SECTION  – unit masonry

1. GENERAL
   1. SUMMARY
      1. This Section includes supply and installation of unit masonry assemblies consisting of the following:

SPEC NOTE: Delete items not required on the project.

* + - 1. Veneer brick.
      2. Architectural Concrete Masonry Units (CMUs).
      3. Fire Rated Concrete Masonry Units (CMUs).
      4. Manufactured Stone Masonry Units.
      5. Stone.
      6. Precast trims.
      7. Mortar and grout.
      8. Reinforcing steel.
      9. Masonry joint reinforcement.
      10. Ties and anchors.
      11. Embedded flashing.
      12. Miscellaneous masonry accessories.
    1. Products Installed but not Furnished under This Section:
       1. Steel lintels in unit masonry.
       2. Steel shelf angles for supporting unit masonry.
    2. Related Requirements:
       1. Section 03 30 00 – Cast-In-Place Concrete.
       2. Section 05 12 00 – Structural Steel Framing.
       3. Section 05 40 00 – Cold Formed Metal Framing.
       4. Section 05 50 00 – Metal Fabrications.
       5. Section 07 21 13 – Board Insulation.
       6. Section 07 21 16 – Blanket Insulation.
       7. Section 07 24 00 – Exterior Insulation and Finish System.
       8. Section 07 27 39 – Vapour Permeable Air Barrier Membrane.
       9. Section 07 62 00 – Sheet Metal Flashing and Trim.
       10. Section 07 84 00 – Firestopping and Smokeseals.
       11. Section 07 92 00 – Joint Sealants.
       12. Section 08 11 13 – Steel Doors and Frames.
       13. Section 08 41 13 – Aluminum Framed Entrances and Storefronts.
       14. Section 09 29 00 – Gypsum Board.
       15. Section 09 91 00 – Painting.
  1. reference standards
     1. American Concrete Institute: (ACI):
        1. ACI 530.1-99/ASCE 6-99/TMS 602-99, Commentary on Specification for Masonry Structures.
     2. Brick Institute Association (BIA):
        1. BIA Technical Notes 20, Cleaning Brickwork.
        2. BIA Technical Notes 23A - Efflorescence, Causes and Prevention.
     3. Canadian Standards Association (CSA):
        1. CSA A165 Series-04 (R2009), CSA Standards on Concrete Masonry Units.
        2. CSA A179-04 (R2009), Mortar and Grout for Unit Masonry.
        3. CSA A370-04 (R2009), Connectors for Masonry.
        4. CAN/CSA A371-04 (R2009), Masonry Construction for Buildings.
        5. CSA S304.1-04 (R2010), Design of Masonry Structures.
        6. CSA W186-M1990 (R2012), Welding of Reinforcing Bars in Reinforced Concrete Construction.
     4. American Society for Testing of Materials (ASTM):
        1. ASTM A123/A123M-09, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
        2. ASTM A153/A153M-09, Standard Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware.
        3. ASTM A496/A496M-07, Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement.
        4. ASTM A563-07a, Standard Specification for Carbon and Alloy Steel Nuts.
        5. ASTM A653/A653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
        6. ASTM A1011/A1011M-12, Standard Specification for Steel, Sheet, and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
        7. ASTM C67-11, Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.
        8. ASTM C207-06(2011), Standard Specification for Hydrated Lime for Masonry Purposes.
        9. ASTM C270-12, Standard Specification for Mortar for Unit Masonry.
        10. ASTM C494-11, Standard Specification for Chemical Admixtures for Concrete.
        11. ASTM C568/C568-10, Standard Specification for Limestone Dimension Stone.
        12. ASTM E488/E488M-10, Standard Test Methods for Strength of Anchors in Concrete Elements.
        13. ASTM E514/E514M-11, Standard Test Method for Water Penetration and Leakage Through Masonry.
        14. ASTM E2556/E2556M-10, Standard Specification for Vapour Permeable Flexible Sheet Water Resistive Barriers Intended for Mechanical Attachment.
        15. ASTM F593-02(2008) e1, Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
        16. ASTM F594-09e1, Standard Specification for Stainless Steel Nuts.
     5. Ontario Concrete Masonry Block Association (OCBA):
        1. OCBA Metric Technical Manual.
     6. Underwriters Laboratories of Canada (ULC):
        1. ULC List of Equipment and Materials for Fire Rated Construction.
  2. administrative requirements
     1. Pre-Construction Conference: Arrange a site meeting attended by the contractor's superintendent, the Subcontractor's representative and foreman for this project, the Consultant, materials supplier(s), and other relevant personal before commencement of work for this Section; agenda for meeting will include but not be limited to, the following:
        1. Confirmation of specifications and details for the Project.
        2. Required mortar, grout and concrete testing, batch control and grouting procedures.
        3. Installation requirements of air/vapour membranes and insulation and coordination with other components of the Work.
        4. Confirmation of cavity compartmentalization and drainage requirements.
        5. Confirmation of appearance of exposed block lintels.
        6. Confirmation of reinforcement at corners and wall intersections.
        7. Coordination of interior and exterior crack control measures.
        8. Confirmation of trowelled or tooled joints to concealed and exposed masonry faces.
        9. Confirmation of methods for keeping mortar out of cavity space.
        10. Confirmation of methods for controlling efflorescence during construction.
        11. Confirmation of membranes and membrane flashing materials and details used for construction.
        12. Review of submitted masonry unit samples.
        13. Review of hot and cold weather requirements.
     2. Coordination: Coordinate components of the work of this Section with work performed by other Sections including but not limited to, the following:

SPEC NOTE: Delete when there is no masonry wall assembly on the exterior façade.

* + 1. Rain Screen Wall Construction:
       1. Masonry veneer forms a part of the exterior rain screen and protective facing.
       2. Construct assembly to allow for ventilation, drainage, and pressure equalization of the voids between the veneer and the insulation with the outside pressures.
       3. Construct cavity space divided into separate compartments as a means of controlling these pressure differences within the building envelope.
    2. Steel Support Angles and Brackets:
       1. Coordinate requirements for structural steel support angles and brackets supplied and installed onto the building structure by Section 05 70 00 – Decorative Metal and Section 05 50 00 – Metal Fabrications.
       2. Provide requirements for supply of loose steel lintels and shelf angles installed by this section to Section 05 50 00 – Metal Fabrications.
    3. Masonry Anchors:
       1. Coordinate supply of anchor sections connecting to structural frame installed by Section 05 12 00 – Structural Steel Framing.
       2. Include additional products for coordination furnished, but not installed, under this Section.
    4. Sheet Metal Flashings and Trim: As indicated in Section 07 62 00 – Sheet metal Flashing and trim.
  1. submittals
     1. Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.
     2. Samples: Submit samples of the following: stone tile panel, concrete block, mortar, masonry reinforcement, ties and anchors, damp course/thru-wall flashing and adhesive, metal drip flashing, mortar dropping control device and weepholes for Consultant's approval before commencing Work of this Section.
     3. Shop Drawings: Submit shop drawings indicating the following:
        1. Indicate sizes, profiles, coursing, and locations of special shapes for concrete masonry units and stone masonry cladding.
        2. Indicate sizes, profiles, and locations of each stone trim unit required.
        3. Detail corner units, end dam units, and other special applications for fabricated flashings.
     4. Samples for Verification: Submit samples for verification for each type and colour of the following:
        1. Decorative stone masonry cladding units, in the form of small-scale units.
     5. Informational Submittals: Provide the following submittals when requested by the Consultant:
        1. Submit ULC Assembly Listings and Materials cut sheets for fire rated assemblies as follows:

Not later than 30 working days following Award of Contract, submit copies of ULC Assembly and Materials Listing for indicating ULC Number and how assembly meets the rating criteria for assemblies listed on drawings or meets requirements of Supplementary Standard SB-3 of Ontario Building Code

Use the same system and material as would be required for a tested assembly for the project; ULC Listings are tested with the specific materials indicated; substitutions will not be permitted unless evidence of equivalency is confirmed.

