

Part 1 General

1.1 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA-A165 Series-04, Standards on Concrete Masonry Units.
 - .2 CSA A179-04, Mortar and Grout for Unit Masonry.
 - .3 CSA-A371-04, Masonry Construction for Buildings.
- .2 International Masonry Industry All-Weather Council (IMIAC)
 - .1 Recommended Practices and Guide Specification for Hot and Cold Weather Masonry Construction.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-installation meetings: Conduct pre-installation meeting prior to commencing work of this Section and on-Site installations to:
 - .1 Verify project requirements, including mock-up requirements.
 - .2 Verify substrate conditions.
 - .3 Co-ordinate products, installation methods and techniques.
 - .4 Sequence work of related sections.
 - .5 Co-ordinate with other building subtrades.
 - .6 Review manufacturer's installation instructions.
 - .7 Review masonry cutting operations, methods and tools and determine worker safety and protection from dust during cutting operations.
 - .8 Review warranty requirements.

1.3 ACTION SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Provide manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, limitations and colours.
- .3 Samples:
 - .1 Provide samples as follows:
 - .1 Two of each type of masonry unit specified, including special shapes, supplemented with specific requirements in Section 04 22 00 – Concrete Unit Masonry.
 - .2 Two cured, coloured samples of mortar, illustrating mortar colour and colour range, supplemented with specific requirements in Section 04 05 12 - Masonry Mortar and Grout.
 - .3 Two of each type of masonry accessory and flashing specified, supplemented by specific requirements in Section 04 05 23 - Masonry Accessories.
 - .4 One of each type of masonry anchorage, reinforcement and connector proposed for use, supplemented by specific requirements in Section 04 05 19 - Masonry Anchorage and Reinforcing.
 - .5 Submit samples for testing to laboratories employing technicians certified / trained in procedures for testing masonry units.

1.4 INFORMATION SUBMITTALS

- .1 Installer Instructions: provide manufacturer's installation instructions, including storage, handling, safety and cleaning .
- .2 Manufacturer's Reports: provide written reports prepared by manufacturer's on-Site personnel to include:
 - .1 Verification of compliance of work with Contract.
 - .2 Site visit reports providing detailed review of installation of work, and installed work.

1.5 CLOSEOUT SUBMITTALS

- .1 Provide manufacturer's instructions for care, cleaning and maintenance of prefaced masonry units for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- .1 Provide manufacturer's instructions in accordance with Section 01 78 00 - Closeout Submittals covering maintenance requirements and parts catalogue, with cuts and identifying numbers.

1.7 QUALITY ASSURANCE

- .1 Qualifications:
 - .1 Manufacturer: capable of providing field service representation during construction and approving application method.
 - .2 Installer: experienced in performing work of this section who has specialized in installation of work similar to that required for this project.
 - .3 Masons: company or person specializing in masonry installations with 5 years experience with masonry work similar to this project.
 - .1 Masons employed on this project must demonstrate ability to reproduce mock-up standards.

1.8 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Storage and Handling Protection:
 - .1 Keep materials dry until use except where wetting of bricks is specified.
 - .2 Store under waterproof cover on pallets or plank platforms held off ground by means of plank or timber skids.

1.9 SITE CONDITIONS

- .1 Ambient Conditions: assemble and erect components when temperatures are above 4 degrees C.
- .2 Weather Requirements: to CSA-A371 and to IMIAC - Recommended Practices and Guide Specifications for Hot and Cold Weather Masonry Construction.
- .3 Cold weather requirements:
 - .1 To CSA-A371 with following requirements.
 - .1 Maintain temperature of mortar between 5 degrees C and 50 degrees C until batch is used or becomes stable.
 - .2 Maintain ambient temperature of masonry work and it's constituent materials between 5 degrees C and 50 degrees C and protect Site from windchill.

- .3 Maintain temperature of masonry above 0 degrees C for minimum of 7 days, after mortar is installed.
- .4 Preheat unheated wall sections in enclosure for minimum 72 hours above 10 degrees C, before applying mortar.
- .2 Hot weather requirements:
 - .1 Protect freshly laid masonry from drying too rapidly, by means of waterproof, non-staining coverings.
 - .2 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.
- .3 Spray mortar surface at intervals and keep moist for maximum of three days after installation.

Part 2 Products

2.1 MANUFACTURERS

- .1 Ensure manufacturer has minimum 5 years experience in manufacturing components similar to or exceeding requirements of project.

