

**Part 1            General**

**1.1                ACTION AND INFORMATIONAL SUBMITTALS**

- .1    Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2    Shop Drawings:
  - .1        Submit placing drawings prepared in accordance with plans to clearly show size, shape, location and necessary details of reinforcing.
- .3    Provide testing results for review by Departmental 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 Departmental Representative deviations exceeding maximum allowable time of 120 for concrete to be delivered to site of Work and discharged after batching.

**1.2                QUALITY ASSURANCE**

- .1    Provide to Departmental Representative, 2 weeks minimum prior to starting concrete work, valid and recognized certificate from plant delivering concrete.
  - .1        Quality Control Plan: provide written report to Departmental Representative verifying compliance that concrete in place meets performance requirements.

**1.3                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 Departmental Representative and concrete producer as described in CSA A23.1/A23.2.
    - .2            Deviations to be submitted for review by the Departmental Representative.
- .2    Concrete delivery: ensure continuous concrete delivery from plant meets CSA A23.1/A23.2.

**Part 2            Products**

**2.1                PERFORMANCE CRITERIA**

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

**2.2                MATERIALS**

- .1    Cement: to CSA A3001, Type 10.

- .2 Water: to CSA A23.1/A23.2.
- .3 Reinforcing bars: to CAN/CSA-G30.18, Grade 400.
- .4 Welded steel wire fabric: to ASTM A185.
- .5 Premoulded joint filler:
  - .1 Bituminous impregnated fibreboard: to ASTM D1751.
- .6 Joint sealer/filler: grey to CAN/CGSB-19.24, Type 1, Class B.
- .7 Sealer: boiled linseed oil to ASTM D260, mixed with mineral spirits 1:1.
- .8 Other concrete materials: to CSA A23.1/A23.2.

### **2.3 MIXES**

- .1 Proportion concrete in accordance with CAN/CSA-A23.1.
- .2 Minimum 28 day compressive strengths and exposure classifications:
  - .1 Pavements, walks, curbs and exposed site concrete: 32 MPa; C-2.
  - .2 All other concrete: 25 MPa; C-4.
- .3 Nominal size of coarse aggregate: Clause 14 of CAN/CSA-A23.1.
- .4 Slump: to Table 6 of CAN/CSA-A23.1.
- .5 Air content: all concrete to contain purposely entrained air in accordance with Table 10 of CAN/CSA-A23.1.
- .6 Admixtures: to Clause 6 of CAN/CSA-A23.1.

## **Part 3 Execution**

### **3.1 PREPARATION**

- .1 Provide Departmental Representative 24 hours notice before each concrete pour.
- .2 During concreting operations:
  - .1 Development of cold joints not allowed.
  - .2 Ensure concrete delivery and handling facilitates placing with minimum of rehandling, and without damage to existing structure or Work.
- .3 Protect previous Work from staining.
- .4 Clean and remove stains prior to application of concrete finishes.

### **3.2 INSTALLATION/APPLICATION**

- .1 Do cast-in-place concrete work in accordance with CSA A23.1/A23.2.
- .2 Sleeves and inserts:
  - .1 Cast in sleeves, ties, slots, anchors, reinforcement, frames, conduit, bolts, waterstops, joint fillers and other inserts required to be built-in.
  - .2 Sleeves and openings greater than 100 mm x 100 mm not indicated, must be reviewed by Departmental Representative.

### **3.3 FINISHES**

- .1 Formed surfaces exposed to view: sack rubbed finish in accordance with CSA A23.1/A23.2.
- .2 Pavements, walks, curbs and exposed site concrete:
  - .1 Screed to plane surfaces and use wood floats.
  - .2 Provide round edges and joint spacings using standard tools.
  - .3 Trowel smooth to provide lightly brushed non-slip finish.

### **3.4 CONTROL JOINTS**

- .1 Cut control joints in slabs on grade at locations indicated, to CSA A23.1/A23.2 and install specified joint sealer/filler.

### **3.5 EXPANSION AND ISOLATION JOINTS**

- .1 Install premoulded joint filler in expansion and isolation joints full depth of slab flush with finished surface to CSA A23.1/A23.2.

### **3.6 CURING**

- .1 Use curing compounds compatible with applied finish on concrete surfaces free of bonding agents and to CSA A23.1/A23.2.

### **3.7 SEALING APPLICATION**

- .1 After curing is complete, apply two even coats of linseed oil mixture to clean dry surfaces, each at 8 m<sup>2</sup>/L. Allow first coat to dry before applying second coat. Apply poly-siloxane resin blend sealer at 4 m<sup>2</sup>/L.

### **3.8 SITE TOLERANCES**

- .1 Concrete floor slab finishing tolerance to CSA A23.1/A23.2.

### **3.9 FIELD QUALITY CONTROL**

- .1 Concrete testing: to CSA A23.1/A23.2 by designated testing laboratory.

### **3.10 CLEANING**

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
- .2 Use trigger operated spray nozzles for water hoses.
- .3 Designate cleaning area for tools to limit water use and runoff.
- .4 Cleaning of concrete equipment to be done in accordance with Section 01 35 43 Environmental Procedures.

**END OF SECTION**