Submit manufacturer's product data for materials and prefabricated devices, providing descriptions are sufficient for identification at job site; include manufacturer's printed instructions for installation.

* + 1. Certificates: Submit statements of material properties indicating compliance with specified requirements for each type and size of the following:
       1. Masonry Units:

Include material test reports substantiating compliance with requirements.

Include ULC Listings for fire resistance rated materials and construction equivalent to assemblies with indicated on drawings indicating fire resistance ratings.

* + - 1. Cementitious Materials:

Include brand, type, and name of manufacturer for site mixed mortar materials.

Include description of type and proportions of ingredients for pre-blended, dry mortar mixes.

Include description of type and proportions of ingredients for grout mixes.

* + - 1. Accessories:

Reinforcing bars.

Joint reinforcement.

Anchors, ties, and metal accessories.

* + - 1. Site Quality Control Submissions: Submit detailed description of methods, materials, and equipment used in accordance with cold or hot weather requirements; and proposed unit masonry cleaning techniques.
  1. site conditions
     1. Protection of Masonry: Protect masonry and other work from marking and other damage and as follows:
        1. Cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work during construction until permanent flashings and membranes are completed.
        2. Cover partially completed masonry when construction is not in progress to prevent wetting of inside wythes of construction and contribution to efflorescence.
        3. Extend cover a minimum of 610 mm (24") down both sides and hold cover securely in place.
        4. Secure cover a minimum of 610 mm (24") down face next to un-constructed wythe and hold cover in place where 1 wythe of multi-wythe masonry walls is completed in advance of other wythes.
        5. Provide adequate bracing for masonry during construction and until permanent lateral supports are in place.
        6. Do not apply uniform floor or roof loads for a minimum of 12 hours and concentrated loads for a minimum of three (3) days after building masonry walls or columns.
     2. Cold Weather Protection:
        1. Keep masonry materials completely free from ice and frost. Use approved smokeless heaters. Do not use scorched sand. Do not use salts, admixtures, or antifreezes.
     3. Conform to the following construction requirements indicated in CSA A371-04, paragraph 6.7.2 and 6.7.3:

|  |  |  |
| --- | --- | --- |
| **AIR TEMPERATURE** | **HEATING OF MATERIALS** | **PROTECTION** |
| Above 5 deg C | Normal masonry procedures. | Cover walls and materials. |
| Between 0 deg C and 4 deg C | Heat sand or mixing water to a minimum of 20 deg C and a maximum of 70 deg C. | Cover walls and materials to protect from rain or snow for 48 hours. |
| Between -4 deg C and 0 deg C | Heat sand and mixing water to a minimum of 20 deg C and a maximum of 70 deg C. | Completely cover masonry for 48 hours after laying masonry units. |
| Between -7 deg C and -4 deg C | Heat sand and mixing water to a minimum of 20 deg C and a maximum of 70 deg C.  Source heat shall be provided on both sides of the walls under construction.  Windbreaks shall be employed when the wind speed exceeds 25 km/h. | Completely cover masonry with insulating blanks for 48 hours after laying masonry units. |
| -7 deg C and below | Heat sand and mixing water to a minimum of 20 deg C and a maximum of 70 deg C.  Enclosures and supplementary heat shall be provided to maintain an air temperature above 0 deg C.  The temperature of the unit when laid shall be not less than 7 deg C. | Provide enclosure and supply supplementary heat to maintain masonry enclosure above 0 deg C for 48 hours after laying masonry units. |

* + 1. Hot Weather Requirements
       1. Comply with hot weather construction requirements contained in reviewed submittals.
       2. Protect freshly laid masonry from drying too rapidly, by means of waterproof, non-staining coverings.
       3. Keep masonry dry using waterproof, non-staining coverings that extend over walls and down sides sufficient to protect walls from wind driven rain, until masonry work is completed and protected by flashings or other permanent construction.
  1. DELIVERY, STORAGE, HANDLING AND PROTECTION
     1. Delivery and Acceptance Requirements: Deliver pre-blended, dry mortar mix in moisture resistant containers designed for lifting and emptying into dispensing silo; store dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in a metal dispensing silo with weatherproof cover.
     2. Storage and Handling Requirements: Store masonry units on elevated platforms in a dry location and as follows:
        1. Stack materials on floors of building so that structural design loads are not exceeded, coordinate with Consultant.
        2. Cover tops and sides of stacks with waterproof sheeting securely tied to pallets if units are not stored in an enclosed location; do not install masonry units that become wet until they are dry.
        3. Store cementitious materials on elevated platforms, under cover, and in a dry location; do not use cementitious materials that have become wet or damp.
        4. Store aggregates where grading and other required characteristics can be maintained; store to prevent contamination by substances deleterious to performance and appearance.
        5. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1. Products
   1. manufacturers
      1. Subject to compliance with requirements listed in this Section, manufacturers listed as offering products may be incorporated into the Work; alternates may be considered by the Consultant when submitted a minimum of five (5) days before closing of Bids.
      2. Manufacturer all exposed masonry by one manufacturer to provide uniform in colour, shade, and texture.
   2. BRICK VENEER UNITS

SPEC NOTE: Grades are used to classify brick in accordance with their resistance to damage due to freezing and thawing cycles, with grade EG having greater resistance than grade IG under the requirements of this the CSA a82 standard.

SPEC NOTE: Despite the improved freeze-thaw resistance of grade EG brick, masonry should be detailed to avoid saturation or near-saturation of the in exterior applications.

SPEC NOTE: This concept applies to brick sills and other horizontal surfaces, which should be detailed with a minimum 15° slope and projected beyond the face of wall to create a drip, and by allowing sufficient height above splash zones to prevent accumulation of water on brick surfaces.

* + 1. Burned Clay Brick: Manufactured in accordance with CAN/CSA A82-06 (R2011), and as follows:
       1. Grade: [Exterior Grade (EG)] [Interior Grade (IG)].

SPEC NOTE: Following types are listed in order of preference for petroff projects; type x brick has a higher degree of precision and smaller permissible variation in size than type S brick; type S is what you get if you do not list a type; type a is not common and is used where characteristic architectural effects resulting from non-uniform size, colour or texture are required with individual bricks.

