— COMPETENCY-BASED ASSESSMENT GUIDE

FOR APPLICANTS, VALIDATORS, AND ASSESSORS

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INTRODUCTION

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INTRODUCTION

This guide is intended to assist users of the Competency-Based Assessment System of Engineers Geoscientists Manitoba (EngGeoMB) to evaluate engineering or geoscience work experience. It aims to assist applicants for professional engineering licenses (P.Eng.) or professional geoscience licenses (P.Geo.) in completing their Competency-Based Assessment (CBA) submission, as well as to guide validators and assessors in verifying, validating, and evaluating these submissions. The contents of the guide are intended to enhance the understanding of engineering or geoscience competencies and how they should be met and presented in a competency self-assessment.

The Competency-Based Assessment is conducted to determine whether applicants have progressed to a professional level of competency in their field during their engineering or geoscience work experience. To achieve registration as a professional engineer (P.Eng.) or professional geoscientist (P.Geo.) applicants must also meet a set of requirements. The full list of requirements can be found in the Manual of Admissions located at the following link:
http://www.EngGeoMB.ca/pdf/Registration/ManualOfAdmissions.pdf

The P.Eng. and P.Geo. designations are professional licenses, allowing the practise of engineering or geoscience on projects or properties located in the province or territory where the designation was granted. Only engineers or geoscientists licensed with EngGeoMB, or those practising under the direct supervision of a professional engineer, professional geoscientist, engineering licensee, or geoscience licensee registered with EngGeoMB, have a legal right to practise engineering or geoscience on projects or properties located in Manitoba. The Competency-Based Assessment System is intended to preserve the quality, responsibility, professionalism, and reputation of the P.Eng., P.Geo., Eng.L., and Geo.L. , and designations. A competency framework, indicators/workplace examples, and competency self-assessment form were designed to ensure that professional registration requirements uphold and protect the public interest while maintaining an equitable, transparent, consistent, and efficient registration process. The competency framework comprises of the required proficiencies to enter the engineering or geoscience profession and provides clear guidance on the path to registration for applicants, validators, assessors, and employers alike.

1.1 Applicability and Transition

This guide applies to engineering interns, geoscience interns, and specified scope license applicants who have been given the opportunity to submit work experience.

The transition from the former time-based reporting system to Competency-Based Assessment (CBA) is as follows:

CBA shall be used by:

1. Engineering interns, geoscience interns, and specified scope license applicants starting their experience review for the first time.

2. Engineering interns, geoscience interns, and specified scope license applicants who have submitted one or more experience reports in the former time-based reporting system have the choice to continue in the former system or switch to CBA.

1.2 Frequently Asked Questions

As an additional resource, applicants are encouraged to consult the Competency-Based Assessment Frequently Asked Questions document for additional information, available at: **www.EngGeoMB.ca/CBA.html**

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COMPETENCY ASSESSMENT – OVERVIEW

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COMPETENCY ASSESSMENT – OVERVIEW

2.1 Elements and Definition

Competency

Competency can be defined as the ability to perform the tasks and roles of an occupational category to standards expected and recognized by employers and the community at large. The Competency Framework outlines the competencies related to work experience in an engineering or geoscience environment that are essential for professional engineers or professional geoscientists in all disciplines to ensure effective practice and public safety. Competency is a measure of ability, and thus examples drawn from actual work experience are required to demonstrate it.

Competencies are defined as an identified skill set or knowledge base which the applicant must have attained to achieve professional registration. They are behavioural-type descriptions of what an applicant must demonstrate they have done in practice to meet the required level of expertise in each competency category.

In assessing the competence of an applicant, it must be clear that they have not only performed well in the circumstances they have encountered to date but also that they have demonstrated the capacity to handle situations likely to be encountered in the future. Thus, a competency-based assessment system requires applicants to demonstrate the ability to apply their engineering or geoscience knowledge reliably and safely across different circumstances, to recognize their professional limitations, and to be prepared when necessary, to either a) extend and develop their expertise or b) call for assistance from other sources.

Providing detailed examples as part of a competency self-assessment allows EngGeoMB's assessors to have a clear understanding of an applicant's knowledge and experience in all areas essential to safe and effective engineering or geoscience practice.

Competency Categories - Engineering

The Competency Framework for engineering consists of seven competency categories, which are groupings of competencies or skills. These are:

1. Technical Competence
2. Communication
3. Project and Financial Management
4. Team Effectiveness
5. Professional Accountability
6. Social, Economic, Environmental, and Sustainability
7. Personal Continuing Professional Development (CPD)

The seven categories represent the essential areas in which professional engineers of all disciplines must demonstrate competence to ensure effective practice and public safety. Each competency category contains a list of the competencies required in that area. Applicants must meet the required average level of competence in each competency category to meet the competency requirements.

