DIVISION 04 MASONRY

Section 04 00 00 Masonry - General

1 Exterior Materials

1.1 Use of exterior masonry materials to vary in colour, texture and coursing patterns to suit project type, locale and context and to satisfaction of client department.

2 Existing Masonry Repair

2.1 Damaged, cracked or spalled masonry and mortar to be replaced / repaired as directed.

2.2 Cracked and previously repaired mortar to be cut out completely and repointed with type S mortar in a raked joint application. Match replacement masonry work to existing.

2.3 Mock-ups are required on all masonry work, as directed by DTIR. Mock-up can form part of Work.

3 Structural Masonry

3.1 Structural systems to meet requirements of the DC350 and are designed by an engineer licensed to practice in the Province of Nova Scotia.

4 Exterior wall design to utilize the “rain screen” principle, providing a pressure-equalized cavity between the exterior cladding and the air barrier. Size and locate vents in the exterior wythe to achieve “nearly instantaneous” pressure equalization of the cavity and protection from rain entry. Unless specified otherwise in this document, design veneered exterior walls so that there is a minimum 25 mm air space between the insulation and the veneer material. Provide baffles in such air space to compartmentalize the cavity into zones of equal pressure.

5 Masonry Procedures

5.1 Masonry work to be done in accordance with CAN3 S304-M84 (R1997) and CSA S478:19, except where specified otherwise.

5.2 Delivery of materials to job site to be in dry conditions.

5.3 Keep materials dry until use.

5.4 Store under waterproof cover on pallets or plank platforms designed to keep masonry off ground.

5.5 Cold Weather Requirements

5.5.1 The following precautions are taken when air temperature is below 5 C when preparing mortar:

5.5.1.1 Heat sand slowly and evenly. Do not use scorched sand, having a reddish cast, in mortar.

5.5.1.2 Heat water to 700C maximum; 200C minimum.

5.5.1.3 After combining heated ingredients, maintain temperature of mortar between 50C and 500C until used.

5.5.2 Maintain dry beds for masonry and used dry masonry units only. Do not wet masonry units in cold weather.

5.5.3 When air temperature is below -4 C, protect and heat masonry to maintain air temperature above 0 C on both sides of walls during operation and for a period of 24 hours after.

5.5.4 When air temperature is above -4 C, erect windbreaks to prevent differential freezing of walls.

5.6 Hot Weather Requirements

5.6.1 Protect freshly laid masonry from drying out too rapidly by means of waterproof non-staining covering.

5.7 Keep masonry dry using waterproof non-staining covering that extends over walls and down sides sufficient to protect masonry from wind driven rain until masonry work is completed and protected by flashing or other permanent construction

6 Protect masonry from marking and other damage. Protect completed work from mortar droppings

6.1 Provide temporary bracing of masonry walls until permanent lateral support is in place.

6.2 Installation

6.2.1 Build masonry plumb, level and true to line

6.2.2 Lay out coursing and bond to achieve correct coursing height.

6.2.3 Remove chipped, cracked and otherwise damaged units and replace with undamaged

units.

6.2.4 Jointing: Allow joints to set enough to remove excess water then tool with jointer to produce uniform joints.

6.2.5 Cutting:

6.2.5.1 Cut out for built-in objects

6.2.5.2 Make cuts straight, clean and true from uneven edges.

6.2.6 Build-in items required to be built-in to masonry. Prevent displacement of built-in items during construction.

6.2.7 Include provisions for movement in design.

6.2.8 Openings:

6.2.8.1 Ensure adequate support over all openings in masonry walls through use of filled reinforced block lintels sized to suit opening, width extending a minimum of 150mm either side of opening.

6.2.8.2 Use loose steel lintels only where block lintels are not possible.

6.2.9 Control joints: Construct continuous control joints as required.

Section 04 05 00 Common Work Results for Masonry

1 Mortar and Masonry Grout

1.1 Materials and work for masonry mortar and grout to meet the requirements of CAN/CSA A179-14 except where specified otherwise.

1.2 Mortar types:

1.2.1 Mortar for exterior brick masonry above grade: Type N

1.2.2 Mortar for brick masonry at or below grade: Type M

1.2.3 Mortar for concrete masonry in exterior walls: Type S

1.2.4 Mortar for interior concrete masonry: Type N

1.3 Mortar Mixes:

1.3.1 Mortars to be mixed to requirements of CAN/CSA A179-14, using only dry aggregate. Test for bulking to determine accurate bulking.

1.4 Grout Mixing:

1.4.1 Grout to be mixed to semi-fluid consistency.

2 Masonry Anchorage and Reinforcing

2.1 Masonry reinforcing and connecting to be done in accordance with CSA S304-14 and the NBC latest edition, unless specified otherwise.

2.2 Joint Reinforcement:

2.2.1 For single wythe walls use 9 gauge side rods, welded to a continuous diagonal formed cross rod forming a truss design, galvanized after manufacture.

2.2.2 For cavity walls use 9 gauge, stainless steel, cavity wall tie.

2.2.3 Use of flexible anchors, for tying masonry veneer to wood stud backup, where applicable.

2.2.3.1 3/16" (5 mm) stainless steel web tie and anchor.

2.2.3.2 Extend tie 75 mm into masonry.

2.2.4 Use of flexible anchors, for tying masonry walls to structural steel: 3/16" (5 mm) galvanized steel web tie and anchor. Extend tie 200 mm into concrete block.

2.3 Dovetail Anchor:

2.3.1 Use of 9 gauge stainless steel anchors to suit dovetail anchor slot, complete with 3/16" (5 mm) stainless steel triangular ties.