Part 3 Execution

3.1 INSTALLERS

- .1 Experienced and qualified masons to carry out erection, assembly and installation of masonry work.

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 EXAMINATION

- .1 Examine conditions, substrates and work to receive work of this Section.
- .2 Examine openings to receive masonry units. Verify opening size, location, and that opening is square and plumb, and ready to receive work of this Section.
- .3 Verification of Conditions:
 - .1 Verify that:
 - .1 Substrate conditions which have been previously installed under other sections or contracts, are acceptable for product installation in accordance with manufacturer's instructions prior to installation of concrete block.
 - .2 Field conditions are acceptable and are ready to receive work.
 - .3 Built-in items are in proper location, and ready for roughing into masonry work.

3.4 PREPARATION

- .1 Surface Preparation: prepare surface in accordance with manufacturer's written recommendations and co-ordinate with respective sub-trades.
- .2 Establish and protect lines, levels, and coursing.

- .3 Protect adjacent materials from damage and disfiguration.
- .4 Provide temporary bracing of masonry work during and after erection until permanent lateral support is in place.

3.5 INSTALLATION

- .1 Do masonry work in accordance with CSA-A371 except where specified otherwise.
- .2 Build masonry plumb, level, and true to line, with vertical joints in alignment, respecting construction tolerances permitted by CSA-A371.
- .3 Layout coursing and bond to achieve correct coursing heights, and continuity of bond above and below openings, with minimum of cutting.

3.6 CONSTRUCTION

- .1 Exposed masonry:
 - .1 Remove chipped, cracked, and otherwise damaged units, in accordance with CSA A-165, in exposed masonry and replace with undamaged units.
- .2 Jointing:
 - .1 Allow joints to set just enough to remove excess water, then tool with round jointer to provide smooth, joints true to line, compressed, uniformly concave joints where concave joints are indicated.
 - .2 Allow joints to set just enough to remove excess water, then rake joints uniformly to 6 mm depth and compress with square tool to provide smooth, compressed, raked joints of uniform depth where raked joints are indicated.
 - .3 Strike flush joints in masonry walls then tool with flat jointer to provide smooth, joints true to line, compressed, uniformly flush with masonry face where flush joints are indicated.
- .3 Cutting:
 - .1 Cut out for electrical switches, outlet boxes, and other recessed or built-in objects.
 - .2 Make cuts straight, clean, and free from uneven edges.
- .4 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.
- .5 Wetting of bricks:
 - .1 Except in cold weather, wet bricks having initial rate of absorption exceeding 1 g/minute/1000 mm²: wet to uniform degree of saturation, 3 to 24 hours before laying, and do not lay until surface dry.
 - .2 Wet tops of walls built of bricks qualifying for wetting, when recommencing work on such walls.
- .6 Support of loads:
 - .1 Use 20 MPa concrete to Section 03 30 00 - Cast-in-Place Concrete, where concrete fill is used in lieu of solid units unless noted on drawings.
 - .2 Use grout to CSA A179 where grout is used in lieu of solid units.

- .3 Install building paper below voids to be filled with concrete; keep paper 25 mm back from faces of units.
- .4 Refer to Structural drawings and notes.
- .7 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.
- .8 Loose steel lintels:
 - .1 Install loose steel lintels. Centre over opening width.
- .9 Control joints:
 - .1 Construct continuous control joints.
- .10 Movement joints:
 - .1 Build-in continuous movement joints.
- .11 Interface with other work:
 - .1 Cut openings in existing work as indicated.
 - .2 Openings in walls: reviewed by Contract Administrator.
 - .3 Make good existing work. Use materials to match existing.

3.7 SITE TOLERANCES

- .1 Tolerances in notes to CSA-A371 apply.

3.8 FIELD QUALITY CONTROL

- .1 Site Tests, Inspection:
 - .1 Perform field inspection and testing in accordance with Section 01 45 00 - Quality Control.
 - .2 Notify inspection agency minimum of 24 hours in advance of requirement for tests.

3.9 CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
- .2 Progress Cleaning: in accordance with related masonry sections.
- .3 Final Cleaning:
 - .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
 - .2 Upon completion of installation and verification of performance of installation, remove surplus materials, rubbish, tools and equipment barriers.

3.10 PROTECTION

- .1 Temporary Bracing:
 - .1 Provide temporary bracing of masonry work during and after erection until permanent lateral support is in place.

