

Part 1 General

1.1 Work Included

- .1 Masonry Work is described in other Sections of Division 4.

1.2 References

- .1 CSA A179 Mortar and Grout for Unit Masonry
- .2 CSA A371 Masonry Construction for Buildings

1.3 Source Quality Control

- .1 Submit laboratory test reports in accordance with CW1100.
- .2 Submit laboratory test reports certifying compliance of masonry units and mortar ingredients with Specification requirements.

1.4 Samples

- .1 If requested by the Contract Administrator, submit samples in accordance with CW1100.
- .2 Submit samples:
 - .1 Two (2) of each type of masonry unit specified
 - .2 One (1) of each type of masonry accessory specified
 - .3 One (1) of each type of masonry reinforcement and tie proposed for use
 - .4 As required for testing purposes

1.5 Product Delivery, Storage, and Handling

- .1 Deliver materials to job Site in dry condition.
- .2 Keep materials dry until use, except where wetting of bricks is specified.
- .3 Store under waterproof cover on pallets or plank platforms held off ground by means of plank or timber skids.

1.6 Cold Weather Requirements

- .1 Supplement Clause 5.15 of CSA A371 with the following requirements:
 - .1 Maintain temperature of mortar between 5°C and 50°C until batch is used.

1.7 Hot Weather Requirements

- .1 Protect freshly laid masonry from drying too rapidly, by means of waterproof, non-staining coverings.

1.8 Protection

- .1 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.

- .2 Protect masonry and other Work from marking and other damage. Protect completed Work from mortar droppings. Use non-staining coverings.
- .3 Provide temporary bracing of masonry Work during and after erection until permanent lateral support is in place.

Part 2 PRODUCTS

2.1 Materials

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

Part 3 EXECUTION

3.1 Workmanship

- .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.
- .3 Layout coursing and bond to achieve correct coursing heights, and continuity of bond above and below openings, with minimum of cutting.

3.2 Tolerances

- .1 Tolerances in notes to Clause 5.3 of CSA A371 apply.

3.3 Exposed Masonry

- .1 Remove chipped, cracked, and otherwise damaged units in exposed masonry and replace with undamaged units.

3.4 Jointing

- .1 Allow joints to set just enough to remove excess water, and then tool with round joints to provide smooth, compressed, uniformly concave joints where concave joints are indicated.
- .2 Strike flush all joints concealed in walls and joints in walls to receive insulation, or other applied material except paint or similar thin finish coating.

3.5 Cutting

- .1 Cut out neatly for electrical switches, outlet boxes, and other recessed or built-in objects.
- .2 Make cuts straight, clean, and free from uneven edges.

3.6 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.

3.7 Support of Loads

- .1 Use concrete to Section 03 30 00 – Cast-in-Place Concrete, where concrete fill is used in lieu of solid units, such as vertical cores, bond beams, and lintels.
- .2 Install building paper below voids to be filled with concrete or grout; keep paper 25 mm back from faces of units.

3.8 Provision for Movement

- .1 Leave a minimum of 40 mm space or as indicated on the Drawings, between top of non-load bearing walls and partitions and structural elements. Do not use wedges.
- .2 Build masonry to tie-in with stabilizers, with provision for vertical movement.

3.9 Control Joints

- .1 Construct continuous control joints as indicated on the Drawings.

3.10 Expansion Joints

- .1 Build-in continuous expansion joints as indicated.

3.11 Field Quality Control

- .1 Inspection and testing will be carried out by a testing laboratory designated by the Contract Administrator.
- .2 The Contract Administrator will pay costs for testing.
- .3 Costs for additional testing required as a result of defective materials will be the responsibility of the Contractor.

END OF SECTION

Part 1 GENERAL

1.1 Work Included

- .1 Provide all materials and labour to perform the mortar and grout Work for all masonry walls indicated on the Drawings.

1.2 References

- .1 CSA A179 Mortar and Grout for Unit Masonry.

1.3 Samples

- .1 Submit samples in accordance with CW 1100.