Competency Categories - Geoscience

The Competency Framework for geoscience consists of four competency categories, which are groupings of competencies or skills. These are:

1. Professionalism
2. Scientific Method
3. Area of Geoscience Practice
4. Complementary

The four categories represent the essential areas in which professional geoscientists of all disciplines must demonstrate competence to ensure effective practice and public safety. Each competency category contains a list of the competencies required in that area. Applicants must meet the required average level of competence in each competency category to meet the competency requirements.

Level of Competence

Achievement of each category is measured through a competency rating scale that outlines six different levels of competence (0 to 5). Each category has a required minimum overall average level of competence which is set at level 3 or level 2. The average of an applicant's competency ratings within each category must meet or exceed the required minimum level with no rating being less than 1 (training level).

Indicators/Workplace Examples

Indicators are used in the engineering Competency Assessment Reporting System and workplace examples are used in the geoscience Competency Assessment Reporting System. Indicators/workplace examples are activities, actions, skills, or behaviours that an applicant could use to demonstrate the existence and achievement of a competency. The list of indicators/workplace examples for each competency is provided to help applicants understand what types of experience could be used to meet each requirement, or what specific knowledge base, experience, or skill they must develop before achieving professional registration. **Indicators/workplace examples are to provide guidance to the applicants only.** They help an applicant interpret what is needed to be described in practice.

The list of indicators for engineering and workplace examples for geoscience are available at: **https://competencyassessment.ca/Applicants**.

Indicators - Engineering

There is one generic indicator list that covers all the competency categories for all engineering disciplines. There are also discipline-specific indicator lists for the Technical Competence category (Category 1) for several engineering disciplines, including:

- Building Enclosure
- Civil: Municipal/Infrastructure
- Electrical: Power and Industrial
- Materials, Metallurgical, and Mineral Processing
- Project and Construction Management
- Software
- Structural

Even if an applicant's work experience was in one of the above areas, it is the applicant's choice as to whether they refer to the discipline-specific indicators when completing the entries or if they use the generic indicator list. The indicator lists are found in Competency Assessment Reporting System.

Workplace Examples - Geoscience

There is one generic workplace example list that covers all the competency categories for all geoscience disciplines.

Competency Assessment Reporting System

The CBA system operates through an efficient, easy-to-use reporting system. Through the Competency Assessment Reporting System, applicants can save their work experience information, monitor their progress towards meeting the competency requirements, and submit this information for online validation and assessment.

2.2 Competency Rating Scale

A competency rating scale is used to determine whether an applicant has achieved the required level of competence to gain registration. An applicant must attain the minimum defined average level of competence in all competency categories, with no rating lower than level one for any competencies.

See Table 1 (engineering) and Table 2 (geoscience) for a brief outline of the competency rating scales.

The rating scale descriptions in the tables below are abridged and are for demonstration purposes only. The wording varies in the CBA reporting system depending on the competency. Refer to the actual detailed table available within the reporting system when selecting ratings.

TABLE 1 – COMPETENCY RATING SCALE - ENGINEERING ABRIDGED

Competence Level	Short Description *Category 1*	Short Description *Categories 2-6*	Short Description *Category 7*	Direct Supervision Required	Responsibility and Risk	Complexity of Applicant's Work	Supervision and Development of Others *Category 1 Only*
0	Little or no exposure to the competency	Little or no exposure to the competency	No CPD completed and/or planned; no gap analysis	N/A	N/A	N/A	N/A
1	Training level: A general appreciation and awareness of the competency is required.	Training level: A general appreciation and awareness of the competency is required.	Minimal amount of CPD completed and/or planned; CPD completed may not address professional competence; an in-complete gap analysis	Significant	Minimal	Minimal	None
2	Requires knowledge and understanding of objectives; uses standard engineering methods and techniques in solving problems	At a level of limited experience; carries out activities of limited scope and complexity; requires knowledge and understanding of objectives	A marginal amount of CPD completed and planned; a marginal /insufficient gap analysis	Considerable	Some	Some	Limited
3	Carries out assignments of moderate scope and complexity; is typically seen as prepared to assume professional engineering responsibilities	Approaching a professional level; carries out activities of moderate complexity	Adequate amount of CPD completed and/or planned; an adequate gap analysis	Some	Considerable	Moderate	Some