- .2 Brace masonry walls as necessary to resist wind pressure and lateral forces during construction.
- .2 Moisture Protection:
 - .1 Keep masonry dry using waterproof, nonstaining coverings that extend over walls and down sides sufficient to protect walls from wind driven rain, until completed and protected by flashing or other permanent construction.
 - .2 Cover completed and partially completed work not enclosed or sheltered with waterproof covering at end of each work day. Anchor securely in position.
 - .3 Air Temperature Protection: protect completed masonry as recommended in 1.10 SITE CONDITIONS.

END OF SECTION

General

1.1 RELATED REQUIREMENTS

- .1 04 05 00 – Common Work Results for Masonry
- .2 04 05 19 – Masonry Anchorage and Reinforcing
- .3 04 22 00 – Concrete Unit Masonry

1.2 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-A23.1/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CAN/CSA A179-04, Mortar and Grout for Unit Masonry.
 - .3 CAN/CSA A371-04, Masonry Construction for Buildings.
 - .4 CAN/CSA-A3000-03, Cementitious Materials Compendium; CAN/CSA-A3002-[03], Masonry and Mortar Cement.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Product Data:
 - .1 Provide manufacturer's printed product literature, specifications and datasheets.
- .3 Samples: Provide duplicate samples of specified coloured grout.
- .4 Informational Submittals:
 - .1 Submit two copies of WHMIS MSDS – Material Safety Data Sheets. Indicate VOC's mortar, grout and admixtures.
 - .2 Submit manufacturer's installation instructions.
 - .3 Product certificates.
 - .4 Test reports.

1.4 QUALITY ASSURANCE

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
 - .1 Submit laboratory test reports.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store and handles masonry mortar and grout materials in accordance with Section 01 61 00 - Common Product Requirements, supplemented as follows:

- .1 Deliver pre-packaged, dry-blended mortar mix to project site in labelled plastic-lined bags each bearing name and address of manufacturer, production codes or batch numbers, and colour or formula numbers.
- .2 Maintain mortar, grout and packaged materials clean, dry, and protected against dampness, freezing, traffic and contamination by foreign materials.

Part 2 Products

2.1 MATERIALS

- .1 Use same brands of materials and source of aggregate for entire project.
- .2 Cement:
 - .1 Portland Cement: to CAN/CSA-A3000.
 - .2 Masonry Cement: to CAN/CSA-A3002 and CAN/CSA A179.
 - .3 Mortar Cement: to CAN/CSA-A3002 and CAN/CSA A179.
 - .4 Packaged Dry Combined Materials for mortar: to CAN/CSA A179.
- .3 Aggregate: supplied by one supplier. To CAN/CSA A179.
- .4 Water: clean and potable.
- .5 Lime: To CAN/CSA A179.
- .6 Mortar:
 - .1 To CSA A179.
 - .2 Use aggregate passing 1.18mm sieve where 6mm thick joints are indicated.
 - .3 White mortar: use white Portland cement, and white masonry cement to produce mortar type specified.
 - .4 Colour: ground coloured natural aggregates or metallic oxide pigments, use colouring admixture not exceeding 10% of cement content by mass, or integrally coloured masonry cement, to produce coloured mortar to match approved sample.
 - .5 Non-staining mortar: use non-staining masonry cement for cementitious portion of specified mortar type.
 - .6 Mortar type:
 - .1 Exterior, parapet, and Loadbearing Walls: type S mortar having a minimum strength of 12 MPa at 28 days.
 - .2 Non-Loadbearing Walls: type N mortar having a compressive strength of 5 MPa at 28 days. proportion specifications.
 - .7 Colour mortars:
 - .1 Incorporate colour and admixtures into mixes in accordance with manufacturer's instructions.
 - .2 Use clean mixer for coloured mortar.
 - .8 Pointing Mortar:
 - .1 Prehydrate pointing mortar by mixing ingredients dry, then mix again adding just enough water to produce damp unworkable mix that will retain its form when pressed into a ball. Allow to stand for not less than

1 hour nor more than 2 hours then remix with sufficient water to produce mortar of proper consistency for pointing.

.7 Grout:

- .1 To CSA A179.
- .2 Mix grout to semi-fluid consistency.
- .3 Do not use calcium chloride or chloride based admixtures.

2.2 SOURCE QUALITY CONTROL

- .1 Use same brands of materials and source of aggregates for entire project.

