

1 General

1.1 RELATED SECTIONS

- .1 Section 04 05 12 - Masonry Mortar and Grout.
- .2 Section 04 05 19 - Masonry Anchorage and Reinforcing.
- .3 Section 04 05 23 - Masonry Accessories.
- .4 Section 04 21 13 - Brick Masonry.
- .5 Section 04 22 00 - Concrete Unit Masonry.

1.2 REFERENCES

- .1 Canadian Standards Association.
 - .1 CAN/CSA A371-14, Masonry Construction for Buildings.

1.3 STANDARDS ON SITE

- .1 Keep a copy of CAN/CSA A371 at job office. Bring to pre-construction meeting. Make available to Departmental Representative for reference.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 10 01 - General Requirements.
- .2 Product Data.
 - .1 Submit manufacturer's printed product literature, specifications and data sheet.
- .3 Samples.
 - .1 Submit samples.
 - .1 Six of each type of masonry unit specified.
 - .2 Two of each type of masonry accessory specified.
 - .3 One of each type of masonry reinforcement, tie and connector proposed for use.
- .4 Quality control plan
 - .1 Submit Quality Control Plan, specified in Article 1.5 Quality Assurance.

1.5 SUSTAINABLE DESIGN SUBMITTALS

- .1 Construction waste management plan.
 - .1 A Construction Waste Management Plan is in place to divert waste material from landfill. Wherever practical, send waste material for reuse or recycling, and generally document this for the contractor's waste management final report.
- .2 Recycled Content.
 - .1 Refer to Section 01 47 15 - Sustainable Requirements for "List of Products Requiring Recycled Content".
 - .2 If products within this section are indicated on the "List of Products Requiring Recycled Content", only products with recycled content will be acceptable.
 - .3 For products not identified on list, source products with highest recycled content available when practical.
 - .4 Include following information with product data submission.

- .1 Percentage of pre-consumer and post-consumer recycled content for each product.
 - .3 Regional Materials.
 - .1 Refer to Section 01 47 15 - Sustainable Requirements for "List of Products Required to be Locally Sourced".
 - .2 If products within this section are indicated on the "List of Products Required to be Locally Sourced", include following information with Product Data submission:
 - .1 Extraction/Manufacturing location(s): Indicate location of extraction site or manufacturing plant, and indicate distance between extraction site or manufacturing plant and Project site.
 - .4 If requesting substitute product, ensure proposed substitution achieves above stated goals.
- 1.6 QUALITY ASSURANCE
 - .1 Quality Control Plan.
 - .1 As part of the Contractor's Quality Assurance, submit a written Masonry Quality Control Plan. The Masonry Quality Control Plan shall include a description of the item, a detailed procedure on how each item will be carried out, including; but, not limited to the following items:
 - .1 Hot weather masonry construction.
 - .2 Cold weather masonry construction.
 - .3 Provisions to address potential problems such as high winds, monitoring of curing during weekends, breakdown of cold weather heating equipment.
 - .4 Temporary bracing method.
 - .5 Grouting method.
 - .6 Reinforcement installation.
 - .7 Methods to maintain the construction within tolerances.
 - .8 Curing method(s) to be utilized.
 - .9 Method of confirmation that concrete has been cured according to specifications.
 - .10 Protection of finished work during curing.
 - .11 Joints.
 - .2 Stating only in the Quality Control Plan that the above items will be done according to specifications is not acceptable.
 - .3 Submit a minimum of two (2) weeks before start of masonry construction.
- 1.7 MAX. VOC CONTENT FOR SOLVENT CLEANING ACTIVITIES
 - .1 Following are some of the Maximum allowed VOC Content for following activities, as per SCAQMD Rule 1171-9 (refer to SCAQMD manual for complete list and updates):
 - .1 Product cleaning during onsite surface preparation for coatings or adhesives application, and repair and maintenance cleaning:
 - .1 General maximum VOC 25g/L.
 - .2 Electrical apparatus components and electronic components.
 - .3 Cleaning of coatings or adhesives application equipment max. VOC 25g/L.
 - .2 Refer to SCAQMD for additional information and clarification and complete list of applications.

- .3 Any discrepancies are to be approved by Departmental Representative. Obtain written approval prior to use on site.

1.8 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store, handle and protect materials in accordance with manufacturer's instructions.
- .2 Deliver materials to job site in dry condition.
- .3 Storage and Protection.
- .1 Keep materials dry until use.
- .2 Store under waterproof cover on pallets or plank platforms held off ground by means of plank or timber skids.

1.9 PROTECTION WHEN WORK IS NOT IN PROGRESS

- .1 Keep masonry dry using waterproof, non-staining coverings that extend over walls and down sides sufficient to protect masonry work from wind driven rain, until it is completed and protected by flashings or other permanent construction.

1.10 COLD WEATHER PROTECTION

- .1 Cold weather protection shall conform to CAN/CSA A371.
- .2 Provide and maintain cold weather protection requirements for enclosure and heating of walls.
- .3 Provide sufficient heat and enclosure for storage and mixing of mortar materials to maintain specified temperatures.
- .4 CAN/CSA A371 has specific requirements which must be met for cold weather masonry construction. Table 1 below describes general heating and protection requirements during construction of the masonry assemblies and Table 2 describes the protection required after completion of construction.

