SECTION 04 20 00
UNIT MASONRY

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1.01 REFERENCE STANDARDS

A. ASCE 5 - Building Code Requirements and Specification for Masonry Structures; 2011.

B. ASTM C62 - Standard Specification for Building Brick (Solid Masonry Units Made from Clay or Shale); 2023.

C. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units; 2022.

D. ASTM C129 - Standard Specification for Nonloadbearing Concrete Masonry Units; 2023.

E. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2018.

F. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2018.

G. ASTM C216 - Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale); 2023.

H. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2019a, with Editorial Revision.

I. ASTM C476 - Standard Specification for Grout for Masonry; 2023.

J. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2022.

UNIT MASONRY

PART 1.00 - GENERAL

3.01 GENERAL REQUIREMENTS

A. The Contractor is referred to the Instructions to Bidders and General Conditions, NYCHA Contracts; the Special Notice to Contractors; the Form of Proposal; the Form of Bid Bond; Division 01 - General Requirements of the Contract Specifications; the Contract Drawings and all Amendments and Addenda thereto; all of which govern the Work of this Section.

B. Work Included

C. The Work of this Section includes all labor, materials, equipment and services necessary to complete the unit masonry work as shown on the drawings and/or specified herein, including but is not necessarily limited to the following:

D. Concrete block walls and partitions.

E. Ground smooth face (interior) and split faced, insulated (exterior) concrete masonry units.

F. Core insulation for split faced CMU unit used on exterior.

G. Raising parapet height with masonry courses.

H. Face brick.

I. Metal joint reinforcing, anchors, ties, weeps, flashing protection and related accessories for masonry.

J. Control joints in masonry, filled with joint fillers.

K. Embedded flashings.

L. Self weeping through wall flashing.

M. Chases, recesses, pockets and openings in masonry as required for installation of work by others.

N. Building in of items furnished by others into masonry, including access doors, door frames, anchors, sleeves and inserts, and other similar items to be embedded in masonry.

O. Grouting in of metal items built into masonry work.

P. Protection, pointing and cleaning of masonry.

3.02 RELATED WORK

A. Structural steel – Section 051200

B. Miscellaneous metalsMetal fabrications - Section 05 50 00.

C. Insulation – Section 07 20 00.

D. Joint sealers - Section 07 90 00.

E. Steel doors and frames - Section 08 10 00.

F. Painting - Section 09 90 00.

G. SUBMITTALS

H. Shop Drawings: Submit for:

I. Anchoring details.

J. Control joint locations and details.

K. Special brick shapes.

L. Shop drawings and load calculations for anchorage details signed and sealed by a Professional Engineer Licensed in the State of New York.

3.03 SAMPLES (SUBMIT THE FOLLOWING):

A. Each type of face brick and stone in sufficient number and color to show full range of color and shade. Submit certification that brick meets ASTM standards specified.
   1. Submit samples of all special shapes required showing color range and sizes.

B. Concrete Block: Submit certification that block meets fire ratings and ASTM standards specified herein.

C. Joint reinforcing, each type, width and proposed locations (labeled).

D. Anchors, wedges and ties, each type; width and proposed locations (labeled).

E. Joint filler, each type.

F. Flashing, including splice sample, 12" x 12".

G. Mortar samples.

H. Manufacturer's Literature: Submit technical and installation information for:

I. Mortar materials, each material and mortar types.

J. Certification of mortar mix.

K. Flashing material, descriptive literature.

L. Concrete block, joint reinforcing, anchors, ties and joint filler; submit manufacturer's technical and descriptive literature.

M. Block manufacturer shall submit certifications of compliance with ASTM C90, C-331 and UL-618 prior to any job site delivery. Field sampling of concrete block may be conducted by an Independent Testing laboratory retained by the Owner according to the requirements of ASTM C-140.

3.04 CONSTRUCTION PROCEDURES:

A. Procedures and materials for cleaning masonry work; including certification that cleaner will not adversely affect brick, stone, gaskets, sealants, etc.