TABLE 1 – COMPETENCY RATING SCALE - ENGINEERING ABRIDGED *CONTINUED*

Competence Level	Short Description *Category 1*	Short Description *Categories 2-6*	Short Description *Category 7*	Direct Supervision Required	Responsibility and Risk	Complexity of Applicant's Work	Supervision and Development of Others *Category 1 Only*
4	Carries out responsible and varied assignments requiring general familiarity with a broad field of engineering knowledge	Working at a professional level; carries out responsible and varied activities	A good amount of CPD completed and/or planned; a strong gap analysis	Minimal	Significant	Considerable	Some
5	Uses mature engineering knowledge; independent accomplishment, and coordination of difficult and responsible assignments	At a mature professional level; independent coordination of difficult and responsible activities	Provides and demonstrates leadership in CPD activities; a superior gap analysis	Autonomous	Total	Significant	Some

TABLE 2 – COMPETENCY RATING SCALE – GEOSCIENCE

Competence Level	Applicant's Provided Example Demonstrates
0	Little or no exposure to the competency.
1	A general awareness of the competency and its significance in practise
2	Application of the competency or components of the competency, with considerable supervision, in situations of low complexity and low risk.
3 (Entry to Practise)	Application of all components of the competency with limited supervision in situations of moderate complexity and moderate risk. This may include situations in which the applicant supervises others in application of the aspects of the competency, while maintaining accountability for their work.
4	Application of the competency with minimal supervision in situations of considerable complexity and moderate risk. This may include situations in which the applicant supervises others in application of aspects of the competency, while maintain accountability for their work.
5	Application of the competency without supervision in situations of significant complexity and high risk. This may include situations in which the applicant supervises others in application of the competency, while maintaining accountability for their work.

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2.3 Competence Levels

In areas where competence can be greater or lesser, a level of competence defines a reference point that someone may have, or may not yet have, attained.

Simon Grant and Cleo Sgouropoulou (2011) What is a level of competence? In: Christian M. Stracke (ed.) Competence Modelling for Human Resources Development and European Policies: Bridging Business, Education and Training. ISBN: 9783942183536

2.4.1 Competence Levels - Engineering

The following is an overview of each competence level for engineering, divided by competency category.

Competence Level 0
An engineer at competence level zero:

Categories 1-6:
• Has little or no exposure to the competency.

Category 7:
• Has completed no continuing professional development (CPD).
• Has not completed a gap analysis to determine areas of weakness.
• Has demonstrated no plan for future professional development.

Competence Level 1
An engineer at competence level one:

Category 1:
• Receives training in the various phases of office, plant, field, or laboratory engineering as on-the-job assignments.
• Assigned tasks include preparation of simple plans, designs, plots, calculations, costs, and bills of material in accordance with established codes, standards, drawings, or other specifications.
• May carry out routine technical surveys or inspections and prepare reports.
• Has no supervisory role.

Categories 2-6:
- Receives training in on-the-job assignments.
- Is at an early/beginner level.
- Carries out activities of low complexity.
- Has no supervisory role.
- Is at a basic level in this area; competency needs substantial development.

Category 7:
- Has completed a minimal amount of CPD activities.
- Gap analysis is incomplete, incomplete assessment of areas of weakness.
- Has developed an inadequate or no professional development plan; many gaps in knowledge are not sufficiently addressed.

<u>**Competence Level 2**</u>
An engineer at competence level two:

Category 1:
- Receives assignments of limited scope and complexity, usually minor phases of broader assignments.
- Uses standard engineering methods and techniques in solving problems.
- Assists more senior engineers in carrying out technical tasks requiring accuracy in calculations, completeness of data, and adherence to prescribed testing, analysis, design, or combination of methods.
- May assign and check work of one to five technicians or others.
- Is normally regarded as a continuation of an engineer's training and development.

Categories 2-6:
- Carries out activities of limited scope and complexity, usually minor phases of broader assignments.
- Usually relies on predetermined standards and techniques in solving problems.
- Assists more senior engineers in carrying out tasks.
- Is normally regarded as a continuation of an engineer's training and development.
- Has marginal skills in this competency; some training is required to bring skills up to a professional level.

Category 7:
- Has completed some professional development activities on a sporadic basis.
- Has a marginal gap analysis; insufficient assessment of areas of weakness.
- Has developed a marginal professional development plan; not all key gaps in knowledge are addressed.
- Gap analysis is incomplete, incomplete assessment of areas of weakness.
- Has developed an inadequate or no professional development plan; many gaps in knowledge are not sufficiently addressed.

<u>Competence Level 3</u>
An engineer at competence level three:

Category 1:
• Receives assignments of moderate scope and complexity, including stand-alone phases of major projects.
• Usually solves problems by using combinations of standard procedures, modifications of standard procedures, or methods developed in previous assignments.
• May assign and check work of one to five technicians and technologists' previous assignments.
• Is typically seen to be ready to assume professional engineering responsibilities.

