

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 03 30 00 – Cast-In-Place Concrete
- .2 Section 04 05 12 – Masonry Mortar and Grout
- .3 Section 04 05 23 – Masonry Accessories
- .4 Section 04 05 19 – Masonry Anchorage and Reinforcing
- .5 Section 04 22 00 – Concrete Masonry Units

1.2 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA-A165 Series-04(R2009), Standards on Concrete Masonry Units.
 - .2 CSA A179-04(R2009), Mortar and Grout for Unit Masonry.
 - .3 CSA-A371-04(R2009), 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.

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-installation meetings: Conduct pre-installation meeting one week prior to commencing Work of this Section and on-Site installations to:
 - .1 Verify project 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.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures
- .2 Product Data: 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 concrete masonry specified, including special shapes, supplemented with specific requirements in Sections of Division 4.
 - .2 Two cured, and coloured samples of mortar and grout, 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 Two 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 Samples: used for testing and when accepted become standard for material used.
- .4 Shop Drawings:
 - .1 Provide drawings stamped and signed by professional engineer registered or licensed in Province of Manitoba, Canada.
 - .2 Provide shop drawings detailing temporary bracing required, designed to resist wind pressure and lateral forces during installation.
- .5 Certificates: provide manufacturer's product certificates certifying materials comply with specified requirements.
- .6 Test and Evaluation Reports:
 - .1 Test reports to certify compliance of masonry units and mortar ingredients with specified performance characteristics and physical properties.
 - .2 Provide data for masonry units, in addition to requirements set out in referenced CSA and ASTM Standards, indicating initial rates of absorption.
- .7 Installer Instructions: provide manufacturer's installation instructions, including storage, handling, safety and cleaning.
- .8 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 documented experience with masonry Work similar to this project.
- .2 Mock-ups:
 - .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
 - .2 Construct mock-up panel of interior masonry wall construction 1200 x 1800 mm showing masonry colours and textures, use of reinforcement, ties, jointing, coursing, mortar and workmanship.
 - .3 Mock-up used:
 - .1 To judge workmanship, substrate preparation, operation of equipment and material application.
 - .2 For testing to determine compliance with performance requirements. Perform following tests.
 - .4 Construct mock-up where directed by Contract Administrator.
 - .5 Allow 24 hours for inspection of mock-up by Contract Administrator before proceeding with Work.
 - .6 When accepted by Contract Administrator, mock-up will demonstrate minimum standard for this Work. Mock-up may remain as part of finished Work.
 - .7 Start Work only upon receipt of written approval of mock-up by Contract Administrator.

1.8 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .3 Storage and Handling 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.

Part 2 Products

2.1 MANUFACTURERS

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

2.2 MATERIALS

- .1 Masonry materials are specified elsewhere in related Sections of Division 4.

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.
 - .1 Inform Contract Administrator of unacceptable conditions immediately upon discovery.
 - .2 Proceed with installation after unacceptable conditions have been remedied and after receipt of written approval from Contract Administrator.
- .3 Verification of Conditions:
 - .1 Verify that:
 - .1 Substrate conditions which have been previously installed under other sections or Contract 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.
 - .2 Commencing installation means acceptance of existing substrates.

3.4 PREPARATION

- .1 Surface Preparation: prepare surface in accordance with manufacturer's written recommendations.

- .2 Establish and protect lines, levels, and coursing.
- .3 Protect adjacent materials from damage and disfiguration.

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: 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 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 30 MPa concrete to Section 03 30 00 - Cast-in-Place Concrete, where concrete fill is used in lieu of solid units.
- .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, grout; keep paper 25 mm back from faces of units.

- .7 Provision for movement:
 - .1 Leave 1/8" (3 mm) space below shelf angles.
 - .2 Leave 1/4" (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: Install loose steel lintels as indicated. Centre over opening width.

- .9 Control joints: Construct continuous control joints as indicated.

- .10 Movement joints: Build-in continuous movement joints as indicated.

- .11 Interface with other Work:
 - .1 Cut openings in existing Work as indicated.
 - .2 Openings in walls: approved 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.