* + - 1. Type: [X] [S] [A]
      2. Size: Actual dimensions, 3-1/2" deep x 2-1/4" high x 7-1/2" long, metric modular, 3 brick courses to 1 block course.
      3. Colour and Texture: [List Manufacturer Information] [Face brick matching colour range, texture, and size of existing adjacent brickwork; Insert information on existing brick if known].
    1. Special Shapes:
       1. Provide units without cores or frogs and with exposed surfaces finished for ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces.
       2. Provide special shapes for applications where stretcher units cannot accommodate special conditions, including at corners, movement joints, bond beams, sashes, and lintels.
       3. Provide special shapes for applications requiring brick of size, form, colour, and texture on exposed surfaces that cannot be produced by sawing.
       4. Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.
  1. concrete MASONRY units
     1. Architectural Concrete Masonry Units: Manufactured in accordance with CAN/CSA CSA A165 Series-04 (R2009), and as follows:

SPEC NOTE: Classification system is based on a "four facet identification system" described in table 1 of CSA standard a165-2004.

SPEC NOTE: First facet specifies the block to be hollow (h) or solid (s), where solid is defined as the unit having solid content of 75% or more; second facet specifies minimum compressive strength; third facet specifies density and water absorption capacity of the concrete; fourth facet specifies maximum moisture content at time of shipment.

SPEC NOTE: H/15/D/M = Hollow Block / 15 Mpa / Density < 1700kg/m³ / a known moisture content.

* + - 1. Classification: [H/15/A/M] [and] [S/15/A/M]
      2. Size: Modular [metric] [imperial] to sizes indicated on Drawings.

SPEC NOTE: decorative face treatments listed below are not available from all block manufacturers. the most common treatments are listed first, followed by more specialized treatments. always confirm with manufacturer's literature before finalizing the selections listed since some treatments and colour combinations may not form a part of the standard inventory and will require minimum order sizes. create a new type for each different architectural block on the drawings.

* + - 1. Type [CM1]:

Configuration: [Full Block] [Half Block] [Veneer Block]

Decorative Face Treatment: [Natural Block Face] [Split Face] [Polished Face [, with bevelled edges]] [Chiselled Face, [top and bottom] [top, bottom and sides]] [Hammered Face] [Saw Cut Face] [Stone Textured Face], based on [Manufacturer's name and product name].

Profile: [Ledge] [2 Rib] [4 Rib] [6 Rib] [Single Score] [Three Score].

Colour: [List Colour Designation].

Basis of Design Materials: [List Model and Manufacturers Name] [Shouldice Designer Stone].

* + - 1. Special Shapes:

Provide [square] [bull nosed] [and] [half high] units for exposed corners.

Provide purpose made shapes for lintels and bond beams.

Provide additional special shapes required for project.

Manufacture special shapes at same time and with the same batch as architectural concrete block to be used.

* + 1. Standard concrete blocks shall be autoclave or bubble cure process, high pressure steam cured, modular, conforming to CSA A165 Series-04 (R2009), with lineal shrinkage and moisture movement not to exceed 0.035% and shall be as follows;
       1. Classification: S/15/A/M, 75% solid for all locations where structural members bear on concrete block.
       2. H/15/A/M, for all other block work.
       3. Size: Modular imperial to sizes indicated on Drawings.
       4. Special Shapes:

Provide square units for exposed corners.

Provide purpose made shapes for lintels and bond beams.

Provide additional special shapes required for project.

Manufacture special shapes at same time and with the same batch as standard concrete block to be used.

* + 1. Fire Resistant Concrete Masonry Units: Manufactured in accordance with CAN/CSA A165 Series-04 (R2009) as modified below:
       1. Classification:

2 Hour Fire Rating: H/15/C/O

1 Hour Fire Rating: H/15/A/O

* + - 1. Concrete Composition: 2 Hour Fire Rating: Type L220S Concrete.
      2. Size: Modular to sizes indicated on Drawings.
      3. Where concrete block walls are required as fire separations or barriers, they shall conform to the National Building Code. With respect to equivalent thickness and type of concrete. Consult with Consultant for locations and special conditions.
    1. Exposed block shall all be made by one manufacturer and shall be uniform in colour, shade, and texture.
  1. architectural trim units
     1. Trim Units: Manufactured in accordance with CAN/ CSA A165 Series-04 (R2009), and as follows:
        1. Architectural Sill Profile:

Size: 5-1/2" deep, complete with drip edge, 3-1/2" high, and angled to 3-1/4" high, with beveled edges.

At locations requiring sills to wrap a corner, provide corner sill unit as a one (1) piece unit completed with beveled profile to match adjacent sill units. Miter joints are not permitted, unless prior written approved by the Consultant is obtained.

Colour: As indicated on the Drawings.

Basis of Cambridge Series, Architectural Sills Model R24/3.5 Angled, by Richvale York Block Inc.

* + - 1. Architectural Sill Profile:

Size: 23-5/8" Length, 5-5/8" Width, and 2-1/4" high.

Colour: Chamois

Texture: Tapestry

Basis of Design manufacturer: Super Sill 224, by Shouldice Designer Stone.

* + - 1. Colour: As indicated on the Drawings.
      2. Basis of Cambridge Series, Architectural Sills Model R24/3.5 Angled, by Richvale York Block Inc.
    1. Architectural Cap Profile:
       1. Size: 5-1/2" deep, complete with drip edge, 3-1/2" high, and angled to 3-1/4" high, with beveled edges.
       2. Colour: As indicated on the Drawings.
  1. manufactured stone units
     1. Calcium Silicate Building Stone: Grade SW; solid units that have been pressure formed and autoclaved; 4" nominal bed depth; modular sizes as scheduled and as indicated on drawings; dressed and rocked finish as scheduled on exposed faces; special shapes as indicated; colour as scheduled and having the following typical average properties when tested to the identified standard:
        1. Compressive Strength: 45.5 Mpa (6600 psi), to ASTM C170/C170M-09.
        2. Absorption: 8.8 percent, to ASTM C97/C97M-09.
        3. Density: 2070 kg/m3 (129 lbs/ft3), to ASTM C97/C97M-09.
        4. Modulus of Rupture: 5.3 MPa (770 psi), to ASTM C99/C99M-09.
        5. Basis of Design Manufacturer: Arriscraft International Inc.
  2. querried stone units
     1. Granite: Meeting the requirements of ASTM C615/C615M-11, and as follows:
        1. Classification: [Exterior and interior cladding of buildings and structures].
        2. Description:

Grain: [Fine] [Medium] grained.

Colour: [White] [Pink] [Grey] [Black] stone.

Pattern: Uniform pattern, [with] [without] veining.

Texture: [Honed] [Polished] [Flamed] finish for vertical faces; honed for tops of sills [and] [underside of soffits and lintels].