Table 1. General Heating and Protection Requirements During Construction

Air Temperature (T), °C	General Requirements During Construction
$0 < T < 4$	EITHER the sand OR mixing water shall be heated to a minimum of 20°C and maximum of 70°C.
$-4 < T < 0$	BOTH the sand AND mixing water shall be heated to a minimum of 20°C and maximum of 70°C.
$-7 < T < -4$	<p>(1) BOTH the sand AND mixing water shall be heated to a minimum of 20°C and maximum of 70°C.</p> <p>(2) Heat shall be provided on BOTH sides of the walls under construction.</p> <p>(3) Windbreaks shall be employed when the wind speed exceeds 25 km/h.</p>
$T \leq -7$	<p>(1) BOTH the sand AND mixing water shall be heated to a minimum of 20°C and maximum of 70°C.</p> <p>(2) Enclosures and supplementary heat shall be provided to maintain an air temperature above 0°C.</p>

Air Temperature (T), °C	General Requirements During Construction
	(3) The temperature of the unit when laid shall be not less than 7°C.
<p>Notes:</p> <ul style="list-style-type: none"> - Protect all masonry materials from the elements. - Ensure masonry units are be free of snow and ice, and unit temperature is above 0°C at time of construction unless more stringent requirements are stated in table above. - Mortar must not be overheated and shall be kept below 50°C. - Grout temperature, when placed, shall be in a temperature range of 20°C to 50°C and shall be kept above 0°C for minimum 48 hours after placement. - Mortar temperature shall be a minimum of 5°C at time of placement. - Mortar will not require additives or admixtures if cold weather procedures in Table 1 and Table 2 are followed. Use of Pozzutec 20+ is not permitted. The manufacturer of the additive does not have written literature regarding use of product with masonry mortar, nor has any testing been done. 	

Table 2. Protection Required upon Completion of Construction.

Mean Daily Air Temperature, (T) °C	Protection Required upon Completion of Construction
$0 < T < 4$	Masonry shall be protected from rain or snow for 48 hours.
$-4 < T < 0$	Masonry shall be completely covered for 48 hours.
$-7 < T < -4$	Masonry shall be completely covered with insulating blankets for 48 hours.
$T \leq -7$	The masonry temperature shall be maintained above 0°C for 48 hours by enclosure and supplementary heat.
<p>Notes:</p> <ul style="list-style-type: none"> - 'Mean Daily Air Temperature' is defined as the average of the highest and lowest temperature from midnight to midnight. Temperatures at the site will have to be monitored. - Insulating blankets, if used, shall be thick enough to keep masonry above 0°C for the protection period stated. 	

1.11 HOT WEATHER REQUIREMENTS

- .1 Do work, during hot weather periods, in accordance with CAN/CSA A371 hot weather requirements.

2 Products

2.1 MATERIALS

- .1 Not applicable

3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other sections are acceptable for brick masonry installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate and inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .2 Proceed with installation only after unacceptable conditions have been remedied.

3.2 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.3 PREPARATION

- .1 Provide temporary bracing of masonry work during and after erection until permanent lateral support is in place.
- .2 Have qualified structural engineer design bracing. Provide stamped drawings as requested by Departmental Representative.

3.4 CONSTRUCTION

- .1 Do masonry work in accordance with CAN/CSA A371 except where specified otherwise.
- .2 Build masonry plumb, level, and true to line, with vertical joints in alignment.
- .3 Layout coursing and bond to achieve correct coursing heights, and continuity of bond above and below openings, with minimum of cutting.
- .4 Do not adjust masonry units after mortar has set. Where resetting of masonry is required, remove, clean and reset units in new mortar.
- .5 Mortar application.
 - .1 Hollow Units: spread mortar setting bed from outside edge of face shells. Gauge amount of mortar on top and end of unit to create full joints, equivalent to shell thickness. Avoid excess mortar.
 - .2 Solid Units: apply mortar over entire vertical and horizontal surfaces. Avoid bridging of airspace between brick veneer and backup wall with mortar.
 - .3 Slushing of mortar into joints is not permitted.
- .6 Exposed masonry.
 - .1 Cull out masonry units with chips, cracks, broken corners, and otherwise damaged units; units with excessive colour and texture variations.
 - .2 Installed units containing any of the above defects shall be removed and replaced with new unit at no increase in Contract Price.

