

Approved: 2008-12-31

**Part 1            General**

**1.1                RELATED REQUIREMENTS**

- .1        Structural Specifications
- .2        Section 04 22 00 – Concrete Unit Masonry

**1.2                REFERENCES**

- .1        Canadian Standards Association (CSA International)
  - .1        CSA-A165 Series-[04], Standards on Concrete Masonry Units.
  - .2        CSA A179-[04], Mortar and Grout for Unit Masonry.
  - .3        CSA-A371-[04], Masonry Construction for Buildings.
- .2        International Masonry Industry All-Weather Council (IMIAC)
  - .1        Recommended Practices and Guide Specification for Hot and Cold Weather Masonry Construction.

**1.3                ADMINISTRATIVE REQUIREMENTS**

- .1        Pre-installation meetings: Conduct pre-installation meeting one week prior to commencing work of this Section 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.

**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 two copies of Workplace Hazardous Materials Information System (WHMIS).
- .3        Samples:
  - .1        Provide samples as follows:

- .1 One of each type of concrete masonry unit specified, including special shapes.
  - .2 Samples: used for testing and when accepted become standard for material used.
- .4 Shop Drawings:
- .1 Provide drawings stamped and signed by professional engineer registered or licensed in Province of Manitoba, Canada.
  - .2 Provide shop drawings detailing temporary bracing required, designed to resist wind pressure and lateral forces during installation.

#### **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 MAINTENANCE MATERIAL SUBMITTALS**

- .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 Qualifications:
  - .1 Manufacturer: capable of providing field service representation during construction and approving application method.
  - .2 Installer: experienced in performing work of this section who has specialized in installation of work similar to that required for this project.
  - .3 Masons: company or person specializing in masonry installations with 5 years experience with masonry work similar to this project.
    - .1 Masons employed on this project must demonstrate ability to reproduce mock-up standards.
- .2 Mock-ups:
  - .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
  - .2 Construct mock-up panel of interior 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 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.
  - .4 Construct mock-up where directed by Contract Administrator.

- .5 Allow 48 hours for inspection of mock-up by Contract Administrator before proceeding with work.
- .6 When accepted by Contract Administrator , mock-up will demonstrate minimum standard for this work. Mock-up may remain as part of finished work.
- .7 Start work only upon receipt of written Contract Administrator.

#### **1.8 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .3 Storage and Handling 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.
  - .3 Packaging Waste Management:

#### **1.9 SITE CONDITIONS**

- .1 Ambient Conditions: assemble and erect components when temperatures are above 4 degrees C.
- .2 Weather Requirements: to CSA-A371.
- .3 Cold weather requirements:
  - .1 To 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 of masonry work and it's constituent materials between 5 degrees C and 50 degrees C and protect site from windchill.
  - .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.
  - .3 Spray mortar surface at intervals and keep moist for maximum of three days after installation.

#### **1.10 WARRANTY**

- .1 For Work in this Section 04 05 00 - Common Work Results for Masonry, 12 months warranty period is extended to 24 months.

**Part 2 Products**

**2.1 MANUFACTURERS**

- .1 Ensure manufacturer has minimum 5 years experience in manufacturing components similar to or exceeding requirements of project.

**2.2 MATERIALS**

- .1 Masonry materials are specified elsewhere in related Sections:
  - .1 Section 04 22 00 – Concrete Unit Masonry

**Part 3 Execution**

**3.1 INSTALLERS**

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

**3.2 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.

**3.3 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 Contract Administrator of unacceptable conditions immediately upon discovery.
  - .2 Proceed with installation after and after receipt of written approval from Contract Administrator.
- .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 of concrete block.
    - .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.

### 3.4 PREPARATION

- .1 Surface Preparation: prepare surface in accordance with manufacturer's written recommendations and co-ordinate with Section 01 71 00 - Examination and Preparation.
- .2 Establish and protect lines, levels, and coursing.
- .3 Protect adjacent materials from damage and disfiguration.

### 3.5 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, respecting construction tolerances permitted by CSA-A371.
- .3 Layout coursing and bond to achieve correct coursing heights, and continuity of bond above and below openings, with minimum of cutting.

### 3.6 CONSTRUCTION

- .1 Exposed masonry:
  - .1 Remove chipped, cracked, and otherwise damaged units, in accordance with CSA A-165 , in exposed masonry and replace with undamaged units.
- .2 Jointing:
  - .1 Allow joints to set just enough to remove excess water, then tool with round jointer to provide smooth, joints true to line, compressed, uniformly concave joints where concave joints are indicated.
  - .2 Allow joints to set just enough to remove excess water, then rake joints uniformly to 6 mm depth and compress with square tool to provide smooth, compressed, raked joints of uniform depth where raked joints are indicated.
  - .3 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, 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 Wetting of bricks:
  - .1 Except in cold weather, wet bricks having initial rate of absorption exceeding 1 g/minute/1000 mm<sup>2</sup>: wet to uniform degree of saturation, 3 to 24 hours before laying, and do not lay until surface dry.

