

SECTION 04060

MASONRY MORTAR AND GROUT

PART 1 GENERAL

1.1 SUMMARY

- A. Related Documents: Provisions established within the General and Supplementary General Conditions of the Contract, Division 1 - General Requirements, and the Drawings are collectively applicable to this Section.
- B. Section Includes:
 - 1. Mortar and grout for masonry and cast stone.

1.2 SUBMITTALS

- A. Include design mix, indicate Proportion or Property method used, required environmental conditions, and admixture limitations.
- B. Samples: Provide as part of site mock-up for Architect approval in matching existing

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and protect products under provisions of Section 01600.
- B. Maintain packaged materials clean, dry, and protected against dampness, freezing, and foreign matter.

1.4 ENVIRONMENTAL REQUIREMENTS

- A. Cold Weather Requirements: IMIAC - Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

1.5 MIX TESTS

- A. Test mortar and grout in accordance with Section 01450.
- B. Testing of Mortar Mix: In accordance with ASTM C 780.
- C. Testing of Grout Mix: In accordance with ASTM C 1019.
- D. Test mortar mix for compressive strength, air content, and slump.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Portland Cement: ASTM C 150, Type I
- B. Mortar Aggregate: ASTM C 144
- C. Hydrated Lime: ASTM C 207, Type S.
- D. Quicklime: ASTM C 5, non-hydraulic type.
- E. Grout Aggregate: ASTM C 404.
- F. Water: Clean and potable.

2.2 MORTAR COLOR

- A. Mortar Color:
 - 1. To match existing buildings mortar color

2.3 ADMIXTURES

- A. Water Repellent Admixture: Integral liquid polymeric.
 - 1. Physical Properties:
 - 2. Water Permeance: ASTM E 514, Class E rating.
 - 3. Bond Strength: ASTM E 72, minimum equal to bond strength of normal mortar without admixture.
 - 4. Water Mixability: Fully dispersible in water.
 - 5. Specific Gravity: Minimum 1.0.

6. Acceptable Product: Dry Block Mortar Admixture by W. R. Grace & Co.

2.4 MORTAR MIXES

- A. Mortar for Load Bearing Walls and Partitions: ASTM C 270, Type S using the Property Method. to achieve 1800 psi strength.
- B. Mortar for Non-load Bearing Walls,Partitions, and Veneer: ASTM C 270, Type N using the Property Method to achieve 750 psi strength.
- C. Mortar for Reinforced Masonry: ASTM C 270, Type S using the Property Method to achieve 1800 psi strength.
- D. Pointing Mortar: ASTM C 270, Type N, using the Property Method with maximum 2 percent ammonium stearate or calcium stearate per cement weight.

2.5 MORTAR MIXING

- A. Thoroughly mix mortar ingredients in quantities needed for immediate use in accordance with ASTM C 270 and C 780.
- B. Add mortar color and admixtures in accordance with manufacturer's instructions. Provide uniformity of mix and coloration.
- C. Do not use anti-freeze compounds to lower the freezing point of mortar.
- D. If water is lost by evaporation, retemper only within 2 hours of mixing.
- E. Use mortar within two hours after mixing at temperatures of 80 degrees F, or 2-1/2 hours at temperatures under 50 degrees F.

2.6 GROUT MIXES

- A. Bond Beams: 3,000 psi strength at 28 days; 7 to 8 inches slump; premixed type in accordance with ASTM C 94.
- B. Engineered Masonry: 3000 psi strength at 28 days; 7 to 8 inches slump; premixed type in accordance with ASTM C 94.

2.7 GROUT MIXING

- A. Mix concrete in accordance with ASTM C 94.
- B. Add admixtures in accordance with manufacturer's instructions. Provide uniformity of mix.
- C. Do not use anti-freeze compounds to lower the freezing point of grout.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Request inspection of spaces to be grouted

3.2 PREPARATION

- A. Plug cleanout holes with brick masonry units to prevent leakage of grout materials. Brace masonry for wet grout pressure.