- .2 Manufacturer's Services:
 - .1 Have manufacturer of products supplied under this Section review Work involved in handling, installation/application, and protection of its products, and submit written reports in acceptable format to verify compliance of Work with Contract.
 - .2 Manufacturer's field services: provide manufacturer's field services, consisting of product use recommendations and periodic Site visits for inspection of product installation, in accordance with manufacturer's instructions.
 - .3 Schedule Site visits to review Work at stages listed:

- .1 After delivery and storage of products, and when preparatory work on which Work of this Section depends is complete, but before installation begins.
- .2 During progress of Work.
- .3 Upon completion of Work, after cleaning is carried out.
- .4 Obtain reports within three days of review and submit immediately to Contract Administrator.

3.9 CLEANING

- .1 Progress Cleaning: in accordance with related masonry sections and 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 Bracing approved by Contract Administrator.
 - .3 Brace masonry walls as necessary to resist wind pressure and lateral forces during construction.
- .2 Moisture Protection:
 - .1 Cover completed and partially completed Work not enclosed or sheltered with waterproof covering at end of each Work day. Anchor securely in position.
 - .2 Air Temperature Protection: protect completed masonry as recommended in 1.8 SITE CONDITIONS.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 04 05 00 – Common Work Results for Masonry
- .2 Section 04 05 19 – Masonry anchorage and Reinforcing
- .3 Sections 04 05 23 – Masonry Accessories
- .4 Section 04 22 00 – Concrete Unit Masonry

1.2 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-A23.1/A23.2-09, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CAN/CSA A179-04 (R2009), Mortar and Grout for Unit Masonry.
 - .3 CAN/CSA A371-04 (R2009), Masonry Construction for Buildings.
 - .4 CAN/CSA-A3000-08, Cementitious Materials Compendium
- .2 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 Product Data:
 - .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Provide manufacturer's printed product literature, specifications and datasheets. Include product characteristics, performance criteria, and limitations.
- .2 Samples:
 - .1 Samples: provide unit samples in accordance with Section 04 05 00 - Common Work Results for Masonry, supplemented as follows:
 - .1 Provide two full size samples of mortar, coloured mortar.
 - .2 Provide samples, prior to mixing or preparation of mortars, to Contract Administrator of:
 - .1 Aggregate: course aggregate and sand.
 - .2 Cement.
 - .3 Lime.
 - .4 Colour pigment samples.
- .3 Manufacturer's Instructions: Provide manufacturer's installation instructions.

1.4 QUALITY ASSURANCE

- .1 Test Reports: certified test reports including sand gradation tests in accordance with CAN/CSA A179 showing compliance with specified performance characteristics and physical properties, and in accordance with Section 04 05 00 - Common Work Results for Masonry.
- .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 to verify project requirements, manufacturer's installation instructions and manufacturer's warranty 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.
- .2 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding and packaging material in accordance with requirements of Contract Administrator.

1.6 SITE CONDITIONS

- .1 Ambient Conditions: maintain materials and surrounding air temperature to:
 - .1 Minimum 5 degrees C prior to, during, and 48 hours after completion of masonry Work.
 - .2 Maximum 32 degrees C prior to, during, and 48 hours after completion of masonry Work.
- .2 Weather Requirements: CAN/CSA A37, International Masonry Industry All-Weather Council (IMIAC) - Recommended Practices and Guide Specifications for Hot and Cold Weather Masonry Construction.

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, Type GU - General use hydraulic cement (Type 10) MH-Moderate heat of hydration hydraulic cement (Type 40) white colour.
 - .1 Use low VOC products in compliance with SCAQMD Rule 1168. Maximum VOC content of 250g/L less water and less exempt compounds.
- .2 Masonry Cement: to CAN/CSA-A3002 and CAN/CSA A179, Type S.
- .3 Mortar Cement: to CAN/CSA-A3002 and CAN/CSA A179, Type S.
 - .1 Use low VOC products in compliance with SCAQMD Rule 1168. Maximum VOC content of 250g/L less water and less exempt compounds.
- .4 Packaged Dry Combined Materials for mortar: to CAN/CSA A179, Type S, using, white, charcoal cement.
- .3 Water: clean and potable.
- .4 Lime:
 - .1 Quick Lime: to CAN/CSA A179, Type S.
 - .2 Hydrated Lime: to CAN/CSA A179, Type S.
- .5 Bonding Agent: epoxy type.
- .6 Polymer Latex: organic polymer latex admixture of butadiene-styrene type non-emulsifiable bonding admixture.

