

**Part 1 General****1.1 RELATED REQUIREMENTS**

- .1 Section 02 41 99 – Demolition for Minor Works
- .2 Section 03 30 00 - Cast-in-Place Concrete
- .3 Section 04 05 12 – Masonry mortar and grout.
- .4 Section 04 05 19 –Masonry anchorage and reinforcing.
- .5 Section 04 21 13 – Brick Masonry
- .6 Section 05 12 23 - Structural Steel For Buildings
- .7 Section 07 84 00 - Firestopping
- .8 Section 07 92 00 – Joint Sealing.

**1.2 REFERENCES**

- .1 Canadian Standards Association (CSA International).
  - .1 CSA-A165-14, CSA Standards on Concrete Masonry Units.
  - .2 CAN/CSA A179-14, Mortar and grout for unit masonry.
  - .3 CAN/CSA A371-14, Masonry Construction for Buildings.
  - .4 CSA S304.1-(F10), Design of Masonry Structures.
- .1 Institut de Maçonnerie du Québec (IMQ) documents:
  - .1 Technical bulletin " Maçonnerie-Info " (M-I), nos. 1 à 30, including revisions.
- .2 South Coast Air Quality Management District (SCAQMD), California State (SCAQMD)
  - .1 SCAQMD Rule 1168-05, Adhesives and Sealants Applications.

**1.3 ADMINISTRATIVE REQUIREMENTS**

- .1 Pre-installation meetings: Comply with Section 01 31 19 – Project Meetings. Conduct pre-installation meeting one week prior to commencing on-site installations to:
  - .1 Verify project requirements, including mock-up requirements.
  - .2 Verify substrate conditions.
  - .3 Co-ordinate products, installation methods and techniques.
  - .4 Sequence work of related sections.
  - .5 Co-ordinate with other building subtrades.
  - .6 Review manufacturer's installation instructions.
  - .7 Review masonry cutting operations, methods and tools and determine worker safety and protection from dust during cutting operations.
  - .8 Review warranty requirements.
- .2 Sequencing: sequence with other work in accordance with Section 01 32 16.06 - Construction Progress Schedule - Critical Path Method (CPM). Comply with manufacturer's written recommendations for sequencing construction operations.

- .3 Availability of products and materials: Once contract is signed, contractor is required to check availability of specified masonry products in sufficient quantity and to place orders. Contractor shall notify Departmental Representative of any problem of availability of specified products and materials that may be likely to cause a delay and to suggest equivalent products for approval. Contractor will be held responsible for any delay resulting from a lag in ordering products and materials.

#### 1.4 ACTION SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Provide manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, limitations and colours.
  - .2 Provide one copy of Workplace Hazardous Materials Information System (WHMIS) - Material Safety Data Sheets (MSDS) in accordance with Section 01 35 29.06 - Health and Safety Requirements. Data sheets shall specify VOC levels of mortars, roughcast mortars, grouts, colouring agents and adjuvants, expressed in grams per litre (g/L).
- .3 Work samples: Refer to Article 1.7 – Quality Assurance.
- .4 Manufacturer's instructions
  - .1 Submit manufacturer's installation instructions.
- .5 Certificates: Submit documents provided by manufacturer certifying that products, materials and equipment meet prescribed requirements.
- .6 Test reports and assessment reports
  - .1 Submit certified test reports.
  - .2 Test reports must certify that masonry items and mortar ingredients meet prescribed physical characteristics and performance criteria.
  - .3 In addition to referenced CSA and ASTM standards, submit data on masonry's initial rate of water absorption (suction).
- .7 Manufacturer's instructions: Submit manufacturer's instructions on implementation, including storage and handling of materials and equipment, safety and cleaning.
- .8 Manufacturer's reports: Provide written reports prepared by manufacturer's staff on site, in particular:
  - .1 Inspection reports on compliance of work with contract requirements.
  - .2 Reports from site visits with details of implementation and work completed.

#### 1.5 CLOSEOUT SUBMITTALS

- .1 Provide manufacturer's instructions for care, cleaning and maintenance of prefaced masonry units for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

**1.6 EXTRA MATERIALS**

- .1 Provide manufacturer's instructions in accordance with Section 01 78 00 - Closeout Submittals covering maintenance requirements and parts catalogue, with cuts and identifying numbers.

**1.7 QUALITY ASSURANCE**

- .1 Mock-ups:
  - .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
  - .2 Mock-up used:
    - .1 To judge workmanship, substrate preparation, operation of equipment and material application.
    - .2 For testing to determine compliance with performance requirements. Perform following tests.
      - .1 For clay units, in addition to requirements set out in referenced CSA and ASTM Standards include data indicating initial rate of absorption.
  - .3 Construct mock-up where directed by Departmental Representative.
  - .4 Allow 48 hours for inspection of mock-up by Departmental Representative before proceeding with work.
  - .5 When accepted by Departmental Representative, mock-up will demonstrate minimum standard for this work. Mock-up may remain as part of finished work.
  - .6 Start work only upon receipt of written approval Departmental Representative.