Part 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 CONSTRUCTION

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

3.3 CLEANING

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

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 04 05 00 – Common Work Results for Masonry
- .2 04 05 12 – Masonry Mortar and Grout
- .3 04 22 00 – Concrete Unit Masonry

1.2 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-A23.1/A23.2-[04], Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CAN/CSA A179-[04], Mortar and Grout for Unit Masonry.
 - .3 CAN/CSA A370-[04], Connectors for Masonry.
 - .4 CAN/CSA A371-[04], Masonry Construction for Buildings.
 - .5 CAN/CSA G30.18-[M92(R2007)], Billet-Steel Bars for Concrete Reinforcement.
 - .6 CSA-S304.1-[04], Design of Masonry Structures.
 - .7 CSA W186-[M1990(R2007)], Welding of Reinforcing Bars in Reinforced Concrete Construction.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Provide manufacturer's printed product literature, specifications and datasheets illustrating products to be incorporated into project for specified products.
 - .2 Provide two copies of Workplace Hazardous Materials Information System (WHMIS) - Material Safety Data Sheets (MSDS).
- .3 Shop Drawings:
 - .1 Provide shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Provide drawings stamped and signed by professional engineer registered or licensed in Province of Manitoba, Canada.
 - .2 Provide shop drawings detailing bar bending details, anchorage details, lists and placing drawings
 - .3 On placing drawings, indicate sizes, spacing, location and quantities of reinforcement and connectors.
- .4 Manufacturer's Instructions:
 - .1 Provide manufacturer's installation instructions.

1.4 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.

1.5 FIELD MEASUREMENTS

- .1 Make field measurements necessary to ensure proper fit of members.

1.6 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store and handle masonry anchorage and reinforcing materials in accordance with Section 01 61 00 - Common Product Requirements, supplemented as follows:
 - .1 Deliver reinforcement and connectors, identified in shop and placement drawings.

Part 2 Products

2.1 MATERIALS

- .1 Bar reinforcement: CAN/CSA A371 and CAN/CSA G30.18, Grade 400.
- .2 Connectors: to CAN/CSA A370 and CSA-S304.1.
- .1 Corrosion protection:
 - .1 To CSA-S304.1.
 - .2 In contact with tyndall stone: all connectors shall be stainless steel.
 - .3 In contact with brick: all connectors shall be hot-dipped galvanized.
- .2 Masonry ties and connectors:
 - .1 To CSA – A370 and CSA-S304. Adjustable anchors that allow vertical adjustment but resist tension and compression forces perpendicular to place of wall.
 - .2 At CMU substrates with solid brick Veneer:
 - .1 Components:
 - .1 Connector Plate: 1.6mm thick by length to suite CMU width and thickness of air/vapour barrier membrane, insulation, and air space; hot dipped galvanized.
 - .2 V-Tie: V-shape wire tie, 4.8mm diameter by length to provide placement of V-tie legs at centreline of solid unit veneer; hot dipped galvanized.
 - .3 Insulation Support: polyethylene, friction fit, used to secure insulation in place.
 - .2 Acceptable products: Fero Corporation “Block Shear Connector.”
 - .3 At stud framing backup walls:
 - .1 Components:

- .1 Connector plate: 1.6mm thick by length equal to full width of stud plus thickness of sheathing, insulation and air space; hot dipped galvanized.
- .2 V-tie: V-shape wire tie, 4.8mm dia by length to provide placement of V-tie legs at centreline of solid unit veneer; hot dipped galvanized.
- .3 Fasteners for steel studs: corrosion-resistance, self-tapping sheet metal screws, length to penetrate 19mm beyond stud face.
- .4 Insulating strips: close cell polyethylene foam strips, 3mm thick. Same size as connector plate in contact with stud.
- .5 Insulation Support: polyethylene, friction fit, used to secure insulation in place.
- .2 Acceptable Products: Fero Corporation "Side Mounting Rap-Tie System."
- .4 At Cast-in-Place Concrete Substrates with Solid Brick Veneer:
 - .1 Components:
 - .1 Connector Plate: L-shape, vertically oriented plate, 1.6mm thick by length to suit thickness of air/vapour barrier membrane, insulation, and air space, hot dipped galvanized.
 - .2 V-tie: V-shape wire tie, 4.8mm dia by length to provide placement of V-tie legs at centreline of solid unit veneer; hot dipped galvanized.
 - .3 Insulation Support: polyethylene, friction fit, used to secure insulation in place.
 - .2 Acceptable products: Fero Corporation "Rap-tie Connector."
- .3 Single Wythe Joint Reinforcement: ladder type:
 - .1 Cold drawn steel wire conforming to ASTM A82.
 - .2 Standard Joint Reinforcement consisting of 3.66mm (9ga) longitudinal wires and 3.66mm cross or diagonal wires.
 - .3 Yield Strength is 480MPa.
- .4 Anchors: to CAN/CSA A370.