- .7 Jointing.
 - .1 Lay-up masonry with joints full, straight and level, vertical joints lined true and neatly tooled.
 - .2 Keep size of exterior joints around perimeter of doors, windows and other openings to between 6 mm to 10 mm wide, and clean out to a uniform depth of at least 19 mm and leave ready for caulking.
 - .3 Allow joints to set just enough to remove excess water, then tool with round jointer to provide smooth, compressed, uniform joints in work that will remain exposed or receive paint or similar thin finish coating.
 - .4 Strike flush joints concealed in walls and joints in walls to receive tile, insulation, wall covering, or other applied material except as noted above.
 - .5 Do not interrupt bond below or above openings.
- .8 Cutting.
 - .1 Cut out for electrical boxes, and other recessed or built-in objects.
 - .2 Make cuts straight, clean, and free from uneven edges.
- .9 Building-In.
 - .1 Build in items required to be built into masonry.
 - .2 Prevent displacement of built-in items during construction. Check plumb, location and alignment frequently, as work progresses.
 - .3 Brace door jambs to maintain plumb. Fill spaces between jambs and masonry with mortar.
- .10 Provision for movement.
 - .1 Leave 3 mm space below shelf angles.
 - .2 Leave 6 mm space between top of non-load bearing walls and partitions and structural elements. Do not use wedges.
 - .3 Built masonry to tie in with stabilizers, with provision for vertical movement.
- .11 Control joints.
 - .1 Construct continuous control joints at 12 m maximum or as shown on the drawings. Ensure that gap is free of mortar and debris. Install joint material in joint, and set back 13 mm to receive sealant.
 - .2 Joints are not permitted in shearwalls.

3.5 SITE TOLERANCES

- .1 Tolerances in accordance with Clause 6.2 of CAN/CSA A371.

3.6 FIELD QUALITY CONTROL

- .1 Inspection and testing will be carried out by Testing Laboratory designated by Departmental Representative.

3.7 CLEANING

- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.8 PROTECTION

- .1 Protect masonry and other work from marking and other damage. Protect completed work from mortar droppings. Use non-staining coverings.

END OF SECTION

1 General

1.1 RELATED REQUIREMENTS

- .1 Section 04 05 00 - Common Work Results for Masonry.
- .2 Section 04 05 19 - Masonry Anchorage and Reinforcing.
- .3 Section 04 05 23 - Masonry Accessories.
- .4 Section 04 21 13 - Brick Masonry.
- .5 Section 04 22 00 - Concrete Unit Masonry.

1.2 REFERENCES

- .1 Canadian Standards Association (CSA International).
 - .1 CSA A179-14, Mortar and Grout for Unit Masonry.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 10 01 - General Requirements.
- .2 Product Data.
 - .1 Submit manufacturer's printed product literature, specifications and data sheet.
- .3 Manufacturer's Instructions.
 - .1 Submit manufacturer's installation instructions.

1.4 SUSTAINABLE DESIGN SUBMITTALS

- .1 Construction waste management plan.
 - .1 A Construction Waste Management Plan is in place to divert waste material from landfill. Wherever practical, send waste material for reuse or recycling, and generally document this for the contractor's waste management final report.
- .2 Recycled Content.
 - .1 Refer to Section 01 47 15 - Sustainable Requirements for "List of Products Requiring Recycled Content".
 - .2 If products within this section are indicated on the "List of Products Requiring Recycled Content", only products with recycled content will be acceptable.
 - .3 For products not identified on list, source products with highest recycled content available when practical.
 - .4 Include following information with product data submission.
 - .1 Percentage of pre-consumer and post-consumer recycled content for each product.
- .3 Regional Materials.
 - .1 Refer to Section 01 47 15 - Sustainable Requirements for "List of Products Required to be Locally Sourced".
 - .2 If products within this section are indicated on the "List of Products Required to be Locally Sourced", include following information with Product Data submission:
 - .1 Extraction/Manufacturing location(s): Indicate location of extraction site or manufacturing plant, and indicate distance between extraction site or manufacturing plant and Project site.
- .4 If requesting substitute product, ensure proposed substitution achieves above stated goals.

1.5 MAX. VOC CONTENT FOR SOLVENT CLEANING ACTIVITIES

- .1 Following are some of the Maximum allowed VOC Content for following activities, as per SCAQMD Rule 1171-9 (refer to SCAQMD manual for complete list and updates):
 - .1 Product cleaning during onsite surface preparation for coatings or adhesives application, and repair and maintenance cleaning:
 - .1 General maximum VOC 25g/L.
 - .2 Electrical apparatus components and electronic components.
 - .3 Cleaning of coatings or adhesives application equipment max. VOC 25g/L.
 - .2 Refer to SCAQMD for additional information and clarification and complete list of applications.
 - .3 Any discrepancies are to be approved by Departmental Representative. Obtain written approval prior to use on site.

2 Products

2.1 MATERIALS

- .1 Use same brands of materials and source of aggregate for entire project.
- .2 Mortar and grout: CSA A179.
 - .1 Mortar: based on Property specifications.
 - .1 Veneer and glass block: Type M.
 - .2 Interior block: Type S.
 - .2 Grout: fine grout, to CSA A179, table 5.
- .3 Use aggregate passing 1.18 mm sieve where 6 mm thick joints are indicated.

3 Execution

3.1 MORTAR MIXING

- .1 Thoroughly mix mortar using paddle type mixer in good condition.
- .2 Thoroughly dry-mix sand and cement before adding water. Mix minimum four minutes after all ingredients are added.
- .3 Use mortar within 2 hours of mixing at temperatures over 25°C, within 3 hours under 25°C.
- .4 Retempering is permitted within 2 hours of mixing to replace water lost by evaporation.

3.2 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.3 CONSTRUCTION

- .1 Do masonry mortar and grout work in accordance with CSA A179 except where specified otherwise.