Part 2 PRODUCTS

2.1 Materials

- .1 Use same brands of materials and source of aggregate for entire project.
- .2 Mortar and grout: conforming to CSA A179
- .3 Water: clean, potable, free of injurious amounts of acids, alkalis, and organic material
- .4 Dirt resistant additives: aluminum tristearate, calcium stearate, or ammonium stearate
- .5 Mortar for all masonry: Type S based on Property Specifications
- .6 Grout: to CSA A179, Table 3
- .7 Parging mortar: Type S to CSA A179

Part 3 EXECUTION

3.1 Mixing

- .1 Do masonry mortar and grout Work in accordance with CSA A179 except where specified otherwise.
- .2 Mix grout to semi-fluid consistency.
- .3 Incorporate admixtures into mixes in accordance with Manufacturer's instructions.
- .4 Comply with cold weather requirements specified in CSA A371 Masonry Construction for Buildings.

3.2 Testing

- .1 Testing of mortar materials will be carried out by an inspection and testing firm designated by the Contract Administrator.
- .2 The Contract Administrator will pay costs for tests.
- .3 Costs for additional testing required as a result of defective materials will be the responsibility of the Contractor.

- .4 Submit samples of all materials proposed for testing.

END OF SECTION

Part 1 GENERAL

1.1 Work Included

- .1 Supply all material and labour for the incorporation of the masonry reinforcement and connectors into the Work of this Contract.

1.2 References

- .1 CAN/CSA-A23.1 Concrete Materials and Methods of Concrete Construction
- .2 CSA A370 Connectors for Masonry
- .3 CSA A371 Masonry Construction for Buildings
- .4 CSA G30.14 Deformed Steel Wire
- .5 CAN/CSA-G30.18 Billet-Steel Bars for Concrete Reinforcement
- .6 CSA S304.1 Masonry Design for Buildings
- .7 CSA W186 Welding of Reinforcing Bars in Reinforced Concrete Construction

1.3 Source Quality Control

- .1 If requested by the Contract Administrator, submit certified copy of mill test report of reinforcement steel and connectors, showing physical and chemical analysis, minimum four (4) weeks prior to commencing reinforcement work.
- .2 Inform the Contract Administrator of proposed source of material to be supplied.

1.4 Shop Drawings

- .1 Submit Shop Drawings in accordance with CW1100.
- .2 Shop Drawings shall consist of bar bending details, lists and placing drawings.
- .3 On placing drawings, indicate sizes, spacing, location and quantities of reinforcement and connectors.

Part 2 PRODUCTS

2.1 Materials

- .1 Bar reinforcement: to CSA A371 and CAN/CSA-G30.18, Grade 400
- .2 Wire reinforcement: to CSA A371 and ASTM A82/A82M, truss type
- .3 Connectors: to CSA A370 and CSA S304.1
- .4 Corrosion protection: to CSA S304.1, galvanized
- .5 Masonry anchors: acceptable products by Hilti, Simpson Strong-Tie and Ramset/Redhead
- .6 Control joint filler: preformed rubber, neoprene or polyvinyl chloride materials of size and shape indicated.

2.2 Fabrication

- .1 Fabricate reinforcing in accordance with CAN/CSA-A23.1.
- .2 Fabricate connectors in accordance with CSA A370.
- .3 Obtain the Contract Administrator's acceptance for locations of reinforcement splices other than shown on placing drawings.
- .4 Subject to review by the Contract Administrator, weld reinforcement in accordance with CSA W186.
- .5 Ship reinforcement and connectors, clearly identified in accordance with the Drawings.

Part 3 EXECUTION

3.1 General

- .1 Install masonry connectors and reinforcement in accordance with CSA A370, CSA A371, CAN/CSA-A23.1 and CSA S304.1 unless indicated otherwise.
- .2 Comply with Manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions and data sheets.
- .3 Prior to placing concrete and mortar, obtain Contract Administrator's acceptance of placement of reinforcement and connectors.
- .4 Do additional reinforcement of masonry as indicated.

3.2 Bonding and Tying

- .1 Bond walls of two (2) or more wythes using metal connectors in accordance with NBC, CSA S304.1, CSA A371 and as indicated.
- .2 Tie masonry veneer to backing in accordance with NBC, CSA S304.1, CSA A371 and as indicated.
- .3 Block shear connectors by FERRO to be installed as shown on the Drawings.
- .4 Slotted block tie type 1 complete with insulation clip as manufactured by FERRO Corporation.

3.3 Reinforced Lintels and Bond Beams

- .1 Reinforce masonry lintels and bond beams as indicated.
- .2 Place and grout reinforcement in accordance with CSA S304.1.

3.4 Grouting

- .1 Grout masonry in accordance with CSA S304 and as indicated.

