
PART 1 GENERAL

1.1 REFERENCE STANDARDS

- .1 Comply with the General Conditions of the Contract, Supplementary General Conditions and the requirements of Division 1.
- .2 Perform masonry work to CSA CAN3-A371-94 except where specified otherwise.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- .1 Cast in Place Concrete Section 03300
- .2 Miscellaneous Metals Section 05500
- .3 Structural Steel Section 05100
- .4 Flexible Sheet Membrane Air Barrier Section 05100
- .5 Insulation Section 07200
- .6 Metal Doors and Frames Section 08100
- .7 Mechanical Section 01500
- .8 Electrical Section 01600

1.3 SCOPE OF WORK INCLUDED

- .1 The supply and installation of all masonry work complete with all accessories and reinforcing, as indicated on the drawings and specified below except as described herein. Masonry shall be reinforced as specified below and where detailed on structural drawings. Install all masonry wall reinforcing, all reinforcing for block lintels and steel angle lintels.

1.4 SUBMITTALS

- .1 Consult the approved shop drawings to determine the exact location of any item to be built into masonry.
- .2 **Field Construction Mock-ups** : Construct a sample panel 1.2m x 1.2m with a return of 200mm of each colour and size to be used in project - mortar colours relate to block colour.

1.5 DEFECTS DEFINED

- .1 In addition to non-compliance with specified requirements or other contract requirements, the following will be considered defect:
 - .1 Shrinkage in individual units.
 - .2 Spalling.
 - .3 Poor colour or texture blending of units.
 - .4 Surface deterioration dusting.
 - .5 Discolouration, crumbling and similar deterioration of mortar.
 - .6 Failure of built in items to remain anchored.
 - .7 Excessive cracking of mortar joints.

1.6 SUPERVISION

- .1 Work of this Section shall be executed under the continuous supervision and direction of a competent foreman for each class of work.
- .2 One thoroughly experienced, reliable and competent person shall be in charge of mortar mixing.

1.7 CONFORMANCE

- .1 Conform to applicable Sections of CAN3-S 304-M84 Masonry Design for Buildings, CSA-A370-M84 Connectors for Masonry, CSA A371-M84 Masonry Construction for Buildings, and Section 04210. Concrete block shall conform to Can/CSA3-A165 Series M85.

1.8 STORAGE OF MATERIALS

- .1 Store cementitious material in accordance with CAN/CSA.A5. Store aggregates in accordance with CAN/CSA a.23.1. Stack masonry units to avoid chipping. Manufacturers seals and labels shall be intact. Refer to cold weather protection Article for requirements of preheating masonry materials prior to building in.

OR

Delivery, Storage and Handling : Units shall be delivered to the job site on covered banded pallets with cardboard between layers.
Store pallets in single stacks on level ground and cover with waterproof covering to protect blocks from inclement weather. Handle blocks carefully to avoid breakage and damage to the finished surface.

1.9 FIRE SAFETY FEATURES

- .1 Masonry units used in partitions designed to provide fire separation shall be of material specified and in the case of hollow units shall have the percentage of solid material necessary to provide the rating called for and/or required by Chapter 2 "Fire Performance Ratings" of supplement to National Building Code 1990.
- .2 Concrete block and similar hollow units shall be identified as to percentage of solid material. Delivery slips shall state tested status of the units and the skids shall be marked to facilitate identification of the units at Site.

1.10 WIND BRACING

- .1 Brace walls during construction until the structure provides sufficient lateral support. This is a mandatory requirement.

1.11 PROTECTION OF COMPLETED MASONRY

- .1 Cover top of completed and partially completed masonry walls not protected by permanent work. Use waterproof coverings draped 600 mm (2' -0") down each side of wall and securely anchored.
- .2 The protection requirements of completed masonry or sections not being worked on shall be in accordance with CSA A371-94,

Clause 5.16.3.1, for temperatures in the range of +4°C to -7°C.

