

## **PART 1 GENERAL**

### **1.1 RELATED SECTIONS**

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 02 41 19 - Selective Demolition.
- .3 Section 01 45 00 - Quality Control.
- .4 Section 03 30 00 - Cast-in-Place Concrete.
- .5 Section 04 05 12 - Mortar and Masonry Grout.
- .6 Section 04 05 19 - Masonry Anchorage and Reinforcing.
- .7 Section 04 22 00 - Concrete Unit Masonry.
- .9 Section 07 21 13 - Board Insulation
- 10. Section 07 92 10 - Joint Sealing.

### **1.2 REFERENCES**

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

### **1.3 SUBMITTALS**

- .1 Product Data.
  - .1 Submit manufacturer's installation instructions.

### **1.4 QUALITY ASSURANCE**

- .1 Test Reports.
  - .1 Certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Submit laboratory test reports certifying compliance of masonry units and mortar ingredients with specification requirements.
- .3 Mock-ups.
  - .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
  - .2 Construct mock-up panel of exterior masonry wall construction 1200 x 1800 mm showing masonry colours and textures, use of reinforcement, ties, through-wall flashing, weep holes, jointing, coursing, mortar and workmanship.
  - .3 Mock-up will be used:
    - .1 To judge workmanship, substrate preparation, operation of equipment and material application.
  - .4 Construct mock-up where directed.
  - .5 Allow 48 hours for inspection of mock-up Consultant before proceeding with work.

- .6 When accepted by Consultant, mock-up will demonstrate minimum standard for this work. Mock-up may remain as part of finished work.
- .7 Pre-Installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Section 01 78 36 Warranties.

### **1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver materials to job site in dry condition.
- .2 Storage and 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.

### **1.6 SITE CONDITIONS**

- .1 Site Environmental Requirements.
  - .1 Cold weather requirements.
    - .1 Supplement Clause 5.15.2 of CSA-A371 with following requirements.
      - .1 Maintain temperature of mortar between 5 degrees C and 50 degrees C until batch is used or becomes stable.
  - .2 Maintain ambient temperature between 5 degrees C and 50 degrees C and protect site from wind chill.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

- .1 Masonry materials are specified in Related Sections.

## **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 PREPARATION**

- .1 Provide temporary bracing of masonry work during and after erection until permanent lateral support is in place.
- .2 Bracing approved by Engineer.

### **3.3 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.
- .3 Layout coursing and bond to achieve correct coursing heights, and continuity of bond above and below openings, with minimum of cutting.

### **3.4 CONSTRUCTION**

- .1 Exposed masonry.
  - .1 Remove chipped, cracked, and otherwise damaged units, in accordance with CSA A-165, Clause 82.1, in exposed masonry and replace with undamaged units.
  - .2 Jointing.
    - .1 Strike flush joints concealed in walls and joints in walls to receive plaster, tile, insulation, or other applied material except paint or similar thin finish coating.
  - .3 Cutting.
    - .1 Cut out for electrical switches, outlet boxes, structural beam 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 Support of loads.
    - .1 Use 20 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.
  - .6 Provision for Movement
    - .1 Leave 6 mm space between top of non-load bearing walls and partitions and structural elements. Do not use wedges.
    - .2 Built masonry to tie in with stabilizers, with provision for vertical movement.
  - .7 Loose steel lintels.
    - .1 Install loose steel lintels. Centre over opening width.
  - .8 Control joints.
    - .1 Construct continuous control joints as indicated.
  - .9 Interface with other work
    - .1 Cut openings in existing work as indicated.
    - .2 Openings in walls: approved by Engineer.
    - .3 Make good existing work. Use materials to match existing.

### **3.5 SITE TOLERANCES**

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

### **3.6 CLEANING**

- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

### **3.7 PROTECTION**

- .1 Protect masonry and other work from marking and other damage. Protect completed work from mortar droppings. Use non-staining coverings.

**End of Section**

## **PART 1 GENERAL**

### **1.1 RELATED SECTIONS**

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 04 05 10 - Common Work Results for Masonry.

