

PART 1 - GENERAL

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| <u>1.1 REFERENCES</u>                          | .1 | CSA International<br>.1 CSA-A23.1/A23.2-2004, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.  |
| <u>1.2 ACTION AND INFORMATIONAL SUBMITTALS</u> | .1 | Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.  |
|  | .2 | Shop Drawings:<br>.1 Submit placing drawings prepared in accordance with plans to clearly show size, shape, location and necessary details of reinforcing.  |
|  | .3 | Contractor shall test all concrete in accordance with CAN/CSA A23.2-04.<br>.1 All testing will be at the expense of contractor.<br>.2 For compressive testing of concrete a minimum of 4- 100mm x 200mm cylinders required for:<br>.1 Each days pour.<br>.2 Each design change of concrete.<br>.3 Each change of supplier/facility.<br>.4 Each 50m3.<br>.3 Contractor to break one cylinder at 7 days, two at 28 days, and reserve the final cylinder for compressive test at request of Departmental Representative. Provide Departmental Representative with compressive strength results within 48 hours of testing. |
| <u>1.3 QUALITY ASSURANCE</u>                   | .1 | Provide to Owner Representative, 4 weeks minimum prior to starting concrete work, valid and recognized certificate from plant delivering concrete.<br>.1 Quality Control Plan: provide written report to Departmental Representative verifying compliance that concrete in place meets performance requirements.  |
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- 1.4 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 MATERIALS
- .1 Cement: to CSA A3001, Type GU.
  - .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 A 185.
  - .5 Premoulded joint filler:
    - .1 Bituminous impregnated fibreboard: to ASTM D 1751.
  - .6 Joint sealer/filler: grey to CAN/CGSB-19.24, Type 1, Class B.
  - .7 Sealer: poly-siloxane resin blend.
  - .8 Other concrete materials: to CSA A23.1/A23.2.

- 2.2 MIXES
- .1 Proportion concrete in accordance with CAN/CSA-A23.1/A23.2.
  - .2 Minimum compressive strength at 28 days: 30 mPa.
  - .3 Class of exposure: F-1.
  - .4 Intended application: Foundations.
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- .5 Nominal maximum size of coarse aggregate:  
20mm.
- .6 Slump: 80 +/- 20mm.
- .7 Admixture: Air-entraining.
- .8 Air Entrainment:
  - .1 Footing below frost: Non air entrained.
  - .2 Pedestals: Purposely entrained air:  
5%-8%.

### 2.3 FORMWORK

- .1 Contractor to design, construct and remove formwork, framing supports and bracing to conform to CAN/CSA-A23.1-04 and CAN/CSA-S269.3-M92 to provide finished, poured concrete surfaces within specified tolerances.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- .1 Provide Departmental Representative 24 hours notice before each concrete pour.
- .2 During concreting operations:
  - .1 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.
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- 3.3 FINISHES
- .1 Formed surfaces exposed to view: sack rubbed finish in accordance with CSA A23.1/A23.2.
  - .2 Chamfer all exposed corners 25mm.
- 3.4 CURING
- .1 Use curing compounds compatible with applied finish on concrete surfaces free of bonding agents and to CSA A23.1/A23.2.
- 3.5 CLEANING
- .1 Use trigger operated spray nozzles for water hoses.
  - .2 Designate cleaning area for tools to limit water use and runoff.
    - .1 Provide appropriate area on job site where concrete trucks and be safely washed.
    - .2 Divert admixtures and additive materials from landfill to approved official hazardous material collections site after receipt of written approval from Departmental Representative.
    - .3 Do not dispose of unused admixtures and additive materials into sewer systems, into lakes, streams, onto ground or in other location where it will pose health or environmental hazard.