SECTION 040513

MASONRY MORTARING

PART 1 GENERAL

1.01 RELATED SECTIONS

A. Drawings and general provisions of the Agreement, including General and Supplementary Conditions, and Division 01 of the Specifications, apply to work of this Section.
B. 040523 - Masonry Accessories.
C. 042200 - Concrete Unit Masonry.
D. 079200 - Joint Sealants

1.02 SCOPE

A. Furnish labor and materials necessary to install a complete system.

1.03 STANDARDS

A. All work of this section shall conform to industry standards and/or manufacturer’s recommendations.
B. ASTM C144 "Standard Specification for Aggregate for Masonry Mortar".
C. ASTM C91 "Standard Specifications for Masonry Cement".
D. ASTM C150 "Standard Specification for Portland Cement".
E. ASTM C207 "Standard Specifications for Hydrated Lime for Masonry Purposes".
F. ASTM C270 "Standard Specifications for Mortar for Unit Masonry".
G. ASTM C780 "Standard Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry".

1.04 SUBMITTALS

A. Submit pursuant to 013000 Administrative Requirements for Shop Drawings, Product Data, Samples.
B. Submit pursuant to 016000 Product Requirements.
C. Submit certificates of compliance and manufacturer's technical data describing: cement, lime, and sand products specified.
D. Submit manufacturer's technical data describing integral coloring specified.
E. Submit small mortar samples depicting integral coloring manufacturer's entire range of available colors
F. Submit mortar mix designs.
G. Submit results of tests of field specimens.

1.05 QUALITY ASSURANCE

A. All work of this section shall be performed by experienced workmen familiar with the work and according to manufacturers recommendations and/or industry standards.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Pursuant to manufacturer’s published instructions.

B. Protect against moisture exposure and damage.

PART 2 PRODUCTS

2.01 MORTAR MATERIALS

A. Portland Cement: ASTM C150, Type I or Type II, Domestic; use as specified.
   1. Exterior (above grade)
      a) Color at concrete unit masonry selected by architect.
      b) Provide natural color or white cement as required to produce mortar color.
   2. Exterior (at or below grade)
      a) Color at concrete unit masonry: gray.

B. Interior
   1. Color at concrete unit masonry by architect.

C. Sand: ASTM C144; local mason sand.

D. Water: Potable and salt free.

E. Lime: ASTM C207, Type S mortar.

F. Provide all cement products from one manufacturer.

G. Provide white cement for integral coloring.

H. Combine products for mortar in accordance with ASTM C270 for Type S.

2.02 ADMIXTURES

A. Admixtures containing calcium chlorides are prohibited.

B. All mortar for exterior concrete masonry applications shall contain "Dry-Block" integral water repellent mortar admixture. Do not use "Dry-Block" integral water repellent mortar admixture with clay masonry applications.
   1. Apply at dosage recommended by the manufacturer

2.03 INTEGRAL COLORING

A. Product: dry mixture of non-fading, alkali-resistant iron-oxide pigments possessing uniform dispersion characteristics.

B. Color selection by Architect.

2.04 MORTAR MIX

A. Prepare mortar mixes pursuant to "Property Specification Requirements" of ASTM C270 for types indicated on Drawings and herein specified.

B. Exterior Concrete Unit Masonry (above grade)
   1. Mortar:
      a) Type S (min. avgerage compressive strength at 28 days: 1,800 psi.).
      b) Mix: Portland cement/lime.
   2. Admixture:
      a) Coloring pigments, as selected by Architect from manufacturer's full range.
      b) Must contain add mixture for waterproofing
         (1) Submittals must specify water repellent agent.
         (2) Submit product literature for approval prior to using mortar on any finished area.

C. Exterior Concrete Unit Masonry (at or below grade)
   1. Mortar:
      a) Type S (min. avgerage compressive strength at 28 days: 1,800 psi.).

b) Mix: Portland cement/lime.

2. Admixture:

a) Coloring pigments, as selected by Architect from manufacturer's full range.

D. Interior Concrete Unit Masonry

1. Mortar:

a) Type S (min. avgerage compressive strength at 28 days: 1,800 psi.).

b) Mix: Portland cement lime.

2. Admixture:

a) Coloring pigments, as selected by Architect from manufacturer's full range.

E. Tests

1. Prepare mix designs and conduct tests using a recognized laboratory.

PART 3 EXECUTION

3.01 MIXING

A. Mix mortar by methods that will ensure accurate proportioning of all required ingredients to a uniform consistency.
B. Mechanically mix between 3 to 5 min. Hand mixing is prohibited.
C. Select ingredients that are compatible.
D. Do not combine two air entraining materials within same mortar mix.

3.02 RETEMPERING

A. Use mortar within 2-1/2 hr of initial mixing.
B. Discard unused mortar after it has begun to set. Do not retemper mortar that has begun to set.

3.03 ADMIXTURES

A. Mix admixtures into mortar pursuant to manufacturer's published instructions.

3.04 INTEGRAL COLORING

A. Provide integral coloring to mortar for walls as scheduled.
B. Mix into mortar pursuant to manufacturer's published instructions.

3.05 SPECIAL APPLICATIONS

A. Fill block cells with fine or course grout (not mortar) where indicated and where steel structural members bear on masonry construction for a minimum of 16" wide by 3 courses deep. Place mortar free of voids. Provide inspection holes at base of each filled vertical cell.
B. Fill hollow metal door frames. Place mortar free of voids.

3.06 FIELD QUALITY CONTROL

A. Mortar testing per section 2105.2.2.1.of the Building Code – Unit Strength Method, at rate of one test per four cu. yds. of mortar pursuant to ASTM C780.

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END OF SECTION

SECTION 040523

MASONRY ACCESSORIES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Agreement, including General and Supplementary Conditions, and Division 01 of the Specifications, apply to work of this Section.
B. 032000 - Concrete Reinforcing
C. 040513 - Masonry Mortaring.
D. 042200 - Concrete Unit Masonry.
E. 076000 - Flashing and Sheet Metal

1.02 SCOPE

A. Furnish labor and materials necessary to install a complete system.
B. Metal horizontal joint reinforcement for masonry.
C. Masonry veneer ties and masonry anchors.
D. Wall ventilation for masonry.
E. In wall cavity mortar netting.

1.03 STANDARDS

A. All work of this section shall conform to industry standards and/or manufacturer’s recommendations.
B. ASTM A82 "Standard Specification for Steel Wire, Plain, for Concrete Reinforcement".
C. ASTM A153 "Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware".
D. ASTM A641 "Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire".
E. ASTM A951 "Standard Specification for Masonry Joint Reinforcing".
F. ASTM D2287 "Standard Specification for Non-rigid Vinyl Chloride Polymer and Copolymer Molding and Extrusion Compounds".