3.05 QUALITY ASSURANCE

3.06 JOB MOCK-UPS

A. Prior to installation of masonry work, erect on site sample wall panel mock-ups using materials, bonding patterns and joint tooling required for final work and including, cavity wall, masonry sill, anchors, flashing, expansion joints, sealant, insulation, mortar, weep holes and reinforcement

as detailed. Provide special features as directed by the Architect for caulking and contiguous work. Build mock-up at the site, of size and location as shown on drawings and directed by the Architect, indicating the proposed range of colors, textures and quality to be expected in the completed work. Re-construct mock-ups if directed by the Architect until it meets with Architect's approval. Obtain Architect's acceptance of visual qualities of the mock-ups before start of masonry work. Retain mock-up during construction as a standard for judging completed masonry work. Do not alter, move or destroy mock-up until work is completed and accepted by the Architect. Use sample panels to test proposed cleaning procedures after sample panel meets with Architect's approval. Mock up shall remain on site for the duration of construction as a control sample.

B. Include all components as indicated above except provide stone cladding as second mockup.

3.07 FACTORY CONTROL

A. The Architect reserves the right to visit the brick manufacturer's facility and review pre-sorting so that all brick falls within an acceptable color range.

B. Prior to any shipment of the face brick from the factory, the Architect reserves the right to inspect the brick for the thoroughness of the pre-sorting and to reject any brick which in his/her opinion do not fall within acceptable color range.

3.08 WORK OF THIS SECTION SHALL CONFORM TO THE REQUIREMENTS OF THE FOLLOWING:

A. ACI 530/ASCE 5 Building Code Requirements for Masonry Structures.

B. ACI 530-1/ASCE 6 Specifications for Masonry Structures.

3.09 STANDARDS

A. Compliance with the following codes, standards, and specifications in the herein section,

B. unless otherwise modified by these documents, including but not limited to the following:

C. ACI 531 Building Code Requirements for Masonry Structures.

D. ACI 531R Commentary on Building Code Requirements for Masonry Structures.

E. ACI 530.1 Specifications of Masonry Construction.

F. ASTM C90 Load Bearing Masonry Units.

G. ASTM C129 Non-Load Bearing Masonry Units.

H. ASTM C-140 Testing Concrete Masonry Units.

I. ASTM E119 Fire Tests with Building Construction and Materials.

J. NCMA TEK Notes and published typical masonry standards.

3.10 1.07 PRODUCT HANDLING

A. General: Deliver, store, handle and protect all materials from damage, moisture, dirt and intrusion of foreign matter. Store all masonry units and mortar materials on raised platforms and under ventilated and waterproof cover. Store packaged materials in manufacturer's unopened containers, marked with manufacturer's name and product brand name. Immediately reseal containers after partial use. Remove and replace damaged materials.

B. Masonry Units: Pack, deliver and store to prevent breakage, cracking, chipping, spalling or other damage. Store, protect and ventilate units at project site.

3.11 AGGREGATE: STORE WITH PROVISIONS FOR GOOD DRAINAGE.

A. Reinforcement and Anchors: Store and protect so that when placed, joint reinforcement and anchors will be free of soil, dirt, ice loose rust, scale, or other coatings which would destroy or reduce bond with mortar and will not be disfigured or bent out of shape.

3.12 CODE REQUIREMENTS

A. Work of this Section shall conform to all applicable requirements of the New York City Building Code.

B. Concrete block shall comply with Reference Standard RS-10.

C. Concrete blocks shall be type approved by the Board of Standards and Appeals.
   1. Concrete blocks used for fireproofing shall conform to New York City Building Code requirements and shall provide ratings required by the Contract Documents.

D. Fire rated masonry partitions shall have MEA or BSA number.

E. Seismic connections and loads shall comply with Local Law 17-95 (NYC).

3.13 TESTING FOR EFFLORESCENCE

A. Test selected face brick for efflorescence in accordance with ASTM C67.

B. Test mortar proposed for use in face brick construction by casting into brick size using all ingredients and proportions; run test as described herein for face brick (ASTM C67).