3.5 Masonry Anchors

- .1 Install metal anchors where indicated.
- .2 If masonry anchors are not specified on the Drawings, review proposed anchor and application with the Contract Administrator prior to use.

3.6 Lateral Support and Anchorage

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

3.7 Control Joints

- .1 Terminate reinforcement 25 mm short of each side of control joints unless otherwise indicated.
- .2 Install continuous control joint fillers in control joints.

3.8 Field Bending

- .1 Do not field bend reinforcement and 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 bars and connectors that develop cracks or splits.

3.9 Cleaning

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

END OF SECTION

Part 1 GENERAL

1.1 Work Included

- .1 Concrete Block Masonry
- .2 Installation of Masonry Accessories

1.2 Standards

- .1 CSA A165 Series, Standards on Concrete Masonry Units
- .2 Perform masonry Work to CSA S304.1, CSA A370 and CSA A371 except where specified otherwise.
- .3 Conform to the NBC of Canada.

1.3 Cold Weather Requirements

- .1 Conform to weather protection requirements in CSA A371.

1.4 Protection

- .1 Cover tops of completed and partially completed walls with waterproof coverings at end of each working day. Drape covers over walls and extend 600 mm down both sides. Anchor securely in position.
- .2 Protect adjacent finished surfaces from marking or damage due to masonry Work.
- .3 Provide temporary bracing of masonry Work during erection to prevent damage due to winds or other lateral loads until permanent structure provides adequate bracing.

1.5 Storage and Handling

- .1 Store materials on Site in a manner to prevent damage. Store masonry units off the ground.
- .2 Protect all materials from damage due to weather conditions.
- .3 Handle materials carefully to prevent chipping and breaking.

Part 2 PRODUCTS

2.1 Materials

- .1 Standard Concrete Masonry Units: to CSA A165.1, normal weight, type H/15/A/M, modular size of 390 mm x 190 mm x 190 mm for walls and modular size of 390 mm x 390 mm x 190 mm for columns, refer to Drawings for locations of different sizes; units to be manufactured by CCI Tallcrete.
- .2 Special shapes: provide Type H/15/A/M bull-nosed units for exposed corners for door openings and columns. Provide purpose made shapes for lintels and bond beams. Provide additional special shapes as indicated or required.
- .3 Architectural Concrete Masonry Units: to CSA A165.1, normal weight, type H/15/A/M, modular size of 390 mm x 190 mm x 100 mm, colour 591 "Manitoba Stone" manufactured by CCI Tallcrete, standard shapes as follows:

- .1 Full Split Face
- .2 Full Split Return
- .3 Split Ledge
- .4 Split Ledge Corner
- .5 Smooth Face
- .6 Smooth Face Corner

2.2 Exposed Faces

- .1 Notwithstanding visual inspection requirements of CSA Standards, masonry units shall be free of surface indentations, surface cracks due to manufacture, or chipping. Units so delivered shall not be used where exposed to view, but may be used where concealed.

Part 3 EXECUTION

3.1 Workmanship

- .1 Build masonry Work true-to-line, plumb, square, and level, with vertical joints in proper alignment.
- .2 Tolerances for exposed masonry Work shall be:
 - .1 Variation from mean plane: 3 mm under 2500 mm straight edge
 - .2 Variation in masonry openings: 6 mm maximum
 - .3 Variation from plumb: 9 mm in 6 m
- .3 Assume complete responsibility for dimensions, plumbs, and levels of this Work and constantly check same with graduated rod.
- .4 Masonry courses to be of uniform height, and both vertical and horizontal joints to be of equal and uniform thickness.
- .5 Extend non-load bearing partitions to underside of floor or roof construction above and provide 40 mm deflection clearance. Install lateral support angles and insulation filler as detailed.
- .6 Construct walls upward in a uniform manner, no one portion being raised more than 1200 mm above another at any time. Build no more than 1500 mm of wall measured vertically in any one day.
- .7 Buttering corners of units, throwing mortar into joints, and deep or excessive furrowing of bed joints will not be permitted. Do not shift or tap units after mortar has taken initial set. Where adjustments must be made after mortar has started to set, remove mortar and replace with fresh supply.

3.2 Blockwork

- .1 Lay concrete block in running bond, with thicker end of face shell upward. Coursing to be modular 200 mm for one block and one joint.
- .2 Use special shaped units where indicated, specified, or required. Use bull-nosed units for exposed external corners at door and window jambs. Exposed open cells not permitted.