1.04 SUBMITTALS

A. Submit pursuant to 013000 Administrative Requirements for Shop Drawings, Product Data, Samples.
B. Submit pursuant to 016000 Product Requirements.
C. Submit certificates of compliance and manufacturer's technical data for but not limited to: horizontal joint reinforcing, veneer anchors, movement joints products. anchors, expansion bolts, and rigid ties.

1.05 QUALITY ASSURANCE

A. All work of this section shall be performed by experienced workmen familiar with the work and according to manufacturer’s recommendations and/or industry standards.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Pursuant to manufacturer's published instructions.
B. Protect against moisture exposure and damage.

PART 2 PRODUCTS

STAINLESS STEEL STAINLESS STEEL STAINLESS STEEL

2.01 HORIZONTAL JOINT REINFORCEMENT WITH TIES OR ANCHORS
(Side and Cross Rods of same material) (cmu and brick wythes adjacent to each other in extra (>4") wide cavity wall systems. Apparatus Bay cavity exceeds 4" at most locations)

A. Description: two or more parallel longitudinal deformed rods weld connected with transverse cross rods which forms a ladder design.
B. Provide with out-to-out longitudinal rod spacing two in. less than out-to-out of cmu wythe width.
   1. Lap side rods minimum of 6" at splices u.o.n.
C. Exterior Application:
   1. Side Rods: (2) rods - 3/16 inch diameter.
   2. Cross Rods: 9 gauge.
   3. Finish: Stainless Steel: ASTM A580/ASTM 580M - AISI Type 304.
   4. Pintel: super-heavy duty eyelets, pintels are flattened and serrated.
D. Provide rectangular adjustable wall tie pintles.
   1. Rectangular wall tie pintle spacing at 16 in. o.c. horizontally. Pintles to be embedded a minimum of 1.5 inches from the interior veneer face and should have at least 5/8-inch mortar or grout cover to the outside face.
   2. Finish: Stainless Steel: ASTM A580/ASTM 580M - AISI Type 304..
E. Product: #280 Dub'l Loop-Lok with 3/16" Box Byna-Tie Veneer Anchor and Loop-Lok Washers by Hohmann & Barnard, Inc. (www.h-b.com), or approved equal.
F. Products: #230 Ladder Tri-Mesh by Hohmann & Barnard, Inc. (www.h-b.com), or approved equal. Use where there is no insulation between veneer and CMU back-up.

2.02 HORIZONTAL JOINT REINFORCEMENT WITHOUT TIES OR ANCHORS
(Side and Cross Rods of same material) (single-wythe cmu walls)

A. Description: two or more parallel longitudinal deformed rods weld connected to transverse cross rods. Ladder type design shall be used in single-wythe walls when "truss" type will interfere with vertical reinforcing or type of CMU insulation specified, see section 042200.
B. Provide with out-to-out side rod spacing two in. less than out-to-out total wall system width.
   1. Lap side rods minimum of 6" at splices u.o.n.
C. Exterior Application:
   1. Side Rods: a minimum of (2) - 3/16 inch diameter.
   2. Cross Rods: 9 gauge.
   3. Finish: hot dipped galvanized 1.5 oz. Per sq. ft., ASTM A153 Class B-2.
D. Interior Application:
   1. Side Rods: (2) - 3/16 inch diameter.
   2. Cross Rods: 9 gauge.
   3. Finish: mill galvanized minimum of .10 oz. psf.
E. Product: #220 Ladder Mesh by Hohmann & Barnard, Inc. (www.h-b.com), or approved equal.

2.03 HORIZONTAL JOINT REINFORCEMENT WITH ADJUSTABLE VENEER TIES

(Side and Cross Rods of same material) (cmu and brick veneer wall where coursing may not align or where rigid insulation is used on exterior side of concrete masonry units)

A. Description: two or more parallel longitudinal deformed rods weld connected to transverse cross rods. Ladder type design shall be used when the truss type will interfere with vertical reinforcing or type of CMU insulation specified
B. Provide with out-to-out side rod spacing two in. less than out-to-out total CMU wall system width.
   1. Lap side rods minimum of 6" at splices u.o.n.
C. Exterior Application:
   1. Side Rods: (2) - 3/16 inch diameter.
   2. Cross Rods: 9 gauge.
   3. Finish: Stainless Steel: ASTM A580/ASTM 580M - AISI Type 304.
D. Provide rectangular adjustable wall tie pintles.
   1. Rectangular wall tie pintle spacing at 16 in. o.c. horizontally. Pintles to be embedded a minimum of 1.5 inches from the interior veneer face and should have at least 5/8-inch mortar or grout cover to the outside face.
   2. Finish: Stainless Steel: ASTM A580/ASTM 580M - AISI Type 304.
E. Product: #280 Dub'l Loop-Lok with 3/16" Box Byna-Tie Veneer Anchor and Loop-Lok Washers by Hohmann & Barnard, Inc. (www.h-b.com), or approved equal.

2.04 VENEER ANCHORING SYSTEM (directly to other than new cmu back up wall)

A. Description: vertically adjustable mechanical anchoring system for masonry veneer to wood or metal stud construction or to existing concrete masonry construction.
B. Provide 14 gauge veneer anchor with 3/16 inch diameter Vee Ties as manufactured by Hohmann & Barnard, Inc. or approved equivalent.
C. Install at wall studs. Space mechanical ties at 24" o.c. horizontally and 16" o.c. vertically when wall studs are 24" o.c., Space mechanical ties at 16" o.c. horizontally and 24" o.c. vertically when wall studs are 16" o.c. Space mechanical ties at 12" o.c. horizontally and 24" o.c. vertically when wall studs are 12" o.c. Install at 24" o.c and within 12" around perimeter of openings in veneer that exceed 16" in any direction.
D. Veneer anchors to be embedded a minimum of 1.5 inches from the interior veneer face and should have at least 5/8-inch mortar or grout cover to the outside face.
E. Finish - Anchor: hot dipped galvanized.
F. Finish – Triangular Tie: Stainless Steel: ASTM A580/ASTM 580M - AISI Type 304.
G. Product: DW-10HS Anchor with 3/16" #VBT Vee Wall Ties by Hohmann & Barnard, Inc. (www.h-b.com), or approved equal.

2.05 MASONRY ANCHORING SYSTEM (masonry anchored to structural steel)

A. Description: vertically adjustable mechanical anchoring system for masonry to steel construction. All columns that face and are adjacent (within 2 inches) to masonry shall have masonry anchors on those sides for full height of masonry. All steel beams that face masonry shall have masonry anchors on the web of the beam facing the masonry for the full length of the beam.
B. For vertical applications (faces of columns) provide #317 (1/4 inch diameter) continuous wire rod anchor welded to steel members. For horizontal applications (webs of beams) provide #315 (1/4 inch diameter) wire rod anchors welded to steel members. The veneer ties are to be a triangular wires, 3/16 inch diameter. Use #316's when veneer is parallel with steel. Use #318 triangular ties when veneer is perpendicular to steel. All as manufactured by Heckmann Building Products, Inc. or approved equivalent.

