1.1 **GENERAL**

1.2 Related Sections

.1 03 00 00.1 Seismic Master Plan and Overview Post Tension Structure Report

1.3 **Concrete Construction – Structural Requirements**

.1 Design building structures and their structural components for a 100 year service life.

.2 Structural design shall conform to the latest editions of the following:

a) BC Building Code
b) CSA-A23.1, Concrete Materials and Methods of Concrete Construction
c) CSA-A23.2, Methods of Test for Concrete.

.3 QA and QC Plans to be provided and written in detailed specifications for every project.

.4 Ensure that drawings include a summary of the structural systems and provide supplementary information as required.

.5 Ensure that sustainable design principles have been considered for the project. Ensure that LEED requirements selected by SFU Facilities have been satisfied.

.6 Increase live loads for specific SFU occupancies.

.7 SFU snow load factors should reflect latest BC Building Code.

.8 Design light roofs for a minimum net factored uplift of 1.0 kPa.

.9 Ensure that the design and field review of non-structural components is covered in the contract documents (drawings and/or specifications).

.10 Conduit should not be embedded in concrete unless approved by SFU Facilities on a per project basis.

.11 Ensure that the independent structural concept review has been completed. Concept reviewer to submit a sealed letter to SFU Facilities confirming completion of the review.

.12 Refer to SFU Exterior Concrete Standard Specification for guidance on exterior concrete products.

1.4 **Materials**

.1 Treat exposed concrete elements with beveled edges or tooling, as appropriate.

.2 Slabs-on-grade are to be 150 mm minimum thickness, reinforced and provided with well-spaced control joints in an approximately square pattern, spacing less than 4000 mm on centre.

.3 Reinforcing steel, which is part of the seismic load-resisting system, must be weldable conforming to CAN/CSA G30.18W.

.4 Do not use calcium chloride (in any form) in concrete mixes.
.5 Post-tensioned slabs/ floor systems are strongly discouraged by SFU. Any use on projects must be reviewed and approved by SFU.

.6 Consult with SFU regarding status of SFU ‘Preventative Maintenance Inspections’ for all pre and post tensioned members. An inventory of all SFU members across the campus will be updated as part of this project – latest documentation is available in Section 03 00 00.1 Seismic Master Plan and Overview Post Tension Structure Report.

1.5 Inspection by the Consultant

.1 Provide adequate notice to the Consultant to ensure that he has the opportunity of inspecting all prepared areas prior to placement of concrete.

.2 Contractor to pay all costs incurred for uncovering and making good any Work covered before required inspection is completed and approved by the Consultant.

.3 Payment for inspection and specified testing to be provided by the Owner except for the following and as noted above:
   a) Testing required by laws, ordinances, rules, regulations or orders of the public authorities.
   b) Inspection and testing performed exclusively for the Contractor's convenience.

.4 Where tests or inspections by the Consultant reveal Work not in accordance with Contract requirements, the Contractor shall pay costs for additional tests or inspections that the Consultant may require to verify acceptability of the corrected Work.

1.6 Defective Concrete And Patching

.1 Concrete surfaces to be free from open texturing, voids, and projections.

.2 For repair of defective concrete Work:
   a) Repair defective areas while concrete is still plastic, otherwise wait until curing is completed. Use repair methods approved by Consultant.
   b) Grind off high surface variations where directed and re-texture surface to match adjoining concrete as closely as possible.

.3 Remove and replace defective concrete where directed. Removal and replacement procedures will be detailed by the Consultant.

.4 Repair of defective concrete Work and/or removal and replacement of defective concrete prior to final acceptance of the deck to be carried out at Contractor's expense.

.5 Immediately after the removal of forms, all bolts, ties, nails or other metal not specifically required for construction purposes shall be removed or cut back to a depth of 25 mm (1") from the surface of the concrete.

1.7 Protection

.1 All freshly placed and consolidated concrete shall be suitably protected during the curing period against damage from adverse weather conditions. Protection of the concrete from adverse weather conditions is the sole responsibility of the Contractor and shall be conducted in strict accordance with CSA-A23.1.
1.8 Tolerances

.1 Tolerances shall conform to CSA-A23.1 (current edition) or the requirements of these specifications, whichever are more rigorous.

***END OF SECTION***