2.2 COLOUR ADDITIVES

- .1 Use colouring admixture not exceeding 10% of cement content by mass, or integrally coloured masonry cement, to produce coloured mortar to match approved sample. Admixtures to be approved prior to use. Use in accordance with the specific manufacturer's recommendations.
- .2 White mortar: use white Portland cement, and lime, white masonry cement to produce mortar type specified.

2.3 ADMIXTURES

- .1 Water Repellent Agents: Use low VOC products in compliance with SCAQMD Rule 1168.
- .2 Air Entrainment Agents: Use low VOC products in compliance with SCAQMD Rule 1168.
- .3 Plasticizer Agents: Use low VOC products in compliance with SCAQMD Rule 1168.
- .4 Accelerator Agents: Use low VOC products in compliance with SCAQMD Rule 1168.

2.4 MORTAR MIXES

- .1 Mortar for interior masonry:
 - .1 Loadbearing: type S based on property specifications.
 - .2 Non-Loadbearing: N based on property specifications.
- .2 Pointing Mortar: CAN/CSA A179, Type S using property specification with maximum 2 percent ammonium stearate or calcium stearate per cement weight.
- .3 Stain Resistant Pointing Mortar: one part Portland cement, 1/8 part hydrated lime, and two parts graded (80 mesh) aggregate, proportioned by volume. Add aluminum tristearate, calcium stearate, or ammonium stearate to 2 percent of Portland cement by weight.
- .4 Following applies regardless of mortar types and uses specified above:
 - .1 Mortar for grouted reinforced masonry: type S based on property specifications.

2.5 MORTAR MIXING

- .1 Use pre-blended, pre-coloured mortar pre-packaged under controlled factory conditions. Ingredients batching limitations to be within 1% accuracy.
- .2 Mix mortar ingredients in accordance with CAN/CSA A179 in quantities needed for immediate use.
- .3 Maintain sand uniformly damp immediately before mixing process.
- .4 Add mortar colour and admixtures in accordance with manufacturer's instructions. Provide uniformity of mix and colouration.
- .5 Do not use anti-freeze compounds including calcium chloride or chloride based compounds.
- .6 Do not add air entraining admixture to mortar mix.
- .7 Use a batch type mixer in accordance with CAN/CSA A179.
- .8 Pointing mortar: 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 ball. Allow to stand for not less than 1 hour no more than 2 hours then remix with sufficient water to produce mortar of proper consistency for pointing.
- .9 Re-temper mortar only within two hours of mixing, when water is lost by evaporation.
- .10 Use mortar within 2 hours after mixing at temperatures of 32 degrees C, or 2-1/2 hours at temperatures under 10 degrees C.

2.6 GROUT MIXES

- .1 Bond Beams: grout mix 10 to 12.5 MPa strength at 28 days; 200-250 mm slump; premixed type in accordance with CAN/CSA-A23.1.
- .2 Lintels: grout mix 10 to 12.5 MPa strength at 28 days; 200-250 mm slump; premixed type in accordance with CAN/CSA-A23.1.
- .3 Grout: Minimum compressive strength of 12.5 MPa at 28 days. Maximum aggregate size and grout slump: CAN/CSA A179.

2.7 GROUT MIXING

- .1 Mix batched and delivered grout in accordance with CAN/CSA-A23.1 transit mixed.
- .2 Mix grout ingredients in quantities needed for immediate use in accordance with CAN/CSA A179 grout.
- .3 Add admixtures in accordance with manufacturer's instructions; mix uniformly.
- .4 Do not use calcium chloride or chloride based admixtures.

2.8 MIX TESTS

- .1 Testing Mortar Mix:
 - .1 Test mortar to requirements of Section 01 45 00 - Quality Control, and in accordance with CAN/CSA A179, for mortar based on property specification. Test prior to construction and during construction for:
 - .1 Compressive strength.
 - .2 Consistency.
 - .3 Mortar aggregate ratio.
 - .4 Sand/cement ratio.
 - .5 Water content and water/cement ratio.
 - .6 Air content.
 - .7 Splitting tensile strength.
- .2 Testing Grout Mix:
 - .1 Test grout to requirements of Section 01 45 00 - Quality Control, and in accordance with CAN/CSA A179, for grout based on property specification. Test prior to construction and during construction for:
 - .1 Compressive strength.
 - .2 Sand/cement ratio.
 - .3 Water content and water/cement ratio.
 - .4 Slump.