C. Install as indicated on the drawings. When not indicated space triangular ties at 16 inches on center for vertical applications and space anchors and triangular ties at 16 inches on center for horizontal applications.

D. Finish: #315's and #317's furnish plain or galvanized, painted with steel in shop. #316's and #318's hot dipped galvanized 1.5 oz. per sq. ft. ASTM A153 Class B-2.

E. Veneer anchors to be embedded a minimum of 1.5 inches from the interior veneer face and should have at least 5/8-inch mortar or grout cover to the outside face.

2.06 MOVEMENT JOINT PRODUCTS

A. Hohmann & Barnard or approved equivalent
   1. Control joint – RS Series Rubber Control Joint by Hohmann & Barnard or approved equivalent
      a. Material – Rubber – ASTM D-2000 –
      b. Install in as continuous piece vertically as possible.
   2. Joint Stabilization Anchors
      a. Slip-Set Stabilizer
      b. Finish: hot dipped galvanized.
      c. Install at masonry vertical control joints at 4'-0" o.c. vertically.

2.07 GROUT SCREEN

A. Hohmann & Barnard or approved equivalent
   1. MGS Mortar/Grout Screen based on CMU thickness.
   2. Use where required to maintain grout in filled cells.

2.08 WALL FLASHING (BASE FLASHING)

A. Mighty-Flash™ SA by Hohmann & Barnard, Inc. (www.h-b.com), or approved equal. Self-adhering stainless steel fabric flashing product with a clear adhesive. The adhesive is factory-laminated to a Class A material consisting of a layer of polymeric fabric with a single sheet of 304 stainless steel bonded to one side, field adhered to a 26 gage stainless steel drip edge, 3" wide with a 3/16" hemmed drip.
   1. Install in accordance with manufacturer's printed instructions at all exterior conditions.
   2. Flash all shelf angles (including but not limited to lintels), bond beams, sills and wall bases.
   3. Install end dams a minimum of 2" high at all shelf angles, sills and other ends.
   4. Lap all joints a minimum of 6" and seal with manufacturers approved mastic.
   5. Use pre-formed corners made by the same manufacturer as the flashing.
   6. Use 1/8" x 1", 304 stainless steel termination bar in 12' lengths and caulk in cavity walls against air barrier. Do not tear or puncture the air barrier.
   7. Extend drip edge1/4" past exterior face.

2.09 INTEGRAL FLASHING BLOCK

A. In single wythe masonry wall use an Integral Flashing Block Unit with Dry Block. See Section 042200 – Concrete Unit Masonry for full information.

2.10 WALL DRAINAGE AND VENTILATION

A. Description: cell ventilation and weep unit.
   1. Provide: QV Quadro-Vent as manufactured by Hohmann & Barnard or approved equivalent.

2. Install directly on top of through wall flashings and at highest point in cavity at 24" o.c.
3. Color: to be selected by Architect

2.11 IN WALL CAVITY MORTAR NETTING

A. Description: 90% open polymeric mesh to allow unobstructed passage of air and water at base of wall cavity.
B. Product: Mortar Net, by Mortar Net USA, Ltd., 10" high by 1" thick.

2.12 EXPANSION BOLTS (attaching steel members to masonry walls)

A. Description: Stud type with a single piece three section wedge and zinc plated in accordance with ASTM B633 or where specified type 304 or type 316 stainless steel. See drawings for locations where stainless steel is required. Anchors shall be installed in drilled holes per manufacturer's recommendations.
B. Product: Hilti Kwik Bolts, diameter as specified, by Hilti Corp. or approved equal.

2.13 ADHESIVE ANCHOR BOLTS (attaching steel members to masonry elements)

A. Description: Threaded anchor rods, nut and washer, a cylindrical mesh screen tube and an injectable adhesive (components A and B) material. Screen tube and anchors shall be installed in drilled holes and per manufacturer's recommendations. Anchor rods supplied in accordance with ASTM A 36, or if required: ASTM F 593 (AISI 304 stainless steel). Nuts shall be furnished to meet the requirements of the above anchor rod specifications. Anchors rods (non-stainless steel), nuts and washers to be zinc plated in accordance with ASTM A 153.

B. Product: Hilti HIT-HY 10 PLUS, diameter as specified, by Hilti Corp. or approved equal.

2.14 RIGID TIES (attaching intersecting masonry walls together when toothing is unattainable)

A. Description: Mild steel "Z" ties, 1/4" thick, 1 1/2" wide x 24" long, with 2" long bent legs, hot dipped galvanized. Install at 16" o.c. vertically.
B. Product: Rigid Partition Anchor Type #344 by Hohmann & Barnard, Inc. or Bent Anchor Type 140 by Heckmann Building Products, Inc. or approved equal.

2.15 PARTITION TOP ANCHOR

A. Description: Mild steel, 12 gauge, with 2" long bent legs, hot dipped galvanized. Install at 24" o.c. horizontally.
B. Product: PTA Type #422 by Hohmann & Barnard, Inc. or approved equal.

2.16 STRUCTURAL INSULATION

A. Description: Recylced glass and raw inorganic material with a compressive strength that exceeds 100 psi.
B. Product: Foamglas Perinsul HL by Pittsburgh Corning Corporation, or approved equal.

PART 3 EXECUTION

3.01 GENERAL

A. If more than one value or requirement is specified, see Drawings for location.

3.02 HORIZONTAL JOINT REINFORCEMENT

A. Place horizontal joint reinforcing as follows:
   1. In solid wall panels, for interior and exterior walls, place at a vertical spacing of 16 in. on center vertically.
   2. In exterior parapets, place at a vertical spacing of 8 in. on center vertically.
B. Place horizontal joint reinforcement in
   1. Single wythe walls of concrete unit masonry.
C. Place reinforcing in the two (2) bed joints above and below window and door wall openings, extending a minimum of 24" beyond the opening (except at vertical control joints). At other special conditions, place horizontal joint reinforcement as described in manufacturer's published instructions and as illustrated on Drawings.
D. Lap side rods at each end joint a minimum of 6 in. for normal shrinkage stresses.
E. Install prefabricated corner and tee assemblies at each wall corner and intersection.
F. Miter and butt end joints are prohibited.
G. Place horizontal joint reinforcement in approximate center of out-to-out wall assembly and assuring a 5/8 in., minimum, mortar coverage on exterior face.
H. Install horizontal joint reinforcement continuous, terminating only at vertical control joints.
I. Do not install horizontal joint reinforcement at horizontal joints where there is thru-wall flashing.

3.03 REINFORCED VERTICAL CELLS (VERTICAL REINFORCEMENT)

A. Place vertical reinforcement in concrete masonry cells as indicated on Drawings using wire-tying or prefabricated bar positioners. Wet–setting reinforcement is not permitted.
B. Fill concrete masonry cells with fine or course gravel concrete grout (not mortar) as described in Section 042200 - Concrete Unit Masonry.
C. Place, tie, secure and lap reinforcement pursuant to Sections 032000 and 042200. Vertical bars must be placed within 1/2 inches of the location required within the thickness (out of plane) of the wall. For 12” CMU walls or pilaster, this tolerance can be increased to 3/4 inch.