C. If, at the end of the test period, the samples of brick or mortar show efflorescence, the materials represented shall be rejected and new materials shall be re-tested until no efflorescence appears. Testing shall be done by an independent testing laboratory at the expense of the Contractor; submit test results in writing to the Architect.

3.14 JOB CONDITIONS

A. In cold weather, when outside temperature is below forty (40) degrees F., the temperature of the masonry, when laid, shall be above forty (40) degrees F., and maintained on both sides of the masonry wall for at least seventy-two (72) hours. All water, sand and masonry units must be heated so the temperature of masonry when laid will be over forty (40) degrees F. No anti-freeze admixtures will be allowed. Conform to the requirements of "Cold Weather Masonry Construction and Protection Recommendations: Brick Institute of America (BIA).

PART 2.00 - PRODUCTS

4.01 MATERIALS

4.02 CONCRETE BLOCK

A. Portland cement, ASTM C150, Type 1, one source.

B. Aggregates, ASTM C331, 100% lightweight expanded shale, clay or slate aggregates, manufactured by the rotary kiln process equal to "Solite", “Norlite" or “Haydite" or equal.

C. Concrete Masonry Units: Load bearing 100% lightweight aggregate concrete masonry units conforming to the requirements of ASTM C90, Grade N, Type 1 with a minimum compressive strength (fm) of 1900 psi.
   1. Block behind face brick, stone and block for rated walls shall be solid.
   2. All other block shall be hollow, unless otherwise noted on drawings.

D. The producer of the concrete masonry units shall furnish certification from an independent testing laboratory confirming that all 8" or larger masonry units meet all of the UL-618 requirements for two (2) hours or better (as required), referencing full scale fire test reports (((ASTM E119))). All 4" and 6" units shall conform to "National Bureau of Standards" and "National Research Council" full scale fire tests.

E. Sizes and Shapes: Nominal face size 8" x 16" by thickness as indicated on drawings, with stretcher units, jamb units, header units, square corner units (at ends and corners of exposed or painted work), sash units (at control joints within masonry wall), lintel units and other special shapes and sizes required to complete the work.

F. Finish: For exposed or painted block surfaces. In addition to ASTM requirements, block shall have uniformly dense, flat, fine grain texture, with no cracks, chips, spalls, or other defects which would impair appearance. For concealed block surfaces, free from deleterious materials that would stain plaster or corrode metal.

G. Curing: All concrete block shall be steam cured, and air dried for not less than thirty (30) days before delivery.

H. Density of concrete block shall not exceed ninety (90) lbs. per cubic foot.

I. Shrinkage: Shrinkage of concrete blocks shall not exceed .065% when tested in accordance with ASTM C426.

J. Water Content
   1. At the time of delivery to the job site, concrete masonry units shall have a value, in weight of contained water, of not more than thirty (30) percent of the fully saturated content for the unit tested.
   2. Ship all units from the factory, and store at the job site, with all necessary protection to prevent increase of water content from rain and other sources.

4.03 BRICK

A. Facing Brick: Norman, ASTM C216, Grade SW, Type FBX, 3 5/8" x 2 ¼" x 11 5/8". Pacific Clay Company Dark Ironspot Modular Cored Smooth from Belden Tri-State, or equal.

B. Where brick is fully concealed provide common brick conforming to ASTM C62, Grade SW.

C. Provide special molded shapes, where indicated and for application requiring brick of form, size and finish on exposed surfaces which cannot be produced from standard modular brick sizes by sawing.

D. For sills, caps and similar applications resulting in exposure of brick surfaces which otherwise would be concealed from view, provide un-cored units with all exposed surfaces finished.

4.04 JOINT REINFORCING FOR MASONRY WALLS

A. All reinforcing shall be Stainless Steel Type 304. See drawings for all anchors.

B. Approved Joint Reinforcing Manufacturers, or equal.
   1. Hohmann & Barnard
   2. Dur-O-Wal
   3. Heckmann Building Products
   4. National Wire Products Industries, Inc.
   5. Or equal.