Categories 2-6:
• Carries out activities of moderate scope and complexity.
• Provides significant assistance to more senior engineers in carrying out tasks.
• Usually solves problems by using combinations of standard procedures, modifications of standard procedures, or methods developed in previous assignments.
• Possesses adequate skills in this competency.
• Is typically seen to be ready to assume professional engineering responsibilities.

Category 7:
• Has completed a sufficient amount of CPD activities.
• Has an adequate gap analysis; areas of weakness are adequately assessed.
• Has developed an adequate professional development plan; gaps in knowledge are addressed.

Competence Level 4
An engineer at competence level four:

Category 1:
- Carries out responsible and varied assignments requiring general familiarity with a broad field of engineering and knowledge of associated effects of the work upon other fields.
- Solves problems by using a combination of standard procedures and devising new approaches.
- Deals with assigned problems by devising new approaches, applying existing criteria in new ways, and drawing conclusions from comparative situations.
- Participates in planning to achieve prescribed objectives.
- May give technical guidance to one or two junior engineers or technologists, and technicians assigned to work on a common project.
- Is typically seen to be working at a fully qualified professional engineer level.

Categories 2-6:
- Carries out responsible and varied activities requiring general familiarity with the area of competency.
- Deals with assigned problems by devising new approaches, applying existing criteria in new ways, and drawing conclusions from comparative situations.
- Participates in planning to achieve prescribed objectives.
- May provide guidance to one or two junior engineers or technologists, and technicians assigned to work on a common project.
- Possesses strong skills in this competency; above average ability is apparent.
- Is typically seen to be working at a fully qualified professional engineer level.

Category 7:
- Has completed a good amount of CPD activities.
- Has a strong gap analysis; areas of weakness are correctly assessed.
- Has developed a strong professional development plan; gaps in knowledge are well addressed.

<u>Competence Level 5</u>
An engineer at competence level five:

Category 1:
• Applies mature engineering knowledge in planning and conducting projects having scope for independent accomplishment, and coordination of difficult and responsible assignments.
• Deals with assigned problems in a mature, creative, and experienced manner by modifying established guides, devising new approaches, applying existing criteria in new ways, and drawing conclusions from comparative situations.
• Participates in short and long-range planning.
• Makes independent decisions for devising practical and economical solutions to problems.
• Assigns and outlines work; advises on and outlines more difficult problems and methods of approach.

Categories 2-6:
• Carries out activities of advanced scope and complexity.
• Independently coordinates difficult and responsible assignments and activities.
• Deals with problems or issues in a mature, creative, and experienced manner by modifying established guides, devising new approaches, applying existing criteria in new ways, and/or drawing conclusions from comparative situations.
• Participates in short and long-range planning.
• Makes independent decisions for devising practical and economical solutions to problems or issues.
• Possesses superior skills in this competency; provides mentorship or supervision for others.

Category 7:
• Provides and demonstrates leadership in CPD activities.
• Has excellent gap analysis; areas of weakness are very well assessed.
• Has developed a superior professional development plan to address all gaps in knowledge and maintain currency in field of practice.
• Develops professional development plans with others and may instruct courses as appropriate.

2.4.2 Competence Levels - Geoscience

For each work experience competency, professional geoscientist applicants document work experience that they believe demonstrates a level of competence relative to the task described.

The perceived level of competence for each competency is rated on a scale of 0 through 5, where 3 represents the level expected for entry-to-practice. Ratings will be based upon the level of competency definitions shown in Table 2 – Competency Rating Scale – Geoscience. Repeated and reliable performance is expected for ratings of level 3 or higher.

The assessor's rating will be based upon the assessor's review of the workplace experience that the applicant provides, and will take into account, but not be dependent upon, the ratings of the applicant and the validator.

Approach to Level of Competence

Level of competence is a function of three variables:
- Level of complexity of the task expressed in the competency.
- Level of supervision provided in the applicant's performance of the task.
- Level of risk based upon the outcome of the task expressed.

As the level of competence increases, the level of supervision decreases and the level of complexity and risk increase. The level of risk is determined by how significant the decisions are likely to be based on the work undertaken. For example, is there likely to be a significant financial risk to public investors based on the result of a resource estimate?

2.5 Roles and Responsibilities

Applicant
- Provides work experience details through the competency assessment reporting system, including work experience chronology and specific examples to address each competency.
- Provides self-assessed competence level for each competency according to the competency rating scale.
- Provides contact information for a minimum of four individuals to act as validators to verify and provide feedback on their competency self-assessment.
- Provides further information as requested.

Validators (supervisor/employer/colleague/client, ideally a supervisor who is a professional engineer or professional geoscientist)
- Confirms the work experience information of which they have personal knowledge.
- Provides competence level ratings for competencies to which they are assigned by applicants (if applicable).

