

Appendix B

Design Criteria

Categories	Items	Description
Design Basis	Soil/Pile Foundation	- Working Stress Design
Design Codes	Cast-in-Place Concrete	<p>CSA Standards</p> <ul style="list-style-type: none"> - CSA A23.1-00 Concrete Materials and Methods of Concrete Construction. - CSA A23.2-00 Methods of Test for Concrete. - CSA A23.3-94 Design of Concrete Structures (Structures Design). - CSA A23.4-00 Precast Concrete - Materials and Construction. - CSA A3001-03 Cementitious Materials for Use in Concrete.
Design Parameters	Ground Snow and Rain	<ul style="list-style-type: none"> - $S_s = 1.7$ kPa - $S_r = 0.2$ kPa
	Wind	<ul style="list-style-type: none"> - $q(1/10) = 0.35$ kPa - $q(1/30) = 0.42$ kPa - $q(1/100) = 0.49$ kPa
	Design Temperature Range	<ul style="list-style-type: none"> - During Construction: -35°C to 35°C. - Ambient: -35°C to 35°C
Load Factors (Limit States)	Dead Load	- 1.25
	Live Load	- 1.5
	Wind	- 1.5
	Temperature	- 1.25
	Buoyancy, Overturning	- 0.85 for dead loads, 1.5 for live loads
	Combination	<ul style="list-style-type: none"> - 1.0 for any single load - 0.7 for 2 of live, wind and temperature - 0.6 for all live, wind and temperature

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Concrete Work	Design Parameters	<ul style="list-style-type: none"> - 28-day concrete strength of 35 MPa for all water retaining structural concrete; other concrete as appropriate for type of usage. - Portland cement type 50 (HS) will be used for concrete in contact with native soil and for water retaining structures. - Portland cement type 10 (GU) will be used for concrete not in contact with native soil. - Water to cement ratio shall be less than 0.42 for all structures. - Reinforcing bars will be specified to conform to CAN/CSA-G30.18-M92. - Black steel or galvanized steel bars will be used as appropriate.
Metals	Materials	<ul style="list-style-type: none"> - Structural steel – CSA G40.21, minimum 350 MPa. - Miscellaneous steel – CSA G40.21, minimum 300 MPa. - Square and Rectangular Hollow Structural Shapes - CSA G40.21, minimum 350 MPa. - Bolted connections for steel – ASTM A325. - Anchor bolts, non-submerged – Galvanized steel.