COMPETENCY ASSESSMENT

CATEGORY	COMPETENCIES (34)	GENERIC INDICATORS (guidance on example content that will demonstrate the competency)
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. Incorporate knowledge of codes and regulations in design materials 3. Prepare reports assessing project compliance with Canadian codes, standards, and regulations 4. Recognize the need to design for code compliance while achieving constructability 5. Identify Canadian, provincial/territorial, regional, indigenous codes, standards and/or practice guidelines that are applicable to your example. Briefly discuss how the Canadian codes, standards and/or guidelines would be applied in your example if it had taken place in Canada 6. Incorporate knowledge of Canadian, provincial, regional, indigenous codes, standards, regulations and/or practice guidelines in design materials 7. Recognize the importance of respecting the regional traditions and indigenous regulations towards a project
	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.	1. Demonstrate knowledge of materials, operations, project and design constraints, e.g. cost, design, material, labour, time, budget, production 2. Demonstrate understanding of and coordination with other engineering and professional disciplines
	1.3 Analyze technical risks and offer solutions to mitigate the risks.	1. Demonstrate familiarity with system protection and/or damage/hazard mitigation objectives, philosophies, practices, procedures, and functions 2. Identify risk areas including causes of risks and their impacts 3. Develop risk management/mitigation plans 4. Demonstrate an understanding of the difference between technical risk and public safety issues
	1.4 Apply engineering knowledge to design solutions.	1. Prepare technical specifications 2. Demonstrate use of theory and calculations to arrive at solutions 3. Demonstrate the development of a unique design solution which could not be accomplished with a standard design solution
	1.5 Be able to understand solution techniques and independently verify the results.	1. Demonstrate an understanding of the engineering principles used in the application of computer design programs and show/describe how the results were verified as correct 2. Participate in an independent review and verification of solution techniques or analysis methods

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	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. Identify, incorporate, and/or participate in review of safety considerations, safety procedures and safety equipment as they apply to system operations and/or maintenance programs in Canada. 2. Review and incorporate safety or system operating procedures within in a Canadian context. 3. Demonstrate specific knowledge of Canadian safety regulations. 4. Incorporate explicit human and public safety considerations in design and all other professional activities. 5. Understand and account for safety risks associated with processes. 6. Identify relevant protection equipment and process modifications to mitigate safety risks.
	1.7 Demonstrate understanding of systems as well as of components of systems.	1. Demonstrate an understanding of each element in a process 2. Demonstrate an understanding of the interactions and constraints in the behaviour of the overall system 3. Manage processes within the overall system (monitor and, where needed, modify processes to achieve optimum outcomes)
	1.8 Exposure to all stages of the process/project life cycle from concept and feasibility analysis through implementation.	1. Demonstrate awareness of project concerns and roles of other stakeholders in the project stages: ◦ **Identification:** generation of the initial project idea and preliminary design ◦ **Preparation:** detailed design of the project addressing technical and operational aspects ◦ **Appraisal:** analysis of the project from technical, financial, economic, social, institutional and environmental perspectives ◦ **Preparation of specifications and tender documents:** preparation of tender document, inviting and opening of tenders, pre-qualification, evaluation of bids and award of work ◦ **Implementation and monitoring:** implementation of project activities, with ongoing checks on progress and feedback ◦ **Evaluation:** periodic review of project with feedback for next project cycle
	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. Conduct checks, including field checks, to verify the validity of design 2. Follow Canadian Quality Management principles in practice, which may include Quality Management Guidelines, Guidelines on Authentication of Documents, Use of the Seal, Reviewing Work Prepared by Others and other related practice guidelines provided by their provincial/territorial regulator. 3. Prepare quality control plans, including frequency and test parameters, for specific processes or products 4. Evaluate test results, determine adequacy, and develop recommended action 5. Demonstrate peer review 6. Demonstrate that completed project, systems or sub-systems meet project objectives in terms of functionality and operational performance

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	1.10 Transfer design intentions to drawings and sketches; Understand transmittal of design information to design documents.	1. Review designs of others and communicate findings and issues, including suggested alternatives 2. Demonstrate communication of ideas and concepts to project team members 3. Demonstrate understanding of value of project completion reports and lessons learned reports to application in future projects by self or others 4. Produce sketches, notes, documentation and design documents to prepare proposals; and preliminary, and final design drawings for acceptance by the client and approval by regulatory authorities
2. Communication (3 competencies)	2.1 Demonstrate effective verbal communication with team members, clients, contractors and members of the public in Canada's official languages (English or French). Note: This is a mandatory Canadian Work-Environment Competency. The minimum required level for this competency is 3.	1. Communicate in a simple and concise manner in English/French 2. Communicate official project data with team members, clients, contractors 3. Ability to express both technical and non-technical issues and ideas clearly to both technical and non-technical personnel 4. Conduct presentations to technical and non-technical groups; presentations to superiors and subordinates; internal (colleagues) and external (clients) presentations 5. Present project parameters to the public 6. Demonstrate active participation in and contribution to meetings
	2.2 Demonstrate your ability to communicate effectively in writing with team members, clients, contractors and members of the public in Canada's official languages (English or French). Note: This is a mandatory Canadian Work-Environment Competency. The minimum required level for this competency is 3.	1. Tailor communications to the intended audience 2. Ability to write and review technical documents in English/French 3. Ability to write clear memos and reports to both technical and non-technical personnel 4. Utilize drawings and sketches to demonstrate key points and concepts 5. Demonstrate a written report on a technical subject 6. Demonstrate a written report on field observations 7. Take training in technical report writing 8. Working with common office programs (e.g., Excel, Word, Outlook, internet browsers)
	2.3 Demonstrate your ability to effectively review key documents in Canada's official languages (English or French) Note: This is a mandatory Canadian Work-Environment Competency. The minimum required level for this competency is 3.	1. The ability to review technical documents, to understand the implications and to summarize key points in English/French
3. Project and Financial Management (5 competencies)	3.1 Awareness of project management principles.	1. Awareness of resource planning, budgeting, change management, scope management, schedule and unforeseen issues in managing a project from start to end 2. Understand the impacts, benefits and risks of various design solutions have on a project 3. Understand the needs and expectations of internal and external clients