* + - 1. Acceptable Materials: [List basis of design].
    1. Limestone: Meeting the requirements of ASTM C568/C568M-10, and as follows:
       1. Classification: [I Low] [II Medium] [III High] Density.
       2. Grade and Colour: [Mixed grey/buff] [Select, buff] [Select, grey] [Standard, buff] [Standard, grey].
       3. Texture: [Rustic] [Split Face] [Rubbed] [Sawn] [Pointed] [Bush Hammered] finish for vertical faces; sand rubbed for tops of sills [and] [underside of soffits and lintels].
       4. Acceptable Materials: [List basis of design] [Tyndall Stone quarried at Gillis Quarries, Manitoba] [Indiana Oolitic Limestone quarried at Lawrence, Monroe, or Owen Counties, Indiana.] [Insert additional sources if they are known.]
    2. Marble: Meeting the requirements of ASTM C503/C503M-10, and as follows:
       1. Classification [I Calcite] [II Dolomite] [III Serpentine] [IV Travertine].
       2. Description:

Usage: Exterior; sound, durable and free from spalls, cracks, open seams, pits, and other defects detrimental to structurally integrity.

Grain: [Fine] [Fine to medium] [Medium] grained.

Colour: [[White] [Green] [Grey] stone with only slight veining].

Finish: [Smooth, uniform across face of panels].

* + - 1. Acceptable Materials: [List basis of design].
    1. Quartz-Based Stone: Meeting the requirements of ASTM C 616/C616M-15, and as follows:
       1. Classification: [I Sandstone] [II Quartzitic Sandstone] [III Quartzite].
       2. Grade and Colour: [List colour of materials].
       3. Texture: [Rustic] [Split Face] [Rubbed] [Sawn] [Pointed] [Bush Hammered] finish for vertical faces; sand rubbed for tops of sills [and] [underside of soffits and lintels].
       4. Acceptable Materials: [List basis of design]
    2. Provide stone units accurately shaped, with exposed faces dressed true, and with beds and joints at right angles to faces in accordance with recommendations of [NBGQA's Specifications for Architectural Granite.
  1. mortar materials
     1. Mortar materials shall conform to CSA A179-04 (R2009).

SPEC NOTE: Delete the following if there is no manufactured stone masonry units on the project.

* + 1. Mortar for Manufactured Stone Masonry Units:
       1. Conforming to CSA A179-04 (R2009), Proportion specification, 1 part Portland cement, 1-part hydrated lime, 6 parts mortar aggregate by volume for both cementitious materials and aggregate; integral mortar, non staining, for setting: 1 part cement, 1 part lime, six parts sand.
       2. Mortar Aggregate: to CSA A179-04 (R2009), white silica type; clean, dry, protected against dampness, freezing, and foreign matter.
    2. Water: Potable (clean, exempt of ice, oils, acid, alkalis, organic matter, sediments or any other harmful matter). CSA A179-04 (R2009).
    3. Aggregate:
       1. CSA A179-04 (R2009).
       2. Use same brands of materials and source of aggregate for entire project.
       3. Use washed aggregate consisting of natural sand or crushed stone for mortar that is exposed to view.
       4. Use aggregate graded with 100% passing the No. 16 (1.18-mm) sieve for joints less than 6 mm thick.

Cement: Normal portland, in accordance with CSA A3000-08, Type GU.

Grout: In accordance with CSA A179-04 (R2009), Table 3.

Hydrated Lime: ASTM C207-06 (2011), Type S.

Cold Weather Admixture:

Non-chloride, non-corrosive, accelerating admixture in accordance with CSA A179 and ASTM C494, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.

* + - 1. Acceptable Materials:

Grace Construction Products, Morset.

BASF, Trimix-NCA.

SPEC NOTE: Coloured cement is available in colour ranges from Lafarge in either Portland/Lime Mix or Mortar cement. Lafarge Portland/Lime is available in type N, S and M.

SPEC NOTE: Coloured cements are used when architectural concrete block or stone units are coloured, to provide a finished look. Check with designers and/or PMs if they want coloured cement and mortar pigments. Delete requirement for coloured cements where pigmented mortars are not used for the project.

* + 1. Coloured Cement: Packaged blend made from portland cement and lime and mortar pigments in accordance with specified requirements, containing no other ingredients, and as follows:
       1. Use non-staining masonry cement for cementitious portion of specified mortar type.
       2. Formulate blend as required to produce colour indicated or, if not indicated, as selected from manufacturer's standard colours.
       3. Coloured Portland Cement/Lime Mix:

Colour: [List colour] [Colour [to match Consultant's sample] [selected from manufacturer's [standard] [custom] [complete] range]].

Pigments shall not exceed 10% of portland cement by weight.

Acceptable Materials:

Lafarge North America Inc., Eaglebond.

Lehigh Inland Cement, Custom Color Portland/Lime Cement.

Interstar Pigments, Admixtures, and fibers.

* 1. mortar mixes
     1. Mixing:
        1. Prepare and mix mortar materials under strict supervision and in small batches for immediate use only. Mix proprietary mortars in strict accordance with CSA A179. Do not use re-tempered mortars for coloured mortars.
     2. For Masonry Below Grade and In Contact With Earth:
        1. Use premixed silo or bagged Type 'S' masonry cement mortar having minimum compressive strength of 8.5 Mpa at 28 days, jobsite tested.
     3. For Exterior Wythe of Cavity/Composite Walls (non load-bearing, above grade):
        1. Use Type 'N', 1:1:6 pre-mixed, pre-coloured, Portland cement/lime/sand mortar, 'Betomix Plus' by Daubois Inc., or Maxi-Mix silo. Use non-staining "white" cement where required to achieve colour as selected later by the Consultant.
     4. Interior Reinforced or Non-Reinforced Block Walls:
        1. Use Type 'S', premixed 'Bloc Mix' by Daubios Inc., or approved equal by Maxi-Mix.
     5. For All Other Masonry:
        1. Use Type 'N', premixed silo or bagged masonry mortar having a minimum compressive strength of 3.5 Mpa at 28 days, jobsite tested as per property specification, Table 6, CSA A179-04 (R2009).
  2. masonry reinforcement, ties and anchors
     1. Masonry Joint Reinforcement: In accordance with to CSA A371-04(R2009) and ASTM A496/A496M-07, with corrosion protection in accordance with CSA S304.1-04(R2010) and CSA A370-04 (R2009), and as follows:
        1. Interior Walls: Hot dip galvanized, carbon steel.
        2. Exterior Walls: Stainless steel.
        3. Lengths: A minimum of 3048mm (10') with prefabricated corner and tee units.
     2. Connectors: In accordance with to CSA A370-04 (R2009) and CSA S304.1-04(R2010) with hot dip galvanized finish.
     3. Single Wythe Masonry Joint Reinforcement: Either ladder or truss type with single pair of side rods.
     4. Ties and anchors specified in this section shall be designed in accordance with CSA A370-04 (R2009) for non-conventional masonry connectors as follows:
        1. Deflection: Maximum 1.6mm (1/16") including free play, when acted upon by a lateral load of 0.45 kN, in all possible positions of adjustment.
        2. Positive restraint at position of maximum adjustment.
        3. Free play of multi-component ties maximum 0.8mm (1/32") when assembled in all possible configurations.
        4. Anchors shall allow vertical adjustment but resist tension and compression forces perpendicular to plane of wall.
     5. Masonry Unit Veneer/Steel Stud Tie Systems:
        1. Face-Mount of Steel Stud Mount:

Tie Support: Fabricated hot dip galvanized in accordance with ASTM A123-09; designed to transfer wind loads to steel stud framing; length to suit total cavity, insulation, and sheathing thickness.

