

**1 GENERAL****1.01 REFERENCE STANDARDS**

- .1 ASTM International
  - .1 ASTM A 1064/A 1064M-17 Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
- .2 CSA Group (CSA)
  - .1 CAN/CSA-A82-14, Fired Masonry Brick Made from Clay or Shale.
  - .2 CAN/CSA-A165 SERIES-04(R2014), CSA Standards on Concrete Masonry Units (Consists of A165.1-04 Concrete Block Masonry Units, A165.2 Concrete Brick Masonry Units, A165.3 Prefaced Concrete Masonry Units).
  - .3 CAN/CSA-A179-04(R2014), Mortar and Grout for Unit Masonry.
  - .4 CAN/CSA-A370-14, Connectors for Masonry.
  - .5 CAN/CSA A371-04(R2014), Masonry Construction for Buildings.
  - .6 CSA G30.18-09 (R2014), Carbon Steel Bars for Concrete Reinforcement.
  - .7 CSA S304-14 - Design of masonry structures.
- .3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).

**1.02 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for unit masonry products, mortar and grout, connectors, anchorage and reinforcing, and accessories. Include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .3 Samples:
  - .1 Submit duplicate samples of each unit exposed in final construction for review and acceptance.
  - .2 Samples will be returned for inclusion into work.
  - .3 Submit duplicate full size samples of each type masonry units, mortar, connector, anchorage and reinforcing, and accessory.

**1.03 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

- .3 Storage and Handling Requirements:
  - .1 Store materials off ground indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect masonry products from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: As specified in Construction Waste Management Plan in accordance with Section 01 74 19 - Waste Management and Disposal

**1.04 COLD WEATHER REQUIREMENTS**

- .1 Supplement requirements of CAN3-A371 as follows:
  - .1 Maintain temperature of mortar between -5°C and 50°C until used.

**1.05 HOT WEATHER REQUIREMENTS**

- .1 Supplement requirements of CAN3-A371 as follows:
  - .1 Protect freshly laid masonry from drying too rapidly by means of waterproof, non-staining coverings.

**2 PRODUCTS****2.01 MASONRY UNITS**

- .1 Standard concrete block units: to CAN/CSA-A165.1.
  - .1 Classification: H/15/D/M
  - .2 Size and Texture: as indicated on drawings.
  - .3 Shape & Profile: standard, half size and other profiles as required to suit project conditions.
- .2 Special fire resistant concrete block units: to CAN/CSA-A165.1 as modified below.
  - .1 Classification: H/15/B/M except as modified by fire resistance requirements specified below.
  - .2 Fire resistant characteristics: aggregate used in units and equivalent thickness of units to National Building Code of Canada (NBC) 2015, for fire-resistance ratings indicated.
  - .3 Size: modular.
- .3 Burned clay brick: to CAN/CSA-A82.
  - .1 Type: S
  - .2 Grade: EG
  - .3 Body: Hollow.
  - .4 Colour, Size and Texture: as indicated on Drawings

**2.02 REINFORCEMENT AND CONNECTORS**

- .1 Bar reinforcement: to CAN/CSA-A371 and CSA G30.18, Grade 400.

- .2 Wire reinforcement: plain wire to CAN/CSA-A371 and ASTM A 1064/A 1064M, truss type.
- .3 Connectors : to CAN/CSA-A370.
  - .1 Corrosion resistance: to CAN/CSA-A370
    - .1 Exterior: Level II
    - .2 Interior: Level I II.
  - .2 Ties:
    - .1 Conventional dovetail corrugated strip tie.
    - .2 Conventional Z adjustable wire tie.
  - .3 Anchors: as indicated.
  - .4 Repair anchors: expansion type to suit application.

### 2.03 MORTAR AND GROUT

- .1 Mortar: to CAN/CSA-A179.
- .2 Use aggregate passing 1.18 mm sieve where 6 mm thick joints are indicated.
- .3 Colour: ground coloured natural aggregates or metallic oxide pigments, to match existing as selected by Departmental Representative.
- .2 Mortar Type:
  - .1 Exterior non-loadbearing walls and parapet walls: N based on proportion specifications.
  - .2 Interior non-loadbearing walls: Type N based on proportion specifications.
- .3 Mortar for foundation walls, manholes, sewers, pavements, walks, patios and other exterior masonry at or below grade: type M based on proportion specifications.
- .4 Following applies regardless of mortar types and uses specified above:
  - .1 Mortar for stonework: type N based on proportion specifications.
  - .2 Mortar for grouted reinforced masonry: type S based on proportion specifications.
- .5 Grout: to CAN/CSA-A179, Table 3.

### 2.04 ACCESSORIES

- .1 Weep hole vents: purpose-made PVC.
- .2 Cavity screening: three dimensional random weave plastic mesh, thickness to match cavity, minimum height 3 brick masonry courses.
- .3 Anchor Bolts: 12 mm diameter x 150 mm long with embedded ends bent 50 mm at 90 degrees, exposed ends threaded with washer and nut.
- .4 Embedded Flexible Flashings: Self-adhering sheet 0.76 mm thick consisting of rubberized asphalt compound banded to high density cross laminated polyethylene film, complete with manufacturer's recommended primer.
- .5 Loose steel lintels: in accordance with National Building Code of Canada (NBC) 2015 and Section 05 50 00, galvanized for exterior, prime painted for interior.