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	3.2 Demonstrate increasing level of responsibility for project planning and implementation.	1. Follow and contribute to development of project management plans 2. Be aware of future improvements and demands as well as other ongoing projects 3. Demonstrate increasing responsibility for client contact and management 4. Demonstrate how project planning activities and interaction with others has increased over the training period 5. Participate in managing and adapting a schedule 6. Demonstrate awareness of issues related to other disciplines that might affect the project, maintaining contact and communication to discuss and resolve issues
	3.3 Manage expectations in light of available resources.	1. Update schedule and budget on regular basis and communicate status 2. Provide market assessment and availability of materials for a project 3. Meet deadlines
	3.4 Understand the financial aspects of their work.	1. Demonstrate cognizance of project budget during design and construction 2. Provide technical/financial report and compare the options 3. Demonstrate the understanding of the place of finance in business decisions 4. Understand principles of budgeting and financing 5. Understand the relevant business processes 6. Demonstrate an understanding of working with and developing contracts
	3.5 Ask for and demonstrate response to feedback.	1. Demonstrate implementation of lessons learned, and performance reviewed in meetings 2. Show willingness to accept comments and criticism 3. Identify situations where you received feedback and how you responded to that feedback 4. Demonstrate appreciation of the scope of a project and an appropriate response when a project varies beyond the scope
4. Team Effectiveness (2 competencies)	4.1 Work respectfully and with other disciplines/people.	1. Demonstrate respect for others' responsibility and expertise 2. Integrate engineering with other professional input 3. Participate actively in team discussions
	4.2 Work to resolve differences.	1. Demonstrate leadership in achieving team goals and resolving conflict 2. Work to facilitate beneficial conflict resolution 3. Exposure to training in conflict resolution
5. Professional Accountability (6 competencies)	5.1 Demonstrate your ability to apply principles of the Code of Ethics within the Canadian engineering environment. Note: This is a mandatory Canadian Work-Environment Competency. The minimum required level for this competency is 3.	1. Comply with the Code of Ethics in your jurisdiction of practice 2. Fulfill professional obligations to employers, clients, peers and the profession while applying professional ethics in meeting corporate directives 3. Understand the concept of self-governance, and the privileges granted to professional engineers and their obligations 4. Work within the engineering and geoscience legislation in the jurisdiction of practice 5. Demonstrate the use of practice guidelines in relation to self-regulation and professional practice

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	5.2 Demonstrate an awareness of your own scope of practice and limitations.	1. Ask for help and incorporate input 2. Demonstrate interaction with your supervisor 3. Ask questions when needed
	5.3 Understand how conflict of interest affects your practice.	1. Understand how Conflict of Interest affects your practice
	5.4 Demonstrate awareness of professional accountability.	1. Awareness of the potential professional liability involved in all aspects of the design, construction and inspection process 2. Structural applicants only: Understand the role of the StructEng and Independent Peer Reviews of work
	5.5 Demonstrate an understanding of appropriate use of the stamp and seal.	1. Please note that understanding and awareness is what is required for this Key Competency
	5.6 Understand own strengths/weaknesses and know how they apply to one's position.	1. Prepare a self criticism list and the ways to mitigate or eliminate weaknesses
6. Social, Economic, Environmental and Sustainability (5 competencies)	6.1 Demonstrate an understanding of the safeguards required to protect the public and the methods of mitigating adverse impacts.	1. Prepare public safety regulations and advice during design and implementation of a project 2. Understand potential effects of Climate Change
	6.2 Demonstrate your understanding of the relationship between the engineering activity and the public. Note: This is a mandatory Canadian Work-Environment Competency. The minimum required level for this competency is 3.	1. Recognize the value and benefits of the engineering work to the public 2. Prepare a report regarding the impact of a project to public
	6.3 Understand the role of regulatory bodies on the practice of engineering.	1. Recognize the importance of respecting the regional traditions and native regulations towards a project 2. Understand the role and regulations of other professions whose practices overlap or interface with the practice of professional engineering
	6.4 Be aware of any specific sustainability clauses that have been added to practice guidelines that apply to their area.	1. Be aware of any specific sustainability clauses that have been added to practice guidelines that apply to their area
	6.5 To the extent possible, recognizing the applicant's position of influence, consider how sustainability principles could be applied and promoted in their specific work.	1. Include sustainability analysis in project descriptions 2. Provide a list of revisions made during design and implementation period of the project
7. Personal Continuing Professional Development (3 competencies)	7.1 Demonstrate completion of professional development activities.	1. Participation in Community, Technical, Industry and/or professional association committees and task forces 2. Engagement in a variety of self-directed and formal professional development activities to learn and maintain currency in field of practice and report progress to applicable parties
	7.2 Demonstrate awareness of gaps in knowledge and areas requiring future development.	1. Gap analysis of knowledge and skills; highlight the gaps that exist 2. Identification of areas of weakness where additional training is needed

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	7.3 Develop a professional development plan to address gaps in knowledge and maintain currency in field of practice.	1. Plan to pursue training in areas of weakness and remedy gaps in knowledge 2. Planned activities may include a variety of self-directed and formal professional development activities to learn and maintain currency in field of practice