3.04 MORTAR NET

A. Install as per manufacturers instructions.
B. Install continuous length of mortar net immediately above all through wall flashings in masonry and masonry veneer applicators.

3.05 BENDING, CUTTING AND SPLICING REINFORCEMENT

A. Make bends and splices in reinforcement only where indicated, or prior-approved by Architect. Bend reinforcement only when cold, and prior to any placement in construction, forming around a steel pin of diameter at least 6 times the reinforcement size. Cut bars only by approved sawing, shearing or welding methods. Make ends of reinforcement straight, square, clean and free of defects before splicing. Do not heat or weld bends and splices at points of maximum stress. Clip and bend any tie wires as required to direct the ends away from external surfaces of masonry walls.
B. Where welding is necessary, provide materials and perform welding in accordance with AWS requirements.

END OF SECTION

SECTION 042001
MASONRY VENEER

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete block.

B. Installation of lintels.

C. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 040513 - MASONRY MORTARING.

B. Section 040523 - Masonry Accessories.

C. Section 042000 - Unit Masonry

D. Section 055000 - Metal Fabrications: Loose steel lintels.

E. Section 061000 - Rough Carpentry: Wood stud backup for masonry veneer.

F. Section 079200 - Joint Sealants: Sealing control and expansion joints.

1.03 REFERENCE STANDARDS

A. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures 2016.

B. ASTM C129 - Standard Specification for Nonloadbearing Concrete Masonry Units 2017.

C. ASTM C979/C979M - Standard Specification for Pigments for Integrally Colored Concrete 2016.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: A masonry preconstruction meeting will be held at the jobsite with representatives of the cmu manufacturer, mortar supplier, mason contractor and the architect' s representative. This meeting will be held prior to the construction of the sample panel and will address:

1. Schedule for delivery of masonry units and accessories.

2. Sample panel location and construction.

3. Installation of flashing and weeps.

4. Mortar.

5. Mortar color.

6. Protection of masonry materials and walls during construction.

7. Cleaning.

8. Application of Post-Applied Sealers (if specified).

1.05 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data for masonry units.

C. Shop Drawings: Provide Shop Drawings for each and every veneer block, sill, water table, etc. to encompass every type, shape and dimension of veneer block on the project.

D. Samples: Submit one sample of each decorative block unit to illustrate color, texture, and extremes of color range.

E. Manufacturer's Certificate: Certify that masonry units meet or exceed specified requirements.

F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. See Section 016000 - Product Requirements, for additional provisions.

1.06 QUALITY ASSURANCE

A. Architectural Concrete Masonry Units (ACMU) will contain Dry-Block Integral Water-Repellent or equivalent. ACMU will comply with the performance criteria of the National Concrete Masonry Association' s TEK 19-7 “Characteristics of Concrete Masonry Units with Integral Water Repellent” using the Spray Bar Test.

B. All Integral water repellent admixtures used for this project must certify their use in the ACMU and mortar will not reduce flexural bond strength of the wall.

1.07 SAMPLE PANEL

A. The sample panel will be used to determine the acceptable standard for the masonry work. All individual product submittals should be approved before the sample panel is constructed.

B. Build a freestanding sample panel at a location where the future masonry walls and the sample panel can be viewed together. The sample panel is to be built by the mason contractor awarded the job, from the masonry units manufactured for this specific project.

C. The sample panel should contain a reasonable representation of the full range of unit and mortar color and texture. Each procedure including cleaning and application of coatings and sealants should be demonstrated on the sample panel.

D. Clean one-half of the exposed face of the panel using the same means and methods that will be used to clean the exposed masonry walls of stains, efflorescence, mortar, grout dropping, and debris -without damage to the masonry. Apply the specified post-applied surface treatment to the half of the sample panel that has been cleaned and allowed to dry.

E. Notify the architect at least one week in advance of the date when the sample panel will be completed and the mortar has dried to its final color. Build the sample far enough in advance of actual construction so there is time to change the mortar color if the architect chooses. After the sample panel is approved in writing by the architect, the construction of the project masonry can begin.

F. Construct a masonry wall as a mock-up panel sized 8 feet long by 6 feet high; include mortar and accessories, structural backup - of both backup structures, wall openings, flashings, and wall insulation in mock-up.

G. Locate where directed.

H. Mock-up may not remain as part of the Work.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

1.09 FIELD CONDITIONS

A. Cold and Hot Weather Requirements: Comply with requirements of ACI 530/530.1/ERTA or applicable building code, whichever is more stringent.

B. Maintain materials and surrounding air temperature to minimum 40 degrees F prior to, during, and 48 hours after completion of masonry work.

C. Maintain materials and surrounding air temperature to maximum 90 degrees F prior to, during, and 48 hours after completion of masonry work.

PART 2 PRODUCTS

2.01 CONCRETE MASONRY UNITS

A. Concrete Block: Comply with referenced standards and as follows:

1. Size: Standard units with nominal face dimensions of 16 by 8 inches and nominal depths as indicated on drawings for specific locations.

2. Moisture-Resistant Admixture: Water repellent compound designed to reduce capillarity.

a. Acceptable product: Dry-Block.

b. Acceptable product: ACME SHIELD

3. Special Shapes: Provide non-standard blocks configured for corners and other detailed conditions.

4. Bevel Note: ALL units requiring bevel cuts as depicted on the Elevations, Section and Details, **must** be cut post-production. Casting of bevels is not permitted unless the bevels are ground after casting.

5. Manufacturers, Basis-of-Design:

    a. Zappala Block, Rensselaer, NY: www.zappalablock.com

    b. Dagostino Building Blocks, Schenectady, NY: www.dagblock.com

    c. The Montfort Group, Fishkill, NY: www.montfortgroup.com

    d. A. Jandris & Sons, Gardner, MA: jandrisandsons.com

    e. Substitutions: See Section 016000 - Product Requirements

6. Masonry **Type 1A**: Non-Loadbearing Units: ASTM C129.

    a. Both hollow and solid block, as indicated.

    b. Colors and styles: Split Face; Zappala Block; Color 125.

7. Masonry **Type 1B**: Non-Loadbearing Units: ASTM C129.

    a. Both hollow and solid block, as indicated.

    b. Colors and styles: Zap-Blast; Zappala Block; Color 125.

8. Masonry **Type 1C**: Non-Loadbearing Units: ASTM C129

    a. Solid block, as indicated.

    b. Colors and styles: Zap-Blast; Zappala Block; Color 125

9. Masonry **Type 2A**: Non-Loadbearing Units: ASTM C129

    a. Solid block, as indicated

    b. Colors and styles: Split Face, chamfered and regular; Zappala Block; Color 106.