3.3 INSTALLATION

- A. Install mortar and grout to requirements of the specific masonry Sections.
- B. Work grout into masonry cores and cavities to eliminate voids.
- C. Do not displace reinforcement while placing grout.
- D. Remove grout spaces of excess mortar.

END OF SECTION

SECTION 04455

STONE VENEER

PART I - GENERAL

1.1 RELATED DOCUMENTS

- A. Provisions established within General and Supplementary Conditions of the Contract, Division 1 - General Requirements, and the Drawings are collectively applicable to this Section.

1.2 SECTION INCLUDES

- A. Limestone veneer.
- B. Reinforcement, anchorages, and accessories.

1.3 SUBMITTALS

- A. Submit two samples of stone units to illustrate color, texture, and size range of each type unit.

1.4 MOCKUP

- A. Provide mockup.
- B. Construct stone veneer to 4 x 4 feet panel size, including mortar, special shapes, bonding, joint work, reinforcement, grouting, mortar color, expansion and control joints and accessories specified.
- C. Obtain approval prior to proceeding with the work.
- D. Remove the panel when directed by the Architect after completion of the work.

1.5 QUALITY ASSURANCE

- A. Installer: Masonry contractor shall have a minimum of 5 years experience in similar types of work and be able to furnish a list of previous jobs and references if requested by the Architect or Construction Manager.
- B. Control and Expansion Joints: Provide control and expansion joints as shown on the Drawings or if not shown, install at frequency and in accordance with details as recommended by the Brick Institute of America. Confirm locations and frequency with Architect before beginning work.

1.6 ENVIRONMENTAL REQUIREMENTS

- A. Cold Weather Requirements: IMIAC (International Masonry Industry All-Weather Council) - Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

1.7 DELIVERY AND STORAGE

- A. Store mortar materials on dunnage in a dry place.
- B. During freezing weather, protect masonry units with tarpaulins or other suitable material.
- C. Protect reinforcement and accessories from elements.
- D. Store masonry units above ground on level platforms which allow air circulation under stacked units.
- E. Handle units on pallets or flat bed barrows.
- F. Do not permit free discharge from conveyor units or transporting in mortar trays.

PART 2 - PRODUCTS

2.1 ACCEPTABLE STONE PRODUCTS

- A. Limestone Veneer:
 - 1. Color, Finish and Pattern: To match existing. Note: verify availability of 32" long stone units as contained in existing ashlar stone pattern. Modifications to that length will be considered if formally submitted as substitution.
 - 2. Size: Nominally 4 inches thick; lengths and heights to match existing
 - 3. Free from defects that could impair its structural integrity or function. Inherent variations characteristic to quarry from which it is obtained are acceptable.
 - 4. Color, size, pattern and joints per mock up to match existing to be approved by Architect.

2.2 REINFORCEMENT AND ANCHORAGES

- A. Adjustable Veneer Anchors:
 - 1. Type: Adjustable design, 14 gage steel anchor plate with 3/16 inch diameter double legged pintle tie.
 - 2. Size: Tie to extend to within 1 inch of outside face of masonry.
 - 3. Finish: ASTM A153, Class B-2, minimum 1.50 ounce per sq ft zinc coating.
 - 4. Fasteners: Self-drilling, self-tapping, No. 10 screw with cadmium or zinc coated finish; criteria to meet anchor manufacturer's requirements; length to suit Project conditions. Two fasteners minimum per plate.
 - 5. Acceptable product: D/A 213, Dur-O-Wal.

2.3 MORTAR AND GROUT

- A. Refer to Section 04060.

2.4 ACCESSORIES

- A. Joint Sealant: Refer to Section 07920.
- B. Nailing Strips: Western softwood, preservative treated, sized to masonry joints.
- C. Weep Holes: Leave-out of full head mortar joints.
- D. Cleaner: "Deox" chemical cleaner as made by National Chemsearch Corp., or "Sure Klean" or Vanatrol as made by Process Solvent Co., Inc. Verify with masonry manufacturer that cleaner specified is acceptable.
- E. Mortar: Refer to Section 04060.
- F. Cavity Drainage Material: 1 inch thick, free-draining mesh; made from polyethylene strands and shaped to avoid being clogged by mortar droppings.
 - 1. Acceptable Products:
 - Mortar Net; Mortar Net USA, Ltd.
 - Mortar Stop; Polytite Manufacturing Corp.

