

**Part 1 General**

**1.1 SUBMITTALS**

- .1 Shop Drawings
  - .1 Submit placing drawings prepared in accordance with plans to clearly show size, shape, location and all necessary details of reinforcing.
  - .2 Submit drawings showing formwork and falsework design to: CAN/CSA-A23.1.
  - .3 Drawings to bear stamp and signature of qualified professional Departmental Representative registered or licensed in province of Saskatchewan, Canada.

**1.2 WASTE MANAGEMENT AND DISPOSAL**

- .1 Collect and separate plastic, paper packaging and corrugated cardboard in accordance with Section 01 74 19 – Construction/Demolition Waste Management and Disposal.
- .2 Handle and dispose of hazardous or toxic materials in accordance with Regional and Municipal Regulations or in designated containers.
- .3 Ensure emptied containers are sealed and stored safely.
- .4 Use trigger operated spray nozzles for water hoses.
- .5 Designate cleaning area for tools to limit water use and runoff.

**Part 2 Products**

**2.1 MATERIALS**

- .1 Portland cement to conform to CSA-A5 Type 50 - Sulphate Resistant
- .2 Supplementary Cementing Material: All concrete to contain 15% fly ash. Fly ash to be Type F or C.
- .3 Fine and Coarse Aggregates: conforming to CSA A23.1-04 – “Concrete Materials and Methods of Concrete Construction”. The fine and coarse aggregate for concrete slab, toppings and sidewalks shall contain a maximum of 0.4% low density particles as determined by CSA Test A23.2-4A “Low Density material in Aggregate”.
- .4 Water: clean and free from injurious amounts of oil, alkali, organic matter, or other deleterious material. Water to CSA A23.1-04
- .5 Admixtures:
  - .1 Air-entraining admixtures are to conform to the requirements of ASTM C260. The admixture is to be of uniform consistency and quality within each container and from shipment to shipment.

- .2 Water-reducing admixtures are to conform to the requirements of ASTM C494, Type A or D. The admixture is to be of uniform consistency and quality within each container and from shipment to shipment.
- .3 Superplasticizers, if approved by the Departmental Representative, (high range water reducers) are to conform to the requirements of ASTM C494, Type F or G.
- .6 Reinforcing bars: to CAN/CSA-G30.18, Grade 400.
- .7 Welded steel wire fabric: to CAN/CSA-30.5 10 gauge.
- .8 Joint sealer/filler: grey to CAN/CGSB-19.24, Type 1, Class B.
- .9 Other concrete materials: to CAN/CSA-A23.1.

## **2.2 MIXES**

- .1 Proportion concrete in accordance with CAN/CSA-A23.1.
- .2 Class of exposure: to CAN/CSA-A23.1, Table 1.
  - .1 C-2: sidewalks, curb and gutters, pads.
  - .2 C-4: concrete thrust blocks and/or support blocks.
- .3 Minimum compressive strength at 28 days to CAN/CSA-A23.1-04 Table 2 as per class of exposure.
  - .1 C-2: 32 MPa
  - .2 C-4: 25 MPa
- .4 Nominal size of aggregate (Group 1 20-5): to CAN/CSA-A23.1.
- .5 Slump: to CAN/CSA-A23.1-04.
- .6 Air content: concrete to contain purposely entrained air in accordance with CAN/CSA-A23.1, Table 4.
  - .1 C-2: 5-8%
  - .2 C-4: 4-7%

## **Part 3 Execution**

### **1. CONSTRUCTION**

- .1 Do forming and placing of cast-in-place concrete work in accordance with CAN/CSA-A23.1-04.

### **3.2 INSERTS**

- .1 Cast in sleeves, ties, slots, anchors, reinforcement, frames, conduit, bolts, waterstops, joint fillers and other inserts required to be built-in. Sleeves and openings greater than 100 mm x 100 mm not indicated, must be approved by Departmental Representative.

**3.3 FINISHES**

- .1 Formed surfaces exposed to view: trowelled finish in accordance with CAN/CSA-A23.1.
- .2 Pavements, walks, curbs:
  - .1 Refer to Section 32 16 15.

**3.4 CURING**

- .1 Cure and protect concrete in accordance with CAN/CSA-A23.1-04.
  - .1 Do not use curing compounds where bond is required by subsequent topping or coating.

**3.5 SITE TOLERANCES**

- .1 Concrete finishing tolerance in accordance with CAN/CSA-A23.1-04.

**3.6 FIELD QUALITY CONTROL**

- .1 Concrete testing: to CAN/CSA-A23.2 by testing laboratory designated in accordance with Section 01 29 83 Payment Procedures for Testing Laboratory Services.
- .2 Make at least one (1) Compressive Strength Test from each 25 m<sup>3</sup> of concrete poured with a minimum of one (1) test per day or per each pour. One (1) strength test shall consist of three (3) 152 x 305 mm cylinders. One tested at seven (7) days and two (2) tested at 28 days.
- .3 Slump and air content test shall accompany each compressive strength test.

**END OF SECTION**