### **1.2 REFERENCES**

- .1 Canadian Standards Association CSA International.
- .2 CSA A371-94 Masonry Construction for Buildings Mortar and Grout for Unit Masonry.
- .3 IMIAC (International Masonry Industry All-Weather Council) recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

### **1.2 SUBMITTALS**

- .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .3 Submit proposed mix proportions and analysis report.
- .4 Submit compressive strength reports on the proposed mortar mix.

### **1.3 QUALITY OF ASSURANCE**

- .1 Perform work in accordance with CSA A371.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

- .1 Use same brands of materials and source of aggregate for entire project.
- .2 Mortar and grout: CSA A179.
- .3 Use aggregate passing 1.18 mm sieve where 6 mm thick joints are indicated.
- .4 Colour: ground coloured natural aggregates or metallic oxide pigments.
- .5 Mortar for exterior masonry above grade:
  - .1 Loadbearing: type S.
  - .2 Non-Loadbearing: type N.

### **2.2 MIXES**

- .1 Mortar mixes: to CSA A179; types as follows:
  - .1 Load bearing concrete block walls: Type S.
  - .2 Non-load bearing concrete block walls: Type N.
  - .3 Face brick and cut stone veneer: Type N.

- .4 For pointing: Type N, with maximum 2 percent ammonium stearate or calcium stearate per cement weight.
- .2 Grout mixes: to CSA A179; 20 MPa strength at 28 days.
- .3 Comply with CSA A179.
- .4 Thoroughly mix ingredients in quantities needed for immediate use.
- .5 Maintain sand uniformly damp immediately before mixing process.
- .6 Add mortar colour and admixtures to manufacturer's instructions. Provide uniformity of mix and coloration.
- .7 Do not use anti-freeze compounds to lower freezing point.
- .8 If water is lost by evaporation, re-temper only within two hours of mixing.
- .9 Use mortar within 2 hours after mixing at temperatures of 32° C, or 2 1/2 hours at temperatures under 10° C.

## **PART 3 EXECUTION**

### **3.1 PREPARATION**

- .1 Apply bonding agent to existing concrete surfaces.
- .2 Plug clean-out holes. Use brick or concrete block masonry units.
- .3 Brace masonry to withstand wet grout pressures.

### **3.2 INSTALLATION**

- .1 If remix mortar and grout materials are being used, comply with manufacturer's instructions.
- .2 Work grout into masonry cores and cavities to eliminate voids.
- .3 Do not install grout in lifts greater than 400 mm without consolidating grout by rodding.
- .4 Do not displace reinforcement while placing grout.
- .5 Remove excess mortar from grout spaces.

**End of Section**

## **PART 1 GENERAL**

### **1.1 RELATED SECTIONS**

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 04 05 10 – Common Work Results for Masonry.
- .3 Section 04 05 23 – Masonry Accessories.
- .4 Section 04 20 00 – Unit Masonry

### **1.2 REFERENCES**

- .1 Canadian Standards Association CSA International.
  - .1 CAN/CSA-A23.1/A23.2-[00], Concrete Materials and Methods of Concrete Construction/Methods of Test for Concrete.
  - .2 CSA-A370-94, Connectors for Masonry.
  - .3 CSA-A371-94, Masonry Construction for Buildings.
  - .4 CSA G30.14-M1983(R1998), Deformed Steel Wire For Concrete Reinforcement.
  - .5 CAN/CSA G30.18-M92, Billet-Steel Bars for Concrete Reinforcement.
  - .6 CSA-S304.1-94(R2001), Masonry Design for Buildings.
  - .7 CSA A179-94, Mortar and Grout For Unit Masonry.

### **1.3 SUBMITTALS**

- .1 Shop Drawings :
  - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
  - .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.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

- .1 Bar reinforcement: to CSA-A371
- .2 Wire reinforcement: to CSA-A371 and CSA G30.14, ladder type.
- .3 Connectors: to CSA-A370 and CSA-S304.
- .4 Corrosion protection: to CSA-S304.

