

PART 1 - GENERAL

- 1.1 RELATED SECTIONS
- .1 Section 03 30 00 - Cast-in-Place Concrete.
 - .2 Section 04 05 12 - Mortar and Masonry Grout.
 - .3 Section 04 05 19 - Masonry Anchorage and Reinforcing.
 - .4 Section 04 22 00 - Concrete Unit Masonry.
 - .5 Section 05 12 23 - Structural Steel.
 - .6 Section 05 50 00 - Metal Fabrications.
 - .7 Section 07 21 13 - Board Insulation.
 - .8 Section 07 26 00 - Sheet Membrane Air/Vapour Barriers.
 - .9 Section 07 92 00 - Joint Sealing.
 - .10 Section 08 11 14 - Metal Doors and Frames.
- 1.2 REFERENCES
- .1 Canadian Standards Association (CSA International).
 - .1 CSA/CSA A165 Series-04, Standards on Concrete Masonry Units.
 - .2 CAN/CSA A179-04, Mortar and Grout for Unit Masonry.
 - .3 CAN/CSA-A371-04, Masonry Construction for Buildings.
- 1.3 SUBMITTALS
- .1 Product Data.
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Samples.
 - .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit samples.
 - .1 Type of masonry unit specified. Photograph is acceptable.
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- 1.3 SUBMITTALS .2 (Cont'd)
(Cont'd) .2 (Cont'd)
- .2 Two of each type of masonry accessory specified.
 - .3 One of each type of masonry reinforcement, tie and connector proposed for use.
- .3 Manufacturer's Instructions.
- .1 Submit manufacturer's installation instructions.
- 1.4 QUALITY .1 Test Reports.
ASSURANCE
- .1 Certified test reports showing compliance with specified performance characteristics and physical properties.
 - .2 Submit laboratory test reports in accordance Section 01 29 83 - Payment Procedures: Testing Laboratory Services.
 - .3 Submit laboratory test reports certifying compliance of masonry units and mortar ingredients with specification requirements.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Mock-ups.
- .1 Construct mock-ups in accordance with Section 01 45 00 - Quality Control.
 - .2 Mock-up will be used:
 - .1 To judge workmanship, substrate preparation, operation of equipment and material application.
 - .3 Construction mock-up where directed.
 - .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.
- .4 Pre-Installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.
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1.5 DELIVERY,
STORAGE, AND
HANDLING

- .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver materials to job site in dry condition.
- .3 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 WASTE
MANAGEMENT AND
DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management System.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, pallets and packaging material for recycling in accordance with Waste Management Plan.
- .4 Unused metal materials are to be diverted from landfill to a metal recycling facility as approved by Departmental Representative.
- .5 Unused or damaged masonry materials must be diverted from landfill to a local facility as approved by Departmental Representative.

1.7 SITE CONDITIONS

- .1 Site Environmental Requirements.
 - .1 Cold weather requirements.
 - .1 Supplement Clause 5.15.2 of CAN/CSA A371-04 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 windchill.
 - .2 Hot weather requirements.
 - .2

1.7 SITE CONDITIONS .1 (Cont'd)
(Cont'd) .2 (Cont'd)

.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.

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 to be approved by Departmental Representative.

3.3 INSTALLATION .1 Do masonry work in accordance with CAN/CSA A371-04 except where specified otherwise.

.2 Build masonry plumb, level, and true to line, with vertical joints in alignment.

