COMPETENCY ASSESSMENT

CATEGORY	COMPETENCIES (10)	
1. Technical Competence (10 competencies)	1.1 Demonstrate your knowledge and awareness of Canadian regulations, codes and standards. This includes local engineering procedures and practices as applicable. Note: This is a mandatory Canadian Work-Environment Competency. The minimum required level for this competency is 3.	1. Identify and comply with legal and regulatory requirements for project activities. 2. Prepare or review drawings and specifications for permit applications, tender, and construction. 3. Incorporate knowledge of codes, standards and regulations in design documents, particularly Parts 5, 9 and 10 (BC Building Code of the applicable code, those sections associated with condensation control, water penetration control, heat, air and moisture transfer, and Parts 3 and 4 of the applicable code and Vancouver Building Bylaw as they apply to the building enclosure. 4. Recognize the need to design for code compliance while achieving constructability. 5. Use knowledge of applicable codes and standards for construction and testing.
	1.2 Demonstrate knowledge of materials, or operations as appropriate, project and design constraints, design to best fit the purpose or service intended and address inter-disciplinary impacts.	Demonstrate a thorough understanding of the following areas of theory and technical knowledge as they relate to the performance of the building enclosure and as outlined in the references to the Professional Practice Guidelines for Building Enclosure Engineering Services (BC) or the guideline for the jurisdiction in which you propose to practice: i. **Materials Knowledge** including physical and chemical properties, mechanisms of deterioration, behaviour and performance thresholds with respect to other materials and environments (Section 5.2.1.2 of the referenced guideline) ii. **Building Physics** including boundary conditions, environmental impact, structural loads, hygrothermal calculations, analysis simulation, consideration and accommodation to prevent problematic accumulation of moisture within the building enclosure (Section 5.2.1.2 of the referenced guideline) iii. **Components, Assemblies and Other Building Systems** including interdependence, integration of theoretical and technical knowledge and assessment of the appropriate of heat, air and moisture control functions with respect to elements that comprise the building enclosure (Section 5.2.1.2 of the referenced guideline)

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	1.3 Analyze technical risks and offer solutions to mitigate the risks.	1. Demonstrate the ability to apply informed, professional judgment calls where risk assessment is concerned 2. Identify risks and benefits of alternatives 3. Determine the consequences of selection of alternatives, decisions and actions 4. Determine relative costs of various acceptable alternatives 5. Demonstrate an understanding of implications to risk of the application of local construction practices
	1.4 Apply engineering knowledge to design solutions.	Demonstrate familiarity with the content and preparation of building enclosure related construction documents and apply this knowledge to the design and design review of building enclosures, including: 1. assessment of exposure conditions related the building site, determination of appropriate external environmental loads and assessment of internal loads imposed on the building enclosure due to use and occupancy 2. development and determination of appropriate building enclosure assemblies, selection of components and materials for the environmental conditions and compatibility with adjoining materials and consideration of service lives and relative durability of materials and components 3. calculation of heat, air and moisture transfer through elements and assemblies in conformance with good practice 4. confirmation of continuity of primary heat, air and moisture control functional surfaces or barriers throughout the building enclosure 5. review and analysis of designs of others. Communication of findings and suggestion of alternatives.
	1.5 Be able to understand solution techniques and independently verify the results.	1. Demonstrate an understanding of the building science/engineering principles used in the application of computer design programs 2. Understand and have the ability to do approximate analysis to independently verify the results of technical software and solution 3. Participate in an independent review process
	1.6 Demonstrate your knowledge and awareness of Canadian regulations, codes and standards pertaining to safety. Note: This is a mandatory Canadian Work-Environment Competency. The minimum required level for this competency is 3.	1. Demonstrate awareness of safety risks associated with the evaluation, design and construction of the building enclosure. 2. Demonstrate knowledge of site safety and worker compensation act. 3. Demonstrate knowledge and experience of regulations for design and use of fall arrest and fall protection systems 4. Incorporate explicit human and public safety considerations in design and all other professional activities 5. Demonstrate knowledge of how safety considerations affect design decisions
	1.7 Demonstrate understanding of systems as well as of components of systems.	1. Demonstrate understanding of the interactions and constraints in the behaviour of the building enclosure in the context of the overall building as well as other functions that the building enclosure may perform. 2. Demonstrate understanding of the integration of the building enclosure system with the other building systems.

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	1.8 Exposure to all stages of the process/project life cycle from concept and feasibility analysis through implementation.	Demonstrate awareness of project concerns and roles of other stakeholders in the project stages: i. **Identification:** generation of the initial project idea and preliminary design ii. **Preparation:** detailed design of the project addressing technical and operational aspects iii. **Appraisal:** analysis of the project from technical, financial, economic, social, institutional and environmental perspectives iv. **Preparation of specifications and tender documents:** preparation of tender document, inviting and opening of tenders, pre-qualification, evaluation of bids and award of work v. **Implementation and monitoring:** implementation of project activities, with ongoing checks on progress and feedback vi. **Evaluation:** periodic review of project with feedback for next project cycle For non-construction projects, demonstrate exposure to all phases of the project from initial considerations and client contact to final conclusions
	1.9 Demonstrate your understanding of the role of peer review and quality management that is essential to engineering practice in Canada. Note: This is a mandatory Canadian Work-Environment Competency. The minimum required level for this competency is 3.	1. Demonstrate an understanding of roles and responsibilities of others in the construction quality assurance and control process (architect, contractors, testing agencies). 2. Demonstrate quality control in the production of drawings, calculations and reports, including review by the supervising professional. 3. Conduct site visits to observe and verify construction of building enclosure elements, and write field review reports for the purpose of confirming substantial compliance with the construction documents and the building code. 4. Identify deviations from the design intent as well as variations in site conditions from those planned or expected and respond appropriately to site changes or work that is not compliant. 5. Review test results, manufacturers' product information, shop drawings, prototypes, and samples in order to assist in determining whether the construction of the building enclosure is in substantial compliance with the construction documents. 6. Demonstrate an understanding of the difference between Quality Control and Quality Assurance
	1.10 Transfer design intentions to drawings and sketches; Understand transmittal of design information to design documents.	1. Design and prepare detail drawings that clearly identify the work required at various building enclosure locations and identify if designs produced by others adequately address required performance 2. Produce sketches, notes, documentation and design documents to prepare proposals, preliminary, and final design drawings for acceptance by the client and approval by regulatory authorities 3. Incorporate figures and sketches into reports to convey engineering opinions 4. Review designs of others and communicate findings and issues, including suggested alternatives