

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 35 00 – Traffic regulation;
- .2 Section 32 16 15 – Concrete Walks, Curbs and Gutters

1.2 REFERENCES

- .1 Reference Standards:
 - .1 CSA International
 - .1 CSA A23.1/A23.2-[2004], Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CSA A283-[06], Qualification Code for Concrete Testing Laboratories.
 - .3 CSA A3000-[08], Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Not applicable.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop drawings:
 - .1 Submit all required pour shop drawings required; these have to be prepared in accordance with provided drawings in order to clearly indicate dimension, shapes and location of the steel reinforcement and any relevant detail required.
 - .2 Submit all required form and shoring works drawings in accordance with CSA A23.1/A23.2.
 - .3 Drawings have to be stamped and sealed by a competent engineer licenced in Quebec province.
- .3 Provide testing inspection results and reports for review by Ministerial representative and do not proceed without written approval when deviations from mix design or parameters are found.
- .4 Concrete hauling time: provide for review by Ministerial representative deviations exceeding maximum allowable time of 120 minutes for concrete to be delivered to site of Work and discharged after batching.

1.5 QUALITY ASSURANCE

- .1 Provide Ministerial representative, minimum (4) weeks prior to starting concrete work, with valid and recognized certificate from plant delivering concrete.
 - .1 Provide test data and certification by qualified independent inspection and testing laboratory that materials and mix designs used in concrete mixture will meet specified requirements.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Delivery and Acceptance Requirements:
 - .1 Concrete hauling time: deliver to site of Work and discharged within 120 minutes maximum after batching.
 - .1 Do not modify maximum time limit without receipt of prior written agreement from laboratory representative and concrete producer as described in CSA A23.1/A23.2.
 - .2 Deviations to be submitted for review by Ministerial representative.
 - .2 Concrete delivery: ensure continuous concrete delivery from plant meets CSA A23.1/A23.2.
- .3 Packaging Waste Management: remove for reuse by manufacturer of pallets, crates, padding and packaging materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 DESIGN CRITERIA

- .1 Alternative 1 - Performance : to CSA A23.1/A23.2, and as described in MIXES of PART 2 - PRODUCTS.

2.2 PERFORMANCE CRITERIA

- .1 Quality Control Plan: ensure concrete supplier meets performance criteria of concrete as established by Ministerial representative and provide verification of compliance as described in PART 1 - QUALITY ASSURANCE.

2.3 MATERIALS

- .1 Material in accordance with section 17.1.1 Cahier des Charges et Devis Généraux du Québec.
- .2 Welded wire mesh in accordance with ASTM D1751 standard.
- .3 Premoulded joint fillers:
 - .1 Bituminous impregnated fiber board: to ASTM D1751.
- .4 Filler/sealant products for joints: Type 1, B category, grey color, in accordance with CAN/CGSB-19.24.
- .5 Sealant products : . Boiled linseed oil in accordance with ASTM D260, resin mix with polysiloxane trade mark.
- .6 Other components: to CSA A23.1/A23.2.

2.4 MIXES

- .1 Alternative 1 - Performance Method for specifying concrete: to meet Ministry Representative performance criteria to CSA A23.1/A23.2.
 - .1 Ensure concrete supplier meets performance criteria as established below and provide verification of compliance as in Quality Control of PART 3.

- .2 Provide concrete mix to meet CCDG section 17.1 requirements:
- .3 After concrete has hardened, the concrete mix has to meet CCDG section 17.1 requirements.
- .4 Provide the supplier's concrete certificate.

Part 3 Execution

3.1 PREPARATION

- .1 Give a 24 hour's notice and obtain Ministerial representative's notice written approval before pouring concrete.
- .2 Place concrete reinforcing in accordance with Section 03 20 00 - Concrete Reinforcing.
- .3 During concreting operations:
 - .1 Development of cold joints not allowed.
 - .2 Ensure concrete delivery and handling facilitates placing with minimum of re-handling, and without damage to existing structure or Work.
- .4 Protect previous Work from staining.
- .5 Clean and remove stains prior to application for concrete finishes.

3.2 INSTALLATION/APPLICATION

- .1 Do cast-in-place concrete work to CSA A23.1/A23.2.
- .2 Sleeves and inserts:
 - .1 Where approved by Ministry Representative, set sleeves, ties, pipe hangers and other inserts and openings as indicated or specified elsewhere.
 - .2 Sleeves and openings greater than 100 x 100 mm not indicated must be reviewed by Ministry Representative.

3.3 FINISHING

- .1 Hardened surfaces, sidewalks, curbs and apparent concrete surfaces
 - .1 Rule finished surface until surface is straight, followed by a wooden trowel.
 - .2 Rounded borders and joints made with spacers, made with usual tools.
 - .3 Troweling and light brushing to get a non-slip finish

3.4 SHRINKAGE JOINTS

- .1 Make shrinkage joints in slabs where indicated and in accordance with CSA-A23.1/A23.2 and fill them with a specified packing/filler material.

3.5 EXPANSION AND FRACTURE JOINTS

- .1 Place, almost flush with the finished surface, premoulded bottom joints to full width of the slab thickness an expansion joint to CSA A23.1/A23.2.

3.6 CURE

- .1 Use a curing product compatible with concrete finished surface not containing any bounding agent and in compliance with CSA A23.1/A23.2.

3.7 WATERSTOPS

- .1 After completed cure, apply 2 uniform coats of a blend of linseed oil, to a 1 L/8m² ratio by coats on a clean and dry surface. Let dry foirst coat before applying second coat.

3.8 SURFACE TOLERANCE

- .1 Concrete tolerance to CSA A23.1

3.9 FIELD QUALITY CONTROL

- .1 Inspection and testing of concrete and concrete materials will be carried out by testing laboratory designated by Ministry Representative for review to CSA A23.1/A23.2.

3.10 CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
- .2 Provide trigger sprayers to be connected to hoses
- .3 Designate a cleaning area for tools to limit the consumption of clean water and the volume of runoff.
- .4 Clean concrete tools and equipment in accordance with environmental standards.
- .5 Waste Management: separate waste materials for reuse in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal
 - .1 Divert unused concrete materials from landfill to local facility after receipt of written approval from Ministry Representative.
 - .2 Provide appropriate area on job site where concrete trucks and be safely washed.
 - .3 Divert unused admixtures and additive materials (pigments, fibres) from landfill to official hazardous material collections site as approved by Ministry Representative.
 - .4 Do not dispose of unused admixtures and additive materials into sewer systems, into lakes, streams, onto ground or in other location where it will pose health or environmental hazard.

END OF SECTION