- 3.3 INSTALLATION .3 Layout coursing and bond to achieve correct
(Cont'd) 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 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.
.2 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 Support of loads.
.1 Use 20 MPa concrete where concrete fill
is used.
.2 Install building paper below voids to be
filled with concrete; keep paper 25 mm back
from faces of units.
- .6 Provision for movement.
.1 Leave space between top of non-load
bearing walls and partitions and structural
elements. Do not use wedges.
.2 Build masonry to tie in with
stabilizers, with provision for vertical
movement.
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- 3.4 CONSTRUCTION .7 Block Lintels.
(Cont'd)
- .1 Install block lintels for all openings in non-load bearing partitions in accordance with the drawings.
 - .2 All lintels to have 200 mm minimum end bearing.
 - .3 All lintels to be filled solid with 20 MPa concrete (not mortar).
 - .4 Reinforcing to extend 150 mm minimum into support.
- .8 Control Joints.
- .1 Construct continuous control joint as required. Control joints to be located behind column flanges when possible.
 - .2 Control joint spacing to be 6.25m max.
- 3.5 SITE TOLERANCES .1 Tolerances in notes to Clause 5.3 of CAN/CSA A371-04 apply.
- 3.6 FIELD QUALITY CONDITIONS .1 Inspection and testing will be carried out by Testing Laboratory designated by Departmental Representative. Cost of testing to be paid by Contractor.
- 3.7 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.
- 3.8 PROTECTION .1 Protect masonry and other work from marking and other damage. Protect completed work from mortar droppings. Use non-staining coverings.
- 3.9 SCHEDULES .1 Construct fire rated assemblies where indicated.
- .1 1 hour fire rated partition assemblies required: use ULC Design No. U905.
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3.9 SCHEDULES .2 Use 190 mm hollow concrete block generally
(Cont'd) and at 1 hour fire rated partition assemblies.

PART 1 - GENERAL

<u>1.1 RELATED SECTIONS</u>	.1	Section 04 05 00 - Common Work Results for Masonry.
<u>1.2 REFERENCES</u>	.1	Canadian Standards Association (CSA International). .1 CAN/CSA A179-04, Mortar and Grout for Unit Masonry.
<u>1.3 SUBMITTALS</u>	.1	Product Data. .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures. .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOCs mortar, grout, parging, colour additives and admixtures.
	.2	Samples. .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures. .2 Submit two samples of coloured mortar. Provide at least three colour options.
	.3	Manufacturer's Instructions. .1 Submit manufacturer's installation instructions.
<u>1.4 QUALITY ASSURANCE</u>	.1	Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties. .1 Submit laboratory test reports.
	.2	Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
	.3	Pre-Installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation

1.4 QUALITY ASSURANCE (Cont'd) .3 Pre-Installation Meetings:(Cont'd) instructions and manufacturer's warranty requirements.

1.5 WASTE MANAGEMENT AND DISPOSAL .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management System.

.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard and packaging material for recycling in accordance with Waste Management Plan.

PART 2 - PRODUCTS

2.1 MATERIALS .1 Use same brands of materials and source of aggregate for entire project.

.2 Mortar and grout: CAN/CSA A179-04.

.3 Use aggregate passing 1.18 mm sieve where 6 mm thick joints are indicated.

.4 Mortar for interior masonry.
.1 Loadbearing: type S based on Proportion specifications.
.2 Non-Loadbearing: type S based on Proportion specifications.

2.2 MIXES .1 Colour and admixtures: mix grout to semi-fluid consistency in accordance with manufacturer's instructions.

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 CONSTRUCTION .1 Do masonry mortar and grout work in accordance with CAN/CSA A179-04 except where specified otherwise.
- 3.3 CLEANING .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

PART1 - GENERAL

- 1.1 RELATED SECTIONS
- .1 Section 04 05 00 - Common Work Results for Masonry.
 - .2 Section 05 50 00 - Metal Fabrications.
- 1.2 REFERENCES
- .1 Canadian Standards Association (CSA International).
 - .1 CAN/CSA-A23.1-09/A23.2-09, Concrete Materials and Methods of Test for Concrete Construction/Methods of Test for Concrete.
 - .2 CAN/CSA-A370-04, Connectors for Masonry.
 - .3 CAN/CSA-A371-04, Masonry Construction for Buildings.
 - .4 CSA G30.14-04, Deformed Steel Wire For Concrete Reinforcement.
 - .5 CAN/CSA-G30.18-09, Billet-Steel Bars for Concrete Reinforcement.
 - .6 CSA-S304.1-04, Masonry Design for Buildings.
 - .7 CAN/CSA A179-04, Mortar and Grout For Unit Masonry.
- 1.3 SUBMITTALS
- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 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.
 - .3 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation instructions.
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1.4 QUALITY
ASSURANCE

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Pre-Installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

1.5 WASTE
MANAGEMENT AND
DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management System.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material for recycling in accordance with Waste Management Plan.
- .4 Divert unused metal materials from landfill to metal recycling facility approved by Departmental Representative.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Bar reinforcement: to CAN/CSA A371-04 and CAN/CSA G30.18-09, Grade 400.
- .2 Wire reinforcement: to CAN/CSA A371-04 and CSA G30.14, ladder type.
 - .1 Single wythe interior walls: Heavy duty design, 4.76 dia. side rods and 3.66 mm dia. cross rods, welded steel rod, hot dipped galvanized after fabrication, ladder design; with prefabricated inside and outside corners and tees.
 - .1 D/A 320 Dur-O-Wall Ladur, Heavy Duty, by Dur-O-Wall.