- .2 Wet tops of walls built of bricks qualifying for wetting, when recommencing work on such walls.
- .6 Provision for movement:
  - .1 Leave 3 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.
- .7 Loose steel lintels:
  - .1 Install loose steel lintels. Centre over opening width.
- .8 Interface with other work:
  - .1 Cut openings in existing work as indicated.
  - .2 Openings in walls: reviewed by Contract Administrator
  - .3 Make good existing work. Use materials to match existing.
- 3.7 SITE TOLERANCES**
  - .1 Tolerances in notes to CSA-A371 apply.
- 3.8 FIELD QUALITY CONTROL**
  - .1 Site Tests, Inspection:
    - .1 Perform field testing in accordance with Section 01 45 00 - Quality Control.
    - .2 Notify inspection agency minimum of 48 hours in advance of requirement for tests.
- 3.9 CLEANING**
  - .1 Clean in accordance with Section 01 74 11 - Cleaning.
  - .2 Progress Cleaning: in accordance with related masonry sections.
  - .3 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.
- 3.10 PROTECTION**
  - .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 Contract Administrator
    - .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 1.10 SITE CONDITIONS.

**END OF SECTION**

**Part 1            General**

**1.1                RELATED REQUIREMENTS**

- .1        Structural Specifications
- .2        Section 04 05 00 - Common Work Results for Masonry.
- .3        Section 05 50 00 - Metal Fabrications.
- .4        Section 07 21 13 – Board, Semi-Rigid & Acoustic Insulation.
- .5        Section 07 26 00 - Vapour Retarders.
- .6        Section 07 62 00 - Sheet Metal Flashing and Trim.
- .7        Section 07 92 00 - Joint Sealants.
- .8        Section 08 11 00 - Metal Doors and Frames.
- .9        Section 08 41 13 – Aluminum Framed Entrances and Storefronts
- .10      Section 08 44 13 – Glazed Aluminum Curtain Walls
- .11      Section 09 21 16 - Gypsum Board Assemblies.

**1.2                REFERENCES**

- .1        ASTM International Inc.
  - .1        ASTM E336-07, Standard Test Method for Measurement of Airborne Sound Attenuation Between Rooms in Buildings.
- .2        Canadian Standards Association (CSA International)
  - .1        CAN/CSA-A165 Series-2004, CSA Standards on Concrete Masonry Units [covers: A165.1, A165.2, A165.3].
  - .2        CAN/CSA A371-04, Masonry Construction for Buildings.
  - .3        CSA S304.1-04, Design of Masonry Structures.
- .3        Underwriters' Laboratories of Canada (ULC)
  - .1        CAN/ULC-S101-07, Standard Methods of Fire Endurance Tests of Building Construction and Materials.

**1.3                ACTION AND INFORMATIONAL SUBMITTALS**

- .1        Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2        Product Data:
  - .1        Product Data: provide product data, including manufacturer's printed data sheets and catalog pages illustrating products to be incorporated into project for specified products.

**1.4                QUALITY ASSURANCE SUBMITTALS**

- .1        Certificates: provide in accordance with Section 04 05 00 - Common Work Results for Masonry.



- .2 Test and Evaluation Reports: provide certified test reports in accordance with Section 04 05 00 - Common Work Results for Masonry.
- .3 Pre-Installation Meetings: conduct pre-installation meeting in accordance with Section 04 05 00 - Common Work Results for Masonry to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

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

- .1 Deliver, store and handle concrete unit masonry in accordance with Section 04 05 00 - Common Work Results for Masonry.
- .2 Packaging Waste Management:
  - .1 Separate and recycle waste materials in accordance with Section 01 74 11 – Cleaning.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Standard concrete block units units to CAN/CSA-A165 Series (CAN/CSA-A165.1).
  - .1 Classification: H/15/A/M.
  - .2 Dimensions –
    - .1 Standard Masonry Block Nominal: To match existing: 100mm wide x 200 mm high x 400 mm long. From top of floor to 2'8" Above finished floor and from 3'-0" above finished floor to 7'8" above finished floor.
    - .2 Standard Masonry Block Nominal: To Match existing: 100mm wide x 100 mm high x 400 mm long. Refer to elevations. From 2'8" above finished floor to 3'-0" above finished floor.
    - .3 Masonry block sizes to match existing building
  - .3 Coursing
    - .1 Running Bond to match existing.
  - .4 Special shapes: provide square units for exposed corners. Provide purpose-made shapes for lintels, beams and bond beams. Provide additional special shapes as indicated.
  - .5 Profile/Texture for Standard Architectural Concrete Unit Masonry:
    - .1 Surface texture: smooth face units
    - .2 Colour: Standard Concrete Grey / painted.