### 3 EXECUTION

#### 3.01 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

#### 3.02 INSTALLATION

- .1 Do masonry work in accordance with CAN/CSA-A371 except where specified otherwise.
  - .1 Bond: running stretcher bond with vertical joints in perpendicular alignment and centred on adjacent stretchers above and below.
  - .2 Coursing height: 200 mm for one block and one joint for three bricks and three joints.
  - .3 Jointing: tool where exposed or where paint or other finish coating is specified to provide smooth compressed concave surface cut joints flush.
- .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.

#### 3.03 CONSTRUCTION

- .1 Exposed masonry:
  - .1 Remove chipped, cracked, and otherwise damaged units, in exposed masonry and replace with undamaged units.
  - .2 Cut out for electrical switches, outlet boxes, and other recessed or built-in objects. Make cuts straight, clean, and free from uneven edges.
- .2 Building-in:
  - .1 Install masonry connectors and reinforcement where indicated on drawings.
  - .2 Build in items required to be built into masonry.
  - .3 Prevent displacement of built-in items during construction. Check plumb, location and alignment frequently, as work progresses.
  - .4 Brace door jambs to maintain plumb. Fill spaces between jambs and masonry with mortar.
  - .5 Install loose steel lintels centered over openings where indicated, with minimum 200 end bearing.
- .3 Concrete block lintels:
  - .1 Install reinforced concrete block lintels over openings in masonry where steel or reinforced concrete lintels are not indicated.

- .2 End bearing: not less than 200 mm as indicated on drawings.
- .4 Support of loads:
  - .1 03 30 00 - Cast-in-Place Concrete, where concrete fill is used in lieu of solid units.
  - .2 Use grout to CAN/CSA-A179 where grout is used in lieu of solid units.
- .5 Provision for movement:
  - .1 Leave 6 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.
  - .4 Build expansion and control joints where and as indicated.
- .6 Interface with other work:
  - .1 Cut openings in existing work as indicated.
  - .2 Openings in walls: approved by Departmental Representative.
  - .3 Make good existing work. Use materials to match existing.
- .7 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. Install flashings under weep hole courses and as indicated. Seal laps, penetrations and terminations to resist water penetration.
  - .2 In cavity walls and veneered walls, carry flashings from front edge of masonry, under outer wythe, then up backing not less than 150 mm, and as follows:
    - .1 For self-adhesive flashing, apply primer and firmly press sheet against backing. Lap under air-barrier membrane sheathing paper. Seal penetrations with recommended sealant or mastic. Installation shall be free of wrinkles, fish-mouths and punctures.
    - .2 Provided turned up end dams minimum 50 mm high at ends of all flashings.
    - .3 For masonry backing embed flashing 25 mm in joint.
    - .4 For concrete backing, insert flashing into reglets.
    - .5 For wood frame backing, staple flashing to walls behind sheathing paper.
    - .6 For gypsum board backing, bond to wall using manufacturer's recommended adhesive.
  - .3 Lap joints 150 mm and seal with adhesive or mastic.
- .8 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 center.
- .9 Place drainage mesh in cavity as indicated as construction progresses.

**3.04 REINFORCING AND CONNECTING**

- .1 Install masonry connectors and reinforcement in accordance with CAN/CSA-A370, CAN/CSA-A371 and CSA S304.1 unless indicated otherwise.
- .2 Prior to placing concrete mortar grout, obtain Departmental Representative's approval of placement of reinforcement and connectors.

**3.05 BONDING AND TYING**

- .1 Bond walls of two or more wythes using metal connectors in accordance with CAN/CSA-A371, and as indicated.
- .2 Tie masonry veneer to backing in accordance with National Building Code of Canada (NBC) 2015, CAN/CSA-A371, CSA S304.1 and as indicated.

**3.06 MODIFICATIONS TO EXISTING MASONRY**

- .1 Match existing bond and coursing height of adjacent masonry to remain.
- .2 Tooth new masonry into existing masonry in run of wall and at intersections with existing partitions.
- .3 At new openings in masonry walls, remove units, clean and re-install rotated to conceal cut and expose finish surface.
- .4 Clean bond areas of adjacent masonry to remain, remove loose material and prepare masonry to receive new masonry toothed in.
- .5 Install reinforcement as necessary to provide continuity of reinforcing and stability between existing and new masonry work.
- .6 Provide repair anchors as necessary to stabilize existing masonry adjacent to and affected by the Work.

**3.07 REINFORCED LINTELS AND BOND BEAMS**

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

**3.08 GROUTING**

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

**3.09 ANCHORS**

- .1 Supply and install metal anchors as indicated.

**3.10 LATERAL SUPPORT AND ANCHORAGE**

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

**3.11 SITE TOLERANCES**

- .1 Tolerances of CAN/CSA-A371 apply.

**3.12 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 00 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 00 - Cleaning.
- .3 Waste Management:
  - .1 separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.
  - .2 Return pallets to masonry manufacturer for re-use.
  - .3 Return surplus masonry materials to manufacturer for recycling and/or re-use.

**3.13 PROTECTION**

- .1 Keep masonry dry using waterproof, non-staining coverings that extend over walls and down sides sufficient to protect 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 Repair damage to adjacent materials caused by masonry products installation.

**END OF SECTION**