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

- A. Verify items provided by other Sections of work are properly sized and located.
- B. Establish lines, levels, and coursing. Protect from disturbance.
- C. Provide temporary bracing during erection of masonry work. Maintain in place until building structure provides permanent bracing.

- D. Scaffolding: Provide, erect, maintain, move, and finally remove scaffolding and staging required for masonry installation. Construct and maintain scaffolding in compliance with applicable ordinances, laws, rules and regulations. Scaffolding shall be sufficiently substantial to support workmen and necessary materials and equipment. Provide adequate guard rails for protection of property, workmen, and passersby.

3.3 COURSING

- A. Place masonry to lines and levels indicated.
- B. Maintain masonry joints to uniform width of 3/8 inches or match existing. Make vertical and horizontal joints equal, of uniform thickness, tightly tucked, true to lines, smooth, and free from tool marks.

3.4 PLACING AND BONDING

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

3.5 TOLERANCES

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

3.6 REINFORCEMENT AND ANCHORAGES

- A. Attach wall ties to wall studs (or other solid and secure framing members) for veneer construction at maximum 16 inches O.C. vertically and 16 inches O.C. horizontally. Place at maximum 8 inches O.C. (or every third course) each way around perimeter of openings, within 12 inches of openings.

3.7 MASONRY FLASHINGS

- A. Extend flashings to exterior face of veneer, turn up minimum 8 inches and seal onto face of sheathing over stud framed back-up.
- B. Lap end joints minimum 6 inches and seal watertight per manufacturer's recommendation.
- C. Use flashing manufacturer's recommended adhesive and termination sealant.
- D. Create end dams at ends of window heads, and other vertical elements to channel water to nearest weep hole away from windows and other items which might allow water to travel vertically.

3.8 LINTELS

- A. Install loose steel lintels as scheduled, shown or as required. Verify requirements with Architect. Leave space at end of lintels to expand.
- B. Refer to drawings for lintel schedule.

3.9 WEEPS AND VENTS

- A. Install weep holes in veneer at 24 inches on center horizontally for clay masonry and 32 inches on center for 16" long concrete masonry, above through-wall flashing, above shelf angles, and at bottom of walls.

3.10 CONTROL/EXPANSION JOINTS

- A. Do not continue horizontal joint reinforcing across control joints.
- B. Size control joints in accordance with Section 07920 for sealant performance, but in no case larger than adjacent mortar joints in exposed face brick.
- C. Provide expansion and control joints where shown on the Drawings or as required/recommended by referenced standards. Verify final locations with Architect.

3.11 BUILT-IN WORK

- A. As work progresses, build-in metal door frames, fabricated metal frames, window frames, wood nailing strips, anchor bolts, plates, and other items to be built in the work supplied by other Sections.
- B. Build-in items plumb and level.
- C. Bed anchors of metal door and glazed frames in mortar joints. Fill frame voids solid with mortar. Fill masonry cores with grout minimum 12 inches from framed openings.
- D. Do not build-in organic materials subject to deterioration.

3.12 CUTTING AND FITTING

- A. Cut and fit for chases, pipes, conduit, sleeves, and grounds. Cooperate with other Sections of work to provide correct size, shape, and location.
- B. Obtain approval prior to cutting or fitting any area not indicated or where appearance or strength of masonry work may be impaired.

3.13 CLEANING

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

3.14 PROTECTION

- A. Protect finished installation under provisions of Section 01500.
- B. Maintain protective boards at exposed external corners which may be damaged by construction activities.
- C. Provide protection without damaging completed work.
- D. Keep expansion joint voids clear of mortar.

