

## **Part 1 General**

### **1.1 SECTION INCLUDES**

- .1 Concrete unit masonry exterior walls, back-up for cavity walls and interior partitions, complete with reinforcement and anchorages.
- .2 Mortar for masonry.
- .3 Build-in items supplied by other sections.
- .4 Cut and fit for other sections of work.

### **1.2 RELATED SECTIONS**

- .1 Section 05 50 00 – Metal fabrications to be built into masonry work.
- .2 Section 07 21 20 – Low expanding foam sealant.
- .3 Section 07 27 00 – Air barrier for cavity spaces.

### **1.3 REFERENCES**

- .1 Canadian Standards Association (CSA)
  - .1 CSA-A3001-03 Cementitious Materials for Use in Concrete
  - .2 CSA-A3002-03 Masonry and Mortar Cement
  - .3 CSA-A82-06 Fired Masonry Brick Made From Clay or Shale
  - .4 CSA-A165 Series-04 Standards on Concrete Masonry Units
  - .5 CSA-A179-04 Mortar and Grout for Unit Masonry
  - .6 CSA-A370-04 (R2009) Connectors for Masonry
  - .7 CSA-A371-04 (R2014) Masonry Construction for Buildings
  - .8 CSA-S304.1-04 (R2010) Design of Masonry Structures
- .2 American Society for Testing and Materials:
  - .1 A123/A123M-02 Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
  - .2 A153/A153M-02 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

### **1.4 ENVIRONMENTAL REQUIREMENTS**

- .1 During freezing or near freezing weather, provide adequate equipment and/or cover to maintain materials and surrounding air temperature at minimum 5° C prior to, during and 48 hours after completion of masonry work.

## **Part 2 PRODUCTS**

### **2.1 MANUFACTURED UNITS MASONRY**

- .1 Concrete Masonry Units: Hollow core, conforming to requirements of CSA-A165 Series, Type H/10/A/M, modular sizes indicated on drawings, complete with corners, bases, bond beams, lintels and fillers to match and complement concrete masonry units.

## **2.2 REINFORCEMENT/ANCHORAGES**

- .1 Bar reinforcement: to CSA-A371, and CAN/CSA G30.18, Grade 400.
  - .2 Wire reinforcement: to CSA-A371, and CSA S304.1, two wire ladder or truss type, galvanized.
  - .3 Ties:
    - .1 For concrete block and masonry construction: to CSA-A370 and CSA-S304, 1.6 mm thick stainless steel connector plate, c/w 5.8 mm  $\phi$  holes for veneer tire wire attachment, 4.76 mm  $\phi$  veneer ties with polyethylene insulation supports. Total length of connector plate to suit block width, air space and insulation.
- Corrosion protection for wire reinforcement: to CSA S304.1, galvanized to CSA S304.1 and CSA-A370.

## **2.3 MORTAR MATERIALS**

- .1 Mortar: Conform to requirements of CSA-A179.
- .2 Premix Mortar: Commercially prepared type conforming to requirements of CSA-A179.
- .3 Mortar Colour: Tamms Concentrated Mortar Colour, Bayferrox Synthetic Iron Oxide Pigment, colour: As selected by Consultant.

## **2.4 MORTAR MIX**

- .1 Provide minimum 12.4 MPa (Type S) mortar for exterior walls, load bearing and non-load bearing walls and partitions.
- .2 Thoroughly mix mortar ingredients, in quantities needed for immediate use.
- .3 Add mortar colour in strict accordance with manufacturer's recommendations. Ensure uniformity of mix and colour.
- .4 Do not use anti-freeze compounds to lower the freezing point of mortar.
- .5 Use mortar within two (2) hours of mixing at temperatures over 26°C, and two and one-half (2.5) hours at temperatures under 10°C.
- .6 If necessary, retemper mortar within two (2) hours of mixing to replace water lost by evaporation. Do not retemper mortar after two (2) hours of mixing.

## **2.5 GROUT**

- .1 Core fill, lintel and bond beam fill to be in accordance with CSA-A179 with minimum compressive strength of 20 MPa at 28 days.

## **Part 3 EXECUTION**

### **3.1 PREPARATION**

- .1 Ensure all items built-in by other sections for work of this section are properly located and sized.
- .2 Establish all lines, levels, and coursing. Protect from disturbances.
- .3 For cavities larger than 50 mm, increase the thickness of the rigid insulation to decrease the cavity width.

### **3.2 PROTECTION**

- .1 Keep control joint voids clear of mortar.
- .2 Provide temporary bracing during erection of unit masonry work. Maintain in place until building structure provides permanent bracing.

