

**Part 1            General**

**1.1               RELATED SECTIONS**

- .1       Section 32 16 15 - Concrete Walks, Curbs and Gutters.

**1.2               REFERENCES**

- .1       American Society for Testing and Materials International (ASTM)
  - .1       ASTM C 260-00, Specification for Air-Entraining Admixtures for Concrete.
  - .2       ASTM C494/C494M-99ae1, Specification for Chemical Admixtures for Concrete.
  - .3       ASTM D1751-04, Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non extruding and Resilient Bituminous Types).
- .2       Canadian Standards Association (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       CAN/CSA-A3000-03, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).  
              CSA-A3001-03, Cementitious Materials for Use in Concrete.

**1.3               SAMPLES**

- .1       At least 1 week prior to commencing work, inform Departmental Representative of proposed concrete supplier.

**1.4               CERTIFICATES**

- .1       Provide certification that mix proportions selected will produce concrete of quality, yield and strength as specified in concrete mixes, and will comply with CSA-A23.1.

**1.5               QUALITY ASSURANCE**

- .1       Minimum 1 week prior to starting concrete work, submit proposed quality control procedures for Departmental Representative's approval for following items:
  - .1       Hot weather concrete.
  - .2       Cold weather concrete.
  - .3       Curing.

**1.6               WASTE MANAGEMENT AND DISPOSAL**

- .1       Use trigger operated spray nozzles for water hoses.
- .2       Designate a cleaning area for tools to limit water use and runoff.
- .3       Carefully coordinate the specified concrete work with weather conditions.

- .4 Ensure emptied containers are sealed and stored safely for disposal away from children.
- .5 Prevent plasticizers, water-reducing agents and air-entraining agents from entering drinking water supplies or streams. Using appropriate safety precautions, collect liquid or solidify liquid with an inert, noncombustible material and remove for disposal. Dispose of all waste in accordance with applicable local, provincial and national regulations.
- .6 Choose least harmful, appropriate cleaning method which will perform adequately.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Portland cement: to CSA-A3000.
- .2 Supplementary cementing materials: to CSA-A3000.
- .3 Water: to CSA-A23.1.
- .4 Aggregates: to CSA-A23.1. Coarse aggregates to be normal density.
- .5 Air entraining admixture: to ASTM C 260.
- .6 Chemical admixtures: to ASTM C 494. Departmental Representative to approve accelerating or set retarding admixtures during cold and hot weather placing.
- .7 Premoulded joint fillers:
  - .1 Bituminous impregnated fiber board: to ASTM D 1751.

### **2.2 MIXES**

- .1 Concrete:
  - .1 Method: Alternative 1 of CSA Standard.
  - .2 Cement Type: as specified under 2.1.
  - .3 Minimum 28 day compressive strengths and exposure classifications:
    - Curbs, sidewalks, and exposed site concrete: 32 MPa: C-2.
  - .4 Nominal size of coarse aggregate in accordance with CSA-A23.1.
  - .5 Slump as specified in CSA-A23.1.
  - .6 Air content as specified in CSA-A23.1.
  - .7 Admixtures: to CSA-A23.1 and subject to approval of Departmental Representative.
- .2 Pressure grout: Mixture of one part Portland cement and two parts clean washed sand, with only sufficient water added to allow placing.

**Part 3            Execution**

**3.1                PREPARATION**

- .1      Obtain Departmental Representative's approval before placing concrete. Provide 24 hours notice prior to placing of concrete.
- .2      Pumping of concrete will not be permitted.
- .3      Ensure inserts are not disturbed during concrete placement.
- .4      Prior to placing of concrete obtain Departmental Representative's approval of proposed method for protection of concrete during placing and curing in adverse weather.

**3.2                CONSTRUCTION**

- .1      Obtain Departmental Representative's approval of granular base prior to placing concrete.
- .2      Perform cast-in-place concrete work in accordance with CSA-A23.1/A23.2.
- .3      Install premoulded joint fillers, refer to Section 32 16 15 – Concrete walks, Curbs and Gutters.

**3.3                FIELD QUALITY CONTROL**

- .1      Inspection and testing of concrete and concrete materials will be carried out by a Testing Laboratory designated by Departmental Representative in accordance with CSA-A23.2 and Section 01 00 10 - General Instructions.
- .2      Inspection or testing by Departmental Representative will not augment or replace Contractor quality control nor relieve him of his contractual responsibility

**END OF SECTION**