10. Masonry **Type 2B**: Non-Loadbearing Units: ASTM C129

    a. Solid block, as indicated

    b. Colors and styles: Zap-Blast; Zappala Block; Color 106.

11. Masonry **Type 3A**: Non-Loadbearing Units: ASTM C129.

a. Solid block, as indicated.

b. Colors and styles: Zap-Blast; Zappala Block; Color 124.

12. Masonry **Type 3B**: Non-Loadbearing Units: ASTM C129

a. Both hollow and solid block, as indicated.

b. Colors and styles: Zap-Blast, chanfered and regular veneer; Zappala Block; Color 124.

13. Masonry **Type 3C**: Non-Loadbearing Units: ASTM C129

a. Solid block, as indicated.

b. Colors and styles: Zap-Blast, single score; Zappala Block; Color 124.

2.02 MORTARAND GROUT MATERIALS

A. Mortar and Grout: As specified in Sections 036000 and 040513.

2.03 ACCESSORIES

A. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

B. Coating: After the masonry walls specified to be coated have been cleaned and approved, and all openings in the walls capped, apply coating. Obtain written approval from the Architect before the coating is applied.

1. Apply two coats of Aqua Seal Me-12, following manufacturer' s directions. www.prosoco.com

2. Alternative: Apply two coats Prosoco Sure Klean Weather Seal Natural Stone Treatment, following manufacturer' s directions. www.prosoco.com.

C. Other accessories as specified in section 040523 Masonry Accessories.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive masonry.

B. Verify that related items provided under other sections are properly sized and located.

C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.02 COURSING

A. Establish lines, levels, and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Block Cutting:

1. All block shall be no less than a nominal 8" wide

2. Any block requiring special consideration for coursing variation or block dimension variation will require prior Architect approval along with the possibility for dry stack mock-up for review.

D. Concrete Masonry Units:

1. Bond: As indicated for different locations.

2. Coursing: One unit and one mortar joint to equal 8 inches.

3. Mortar Joints: Concave.

3.03 PLACING AND BONDING

A. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.

B. Remove excess mortar as work progresses.

C. Interlock intersections and external corners, except for units laid in stack bond.

D. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

E. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

F. Isolate top joint of masonry veneer from horizontal structural framing members or support angles with compressible joint filler.

3.04 CAVITY MORTAR CONTROL

A. Do not permit mortar to drop or accumulate into cavity air space or to plug weep/cavity vents.

B. For cavity walls, build inner wythe ahead of outer wythe to accommodate accessories.

3.05 MASONRY FLASHINGS

A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.

3.06 LINTELS

A. Install loose steel lintels over openings.

3.07 CONTROL AND EXPANSION JOINTS

A. Do not continue horizontal joint reinforcement through control or expansion joints.

B. Install preformed control joint device in continuous lengths. Seal butt and corner joints in accordance with manufacturer's instructions.

C. Form expansion joint as detailed on drawings.

3.08 TOLERANCES

A. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.

B. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.

C. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.

D. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.

E. Maximum Variation of Mortar Joint Thickness: Head joint, minus 1/4 inch, plus 3/8 inch.

3.09 CUTTING AND FITTING

A. Cut and fit for pipes and conduit. Coordinate with other sections of work to provide correct size, shape, and location.

B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.10 CLEANING

A. Remove excess mortar and mortar smears as work progresses on the masonry itself as well as on adjacent non-masonry surfaces. Adjacent surfaces shall be cleaned immediately so as to not impede the progress of work by Others.

B. Replace defective mortar. Match adjacent work.

C. Clean soiled surfaces with cleaning solution.

D. Use non-metallic tools in cleaning operations.

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SECTION 042200

CONCRETE UNIT MASONRY
(CMU)

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Agreement, including General and Supplementary Conditions, and Division 01 of the Specifications, apply to work of this Section.
B. 040513 - Masonry Mortaring.
C. 040523 - Masonry Accessories.
D. 036000 - Grout

1.02 SCOPE

A. Furnish labor and materials necessary to install a complete system.
B. Concrete unit masonry as shown on Drawings and specified herein.
C. Mortar, grout and masonry accessories are specified elsewhere.

1.03 STANDARDS

A. ASTM specification standards C-55, C-90 and C-140.
B. ACI-530/ASCE 5/TMS 402 "Building Code Requirements for Concrete Masonry Structures and Commentary".
C. ACI-531.1/ASCE 6/TMS 602 "Specifications for Concrete Masonry Construction".
D. National Concrete Masonry Association Manual of Facts
E. NYS Concrete Masonry Association Tek-Spec #1.

1.04 SUBMITTALS

A. Submit pursuant to 013000 Administrative Requirements for Shop Drawings, Product Data, Samples.
B. Submit pursuant to 016000 Product Requirements.
C. Samples: Submit one full block of each face or color used.
D. Certification of Compliance: Furnish test reports attesting to compliance with UL-263 or certificates attesting to compliance with UL-618, each or both of which acknowledge compliance with fire ratings specified and strength requirements specified.

1.05 DELIVERY, STORAGE AND HANDLING

A. Pursuant to manufacturer’s published instructions.
B. Protect against moisture exposure and damage
C. Deliver and handle materials in such a manner as to prevent damage. Store concrete unit masonry and packaged material above ground on wood pallets or blocking and protect from weather until used. Immediately remove from job site all damaged or otherwise unsuitable material.
D. Receive, store, and protect construction materials in ways that prevent water from entering materials.

1.06 SAMPLE PANEL

A. Before commencing concrete unit masonry work, erect a sample panel at job site for each separate exposed concrete masonry wall or partition. Locate panels where directed by Architect.
B. Sample panel size for each wall or partition: not less than 8 ft wide by 6 ft high. Construct each sample panel representative of color and texture of the concrete unit masonry, bond, reinforcement, jointing, mortar and workmanship. Modify panel per Section 042001 and as required by Architect.
C. Do not start concrete unit masonry work until each sample panel has been approved by Architect. Leave approved sample panel in place during erection of concrete unit masonry work. Protect approved sample panel against weather and damage. Remove sample panel from site when so directed by Architect.
D. Sample panels may be a part of the Work.
E. Sample panel should be used for testing of cleaning methods.
F. Sample panel must be cleaned and approved by the Architect prior to application of water repellent. Refer to Section 071901for application requirements of water repellent.