- .3 Protect finish work adequately against damage of all kinds. Cover tops of walls completely each night and upon any stoppage of work and during rain and snow.
- .4 Face of freshly built walls shall be covered with waterproof materials during rain or snow.
- .5 Provide adequate bracing of walls during erection to prevent damage of high winds or other lateral loads until permanent bracing is installed.
- .6 Make good any damage of masonry work sustained by any cause whatsoever until completion of the work and be responsible for any work sustained by the work of others due to lack of adequate protection.

1.12 COLD WEATHER REQUIREMENTS

- .1 CSA Standard A371-94, Section 5.16.2.1 shall be followed for masonry construction in cold weather in the temperature range of +4°C to -7°C.

1.13 DEFINITION

- .1 Note that reference to " Solid Block " refers to solid block without internal cavities; to " solid Walls " refers to non cavity wall which may consist of hollow core block, to " cavity walls " refers to concrete block veneer, air space, insulation, air vapour barrier, and block.

PART 2 PRODUCTS

2.1 MATERIALS - MORTAR

- .1 Concrete Block:- To CAN3-A165.1-M85, type H/15/A/M based on net area.
- .2 Mortar:- To CSA A179-94
 - Type "N" for non-load bearing masonry,
 - Type 'S' for load bearing masonry.Mortar shall be tooled to mimic the exterior brick work.
- .3 Grout: - To CSA A179-94 Grout shall be proportioned by volume to 1 part Portland Cement to 2 1/4 to 3 parts of moist sand, with water to make the grout sufficiently fluid to fill completely all voids, but without excessive bleeding or segregation. A pourable consistency similar to that of thick paint is generally acceptable. Do not wet down masonry before pouring grout.
- .4 Masonry Wall Reinforcing:- To CSA A370-94. - For all concrete block walls to be standard ladder type galvanized rods of 4.76 mm diameter, as manufactured by Duro-O-Wal or equal. Size to suit wall thickness.
- .5 Connectors for Masonry shall conform to CSA Standard A370-94.
 - Dur-O-Wal DA803 Adjustable Loop Anchors.
 - Block Shear Connectors by Fero Holdings Inc.

(See structural drawings for special-condition connectors and spacing.)

- .6 Use same manufacturer's product for the entire project to ensure uniformity of mix and colouration.
- .5 Mix mortar ingredients thoroughly in quantities needed for immediate use.
- .6 Use mortar with 2 1/2 hours of mixing when temperature is 25 degrees C or higher and within 3 1/2 hours when temperatures are below 25 degrees C.
- .7 Colour of mortar for brick and stone:

.1 Exterior of Building :

Premixed hydrated lime type " S " and portland cement and sand. Type N 1:1:6

Red exterior Mortar by Betomix (to match red brick)

White exterior Mortar by Betomix (to match white Arriscraft Stone Product and white Burnished Concrete Block Unit or equal)

Grey exterior Mortar by Betomix (to match grey Concrete Block Unit)

Light Grey Standard for interior standard concrete block

.2 Interior of Building :

Load bearing Type " S " - A179- 1994 minimum 8.5 MPA job site tested.

Standard Grey

Premixed hydrated lime type " S " and portland cement and sand. Type N 1:1:6

Standard Grey : for block work shall conform to CSA Standard A1979. All materials for mortars shall be as herein specified and shall be measured by volume, aggregates and cement mixed dry and then water added to bring to the proper consistency for use. Mixing shall continue for at least 5 minutes.