END OF SECTION

SECTION 04720

CAST STONE

PART 1 GENERAL

1.1 SUMMARY

- A. Related Documents: Provisions established within the General and Supplementary General Conditions of the Contract and Division 1 - General Requirements are collectively applicable to this Section.
- B. Section Includes:
 - 1. Cast stone quoins, molding, special trim units.
 - 2. Reinforcement, anchorages and accessories.

1.2 SUBMITTALS

- A. Shop Drawings: Submit in accordance with Section 01330. Indicate sizes, shapes, materials, reinforcement, joint details, locations and anchorage.
- B. Samples: Submit 2 samples of cast stone finish for Architect's approval and selection of color and texture.

1.3 QUALITY ASSURANCE

- A. Manufacturer: Minimum 5 years experience fabricating similar work. Submit list of recent completed projects if requested.
- B. Installer: Minimum 5 years experience in similar types of work and be able to furnish a list of previous projects and references if requested by Architect.
- C. Manufactured Units: Meet requirements of FS SS-S- 721C.

1.4 CERTIFICATES

- A. Submit manufacturer's certificates that materials meet or exceed specified requirements.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. In hot weather, above 99 degrees with less than 50 percent relative humidity, protect construction from direct exposure to the sun and wind.
- B. Cold Weather Requirements: IMIAC - Recommended Practices and Specifications for Cold Weather Masonry Construction.

1.6 DELIVERY AND STORAGE

- A. Deliver, store and handle materials in accordance with Sections 01600.
- B. After curing, store, stack and transport in a manner to prevent cracking, chipping, spalling, staining and other injuries.
- C. Store stone off ground and under cover.

1.7 PROTECTION

- A. Protect stone to prevent concrete, asphalt, rainwater and other foreign material from defacing stone surfaces.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with requirements herein, provide products from one of the following:
 - 1. Custom Castings.

2. Architectural Cast Stone Corporation.
 3. Dallas Cast Stone
- B. Substitutions: Under provisions of Section 01600.

2.2 MATERIALS

- A. Portland Cement: ASTM C 150, Type 1, in color selected by Architect.
1. Acceptable Products:
 - a. Trinity Concrete Products.
 - b. Gifford Hill.
- B. Course Aggregates: ASTM C 33, color as necessary to obtain final approved color of stone.
- C. Sand: ASTM C 144.
- D. Lime Putty: Hydrated lime, Type S, ASTM C 207.
- E. Reinforcement Steel: ASTM A 615, Grade 60, domestic deformed steel bars, and ASTM A 82 plain, cold-drawn steel. Hot dip galvanize after fabrication, per ASTM A 153.
- F. Anchors: Type 303 stainless steel wire and rods, sizes as detailed.
- G. Water: Clean and free from deleterious substances.
- H. Clear Sealer:
1. Acceptable Products:
 - a. NCP Klearseal by National Construction Products, Dallas, TX.\
 - b. White Rock M-6-50-8 by Sonneborn Building Products Division.
 - c. Klere-Seal 900 by Pecora Corp.

2.3 MORTAR MIX

- A. Refer to Section 04060 for mortar requirements.

2.4 FABRICATION

- A. Reinforcement: Reinforce stone with wire and steel reinforcement bars as detailed or as necessary for structural integrity.
- B. Stone:
1. Fabricate stone in accordance with referenced standards. Steam for 16 hours after casting.
 2. Compressive Strength: Minimum 6,500 psi at 28 days of age.
 3. Moisture Absorption: Maximum 8 percent when tested according to ASTM C 97.
 4. True to dimensions and profiles with sharp, straight edges and uniform curves.
 5. Do not silicone coat stone.
- C. Sealer: Apply 2 coats of clear sealer to exposed surfaces of stone at rate of 200 square feet per gallon, per coat. Apply in accordance with manufacturer's direction. Allow first coat to dry before applying second coat. Do not coat mortar setting or joint surfaces with sealer.
- D. Anchors: Provide necessary dowel holes in stone.
- E. Finish:
1. Color: To be selected from manufacturer's full color range to match existing building.
 1. Exposed Surfaces: Uniformly textured, entirely free of pits, holes or form marks, to match approved sample.
 2. Similar in texture to sand finished limestone.
 3. Leave unexposed setting surfaces rough.