1.07 PROJECT/SITE CONDITIONS

A. At end of day, or during a shut-down, protect top surface of all masonry to prevent rain from entering the masonry. Install protection, adequately anchored, to prevent water intrusion to cover top surface and extend a minimum of 2 ft down all sides of masonry.
B. Brace walls according to NCMA and ANSI requirements.
C. Prevent and remove immediately any mortar, grout and soil droppings that come in contact with CMU.
D. Protect base of walls from rain-splashed mud and mortar by means of coverings on ground and over wall surface.
E. Cold Weather Requirements: Comply ACI 530.1 Specification Section 1.8 - Project Conditions

PART 2 PRODUCTS

2.01 EXTERIOR CONCRETE MASONRY UNITS

A. Hollow load bearing, normal weight, Type I, conforming to ASTM C90-94, Type 1. Specified concrete masonry strength, f'm = 2,000 psi. (masonry unit net area compressive strength = 2,800 psi.).
B. Unit Thickness: as indicated on drawings using longest standard units compatible with coursing. See Drawings for unit heights.
C. When more than one combination of criteria is specified, see Drawings for locations.
D. CMU shall be manufactured with an integral water repellent such as “Dry-Block.”
    1. Manufacturer’s submittal must specify water repellent agent.
E. All exterior CMU shall be treated with a field applied sealer. See architectural drawings for field applied sealer information.

2.02 INTERIOR CONCRETE MASONRY UNITS

A. Hollow load bearing, normal weight, Type I, conforming to ASTM C94, Type 1. Specified concrete masonry strength, f'm = 2,000 psi. (masonry unit net area compressive strength = 2,800 psi.).
B. Hollow non-load bearing, normal weight, Type I, conforming to ASTM C129, fire resistance rating: 2 hour conforming to UL 618, as indicated on Drawings.
C. Unit Thickness: as indicated on drawings using longest standard units compatible with coursing. See Drawings for unit heights.
D. When more than one combination of criteria is specified, see Drawings for locations.

2.03 DECORATIVE CONCRETE MASONRY UNITS

A. Hollow non-load bearing, normal weight, Type I, conforming to ASTM C129.
B. Unit Thickness: as indicated on drawings using longest standard units compatible with coursing. See Drawings for unit heights.
C. When more than one combination of criteria is specified, see Drawings for locations.
D. Architectural Concrete Masonry Units (ACMU): ASTM C-90, Type I, normal weight, with physical properties of ASTM C-55, 3500 psi. net area compressive strength and a maximum 10 lb./fts3 absorption. Nominal face dimensions as required.
E. CMU shall be manufactured with an integral water repellent such as "Dryblock."
   1. Manufacturer's submittal must specify water repellent agent.

PART 3 EXECUTION

3.01 PREPARATION

A. Examine all surfaces to receive parts of the Work specified herein. Verify all dimensions of in-place and subsequent construction. Application or installation of materials constitutes acceptance of the adjacent and underlying construction.

3.02 GENERAL WORKMANSHIP

A. Provide all masonry construction aligned, plumb and true in required layout, making straight level courses, unless otherwise specifically indicated. Construct masonry to full thickness as shown with masonry units of sizes as noted and specified, using whole units wherever possible. Cut masonry neatly by power saw to obtain sharp edges without damage, as approved for providing required bond pattern and proper fit at all adjoining construction. Build-in items and leave accurate openings necessary to accommodate installation of other work, in a manner to maintain required strength and appearance of masonry construction. Fill solidly around conduit passing through masonry, using mortar.
B. Install pursuant to ASTM E835 unless specifically illustrated to the contrary.
C. No CMU smaller than 4" small be installed in any wall or work area.
   1. The mason shall contact the Architect for interpretation if it appears that smaller than 4" CMU is required.
   2. If the mason installs CMU smaller than 4", he shall bear the responsibility to remove and replace all effected work.
D. **All exposed CMU at corners to be return corner block**.

3.03 CONSTRUCTION TOLERANCES

A. Construct unit masonry within following tolerances:
   1. Maximum variation from plumb in vertical lines and surfaces of columns, walls, and arises and in alignment of head joints:
      a) 1/4 in. in 10 ft.
      b) 3/8 in. in a story height not to exceed 20 ft.
      c) 1/2 in. in 40 ft or more.
   2. Maximum variation from plumb for external corners, expansion joints and other conspicuous lines:
      a) 1/4 in. in any story or 20 ft maximum.
      b) 1/2 in. in 40 ft or more.
   3. Maximum variation from level of grades for exposed lintels, sills, parapets, horizontal grooves, joints, and other conspicuous lines:
      a) 1/4 inches in any bay or 20 feet.

b) 1/2 in. in 40 ft or more.

4. Maximum variation from plan location of related portions of columns, walls and partitions:
   a) 1/2 in. in any bay or 20 ft.
   b) 3/4 in. in 40 ft or more.
5. Maximum variation in cross-sectional dimensions of columns and thickness' of walls from dimensions shown on Drawings:
   a) Minus 1/4 in.
   b) Plus 1/2 in.

3.04 COURSING

A. Lay walls/partitions as shown on Drawings.

3.05 MORTAR BEDDING AND JOINTING

A. Lay hollow units with full mortar coverage on horizontal and vertical face shells. Bed webs in all courses of piers, columns, and pilasters, and in starting course on footings and solid foundation walls, and where adjacent to cells or cavities to be reinforced or filled with grout or concrete. Lay solid units with full head and bed joints.

B. Mortar joints: 3/8 thick except where otherwise indicated.
   1. Exposed joint profile: concave.
   2. Concealed joint profile: flush
   3. Locations of different joint widths and profiles are shown on Drawings.

C. Bond intersecting non-load bearing walls together in same manner as load bearing walls, except that non-load bearing partitions 8 in. or less in thickness may be anchored to each other and to other walls with Architect approved types of accessories specified in 040523 Masonry Accessories.

D. Provide preformed resilient filler strips specified, minimum 3/8 inch think, between tops of walls and undersides of slabs, or decks, or against abutting construction. Set filler strips in joints as masonry is laid up with lengths of strips butted together and all strips firmly compressed. Use solid masonry units, solidly filled units, or end units at such locations.

E. At steel and/or structural concrete columns, provide anchors specifically designed and suited to each condition encountered and as specified in 040523 Masonry Accessories as applicable.

F. At steel columns and elsewhere as indicated, provide preformed resilient filler strips specified. Completely cover all surfaces of columns to be encased in masonry. Neatly fold and fit covering tightly against flange and web surfaces and secure against displacement by taping, or tying in place as applicable.

G. Where masonry units abut steel and/or structural concrete columns where such joints are exposed to view, use corner block units to create a straight line joint/interface between the two materials.

H. Build-in all loose steel lintels, provide min. 8 in. bearing and bed lintels in mortar.

I. Refer to Sect. 040523 – Masonry Accessories for information on thru-wall flashing.

J. Grout hollow metal frames in masonry walls solidly with mortar. Perform grouting without clogging holes, boxes, or spaces, required for the proper installation, or operation of hardware.

K. Provide weep capability in mortar joints at 4 ft on center horizontally at base of each exterior wall by means of a manufactured insert installed in accord with manufacturer's published instructions.

L. Pointing: During the tooling of joints, enlarge any voids or holes, except weep holes, and completely fill with mortar. Point up all joints at corners, openings and adjacent work to provide a neat, uniform appearance.