2.2 MATERIALS - CONCRETE BLOCK - GENERAL

Concrete Block

- .1 Size: Metric Size : Height of 190mm +- 2mm. Depth of faced units, 190mm, 140mm and 90mm. Length of unit 390mm. All block listed below shall conform to the dimensional statistics listed in this paragraph in quantities described by the drawings. Note all corner units are have radius bullnose where corners and wall openings occur.
- .2 Tolerances: +/- 2mm

ACCEPTABLE MANUFACTURERS:

- Ultralite Richvale York Block Inc.
- CCI Industries

- 2.3 MATERIALS - CONCRETE BLOCK - TYPES
- .1 **Type BL-1 : Interior Standard Grey units & required return radius bullnose corners** at all corners and openings in walls - (90 mm depth, 140 mm depth for service chases)
- Note 190 mm corner returns for corners and window/door openings (**Note bullnose concrete block corners at all openings**)
- .2 **Type C.**
Metric True Light Lightweight Aggregate Interior Unit - 190 mm
Note 190 mm corner returns for corners and door openings (note bullnose corners at all openings) * **Achieves 2 hour fire resistance rating. Refer to floor plan drawings for 2 hour fire ratings.** Alternate Acceptable Product = Ultralite Richvale York Block Inc. Product shall comply with CSC Standard A165-2000 R. Facets H/15/D/O and S/15/D/O. Concrete density shall be less than 1700 kg/m³ using expanded slag aggregates and shall have a concrete type of L2 where all of the aggregate is an expanded slag.
- 2.4 MATERIALS - REGULAR CONCRETE BLOCK
- .1 Use standard concrete block for interior walls.
- .2 Standard Hollow Concrete Block shall be normal weight, grey colour, to match dimensions above.
- .3 **Fire Ratings:** Where the width of the wall indicated will not provide the required fire rating in standard block, use solid block.
- TRUE LIGHT Lightweight Aggregate concrete block is to be used to provide the 2 hour fire rating wall that surrounds the apparatus floor
- .4 Concrete block shall be 100 % solid where noted as solid block and where required for bearing points, or filled hollow core block, as appropriate.
- .5 Interior exposed block walls (this includes exterior walls, exposed on inside face), shall be concrete block, conforming to CAN3-A165.1-M85 unless otherwise noted, having maximum moisture content of 30 %. Reference herein to concrete block includes slag block.
- 2.5 BRICK
- .1 **BR-1 Metric jumbo - 90mm x 90mm x 290mmL**
(**Alternate Acceptable Brick by IXL Smooth # 101**)
(**Alternate Acceptable Brick by Boral - Bordeaux Utility**)
(**Other JUMBO Metric brick manufacturer's are encouraged to contact the Architect to request approval as alternate**)
- .2 Provide special shapes as detailed on the drawings. Provide solid units, free of holes, for brick soldier course corners.
- .3 Purchase face brick in one lot, sufficient for entire project.
- .4 Note recess of header brick and revealed brick mortar joints over apparatus doors

2.6 **STONE - Renaissance Masonry Units by Arriscraft Corp. Or Equal**

ACCEPTABLE MANUFACTURERS:

- Arriscraft Corp.
- Tyndall Stone

- .1 Stone White **Sloped Window Sill Units** - for Exterior Windows
(one unit for punched windows - large window cut to 1.5 M
lengths c/w drip cut under sill)
- .2 Stone White **Rock Face** Base Units - perimeter base of building
(RS29 290mmH x 590mmL x 90mmD) c/w rockface return corners
Refer to Building Elevations for location of units.

Note west ground sign has first course rock face units.

- .3 Stone White **Flat Face** Base Units - perimeter base of building
(RS29 290mmH x 590mmL x 90mmD) c/w flat face return corners
Refer to Building Elevations for location of units.

Note bull nose units at cornice of building - refer to stone
profiles indicated on the drawings.

- .4 **Wall Stone Cap Units** - Top of wall stone caps set with cut drip
edge Pier Cap Stones located as coping stone on top of Garbage
Enclosure and North Ground Sign
(Adair Limestone Marble units - sepia colour)
(as dimensioned on architectural drawings)

The above units have been specified from Arriscraft Corporation
(1-519-653-3275) OR equal as approved by the Architect. The
products (1-6) are a high density man made, severe weathering,
calcium silicate masonry product pressure formed and autoclaved
to the dimensions requested on the drawings.

All alternate products and samples colours are to approved by
the architect prior to being granted equal status.