3.4 SCHEDULE

- .1 Grout in all reinforced block cores, lintels, loose and miscellaneous items of steel, wood plates and other appurtenances into the masonry work. Place grout in bond beams and concrete block lintels.
- .2 Below bearing points of steel lintels, grout concrete block full for three courses beginning with 400 mm width in first course and increasing 400 mm width each course below.

3.5 CLEANING

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

1 General

1.1 RELATED SECTIONS

- .1 Section 04 05 00 - Common Work Results for Masonry.
- .2 Section 04 05 12 - Masonry Mortar and Grout.
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- .4 Section 04 21 13 - Brick Masonry.
- .5 Section 04 22 00 - Concrete Unit Masonry.

1.2 REFERENCES

- .1 ASTM International (ASTM).
 - .1 ASTM A1064/A1064M-14, Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
- .2 Canadian Standards Association (CSA)
 - .1 CSA A23.1-14, Concrete Materials and Methods of Concrete Construction.
 - .2 CAN/CSA A370-14, Connectors for Masonry.
 - .3 CAN/CSA A371-14, Masonry Construction for Buildings.
 - .4 CSA G30.18-09(R2014), Carbon Steel Bars for Concrete Reinforcement.
 - .5 CSA S304-14, Design of Masonry Structures.
 - .6 CSA W186-M1990 (R2012), Welding of Reinforcing Bars in Reinforced Concrete Construction.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 10 01 - General Requirements.
- .2 Submit manufacturer's instructions, printed product literature and data sheets for anchorage and reinforcing materials and include product characteristics, performance criteria, physical size, finish and limitations.

1.4 SUSTAINABLE DESIGN SUBMITTALS

- .1 Construction waste management plan.
 - .1 A Construction Waste Management Plan is in place to divert waste material from landfill. Wherever practical, send waste material for reuse or recycling, and generally document this for the contractor's waste management final report.
- .2 Recycled Content.
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- .3 Regional Materials.

- .1 Refer to Section 01 47 15 - Sustainable Requirements for "List of Products Required to be Locally Sourced".
 - .2 If products within this section are indicated on the "List of Products Required to be Locally Sourced", include following information with Product Data submission:
 - .1 Extraction/Manufacturing location(s): Indicate location of extraction site or manufacturing plant, and indicate distance between extraction site or manufacturing plant and Project site.
 - .4 Adhesives and Sealants.
 - .1 Include following information with Product Data submission for materials specified under this section:
 - .1 Submit manufacturer's certification indicating VOC limits of Products used onsite and within the building envelope. Product shall comply with California's SCAQMD #1168.
 - .5 If requesting substitute product, ensure proposed substitution achieves above stated goals.
- 1.5 MAX. VOC CONTENT FOR SOLVENT CLEANING ACTIVITIES
- .1 Following are some of the Maximum allowed VOC Content for following activities, as per SCAQMD Rule 1171-9 (refer to SCAQMD manual for complete list and updates):
 - .1 Product cleaning during onsite surface preparation for coatings or adhesives application, and repair and maintenance cleaning:
 - .1 General maximum VOC 25g/L.
 - .2 Electrical apparatus components and electronic components.
 - .3 Cleaning of coatings or adhesives application equipment max. VOC 25g/L.
 - .2 Refer to SCAQMD for additional information and clarification and complete list of applications.
 - .3 Any discrepancies are to be approved by Departmental Representative. Obtain written approval prior to use on site.
- 1.6 QUALITY ASSURANCE
- .1 Test Reports: upon request by Departmental Representative, provide certified test reports showing compliance with specified performance characteristics and physical properties.
 - .2 Certificates: upon request, provide product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- 2 Products
- 2.1 MATERIALS
- .1 Bar reinforcement: to CAN/CSA A371 and CAN/CSA G30.18, Grade 400 with minimum 90% recycled content.
 - .2 Corrosion protection: to CSA S304, galvanized in accordance with CSA S304 and CAN/CSA A370.
- 2.2 REINFORCING, TIES AND ANCHORS
- .1 Horizontal reinforcement and ties: manufactured from cold-drawn steel wire to ASTM A1064/A1064M; hot-dipped galvanized finish unless noted otherwise.

- .2 Horizontal reinforcement: refer to Masonry Wall Reinforcing Schedule located on drawings.
- .3 Ties: to CSA A370; hot-dipped galvanized finish.
 - .1 Masonry backup: bayonet style, plate length to suit insulation thickness.
 - .1 Acceptable Materials: Slotted Block Tie with V-Tie by FERRO, BL 507 with Flex-o-Lok Tie by Blok-Lok.
 - .2 Accessories: provide insulation securement system.
- .4 Reinforcing bars: new deformed bars, clean, free from mill scale, oil and grease, to CAN/CSA-G30.18-M, Grade 400.
- .5 Drop-in anchor:
 - .1 Acceptable Materials: Hilti, Ramset/Red Head, UCAN.
- .6 Adhesive anchor:
 - .1 Acceptable Materials: HY200 by Hilti, Epcon S7 by Red Head, SET-UP by Simpson Strong Tie.
- .7 Vertical reinforcing positioners: fabricate from 3.6 mm mill galvanized wire; design to allow for installation of one or two reinforcing bars; size to suit block cavity.
 - .1 Acceptable Materials: Rebar Positioners by Blok-Lok.