2.5 FABRICATION TOLERANCES

- A. Squareness: Not more than 1/8 inch in 6 feet out of square.
- B. Warpage: Not more than 1/8 inch per 6 feet of length.
- C. Location of Anchors and Inserts: Deviation of anchors or inserts from center line of location shown on drawings not greater than plus or minus 3/8 inch.

PART 3 INSTALLATION

3.1 INSTALLATION

- A. Set stainless steel anchor rods in setting bed.
- B. Set stone plumb, level and true in full beds of mortar.
- C. Grout dowels into holes in stone and secure anchor with stainless steel tie wire.
- D. Leave securely anchored and bonded.

3.2 JOINTS

- A. Fill joints with mortar as stone is set. Leave joints tightly tooled and slightly concave.
- B. Refer to Section 04060 and Section 04810 for additional requirements.

3.3 INSTALLATION TOLERANCES

- A. Variation from unit to adjacent unit: 1/32 inch maximum.
- B. Variation from plane of wall: 1/4 inch in 10 feet, and 1/2 inch in 20 feet or more.
- C. Variation in joint thickness: 1/8 inch in 3 feet.

3.4 CONTROL/EXPANSION JOINTS

- A. Do not continue horizontal joint reinforcing across control joints.
- B. Install resilient control and expansion joint in continuous lengths in accordance with Section 07920.
- C. Provide expansion joints where indicated on the drawings.

3.5 PATCHING

- A. Patching of minor defects will be permitted if performed with proper materials, by skilled craftsmen, as approved by Architect, and patched areas blend-in with surrounding areas so that repair is not noticeable from viewing distance.

3.6 CLEANING

- A. After stones are installed, remove foreign matter from surface of stone using a stiff brush, mild cleanser and clear water.
- B. Use of acid is strictly prohibited.

END OF SECTION

SECTION 04810

UNIT MASONRY ASSEMBLIES

PART 1 GENERAL

1.1 SUMMARY

- A. Related Documents: Provisions established within the General and Supplementary General Conditions of the Contract, Division 1 - General Requirements, and the Drawings are collectively applicable to this Section.
- B. Section Includes:
 - 1. Fire brick for fireplace.
 - 2. Reinforcement, anchorages, and accessories.

1.2 SUBMITTALS

- A. Submit product data under provisions of Section 01330.

1.3 QUALITY ASSURANCE

- A. Acceptable Manufacturer: Minimum 5 years experience manufacturing specified product.
- B. Installer: Minimum 5 years experience in similar types of work and be able to furnish a list of previous jobs and references if requested by Architect.
- C. Expansion Joints: Provide expansion joints as shown on the Drawings or if not shown, install at frequency and in accordance with details as recommended by the N.C.M.A. or B.I.A. Confirm locations and frequency with Architect before beginning work.

1.4 REGULATORY REQUIREMENTS

- A. Conform to UL Assembly requirements for fire rated masonry construction.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. In hot weather, above 99 degrees F with less than 50 percent relative humidity, protect masonry construction from direct exposure to sun and wind.
- B. Cold Weather Requirements: IMIAC - Recommended Practices and Specifications for Cold Weather Masonry Construction.

1.6 DELIVERY AND STORAGE

- A. Deliver and store materials in accordance with the requirements of Section 01600.
- B. Store mortar materials on dunnage in a dry place.
- C. During freezing weather, protect masonry units with tarpaulins or other suitable material.
- D. Protect reinforcement and accessories from elements.
- E. Store masonry units above ground on level platforms which allow air circulation under stacked units. Cover stored masonry units with tarps or other means to shed water.
- F. Cover and protect masonry units against wetting prior to use.
- G. Handle units on pallets or flat bed barrows.
- H. Do not permit free discharge from conveyor units or transporting in mortar trays.