### **2.2 REINFORCEMENT**

- .1 Reinforcement in accordance with Structural Specifications.

### **2.3 CONNECTORS**

- .1 Connectors in accordance with Structural Specifications..

### **2.4 MORTAR AND GROUT MIXES**

- .1 Mortar and mortar mixes in accordance with Structural Specifications.
- .2 Colour : To match existing

**2.5 CLEANING COMPOUNDS**

- .1 Compatible with substrate and acceptable to masonry manufacturer for use on products.
- .2 Cleaning compounds compatible with concrete unit masonry and in accordance with manufacturer's written recommendations and instructions.

**2.6 TOLERANCES**

- .1 Tolerances for standard concrete unit masonry tolerances in accordance with CAN/CSA A165.1, supplemented as follows:
  - .1 Maximum variation between units within specific job lot not to exceed 2 mm.
  - .2 No parallel edge length, width or height dimension for individual unit to differ by more than 2 mm.
  - .3 Out of square tolerance not to exceed 2 mm.

**Part 3 Execution**

**3.1 EXAMINATION**

- .1 Verify that field conditions are acceptable and are ready to receive work.
- .2 Verify items provided by other sections of work are properly sized and located.
- .3 Verify that built-in items are in proper location, and ready for roughing into masonry work.
- .4 Examine work of other Sections upon which work of this Section is dependent. Should discrepancies be found which affect the proper performance of the work of this section, do not commence work until such discrepancies have been resolved..

**3.2 PREPARATION**

- .1 Protect adjacent finished materials from damage due to masonry work.
- .2 Direct and coordinate placement of metal anchors supplied to other sections.
- .3 Provide temporary bracing during installation of masonry work to CSA-A371. Maintain in place until building structure provides permanent bracing.
- .4 Establish lines, levels, and coursing; protect from disturbance.
- .5 Verify that items built-in under other sections are properly located and sized.

**3.3 INSTALLATION**

- .1 Concrete block units:
  - .1 Bond: running bond as shown on drawings.
  - .2 Coursing height:
    - .1 Standard Masonry Block: 200 mm for one block and one joint; 100 mm for one block and one joint.
  - .3 Jointing:
    - .1 Interior Masonry Block: Raked to match existing
- .2 Special Shapes:

- .1 Install special units to form corners, returns, offsets, reveals and indents without cut ends being exposed and without losing bond or module.
- .2 Install reinforced concrete block lintels over openings in masonry where steel or reinforced concrete lintels are not indicated.
- .3 End bearing: not less than 200 mm
- .4 Install special Site cut shaped units.

### **3.4 REINFORCEMENT**

- .1 Install reinforcing in accordance with Structural Specifications.

### **3.5 CONNECTORS**

- .1 Install connectors in accordance with Structural Specifications.

### **3.6 MORTAR AND GROUT PLACEMENT**

- .1 Place mortar in accordance with Jointing specification and Structural Specifications.

### **3.7 CONSTRUCTION**

- .1 Cull out masonry units, in accordance with CAN/CSA A165 and approved range of colour samples, with chips, cracks, broken corners, excessive colour and texture variation.
- .2 Build in miscellaneous items such as bearing plates, steel angles, bolts, anchors, inserts, sleeves and conduits.
- .3 Construct masonry walls using running bond unless otherwise noted.
- .4 Build around frames previously set and braced. Fill behind hollow frames within masonry walls with mortar or grout and embed anchors.
- .5 Fit masonry closely against electrical and plumbing outlets so collars, plates and covers overlap and conceal cuts.
- .6 Install movement joints and keep free of mortar where indicated.
- .7 Hollow Units: spread mortar setting bed from outside edge of face shells. Gauge amount of mortar on top and end of unit to create full joints, equivalent to shell thickness. Avoid excess mortar.
- .8 Solid Units: apply mortar over entire vertical and horizontal surfaces. Avoid bridging of airspace between brick veneer and backup wall with mortar.
- .9 Ensure compacted head joints. Use full or face-shell joint as indicated.
- .10 Tamp units firmly into place.
- .11 Do not adjust masonry units after mortar has set. Where resetting of masonry is required, remove, clean and reset units in new mortar.
- .12 Tool exposed joints concave; strike concealed joints flush.
- .13 After mortar has achieved initial set up, tool joints.
- .14 Do not interrupt bond below or above openings.

**3.8 REPAIR/RESTORATION**

- .1 Upon completion of masonry, fill holes and cracks, remove loose mortar and repair defective work.

**3.9 FIELD QUALITY CONTROL**

- .1 Site Tests, Inspection: in accordance with Section 04 05 00 - Common Work Results for Masonry.

**3.10 CLEANING**

- .1 Clean in accordance with Section 01 74 00 - Cleaning.

**3.11 PROTECTION**

- .1 Brace and protect concrete unit masonry in accordance with Industry standards

**END OF SECTION**