2.1 MATERIALS
(Cont'd)

- .2 Wire reinforcement:(Cont'd)
 - .1 Single wythe interior walls:(Cont'd)
 - .2 BL-10, Heavy Duty, by Blok-Lok.
 - .3 Connectors: to CAN/CSA A370-04 and CSA S304.1-04 :
 - .1 At steel columns connect interior concrete masonry units with triangular type ties to columns, hot dipped galvanized finish.
 - .1 Acceptable materials:
 - .1 V-Tie, by Fero with AB-Clip connectors.
 - .2 D/A 700 Series, by Dur-O-Wall with D/A 207 connectors.
 - .3 Flex-O-Lok B-9, by Blok-Lok with adjustable Flex-O-Lok `C' Anchors.
 - .2 Fasteners:
 - .1 At steel columns, triangular type ties to be fastened with #8 screws, steel, as per A370, two per connector. Alternatively, clips can be welded to columns.
 - .4 Corrosion protection: hot dipped galvanized after fabrication to CSA CAN3-S304 and CAN/CSA A370-04, ASTM A153/A153M-09 Class B2, 457 g/m².

2.2 FABRICATION

- .1 Fabricate reinforcing in accordance with CAN/CSA A23.1-04/A23.2-09.
- .2 Fabricate connectors in accordance with CAN/CSA A370-04.
- .3 Obtain Departmental Representative's approval for locations of reinforcement splices other than shown on placing drawings.
- .4 Ship reinforcement and connectors, clearly identified in accordance with drawings.

2.3 SOURCE QUALITY CONTROL

- .1 Upon request, provide Departmental Representative with certified copy of mill test report of reinforcement steel and connectors, showing physical and chemical analysis, minimum 5 weeks prior to commencing reinforcement work.

2.3 SOURCE QUALITY CONTROL (Cont'd)	.2	Upon request inform Departmental Representative of proposed source of material to be supplied.
<u>PART 3 - EXECUTION</u>		
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 GENERAL	.1	Supply and install masonry connectors and reinforcement in accordance with CAN/CSA A370-04, CAN/CSA-A371-04, CAN/CSA A23.1-09/A23.2-09 and CSA-S304.1-04 unless indicated otherwise.
	.2	Prior to placing concrete, grout, obtain Departmental Representative's approval of placement of reinforcement and connectors.
	.3	Supply and install additional reinforcement to masonry as indicated.
3.3 BONDING AND TYING	.1	Bond walls of two or more wythes using metal connectors in accordance with CSA S304.1-04, CSA A371-04 and as indicated.
3.4 REINFORCED WALLS, LINTELS AND BOND BEAMS	.1	Reinforce masonry walls, lintels and bond beams as indicated on structural drawings.
	.2	Place and grout reinforcement in accordance with CSA S304.1-04, CAN/CSA A371-04, and CAN/CSA A179-04.
3.5 GROUTING	.1	Grout masonry in accordance with CAN/CSA S304.1-04, CAN/CSA-A371-04 and CAN/CSA-A179-04 and as indicated.
	.2	All reinforcing bars to be grouted with 20 MPa concrete. Mortar and liquid grout not acceptable.

