experience in installation of manufactured stone masonry including minimum 5 projects within 400 mile radius of this Project.

- B. Field Samples: Provide in a location selected by Architect showing representative sample of installed product including penetration and termination details, corner detail, top termination, and mortar color and tooling.
 - 1. Minimum Size: 4 by 4 feet.
 - 2. Approved field samples may remain as part of completed Work.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Follow manufacturer's instructions.
- B. Store moisture-sensitive materials in weather protected enclosures.

1.5 PROJECT/SITE CONDITIONS

- A. Environmental Requirements: Maintain materials and ambient temperature in area of installation at minimum 40 degrees F prior to, during, and for 48 hours following installation.

1.6 WARRANTY

- A. Special Warranty: Provide manufacturer's standard limited warranty against defects in manufacturing for a period of 10 years following date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Basis-of-Design Product: Cultured Stone® Textures by Owens Corning or a comparable product by one of the following:
 - 1. Coronado Stone Products.
 - 2. Eldorado Stone.

2.2 MANUFACTURED STONE MASONRY MATERIALS

- A. Manufactured Stone:
 - 1. Single Texture: Match Owens Corning Cultured Stone® Textures "Chardonnay Country LedgeStone (CSV-20006) for sizes, color and texture.
 - 2. Physical Properties:
 - a. Compressive Strength: ASTM C 192 and ASTM C39, 1800 psi, 5 specimen average, 1500 psi minimum for individual unit.
 - b. Bond Between Stone Unit, Type S Mortar, and Backing: ASTM C 482, 50 psi.
 - c. Thermal Resistance: ASTM C 177, R-factor, 0.355 per inch of thickness.
 - d. Freeze/Thaw: ASTM C 67, no disintegration and less than 3 percent weight loss.
 - e. Fire Hazard Test, UL 723:
 - 1) Flame spread: 0.
 - 2) Smoke Development: 0.
 - f. Maximum Veneer Unit Weight: 15 psf.

- B. Cast Stone Trim: Provide cast stone units complying with ASTM C 1364 using either the vibrant dry tamp or wet-cast method.
1. Provide units that are resistant to freezing and thawing as determined by laboratory testing according to ASTM C 666/C 666M, Procedure A, as modified by ASTM C 1364.
 2. Slope exposed horizontal surfaces 1:12 to drain unless otherwise indicated.
 3. Provide raised fillets at backs of sills and at ends indicated to be built into jambs.
 4. Provide drips on projecting elements unless otherwise indicated.
 5. Cure units as follows:
 - a. Cure units in enclosed moist curing room at 95 to 100 percent relative humidity and temperature of 100 deg F for 12 hours or 70 deg F for 16 hours.
 - b. Keep units damp and continue curing to comply with one of the following:
 - 1) No fewer than five days at mean daily temperature of 70 deg F or above.
 - 2) No fewer than six days at mean daily temperature of 60 deg F or above.
 - 3) No fewer than seven days at mean daily temperature of 50 deg F or above.
 - 4) No fewer than eight days at mean daily temperature of 45 deg F or above.
 6. Acid etch units after curing to remove cement film from surfaces to be exposed to view.
 7. Textures: Match smooth finish Indiana limestone.
 8. Color: Match Select Stone Co.; Golden Buff color.

2.3 MORTAR

- A. Comply with requirements in Division 04 Section "Unit Masonry" for mortar materials and mixes.
1. Use Type N.

2.4 RELATED MATERIALS

- A. Weather Resistant Barrier: No. 15, Type I, asphalt saturated felt, ASTM D 226.
- B. Metal Lath: 2.5 lb galvanized expanded metal self-furring lath.
- C. Fasteners:
1. Into Wood Studs: Minimum 0.120 inch shank diameter galvanized nails or staples of sufficient length to penetrate 1-3/8 inches minimum into the stud.
- D. Cast Stone Anchors: Type and size indicated, fabricated from Type 304 stainless steel complying with ASTM A 240/A 240M, ASTM A 276, or ASTM A 666.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify conditions and surfaces are ready to receive work of this Section, are as indicated on Drawings and conditions conform to requirements of the manufacturer.