2.3 FABRICATION

- .1 Fabricate reinforcing in accordance with CAN/CSA-A23.1 and Reinforcing Steel Manual of Standard Practice by the Reinforcing Steel Institute of Ontario.
- .2 Fabricate connectors in accordance with CAN/CSA A370.
- .3 Obtain Departmental Representative's approval for locations of reinforcement splices other than shown on placing drawings.
- .4 Ship reinforcement and connectors, clearly identified in accordance with drawings.

2.4 SOURCE QUALITY CONTROL

- .1 Upon request, provide Departmental Representative with certified copy of mill test report of reinforcement steel and connectors, showing physical and chemical analysis, minimum two (2) weeks prior to commencing reinforcement work.
- .2 Upon request inform Departmental Representative of proposed source of material to be supplied.

3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 GENERAL

- .1 Supply and install masonry connectors and reinforcement in accordance with CSA-A370, CAN/CSA A371, CAN/CSA-A23.1 and CSA S304 unless indicated otherwise.

3.3 BONDING AND TYING

- .1 Veneer ties: Tie masonry veneer to backing in accordance with NBC, CSA S304, CAN/CSA A371 and as follows:
 - .1 Maximum spacing of ties:
 - .1 Except when permitted by CSA S304, spacing of ties shall be not greater than:
 - .1 600 mm o.c. vertically; and
 - .2 800 mm o.c. horizontally.
 - .2 Spacing at openings:
 - .1 At openings in walls, ties (and anchors/ties when used as ties) shall be
 - .1 spaced not more than 600 mm apart around openings; and
 - .2 located not more than 300 mm from the edge of the openings.
 - .3 Spacing at top of wall:
 - .1 Distance from top of a veneer, or from top of wythe being tied in a cavity wall construction, to the first row of ties below the top shall not exceed the lesser of:
 - .1 300 mm; or
 - .2 half the required vertical spacing through the field of the veneer or tied wythe, as calculated in accordance with CSA S304.
 - .4 Spacing at base of wall:
 - .1 When a bearing support for masonry does not provide adequate lateral resistance, such as when a flashing material with low friction resistance is interposed between supporting shelf angle and masonry above, the distance from the support to the first row of ties above the support shall not exceed the lesser of:
 - .1 400 mm; or
 - .2 the required vertical tie spacing through the field of the wall, as calculated in accordance with CSA S304.
- .2 Masonry reinforcing
 - .1 Refer also to Masonry Wall Minimum Reinforcing Schedule on drawings.
 - .2 Horizontal reinforcing:
 - .1 Ensure out-to-out spacing of joint reinforcing side rods is 50 mm less than nominal thickness of wall. Maintain a minimum of 13 mm mortar cover.
 - .2 Use prefabricated corners and tees.
 - .3 Install joint reinforcing in two consecutive courses above and below openings in concrete masonry walls, extending not less than 600 mm on each side beyond openings. Lap side rods at least 150 mm at splices.
 - .3 Vertical reinforcing:
 - .1 Install reinforcing bars in bond beams, and fill solid with grout.
 - .4 Lap reinforcing steel distances indicated on schedule and wire together.
 - .5 Install vertical reinforcing steel centred in block core, unless detailed otherwise. Grout reinforced cores solid. Use reinforcing bar positioner as follows:
 - .1 Install at each bar; vertical spacing as follows: 200 mm from top and bottom of wall, and maximum 1000 mm centre to centre elsewhere.
- .3 Install anchors and ties in concrete block in alternate block course to horizontal joint reinforcement.

3.4 MOVEMENT JOINTS

- .1 Reinforcement will not be continuous across movement joints unless otherwise indicated.

3.5 FIELD TOUCH-UP

- .1 Touch up damaged and cut ends of galvanized connectors with compatible finish to provide continuous coating.

3.6 CLEANING

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

1 General

1.1 RELATED SECTIONS

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1.2 REFERENCES

- .1 ASTM International (ASTM).
 - .1 ASTM D2287-12, Standard Specification for Nonrigid Vinyl Chloride Polymer and Copolymer Molding and Extrusion Compounds.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-51.34-M86 AMEND, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 10 01 - General Requirements.
- .2 Submit manufacturer's instructions, printed product literature and data sheets for masonry accessories and include product characteristics, performance criteria, physical size, finish and limitations.