2.2 FABRICATION

- .1 Fabricate reinforcing in accordance with CAN/CSA-A23.1 and Reinforcing Steel Manual of Standard Practice by the Reinforcing Steel Institute of Canada.
- .2 Fabricate connectors in accordance with CAN/CSA A370.
- .3 Obtain Contract Administrator's approval for locations of reinforcement splices other than shown on placing drawings.
- .4 Upon approval of Contract Administrator weld reinforcement in accordance with CSA W186.
- .5 Ship reinforcement and connectors, clearly identified in accordance with drawings.

2.3 SOURCE QUALITY CONTROL

- .1 Upon request, provide Contract Administrator with certified copy of mill test report of reinforcement steel, showing physical and chemical analysis, minimum 4 weeks prior to commencing reinforcement work.
- .2 Upon request inform Contract Administrator of proposed source of material to be supplied.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 GENERAL

- .1 Supply and install masonry reinforcement in accordance with CSA-A371, CAN/CSA-A23.1 and CSA-S304.1 unless indicated otherwise.
- .2 Prior to placing concrete, obtain Contract Administrator's approval of placement of reinforcement.

3.3 TIES AND CONNECTORS

- .1 Tie masonry veneer to backing in accordance with NBC, CSA-S304.1, CAN/CSA A371 and as indicated.
- .2 Exterior masonry veneer on concrete block backup walls:
 - .1 Spacing: 600mm on centre vertical intervals. 400mm on centre horizontal intervals.
 - .2 Set connector plates in mortar joints of backup walls, in accordance with manufacturer's instructions.
 - .3 Coordinate spacing with cavity wall insulation to ensure connector plates are centred on horizontal joints of insulation boards.
 - .4 Install insulation support over each connector plate to hold insulation tight to backup walls.
 - .5 Insert wire tie into connector plate and embed into mortar joints of masonry veneer. Ensure wire tie is aligned and level with horizontal joints of masonry veneer.
- .3 Exterior masonry veneer on stud framing backup walls.
 - .1 Spacing: 600mm on centre vertical intervals. 400mm on centre horizontal intervals.
 - .2 Install connector plates on studs with two screw fastener / plate. Ensure screws are tight and secure. Remove and replace stripped or loose fasteners.
 - .3 Coordinate spacing with cavity wall insulation to ensure connector plates are centred on horizontal joints of insulation boards.
 - .4 Install insulating strip between each connector plate and stud face.

- .5 Install insulation support over each connector plate to hold insulation tight to backup walls.
- .6 Insert wire tie into connector plate and embed into mortar joints of masonry veneer. Ensure wire tie is aligned and level with horizontal joints of masonry veneer.
- .4 Cast-in-place concrete back-up:
 - .1 Fasten ties to CIP concrete back-up with metal fasteners of type indicated. Use two fasteners per location.

3.4 LADDER REINFORCING

- .1 Install in accordance with CAN/CSA A370 and CAN/CSA A371.
- .2 Install horizontal joint reinforcement every second course. Every course for stack bond.
- .3 Place masonry joint reinforcement in first horizontal joints above and below openings. Extend minimum 400 mm each side of opening.
- .4 Place joint reinforcement continuous in first joint below top of walls.
- .5 Lap joint reinforcement ends minimum 150 mm.
- .6 Connect stack bonded unit joint corners and intersections with strap anchors 200 mm on centre.

3.5 REINFORCED LINTELS AND BOND BEAMS

- .1 Reinforce masonry beams, masonry lintels and bond beams as indicated.
- .2 Place and grout reinforcement in accordance with CSA-S304.1, CAN/CSA A371, and CAN/CSA A179.
- .3 Support and position reinforcing bars in accordance with CAN/CSA A371.

3.6 GROUTING

- .1 Grout masonry in accordance with CSA-S304.1, CAN/CSA A371 and CAN/CSA A179 and as indicated.

3.7 ANCHORS

- .1 Supply and install metal anchors in accordance with CAN/CSA A370 and CAN/CSA A371 unless noted otherwise.

3.8 LATERAL SUPPORT AND ANCHORAGE

- .1 Supply and install lateral support and anchorage in accordance with CSA-S304.1 and as indicated.