- For those validators who were not given specific competencies to validate, they will provide an overall assessment. For example, if the applicant provided examples from only one supervisor, that supervisor validates all the examples, and the other three validators provide general comments and answer the general reference questions included in the competency assessment reporting system.
- Provides overall feedback on the applicant's readiness for professional registration.
- Applicants cannot act as their own validator.

Assessors (qualified EngGeoMB volunteers in the applicant's area of practice)
- Reviews applicant's submission as well as validators' feedback.
- Provides ratings for each competency.
- Makes a recommendation on the applicant's readiness for professional registration.

DOCUMENTATION AND INSTRUCTIONS

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DOCUMENTATION AND INSTRUCTIONS

3.1 Submission Components

There are two main components that applicants must complete as part of their competency-based assessment, both submitted through the Competency Assessment Reporting System:

1. A brief, chronological employment history. This provides a short form overview of experience.

2. A competency self-assessment using examples drawn from work experience to demonstrate achievement of each competency.

3.2 Before Applying – Initial Steps

- Discuss the CBA system with proposed validators so that they are aware of what the expectations are.
- Ensure résumé/curriculum vitae (CV) is up to date to include key job roles, projects, and achievements over the period of work experience (a minimum of four years). This saves time in completing the employment history and selecting projects to use as examples in the competency self-assessment. Note that a project does not need to be completed to use it as a competency example.
- Maintain a record of all continuing professional development (CPD) goals and activities.
- Understand the competency framework and its indicators/workplace examples, (including any discipline-specific indicators available for the area of practice for engineering or geoscience). They are included in the competency self-assessment section of the reporting system for reference.
- For key learning activities, take time to reflect briefly on the key learning gained including how it may have impacted the practice and contributed to demonstrating competence within any of the competency categories.

3.3 Employment History

Compiling an Employment History

All applicants must complete an employment history summary through the Competency Assessment Reporting System. The employment history section creates a chronological, short form overview of the experience, including brief additional detail regarding responsibilities in each position. The summary can be edited at any time before an applicant submits their final competency self-assessment.

Applicants should remember to:
• Briefly explain any gaps or overlaps in time periods.
• Demonstrate evidence of progression of experience and responsibility throughout career.

Format and Information

The format of entries in the Employment History section is as follows:

Experience Type *	Work Experience
Employer *	
City *	
Province/State *	Select State/Province
Country *	Select Country
Start Date *	Select month	Select year
End Date	Select month	Select year
Job Title *	
Primary Area of Practice *	Select Primary Area of Practice
Supervisor *	
Overview of Major Responsibilities and Projects *	

For each item, select "Add Employment History" and enter the relevant information. Applicants are asked to classify each item as "Work Experience", "Other/Non-Engineering", "Other/Non-Geoscience" or "Thesis."

In the "**Overview of Major Responsibilities and Projects**" section, provide a brief outline of the major projects worked in each position, including a description of the role and the project scope. The use of point form is permitted.

3.4 Competency Self-Assessment

Competency self-assessment is a driven activity that allows individuals to reflect on how their competencies-knowledge, skills an abilities-match up with the requirements.

HRSG. (n.d.). *Everything you need to know about competency-based assessments* [Online]. **https://www.hrsg.ca/solutions/testing-and-assessment/competency-based-assessments**

3.4.1 Selecting Validators

Compiling an Employment History

Through the Competency Assessment Reporting System, applicants provide the names and e-mail addresses of their validators. Validators verify and provide feedback on the engineering or geoscience experience.

Considerations When Selecting Validators

A minimum of four validators are required and a minimum of two must be professional engineers or professional geoscientists (or equivalent).
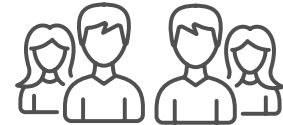
The validator for each example is the person who supervised the work the applicant has chosen to use for that competency example, whether they were a professional engineer, professional geoscientist (or equivalent). Applicants must keep in mind the minimum number of professional engineer/professional geoscientist validators required. If there are any issues with using the direct supervisor as a validator, see further instructions in this section.

Validators are typically professional engineer or professional geoscientist supervisors, but may also be colleagues, clients, or consultants with first-hand knowledge of the work experience. The supervisor is the person whom the applicant reports to or who signs off on the work.

A professional engineer can validate geoscience experience and a professional geoscientist can validate engineering experience if the experience falls within the field of the practice of the professional. For example, geological engineers may validate geoscientists since there is overlap in the profession.

All combined, the validators' first-hand knowledge should cover as much of the applicant's experience as possible.