Part 3 Execution

3.1 EXAMINATION

- .1 Request inspection of spaces to be grouted.

3.2 PREPARATION

- .1 Apply bonding agent to existing concrete surfaces.
- .2 Plug clean-out holes with block masonry units. Brace masonry for wet grout pressure.

3.3 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.

3.4 CONSTRUCTION

- .1 Do masonry mortar and grout Work in accordance with CAN/CSA A179 except where specified otherwise.
- .2 Apply parging in uniform coating not less than total 3/8" (10 mm) thick, where indicated.

3.5 MIXING

- .1 All pointing mortar can be mixed using a regular paddle mixer. Only electric motor mixers are permissible. Mixers run on hydrocarbons are not permitted, due to fumes, Mixing by hand must be pre-approved by the Contract Administrator.
- .2 Clean all mixing boards and mechanical mixing machine between batches.
- .3 Mortar must be weaker than the units it is binding.
- .4 Contractor to appoint one individual to mix mortar, for duration of project. In the event that this individual must be changed, mortar mixing must cease until the new individual is trained, and mortar mix is tested.

3.6 MORTAR PLACEMENT

- .1 Install premix mortar to manufacturer's instructions.
- .2 Install mortar to requirements of CAN/CSA A179.
- .3 Remove excess mortar from grout spaces.

3.7 GROUT PLACEMENT

- .1 Install grout in accordance with manufacturer's instructions.

- .2 Install grout in accordance with CAN/CSA A179.
- .3 Work grout into masonry cores and cavities to eliminate voids.
- .4 Do not install grout in lifts greater than 400 mm, without consolidating grout by rodding.
- .5 Do not displace reinforcement while placing grout.

3.8 FIELD QUALITY CONTROL

- .1 Site Tests, Inspection: in accordance with Section 04 05 00 - Common Work Results for Masonry supplemented as follows:
 - .1 Test and evaluate mortar prior to construction and during construction in accordance with CAN/CSA A179.
 - .2 Test and evaluate grout prior to construction and during construction to CAN/CSA A179; test in conjunction with masonry unit sections specified.
- .2 Manufacturer's Field Services: in accordance with Section 04 05 00 - Common Work Results for Masonry.

3.9 CLEANING

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.
- .2 Remove droppings and splashings using clean sponge and water.
- .3 Clean masonry with low pressure clean water and soft natural bristle brush.
- .4 Waste Management: separate waste materials for reuse and recycling in accordance with requirements of Contract Administrator.

3.10 PROTECTION OF COMPLETED WORK

- .1 Cover completed and partially completed Work not enclosed or sheltered with waterproof covering at end of each Work day. Anchor securely in position.

3.11 SCHEDULE

- .1 Mortar colour to be selected from manufacturer's full range of colours.
- .2 Grout following masonry components: See structural drawings.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 04 05 00 – Common Work Results for 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 CSA-A370-04 (R2009), Connectors for Masonry.
 - .3 CSA-A371-04 (R2009), Masonry Construction for Buildings.
 - .4 CSA-S304.1-04, Masonry Design for Buildings.
 - .5 CSA A179-04 (2009), Mortar and Grout For Unit Masonry.
 - .6 CAN/CSA-G164-M92 (R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .7 CSA W186-[M1990(R2007)], Welding of Reinforcing Bars in Reinforced Concrete Construction.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit 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 Submit two copies of WHMIS MSDS - Material Safety Data Sheets. Indicate VOC's for epoxy coatings and galvanized protective coatings and touch-up products.
- .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.
- .3 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.
- .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-ups panel of anchorage installation reinforcement installation.
 - .2 Sample panel: 10'-0" x 10'-0" (3000 mm x 3000 mm) using proposed procedures, anchorage material, connectors, reinforcement material, and workmanship.

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.
- .2 Packaging Waste Management:
 - .1 Separate and recycle waste materials in accordance with Section requirements of Contract Administrator.