3.9 MOVEMENT JOINTS

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

3.10 FIELD BENDING

- .1 Do not field bend reinforcement and connectors except where indicated or authorized by Engineer.
- .2 When field bending is authorized, bend without heat, applying a slow and steady pressure.
- .3 Replace bars and connectors which develop cracks or splits.

3.11 FIELD QUALITY CONTROL

- .1 Site inspections in accordance with Section 04 05 00 - Common Work Results for Masonry.
- .2 Obtain Engineer's approval of placement of reinforcement and connectors, prior to placing mortar.

3.12 FIELD TOUCH-UP

- .1 Touch up damaged and cut ends of epoxy coated or galvanized reinforcement steel and connectors with compatible finish to provide continuous coating.

3.13 CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 04 05 00 – Common Work Results for Masonry
- .2 Section 04 22 00 – Concrete Unit Masonry

1.2 REFERENCES

- .1 ASTM International Inc.
 - .1 ASTM D2240-[05], Standard Test Method for Rubber Property - Durometer Hardness.
- .2 Canadian Standards Association (CSA International)
 - .1 CAN/CSA A371-[04], Masonry Construction for Buildings.
 - .2 CAN/CSA-ISO 14021-[00(R2204)], Environmental Labels and Declarations - Self Declared Environmental Claims (Type II Environmental Labelling).
- .3 South Coast Air Quality Management District (SCAQMD), California State (SCAQMD)
 - .1 SCAQMD Rule 1168-[05], Adhesives and Sealants Applications.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Provide manufacturer's printed product literature, specifications and datasheets. Include product characteristics, performance criteria, and limitations.
- .3 Shop Drawings:
 - .1 Provide shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Provide drawings stamped and signed by professional engineer registered or licensed in Province of Manitoba, Canada.
 - .2 Shop drawings consist of flashing and installation details. Indicate sizes, spacing, location and quantities of fasteners.
- .4 Quality Assurance Submittals:
 - .1 Test reports: submit certified test reports in accordance with Section 04 05 00 - Common Work Results for Masonry.
 - .2 Certificates: submit in accordance with Section 04 05 00 - Common Work Results for Masonry.
 - .3 Manufacturer's Instructions: submit in accordance with Section 04 05 00 - Common Work Results for Masonry.
- .5 Sustainable Design Submittals:

- .6 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .7 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .8 Pre-installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Section 04 05 00 - Common Work Results for Masonry.

1.4 FIELD MEASUREMENTS

- .1 Make field measurements necessary to ensure proper fit of members.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store and handle masonry accessories in accordance with, Section 01 61 00 - Common Product Requirements, supplemented as follows:
 - .1 Keep fillers and adhesives dry, protected against dampness, and freezing.
 - .2 Store packaged materials off ground and in accordance with manufacturer's written instructions.

Part 2 Products

2.1 MATERIALS

- .1 Lap adhesive: recommended by masonry flashing manufacturer.
- .2 Movement joint filler: purpose-made elastomer, durometer hardness to ASTM D2240 of size and shape indicated.
 - .1 Use low VOC products.
 - .2 Material type: expanded polyethylene or closed cell neoprene.
- .3 Weep hole vents: purpose-made fibre filter.
- .4 Mechanical fasteners: recommended by flashing manufacturer to suit project requirements.

2.2 FLASHINGS

- .1 Sheet metal: galvanized steel.
 - .1 Thickness: 24 gauge unless noted otherwise on Drawings.
 - .2 Finish: prefinished – colour: grey.

Part 3 Execution

3.1 APPLICATION

- .1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 INSTALLATION: MATERIALS

- .1 Install continuous movement joint fillers in movement joints at locations indicated on drawings.
- .2 Lap adhesive: apply adhesive to flashing lap joints.
- .3 Mechanical fasteners: install fasteners to suit application and in accordance with manufacturer's written installation instructions.
- .4 Reglets: install reglets at locations indicated on drawings.
- .5 Brick vents: install brick vents at locations indicated on drawings.

3.3 INSTALLATION: MOISTURE CONTROL

- .1 Install weep hole vents in vertical joints immediately over flashings, in exterior wythes of cavity wall and masonry veneer wall construction, at maximum horizontal spacing of 600 mm on centre.
- .2 Mortar diverters: install purpose made diverters in cavities where indicated and as directed, size and shape to suit purpose and function.
- .3 Grout screens: install purpose made diverters in cavities where indicated and as directed, size and shape to suit purpose and function.