Each competency requires one validator, but one validator can verify multiple competencies.

There may also be some validators who are not given specific competencies to verify, but they provide input in the overall feedback section only. The overall feedback section includes questions on the applicant's readiness for licensure.

Validators nominated by the applicant to verify specific competency examples must have direct personal knowledge of the engineering or geoscience work performed. This person should be the supervisor, except in exceptional circumstances where prior approval is obtained from EngGeoMB. At least one validator must be a direct supervisor and share the same discipline or scope of practice as the applicant.
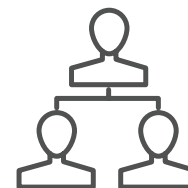
Unless requested, no additional reference forms are required to be submitted for the professional member application for users of the Competency-Based Assessment System unless the applicant provides additional names on their professional member application that were not included in the CBA reporting system. All feedback is provided through the reporting system's validation process.

As the applicant completes the competency self-assessment, they assign each example to a validator with first-hand knowledge of the work described and following the considerations above for selecting validators. This validator is asked to provide a competence level rating for the example and has the option of providing a comment.

All validators are also asked to provide overall feedback on the experience and readiness for professional registration. **There is no requirement to assign all the validators to a specific competency; validators not assigned to any competencies are asked to provide overall feedback.** For example, co-op work term supervisors who do not need to validate any examples may be included as validators to provide overall feedback, which allows them to comment on and confirm experience during the co-op period.

Note that a project does not need to be complete to use it as a competency example.

3.4.2 Issues Contacting Validators / Validator Causing Delays

The applicant must make their own effort to contact their supervisor(s) to act as validators. However, contact EngGeoMB's Admissions staff for assistance if experiencing an exceptional delay with the validator completing their part. A person other than the direct supervisor may be used to validate examples only upon approval by EngGeoMB Admissions staff.

3.4.3 Competency Examples

The Competency Self-Assessment section is divided into either engineering or geoscience categories of the Competency Framework. Under each category heading – such as Technical Competence – the required competencies are listed. One example must be provided for each competency prior to final submission. Each competency must be achieved at a minimum level of one on the competency rating scale, while achieving the required average level for each category.

> **When completing the competency self-assessment, use both the competencies and their indicators/workplace examples as guidelines to identify suitable and relevant projects and activities from engineering or geoscience experience that best demonstrate achievement of each competency.**
>
> **Be specific about individual actions and contributions.**

For each example, identify a self-assessed competence level demonstrated. The descriptions of each level of competence in sections **2.2** and **2.4** of this guide will help determine which level on the competency rating scale should be cited for each competency.

The descriptions are also provided in the applicable screens in the reporting system.

Examples are valid if:

- They are related to unique problems without obvious pre-determined solutions.
- The applicant had full or partial responsibility for delivering the outcome.
- They typically took at least one month* to accomplish (more on this in section **5.1** of this guide. The value of one month is for guidance and is not an absolute requirement).

A partial image of the window for entering an engineering competency example is included below as a sample. The geoscience window is similar in layout.

3.4.3.1 Selecting, Drafting, and Saving Examples

Under each competency, the applicant is asked to describe an example of recent engineering or geoscience activities that best demonstrates achievement of the competency. The examples the applicant selects should reflect activities or projects the applicant had responsibility. Detail is encouraged; applicants need to be specific in describing how they have met the competency. When selecting examples, pay close attention to the indicators/workplace examples provided in the system; they are intended to assist in identifying typical evidence to submit.

Different aspects of the same project can be used to demonstrate several of the competencies.

For each competency, applicants may view different types of indicators/workplace examples from the "Indicator Type" drop-down list. The generic indicators/workplace examples are recommended for most situations, but discipline-specific indicators are also available in several areas of practice for Category 1.

Applicants do not need to demonstrate all indicators/workplace examples listed. They provide a helpful guide as to what assessors are looking for. Indicators/workplace examples are samples to guide in determining the type of engineering or geoscience work that satisfies each competency. Applicants may use an example from their own work experience which will demonstrate satisfaction of the competency; it is not necessary to use one of the indicators/workplace examples provided, although the applicant may if appropriate for the work experience.

Warning

Applicants cannot edit the content of competencies or validator assignments after they have selected the button to submit the assessment for validation.

Applicants need to do all necessary checks to ensure accuracy before submitting.

3.5 Competency Example Components

Each example includes the following information

- **Employer and Position**: The applicant's employer and position at the time of the work described in the example.

- **Validator**: The professional engineer, professional geoscientist (or equivalent) that has first-hand knowledge of the work the applicant is asking them to validate. This is ideally the person who supervised the work but may also be a colleague or client with prior approval of EngGeoMB Admissions staff.

