1. **GENERAL**
	1. **General Note**
		1. Consultant is to obtain input from Building Envelope Professional at early stage in design development.
		2. Complete and continuous air barrier requires integration of the line of air tightness into early design decisions.
	2. **Related Sections**
		1. Windows:
			1. Section 08 41 13 Aluminum - Framed Entrances and Storefronts.
			2. Section 08 44 13 Glazed Aluminum Curtain Walls.
			3. Section 08 50 00 Windows.
			4. Section 08 80 00 Glazing.
		2. Doors – General:
			1. Section 08 11 00 Metal Doors and Frames.
			2. Section 08 41 13 Aluminum-Framed Entrances and Storefronts.
			3. Section 08 44 13 Glazed Aluminum Curtain Walls.
			4. Section 08 50 00 Windows.
			5. Section 08 80 00 Glazing.
2. **MATERIALS**
	1. **Performance and Design Requirements**
		1. Windows:
			1. Systems to utilize exterior rain screen deterrents, interior air seal barriers, and cavities pressure equalized to the exterior to minimize water infiltration into the internal areas of the system, assembled and installed to provide control and drainage to the exterior of any water which enters the pressure equalized cavities.
			2. All seals between frame and glazing to be made with compressed gaskets.
			3. Frames to be glazed with internal removable stops or using tamper proof fasteners where security is required.
			4. Air infiltration/exfiltration level:
				1. A3 level for operable products (0.5 l/sm2) and fixed level for non-operable products (0.2 l/sm2) all measured at 75Pa.
			5. Water tightness rating for windows to be selected based upon exposure to elements related to location on the façade and site conditions.
			6. Sound attenuation ratings for windows to be selected based upon interior requirements.
			7. Thermal transmission and shading coefficient for windows and doors to be selected in coordination with mechanical consultant and energy modeler based future forecast climate data – 30 years into the future.
			8. Preference to have operable windows for ventilation and occupant comfort where possible.
			9. Operable windows are not to be installed in laboratories or spaces where pressure differentials need to be maintained in order to allow negative pressures to be maintained relative to adjacent spaces and to prevent draft conditions.
			10. Make provision for window washing and other maintenance access to both sides of glazing units, including in atrium spaces. Access by man lift is preferred.
			11. Hardware and seals of operable units should be designed so that hardware can be adjusted and seals maintained or replaced over the life of the window to maintain air and weather tightness.
			12. Exterior sills and flashings to be installed with a definite outward slope (10% or more).
			13. Fibreglass windows to meet a minimum performance class of NAFS CW class.
		2. Doors:
			1. Select water tightness rating for exposed doors on exposure to elements related to location on the façade and site conditions.
			2. Install doors under the cover of an overhang with an overhang ratio appropriate for the door type (ratio: horizontal projection of overhang to overhang of height above door sill). All measurements are taken from the exterior edge of the door threshold.
			3. Overhang projection outward from plane of door:
				1. Out-swing door:............................ 1:4 min.
				2. Sliding door: ................................. 1:4 min.
				3. In-swing:....................................... 1:2 min.
				4. Double swing:............................... 1:2 min.
				5. Double slider: ............................... 1:2 min.
				6. Wood door:................................... 1:2 min.
				7. Outswing Press steel door: .......... 1:2 min
			4. The overhang width beyond the side of the jamb, 1:4 minimum.
			5. Any door with less than a 1:2 overhang ratio (Out-swing door and sliding doors in table above) must also meet the minimum water penetration test resistance requirements for windows located in the wall at that location, and be verified through field testing.
			6. Exceptions to the above rules may also be made for outward opening or sliding doors that can resist water penetration in the lab and in the field at pressures in excess of 500 Pa with multi point locking system.
			7. Stops and Fasteners: Glaze frames with internal removable stops or using tamper proof fasteners where security is required.
			8. Check scuppers for height relative to door sills.
			9. Frames need to be sealed to air and vapour barrier materials, insulation, and cladding in the wall assembly.
			10. Wherever required for fire rating, use hollow metal thermally broken doors. At all other locations use thermally broken aluminum door or fiberglass.
			11. Wide stile glazed thermally broken aluminum doors in aluminum frames or fiberglass doors in pressed metal frames are preferable.
			12. Wood doors with a mineral core are acceptable under some circumstances but not recommended for maintenance.
			13. For security purposes doors should be single. All exterior exit doors (with panic hardware or "pass out" locksets) must be singles within their own frames. Where wider openings are required for movement of equipment, supplies, etc., provide removable center mullions.
			14. BCIT requires that all doors with glazed assemblies (floor to door height, or ceiling) be tempered glass.
			15. Where vision glass is located in a required fire separation use Firelite and not wired glass.
			16. Provide minimum 150 mm (6") high base to all sidelights to provide adequate protection to glazing from equipment.
			17. Use of floor checks, pivots, concealed closers and/or concealed panic devices is not permitted.
			18. Door stiles of glazed doors must be 127 mm (5") x 45 mm (1 3/4") minimum in order to accept surface mounted panic hardware and mortise locksets. Glass doors are not recommended.
			19. Service Room Doors: Doors to swing out and provide an acoustic seal.
			20. Any exterior or vestibule doors that swing over walk off mats must have sufficient clearance underneath to accommodate the mats without having to make special provisions in the mats such as cutaways.
	2. **Windows**
		1. This Section applies to all Glass and glazing included in Sections:
			1. 08 41 13 Aluminum- Framed Entrances and Storefronts.
			2. 08 50 00 Windows.
			3. 08 80 00 Glazing.
			4. 08 44 13 Glazed Aluminum Curtain Walls.
		2. Warranty: Specify glazing units to have a 10-Year warranty for the finish and 5-year warranty on the window frame system from substantial performance.
		3. Service Life: Minimum 30-Year service life.
		4. Frame Materials: Suitable frame materials include:
			1. Thermally broken aluminum.
			2. Fibreglass where permitted by Code.
		5. Aluminum Finishes:
			1. Interior: Aluminum AAMA 2603.
			2. Interior High Traffic Areas (e.g. entrances): AAMA 2604.
			3. Exterior: AAMA 2605.
			4. Anodized finishes to conform to AAMA 611 or AAMA 612 (clear coated anodized finish).
		6. Specify shop fabrications and finishing. No field cutting of materials allowed.
		7. Connect sill accessories and flashing material with waterproof joints or underlay with continuous secondary waterproofing. Joints shall remain waterproof while accommodating thermal movement for the life of the installation.
		8. All windows to be installed over a waterproofed sub sill pan that covers the entire underside of the window up to the air seal line.
	3. **Doors - Materials**
		1. Service Life: Minimum 30-Year service life.
		2. Steel Corrosion Protection: Z275 galvanizing and painting.
		3. Aluminum Finishes:
			1. Interior: AAMA 2603.
			2. Interior High Traffic Areas (e.g. entrances): AAMA 2604.

* + - 1. Exterior: AAMA 2605.
			2. Anodized finishes to conform to AAMA 611 or AAMA 612 (clear coated anodized finish).
		1. Specify shop fabrications and finishing. No field cutting of materials allowed.
		2. Connect sill accessories and flashing material with waterproof joints or underlay with continuous secondary waterproofing. Joints shall remain waterproof while accommodating thermal movement for the life of the installation.

\*\*\* END OF **OPENINGS – GENERAL REQUIREMENTS** SECTION \*\*\*