2.4 Reinforcing Steel for Reinforced Masonry to be to CAN/CSA A371-14, and CSA G30.18-09 (R2014).

2.5 Use of 3/16" (5 mm) stainless steel web ties and anchors for tying masonry veneer to wood or steel backup where applicable. Extend tie 75 mm into masonry.

3 Masonry Accessories

3.1 Continuous control joint fillers to be installed in control joints as required.

3.2 Weep Hole Vents:

3.2.1 Weep hole vents to be installed in vertical joints immediately over flashing, in exterior wythes of cavity wall construction, at maximum horizontal spacing of 600 mm o.c. Set weep hole to drain at bed level, and at third brick level.

3.2.2 Weep holes to be clear of mortar, and free flowing.

3.3 Masonry Flashing:

3.3.1 Flexible through wall flashing to be installed in masonry in accordance with CSA S304-14 and as follows:

3.3.1.1 Install flashing under exterior masonry bearing on foundation walls, slabs, shelf angles, and steel angles over openings. Install flashing under weepholes courses. Secure to air barrier at walls.

3.3.1.2 Install 300 mm wide piece of flashing centered over all joints between shelf angles. Bond flashing to angles as recommended by manufacturer.

3.3.1.3 In double wythe walls carry flashing from front edge of masonry, under outer wythe, then up backing not less than 200 mm.

3.3.1.4 Lap joints 150 mm and seal to requirements of manufacturer's printed instructions.

3.4 Masonry Thru Wall Flashing (Self Adhering):

3.4.1 SBS Modified bitumen, self adhering sheet membrane complete with a cross laminated polyethylene film having the following properties:

3.4.1.1 Thickness: 1 mm (40 mils) minimum

3.4.1.2 Film thicknesses 0.225 mm (9.0 mils)

3.4.1.3 Tensile strength (film): 34,500 kPa (500 psi)

3.4.2 Standard of Acceptance: Blueskin TWF by Bakor, or Perm-A-Barrier by Grace Membrane Systems.

Section 04 21 00 Clay Unit Masonry

1 Provide for:

1.1 Mockup panel of exterior wall, showing patterns and textures as designed.

1.2 Submission of test reports (brick) certifying compliance of units with specification requirements including data indicating initial rate of absorption.

1.3 Color samples (Brick and mortar).

2 Requirements:

2.1 Exterior joints are concave, unless approved by DTIR.

2.2 Interior joint face is struck flush.

2.3 Means of stabilizing, caulking, filling of spaces by others is defined.

3 Detail control joints.

4 Weep hole vents are to be PVC.

5 Details of masonry reinforcement and connectors to be indicated on drawings.

6 Shop drawings required for reinforced masonry.

7 Connectors and Reinforcement to be stainless steel where noted and otherwise shall be galvanized in exterior walls and moist environments.

8 Specify spacing of connectors, ties, and reinforcing.

9 Specify additional reinforcement for seismic requirements and the like, if applicable.

10 Specify bonding and tying.

11 Specify placing and grouting of reinforcement, if applicable.

12 Refer to DC350, Part 1 - Section 1, Article 10 for exterior wall construction requirements.

13 Wall thermal rating in accordance with DC350, Part 1, Section 2 - Division 07.

14 Note and specify appropriate reinforcing to accommodate mechanical fasteners of cavity insulation.

15 Exterior Masonry Walls

15.1 Where exterior wall veneer design incorporates the use of Clay Face Brick, specify products as follows:

15.1.1 To Requirements of CAN/CSA-A82-14.

15.1.1.1 Type: FBS

15.1.1.2 Grade: SW

15.1.1.3 Size: Metric modular, include special shapes as required.

15.1.1.4 Colour & Texture: To requirements of the Design Brief.

15.1.1.5 Compressive Strength: 55 MPa minimum.

15.1.1.6 Absorption (24 hr. cold water): 10% maximum.

15.1.1.7 Saturation Co-efficient: 0.78 average.

15.1.1.8 Initial Rate of Absorption: 20 gm/min/194cm^2.

15.1.1.9 Freeze Thaw (50 cycles):

15.1.1.9.1 No Breakage

15.1.1.9.2 Not greater than 0.5% loss in dry mass of any individual brick.

Section 04 22 00 Concrete Unit Masonry

1 When providing Standard Concrete Masonry Units provide to CAN/CSA A165 SERIES-14 and as follows:

1.1 Classification:

1.1.1 Hollow Units: H/15/A/M

1.1.2 Solid Units: S/15/A/M

1.2 Special shapes:

1.2.1 Provide bull-nosed units for all exposed corners and at window sills, unless specified otherwise.

1.2.2 Provide purpose-made shapes for lintels and bond beams.

1.2.3 Provide other special shapes as required.

1.2.4 reinforcing as per structural engineer instructions.

2 When providing Architectural Concrete Block units, provide to CAN/CSA A165 SERIES-14 and as follows:

2.1 Split faced and two rib split faced block.

2.2 Colour selected by Consultant, in conjunction with the DTIR and Client Department.

2.3 Provide special shapes as required.

3 Concrete block units

3.1 Bond: Running

3.2 Coursing height: 200mm for one block and one joint.

3.3 Jointing: concave where exposed or where paint or other finish coating is specified, or as project requirements dictate.

4 Concrete block lintels

4.1 Install reinforced concrete block lintels over openings in masonry, sized to suit openings width with a minimum end bearing of 200 mm. Use steel lintels only where block lintels are not possible.

5 Provide bullnosed concrete block for exposed corners.

6 Acoustical concrete block may be used for noise reduction.

7 Indicate the fire resistance rating to each concrete block unit wall requiring such rating.

8 Concrete block control jointing as decided by Consultant.

9 Exterior walls of Concrete Masonry Units to be insulated cavity walls.

END