3.06 INSTALLATION

A. Lay out walls in advance for accurate spacing of bond patterns with uniform joint widths and for accurate locating of openings, movement-type joints, returns and offsets. Avoid the use of less-than-half-size units at corners, jambs and where possible at other locations. Where required to provide bond pattern, dry cut units with saw and then thoroughly clean to remove cementitious sawings. Install to fit adjoining work neatly, all with clean, sharp, unchipped edges.
B. Use only dry CMU - do not wet.
C. Build walls to comply with specified construction tolerances, with courses accurately spaced and coordinated with other construction.
D. Lay masonry in a one-half running bond pattern with vertical joint in each course centered on units in courses above and below unless indicated otherwise on drawings.
E. All masonry shall be laid on a full bed of mortar coverage or horizontal and vertical face shells and webs. All head and bed joints to be tooled.
F. When stopping and resuming work, in each course rack back 1/2 unit length. Do not tooth. Clean exposed surfaces of set masonry and remove loose CMU and mortar prior to laying new CMU.
G. Care shall be taken when laying ACMU to maintain visual appearance of wall by placing units with similar split face profiles adjacent to each other. Every effort shall be made to avoid excessive protrusions of adjacent split faces at mortar joints.

3.07 PLACING REINFORCEMENT

A. Provide joint reinforcement of types required for locations indicated or specified. Remove all deleterious matter from surfaces before placement, including loose rust and scale adversely affecting bond to mortar or grout. Install reinforcement in accurate position, aligned true and secured against displacement, with a minimum mortar cover of 5/8 in. at exterior face of walls and 1/2 in. at other locations.
B. Provide deformed steel bars as vertical or horizontal reinforcement in masonry construction where indicated or specified. Place vertical bar reinforcing in as continuous lengths as practicable, inserting after laying of masonry and before grouting. Use approved devices to support vertical reinforcement at top, bottom, and intervals not exceeding 160 bar diameters. Wet–setting reinforcement is not permitted. Install horizontal bars as masonry is laid up. Lap all bar reinforcement by distance equal to 48 diameters.
C. Vertical bars must be placed within 1/2 inches of the location required within the thickness (out of plane) of the wall. For 12” CMU walls or pilaster, this tolerance can be increased to 1 inch.

3.08 GROUTING OF WALL CONSTRUCTION

A. Use specified "fine" grout mixture to fill wall spaces up to 1-1/2 in. wide or to fill cells up to 4 in. size in hollow masonry units, and use specified "coarse" grout mixture only to fill spaces or cells having larger dimensions at all locations. Grout walls only after setting mortar has stiffened, and columns or pilasters have been braced or tied, as required to prevent displacement of masonry and reinforcement or ties due to pressure of grout pours. Clean and wet surfaces of preceding pour before placing new grout. Provide grouting in continuous manner, with not less than 30 minutes nor more than 1 hr between lifts of any given pour. If grouting is stopped more than 1 hr, form a horizontal construction joint by stopping pour 2 in. below top of uppermost masonry course. Remove all debris, mortar droppings or other matter from cavities and cells before

grouting. Consolidate each grout lift with a rod to provide uniform flow into all spaces or voids.

1. Low-lift Grouting Method: Provide low-lift grouting as the laying of masonry and placement of reinforcement progresses. For grouting of wall spaces, first lift may be placed up to 16 in. high, but limit all subsequent pours to maximum 12 in. lifts placed before masonry coursing is 24 in. higher than preceding pour. For grouting of cells in adjacent hollow masonry units, allow setting mortar to cure at least 4 hr after laying masonry, and place grout in cells up to top masonry course at a maximum 48 in. height above preceding pour.

3.09 CONTROL JOINTS

A. Refer to Section 040523 - Masonry Accessories for information on products.
B. Install control joints at locations shown on the Drawings. **If locations of control joints are not shown, provide vertical control joints spaced not to exceed 28 feet; locate joints at points of natural weakness in the masonry Work. This would include doors, windows, overhead doors and changes in heights of walls.**
C. Mortar Control Joints: Fill abutting cells of masonry units with mortar after installing asphalt felt at one side of joint to break the bond. Rake joints to a depth of 3/8 inch.
D. Premoulded Control Joint Strips: Install joint strip as the Work progresses. Compress strips as masonry units are laid.
E. Do not butter masonry units to steel members, except where masonry bears on steel. Maintain 1/2 in. clearance. Fill vertical clearances with 1/2 in. semi-rigid fiberglass or other sort, incombustible board material.
F. Build nonbearing partitions to a distance 3/8 to 3/4 in. from structural soffit above. When structure above has deflected from building loads placed upon it, wedge partition to structural soffit with metal or slate wedges, and fill top joint with mortar.
G. Straighten and position anchors and protruding reinforcement which were placed in reinforced brick lintel concrete so as to bond fine grout to concrete beam.

3.10 EXPANSION JOINTS – See Division 07 – (used in new abutting existing and in cases of severe material/plane changes)

A. Install expansion joints at locations shown on the Drawings. Keep joints free of mortar and debris.
B. Build flanges of metal expansion strips into masonry. Lap joints between metal strips 4 inches in direction of flow. Solder joints between metal strips below grade and at junctures with horizontal expansion joints.

3.11 REPAIR MASONRY

A. At completion of the Work, fill with mortar and suitably tool all holes in joints of masonry surfaces to be exposed or painted. Repair any cracks in masonry. Cut out and repoint defective joints.
B. Repair masonry construction as required due to damaged or defective work and where required to accommodate adjacent materials in an approved manner so that patching is not visually apparent.
C. Remove and replace masonry units which are loose, chipped, broken, stained or otherwise damaged, or if units do not match adjoining units as intended. Provide new units to match and install in fresh mortar, pointed to eliminate evidence of replacement.
D. When pointing, tool all joints required to enlarge any voids or holes, except weep holes, and then completely fill with mortar. Point up all joints including corners, openings and adjacent construction to provide a neat, uniform appearance, prepared for application of sealants.

3.12 CLEANING

A. Shall commence after mortar is thoroughly set and cured. Remove large mortar particles by hand with wooden or non-metallic tools. Test cleaning methods on sample wall panel, leaving 1/4 panel uncleaned for comparison purposes.
B. Obtain Architect's approval of sample before proceeding with cleaning of CMU.
C. Clean CMU using ProSoCo EK 2010 All Surface Cleaner or approved equal. Handle and apply per manufacturer's written instructions.
D. No acid or acid based cleaners shall be used. Follow cleaning methods as per National Concrete Masonry Association Tek Spec 08-02.
E. Dry brush CMU walls at end of each day's work and also after final pointing. Leave clean and free from mortar spots and droppings.

3.13 FIELD QUALITY CONTROL

A. CMU Masonry testing per section 2105.2.2.1.of the Building Code – Unit Strength Method.

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SECTION 044313
STONE MASONRY VENEER

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Anchored cut stone veneer at exterior walls.