4.05 REINFORCING BARS AND RODS: ASTM A615, GRADE 60. SEE STRUCTURAL DRAWINGS FOR SIZE.

4.06 CONTROL JOINT FILLER

A. Vertical Installation Within Concrete Masonry Wall: Extruded high grade neoprene rubber, cross shape, for use with concrete masonry sash units, which shall provide a force fit in the grooves of the sash block, and shall have 1/2" diameter tubular ends (compressed 25% when installed in 3/8" wide joint).
   1. Provide the following sizes:
      a. 2-5/8" wide control joint fillers for 4" block walls.
      b. 4-5/8" wide for 6" block walls.
      c. 6-5/8" wide for 8", 10" and 12" block walls.
   2. Provide backer rod and sealant joint over joint filler as per drawings and Section 07900 of these specifications.

B. Isolation Joint Filler at Abutting Construction where shown son the drawings: Compressible and resilient closed cell neoprene gasket with pressure sensitive adhesive backing, thickness 30% greater than thickness of joint. Acceptable joint filler shall be "Everlastic, Type NN-1" by Williams Products, Inc., or equal. Recess joint filler and install backer rod and sealant as per drawings and Section 07900 of these specifications.

C. Within Face Brick: Provide "Emseal 25V " installed to fifty (50) percent compression, as manufactured by Emseal, USA (203-322-3828) or equal, behind filler rod and sealant installed by Section 07900. Filler depth shall be 2 x joint width. Note: If metal surfaces, or in contact with caulk, use Greyflex Expanding Foam Sealant by Emseal or equal.
   1. Compressible filler between top of brick and bottom of shelf angle shall be "Sof Joint" made by Emseal, or equal.

D. Embedded Flashing: Factory manufactured consisting of 5 oz. per sq. yd. copper coated on both sides with fiberglass fabric manufactured by AFCO Products, York Flashing, or equal.

E. Insulation: As specified under Section 07 20 00.

F. Flashing Protection: “Mortar Net” by Hohman and Barnard or “Mortar Maze” by Advanced Building Products or equal.

G. mortar materials

H. Portland Cement: ASTM C150, Type 1, custom color to match brick, one source.

I. Hydrated Lime: ASTM C207, Type S, as manufactured by Corsons, or equal.

J. Sand: Clean, washed, buff colored sand, graded per ASTM C144.

K. Water: Clean, fresh and suitable for drinking.

L. Masonry Cement (for interior block partitions only): ASTM C91.

M. mortar mix

N. Exterior Face Brick Construction: Mortar mixes shall meet design strengths of ASTM C270, Type N, cement/lime mortar.

O. Brick mortar shall be WCB #73 as manufactured by Westbrook Block, or architect approved equal.

P. Exterior Block Back-Up and Stone Construction: Provide mortar conforming to ASTM C270, Type S, with not more than 1/2-part lime per part of Portland cement.

Q. Interior Masonry Construction: Provide mortar conforming to ASTM C270, Type N.

R. Ground face block mortar to be selected by Architect and approved with test panel sample.

S. Mortar for Cement Cants: One (1) part Portland cement and four (4) parts sand, by volume.

T. Grout for Unit Masonry: Comply with ASTM C476 for grout for use in construction of unit masonry. Use grout of consistency (fine or coarse) at time of placement which will completely fill all spaces intended to receive grout.

4.07 MIXING

A. General: Add cement just before mixing and mix dry. Use sufficient amount of water as necessary to produce workable mix. Mix in small batches to make plastic mass.

B. Mixing: Machine mix all mortars in approved type mixer with device to accurately and uniformly control water. Add hydrated lime dry. Mix dry materials not less than two (2) minutes. Add water, then mix not less than three (3) minutes. Mix only amount of mortar that can be used before initial set. Do not use mortar which has reached its initial set or two (2) hours after initial mixing. Mortar may be re-tempered only to replace water lost by evaporation which shall be done within one (1) hour after initial mixing. Clean mixer for each batch, whenever mortar type is changed, and at end of each day's work.