- **Start Date and End Date (Month/Year)**: The time period covered by the applicant's specific example for this competency.

- **Situation**: A brief overview of a specific situation or problem. The same situation can be used to cover multiple competencies.

- **Action**: The actions that the applicant took in response to the situation, including engineering or geoscience judgments made or solutions found. This section is typically the longest portion of the example and should include details about the specific actions that the applicant took that demonstrate completion of the competency. Applicants need to be specific about individual work and contributions – use of the word "I" is required to show what work the applicant did specifically. Point form is permitted.

- **Outcome**: The impact that the applicant's actions, solutions, or judgments generated.

- **Canadian Example**: Indicate whether this experience was gained in a Canadian environment (Yes or No).

- **Self-Assessed Competence Level:** The level on the competency rating scale that the applicant believes they have demonstrated in the example.

3.5.1 Tips on Writing Examples

Depending on the competency, it is recommended to include the significance of the project (e.g. an indication of project size such as dollar value and duration), the applicant's role in the project, and the key issues and outcomes. Make the technical or managerial complexity of the project clear. The applicant needs to be specific about the role (use "I" statements) and level of responsibility.

Applicants are encouraged to exercise judgement over the level of detail provided with different examples. Less detail may be needed for substantial, obviously complex projects or activities than for smaller-scale projects where the complexities may not be immediately apparent to the assessors or where the work is in a non-traditional engineering or geoscience environment. The objective is to supply sufficient information to enable straightforward verification of evidence by assessors, and not to leave assessors with substantive questions or information gaps that require further investigation before they can verify that the required competence level is met.

Assessors cannot rely on 'implied evidence' – they can only use evidence that clearly shows the applicant can do the work required by the Competency Framework. For this reason, it is important to identify specific examples that best demonstrate competence. For example, in the competency self-assessment, it is not acceptable to state: "I am a project manager and must be able to communicate clearly to perform my job". Applicants must give specific examples of communication requirements (e.g. chairing client meetings, managing contractors, reporting to senior management, etc.).

When completing the competency self-assessment, always write in the first-person. Use "I" statements as opposed to "we" - even if working as part of a group. It is important to identify the personal contribution and responsibility.

Remember

- **Competencies are assessed as development towards becoming a professional engineer, professional geoscientist, or specified scope licensee. Examples should demonstrate experience in an engineering or geoscience environment or as part of an engineering or geoscience assignment.**
- **Be specific about contributions when describing experience. Avoid general terms such as "participated in" or "involved with" and state your exact duties.**
- **Wherever possible, use point form when describing actions taken to resolve the situation described in the example.**
- **It is the applicant's responsibility to pick the best evidence for submission. Do not wait to be asked!**
- **For examples of what could be good evidence to include in the competency self-assessment, refer to the indicators/workplace examples.**
- **Different aspects of the same situation/project can be used to demonstrate multiple competencies, as applicable.**
- **A project does not need to be complete to use it as a competency example.**

3.5.2 Confidential Information

If applicants provide project details that must be kept confidential, it needs to be indicated with a statement to that effect in the appropriate box within the reporting system where the information is being provided. Applicants are urged to provide as much detail as they are permitted, with the goal to provide sufficient evidence that they can practise competently as a professional engineer or professional geoscientist. This could be demonstrated by documentation that describes the nature of your work and its complexities without disclosing confidential details about solutions, business processes, client names, or locations.

The applicant may use surrogate names such as "Project X" in "City Q" then inform the validator separately which project is being referred to by "Project X" and "City Q". Note that although all EngGeoMB assessors are bound by confidentiality, it is wise not to disclose proprietary or confidential information because assessors may work in the same industry or sector. Where there is a choice, obfuscate the information or use non-confidential information. Discuss with supervisor(s) before submittal.

VALIDATION OF A SUBMISSION

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VALIDATION OF A SUBMISSION

4.1 Validation Process

The online validation process occurs as follows:

1. When the applicant submits for validation, the validators selected by the applicant receive a link by e-mail which includes login information to complete their validation through the reporting system. This e-mail is sent when an applicant submits an example through interim validation or a completed competency self-assessment. It is recommended that the applicant contact the validator(s) before or immediately after releasing the completed submission for validation to confirm they received their link. Note: If the validation e-mail was not received by the validator, they should check their spam filter. The domain name of the e-mail is **competencyassessment.ca**

> ## Warning
>
> **Applicants cannot edit the content of competencies or validator assignments after having selected the button to submit the assessment for validation.**
>
> **Applicants need to do all the necessary checks to ensure accuracy.**

2. Following the link, the validator enters the Competency Assessment Reporting System.
3. The validator first views the applicant's education and employment history. No input is required from the validator in these sections, but they provide the validator with the opportunity to review chronological summaries of the applicant's education and experience.
    Validators then have an opportunity to decline to complete the process if they are not willing or not able to verify the applicant's experience. A reason must be provided if the validation is declined and a comment box is provided. The reason, along with all validator feedback, is confidential and is not visible to the applicant.

