

PART 1 - GENERAL

- 1.1 WORK INCLUDED .1 This Section specifies requirements for supplying, transporting and installing concrete unit masonry including masonry accessories, connectors, mortar and grout where indicated.
- 1.2 RELATED WORK .1 Cast-in-Place Concrete: Section 03 30 00  
.2 Air Barrier/Vapour Retarder: Section 07 26 00  
.3 Blanket Insulation: Section 07 21 16  
.4 Joint Sealing: Section 07 92 00  
.5 Metal Doors and Frames: Section 08 11 00  
.6 PVC windows: Section 08 50 00
- 1.3 REFERENCE STANDARDS .1 ASTM A153/A153M-09, Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.  
.2 ASTM D1056-14, Specification for Flexible Cellular Materials-Sponge or Expanded Rubber.  
.3 ASTM A1064-2015, Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement Plain and Deforming for Concrete.  
.4 CSA A165 Series-14, CSA Standards on Concrete Masonry Units.  
.5 CSA A179-14, Mortar and Grout for Unit Masonry.  
.6 CSA A370-14, Connectors for Masonry.  
.7 CSA A371-14, Masonry Construction for Buildings.  
.8 CAN/CSA-G30.18-09(R2014), Billet-Steel Bars for Concrete Reinforcement.  
.9 CAN/CSA-S304.1-04(R2010), Masonry Design for Building.  
.10 CAN/CSA-W186-M1990(R2012), Welding of Reinforcing Bars in Reinforced Concrete Construction.

1.4 REQUIREMENTS  
OF REGULATORY  
AGENCIES

- .1 Construct masonry work as required by jurisdictional authorities.
- .2 Before commencing masonry work, verify that site conditions will allow construction of masonry within required limitations of wall heights, wall thicknesses, openings, bond, anchorage, lateral support, and compressive strength of masonry units and mortars.

1.5 SHOP DRAWINGS

- .1 Submit shop drawings for masonry reinforcement and connectors in accordance with Section 01 33 00.
- .2 Shop drawings consist of bar bending details, lists and placing drawings.
- .3 On placing drawings, indicate sizes, spacing, location and quantities of reinforcement and connectors.

1.6 PRODUCT  
DELIVERY, STORAGE  
AND HANDLING

- .1 Deliver materials to job site in dry condition.
- .2 Store under waterproof cover on pallets or plank platforms held off ground by means of plank or timber skids.
- .3 Deliver products to the place on site as directed, and to meet installation schedule.

1.7 ENVIRONMENTAL  
REQUIREMENTS

- .1 Cold weather requirements
  - .1 Conduct all work in accordance with CSA-A371.
  - .2 Supplement Clause 5.15.2 of CSA-A371 with following requirements:
    - .1 Maintain temperature of mortar between 5°C and 50°C until batch is used.
- .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.

- |                       |   |
|-----------------------|---|
| <u>1.8 PROTECTION</u> | <ul style="list-style-type: none"><li>.1 Protect masonry and other work from marking and other damage. Protect completed work from mortar droppings. Use non-staining coverings.</li><li>.2 Provide temporary bracing of masonry work during and after erection until permanent lateral support system is in place.</li></ul> |
|-----------------------|---|

PART 2 - PRODUCTS

- |                                    |   |
|------------------------------------|---|
| <u>2.1 MORTAR AND GROUT MIXING</u> | <ul style="list-style-type: none"><li>.1 Concrete Grout: as specified in Section 03 30 00.</li><li>.2 Use aggregate passing 1.18 mm sieve where 6 mm thick joints are indicated.</li><li>.3 Colour: ground coloured natural aggregates or metallic oxide pigments unless indicated otherwise.</li><li>.4 Use same brands of materials and source of aggregate for entire project.</li><li>.5 Mortar for all walls: Type S based on Proportion specifications of CSA-A179.</li></ul> |
|------------------------------------|---|