2.7 **MATERIALS - ACCESSORIES**

- .1 Weeper: Supply and install Dur-o-wall cell vent weep hole
ventilator at all exterior masonry wall conditions: Base of
walls, over windows, over doors.
- .2 Expansion Joints: Supply and install Rapid Expansion Joint at
locations indicated on drawings. Generally every 24' in plan
dimension. Conform to requirements of ASTM D1056 Class RE41.
Ensure adequate provision is made with masonry ties and anchors
to transfer load across the movement joint.
- .3 Hydrocide Vinylseal: Supply and install 20 ml hydrocide
vinylseal at through wall flashing conditions. Foundation sill
flashing, floor / head flashing with reglet, sill flashing, head
flashing with reglet, thru wall flashing at wall, parapet
flashing
- .4 At all openings in cavity walls, supply and build in flashing as
detailed. Install air barrier to extend into frames and lap over
flashing to give continued air seal.
Lap joints 150 mm.

PART 3 EXECUTION

3.1 GENERAL WORKMANSHIP

- .1 The masonry contractor shall carefully examine all drawings and he shall ensure that all work is in place for building in as work progresses.
- .2 All filling in around window and door frames, beams, lintels and other structural members of concrete, or metal shall be completed after the installation of the work of the other trades, as required to complete the masonry work in a neat, workmanlike manner.
- .3 Build in steel plates or angles for support of steel beams, joists or steel deck. Build in anchor bolts and plates for wood copings as detailed, staggered bolts. Prepare lintel blocks, where required, supply and place reinforcing, and fill concrete.
- .4 Concrete blocks shall be laid in running bond on the interior. Openings shall be spanned with lintels as shown and scheduled on the structural drawings.
- .5 Block walls shall conform to dimensions shown on drawings, in thickness and in height, uniform and plumb, with all horizontal joints laid true and in line.
- .6 The masonry Contractor shall confer with contractors of other trades and shall provide openings, chases, grooves, etc., as may be required for pipes, conduits, or ducts, and shall build in all metal work required, including anchor bolts, plates, hangers, inserts, clean outs, pipe sleeves, electrical outlets, etc. Note slope of concrete planks and angular cut of block at top of walls.
- .7 Blocks shall be laid in full bed of mortar, ie. the full bed of mortar must cover the webs of all blocks as well as the ends. This requirements will be rigidly enforced. Whenever it is found that this provision is not carried out, the wall shall be taken down and rebuilt. Reinforce as previously specified.
- .8 Maintain adequate mortar mixes on job site. Accurately measure all mortar ingredients, including water, to consistently produce batches matching approved mock up sample. Use same admixtures for duration of project.
- .9 Finish all joints flush with 10mm recessed score joints to present uniform appearance at joints and scores.
Pointing : Tuck point and tool all scored joints.
Running Bond type installation. Use white mortar with single score white architectural concrete block and grey mortar with grey block.
- .10 All walls shall be carried up in a uniform manner, no one portion being more than 1500 mm of wall measured vertically in any working day.
- .11 Remove excess mortar and projections. Take care to prevent breaking block corners and make tooled joints uniform.
- .12 In laying block masonry, avoid over-plumbing and pounding of corners and jambs to fit stretcher units after they are set into position. Where an adjustment must be made after mortar has

begun to harden, mortar shall be removed and replaced with fresh mortar.

3.2 JOINTS

- .1 Mortar joints shall be straight clean and of uniform thickness (not exceeding 13 mm) and tooled as specified below.
- .2 Tool all horizontal and vertical joints on both sides of all walls to produce a dense slightly concave surface.