3.4 INSTALLATION: FLASHINGS

- .1 Build in flashings in masonry in accordance with CAN/CSA A371.
 - .1 Install flashings under exterior masonry bearing on foundation walls, slabs, shelf angles, and steel angles over openings, and at base of cavity wall and where cavity is interrupted by horizontal members or supports and as shown on drawings. Install flashings under weep hole courses and as indicated.
 - .2 In cavity walls and veneered walls, carry flashings from front edge of exterior masonry, under outer wythe, then up backing not less than 150 mm, and as follows:
 - .1 For masonry backing embed or bond flashing 25 mm in joint.
 - .2 For concrete backing, insert or bond flashing into reglets.
 - .3 For wood frame backing, staple flashing to walls behind water resistive paper, and lap joints.
 - .4 For gypsum board and glass fibre faced sheathing backing, bond to wall using manufacturer's recommended adhesive.
 - .3 Lap joints 150 mm and seal with adhesive.

- .2 Form flashing (end dams) at lintels, sills and wall ends to prevent water from travelling horizontally past flashing ends.
- .3 Install vertical flashing where outer veneer returns at window or door jambs, to prevent contact of veneer with inner wall.

3.5 CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

Part 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 05 19 – Masonry Anchorage and Reinforcing
- .4 Section 05 50 00 - Metal Fabrications.

1.2 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-A165 Series-2004, CSA Standards on Concrete Masonry Units.
 - .2 CAN/CSA A371-04, Masonry Construction for Buildings.
 - .3 CSA S304.1-04, Design of Masonry Structures.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Product Data: provide product data, including manufacturer's printed data sheets and catalogue pages illustrating products to be incorporated into project for specified products.

1.4 QUALITY ASSURANCE SUBMITTALS

- .1 Test Reports
 - .1 Certified test reports showing compliance with specified performance characteristics and physical properties.
 - .2 Submit laboratory test reports certifying compliance of masonry units and mortar with specification requirements.
- .2 Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Pre-Installation Meetings: conduct pre-installation meeting in accordance with Section 04 05 00 - Common Work Results for Masonry to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.
- .4 Mock-ups:
 - .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control and requirements of Section 04 05 00 - Common Work Results for Masonry supplemented as follows:
 - .1 Construct mock-up panel of unit masonry construction 1200 x 1800 mm.
 - .2 Approved mock-up may remain as part of the Work
 - .2 Provide self-adhesive air / vapour barrier as part of mock-up as described in Section 07 46 23.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store and handle concrete unit masonry in accordance with Section 04 05 00 - Common Work Results for Masonry.
- .2 Packaging Waste Management:
 - .1 Separate and recycle waste materials in accordance with Section 01 74 11 – Cleaning.

Part 2 Products

2.1 MATERIALS

- .1 Standard concrete block units: to CAN/CSA-A165 Series (CAN/CSA-A165.1) .
 - .1 Classification: H/15/A/M.
 - .2 Size: Standard Metric – 190mmx 190mm x 390mm
 - .3 Special shapes: provide square units for exposed corners. Provide purpose-made shapes for lintels, beams and bond beams. Provide additional special shapes as indicated.

2.2 AIR / VAPOUR BARRIER

- .1 Self adhesive air/vapour barrier supplied by Section 07 26 00, but installed by this Section.

2.3 TOLERANCES

- .1 Tolerances for standard concrete unit masonry tolerances in accordance with CAN/CSA A165.1, supplemented as follows:
 - .1 Maximum variation between units within specific job lot not to exceed 2 mm.
 - .2 No parallel edge length, width or height dimension for individual unit to differ by more than 2 mm.
 - .3 Out of square tolerance not to exceed 2 mm.
- .2 Tolerances for architectural concrete masonry units in accordance with CAN/CSA A165.1, supplemented as follows:
 - .1 Maximum variation in length or height between units within specific job lot for specified dimension not to exceed 2 mm.
 - .2 No parallel edge length, width or height dimension for individual unit to differ by more than 2 mm.
 - .3 Out of square tolerance not to exceed 2 mm.
 - .4 Maximum variation in width between units within specific job lot for specified dimension not to exceed 2 mm.

Part 3 Execution

3.1 EXAMINATION

- .1 Verify that field conditions are acceptable and are ready to receive work.
- .2 Verify items provided by other sections of work are properly sized and located.
- .3 Verify that built-in items are in proper location, and ready for roughing into masonry work.

- .4 Examine work of other Sections upon which work of this Section is dependent. Should discrepancies be found which affect the proper performance of the work of this section, do not commence work until such discrepancies have been resolved.
- .5 Commencing installation means acceptance of existing substrates.