## **2.2 FABRICATION**

- .1 Fabricate reinforcing in accordance with CAN/CSA-A23.1
- .2 Fabricate connectors in accordance with CSA-A370.
- .3 Ship reinforcement and connectors, clearly identified in accordance with drawings.

## **PART 3 EXECUTION**

### **3.1 GENERAL**

- .1 Supply and install masonry connectors and reinforcement in accordance with CSA-A370, CSA-A371, CAN/CSA-A23.1 and CSA-S304.1 unless indicated otherwise.

### **3.2 BONDING AND TYING**

- .1 Bond walls of two or more wythes using metal connectors in accordance with CSA-S304, CSA-A371 and as indicated.

### **3.3 REINFORCED LINTELS AND BOND BEAMS**

- .1 Reinforce masonry lintels and bond beams as indicated. Provide 400mm deep lintel, reinforced with 2 - 15M over doorway.
- .2 Provide 1 – 5M vertical at sides of all openings.
- .3 Install continuous bond beam at top of walls. Reinforce with 1 – 15M continuous.
- .4 Provide 15M vertical reinforcement at 800mm O.C., unless notice otherwise.
- .5 Provide continuous 8-ga ladder-type galvanized horizontal reinforcement conforming to ASTM-A82 at:
  - .1 Every second course (i.e. at 400mm vertical)
  - .2 Additional at first course at top and at bottom of walls.
- .6 Place and grout reinforcement in accordance with CSA-S304.1, CSA-A371 and CSA-A179.

### **3.4 GROUTING**

- .1 Grout masonry in accordance with CSA-S304.1, CSA-A371 and CSA-A179.
- .2 Grout: conform to CSA-A179. Minimum 28-day compressive strength to be 12.5MPa.
- .3 Construct walls in stacked bond only. Use full mortar bed.
- .4 Provide 100% solid or grouted masonry at:
  - .1 Top and bottom course of walls.
  - .2 Two courses deep at lintels.
  - .3 Two blocks wide under beams.
  - .4 Grouted cells containing vertical steel, including at the sides of all openings.
  - .5 Bond beams.



### **3.5 ANCHORS**

- .1 Supply and install metal anchors as indicated.

### **3.6 LATERAL SUPPORT AND ANCHORAGE**

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

### **3.7 CLEANING**

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

**End of Section**

## **PART 1 GENERAL**

### **1.1 RELATED SECTIONS**

- .1 Section 02 41 19 - Construction/Selective Demolition.
- .2 Section 04 05 10 - Common Work Results for Masonry.
- .3 Section 04 05 12 - Mortar and Masonry Grout.
- .4 Section 04 05 19 - Masonry Anchorage and Reinforcing.

### **1.2 REFERENCES**

- .1 Canadian Standards Association CSA International.
  - .1 CAN3 A165.1 Concrete Masonry Units.

### **1.3 WASTE MANAGEMENT AND DISPOSAL**

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .2 Divert damaged or unused concrete materials from landfill to local facility.

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

- .1 Standard concrete block, units to CAN3-A165. Refer to CAN3-SERIES A165.1 and classify units using four facet system, example, H/15/A/M for hollow normal weight and strength units.
  - .1 Classification: H/15/D/M
  - .2 Size: modular – 200mm x 400mm free of cracks, chips, lamination and other defects.
  - .3 Provide purpose-made shapes for lintels and bond beams. Provide additional special shapes as indicated.
  - .4 Colour: manufacturer's standard grey.

## **PART 3 EXECUTION**

SPEC NOTE: Include under the following paragraph requirements that are not covered in Section 04 05 10 - Common Work Results for Masonry.

### **3.2 INSTALLATION**

- .1 Concrete block units.
  - .1 Bond: Stack.
  - .2 Coursing height: 200 mm for one block and one joint.
  - .3 Jointing: raked where exposed or where paint or other finish coating is specified.
    - .1 Jointing: provide concave joints.
    - .2 Clean block faces using soft cloths before mortar hardens rake to 10 mm depth. After completion of block laying fill joints with pointing mortar then point to provide concave joints. Repeat cleaning of faces.

.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.

**3.2 CLEANING**

- .1 Standard block: 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.

**End of Section**