Part 2 Products

2.1 MATERIALS

- .1 Bar reinforcement: Steel to CAN/CSA A371 and CAN/CSA G30.18, [stainless steel to ASTM A167.
- .2 Connectors: to CSA-A370 and CSA-S304.

- .1 Acceptable material: Blok-Loc B407 Stainless Steel, c/w Wedge-Lok Insulation Retainer, submit shop drawings.
- .3 Corrosion protection: to CAN/CSA-G164-M92 (R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.
- .4 Fasteners: installed post-construction:
 - .1 Screw Shields and Plugs: plastic, water-resistant placed directly into solid masonry units.
 - .2 Bolts and Screws: size and type to suit application, locate where indicated.
 - .3 Nails: case-hardened cut or spiral nails, size and type to suit fastening application.
 - .4 Powder-Driven Fasteners: pin styles and lengths to suit fastening application in accordance with manufacturers use, load and hold recommendations.
 - .5 Adhesives: epoxies, mastics and contact cements for fastening applications, use in accordance with manufacturers' recommendations.
- .5 Ties: hot dip galvanized to CAN/CSA A370 Table 5.2 steel finish.
 - .1 Corrugated to CAN/CSA A370.
 - .2 Unit ties, to CAN/CSA A370 fabricated form [wire stainless steel, size to suit application.
 - .3 Adjustable Unit Ties: to CAN/CSA A370: proprietary type ties, type, style and size to suit application in accordance with manufacturer's recommendations.

2.2 FABRICATION

- .1 Fabricate reinforcing in accordance with CSA-A23.1 and ANSI/ACI 315-94, Details and Detailing of Concrete Reinforcement.
- .2 Fabricate connectors in accordance with CSA-A370.
- .3 Obtain Contract Administrator's approval for locations of reinforcement splices other than shown on placing drawings.
- .4 Upon approval 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 and connectors, showing physical and chemical analysis, minimum 5 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 Compliance: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

3.2 INSTALLATIONS

- .1 Supply and install masonry connectors in accordance with CSA-A370, CSA-A371, CAN/CSA-A23.1 and CSA-S304.1 unless indicated otherwise.
- .2 Prior to placing mortar, grout, obtain Contract Administrator's approval of placement of reinforcement and connectors.
- .3 Supply and install additional reinforcement to masonry as indicated.

3.3 BONDING AND TYING

- .1 Bond walls of two or more wythes using metal connectors in accordance with CSA-S304.1, CAN/CSA A371 and as indicated.
- .2 Tie masonry veneer to backing in accordance with NBC, CSA-S304.1, CSA-A371 and as indicated.
- .3 Install unit, adjustable, single wythe and multiple wythe joint reinforcement where indicated and in accordance with manufacturer's instructions.
 - .1 Bond walls of two or more wythes using metal connectors in accordance with CAN/CSA A371 and as indicated.
 - .2 Install horizontal joint reinforcement 16" (400 mm) on centre.
 - .3 Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16" (400 mm) each side of opening.
 - .4 Place joint reinforcement continuous in first and second joint below top of walls.
 - .5 Lap joint reinforcement ends minimum 6" (150 mm).
 - .6 Connect stack bonded unit joint corners and intersections with strap anchors 16" (400 mm) on centre.

3.4 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.

3.5 GROUTING

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

3.6 ANCHORS

- .1 Supply and install metal anchors as indicated.

3.7 LATERAL SUPPORT AND ANCHORAGE

- .1 Maximum spacing of ties not to exceed 600 mm on centre vertically and 800 mm on centre horizontally.
- .2 At control joints and openings in walls, ties shall be spaced not more than 24" (600 mm) apart around the openings; and located not more than 12" (300 mm) from the edge of the control joints and openings.
- .3 The distance from the top of a veneer, to the first row of ties below the top shall not exceed 12" (300 mm).
- .4 The distance from the bottom of the veneer to the first row of ties above the support shall not exceed 8" (400 mm).
- .5 Anchor ties with 2 – 6 mm diameter hot dipped galvanized wood screws by 90 mm long fastened into wood studs or headers.