3.3 CONTROL JOINTS

- .1 Provide a continuous vertical control in block at locations not greater than 6 metre spacing.
- .2 Control joints shall be place in all masonry walls, at intersections of bearing and non-bearing walls, at interior corners, over door heads, wherever shown or called for on the drawings, and at a maximum distance of 8 meters. Refer to Arch drawings.
- .3 Control joints to be caulked with caulking to match mortar. Provide backup filler behind caulking, control joints to be free of mortar.
- .4 Control joints in interior block walls shall consist of a mortar key, separated from blocks on one side with a building paper liner. Face joints shall be caulked using joint filler and Tremco Dymeric Caulking - refer to Section 07900.
- .5 At control joints in exterior wall, mason shall supply and build in masonry return. Joint shall be raked clean. Pack joint with close cell filler and caulk exterior with Tremco Dymeric - refer to Section 07900.

3.4 BUILDING-IN

- .1 Build in all door and window frames, steel lintels, sleeves, anchor bolts, anchors, reinforcement, nailing strips and any other items which are supplied by other trades and have to be built into masonry.
- .2 Notify all other trades when materials to be set in masonry Will be required. Mason shall, at his own expense, tear out any such work which has been improperly located, reset and make good to satisfaction of Owner.
- .3 Do not distort metal frames. Bed anchors of frames in mortar and fill frame voids with mortar or grout as wall is erected.
- .4 The architect will provide a Limetsone Cornerstone for installation by the masonry subtrade.

3.5 BEARING

- .1 Block masonry supporting steel beams shall have their voids filled with 'S' type grout or equivalent strength concrete. Fill voids of two supporting courses by a minimum of two block widths or as shown on drawings.

3.6 CUTTING AND PATCHING

- .1 All necessary cutting of masonry units exposed in finished work shall be performed with an approved type of power saw. Where electrical conduit outlet or switch boxes occur, grind and cut units before installing various required services.

3.7 HORIZONTAL AND VERTICAL MASONRY REINFORCING

- .1 All concrete block walls unless otherwise noted shall be continuously reinforced and tied together with horizontal reinforcing in every second block bed joint. In addition, place horizontal reinforcing in first and second bed joints above and below openings. First bed joint immediately above and below openings shall have continuous reinforcing. In second bed joint, reinforcing shall extend 600 mm beyond each side of opening.
- .2 Grouting of Vertical Reinforcing in Cells of Hollow Units:
 - .1 Grout shall be placed in lifts of not more than 1500 mm, leaving a 50 mm depression at the top of each pour to key-in the next lift.
 - .2 All reinforced masonry of hollow units shall be built so that walls and cross webs forming cells to be filled shall be fully bedded in mortar to prevent leakage of grout. All head joints shall be filled with mortar for a distance in from the face of the wall or unit of not less than the thickness of the face shells.
 - .3 The vertical cells of hollow units to be filled shall have vertical alignment sufficient to maintain an unobstructed continuous cell of at least 50 x 75 mm.
 - .4 Vertical reinforcing shall be secured in position before grouting.
 - .5 The thickness of mortar between masonry units and reinforcement shall be not less than 6 mm.

3.8 PROVISION FOR OTHER TRADES

- .1 Provide all openings in masonry walls where required or indicated. Build in all items specified elsewhere in these specifications or required for a complete job.
- .2 Chases and openings shall be accurately located and neatly finished to required sizes.
- .3 Where masonry is to enclose conduit or piping, bring it to proper level indicated and as directed. Cover no pipe, conduit chases or enclosures until advised that work has been inspected and tested.

3.9 CLEANING

- .1 Face of all masonry shall be wiped with wet cloth or brush as work progresses preventing unnecessary mortar stains.
- .2 All surfaces shall be examined carefully upon completion and any holes or cracks in joints shall be carefully tuckpointed fully with mortar, matching colour and finish of adjacent joints.
- .3 Whole exposed masonry of exterior and interior walls shall be thoroughly cleaned of all dirt and stains by scrubbing

vigorously with a fibre brush and soap powder. Scrapers may be used only where necessary.

- .4 Cleaning work shall be carried on from top towards bottom and when commenced shall be carried on to completion without interruption and shall be performed so that all masonry work will be left in a finished condition satisfactory to the Architect.
- .5 Final Clean Down : Clean the completed walls with a detergent cleaner strictly following the manufacturer's instructions including thorough rinsing. Do not use acid or abrasives on the finished surfaces.