C. Acceleration or other admixtures not permitted.

D. Mortar shall have a flow after suction of not less than seventy-five (75) percent of that immediately after mixing as determined by ASTM C91.

4.08 ADMIXTURES

A. No air-entraining admixtures or cementitious materials containing air-entraining admixtures shall be used in the mortar.

B. No antifreeze compounds or other substances shall be used in the mortar to lower the freezing point.

C. Calcium chloride or admixtures containing calcium chloride shall not be used in mortar.

D. weep holes

E. Provide clear plastic weep holes 3/8" diameter by four (4) inches long with SILT removable rope inserts equal to No. 341 made by Hohmann & Barnard or equal.

PART 3.00 - EXECUTION

5.01 SURFACE CONDITIONS

5.02 INSPECTION

A. Prior to all work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

B. Verify that masonry may be completed in accordance with all pertinent codes and regulations, the referenced standards, and the original design.

C. Do not start any work until mock-ups are approved by the Architect.

5.03 DISCREPANCIES

A. In the event of discrepancy, immediately notify the Architect.

B. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

5.04 COORDINATION

A. Carefully coordinate with all other trades to ensure proper and adequate interface of the work of other trades with the work of this Section.

5.05 PREPARATION

5.06 BRICK

A. Wet brick having ASTM C67 absorption rates greater than 0.025 oz. per square inch per minute.

B. Determine absorption by placing twenty (20) drops of water inside a circle the size of a quarter on typical units. If water is absorbed within 1-1/2 minutes, wet brick before laying.

C. Use setting methods which ensure that each masonry unit is nearly saturated but surface dry when laid. During freezing weather, comply with the recommendations of BIA.

D. Except for absorbent units specified to be wetted, lay masonry units dry.

E. Concrete Block: Do not wet concrete block units.

5.07 INSTALLATION

5.08 GENERAL

A. Build walls to the full thickness shown. Build single wythe walls to the actual thickness of the masonry units, using units of nominal thickness shown.

B. Build chases and recesses as shown or required for the work of other trades.

C. Leave openings for equipment to be installed before completion of masonry work. After installation of equipment, complete masonry work to match work immediately adjacent to the opening.

D. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint widths and to properly locate openings, movement type joints, returns and off-sets. Avoid the use of less than half size units at corners, jambs and wherever possible.

E. Lay up walls plumb and true with courses level, accurately spaced and coordinated with other work.

F. Provide templates made of steel studs for plumbing of two-story masonry openings.

G. Pattern Bond: Lay exposed masonry patterns as noted on drawings. Ground face block shall be 1/2 running bond and brick shall 1/3 running bond. Lay concealed concrete block with all units in a wythe bonded by lapping not less than two (2) inches. Bond and interlock each course of each wythe at corners. Do not use units of less than four (4) inches horizontal face dimensions at corners or jambs.

H. Masonry shall be neatly built around the items above. Walls and partitions shall be plumb, true to line and free from defects such as open cells, voids, dry joints and other similar defects. In

rooms and spaces scheduled to have concrete block finish, all such surfaces including upper wall surfaces up to termination of structural ceiling in spaces without suspended ceilings, shall be made suitable for paint application. Cutting of openings in walls and partitions in place shall be done only with the approval of the Architect.

I. Comply with all requirements for seismic reinforcement as shown on structural drawings in accordance with NYC Building Code.

5.09 MORTAR BEDDING AND JOINTING

A. All joints between bricks shall be completely filled with mortar. Bed joints shall be formed of a thick layer of smooth or slightly furrowed mortar applied to the units previously laid, with the brick then shoved in place; or bed joints may be formed as specified for cross joints. Cross joints shall be formed by applying a full coat of mortar to the entire end of the entire side, as the case requires, and then shoving the mortar covered end and/or side of the brick tightly against the bricks previously laid; the practice of buttering the corners of brick and then throwing mortar scrapings into the empty joints will not be permitted. All brick shall be laid without disturbing the brick previously laid. Dry or butt joints will not be permitted. Grouting shall be done only as necessary. Do not slush head joints.