3.2 PREPARATION

- A. Protection: Prevent work from occurring on the opposite of walls to which manufactured stone masonry is applied during and for 48 hours following installation of the manufactured stone masonry.
- B. Surface Preparation: Follow manufacturer's instructions for manufactured stone masonry and substrate.
 - 1. Clean concrete block masonry to remove form-release agents, dust, coatings, and other substances that might inhibit mortar bond by light sandblasting or waterblasting.
- C. Install concealed flashing at continuous lintels, ledges, and similar obstructions to downward flow of water to divert water to building exterior.
- D. Cover sheathing with weather resistant barrier, lapping vertical joints 6 inches and horizontal joints 2 inches in shingle fashion to shed water.
 - 1. Install lath over weather-resistant barrier by fastening through sheathing into framing to comply with ASTM C 1063. Space fasteners not more than 6 inches o.c. vertically in each stud.
 - 2. Extend weather-resistant barrier and metal lath a minimum of 16 inches around outside and inside corners terminating over a framing member.

3.3 SETTING OF MANUFACTURED STONE, GENERAL

- A. Install manufactured stone masonry products in accordance with manufacturer's installation instructions using grouted joints.
 - 1. Perform necessary field cutting and trimming as manufactured stone masonry is set.
 - a. Use power saws with diamond blades to cut stone. Cut lines straight and true, with edges eased slightly to prevent snipping.
 - 2. Install manufactured stone masonry working from the bottom up.
 - 3. Remove mortar droppings as work progresses.
- B. Rake out joints for pointing with mortar to depths of not less than 3/4 inch. Rake joints to uniform depths with square bottoms and clean sides. Scrub faces of units to remove excess mortar as joints are raked.
- C. Point mortar joints by placing and compacting mortar in layers not greater than 3/8 inch. Compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.
- D. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.
- E. Provide sealant joints at horizontal surfaces, at expansion, control, and pressure-relieving joints, at interface with different materials, and at locations indicated.
 - 1. Keep joints free of mortar and other rigid materials.
 - 2. Prepare and apply sealant of type and at locations indicated to comply with applicable requirements in Division 07 Section "Joint Sealants."

3.4 INSTALLATION OVER METAL LATH

- A. Using a plasterer's or mason's trowel, apply scratch coat over metal lath 1/2 to 3/4 inch thick to prepared surface area to comply with ASTM C 926. Use a toothed scraper, notched trowel or small piece of lath to lightly rake horizontal grooves in the scratch coat. Allow scratch coat to dry for 24 hours.
- B. Coat backs of stone panel system units and face of scratch coat with cement-paste bond coat, then butter both surfaces with setting mortar at least 1/2 inch thick. Tap units into place, completely filling space between units and scratch coat.

3.5 INSTALLATION OVER SOLID MASONRY

- A. Using a plasterer's or mason's trowel, apply scratch coat directly over masonry backup without lath 1/4 to 1/2 inch thick to prepared surface area to comply with ASTM C 926. Use a toothed scraper, notched trowel or small piece of lath to lightly rake horizontal grooves in the scratch coat. Allow scratch coat to dry for 24 hours.
- B. Coat backs of stone panel system units and face of masonry backup with cement-paste bond coat, then butter both surfaces with setting mortar at least 1/2 inch thick. Tap units into place, completely filling space between units and backup.

3.6 INSTALLATION OF CAST STONE TRIM

- A. Install cast stone units to comply with requirements in Division 04 Section "Unit Masonry."
 - 1. Set units in full bed of mortar with full head joints unless otherwise indicated.
 - 2. Joint Width: 1/4 inch nominal.
 - 3. Fill dowel holes and anchor slots with mortar.
 - 4. Fill collar joints solid as units are set.
 - 5. Build concealed flashing into mortar joints as units are set.
 - 6. Keep head joints in units with exposed horizontal surfaces open to receive sealant.

3.7 FIELD QUALITY CONTROL

- A. Manufacturer's Field Services:
 - 1. Require product manufacturers to provide field surveillance of the installation of their products.
 - 2. Monitor and report installation procedures, weather and temperature conditions, and unacceptable conditions.

3.8 CLEANING

- A. Clean manufactured stone masonry in accordance with manufacturer's instructions.

3.9 PROTECTION

- A. Protect finished work from rain during and for 48 hours following installation.
- B. Protect finished work from damage during remainder of construction period.

Section 047300
Manufactured Stone Masonry

END OF SECTION 047300

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