**1.8 DELIVERY, STORAGE, AND HANDLING**

- .1 Delivering, storing and handling mortar and masonry grout and constituent materials in accordance with requirements of Section 01 61 00 – Common Product Requirements, and with those indicated below.
  - .1 Deliver pre-mixed dry materials for mortar to workplace in bags with inner plastic lining each bearing manufacturer's name and address, production code and batch number, as well as colour and formula numbers.
  - .2 Keep mortar, grout and pre-packaged materials dry and in a clean place, protecting them from dampness, frost and traffic and from contamination by foreign matter.
- .2 Management of packaging waste: recover packaging waste for recycling and for reuse of pallets, crates and other packaging materials by their manufacturer, in accordance with Section 01 74 21 – Construction/renovation/demolition waste management and disposal (CRD).
- .3 Store mortar bags for immediate use in heated enclosures, and allow these materials to reach a temperature of at least 10 degrees Celsius.

**1.9 SITE CONDITIONS**

- .1 Lay masonry on a dry surface and use only dry units. Unless indicated otherwise in specifications or prescribed by manufacturer, never dampen masonry units.
- .2 Application in cold weather:

## COMMON WORK RESULTS FOR MASONRY

- .1 Meet requirements below as well as those set out in subsection 6.7.2 of standard CSA-A371 and CSA-A179.
  - .1 Maintain mortar at a temperature between 5 degrees and 35 degrees Celsius until use or stabilization of batch.
  - .2 Protect masonry units and completed masonry work against wind chill throughout work, 24 hours a day.
  - .3 Once work is completed and for at least 72 hours, keep it away uninterrupted from frost and wind chill at an ambient temperature above 5 degrees Celsius.
- .3 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.
- .4 Protection of work – general:
  - .1 Protect masonry and adjacent work against scratches or other damage. Protect completed work against spattering of mortar.
- .5 Protection of structures – General:
  - .1 Secure masonry with non-stain waterproof fibreglass-reinforced plastic sheeting.
  - .2 This sheeting must cover masonry structures and extend far enough on each side to protect it from wind-driven rain and from cold penetration and heat loss (maintain required ambient temperature) unless work is completed or protected by flashing or other permanent structure for time set out in sub-paragraph 1.6.2.3.
  - .3 Protect masonry and adjacent structures from scratches or other damage. Protect completed structures from spattering of mortar.
  - .4 Shore up masonry temporarily until permanent lateral support structures are installed.
- .6 Ambient conditions: keep materials and surroundings at temperatures shown below.
  - .1 At least 5 degrees Celsius before and during work as well as for a 48-hour period following completion.
  - .2 At most 32 degrees Celsius before and during work as well as for a 48-hour period following completion.

**1.10 WARRANTY**

- .1 For work in this Section 04 05 00 Common Work Results for Masonry, the 12-month warranty period prescribed in the general conditions is extended to 60 months.
- .2 Provide a written document jointly prepared and signed by the manufacturer and the installer and issued in the name of Canada, ensuring the work against defects in materials, workmanship and installation for the period specified above.

**Part 2****Products****2.1****MATERIALS**

- .1 Materials of the same brand and granulates from same source of supply must be used for all work.
- .2 Water: clean and potable.
- .3 As indicated in section 04 21 13 – Brick Masonry

**2.2****COLOURING AGENTS**

- .1 Use colouring agents incorporated in mortar during factory production.

**2.3****MORTARS**

- .1 Mortars in accordance with Section 04 05 12 – Masonry Mortar and Grout.

**Part 3****Execution****3.1****INSTALLERS**

- .1 Experienced and qualified masons to carry out erection, assembly and installation of masonry work.

**3.2****EXAMINATION**

- .1 Examine conditions, substrates and work to receive work of this Section.
  - .1 Co-ordinate with Section 01 71 00 - Examination and Preparation.
- .2 Examine openings to receive masonry units. Verify opening size, location, and that opening is square and plumb, and ready to receive work of this Section.
  - .1 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .2 Proceed with installation after unacceptable conditions have been remedied and after receipt of written approval from Departmental Representative.
- .3 Verification of Conditions:
  - .1 Verify that:
    - .1 Substrate conditions which have been previously installed under other sections or contracts, are acceptable for product installation in accordance with manufacturer's instructions prior to installation.
    - .2 Field conditions are acceptable and are ready to receive work.
    - .3 Built-in items are in proper location, and ready for roughing into masonry work.
  - .2 Commencing installation means acceptance of existing substrates.

**3.3 PREPARATION**

- .1 Shore up masonry temporarily to support it during and after work until a permanent lateral support structure is in place.
- .2 Establish and protect lines, levels, and coursing.
- .3 Protect adjacent materials from damage and disfiguration.

**3.4 INSTALLATION**

- .1 Do masonry work in accordance with CSA-A371 except where specified otherwise.
- .2 Conduct masonry work straight, level and aligned, making well aligned vertical joints.
- .3 Arrange masonry rows according to prescribed bond to obtain courses of proper height and to maintain continuity of bond above and below bays, cutting a minimum number of units.