- |                                |   |
|--------------------------------|---|
| <u>2.2 MASONRY ACCESSORIES</u> | <ul style="list-style-type: none"><li>.1 Masonry reinforcing: horizontal joint reinforcing to CSA A370, welded, truss type, fabricated from 4.76 mm diameter steel wire to ASTM A1064, deformed for longitudinal wires and smooth for cross wires, with loops for box ties where faced with masonry veneer, hot dip galvanize after fabrication to ASTM A153/A 153M, Class B, 458 g/m<sup>3</sup> zinc coating.<ul style="list-style-type: none"><li>.1 Load bearing interior masonry walls: use extra heavy duty Blok-Truss BL-30 truss type by Blok-Lok Limited for single wythe masonry walls.</li></ul></li><li>.2 Reinforcing steel for core-filled masonry: to CAN/CSA-G30.18, Grade 400, and as specified in Section 03 20 00.</li></ul> |
|--------------------------------|---|

- |                         |   |
|-------------------------|---|
| <u>2.3 UNIT MASONRY</u> | <ul style="list-style-type: none"><li>.1 Standard concrete masonry units, type stretchers: to CSA A165 Series:<ul style="list-style-type: none"><li>.1 Classification: H/15/A/M.</li><li>.2 Size: 200 x 200 x 400 mm (typical sized unit) all nominal.</li><li>.3 Special shapes: provide purpose-made shapes for lintels and bond beams; and bullnosed block (soldier coursing) under windows, at windows and doors jamb openings, and wall corners.</li></ul></li></ul> |
|-------------------------|---|

- 
- |                                     |    |  |
|-------------------------------------|----|--|
| <u>2.3 UNIT MASONRY</u><br>(Cont'd) | .2 | Acceptable manufacturers: Shaw Group, V.J. Rice, or approved equivalent. |
|-------------------------------------|----|--|

PART 3 - EXECUTION

- |                            |    |  |
|----------------------------|----|--|
| <u>3.1 WORKMANSHIP</u>     | .1 | Conduct all work in accordance with CSA-A371.  |
|                            | .2 | Build masonry plumb, level, and true to line, with vertical joints in alignment.   |
|                            | .3 | Layout coursing and bond to achieve correct coursing heights, and continuity of bond above and below openings, with minimum of cutting.  |
|                            | .4 | Exercise care to provide full mortar joint coverage on all bearing surfaces of masonry. Replace masonry that does not meet above requirement.  |
| <u>3.2 TOLERANCES</u>      | .1 | Tolerances in notes to Clause 5.3 of CSA-A371 apply.   |
| <u>3.3 EXPOSED MASONRY</u> | .1 | Remove chipped, cracked, and otherwise damaged units in exposed masonry and replace with undamaged units.  |
| <u>3.4 JOINTING</u>        | .1 | Allow joints to set just enough to remove excess water, then tool with round jointer to provide smooth, compressed, uniformly concave joints unless otherwise indicated.   |
| <u>3.5 BUILDING-IN</u>     | .1 | Verify accessories, frame anchors, guards, and such items specified in other Sections are available for building in before Work commences. Cooperate in the setting and aligning of built-in Work and provide for later installation of items which are included in the Work of other Sections, to avoid cutting, fitting, and patching. |
|                            | .2 | Prevent displacement of built-in items during construction.  |
-

- 
- 3.6 CUTTING .1 Make cuts straight, clean and free from uneven edges.
- 3.7 REINFORCEMENT .1 Fabrication:  
.1 Fabricate reinforcement in accordance with CSA-A23.1 and Reinforcing Steel Manual of Standard Practice by the Reinforcing Steel Institute of Canada.  
.2 Obtain the Departmental Representative's approval for locations of reinforcement splices other than shown on placing drawings.  
.3 Upon approval of the Departmental Representative weld reinforcement in accordance with CSA W186.  
.4 Ship reinforcement, clearly identified in accordance with drawings.
- .2 General:  
.1 Supply and install masonry connectors and reinforcement in accordance with CSA-A370, CSA-A371, CSA-A23.1 and CSA-S304.1 unless indicated otherwise.  
.2 Prior to placing concrete, mortar, or grout, obtain the Departmental Representative's approval of placement of reinforcement.
- .3 Movement joints:  
.1 Reinforcement will not be continuous across movement joints unless otherwise indicated.
- .4 Field bending:  
.1 Do not field bend reinforcement except where indicated or authorized by the Departmental Representative.  
.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.
- 3.8 LAYING MASONRY UNITS .1 Bond: running.
- .2 Coursing heights: 200 mm for one block and one joint; 200 mm for three brick and three joints.
- .3 Jointing: concave where exposed or where paint coating is specified.
- .4 Mixing and blending: mix units within each pallet and with other pallets to ensure uniform blend of colour and texture.
-

3.8 LAYING  
MASONRY UNITS  
(Cont'd)

- .5 Cut blocks as required to ensure coursing height aligns with intersecting and adjacent walls.