Ties: Wire ties fabricated from stainless steel wire in accordance with CSA G30.18-09; length to allow for cavity width and to extend minimum 2" into masonry unit joint.

Fasteners: Self tapping metal screws to metal stud backup as recommended by tie manufacturer; of sufficient length to penetrate minimum 13mm (1/2") into steel stud.

Basis of Design Materials: Blok-Lok, BL-407.

* + 1. Masonry Unit Veneer/[Concrete] [Concrete Masonry Unit] Substrate Tie Systems:
       1. Shear Connector (Slotted):

Block Plate: 16-gauge sheet steel, from stainless steel meeting requirements of CSA A370; designed to transfer wind loads to concrete or block substrate; length to suit total cavity, insulation and sheathing thickness, as detailed on Drawings.

Ties: Wire V-Ties fabricated from stainless steel wire in accordance with CSA A370; length to allow for cavity width and to extend minimum 50mm (2") into masonry unit joint.

Insulation Support Plate: Polyethlene.

Basis of Design Materials: Blok-Lok BL-507.

* + 1. Lateral Partition Supports (Top of Wall Anchors):
       1. Angle Support: Fabricated from 3mm (1/8") core metal thickness angled steel plate having 75mm (3") long legs fastened to deck structure to allow vertical movement of masonry assembly; hot dip galvanized; coordinate with Section 07 84 00 for firestopping insulation and smoke seals.

Basis of Design Materials: Blok-Lok BL-LSA1 & 2.

* + - 1. Plate Support: Fabricated from 3mm (1/8") core metal thickness stainless steel plate with 10mm (3/8") diameter metal 150mm (6") long welded to plate having closed end plastic tube fitted over rod that allows rod to move in and out of tube.

SPEC NOTE: Delete the following if there is no stone on the project.

* + - 1. Stone Anchors: Fabricate dowels, cramps, and other stone anchors from stainless steel.
      2. Anchor Bolts: Where required provide Headed or L-shaped steel bolts in accordance with ASTM A307-10, Grade A; with ASTM A563-07a hex nuts and, where indicated, flat washers; hot-dip galvanized in accordance with ASTM A153/A153M-09, Class C.

SPEC NOTE: Delete the following if there is no fastening into concrete or concrete block required.

* + - 1. Post Installed Anchors: Provide chemical anchors, with capability to sustain, without failure, a load equal to six times the load imposed when installed in solid or grouted unit masonry and equal to four times the load imposed when installed in concrete when tested in accordance with ASTM E488/E488M-10 conducted by a qualified independent testing agency, and as follows:

Indoor Locations: Carbon-steel components zinc-plated in accordance with ASTM B633-11, Class Fe/Zn 5.

Outdoor and High Humidity Locations: Alloy Group 1 or 2 stainless steel bolts complying with ASTM F593-02(2008) e1 and nuts complying with ASTM F594-09e1.

Fastening into Solid Concrete or Solidly Grouted Installation: Two component, injectable adhesive specifically manufactured for use in installing dowels or threaded anchor rods and inserts into new or existing concrete or grout. Basis-of-Design Materials: Hilti Inc., HIT HY150 System, no Substitutions Accepted.

Fastening Trough Hollow Wall Installation: Two component, injectable adhesive specifically manufactured for use in installing dowels or threaded anchor rods and inserts, with cylindrical mesh screen tube into new or existing masonry cavity wall. Basis-of-Design Materials: Hilti Inc., HIT HY20 System, no Substitutions Accepted.

* + 1. Galvanizing for Masonry Reinforcement, Ties and Anchors:
       1. Hot Dip Hardware and Bolts: In accordance with ASTM A153/A153M-09, Class B-2 regardless of location.
       2. Hot Dip Sheet Steel: In accordance with ASTM A653/A653M-11, Coating Designation Z600, regardless of location.
       3. Structural Shapes and Pipes: In accordance with ASTM A123/A123-09, Grade 85, regardless of location.
    2. Rebar Positioners: 9-gauge diameter wire, hot dipped galvanized.
       1. Basis of Design Materials: Blok-Lok BL-RB Rebar Positioners.
    3. Fastening Into Solid Concrete or Solidly Grouted Installation: Two component, injectable adhesive specifically manufactured for use in installing dowels or threaded anchor rods and inserts into new or existing concrete or grout, and as follows:
       1. Epoxy Composition: Sealed packaging containing resin, hardener, cement, and water; components.
       2. Curing Time: Rapid set, high strength and stiffness; maximum time 45 minutes at 20 deg C.
       3. Basis-of-Design Materials: Hilti Inc., HIT HY150 System
    4. Fastening Trough Hollow Wall Installation: Two component, injectable adhesive specifically manufactured for use in installing dowels or threaded anchor rods and inserts, with cylindrical mesh screen tube into new or existing masonry cavity wall, and as follows:
       1. Epoxy Composition: Sealed packaging containing resin, hardener, cement, and water.
       2. Curing Time: Rapid set, high strength, and stiffness; maximum time 60 minutes at 20 deg C.
       3. Basis-of-Design Materials: Hilti Inc., HIT HY20 System.
  1. weepholes
     1. PVC 'T' shaped brick vents by Goodco Limited, or cadmium plated airplane type 'Weep Holes-343' by Blok-Lok Limited, set 810mm (32") O.C. in the following locations:
        1. Bottom course of exterior masonry units throughout.
        2. Top courses of exterior masonry units throughout.
        3. Exterior masonry units resting on lintels and intermediate angles.
  2. embedded flashing materials
     1. Flexible Flashing Membrane:
        1. Self adhering rubberized asphalt flashing; non-extruding composite flashing membrane compatible with air and vapour membrane; consisting of pliable, adhesive rubberized asphalt compound, bonded to a high density, cross laminated polyethylene film to produce an overall thickness of a minimum of 1/32" and specifically manufactured for use as a through wall flashing and damp course membrane, and as follows:

Acceptable Materials:

Henry Company, Blueskin TWF.

Grace Construction Products, Perm-A-Barrier 4000 Wall Flashing.

Soprema, Sopraseal Stick 1100HT.