### **3.3 CONSTRUCTION**

- .1 Perform masonry work in accordance with requirements of CSA-A371 and mortar work in accordance with requirements of CSA-A179, unless indicated otherwise herein.
- .2 Place masonry in accordance with lines and levels indicated on drawings.
- .3 Fully bond external and internal corners and intersections.
- .4 Isolate masonry partitions from vertical structural framing members with a control joint, with mortar raked back 30 mm regardless of joint treatment.
- .5 Buttering corners of joints, deep or excessive furrowing of mortar joints is not permitted.
- .6 Do not shift or tap masonry after mortar has taken initial set. Where adjustment must be made, remove mortar and replace.
- .7 Perform cutting of unit masonry on site with masonry saw to provide straight and true, unchipped edges.
- .8 Ensure masonry courses are of uniform height. All vertical and horizontal joints are to be equal and of uniform thickness. Lay in full bed of mortar, properly jointed with other work.
- .9 Remove excess mortar and projections. Take care to prevent breaking masonry corners.
- .10 Lay unit masonry in course with joints as herein scheduled.
  - .1 Joints: All joints in unit masonry construction shall be 10 mm, plus or minus 1 mm.
  - .2 Concrete Masonry Units: Tooled concave at standard concrete masonry units, to match existing.
- .11 Frame all openings for services through fire separations to meet requirements of Section 07 84 00, Firestopping. Provide minimum 25 mm clearance at all sides.

### **3.4 TOLERANCES**

- .1 Maximum variation from unit masonry to adjacent unit masonry is 1.0 mm.
- .2 Maximum variation from vertical and horizontal building lines is 6 mm in 3 m.
- .3 Maximum variation from cross sectional thickness cavity walls is plus or minus 6 mm.
- .4 Maintain flush face on exposed masonry surfaces.

### **3.5 REINFORCEMENT/ANCHORAGES**

- .1 Place masonry reinforcing and anchorages for unit masonry in accordance with drawings as follows.
- .2 Provide single wythe walls, and interior wythe of cavity walls with horizontal masonry reinforcing in every second concrete masonry unit mortar joint.
  - .1 Place horizontal masonry reinforcing in first and second joints above and below openings. Place continuous in first and second joint below top of walls.

- .2 Fully reinforce all corners and intersections.
- .3 Lap masonry reinforcing splices minimum 150 mm.
- .3 Bond walls of two or more wythes in accordance with CSA-A370.
  - .1 Tie masonry veneer to backing in accordance with NBC, CSA-A370, and as indicated.
  - .2 Maximum horizontal spacing of masonry ties shall be 800 mm on centre, maximum vertical spacing shall be 600 mm on centre.
  - .3 Openings and Wall Ends: Provide masonry ties, at maximum 600 mm on centre, maximum 300 mm from openings or wall ends.
  - .4 Tops of Walls: Provided masonry ties at maximum 300 mm from tops of walls.
  - .5 Bottoms of Walls: Provided masonry ties at maximum 600 mm from bottom of walls.
- .4 Secure face brick to concrete backup with dovetail anchors placed at 400 mm on centre vertically. Lock into anchor slots. Ensure anchor slots have been properly set in concrete backup at 800 mm on centre horizontally.

### **3.6 BUILT-IN WORK**

- .1 As work progresses, build-in pressed steel frames, window frames, steel angle lintels and all other items supplied by other sections of work.
- .2 Build-in items plumb and true to lines and levels indicated on the drawings.
- .3 Bed anchors of pressed steel frames in mortar joints. Fill frame voids in interior partitions solid with mortar.
- .4 Do not build-in organic materials which will be subject to rot or deterioration.

### **3.7 CUTTING AND FITTING**

- .1 Cut and fit unit masonry. Co-operate fully with other sections of work to ensure correct size, shape and location.
- .2 Obtain Consultant's approval prior to cutting or fitting any area which is not indicated on drawings or which may impair appearance or strength of masonry work.

### **3.8 PATCH EXISTING MASONRY WALLS AND PARTITIONS**

- .1 Patch existing concrete masonry units where existing partitions, door frames, cabinets, chalkboards or tackboards are removed.
- .2 Patch all chipped or damaged concrete masonry units with mortar, to match adjacent surfaces.
- .3 Patch and repoint existing mortar joints to match adjacent surfaces.

### **3.9 REPAIRS/RESTORATION**

- .1 Remove all deteriorated or loose mortar from existing face brick.
- .2 Remove existing mortar to a uniform and minimum depth of 20 mm, or until sound mortar is reached. Do not damage adjacent face brick.
- .3 Remove dust and debris from joint by brushing or blowing with air, or washing with water.
- .4 Tuck-point existing mortar joints with Type N or Type O mortar.

- .5 Type N mortar: 1 part Portland Cement, 1 part Type S Hydrated Lime, 4½ to 6 parts aggregate.
- .6 Type O mortar: 1 part Portland Cement, 2 part Type S Hydrated Lime, 6¾ to 9 parts aggregate.
- .7 All dry ingredients shall be mixed thoroughly. Add only enough clean water to dry mix to produce a damp, workable consistency which will retain its shape when formed into a ball. Allow mortar to stand in this dampened condition for 1 to 1½ hours.
- .8 Dampen all joints to be tuck-pointed.
- .9 Add water to mortar mix to bring it to a workable consistency.
- .10 Pack mortar tightly into the joints in depths not exceeding 6 mm.
- .11 Tool the joints to match the adjacent mortar joints.

### **3.10 CLEANING**

- .1 Remove excess mortar and smears upon completion of masonry work.
- .2 Point or replace defective mortar. Match adjacent work.
- .3 Clean soiled surfaces using a non-acidic solution which will not harm masonry or adjacent materials. Consult masonry manufacturer for acceptable cleaners. Use non-metallic tools in cleaning operations.

**END OF SECTION**