**3.5 CONSTRUCTION**

- .1 Exposed masonry:
  - .1 Remove chipped, cracked, and otherwise damaged units, in exposed masonry and replace with undamaged.
- .2 Jointing:
  - .1 When concave joints (semi-round or throated) are prescribed, let mortar harden enough to eliminate excess water, but no more, then push back with a round jointer to make smooth joints that are aligned, tightly packed and uniformly concave.
  - .2 Make flush joints (brought to the base) for all hidden wall joints or joints to be covered with plaster, tiling, insulation or any similar material, with the exception of paint or thin-film finished product of similar type.
- .3 Cutting:
  - .1 Cut out for electrical switches, outlet boxes, and other recessed or built-in objects.
  - .2 Make cuts straight, clean, and free from uneven edges.
- .4 Building-In:
  - .1 Build in units required to be built into masonry.
  - .2 Prevent displacement of built-in units 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 25 MPa concrete to Section 03 30 00 - Cast-in-Place Concrete, where concrete fill is used in lieu of solid units, as well as places to be filled for safety purposes.
  - .2 Use grout to CSA A179 where grout is used in lieu of solid units.
  - .3 Install building paper below voids to be filled with concrete; keep paper 25 mm back from faces of units.

- .6 Loose steel lintels:
    - .1 Install loose lintels above bays wherever girders are not planned; centre them in relation to width of bays and support them at edges of masonry over a length of 200 mm.
  - .7 Structural steel lintels: Refer to Section 05 12 23 – Structural Steel for Buildings.
  - .8 Joints allowing relative movement of parts or building elements:
    - .1 Coordinate with drawings the spacing needed between different parts of the building and the frame, subject to vertical movements of elastic deformation and/or creep, under live or dead loads.
    - .2 Horizontal structural joints for vertical movements:
      - .1 Between masonry and any part of the frame that may bend under dead or live loads or following concrete creep, leave a space of 20 mm, in accordance with Departmental Representative's calculations.
      - .2 Where applicable, between top of masonry and underside of C or L bearing sections that support masonry located above, leave a minimum space of 20 mm, in accordance with Departmental Representative's calculations.
    - .3 Dividing (break) joints in cladding, wall or partition surfaces to prevent fractures:
      - .1 Make vertical joints in keeping with maximum distances below:
        - .1 Clay brick: 12 metres either side.
        - .2 Concrete blocks: 8 metres either side.
        - .3 For all parapets (clay and concrete masonry): 6 metres either side.
      - .2 Location: in changes in plans forming a concave angle except when approved by Departmental Representative.
    - .4 Filling of movement joints:
      - .1 Joint sealing: material set out in Section 04 05 19- Masonry anchorage and reinforcing; application procedure set out in Section 07 92 00 – Joint Sealants.
      - .2 Fire protection in movement joints in an assembly with a degree of fire resistance: see Section 07 84 00 – Fire Stopping.
      - .3
- 3.6 SITE TOLERANCES**
- .1 Tolerances in notes to CSA-A371 apply.
- 3.7 FIELD QUALITY CONTROL**
- .1 Site Tests, Inspection:
    - .1 Perform field inspection and testing in accordance with Section 01 45 00 - Quality Control.
    - .2 Notify inspection agency minimum of 24 hours in advance of requirement for tests.
  - .2 Manufacturer's Services:

## COMMON WORK RESULTS FOR MASONRY

- .1 Have manufacturer of products supplied under this Section review work involved in handling, installation/application, and protection of its products, and submit written reports in acceptable format to verify compliance of work with Contract.
- .2 Manufacturer's field services: provide manufacturer's field services, consisting of product use recommendations and periodic site visits for inspection of product installation, in accordance with manufacturer's instructions.
- .3 Schedule site visits to review work as installation is about to begin.
- .4 Schedule site visits to review work at stages listed:
  - .1 After delivery and storage of products, and when preparatory work on which work of this Section depends is complete, but before installation begins.
  - .2 Twice during progress of work at 25% and 60% complete.
  - .3 Upon completion of work, after cleaning is carried out.
- .5 Obtain reports within [three] days of review and submit immediately to Departmental Representative.

**3.8 CLEANING**

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
- .2 Final Cleaning:
  - .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
  - .2 Upon completion of installation and verification of performance of installation, remove surplus materials, rubbish, tools and equipment barriers.

**3.9 PROTECTION OF FINISHED WORK**

- .1 Temporary Bracing:
  - .1 Provide temporary bracing of masonry work during and after erection until permanent lateral support is in place.
  - .2 Bracing approved by Departmental Representative.
  - .3 Brace masonry walls as necessary to resist wind pressure and lateral forces during construction.
- .2 Moisture Protection:
  - .1 Keep masonry dry using waterproof, nonstaining coverings that extend over walls and down sides sufficient to protect walls from wind driven rain, until completed and protected by flashing or other permanent construction.
  - .2 Cover completed and partially completed work not enclosed or sheltered with waterproof covering at end of each work day. Anchor securely in position.
  - .3 Air Temperature Protection: protect completed masonry as recommended in 1.9 SITE CONDITIONS.

**END OF SECTION**