

Cape Spear Lightstation
Remediation/Risk Management
Cape Spear, NL

2016-08-20

PART 1 - GENERAL

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| <u>1.1 DESCRIPTION</u> | .1 | This section specifies requirements for supply, placing, finishing, protecting and curing cast-in-place concrete for repairs to the building foundation and for the electrical trenching. |
| <u>1.2 CERTIFICATES</u> | .1 | Minimum 2 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: <ul style="list-style-type: none">.1 Portland cement..2 Blended hydraulic cement..3 Supplementary cementing materials..4 Grout..5 Admixtures..6 Aggregates..7 Water. |
| | .2 | 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. |
| <u>1.3 STORAGE OF MATERIALS</u> | .1 | Store materials to prevent contamination or deterioration. |
| | .2 | Provide adequate storage facilities for materials to ensure a continuous supply of these materials during batching operations. |
| | .3 | Store cement in weathertight facility. |
| <u>1.4 QUALITY ASSURANCE</u> | .1 | Minimum 2 weeks prior to starting concrete work, submit proposed quality control procedures to Departmental Representative |

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for the following items:

- .1 Cold weather concrete.
- .2 Curing.
- .3 Finishes.
- .4 Formwork removal.
- .5 Joints.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Cement to CAN/CSA-A3001, Type GU.
- .2 Supplementary cementing materials: to CAN/CSA-A3001.
- .3 Cementitious hydraulic slag: to CAN/CSA-A3001.
- .4 Water: to CAN/CSA-A23.1.
- .5 Aggregates: to CAN/CSA-A23.1. Coarse aggregates to be normal density.
- .6 Air entraining admixture: to ASTM C260.
- .7 Chemical admixtures: to ASTM C494/C494M. Departmental Representative to approve accelerating or set retarding admixtures during cold and hot weather placing.
- .8 Concrete retarders: to ASTM C494/C494M. Do not allow moisture of any kind to come in contact with the retarder film.
- .9 Curing compound: curing compounds are not to be used.
- .10 Grout/mortar for shallow repairs: as noted on the drawings.

2.2 MIXES

- .1 Proportion concrete in accordance with CAN/CSA-A23.1, Clause 4.3.

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- .2 Proportion concrete to comply with Alternate 1, Table 2 in CAN/CSA-A23.1 and following requirements:
 - .1 Cement:
 - .1 Type GU Portland cement.
 - .2 Minimum compressive strength: 35 MPa at 28 days.
 - .3 Class of exposure: C1.
 - .4 Minimum cement content: 385 kg/m³ of concrete.
 - .5 20 mm nominal size coarse aggregate.
 - .6 Air content 5% to 8%.
 - .7 Density of air-dry concrete in range of 2240 kg/m³ to 2400 kg/m³.
 - .8 Slump at time and point of discharge 50 mm to 100 mm.

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 Ensure reinforcement and inserts are not disturbed during concrete placement.
- .3 Prior to placing of concrete obtain Departmental Representative's approval of proposed method for protection of concrete during placing and curing in adverse weather.
- .4 Maintain accurate records of poured concrete items to indicate date, location of pour, quality, air temperature and test samples taken.
- .5 Place mortar/grout for shallow repairs in strict accordance with manufacturer's instructions.