B. Lay concrete masonry units with full mortar coverage on horizontal and vertical face shells and cross webs. Bed webs in mortar in starting course on exterior walls, footings and in all courses of piers, columns and pilasters, and where adjacent to cells or cavities to be reinforced or filled with concrete or grout. For starting course on footings where cells are not grouted, spread out full mortar bed, including areas under cells.
   1. To ensure alignment of brick and block coursing, adjust block back-up by cutting block to insure alignment of coursing or use adjustable anchorage.

C. Lay masonry walls with 3/8" joints unless otherwise shown on drawings.

D. Lay solid brick-size masonry with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not furrow bed joints or slush head joints.

E. At cavity walls, slope beds toward cavity to minimize mortar protrusions into cavity. As work progresses, trowel mortar fins protruding into cavity flat against cavity face of brick.

F. Tool exposed joints slightly concave. Concealed joints shall be struck flush.

G. Remove masonry units disturbed after laying; clean and reset in fresh mortar. Do not pound corners at jambs to fit stretcher units which have been set in position. If adjustments are required, remove units, clean off mortar and reset in fresh mortar.

H. Stopping and Resuming Work: Rake back 1/2 brick length in each course; do not tooth. Clean exposed surfaces of set masonry, wet units lightly (if required) and remove loose masonry units and mortar prior to laying fresh masonry.

5.10 BUILT-IN WORK

A. As the work progresses, build in items specified under this and other Sections of these specifications. Fill in solidly with masonry around built-in items.

B. Grout in door frames, access doors, louvers and other metal items embedded or built into masonry work solidly with grout.

C. Grout under lintels, bearing plates, and steel bearing on masonry with solid bed or mortar.

D. Grout around sleeves, pipes, ducts and all other items which pass through masonry walls solidly with mortar, so as to be air tight and prevent air leakage. Refer to Section 07270 for packing of voids in rated masonry walls.

E. Fill vertical cells of masonry units solid with mortar or grout which have anchoring, reinforcing rods, supporting or hanging devices embedded in the cell including stone anchors and window or curtain wall anchors.

F. Fill vertical cells of masonry units solid with mortar on each side of door frames to sixteen (16) inches beyond.

G. Unless otherwise noted, fill vertical cells of masonry units solid with mortar which are below steel bearing plates, steel beams, and ends of lintels, to eight (8) inches beyond bearing and from floor to bearing.

H. Place wire mesh in horizontal joint below masonry unit cells to be filled with mortar, to prevent mortar from dropping into unfilled cells below.

I. Masonry indicated as being reinforced shall have all voids filled solid with grout. Grout shall be consolidated in place by vibration or other methods which insure complete filling of cells. When the least clear dimension of the grouted cell is less than two (2) inches, the maximum height of grout pour shall not exceed twelve (12) inches. When the least clear dimension is two (2) inches or more, maximum height of grout pour shall not exceed forty-eight (48) inches. When grouting is stopped for one (1) hour or longer, the grout pour shall be stopped 1-1/2" below the top of a masonry unit. Vertical bar reinforcing shall be accurately placed and held in position while being grouted and shall be in place before grouting starts. All such reinforcing shall have a minimum clear cover of 5/8". Lap all bars a minimum of forty (40) bar diameters and provide steel spacer ties (not to exceed 192 bar diameter) to secure and position all vertical steel and prevent displacement during grouting. Provide continuous horizontal truss reinforcement embedded in mortar joints every second course.

5.11 CUTTING AND PATCHING

A. All exposed masonry which requires cutting or fitting shall be cut accurately to size with motorized carborundum or diamond saw, producing cut edges.

B. Do not saw cut any masonry openings in face brick construction without Architect's approval and after a procedure has been reviewed and approved.

C. Holes made in exposed masonry units for attachment of handrail brackets and similar items shall be neatly drilled to proper size.

D. Exposed masonry which requires patching i, if approved by Architect, shall be patched neatly with mortar to match appearance of masonry as closely as possible and to the Architect's satisfaction. Rake back joints and use pointing mortar to match as required.