3.8 MOVEMENT JOINTS

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

3.9 FIELD BENDING

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

3.10 FIELD QUALITY CONTROL

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

3.11 FIELD TOUCH-UP

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

3.12 CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Remove surplus materials, excess materials, rubbish, tools and equipment.
- .2 Waste Management: separate waste materials for reuse and recycling in accordance with requirements of Contract Administrator.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 04 05 00 – Common Work Results for Masonry
- .2 Section 07 62 00 – Sheet Metal Flashing and Trim

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM) .
 - .1 ASTM D 2240-05(2010), Standard Test Method for Rubber Property - Durometer Hardness.
- .2 Canadian Standards Association (CSA International).
 - .1 CSA-A371-04 (R2009), Masonry Construction for Buildings.

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 Manitoba, Canada.
 - .2 Shop drawings consist of flashing and installation details. Indicate sizes, spacing, location and quantities of fasteners.
- .4 Samples:
 - .1 Provide masonry accessory samples in accordance with Section 01 33 00 - Submittal Procedures, supplemented as follows:
 - .1 Materials: two, cured, and coloured samples, illustrating colour and colour range. Include:
 - .1 Movement joint filler.
 - .2 Lap adhesive.
 - .3 Mechanical fasteners.
 - .4 Reglets.
 - .5 Brick vents.
 - .2 Two moisture control material samples, illustrating colour and colour range, size, and shape. Include:

- .1 Weep hole vents.
- .2 Mortar diverters.
- .3 Grout screens.
- .3 Two flashing material samples, illustrating colour and colour range, size, shape, and profile. Include as specified:
 - .1 Sheet metal flashings.
 - .2 Composite flashings.
 - .3 Plastic and rubber flashings.
- .5 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, supplemented as follows:
 - .1 Submit installation instructions for fillers adhesives reglets weeps vents diverters screens flashings.
- .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.

1.1 FIELD MEASUREMENTS

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

1.2 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.
- .2 Packaging Waste Management:
 - .1 Separate waste materials for reuse and recycling in accordance with requirements of Contract Administrator.

Part 2 Products

2.1 MATERIALS

- .1 Control joint filler: purpose-made elastomer durometer hardness to ASTM D2240 of size and shape indicated.
- .2 Lap adhesive: recommended by masonry flashing manufacturer.
- .3 Mechanical fasteners: recommended by flashing manufacturer to suit project requirements.
- .4 Aluminum flashings: in accordance with Section 07 62 00 – Sheet Metal Flashing and Trim.
- .5 Mortar dropping control: net of polyester/high density polyethylene.
 - .1 Size: width of cavity by 10” (250 mm) high.

2.2 FLASHINGS

- .1 Sheet metal: galvanized steel.
 - .1 Thickness: 22 mm.
 - .2 Finish: Factory Paint Finish.

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 INSTALLATION

- .1 Install continuous control joint fillers in control 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.
- .6 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 24” (600 mm) on centre.

- .7 Mortar dropping control: place a continuous row of net in the cavity or collar joint on the flashing against the inside of the outer wythe at the base of the wall. When installing multiple widths of net to fill void align the dovetail sections with each other.

3.3 INSTALLATION: MOISTURE CONTROL

- .1 Mortar diverters: install purpose made diverters in cavities where indicated and as directed, size and shape to suit purpose and function.
- .2 Grout screens: install purpose made diverters in cavities where indicated and as directed, size and shape to suit purpose and function.

3.4 CONSTRUCTION

- .1 Build in flashings in masonry in accordance with 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 6" (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 SECTIONS

- .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 05 12 – Masonry Mortar and Grout

1.2 REFERENCES

- .1 ASTM International Inc.
 - .1 ASTM C90-11a, Standard Specification For load Bearing Concrete Masonry Units.
 - .2 ASTM C744-11 Standard Specification For Concrete And calcium Silicate Masonry Units.
- .2 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-A165 Series-2004(R2009), CSA Standards on Concrete Masonry Units covers: A165.1, A165.2, A165.3.
 - .2 CAN/CSA A371-04 (R2009), Masonry Construction for Buildings.
 - .3 CSA S304.1-04(R2009), Design of Masonry Structures.
- .3 South Coast Air Quality Management District (SCAQMD), California State (SCAQMD)
 - .1 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.
- .4 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S101-07, Standard Methods of Fire Endurance Tests of Building Construction and Materials.

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.
- .3 Samples:
 - .1 Provide unit samples in accordance with Section 04 05 00 - Common Work Results for Masonry.