* + - 1. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.
    1. Metal Flashing: Provide metal flashing materials in accordance with Section 07 62 00 – Sheet Metal Flashing and Trim, and as follows:
       1. Fabricate through wall flashing with snap lock receiver on exterior face to receive counter flashing.
       2. Fabricate through wall flashing with drip edge by extending flashing 13mm (1/2") out from wall, with outer edge bent down 30 deg and hemmed.
       3. Fabricate through wall flashing with sealant stop by bending metal back on itself 19mm (3/4") at exterior face of wall and down into joint 10mm (3/8") to form a stop for retaining sealant backer rod.
       4. Fabricate metal drip edges and sealant stops for ribbed metal flashing from plain metal flashing of same metal as ribbed flashing and extending a minimum of 75mm (3") into wall with hemmed inner edge to receive ribbed flashing and form a hooked seam; form hem on upper surface of metal so that completed seam will shed water.
       5. Fabricate metal drip edges for flexible flashings from stainless steel; extend a minimum of 75mm (3") into wall and 13mm (1/2") out from wall, with outer edge bent down 30 deg and hemmed.
  1. mortar dropping control devices
     1. Mortar Dropping Control Devices:
        1. High density, polyethylene or nylon woven mesh type mortar dropping control devices with trapezoidal "zigzag" shaped top edge, designed to allow moisture/water to flow/drain downward in cavity/collar joints to the weepholes, thicknesses to suit cavies and collar joints, 'The Mortar Net' by Mortar Net USA Ltd., and distributed by JV Building Supply, division of Consolidated Materials Corporation, or Mortar Trap by Hohmann and Barnard, or approved equal.
  2. MISCELLANEOUS MASONRY ACCESSORIES
     1. Parging: Single-component, sand/cement blend designed for coating or parging vertical surfaces.
        1. Basis of Design Materials: 825 PARGE-ALL by WR MEADOWS.
     2. Packing Insulation: As indicated in Section 07 21 16 – Blanket Insulation.
     3. Firestopping: As specified under Section 07 84 00 – Firestopping and Smokeseals.
     4. Sealants: As specified under Section 07 92 00 – Joint Sealants, and as follows:
        1. Vertical Sealant: Colour to match brick.
        2. Horizontal Sealant: Colour to match mortar.
     5. Maintenance Cleaners: Manufacturer's recommended maintenance cleaners formulated for use with anti-graffiti coating used on Project.
     6. Support Angle:
        1. Hot dip galvanized 458 g/m5/side in accordance with CSA A370-04 (2009) and ASTM A153/A153M-09.
     7. Fasteners: Galvanized fasteners meeting the requirements of ASTM A325-10, and as recommended by manufacturer.
     8. Joint Filler:
        1. Compressible Filler: Pre-moulded filler strips in accordance with ASTM D1056-07, Grade 2A1; compressible up to 35%; of width and thickness indicated; formulated from neoprene, urethane, or PVC.
     9. Bond Breaker Strips: #15 asphalt saturated, organic roofing felt in accordance with CSA A123.3-05 (R2010).
  3. MASONRY coating
     1. Proprietary Masonry Cleaner: Masonry manufacturer's recommended cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discolouring or damaging masonry surfaces.
        1. Clear coating.
        2. Verify acceptability of cleaner for cleaning masonry with pigmented mortar joints and for kinds of masonry units specified.

SPEC NOTE: Delete the following if there are no anti-graffiti coatings required. only include anti-graffiti coatings for projects located in areas prone to graffiti such as park areas, schools……etc.

* + 1. Anti Graffiti Coatings: Non-sacrificial, fully breathable sealer that does not alter the look of the substrate to which it is being applied, specifically formulated to prevent graffiti from curing into masonry [and precast concrete] substrate pores:
       1. Acceptable Materials:

Fabrikem Fabrishield PR Series.

Graffiti Master, Acryli-Master.

ProSoCo, Defacer Eraser Graffiti Barrier NS, with Protective Film Hardener.

1. Execution
   1. EXAMINATION
      1. Examine conditions for compliance with requirements for installation tolerances and other conditions affecting performance of work.
         1. Prepare written report listing conditions detrimental to performance of work and submit to the Consultant.
         2. Verify that foundations are within tolerances specified.
         3. Verify that reinforcing dowels are properly placed.
      2. Examine rough-in and built-in construction for piping systems to verify actual locations of piping connections before installation of unit masonry.
      3. Proceed with installation only after unsatisfactory conditions have been corrected.
   2. INSTALLATION – General

SPEC NOTE: Revise to suit wall types on the project. Single wythe masonry ó single wall of masonry (block). Cavity wall ó brick or block facade / air space / back up wall

* + 1. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown on Drawings. Build single-wythe walls to actual widths of masonry units, using units of widths indicated on Drawings.

SPEC NOTE: Delete the no single wythe construction on the project.

* + 1. Single wythe masonry construction shall conform with the Ontario Concrete Block Association (OCBA) requirements for water resistant single wythe masonry construction.
    2. Use full size units without cutting except as follows:
       1. Cut units with motor driven saws if cutting is required to provide a continuous pattern or to fit adjoining construction.
       2. Provide clean, sharp, un-chipped edges.
       3. Allow units to dry before laying unless wetting of units is specified.
       4. Install cut units with cut surfaces and cut edges concealed where possible; obtain Consultant's acceptance where cut edges must be exposed.
    3. Select and arrange units for exposed unit masonry to produce a uniform blend of colours and textures; mix units by drawing units diagonally down multiple rows from at least three different pallets as masonry units are placed. "Exposed" means visible in complete work, unpainted and painted.
       1. Large variations in colour or texture between adjacent blocks of material will cause the Consultant to reject the installation, and the installer to rebuild the assembly at no additional cost to Contract.
    4. Wet masonry before laying when recommended by manufacturer; allow units to absorb water so they are damp but not wet at time of laying.
    5. Maintain dimensions, lines, and levels.
    6. Keep exposed faces free from stains, chips, and cracks. Keep tolerance in plane of 1/8" in 8'-0". Do not use chipped, cracked, or deformed units in exposed work.
    7. Buttering corners of units, throwing mortar droppings into joints, will not be permitted. Do not shift or tap units after mortar has taken initial set, where adjustments must be made after mortar has started to set, remove mortar, and replace with fresh supply.
  1. laying masinry walls
     1. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement type joints, returns, and offsets; avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
     2. Bond Pattern for Exposed Masonry: Unless otherwise indicated in this Section or on the Drawings, lay exposed masonry in [running bond] [stack pattern] [one-third running bond] [quarter bond] [bond pattern indicated on Drawings]; do not use units with less than 100mm (4") horizontal face dimensions at corners or jambs; lay masonry in running bond where not otherwise indicated.
     3. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping a minimum of 100mm (4"), and as follows:
        1. Bond and interlock each course of each wythe at corners.
        2. Do not use units with less than nominal 100mm (4") horizontal face dimensions at corners or jambs.
     4. Stopping and Resuming Work:
        1. Stop work by racking back units in each course from those in course below; do not tooth.
        2. Clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry when resuming work.
     5. Built-In Work:
        1. Build in items specified in this and other Sections as construction progresses.
        2. Fill in solidly with masonry around built-in items.
        3. Fill space between steel frames and masonry [flexible perimeter joint filler] [solidly with mortar].
        4. Place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core where built-in items are to be embedded in cores of hollow masonry units.
        5. Protect built-in items from damage arising from work of this Section.

SPEC NOTE: Delete concrete core fill is there is no concrete block required for load barring applications / foundations on the project.

