
Part 1 General

1.1 RELATED SECTIONS

- .1 Section 05 31 00 – Steel Decking
- .2 Section 03 20 00 - Concrete Reinforcing.
- .3 Section 05 50 00 - Metal Fabrications.

1.2 MEASUREMENT PROCEDURES

- .1 Concrete for deck over steel deck will be measured in cubic metres from neat dimensions indicated or authorized by departmental representative.
- .2 No deductions will be made for volume of concrete displaced by reinforcing steel, structural steel, or piles.
- .3 No deductions will be made for volume of concrete less than 0.1 m² in cross sectional area displaced by individual drainage openings.
- .4 Heating of water and aggregates and providing cold weather protection will not be measured but considered incidental to work.
- .5 Cooling of concrete and providing hot weather protection will not be measured but considered incidental to work.
- .6 Canadian Standards Association (CSA), all standards used shall be of latest edition.
 - .1 CAN/CSA-A5- Portland Cement.
 - .2 CAN/CSA-A23.1- Concrete Materials and Methods of Concrete Construction.
 - .3 CAN/CSA-A23.2- Methods of Test for Concrete.
 - .4 CAN/CSA-A23.5- Supplementary Cementing Materials.

1.3 SAMPLES

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 At least 4 weeks prior to commencing work, inform Departmental Representative of proposed source of aggregates and provide access for sampling.

1.4 CERTIFICATES

- .1 Submit certificates in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Minimum 4 weeks prior to starting concrete work submit to Departmental Representative manufacturer's test data and certification by qualified independent inspection and testing laboratory that following materials will meet specified requirements:
 - .1 Portland cement.
 - .2 Blended hydraulic cement.
 - .3 Supplementary cementing materials.
 - .4 Grout.

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- .5 Admixtures.
 - .6 Aggregates.
 - .7 Water.
 - .3 Provide certification that mix proportions selected will produce concrete of quality, yield and strength as specified in concrete mixes, and will comply with CAN/CSA-A23.1.
 - .4 Provide certification that plant, equipment, and materials to be used in concrete comply with requirements of CAN/CSA-A23.1.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21.
- .2 Designate a cleaning area for tools to limit water use and runoff. Designate a cleaning area for concrete trucks off site at a company owned site for such a purpose (meeting all federal and provincial requirements).
- .3 Use trigger operated spray nozzles for water hoses.
- .4 Carefully coordinate the specified concrete work with weather conditions.
- .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, non-combustible 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 CAN/CSA-A5, Type GU.
- .2 Supplementary cementing materials: to CAN/CSA-A23.5.
- .3 Water: to CAN/CSA-A23.1.
- .4 Aggregates: to CAN/CSA-A23.1. Coarse aggregates to be normal density.
- .5 Air entraining admixture: to ASTM C260.
- .6 Chemical admixtures: to ASTM C494. Departmental Representative to approve accelerating or set retarding admixtures during cold and hot weather placing.
- .7 Concrete retarders: to ASTM C494 water based, low VOC, solvent free. Do not allow moisture of any kind to come in contact with the retarder film.
- .8 Post-Tensioning ducts: to CAN/CSA-A23.1.
- .9 Curing compound: to CAN/CSA-A23.1 white and to ASTM C309, Type 1-chlorinated rubber.
- .10 Premoulded joint fillers:
 - .1 Bituminous impregnated fiber board: to ASTM D1751.

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- .2 Sponge rubber: to ASTM D1752, Type I, flexible firm grade.

2.2 MIXES

- .1 Proportion normal density concrete in accordance with CAN/CSA-A23.1 and A 23.2.
- .1 Normal Cement.
- .2 Minimum compressive strength at 28 days: 35 MPa.
- .3 Minimum cement content: 385 kg/m³ of concrete.
- .4 Class of exposure: C1 for exterior and salt condition.
- .5 Nominal size of coarse aggregate: 5-20 mm.
- .6 Slump at time and point of discharge: 50 to 100 mm.
- .7 Air content: 5 to 8 %.
- .8 Maximum water cement ratio 0.35.

Part 3 Execution

3.1 PREPARATION

- .1 Obtain Departmental Representative approval before placing concrete. Provide 24 hours notice prior to placing of concrete.
- .2 Pumping of concrete is permitted only after approval of equipment and mix.
- .3 Ensure reinforcement and inserts are not disturbed during concrete placement.
- .4 Prior to placing of concrete obtain Departmental Representative approval of proposed method for protection of concrete during placing and curing in adverse weather.
- .5 Maintain accurate records of poured concrete items to indicate date, location of pour, quality, air temperature and test samples taken.
- .6 In locations where new concrete is dowelled to existing work, drill holes in existing concrete. Place steel dowels of deformed steel reinforcing bars and pack solidly with shrinkage compensating grout to anchor and hold dowels in positions as indicated.
- .7 Do not place load upon new concrete until authorized by Departmental Representative.

3.2 CONSTRUCTION

- .1 Do cast-in-place concrete work in accordance with CAN/CSA-A23.1.
- .2 Finishing.
- .1 Finish concrete in accordance with CAN/CSA-A23.1.
- .2 Float surfaces with wood or metal floats or power finishing machines and bring surfaces to true grade or dimensions.
- .3 Use curing compounds compatible with applied finish on concrete surfaces.
Applied finish on concrete: Provide written declaration that compounds used are compatible.
- .4 Apply two (2) coats of sealing compounds for all concrete work.

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- .5 Concrete deck shall have broom finish.
 - .6 All concrete work shall be properly vibrated.

3.3 SITE TOLERANCE

- .1 Concrete tolerance in accordance with CAN/CSA-A23.1 and A 23.2.

3.4 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 CAN/CSA-A23.1 and Section 01 45 00.
- .2 Departmental Representative may take additional test cylinders during cold weather concreting. Cure cylinders on job site under same conditions as concrete which they represent.
- .3 Non-destructive Methods for Testing Concrete shall be in accordance with CAN/CSA-A23.2.

END OF SECTION