5.12 SOLID WALL CONSTRUCTION

A. Fill the vertical longitudinal joint between wythes solidly with mortar by parging the in-place wythe and shoving units into the parging.

B. Tie wythes with continuous horizontal reinforcement embedded in mortar joints sixteen (16) inches o.c. vertically.

5.13 CAVITY WALLS

A. All exterior masonry walls, unless otherwise indicated, shall be cavity walls of thickness indicated.

B. Two wythes of masonry cavity walls shall be securely tied together by horizontal joint reinforcement and ties anchored to reinforcement, as herein specified, spaced every other block course.

1. Where cavity back-up is concrete use ties specified herein spaced sixteen (16) inches o.c. both direction.

C. Cavity between facing and backing wythe shall be kept clean and clear of all mortar droppings, and no mortar ledges shall project into the cavity. Temporary wood strips, cut to width of cavity and fitted with lift-up wires, shall be laid on the joint reinforcement and carefully lifted out before placement of the next layer of reinforcement. Any projecting mortar shall be spread over the back of the outer wythe immediately following the setting of the masonry unit. Fill base of cavity walls with mortar protection as detailed.

D. Weep holes shall be 3/8" O.D. PVC tubing with rope inserts set in staggered pattern of two levels as shown on drawings. Provide weep joints above through wall flashing as it extends

out, along bottom of cavity walls, bond beams, shelf angles and other water stops. Leave rope inserts in place, continue up vertically through mortar protection and tie to metal ties in cavity.

E. At cavity and solid walls adjacent to window openings fill block solid with mortar where window anchors are to be located. Coordinate with window subcontractor.

F. Concrete block back-up at cavity wall construction shall have a one (1) inch "soft" joint at top of partition consisting of fire stop sealant conforming to the requirements of Section 07270. Wall shall be anchored to slab at top with anchors spaced sixteen (16) inches o.c.

5.14 INTERIOR BLOCK PARTITIONS

A. Build full height to underside of structure above. At non-rated partitions fill void with continuous neoprene filler conforming to the requirements of Section 07910. At fire rated partitions, fill void with fire stop material meeting the requirements of Section 07270. Brace partitions with steel angles conforming to ASTM A36, shop primed, size as detailed on drawings. Securely anchor angles to slab.

B. Provide continuous horizontal joint reinforcing every other block course. Fully embed longitudinal side rods in mortar for their entire length with a minimum cover of 5/8". Lap reinforcement a minimum of six (6) inches at ends of units.

C. Provide continuity at corners and wall intersections by use of prefabricated "L" and "T" sections. Cut and bend units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures and other special conditions.

D. At interior partitions reinforce masonry openings greater than 1'-0" wide, with horizontal joint reinforcing placed in two (2) horizontal joints approximately eight (8) inches apart, immediately above the lintel and immediately below the sill. Extend reinforcing a minimum of 2'-0" beyond jambs of the opening, bridging control joints where provided. Refer to structural drawings for typical seismic reinforcement.

E. Corners
   1. Provide interlocking masonry unit bond in each course at corners and as shown on the drawings.
   2. Provide continuity at corners with prefabricated "L" reinforcement units, in addition to masonry binding.

F. Intersecting and Abutting Walls
   1. Unless vertical control joints are shown as part of structural frame, provide interlocking masonry bond. Provide starters and special shapes as shown on the drawings to bond these walls.
   2. In addition to masonry bonding, provide horizontal reinforcement using prefabricated "T" units at interior partitions.

5.15 TIES AND ANCHORS FOR MASONRY CONSTRUCTION

A. Provide ties and anchors as shown or required, but not less than one metal tie, spaced not to exceed sixteen (16) inches o.c. horizontally and vertically. Stagger ties in alternate courses. Provide additional ties within 1'-0" of all openings and spaced not more than 24" apart around perimeter of openings.

B. Anchor masonry to structure complying with the following:

C. Provide an open space not less than 1/2" in width between masonry and structural member, unless otherwise shown. Keep open space free of mortar or other rigid materials.

D. For anchoring masonry to light gage metal framing provide stainless steel screw anchors penetrating through studs; space anchors 8" o.c. maximum.