* + 1. Grouting Hollow Concrete Masonry Units o Load Barring Application:
       1. Fill cores in hollow concrete masonry units with grout 610mm (24") under bearing plates, beams, lintels, posts, and similar items.
       2. Use concrete or fine grout where indicated, and also for vertical core filling, lintel beams, bond beams and other filled cores where reinforcing steel is indicated.
       3. Use fine grout where the space being grouted is 50mm (2") or less in its least dimensions; use concrete in all other applications that call for grout.
       4. Use square end concrete masonry units wherever a full or half concrete masonry unit will receive concrete fill.
       5. Use full mortar bedding of cross webs for cores that are filled.
       6. Fill cores in lifts of 1220mm (4') maximum; provide cleanout openings for lifts in excess of 4' where Consultant has accepted larger lifts.
       7. Consolidate core fill during placement by vibration or puddling.
       8. Stop concrete core fill 38mm (1-1/2") below top surface of lift whenever filling will be stopped for more than a 1-hour time duration.
       9. Fill all cores of roof parapets with concrete.
       10. Secure vertical reinforcement in position at top and bottom of core, and a maximum 4' spacing, refer to Drawings for location of vertical reinforcement.
       11. Fill voids solid with mortar so that ties and anchors are set in full mortar bed where masonry walls abut steel or concrete columns.
    2. Build non-load bearing interior partitions full height of storey to underside of solid floor or roof structure above, leaving a gap to allow for structural deflection, and as follows:
       1. Fasten lateral partition supports to structure above and build into top of partition; grout cells of concrete masonry units solidly around plastic tubes of anchors and push tubes down into grout to provide 13mm (1/2") clearance between end of anchor rod and end of tube; space anchors at 1220mm (4') O.C.
  1. MORTAR BEDDING AND JOINTING
     1. Lay hollow brick as follows:
        1. Face shall be fully bedded in mortar and with head joints of depth equal to bed joints.
        2. Webs fully bedded in mortar in all courses of piers, columns, and pilasters.
        3. Webs fully bedded in mortar in grouted masonry, including starting course on footings.
        4. Entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.

SPEC NOTE: Delete solid masonry units is there is no concrete block required for load barring applications / foundations on the project.

* + 1. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place; do not deeply furrow bed joints or slush head joints.
    2. Lay block work as follows:
       1. Provide special shapes and sizes as required such as halves, jambs, lintels, solids, corners, semi-solids, etc.
       2. Webs to align plumb over each other with thick ends of webs up. Leave no cells open in exposed work. Reinforce all blocks.
       3. Minimize cutting block. Cut exposed work with power driven abrasive cutting disc or diamond cutting wheel for flush mounted electrical outlets, grilles, pipes, conduit, etc., leaving 3mm (1/8") maximum clearance.
       4. Do not wet concrete masonry units before or during laying.
       5. Locate corners accurately. Use full bed of mortar for first course. Bed face shells and cross and end web fully in mortar. Stagger joints in every course. Align joints plumb over each other in every other course.
       6. Bond intersecting block walls in alternate courses. Where block abuts concrete, bond each block course with dovetail anchors, ties and dovetail slot. Do not break bond of corridor walls or other walls of exposed units where partitions intersect and if bonding would show through on intersect with prefabricated intersection masonry reinforcement in each course.
       7. Take special care in erecting block walls to which other sections will be applying finishes or attaching equipment to ensure tolerances required for work of other sections can be met with reasonable construction procedures. (e.g. thin-set application of ceramic tile.)
       8. Provide bullnose block at all exposed block corners.
       9. Build block lintels, ensure that lintel jointing coincides with regular bond.

SPEC NOTE: Revise to suit project conditions. delete stone and/or trim if not required on the project.

* + 1. Set [stone] [and] [trim] units in full bed of mortar with full vertical joints, and as follows:
       1. Fill dowel, anchor, and similar holes.
       2. Clean soiled surfaces with fibre brush and soap powder and rinse thoroughly with clear water.
       3. Allow cleaned impervious stone surfaces to dry before setting.
       4. Wet absorptive stone joint surfaces thoroughly before applying mortar.
       5. Lay stonework so that joints are even and so that average distance between joint centrelines is equal to the nominal modular dimension of the stone. Lay stonework in running bond, stack bond or soldier coursing as indicated on drawings. Where not indicated, notify Consultant prior to starting work.
       6. Set stone in accordance with manufacturers recommended installation practices and materials. Review manufacturer's written recommendations with the Consultant before proceeding.
       7. Leave openings for equipment to be installed before completing stonework. After installing equipment, complete stonework to match the construction immediately adjacent to the opening.
       8. Use chipped or blemished units only where the defect will be concealed; reject all defective and broken units or units with chipped edges or corners.
       9. Install cut units with cut surfaces and, where possible, cut edges concealed. Where complex cutting is required, place mortar along the cut edge and trowel smooth to provide a consistent 50mm (2") wide gap.
    2. When mortar is "thumbprint" hard, tool all masonry joints (exposed or concealed) concave except at blockwork designated to receive ceramic tile finish which blockwork shall be struck flush. Use sufficient force to press mortar tight against masonry units on both sides of joints. Remove excess material or burrs left after jointing. Use trowel or rub with burlap bag.
    3. Lay all joints 10mm (3/8") thick unless otherwise specified or otherwise indicated. Fill all joints solidly with mortar except where specifically designated to be left open.
    4. Stagger joints in every course. Align joints plumb over each other in every other course. Vertical and horizontal joints to be uniform in thickness.
  1. cavity wall construction
     1. Flexible Weather Barriers.
        1. Provide continuous 457mm (1'-6") wide flexible weather barrier membrane in exterior masonry cavity walls at expansion joints.
        2. Pack joint with loose batt insulation with face of insulation down 2 times the width of expansion from face interior wythe.
        3. Install flexible weather barrier membrane to substrate with adhesive, in strict accordance with manufacturer's instructions.
        4. Loop down flexible weather barrier into expansion/control joints approximately 2 times the width. Lap joints minimum 150mm (6") and seal. Ensure that flexible weather barrier lap joints which are looped into expansion/control joints are sealed with adhesive. Seal tops and bottoms of membrane barrier at change in construction to present continuous, uninterrupted flexible weather barrier.
     2. Keep cavity space and weep holes clean and free of mortar droppings and other foreign materials.
     3. Bond inner and outer wythes of cavity wall with cavity wall masonry reinforcement at 406mm (16") O.C. vertically. Provide additional reinforcing at openings as specified hereinafter.
     4. Install thru-wall flashings and dampproof course as specified elsewhere in this Section.
     5. Install mortar dropping control devices as specified elsewhere in this section.
     6. Install weep/vent holes as specified elsewhere in this section.
     7. Install insulation in cavity walls as they are built, as indicated in Section 07 21 13 – Board Insulation.
  2. partitions (other than load-bearing)
     1. Carry following partitions up through ceiling to structure above, unless noted or specified otherwise; corridor partitions, partitions around staircases and shafts, partitions around washrooms, and any other partitions so indicated on drawings. Terminate all other partitions at first coursing joint above finished ceiling.
     2. Except around staircases and shafts, terminate through partitions within 19mm (3/4") of structure above, i.e. floor, roof decking depending under which partitions occur, and where such partitions occur directly under and parallel to structural framing carry these partitions up to within 19mm (3/4") of bottom of such structural framing.
     3. Around staircases and shafts, wedge, and grout masonry solidly to structure above. Laterally support other partitions as required by building code. Where tops of partitions are exposed to view, lateral supports shall be concealed.
     4. Where walls and partitions are pierced by structural members, ducts, or pipes, fill voids with mortar to within 19mm (3/4") of such members flush with wall fins.
     5. Fill spaces between partition and structure, ducts and pipes with compressed glass fibre or mineral wool insulation completely from one side of wall to other.
  3. control joints
     1. Provide vertical through wall control joints 7620mm (25') O.C. maximum (except as otherwise shown or specified) in continuous walls having no openings, intersections, or columns. Control joints as shown on Drawings.
     2. Locate control joints at high stress concentrations and at points of weakness such as at abrupt changes in work height, wall thickness changes such as at chases and at pilasters and maximum of 3658mm (12') from corners.
     3. Construct joint as detailed and generally as follows:
        1. Place building paper against end of block on one side of control joint. Extend bond breaker full wall thickness.
        2. Fill voids between ends of block with mortar to form key and strike back exposed vertical joints 19mm (3/4") deep, install backer rod and caulk in accordance with Section 07 92 00 – Joint Sealants.
        3. Reinforce joints every third course with two 6mm (1/4") diameter greased smooth rods. Locate rods 32mm (1-1/4") in from faces of block centres on joint running parallel to wall.
  4. reinforcement and reinforcing ties
     1. Reinforce all masonry walls with continuous masonry horizontal reinforcement in every second block course.
     2. Provide extra reinforcement or reinforcing ties at openings so that first and second courses above and below openings are reinforced. Extend extra reinforcement 610mm (2') beyond opening in each direction.
     3. Anchor new masonry to structural steel to concrete elements, to existing construction at maximum 406mm (16") O.C., vertically in accordance with local building code requirements.
     4. Masonry Veneer/Metal Stud Back-Up System:
        1. Ensure wire tie spaced maximum 406mm (16") O.C. vertically and stud spacing horizontally.
        2. Tie wires shall be minimum 5mm (3/16") diameter stainless steel wire ties.
        3. Embed ties 50mm (2") minimum into the bed joints of masonry veneer.