- .4 Manufacturer's Written Instructions: provide in accordance with Section 04 05 00 - Common Work Results for Masonry.

1.4 QUALITY ASSURANCE SUBMITTALS

- .1 Certificates: provide in accordance with Section 04 05 00 - Common Work Results for Masonry.
- .2 Test and Evaluation Reports: provide certified test reports in accordance with Section 04 05 00 - Common Work Results for Masonry.
- .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 interior concrete unit masonry construction 48" x 72"(1200 x 1800 mm).

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 requirements of Contract Administrator.

Part 2 Products

2.1 MATERIALS

- .1 Standard concrete block units Type H/15/A/M: to CAN/CSA-A165 Series (CAN/CSA-A165.1).
 - .1 Classification: H/15/A/M.
 - .2 Dimensions – Nominal.
 - .3 Special shapes: provide bull-nosed and double bull-nosed units for exposed corners. Provide purpose-made shapes for lintels, beams and bond beams. Provide additional special shapes as indicated.
- .2 Bond Beam Lintel concrete block units
 - .1 Classification: H/15/A/0
 - .2 Dimensions – Nominal

2.2 REINFORCEMENT

- .1 Reinforcement in accordance with Section 04 05 19 - Masonry Anchorage and Reinforcing and as indicated on structural drawings.

2.3 CONNECTORS

- .1 Connectors in accordance with Section 04 05 19 - Masonry Anchorage and Reinforcing and as indicated on structural drawings.

2.4 FLASHING

- .1 Flashing: in accordance with Section 04 05 23 - Masonry Accessories.

2.5 MORTAR MIXES

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

2.6 GROUT MIXES

- .1 Grout and grout mixes in accordance with Section 04 05 12 - Masonry Mortar and Grout.

2.7 CLEANING COMPOUNDS

- .1 Use low VOC products in compliance with SCAQMD Rule 1168.
- .2 Compatible with substrate and acceptable to masonry manufacturer for use on products.
- .3 Cleaning compounds compatible with concrete unit masonry and in accordance with manufacturer's written recommendations and instructions.

2.8 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 1/16" (2 mm).
 - .2 No parallel edge length, width or height dimension for individual unit to differ by more than 1/16" (2 mm).
 - .3 Out of square tolerance not to exceed 2 mm.
 - .4 Execution 1/16" (2 mm).

Part 3

3.1 EXAMINATION

- .1 Verify surfaces and conditions are ready to accept work of this Section.

- .2 Commencing installation means acceptance of existing substrates.

3.2 PREPARATION

- .1 Protect adjacent finished materials from damage due to masonry work.

3.3 INSTALLATION

- .1 Concrete block units:
- .1 Bond: running.
 - .2 Coursing height: 8" (200 mm) for one block and one joint.
 - .3 Jointing: concave where exposed or where paint or other finish coating is specified.
- .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 8" (200 mm) and as indicated on drawings.
 - .4 Install special 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 FLASHING

- .1 Install flashings: in accordance with Section 04 05 23 - Masonry Accessories.

3.7 MORTAR PLACEMENT

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

3.8 GROUT PLACEMENT

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

3.9 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.

3.10 REPAIR/RESTORATION

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

3.11 FIELD QUALITY CONTROL

- .1 Site Tests, Inspection: in accordance with Section 04 05 00 - Common Work Results for Masonry supplemented as follows:
 - .1 Concrete masonry units will be sampled and tested by independent testing agency appointed and paid by Contract Administrator in accordance with CSA S304.1.
 - .2 Noise reduction between two rooms will be tested by independent testing agency appointed and paid by Contract Administrator in accordance with ASTM E336.
 - .3 Notify inspection agency minimum of 24 hours in advance of requirement for tests.

- .2 Manufacturer's Field Services: in accordance with Section 04 05 00 - Common Work Results for Masonry.

3.12 CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning, supplemented as follows.
 - .1 Progress Cleaning:
 - .1 Standard Concrete Unit Masonry:
 - .1 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 Waste Management: separate waste materials for reuse and recycling in accordance with requirements of Contract Administrator.

3.13 PROTECTION

- .1 Brace and protect concrete unit masonry in accordance with Section 04 05 00 - Common Work Results for Masonry.

END OF SECTION