- .3 Concrete masonry units shall have face shells and their end joints fully filled with mortar, and joints squeezed tight. Also fill webs at cores, to be reinforced and grouted, and strike flush at core taking care to prevent mortar from falling into core.
- .4 Tie intersecting non-bearing walls together with masonry reinforcing every second course.
- .5 Do not tie intersecting bearing walls together in masonry bond, except at corners.

3.3 Mortar and Pointing

- .1 Make all joints uniform in thickness, straight, in line, and with mortar compressed to form concave joints.

3.4 Building In

- .1 Build in door and window frames, steel lintels, sleeves, anchor bolts, anchors, nailing strips, and other items to be built into masonry.
- .2 Do not distort metal frames. Bed anchors of frames in mortar and fill frame voids with mortar or grout as walls are erected.

3.5 Bearings

- .1 Fill concrete block solid with 20 MPa concrete for two (2) courses below bearing points of structural members and where indicated on Drawings.
- .2 Install building paper and wire mesh reinforcing in the bed below the second block course from top.

3.6 Control Joints

- .1 Provide continuous vertical control joints in concrete block partitions and walls at locations indicated, or at a maximum 7600 mm on center.
- .2 Form control joints as detailed. Stop masonry reinforcing 25 mm from each side of joints.

3.7 Expansion Joints

- .1 Construct expansion joints where indicated, as detailed.

3.8 Masonry Reinforcing

- .1 Concrete block walls and partitions shall be continuously reinforced and tied together with masonry reinforcing in every second block bed joint.
- .2 Place masonry reinforcing in first and second bed joints above and below openings. Reinforcing in first bed joint shall be continuous. Second bed joint reinforcing shall extend 600 mm beyond each side of opening.
- .3 Place continuous reinforcing in second bed joint below the tops of walls.
- .4 Lap reinforcement minimum of 150 mm at splices and cut and bend corners.
- .5 Vertical reinforcing bars to be continuous into lintels, through intermediate bond beams, and hooked into top of wall bond beams. Fill cores with 20 MPa concrete.

3.9 Cutting Masonry

- .1 Cutting of masonry units exposed in finished Work is to be done with accepted type power saw. Where electrical conduit outlets and switch boxes occur, grind and cut units before services are installed.
- .2 Obtain the Contract Administrator's permission before cutting any part of area which may impair appearance or strength of the Work.
- .3 Patching of masonry is not permitted without the Contract Administrator's authorization.

3.10 Bond Beams

- .1 Install concrete block bond beams where indicated and where required for bearing of structural members.
- .2 Make bond beams of knockout blocks with two (2) 15M reinforcing bars and fill with 25 MPa concrete.

3.11 Reinforced Block Lintels

- .1 Install reinforced concrete block lintels over openings as indicated on the Drawings using 25 MPa concrete.
- .2 Cast and cure lintels on plank. Set special channel lintel blocks using specified mortar. Place wood stops at either end of lintel to prevent movement.
- .3 Place 25 mm of concrete in voids, place in deformed reinforcing bars and place concrete to level of block sides. Rod and tamp concrete well without disturbing reinforcing. Allow lintels to cure seven (7) days before removing shores.
- .4 Minimum bearing shall be 400 mm each side of openings.

3.12 Provisions for Other Trades

- .1 Provide openings in masonry walls where required or indicated.
- .2 Accurately locate chases and openings and neatly finish to required sizes.
- .3 Where masonry encloses conduit, ducts, and piping, bring to proper level indicated and as directed. Do not cover any pipe or conduit chases or enclosures until advised that Work has been reviewed and tested.
- .4 Build masonry neatly around conduit, ducts, sleeves, and piping passing through.

3.13 Cleaning

- .1 Allow mortar droppings on masonry to partially dry then remove by means of trowel, followed by rubbing lightly with small piece of block and finally by brushing.
- .2 Scrub surfaces to be cleaned using non-acid cleaning solution of type which will not harm constructed masonry. Check masonry unit Manufacturer for acceptable solution. Clean trial test area and obtain permission to proceed.
- .3 Use large amounts of water and do cleaning in accordance with solution Manufacturer's instructions.
- .4 Point or replace defective mortar to match existing as required or directed.

- .5 Repeat cleaning operations as often as necessary until Work is satisfactory.

END OF SECTION