3.2 PREPARATION

- .1 Protect adjacent finished materials from damage due to masonry work.
- .2 Direct and coordinate placement of metal anchors supplied to other sections.
- .3 Provide temporary bracing during installation of masonry work to CSA-A371. Maintain in place until building structure provides permanent bracing.
- .4 Establish lines, levels, and coursing; protect from disturbance.
- .5 Verify that items built-in under other sections are properly located and sized.

3.3 INSTALLATION

- .1 Concrete block units:
 - .1 Bond: running unless noted otherwise.
 - .2 Coursing height:
 - .1 Standard Masonry Block: 200 mm for one block and one joint.
 - .3 Jointing:
 - .1 Interior Masonry Block: Concave where exposed
 - .2 Exterior Veneer Masonry (Exposed): Raked horizontal mortar joints and flush vertical mortar joints.
 - .3 Flush joints: where concealed in walls and joints in walls to receive plaster, tile, insulation, or other applied material except paint or similar thin finish coating, and to height to suit resilient base where resilient base is applied to painted walls.
 - .4 Extend architectural concrete masonry units to one course above ceilings. Where partitions extend to underside of structure use standard CMU for portion of partitions above ceiling.
- .2 Special Shapes:
 - .1 Install special units to form corners, returns, offsets, reveals and indents without cut ends being exposed and without losing bond or module.
 - .2 Install reinforced concrete block lintels over openings in masonry where steel or reinforced concrete lintels are not indicated.
 - .3 End bearing: not less than 200 mm
 - .4 Install special Site cut shaped units.

3.4 REINFORCEMENT

- .1 Install reinforcing in accordance with Section 04 05 19 - Masonry Anchorage and Reinforcing.

3.5 CONNECTORS

- .1 Install connectors in accordance with Section 04 05 19 - Masonry Anchorage and Reinforcing.

3.6 MORTAR AND GROUT PLACEMENT

- .1 Place mortar in accordance with Section 04 05 12 - Masonry Mortar and Grout.

3.7 CONSTRUCTION

- .1 Cull out masonry units, in accordance with CAN/CSA A165 and approved range of colour samples, with chips, cracks, broken corners, excessive colour and texture variation.
- .2 Build in miscellaneous items such as bearing plates, steel angles, bolts, anchors, inserts, sleeves and conduits.
- .3 Construct masonry walls using running bond unless otherwise noted.
- .4 Build around frames previously set and braced. Fill behind hollow frames within masonry walls with mortar or grout and embed anchors.
- .5 Fit masonry closely against electrical and plumbing outlets so collars, plates and covers overlap and conceal cuts.
- .6 Install movement joints and keep free of mortar where indicated.
- .7 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.
- .8 Solid Units: apply mortar over entire vertical and horizontal surfaces. Avoid bridging of airspace between brick veneer and backup wall with mortar.
- .9 Ensure compacted head joints. Use full or face-shell joint as indicated.
- .10 Tamp units firmly into place.
- .11 Do not adjust masonry units after mortar has set. Where resetting of masonry is required, remove, clean and reset units in new mortar.
- .12 Tool exposed joints concave; strike concealed joints flush.
- .13 After mortar has achieved initial set up, tool joints.
- .14 Do not interrupt bond below or above openings.

3.8 AIR / VAPOUR BARRIER INSTALLATION

- .1 Air barrier installer to formally recognized as a licensed contractor by the National Air Barrier Association (NABBA), had employ workers certified with a minimum of three (3) years of experience with installation of the system specified and detailed on Drawings.
- .2 Work performed must be licensed under NABA Quality Assurance Program.

3.9 REPAIR/RESTORATION

- .1 Upon completion of masonry, fill holes and cracks, remove loose mortar and repair defective work.

3.10 FIELD QUALITY CONTROL

- .1 Site Tests, Inspection: in accordance with Section 04 05 00 - Common Work Results for Masonry.

3.11 REPAIR/RESTORATION

- .1 Upon completion of masonry, fill holes and cracks, remove loose mortar and repair defective work.

3.12 CLEANING

- .1 Standard Block: Allow mortar droppings on masonry to partially dry then remove by means of trowel, followed by rubbing lightly with small piece of block. Clean wall surface with suitable brush or burlap.
- .2 Unglazed clay masonry: Sample clean inconspicuous area, designated by Contract Administrator. 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 1L 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.

3.13 PROTECTION

- .1 Brace and protect concrete unit masonry in accordance with Industry standards

END OF SECTION