B. Cut stone Veneer at exterior walls and/or site masonry for signage.

1.02 RELATED REQUIREMENTS

A. Section 040513 - Masonry Mortaring

B. Section 040523 - Masonry Accessories

C. Section 061000 - Rough Carpentry: Pressure treated blocking

D. Section 076200 - Sheet Metal Flashing and Trim: Flashings.

E. Section 079005 - Joint Sealants: Sealing joints indicated to be left open for sealant.

1.03 REFERENCE STANDARDS

A. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures 2016.

B. ASTM A580/A580M - Standard Specification for Stainless Steel Wire 2018.

C. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar 2015.

D. ASTM C568/C568M - Standard Specification for Limestone Dimension Stone 2015.

E. ASTM C615/C615M - Standard Specification for Granite Dimension Stone 2018, with Editorial Revision.

F. ILI (HB) - Indiana Limestone Handbook 2007.

G. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures 2016.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on stone units, mortar, and reinforcement.

C. Samples: Submit for Architect review and approval one stone sample of each available manufacturer's standard range of colors illustrating color range, texture, and markings.

D. Samples: Submit mortar color samples.

1.05 QUALITY ASSURANCE

A. Stone Fabricator Qualifications: Company specializing in fabricating cut stone with minimum ten years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type required by this section, with minimum 10 years ofdocumented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Protect stone from discoloration during storage on site.

B. Provide ventilation to prevent condensation from forming on stone.

1.07 FIELD CONDITIONS

A. Cold Weather Requirements: Comply with requirements of ACI 530/530.1/ERTA or applicable building code, whichever is more stringent.

B. Maintain materials and ambient air at minimum of 40 degrees F (5 degrees C) prior to, during, and for 48 hours after completion of work.

PART 2 PRODUCTS

2.01 STONE

A. Limestone: Indiana Oolitic Limestone; complying with ASTM C568/C568M Classification I - Low Density.

1. Grade: Select, per ILI (HB).

2. Color: To be selected by Architect from manufacturer's range of standard color range.

3. Finish: Sandblasted.

4. Supplier: Adam Ross Cut Stone Company, Inc.; 1003 Broadway, Albany, NY 12204 - www.adamrosscutstone.com

B. Granite: Woodbury Granite variety; complying with ASTM C615/C615M.

1. Color: To be selected by Architect from manufacturer's range of standard color range.

2. Finish: Thermal.

3. Supplier: Adam Ross Cut Stone Company, Inc.; 1003 Broadway, Albany, NY 12204 - www.adamrosscutstone.com

2.02 ACCESSORIES - ANCHORED VENEER

A. Horizontal Joint Reinforcement: As specified in Section 042001 and Section 040523.

B. Other Anchors in Direct Contact with Stone: ASTM A666, Type 304, stainless steel, of sizes and configurations required for support of stone and applicable superimposed loads. See Section 040523.

C. Setting Buttons and Shims: Plastic, non-staining to stone, sized to suit joint thickness and bed depths of stone units without intruding into the required depths of pointing materials.

D. Flashings: As specified in 076200 and on the Drawings.

E. Weep/Cavity Vents: as detailed on the Drawings.

F. Lettering Paint: Contractor to provide product data submittals and color samples for Architect review for stone letter and graphics coloring as illustrated on the Drawings.

1. Paint Basis of Design: Lithichrome Stone Paint as manufactured by Granite City Tools, Inc.: www.lithichrome.com

a. Substitutions: See Section 016000 Product Requirements.

2. Surface Coating Basis of Design: Lithco Clear as manufactured by Granite City Tools, Inc.; www.lithichrome.com

a. Substitutions: See Section 016000 Product Requirements.

G. Cleaning Solution: Type that will not harm stone, joint materials, or adjacent surfaces.

H. Stone Sealer: After completion of installation and final cleaning apply an approved stone sealer (water repellent) to all exposed surfaces of stone per requirements set forth in Section 1.07 of this document.

1. Subject to approval of application on visual mock-up, sealer shall be Prosoco Sure Klean Weather Seal Natural Stone Treatment or equal as approved by Architect. www.prosoco.com

2.03 STONE FABRICATION - ANCHORED VENEER

A. Nominal Thickness: as per drawings.

B. Pattern and Coursing: as per drawings.

C. Fabricate for 1/4 inch beds and joints.

D. Bed and Joint Surfaces:

1. Cut or sawn full square for full thickness of unit.

E. Backs: Sawn.

F. Slope exposed top surfaces of stone and horizontal sill surfaces for shedding water.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that support work and site conditions are ready to receive work of this section.

B. Verify that items built-in under other sections are properly located and sized.

3.02 PREPARATION - ANCHORED VENEER

A. Establish lines, levels, and coursing. Protect from disturbance.

B. Clean stone prior to installation. Do not use wire brushes or implements that mark or damage exposed surfaces.

C. Clean sawn surfaces of rust stains and iron particles.

D. Perform a stone water sealer coating sample for Architect review on actual stone sample not less than 8" x 8" in front face area. Apply water sealer per manufacturer's recommended coverage rate using the Vertical Surface Instructions. Upon on-site review by Architect of effectiveness for water beading, direction will be provided if accepted as-is or if an additional application will be required. Base scope shall include up to one (1) additional application over and above manufacturer recommendations.

3.03 INSTALLATION - ANCHORED VENEER

A. Install flashings of longest practical length and seal watertight to back-up. Lap end joints minimum 6 inches and seal watertight.

B. Size stone units to fit opening dimensions and perimeter conditions.

C. Wet absorptive stone in preparation for placement to minimize moisture suction from mortar.

D. Prearrange stone pattern prior to sandblasting to provide color uniformity and minimize visual variations, and provide a uniform blend of stone unit sizes.

E. Set stone in full mortar setting bed to fully support stone over bearing surface. Use setting buttons or shims to maintain correct joint width.

F. Install weep/cavity vents in vertical stone joints at 24 inches on center horizontally; immediately above horizontal flashings, above shelf angles and supports, and at top of each cavity space; do not permit mortar accumulation in cavity space.

3.04 REINFORCEMENT AND ANCHORAGE - ANCHORED VENEER

A. Install horizontal joint reinforcement as specified in Section 040523.

3.05 JOINTS - ANCHORED VENEER

A. For mortar joints between stone and conncrete masonry, rake out mortar joints 5/8 to 3/4 inch and brush joints clean to accommodate pointing mortar. Fill joints with sealant.

B. Pack mortar into joints and work into voids. Neatly tool surface to concave joint.

C. At joints to be sealed, clean mortar out of joint before it sets. Brush joints clean.

3.06 CLEANING

A. Remove excess mortar as work progresses, and upon completion of work.

3.07 INSTALLATION - MASONRY FLASHINGS

A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.

B. Clean soiled surfaces with cleaning solution.

3.08 PROTECTION

A. During temporary storage on site, at the end of working day, and during rainy weather, cover stone work exposed to weather with non-staining waterproof coverings, securely anchored.

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