3.10 LATERAL SUPPORTS

- .1 Where non load bearing unit masonry partitions meet structural elements at top of partitions, install lateral supports as required by the Manitoba Building Code. Refer to Structural drawings for material and execution.

3.11 DEFLECTION JOINTS

- .1 Construct deflection joints between top of partition and structural slab as detailed. if no detail proceed as follows :
 - .1 Ascertain amount of deflection to be provided for and terminate top of partition accordingly.
 - .2 Fill joint between top of partition and structural slab using compressible joint filler.

3.12 TOLERANCES

- .1 Surface of masonry exposed to view, including surfaces scheduled to receive paint shall be accurate, plumb and within a tolerance of 5mm in any 6m direction.

3.13 DAMPPROOF COURSE

- .1 Dampproofed courses must be stepped where shown and lapped sealed edges where vertical and horizontal sections intersect.
- .2 Install building paper on walls and partitions rising from footings below grade and in locations indicated on drawings. Lap and seal all joints.
- .3 At all window sill, in cavity walls supply and build in flashing as detailed to form sill and through wall flashing.
- .4 Joints between masonry and concrete or metal, where shrinkage may occur, shall be carefully repointed to eliminate all danger of leakage. Where caulking is required, this pointing shall be recessed at least 12mm to leave space for caulking compound.

3.14 CAVITY WALLS

- .1 Co-operate with insulation Trade to ensure that location of horizontal cavity wall reinforcing permits insulation of cavity

insulation without cutting (reinforcement to occur in joints of insulation board).

- .2 Make provision for and clean out base of cavity upon completion.
- .3 Build in cavity wall ladder type reinforcing as previously specified.
- .4 The width of cavity wall reinforcing shall be fabricated to extend to within 1" of the exterior face of the outer wythe and 1" of the interior face of the inner wythe. Do not crimp reinforcement to form drips.
- .5 Reinforcement shall be place at top of cavity wall flashings and at last mortar joint at top of walls in addition to the locations specified herein.
- .6 Refer to Section 07200 - Insulation - for application of adhesives and cavity wall insulation. In addition, install closure strips as specified in Article 2.1.12 at cavity wall control joints, within 460mm and on either side of vertical corners and both vertically and at bottom of wall openings. Closure strips shall be continuous for full height of wall.
- .7 Refer to and coordinate with Section 15 for building in and around mechanical piping.

3.15 CAVITY WALL FLASHING

- .1 Flashings : Lexsuco FR40, or Novaflash 20, by Innotex.
- .2 Edge of flashing to be cut and extend 1/4" beyond edge of concrete block.
- .3 Cavity flashings, lapped joints sealed with caulking or cavity insulation adhesive are acceptable.
- .4 Cavity wall flashings shall be extended vertically minimum 190mm above base cavity or above openings, embedded into the nearest horizontal inner wythe mortar joint a minimum of 80mm.
Weep Holes and Vents : Install weep holes and vents at proper intervals (810mm o.c. and 50mm long, above bed joints, typical) at courses above grade, above flashing, and at any water stops over windows, doors and beams.

3.16 CONCRETE BLOCK / BRICK / STONE ORDERING

- .1 The Masonry Contractor must inform the Construction Site Manager of the scheduling and for order of concrete block and brick materials as required.

3.17 INSPECTION

- .1 On completion of masonry, it shall be minutely inspected throughout and pointed or repointed as required, filling all holes, raking out loose mortar and repointing joints to make complete, neat, weathertight job without defects in jointing, to the Architect's Approval. All joints in interior masonry shall be pointed, including behind tackboards and millwork. The concrete block units shall be free from chips, cracks, crazes or any imperfection that would detract from the overall appearance

of the finished wall when viewed from a distance of 2m at right angles to the wall with normal lighting.

END OF SECTION