3.9 MASONRY  
ACCESSORIES

- .1 Masonry reinforcing ties:
  - .1 Install ties in accordance with CSA A370 and CSA-A371. In case of conflict between these two standards, the more stringent requirements will apply.
  - .2 Place reinforcement continuously in horizontal joints at 400 mm o.c., beginning with course above bearing, unless otherwise specified or indicated.
  - .3 Place additional reinforcing at spacing of 200 mm o.c. in courses above and below openings, and extending 800 mm beyond jambs of openings.
- .2 Core-fill reinforcement:
  - .1 Install bars vertically and continuously in cores of hollow masonry units where indicated.
  - .2 Embed bars solidly in cores with concrete grout filling voids completely.
  - .3 Install reinforcing steel in core fills and bond beams where indicated.

3.10 MORTAR AND  
GROUT MIXING

- .1 Prehydrate pointing mortar by mixing ingredients dry, then mix again adding just enough water to produce damp workable mix that will retain its form when pressed into ball. Allow to stand for not less than 1 hour nor more than 2 hour then remix with sufficient water to produce mortar of proper consistency for pointing.
- .2 Mix mortar in mechanical batch mixer using material proportions to produce specified strengths while keeping water-cement ratios to the minimum required to produce proper workability.
- .3 Mix grout to semi-fluid consistency to manufacturer's instructions.
- .4 Mix in dry block admix to mortar for exterior block work at the rate of 500 ml per 45 kg of cement.
- .5 Mix in mortar colour pigments.

3.11 SUPPORT  
OF LOADS

- .1 Use 20 MPa concrete grout to Section 03 30 00 where concrete fill is used instead of solid units in core fills and lintels. Install grout in accordance with CSA-A371.
- .2 Install expanded metal mesh below voids to be filled with concrete or grout, keep mesh 25 mm back from faces of units.
- .3 Install reinforced concrete block lintels over openings in masonry where steel or reinforced concrete lintels are not indicated.

3.12 PROVISION FOR  
MOVEMENT

- .1 Caulk corner joints of all block work where walls butt into continuous walls, at dissimilar material intersections (concrete walls and columns) and at masonry wall intersection with floor slabs, caulking to be done before painting. Slightly rake the vertical mortar joint during installation so as to provide slight slot for caulking joint. Tie wall butting to intersecting wall with Flex-o-Lok anchor system with masonry screw anchors and ties at every second block course.

3.13 CLEANING

- .1 Clean concrete block masonry as work progresses.
- .2 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.
- .3 Cleaning of masonry:
  - .1 Clean 10 m<sup>2</sup> area wall designated by the Departmental Representative as directed below and leave for one week. If no harmful effects appear and after mortar has set and cured, protect windows, sills, doors, trim and other work, and clean masonry as follows:
    - .1 Remove large particles with wood paddles without damaging surface. Saturate masonry with clean water and flush off loose mortar and dirt.
    - .2 Scrub with solution of 25 ml trisodium phosphate and 25 ml household detergent dissolved in 1 L of clean water using stiff fibre brushes, then clean off immediately with clean water using hose. Alternatively, use proprietary compound recommended by masonry manufacturer in accordance with manufacturer's directions.
    - .3 Repeat cleaning process as often as necessary to remove mortar and other stains.

- 3.13 CLEANING .3 Cleaning of masonry:(Cont'd)  
    (Cont'd) .1 (Cont'd)  
                  .4 Use acid solution treatment only for  
                  difficult to clean masonry as recommended by  
                  manufacturer.