1.0 **GENERAL**

1.1 Related UBC Guidelines

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

1.2 Co-ordination Requirements

.1 Coordinate design with Building Envelope Consultant.

1.3 Description

.1 Glass and Glazing.

1.4 Performance Standards

.1 MNECB Model National Energy Code for Buildings, typically using values for "Natural Gas".  
.2 ANSI/ASHRAE 90.1.  
.3 CAN/CGSB-12 Series Standards: glass types; performance.  
.4 CAN/CGSB-12.20: Structural Design for Buildings.  
.5 IGMAC Insulating Glass Manufacturers of Canada guidelines.  
.8 British Columbia Energy Efficiency Act.

1.5 Quality Control and Assurance

.1 Submittals

.1 Shop drawings sealed and signed by Engineer see 1.5.3.3.  
.2 Samples if other than clear glass.  
.3 Performance data.  
.4 Maintenance and cleaning procedures.

.2 Quality Assurance

.1 Work shall be performed by a qualified glazing contractor with minimum five (5) years experience, with adequate facilities and skilled personnel suitable for this work.

.3 Quality Control

.1 Drawings indicate minimum thicknesses and requirements.

.2 Final thickness, safety glazing, heat strengthening, and other performance requirements to meet Code and Standards, Project Criteria, and required structural performance are the responsibility of the Contractor based on location and intended use.

.3 Structural performance requirements of exterior glazing, as well as that for exterior and interior Structural Glazing including anchorage and fasteners, to be designed and certified by a Professional Engineer registered in the Province of British Columbia, who is 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.
.4 Provide guard redundancy when designing full height glazing.

.5 Costs to be included in the contract price.

.4 Warranties
.1 10-Year for sealed units.

2.0 MATERIALS

2.1 Materials
.1 Locally produced materials should be used whenever possible.
.2 Manufacturer of IGU, must be IGMA certified.
.3 Glass spacer type: thermally improved as required to meet specified energy performance requirements. Non-thermally broken aluminum spacers shall not be used.
.4 Installation of glazing to conform with IGMA TM-3000-90, TB-3001 and TM-1300
.5 List allowable glass types with applications (no tempered glass on buildings except where required to be safety glass in doors and sidelights):
  .1 Exterior glazing, simple building form and small units – Annealed or Heat Strengthened Glass.
  .2 Exterior glazing, complex building or solar shades or reflective glass or large units - Heat Strengthened Glass to reduce risk of breakage due to thermal stress.
  .3 Exterior glazing, all buildings- low e on surface 2.
  .4 Exterior glazing- appropriate bird friendly design including glass fritting or film application
  .5 Spandrel glass - Heat Strengthened Glass.
  .6 Handrail, skylight, canopy and overhead glass – Heat strengthened laminated (minimum PVB interlayer 1.5mm).
  .7 Safety glass in doors and sidelights: tempered.
  .8 Safety glass in fire rated doors and sidelights: non-wired fire rated glass (non-wired).
  .9 Clearstory and atrium vertical glazing over occupied space: heat strengthened laminated glass with a minimum 1.5 mm PVB interlayer.
  .10 Heat soak testing required to reduce nickel sulphide impurities.

2.2 Components
.1 Exterior glazing minimum shall be insulated sealed double glazing units. Component design to maximize energy performance as established by the Project Criteria, including orientation and expected functional use of space in which glazing occurs.
.2 Use wired glass only where required for fire rating.

2.3 Finishes
.1 Any staining of glass or other surfaces by alkaline materials is cause for rejection.

2.4 Replacement Glass
.1 Consideration to be given to the availability of replacement glass.
2.5 Glass Cleaning Access

.1 Consideration to be given to access for glass cleaning including the structural capacity of floors
to support appropriate man-lifts and/or the use of monorail systems.

***END OF SECTION***