1.4 SUSTAINABLE DESIGN SUBMITTALS

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 - .4 If requesting substitute product, ensure proposed substitution achieves above stated goals.
- 1.5 MAX. VOC CONTENT FOR SOLVENT CLEANING ACTIVITIES
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 - .2 Electrical apparatus components and electronic components.
 - .3 Cleaning of coatings or adhesives application equipment max. VOC 25g/L.
 - .2 Refer to SCAQMD for additional information and clarification and complete list of applications.
 - .3 Any discrepancies are to be approved by Departmental Representative. Obtain written approval prior to use on site.
- 1.6 QUALITY ASSURANCE
 - .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
 - .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- 2 Products
 - 2.1 MATERIALS
 - .1 Weep holes: cellular plastic, modular sizing; colour as selected by Departmental Representative.
 - .2 Mortar mesh: proprietary control devices which collects and holds mortar droppings above the weep holes; fabricated from fibrous plastic mesh having trapezoidal design to prevent mortar damming.
 - .3 Control joint filler: to ASTM D2287.
 - .1 Exterior walls: Preformed PVC control joint.
 - .2 Interior walls: Preformed PVC control joint; 150 mm wide.
 - .4 Polyethylene film: to CAN/CGSB-51.34-M.
- 3 Execution
 - 3.1 INSTALLATION
 - .1 Install weep hole vents in vertical joints immediately over flashings, in masonry veneer wall construction, at maximum horizontal spacing of 600 mm on centre.
 - .2 Install mortar mesh in accordance with manufacturer's instructions.
 - .3 Install deflection joint filler and control joint fillers.
 - .4 Wrap steel cross bracing with polyethylene film or use other bond breaker acceptable to Departmental Representative.

3.2 CLEANING

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

1 General

1.1 RELATED SECTIONS

- .1 Section 04 05 00 - Common Work Results for Masonry.
- .2 Section 04 05 12 - Masonry Mortar and Grout.
- .3 Section 04 05 19 - Masonry Anchorage and Reinforcing.
- .4 Section 04 05 23 - Masonry Accessories.
- .5 Section 04 22 00 - Concrete Unit Masonry.

1.2 REFERENCES

- .1 Brick Industry Association (BIA).
 - .1 Technical Note No. 20-2000, Cleaning Brick Masonry.
- .2 Canadian Standards Association (CSA).
 - .1 CSA A82-14, Fired Masonry Brick Made From Clay or Shale.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 10 01 - General Requirements.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for brick masonry and include product characteristics, performance criteria, physical size, finish and limitations.

1.4 SUSTAINABLE DESIGN SUBMITTALS

- .1 Construction waste management plan.
 - .1 A Construction Waste Management Plan is in place to divert waste material from landfill. Wherever practical, send waste material for reuse or recycling, and generally document this for the contractor's waste management final report.
- .2 Recycled Content.
 - .1 Refer to Section 01 47 15 - Sustainable Requirements for "List of Products Requiring Recycled Content".
 - .2 If products within this section are indicated on the "List of Products Requiring Recycled Content", only products with recycled content will be acceptable.
 - .3 For products not identified on list, source products with highest recycled content available when practical.
 - .4 Include following information with product data submission.
 - .1 Percentage of pre-consumer and post-consumer recycled content for each product.
- .3 Regional Materials.
 - .1 Refer to Section 01 47 15 - Sustainable Requirements for "List of Products Required to be Locally Sourced".
 - .2 If products within this section are indicated on the "List of Products Required to be Locally Sourced", include following information with Product Data submission:

- .1 Extraction/Manufacturing location(s): Indicate location of extraction site or manufacturing plant, and indicate distance between extraction site or manufacturing plant and Project site.
 - .4 If requesting substitute product, ensure proposed substitution achieves above stated goals.
- 1.5 QUALITY ASSURANCE
 - .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
 - .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- 1.6 MAX. VOC CONTENT FOR SOLVENT CLEANING ACTIVITIES
 - .1 Following are some of the Maximum allowed VOC Content for following activities, as per SCAQMD Rule 1171-9 (refer to SCAQMD manual for complete list and updates):
 - .1 Product cleaning during onsite surface preparation for coatings or adhesives application, and repair and maintenance cleaning:
 - .1 General maximum VOC 25g/L.
 - .2 Electrical apparatus components and electronic components.
 - .3 Cleaning of coatings or adhesives application equipment max. VOC 25g/L.
 - .2 Refer to SCAQMD for additional information and clarification and complete list of applications.
 - .3 Any discrepancies are to be approved by Departmental Representative. Obtain written approval prior to use on site.
- 1.7 DELIVERY, STORAGE AND HANDLING
 - .1 Deliver, store and handle materials in accordance with Section with manufacturer's written instructions.
 - .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
 - .3 Storage and Handling Requirements:
 - .1 Store materials off ground in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect brick masonry from nicks, scratches, and damage.
 - .3 Replace defective or damaged materials with new.
- 2 Products
 - 2.1 MANUFACTURED UNITS
 - .1 Face brick: Burned clay brick to CSA A82.
 - .2 Properties:
 - .1 Durability classification: Grade - EG (exterior grade).
 - .2 Size: modular.
 - .3 Field brick:
 - .1 Appearance classification: Type A
 - .2 Standard of acceptance: Rockface by L.E. Shaw.
 - .3 Colours: black/grey-brown range.

- .4 Accent brick - soldier course:
 - .1 Appearance classification: Type S
 - .2 Standard of acceptance: Tapestry by L.E. Shaw.
 - .3 Colours: black/grey-brown range.

3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written data, including product technical bulletins, catalogue installation instructions, carton installation instructions, and data sheets.

3.2 INSTALLATION

- .1 Bond: soldier course where indicated; running stretcher elsewhere.
- .2 Coursing height: 200 mm for three bricks and three joints.
- .3 Jointing: concave where exposed to view.
- .4 Mixing and blending: mix units within each pallet and with other pallets to ensure uniform blend of colour and texture.
- .5 Clean as work progresses.

