

CAST IN PLACE CONCRETE

Part 1 General**1.1 REFERENCES**

- .1 American Society for Testing and Materials (ASTM).
 - .1 ASTM C260/C260M-10a. Standard Specification for Air-Entraining Admixtures for Concrete.
 - .2 ASTM C494/C494M-13. Standard Specification for Chemical Admixtures for Concrete.
- .2 Canadian Standards Association (CSA).
 - .1 CAN/CSA A23.1-09/A23.2-09. Concrete Materials and Methods of Concrete Construction / Test Methods and Standard Practices for Concrete.
 - .2 CSA A3000-13. Cementitious Materials Compendium.

Part 2 Products**2.1 MATERIALS**

- .1 Portland cement: to CSA A3000, Type 10.
- .2 Slag cement: cementitious hydraulic slag, to CSA A3000.
- .3 Water, fine aggregates, normal density coarse aggregates: to CSA A23.1.
- .4 Air entraining admixture: to ASTM C260.
- .5 Chemical admixtures: to ASTM C494.

2.2 CONCRETE MIXES

- .1 Proportion normal density concrete to CSA A23.1, Clause 4.3, to give the following properties:

| LOCATION | 28 DAY STRENGTH | SLUMP | CLASS OF EXPOSURE |
|----------------------------|--------------------|-------|----------------------|
| Concrete Infills/ patching | 25 MPa | 75 | N |
- .2 Obtain specified slump with aid of specified water reducing agent.
- .3 Provide certification that plant, equipment, and all materials to be used in concrete comply with requirements of CSA A23.1.
- .4 Provide certification that mix proportions selected will produce concrete of specified quality and yield and that strength will comply with CSA A23.1, Clause 4.4.5.
- .5 Slag cement in combination with normal Portland cement to a maximum of 25% may be used, except in suspended slabs, upon approval of Departmental Representative.

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- .6 Obtain Departmental Representative's consent before using chemical admixtures.

Part 3 Execution**3.1 WORKMANSHIP**

- .1 Do cast-in-place concrete work in accordance with CSA A23.1, and testing in accordance with CSA A23.2, except where specified otherwise.
- .2 Conform to National Building Code, 2010.
- .3 Obtain Departmental Representative's review of reinforcing placement before placing concrete. Provide 48 hours notice prior to placing of concrete. In slab construction, ensure that all bottom steel and at least 66% of top steel is in place and inspected before commencing concrete placement.
- .4 Ensure that reinforcement and inserts are not disturbed during concrete placement.
- .5 Prior to placing of concrete in adverse weather, obtain Departmental Representative's review of proposed method for protection during placing and curing.
- .6 Maintain accurate records of poured concrete items to indicate date, location of pour quality, air temperature and test samples taken.

3.2 INSERTS

- .1 Set sleeves, ties, anchor bolts, pipe hangers and other inserts, as required by other trades, in concrete floors and walls. Also, openings as indicated or specified elsewhere. Sleeves, openings, etc., greater than 100mm square not indicated on structural drawings must be reviewed by Departmental Representative.
- .2 Do not provide for any openings through beams or columns without permission of Departmental Representative.
- .3 Do not eliminate or displace reinforcement to accommodate hardware. If inserts cannot be located as specified, obtain agreement for all modifications from Departmental Representative before placing of concrete.
- .4 Obtain Departmental Representative's review of conduit routing in slabs prior to placing of concrete.
- .5 Check locations and sizes of sleeves, openings, etc., shown on structural drawings with architectural, mechanical and electrical drawings.

CAST IN PLACE CONCRETE**3.3 FINISHING**

- .1 Finish concrete to CSA A23.1.

3.4 CONTROL JOINTS IN FLOOR LEVELLER

- .1 Form control joints in floor leveller over structural slabs per manufacturers written instructions and install specified joint sealer/filler.

3.5 CURING

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

3.6 DEFECTIVE CONCRETE

- .1 Remove defective concrete, blemishes and embedded debris and repair as approved by Departmental Representative.

3.7 INSPECTION AND TESTING

- .1 Inspection and testing of concrete and concrete materials will be carried out by testing laboratory designated by Departmental Representative, in accordance with CSA A23.1, Clause 4.4.
- .2 Costs of tests will be paid as per 01 45 00 - Quality Control.
- .3 Ship prepaid 3 test cylinders from each 60 cubic meters (max.) of concrete placed to designated testing laboratory.
- .4 Prepare one additional test cylinder during cold weather concreting. Cure cylinder on job site under same conditions as concrete it represents.

END OF SECTION