5.16 CONTROL AND EXPANSION JOINTS

A. Provide vertical expansion, control and isolation joints in masonry as shown on drawings. Build in related items as the masonry work progresses.

1. If additional joints are required, indicate same on approved shop drawings. Do not place any exposed control, expansion or isolation joints not shown on the drawings without the approval of NYCHA.

5.17 LINTELS

A. Install loose steel lintels as per Section 05 50 00, allowing eight (8) inch bearing at ends.

B. For concrete block walls where indicated, use specially formed U-shaped concrete block lintel units with reinforcing bars in accordance with the following table, filled with Type M mortar.

Number and Size of Reinforcing Bars Required at Concrete Block Lintels		
Maximum Clearance Span	Wall Width	Rebar No. - Size
2'-0" to 6'-0" 6'-0" to 8'-0"	6"	2 - #3 2 - #4
2'-0" to 6'-0" 6'-0" to 8'-0"	8"	2 - #3 2 - #4
2'-0" to 6'-0" 6'-0" to 8'-0"	12"	3 - #3 3- #4

5.18 FLASHING

A. Provide concealed flashings in masonry work as shown on drawings. Prepare masonry surfaces smooth and free from projections. Seal flashing penetrations with adhesive before covering with mortar. Terminate flashing beyond the face of the wall and cut back flush to the face.

B. Flashing shall be placed, generally, at bottoms of cavity wall construction, over all wall openings, window jambs, at sills of window, and in other locations where indicated on the drawings. At bottoms of cavity walls, flashing shall be built extending from the exterior face of the brick, up and over the top of the concrete masonry unit construction of the inner wythe, as detailed on drawings. At concrete spandrel beams and columns flashing shall be installed with a continuous pressure bar. Extreme care shall be exercised in placing the masonry materials not to damage flashing. Flashing damaged during masonry erection shall be repaired or replaced by the Contractor at no additional cost to the NYCHA. All flashing shall be continuous around building unless otherwise noted on the drawings. Turn flashing up at back of concrete block in masonry cavity as detailed and adhere to block. Provide flashing of sufficient width to allow flashing to protrude 1-1/2" beyond building face. Trim excess only at time of final brick clean down.

C. Where flashing is penetrated by anchors, patch flashings at penetration using adhesive and mastic recommended by the manufacturer to insure watertight seal.

D. Install flashing in accordance with manufacturer's instructions, using adhesive, primer, thinner, cleaner and mastic as recommended by flashing manufacturer.

E. Provide weep holes of type specified in the head joints of the first course of masonry immediately on concealed flashings. Space twenty-four (24) inches o.c.

F. Provide mortar net in cavity at weeps according to manufacturer’s recommendations and industry standards.

5.19 CLEANING, PROTECTION, ADJUSTMENT

5.20 CLEAN-UP

A. Upon completion all exposed masonry shall be thoroughly cleaned. Before applying any cleaning agent to the wall, it shall be applied to a sample wall area of approximately twenty (20) square feet in a location approved by the NYCHA. No further cleaning work may proceed until the sample area has been approved by the NYCHA, after which time the same cleaning materials and method shall be used on the remaining wall area.

B. The Contractor shall take adequate precautions for the protection of all surfaces against mortar spatter and shall immediately remove any such spatter should it inadvertently occur, leaving no stain or discoloration.

C. Trim exposed flashing.

5.21 PROTECTION

A. Excess mortar shall be wiped off the masonry surfaces as the work progresses.

B. Wood coverings shall be placed over all such masonry surfaces as are likely to be damaged during the progress of the entire project.

C. Protective measures shall be performed in a manner satisfactory to the NYCHA.

D. Damaged masonry units shall be replaced to satisfaction of the Architect.

E. Exterior masonry walls shall be draped with waterproof covering until copings or sills are in place, to prevent water penetration in cavity.

F. Pointing: Point any defective joint with mortar identical with that specified for that joint, flush with and indistinguishable from all other mortar joints.

END OF SECTION 04 20 00