3.3 CLEANING

- .1 Perform cleaning as soon as possible after installation to remove construction and accumulated environmental dirt.
- .2 Clean brick: clean 10 m² area of wall, as designated by Departmental Representative, and leave for one week. If no harmful effects appear and after mortar has set and cured, protect windows, sills, doors, trim and other work, and clean brick masonry as follows.
 - .1 Remove large particles with wood paddles without damaging surface. Saturate masonry with clean water and flush off loose mortar and dirt.
 - .2 Scrub with solution of 25 mL trisodium phosphate and 25 mL household detergent dissolved in 1 L of clean water using stiff fibre brushes, then clean off immediately with clean water using hose. Alternatively, use proprietary compound recommended by brick masonry manufacturer in accordance with manufacturer's directions.
 - .3 Repeat cleaning process as often as necessary to remove mortar and other stains.
 - .4 Use acid solution treatment for difficult to clean masonry as described in Technical Note No.20 by the Brick Industry Association.
- .3 Remove surplus materials, rubbish, tools and equipment barriers upon completion.

END OF SECTION

1 General

1.1 RELATED SECTIONS

- .1 Section 04 05 00 - Common Work Results for Masonry.
- .2 Section 04 05 12 - Masonry Mortar and Grout.
- .3 Section 04 05 19 - Masonry Anchorage and Reinforcing.
- .4 Section 04 05 23 - Masonry Accessories.
- .5 Section 04 21 13 - Brick Masonry.

1.2 REFERENCES

- .1 Canadian Standards Association (CSA)
 - .1 CSA A165 Series-14, CSA Standards on Concrete Masonry Units (Consists of A165.1, A165.2 and A165.3).

1.3 SUSTAINABLE DESIGN SUBMITTALS

- .1 Construction waste management plan.
 - .1 A Construction Waste Management Plan is in place to divert waste material from landfill. Wherever practical, send waste material for reuse or recycling, and generally document this for the contractor's waste management final report.
- .2 Recycled Content.
 - .1 Refer to Section 01 47 15 - Sustainable Requirements for "List of Products Requiring Recycled Content".
 - .2 If products within this section are indicated on the "List of Products Requiring Recycled Content", only products with recycled content will be acceptable.
 - .3 For products not identified on list, source products with highest recycled content available when practical.
 - .4 Include following information with product data submission.
 - .1 Percentage of pre-consumer and post-consumer recycled content for each product.
- .3 Regional Materials.
 - .1 Refer to Section 01 47 15 - Sustainable Requirements for "List of Products Required to be Locally Sourced".
 - .2 If products within this section are indicated on the "List of Products Required to be Locally Sourced", include following information with Product Data submission:
 - .1 Extraction/Manufacturing location(s): Indicate location of extraction site or manufacturing plant, and indicate distance between extraction site or manufacturing plant and Project site.
- .4 If requesting substitute product, ensure proposed substitution achieves above stated goals.

1.4 MAX. VOC CONTENT FOR SOLVENT CLEANING ACTIVITIES

- .1 Following are some of the Maximum allowed VOC Content for following activities, as per SCAQMD Rule 1171-9 (refer to SCAQMD manual for complete list and updates):
 - .1 Product cleaning during onsite surface preparation for coatings or adhesives application, and repair and maintenance cleaning:
 - .1 General maximum VOC 25g/L.
 - .2 Electrical apparatus components and electronic components.
 - .3 Cleaning of coatings or adhesives application equipment max. VOC 25g/L.
 - .2 Refer to SCAQMD for additional information and clarification and complete list of applications.
 - .3 Any discrepancies are to be approved by Departmental Representative. Obtain written approval prior to use on site.

2 Products

2.1 MATERIALS

- .1 Standard concrete block units: to CSA A165 Series (A165.1)
 - .1 Classification:
 - .1 Hollow block: H/15/A/M.
 - .2 Semi-solid: SS/20/A/M.
 - .3 Full solid: FS/20/A/M.
 - .2 Size: modular.
 - .3 Special shapes: Provide sash block, bull-nosed block, purpose-made shapes for lintels and bond beams, and additional special shapes as indicated.
- .2 Architectural concrete block units: to CSA A165 Series; split face design.
 - .1 Classification:
 - .1 Hollow block: H/20/A/M.
 - .2 Full solid: FS/25/A/M.
 - .2 Size: modular.
 - .3 Colour: as selected by Departmental Representative.

3 Execution

3.1 INSTALLATION

- .1 Concrete block units.
 - .1 Bond: running elsewhere.
 - .2 Coursing height: 200 mm for one block and one joint.
 - .3 Jointing: concave where exposed or where paint or other finish coating is specified.
- .2 Architectural masonry:
 - .1 Bond: running or as indicated.
 - .2 Coursing height: 200 mm for one block and one joint.
 - .3 Jointing: concave where exposed.
- .3 Concrete block lintels.
 - .1 Install reinforced concrete block lintels over openings in masonry where steel or reinforced concrete lintels are not indicated.
 - .2 End bearing: not less than 200 mm as indicated on drawings.

