1.1 **GENERAL**

1.2 Related SFU Technical Requirements

   .1 Section 07 00 10 Building Envelope – General Requirements
   .2 Section 08 00 10 Openings – General Requirements

1.3 Co-ordination Requirements

   .1 Coordinate design with Building Envelope Consultant.
   .2 Coordinate design with Division 26 Electrical Consultant.
   .3 Coordinate design with Divisions 27 and 28 SFU IT Services

1.4 Description

   .1 Exterior aluminum type framing systems: Only use storefront in protected areas under overhangs or canopies. In all other locations curtain wall is required.

1.5 Performance Standards

   .1 ASTM E283, “test method for rate of air leakage through exterior windows, curtain walls and doors.”
   .2 ASTM E330, “structural performance of exterior windows, curtain walls and doors by uniform static air pressure difference.”
   .3 ASTM E331, “test method for water penetration of exterior windows, curtain walls and doors by uniform static air pressure differential.”

1.6 Performance Requirements

   .1 It is strongly recommended that storefront glazing only be designed for walls having overhangs that will keep the walls dry under normal light-breeze weather conditions. It is requested that self-draining curtain wall systems be selected for installation on exposed walls with no overhangs.

   .2 In addition to any other applicable Codes, Standards and Project Requirements, exterior systems to meet or exceed the following minimum requirements.

   .3 Environmental Separation
      .1 Water Tightness rating for windows to be selected based upon exposure to elements related to location on the façade and site conditions. Use the NAFS Canadian supplement.
      .2 Air Infiltration to be determined in accordance with the requirements in ASHRAE 90.1 latest version.

   .4 Framing systems to be thermally broken.

   .5 Engineering Design
      .1 Wind Loads: assemblies, reinforced where required, capable of withstanding local positive and negative wind pressures.
1. Minimum 25 psf (1.2 kPa) inward and 25 psf (1.2 kPa) outward acting normal to the plane of the wall.

2. As required to meet Project Structural Design Criteria.

3. As required to meet the requirement of BC Building Code.

4. Based on CAN3-S157 and allowable deflection of 1/175.

2. Seismic design to meet all of the requirements for:


3. System to provide for expansion and contraction within system components caused by a cycling temperature range of 100 degrees C over a 12 hour period without causing detrimental effect to system components.

4. The system capable of withstanding a metal surface temperature range of 180° F (100° C) without buckling, failure of joint seals, undue stress on structural elements, damaging loads on fasteners, reduction of performance, stress on glass, or other detrimental effects.

5. Assemblies to support design loads and accommodate structural deflection and long term creep movements and drift as shown on the Structural Drawings without stress on glass, buckling, failure of joint seals, undue stress on structural elements, damaging loads on fasteners, reduction of performance, or other detrimental effects caused by structural movement.

6. The connection of the storefront framing to the structure of the building to be detailed in such a way that only horizontal and vertical forces are transmitted. No bending moments to be applied by the storefront to the structure or structural support.

7. Operable windows which are within 3.6 m (12') from grade to meet ASTM F 588 Grade 20 minimum for forced entry resistance.

8. Fasteners

1. Exposed fasteners and anchors: aluminum, 300 series stainless steel, or nickel-plated brass.

2. Concealed fasteners and anchors: aluminum, cadmium plated steel, zinc plated steel, or stainless steel.

3. Concealed anchors: aluminum, or carbon steel painted after fabrication with zinc chromate or other primers not containing lead.

6. Environmental


7. Coordination

1. For security reasons from within a building, EXIT alarms may be required on certain Exit-Only doors.

1.7 Quality Control and Assurance

1. Submittals

1. Shop drawings (including all enclosure interface details) sealed and signed by Engineer.

2. Manufacturer to submit performance test data to confirm performance criteria.
.3 Submit Hardware Schedule; refer to Section 08 71 00 Door Hardware.
.4 Submit samples, including finishes for selection.
.5 Submit Maintenance Data
   .1 As-installed hardware schedule and installation instructions.
   .2 Source for replacement parts.
   .3 Maintenance instructions.

.2 Quality Assurance

.1 All structural performance requirements of this section including anchorage and fasteners to be designed and certified by a professional engineer registered in the Province of British Columbia, to also carry out periodic site reviews during construction and at completion, and submit reports and letters of assurances for professional design, field review and building code and project criteria compliance.
.2 Costs to be included in the contract price.

.3 Quality Control

.1 SFU Facilities will appoint and pay for an independent inspection agency to conduct field testing for water penetration, air leakage and pressure equalization.
.2 Initial field test at any given location shall be paid by SFU. Cost of re-testing to verify corrected work shall be paid by Contractor
.3 Contractor is responsible to provide test chambers and ensure adequate power and water supply.
.4 Water testing to ASTM E.1105 and air leakage testing at NAFS test pressure.

.4 Warranties

.1 5-Year

2.1 MATERIALS

2.2 Prescriptive Requirements

.1 Materials

.1 Preferred Systems:
   .1 Framing shall be Kawneer 1600 curtain wall or equivalent
   .2 Kawneer 451T storefront section or approved equivalent is acceptable in protected locations only.
   .3 Doors: Kawneer 500 wide stile (or equivalent), maximum height 2,134 mm (7'-0"), maximum width 1,220 mm (4'-0").

.2 Use of floor checks, pivots, concealed closers, in-floor power operators and/or concealed exit devices is not permitted.
.3 Install overhead stops, wall stops, or floor stops where required to prevent damage from door contacting wall, another door, and provide controlled swing/stop.

.2 Finishes

.1 Finishing products:
   .1 Thermosetting enamel coating meeting the requirements of AAMA 603.8:
   .2 Thermosetting fluropolymer two coat meeting the requirements of AAMA 605.2:
.3 Clear anodized coating to conform to AAMA Class II.
.4 Champagne, bronze or black coloured anodized coating to conform to AAMA Class I.

.3 Execution

.1 Before Installation

.1 At exterior locations, ensure that a waterproofed sill pan membrane (or equivalent) is installed to drain to exterior, over the entire perimeter of the opening over which the framing system is to be installed.

***END OF SECTION***