- 3.6 ANCHORS .1 Supply and install metal anchors as indicated.
- 3.7 LATERAL SUPPORT AND ANCHORAGE .1 Install lateral support and anchorage in accordance with CSA S304.1-04 and as indicated.
- 3.8 MOVEMENT JOINTS .1 Reinforcement will not be continuous across movement joints unless otherwise indicated.
- 3.9 FIELD BENDING .1 Do not field bend reinforcement and connectors except where indicated or authorized by Departmental Representative.
- .2 When field bending is authorized, bend without heat, applying a slow and steady pressure.
- .3 Replace bars and connectors which develop cracks or splits.
- 3.10 FIELD TOUCH-UP .1 Touch up damaged and cut ends of galvanized reinforcement steel and connectors with compatible finish to provide continuous coating.
- 3.11 CLEANING .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.
- 3.12 SCHEDULE OF INSTALLATION .1 Interior Walls, including inner wythe of exterior wall assembly:
- .1 Joint reinforcement at every second block course.
- .2 Continuous vertical reinforcing at window and door jambs, 2-15M, typical, unless noted otherwise on drawings.
- .3 Continuous vertical reinforcing at 800mm oc maximum, 1-15M, at interior partition walls, typical, unless noted otherwise on
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3.12 SCHEDULE OF .1 (Cont'd)
INSTALLATION .3 (Cont'd)
(Cont'd) drawings. Continuous vertical reinforcing at
400mm o.c. maximum, 20M. Add an addition 20M
to regular reinforcing at end of walls.
.4 Secure masonry walls to steel columns at
every second block course.

PART 1 - GENERAL

- 1.1 RELATED SECTIONS
- .1 Section 04 05 00 - Common Work Results for Masonry.
 - .2 Section 04 05 19 - Masonry Anchorage and Reinforcing.
- 1.2 REFERENCES
- .1 American Society for Testing and Materials International, (ASTM).
 - .1 ASTM D 2240-05, Standard Test Method for Rubber Property - Durometer Hardness.
 - .2 Canadian Standards Association (CSA International).
 - .1 CSA-A371-04, Masonry Construction for Buildings.
- 1.3 SUBMITTALS
- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's for joint fillers and lap adhesives.
 - .2 Manufacturer's Instructions:
 - .1 Submit manufacturer's installation instructions.
- 1.4 QUALITY ASSURANCE
- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
 - .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
 - .3 Pre-installation Meetings: conduct pre-installation meeting to verify project
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- 1.4 QUALITY ASSURANCE (Cont'd) .3 Pre-installation Meetings:(Cont'd) requirements, manufacturer's installation instructions and manufacturer's warranty requirements.
- 1.5 WASTE MANAGEMENT AND DISPOSAL .1 Separate and recycle waste materials in accordance with Section 01 74 19 - Construction/Demolition Waste Management And Disposal
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material in appropriate on-site for recycling in accordance with Waste Management Plan.

PART 2 - PRODUCTS

- 2.1 MATERIALS .1 Control joint filler: purpose-made elastomer durometer hardness to ASTM D 2240-05 of size and shape indicated.
- .2 Lap adhesive: recommended by masonry flashing manufacturer.

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 INSTALLATION .1 Install continuous control joint fillers in control joints at locations indicated on drawings.
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3.3 CLEANING .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

PART1 - GENERAL

- 1.1 RELATED SECTIONS
- .1 Section 04 05 00 - Common Work Results for Masonry.
 - .2 Section 04 05 12 - Mortar and Masonry Grout.
 - .3 Section 04 05 19 - Masonry Anchorage and Reinforcing.
 - .4 Section 04 05 23 - Masonry Accessories.
- 1.2 REFERENCES
- .1 Canadian Standards Association (CSA International)
 - .1 A165 Series-04, CSA Standards on Concrete Masonry Units; covers: A165.1, A165.2, A165.3.
- 1.3 WASTE MANAGEMENT AND DISPOSAL
- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management System.
 - .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
 - .3 Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material for recycling in accordance with Waste Management Plan.
 - .4 Divert damaged or unused concrete materials from landfill to local facility approved by Project Manager.
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PART 2 - PRODUCTS

- 2.1 MATERIALS .1 Standard concrete block units: to A165 Series-04 (CAN3-A165.1).
.1 Classification: H/20/A/M (hollow).
.2 Size: modular.
.3 Special shapes: provide bull-nosed units for exposed corners except where specified to have ceramic tile finish. Provide purpose-made shapes for lintels and bond beams.

PART 3 - EXECUTION

- 3.1 INSTALLATION .1 Concrete block units.
.1 Bond: running.
.2 Coursing height: 200 mm for one block and one joint.
.3 Jointing: concave where exposed or where paint or other finish coating is specified.
- .2 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.
- 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.