PART 2 PRODUCTS

2.1 FIREPLACE AND CHIMNEY LINING UNIT

- A. Firebox Brick: ASTM C 1261, size required.
- B. Clay Flue Lining Units: ASTM C 315.
- C. Flue Damper: High Form Damper, Model No. 1248 as made by K&W Manufacturing Co., Corona, CA or approved substitute.
- D. Refractory Mortar Mix: Ground fireclay or non-water-soluble, calcium aluminate, medium-duty refractory mortar that passes ASTM C 199 test; or an equivalent product acceptable to authorities having jurisdiction.

2.2 MANUFACTURERS - REINFORCEMENT, ANCHORAGES, AND ACCESSORIES

- A. Acceptable Manufacturers: Subject to compliance with requirements herein, provide products from one of the following:
 - 1. Dur-O-Wal, Inc. Arlington Heights, IL.
 - 2. Heckmann Building Products, Inc., Chicago, IL.
 - 3. Hohmann & Barnard, Inc., Hauppauge, NY.
- B. Substitutions: Submit in accordance with Section 01600.

2.3 REINFORCEMENT AND ANCHORAGES

- A. Horizontal Joint Reinforcing:
 - 1. Type: Standard truss design, fabricated from ASTM A 82 cold-drawn steel wire.
 - 2. Side Rods: Two or more continuous 9 gage deformed side rods butt welded in same plane to continuous diagonal 9 gage plain cross rod at 16 inches on centers maximum.
 - 3. Size: Standard length 10 to 20 feet; side rods spaced approximately 2 inches less than width of partition or wall in which placed.
 - 4. Finish: Exterior walls; ASTM A 153, Class B-2, minimum 1.5 ounce per square foot zinc coating) hot-dip galvanized.
 - 5. Provide prefabricated tee and corner units.
 - 6. Acceptable product: Dur-O-Wal Ladur by Dur-O-Wal.
- B. Reinforcing Bars: Deformed steel, ASTM A 615, Grade 60, unless noted otherwise on structural drawings.
- C. Expansion Joint Fillers:
 - 1. Type:
 - 2. Closed cell neoprene complying with ASTM D1056, Class RE41.
 - 3. Compatible with sealant.
 - 4. Self adhering on one side; 50 percent minimum compressibility.
 - 5. Size: Thickness to suit joint size; depth to allow sealant application.
 - 6. Locations: Vertical expansion joints, horizontal joints at head of masonry terminating below shelf angles, beams, or slabs; other locations as detailed.
 - 7. Acceptable product: DIA 2010 and 2015 by Dur-O-Wal.

2.4 ACCESSORIES

- A. Control Joints: Preformed rubber material. Width slightly less than wall thickness to allow for sealant material.
- B. Joint Sealant: Refer to Section 07920.
- C. Cleaner: Verify with masonry manufacturer that cleaner specified is acceptable.
 - 1. Acceptable Products subject to manufacturer's approval:
 - a. "Deox" Chemical Cleaner by National Chemsearch Corp.
 - b. "Sure Klean" by Process Solvent Co., Inc.

2.5 MORTAR AND GROUT

- A. Refer to Section 04060.

PART 3 EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

- A. Supply metal anchors to Section 03300 for placement in concrete. Direct correct placement.
- B. Verify items provided by other Sections of work are properly sized and located.
- C. Establish lines, levels, and coursing. Protect from disturbance.
- D. Provide temporary bracing during erection of masonry work. Maintain in place until building structure provides permanent bracing.

- E. Scaffolding:
 1. Provide, erect, maintain, move, and finally remove scaffolding and staging required for masonry installation.
 2. Construct and maintain scaffolding in compliance with applicable ordinances, laws, rules and regulations.
 3. Sufficiently substantial to support workmen and necessary materials and equipment.
 4. Provide adequate guard rails for protection of property, workmen, and passersby.
- F. Wet clay masonry units prior to laying if required to reduce excessive absorption of mortar moisture by the unit.
- G. Do not wet concrete masonry units.