SPEC NOTE: Delete chemical anchors if not required on the project.

* + 1. Chemical Anchors:
       1. Coordinate work with Contractor for work that forms a part of this Section.
       2. Install anchors in accordance with manufacturer's written instructions, and as follows:

Drill and clean anchor holes in accordance with manufacturer's instructions; insert screen tube, prepare and mix two-part adhesive anchor system and fill holes; insert connector pins and twist to ensure that adhesive is in contact with connector pin.

Do not adjust connector pins after gel time of adhesive occurs.

* + - 1. Testing:

Test first 10 anchors to demonstrate a pullout capacity equal to four times the required service capacity of 0.44 kN after cure time established by adhesive manufacturer.

Randomly test 2% of remaining installed anchors after cure time established by adhesive manufacturer to service load capacity of 0.44 kN; additional tests may be required where failures occur.

* 1. flexible and metal flashing
     1. Install damp course/thru-wall flashing with adhesive in accordance with manufacturer's written instructions, where indicated on drawings and in absence of any indication in locations as follows:
        1. First course above new grade line.
        2. Over exterior lintels and shelf angles.
        3. Under windowsills.
        4. Wherever roofs or other exterior, horizontal surfaces intersect masonry walls, immediately above roof flashing or horizontal surface flashing and connect to roof, air barrier flashing strips or flashings.
     2. Install continuous metal drip flashing at all locations where thru-wall flashing occurs at wall face. Accurately mitre metal drip flashings at all inside and outside corners and deburr all sharp edges/corners. Insert metal drip flashing 50mm (2") into masonry joint with drip edge turned down approximately 10mm (3/8") to present a neat, straight line appearance. Adhere thru-wall flashing to top surface of metal drip flashings.
     3. Extend damp coursing and flashing through full thickness of walls, carrying material from outside to inside. Then install flashing, using same material as damp course, from outside through thickness of first wythe at same joint as damp course, up one block course in behind air barrier membrane and through the inner wythe for composite wall construction and up face of exterior wallboard 200mm (8") and under air barrier membrane for cavity wall construction.
     4. Lap all joints 150mm (6") and seal with adhesive.
     5. Wrap damp course/thru-wall flashing into inside corners and around outside corners, sealing seams and corners with adhesive/sealant.
     6. At ends of exterior lintels and shelf angles provide "end dams" in damp course/thru-wall flashing by extending damp course/thru-wall flashing up minimum of 150mm (6") and wrapping into inside corners and sealing with adhesive sealant. Adhere "end dam" to adjacent masonry veneer with adhesive.
     7. Inspect damp course/thru-wall flashing for punctures, tears, misaligned seams and the like, apply additional layer of damp course/thru-wall flashing, extending minimum of 6" around damaged area in all directions.
     8. Trim exposed edges of damp course/thru-wall flashing in a neat, even appearance, removing excess materials projecting beyond edge of support.
     9. Tie in damp course/thru-wall flashing with air barrier membrane to ensure continuity of air barrier in accordance with local building code requirements.

SPEC NOTE: Revise to suit project conditions. Delete masonry coating if not required on the project.

* 1. MASONRY coatings
     1. Masonry Sealers: Apply masonry sealer to unit masonry to gloss levels indicated in accordance with manufacturer's written instructions.
     2. Anti-Graffiti Coatings: Apply in accordance with manufacturer's written instructions.
     3. Cover surfaces not scheduled for masonry coatings; cover and protect surfaces and non-masonry finishes with in areas scheduled for coatings.
     4. Rinse off masonry until no indications of chemicals are present; rinse from bottom to top and from top to bottom; cleanup work area as work progresses; remove debris and waste from site at end of each workday.
  2. built-ins
     1. Built-in items provided by other Sections, anchor bolts, sleeves, inserts, loose steel lintels, shelf angles, access panels, and other such items. Built-in items to present neat, rigid, true, and plumb installation. Leave wall openings required for ducts, grilles, pipes, and other items.
     2. Fill voids between masonry and metal frames with masonry mortar.

SPEC NOTE: Parging is used to repair existing concrete foundation walls. delete if the project is "New Construction" or if sandblast finishing is required.

* 1. PARGING
     1. Parge exterior faces of below grade masonry walls or rigid insulation with a trowel, to a thickness of 3mm (1/8") and create desired surface texture immediately.
     2. Environmental Conditions:
        1. Do not apply parging when temperature is expected to drop below 4 deg C (40 deg F) within 24 hours of application, or when rain is imminent.
     3. Protect against rapid surface evaporation. Allow to cure for 48 hours prior to painting.
  2. repointing or tuckpointing
     1. Repoint defective joints as follows:
        1. Cut back joints 13mm (1/2"), taking care not to damage units. Remove dust and loose materials by brushing or by water jet.
        2. If water jet is used, allow excess water to drain before repointing.
        3. Repoint with same mix as original. Pack mortar tightly in thin layers, and tool joints or strike flush as required.
  3. cleaning
     1. Keep work clean and free of mortar stains during laying. Allow mortar droppings which adhere to wall to dry out but not set. Then rub with small piece of masonry followed by brushing to remove all traces. On completion of masonry, after mortar is thoroughly set and cured, and defective joints tucked and pointed, clean masonry thoroughly.
     2. Remove mortar with wood paddles and scrapers before wetting. Saturate masonry with clean water and flush off loose mortar and dirt. Clean block work using water, scrubbing brushes and wood paddles only.

end of section