- .4 Mix units within each pallet and with other pallets to ensure uniform blend of colour and texture.

3.2 CLEANING

- .1 Allow mortar droppings on masonry to partially dry then remove by means of trowel, followed by rubbing lightly with small piece of block and finally by brushing.
- .2 Clean in accordance with manufacturer's instructions.

3.3 BULL-NOSED BLOCK SCHEDULE

- .1 Bull-nosed blocks are required at exposed "outside" 90° corners.
- .2 Bull-nosed blocks are not required:
 - .1 Where ceramic tile ends or wraps around corners.
 - .2 Where block is designated to receive gypsum board finish.
 - .3 At window/door head.

END OF SECTION

1 General

1.1 RELATED REQUIREMENTS

- .1 Section 04 05 00 - Common Work Results for Masonry.
- .2 Section 04 05 12 - Masonry Mortar and Grout.
- .3 Section 04 21 13 - Brick Masonry.
- .4 Section 04 22 00 - Concrete Unit Masonry.
- .5 Section 09 91 23 - Painting: painting rebar before installation of glass block.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 10 01 - General Requirements.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for glass unit masonry and include product characteristics, performance criteria, physical size, finish and limitations.

1.3 SUSTAINABLE DESIGN SUBMITTALS

- .1 Construction waste management plan.
 - .1 A Construction Waste Management Plan is in place to divert waste material from landfill. Wherever practical, send waste material for reuse or recycling, and generally document this for the contractor's waste management final report.
- .2 Recycled Content.
 - .1 Refer to Section 01 47 15 - Sustainable Requirements for "List of Products Requiring Recycled Content".
 - .2 If products within this section are indicated on the "List of Products Requiring Recycled Content", only products with recycled content will be acceptable.
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- .4 If requesting substitute product, ensure proposed substitution achieves above stated goals.

1.4 MAX. VOC CONTENT FOR SOLVENT CLEANING ACTIVITIES

- .1 Following are some of the Maximum allowed VOC Content for following activities, as per SCAQMD Rule 1171-9 (refer to SCAQMD manual for complete list and updates):
 - .1 Product cleaning during onsite surface preparation for coatings or adhesives application, and repair and maintenance cleaning:
 - .1 General maximum VOC 25g/L.
 - .2 Electrical apparatus components and electronic components.
 - .3 Cleaning of coatings or adhesives application equipment max. VOC 25g/L.
 - .2 Refer to SCAQMD for additional information and clarification and complete list of applications.
 - .3 Any discrepancies are to be approved by Departmental Representative. Obtain written approval prior to use on site.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 10 01 - General Requirements and manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect glass unit masonry from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

1.6 SITE CONDITIONS

- .1 Ambient Conditions: assemble and erect components when temperature is above 4°C.

2 Products

2.1 MATERIALS

- .1 Glass block: Solid unit, fabricated from clear transparent glass.
 - .1 Surfaces:
 - .1 Inner wythe: smooth both surfaces.
 - .2 Outer wythe: smooth inner surface; sandblast outer face.
 - .2 Nominal sizes:
 - .1 Square units: 194 mm x 194 mm x 76 mm thick.
- .2 Mortar: as specified in Section 04 05 12 - Masonry Mortar and Grout.

3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions:
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Examine openings to receive glass unit masonry. Verify correct size, location, squared and plumb and readiness to receive work of this Section.
 - .1 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

- .2 Proceed with installation only after unacceptable conditions have been remedied.
- .3 Beginning of installation means acceptance of conditions.
- .3 Ensure reinforcing bars between wythes of glass block is painted before starting glass block work.

3.2 PREPARATION

- .1 Surface Preparation: prepare surface in accordance with manufacturer's written recommendations.
- .2 Clean glass units of foreign substances.
- .3 Protect elements surrounding work of this Section from damage and disfiguration.

3.3 INSTALLATION

- .1 Erect glass units and accessories in accordance with manufacturer's instructions.
- .2 Set glass units with full bond mortar joints. Furrowing not permitted. Remove excess mortar.
- .3 Do not install glass unit when ambient temperature is below 4°C. Maintain ambient temperature above 4°C for 48 hours after installation.
- .4 Place units to maintain uniform joint width of 6 mm.

3.4 CONSTRUCTION

- .1 Mortar Placement:
 - .1 Set glass with full bond mortar joints. Furrowing not permitted. Remove excess mortar.
 - .2 Place units to maintain uniform joint width of 6 mm.
- .2 Jointing:
 - .1 Tool joints to concave profile, exposing shoulders of glass units.

3.5 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 10 01 - General Requirements.
 - .1 Leave Work area clean at end of each day.
 - .2 Remove mortar particles using clean wet sponge or cloth. Rinse sponge or cloth frequently in clean water to remove abrasive particles that could scratch glass surfaces. Allow any remaining film on block to dry to a powder.
 - .3 When glass block is completely installed and are not exposed to direct sunlight, final cleaning may be carried out. Start at top of panel and wash with generous amounts of clean water. Dry all water from glass block surface. Change cloth frequently to eliminate dried mortar particles that could scratch glass surface. Use clean, dry, soft cloth to remove the dry powder from glass surfaces.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 10 01 - General Requirements.

END OF SECTION