3.3 COURSING

- A. Place masonry to lines and levels indicated.
- B. Maintain masonry joints to uniform width of 3/8 inches. Make vertical and horizontal joints equal, of uniform thickness, tightly tucked.
- C. Lay concrete masonry units in running bond. Course one block unit and one mortar joint to equal 8 inches. Form concave mortar joints on exposed work and flush joints on work to receive subsequent wall coating.

3.4 PLACING AND BONDING

- A. Lay masonry in full bed of mortar, properly jointed with other work. Buttering corners of joints and deep or excessive furrowing of mortar joints are not permitted.
- B. Fully bond intersections, and external and internal corners.
- C. Do not shift or tap masonry units after mortar has taken initial set. Where adjustment must be made, remove mortar and replace.
- D. Remove excess mortar on surface and in cavities.
- E. Perform job site saw cutting with proper tools to provide straight unchipped edges. Take care to prevent breaking masonry unit corners or edges.
- F. Cut mortar joints of block units flush where resilient base is scheduled, cavity insulation vapor barrier adhesive is applied or bitumen dampproofing is applied.
- G. Isolate masonry partitions from vertical structural framing members with a control joint.
- H. Tie new to existing masonry walls with appropriate reinforcing and "toothing" where indicated.

3.5 TOLERANCES

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

3.6 REINFORCEMENT AND ANCHORAGES

- A. Install horizontal joint reinforcement 16 inches on center typically and 8 inches at intersection of walls.
- B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend 16 inches minimum each side of opening.
- C. Place joint reinforcement continuous in first and second joint below top of walls.
- D. Lap joint reinforcement ends minimum 6 inches.
- E. Place reinforcing bars supported and secured against displacement. Maintain position within 1/2 inch of true dimension.
- F. Verify that anchorages embedded in concrete and attached to structural steel members are properly placed.
- G. Reinforce joint corners and intersections with strap anchors 8 inches on center.
- H. Reinforce joint corners and intersections with strap anchors 8 inches on center.

3.7 GROUTED COMPONENTS

- A. Reinforce bond beams and pilasters with reinforcing as indicated on structural drawings.
- B. Lap splices minimum 36 bar diameters.
- C. Place and consolidate grout fill without disturbing reinforcing.
- D. At bearing points, fill masonry cores with grout minimum 12 inches from opening.
- E. Grout hollow metal frames with joint around frame uniform at 1/4 inch width.

3.8 FIREPLACE CONSTRUCTION

- A. Set firebox brick in full bed of refractory mortar with full head joints. Form joints by buttering both surfaces of adjoining brick and sliding it into place. Make joints just wide enough to accommodate variations in size of brick, approximately 1/8 inch (3 mm). Tool joints smooth on surfaces exposed to fire or smoke.
- B. Install clay flue liners to comply with ASTM C 1283. Install flue liners ahead of surrounding masonry. Set clay flue liners in full bed of refractory mortar 1/16 to 1/8 inch (1.6 to 3 mm) thick. Strike joints flush on inside of flue to provide smooth surface. Maintain expansion space between flue liner and surrounding masonry except where surrounding masonry is required to provide lateral support for flue liners.
- C. Install damper in accordance with manufacturer's instructions.

3.9 CLEANING

- A. Remove excess mortar and smears.
- B. Replace defective mortar. Match adjacent work.
- C. Clean soiled surfaces with a non-acidic solution which will not harm masonry or adjacent materials. Consult masonry manufacturer for acceptable cleaners. Leave surfaces thoroughly clean and free of all mortar and other soiling.
- D. Use non-metallic tools in cleaning operations.
- E. Do not clean brick in direct sunlight when temperatures are over 90 degrees F.

3.10 PROTECTION

- A. Protect finished installation under provisions of Section 01500.
- B. Maintain protective boards at exposed external corners which may be damaged by construction activities.
- C. Provide protection without damaging completed work.
- D. At day's end, or stoppage of work, cover unfinished walls with a strong waterproof membrane that is securely anchored to prevent moisture infiltration.
- E. Keep expansion joint voids clear of mortar.

END OF SECTION