4. The validator is asked to review the applicant's competency self-assessment and provide feedback on any examples that the applicant has assigned to them. The selected validator provides a rating on the competency rating scale and is given the option to provide a comment. Descriptions of each level are available in sections **2.2** and **2.4** of this guide. Validator comments on the examples are encouraged and help to provide valuable additional feedback and information to assessors.
5. Finally, validators are asked to provide overall feedback on the applicant's readiness for registration or licensure. The overall feedback section includes similar questions to the EngGeoMB professional reference form, so validators are not asked to complete a separate reference again when the applicant is ready for professional registration in the future. Also note that if a validator is not assigned to a specific competency example, they are asked to complete the overall feedback section only.

Discrepancy in Ratings

If a validator rates an applicant lower than the applicant self-rates, assessors consider several things:

- If it is one competency and the category averages to an acceptable level, it is normally not considered to be a problem. Validators whose rating is below the applicant's self-assessment will often comment on why, although it is not mandatory. Assessors tend to accept the validator's rating, especially if it is below that of the applicant, as it normally is accompanied by a concern articulated by the validator.
- Assessors look at the validator's overall additional feedback at the end to see if the validator considers the person ready for registration or licensure.
- It's possible that the applicant did an unacceptable job of writing the example, but the experience is acceptable. The applicant will be provided with the opportunity to rewrite and re-submit the competency in question.
- If the validator indicates that the applicant needs additional experience to satisfy a specific competency and the assessors agree, the assessors will comment and the applicant will normally be given the opportunity to re-submit the competency in question if it is necessary in order to pass either the competency or the category.
- Upon assessment of the re-submission, one of three things may happen:
  1. the competency is accepted, or
  2. the applicant will have to use another example from other work experience, or
  3. the applicant will have to gain additional experience to satisfactorily complete a competency category.

The applicant is asked to show understanding of all of the competencies and to demonstrate an overall average minimum level achievement in each category, however, it is important to note that assessors are looking at other factors including the peer recommendations to determine if the applicant is ready for professional registration.

Disagreement with Validator's Evaluation

If a validator rates an applicant lower than the applicant self-rates, assessors consider several things:

All interns, specified scope of practice license applicants, professional members, and licensees are obligated to adhere to the Code of Ethics of the association with which they are registered. The Code of Ethics for EngGeoMB can be found on the EngGeoMB website at **http://www.EngGeoMB.ca/ActBylawsCode.html**.

Section 5 of the Code states "practitioners shall conduct themselves with integrity, treat clients, colleagues, and others with equity, fairness, courtesy and good faith, give credit where it is due, and accept, as well as give, honest and fair professional criticism". If a validator includes a negative comment in an experience report it does not necessarily mean that the experience will not be approved. It is essential that future and current professionals are aware of areas they need to make improvement.

In the reporting system, validator comments are not visible to the applicant, but validators are urged to inform the applicant separately of any areas of concern, unless there are legal reasons preventing it. An applicant may not agree with the evaluation of a validator. If that is the case, it should be discussed with the validator and if necessary, an additional letter submitted to EngGeoMB Admissions staff stating the concerns.

ASSESSMENT

5

ASSESSMENT

Each competency submission is reviewed by an assessor in the applicant's field. The assessment process proceeds as follows:

1. An assessor is assigned by EngGeoMB Admissions staff and notified by e-mail once the submission is ready for review. They then log in to the Competency Assessment Reporting System. The assessor performs their review independently.
2. The assessor reads the applicant's education and employment history. No input is required from the assessor in these sections, but it provides the assessor with the opportunity to review chronological summaries of the applicant's education and experience.
3. The assessor then reviews the applicant's competency self-assessment and determines for each competency whether the example(s) provided represent sufficient evidence that the required competency has been satisfied. While reviewing each example, the assessor will note the competence level claimed by the applicant and validator for each competency, based on the breadth, depth, and quality of the example provided they determine the competence level demonstrated for each competency. Descriptions of each level are available in sections **2.2** and **2.4** of this guide. The assessor will also have the option of providing a comment for each competency; these comments are confidential to the assessment process and are not viewable to the applicant or validators. However, if a re-submission is required, the applicant will be provided with details of the issue.
4. The system calculates the average competence level achieved for each category according to the assessor.
5. In the "**Supporting Documents**" section, the assessor may review any supporting documents uploaded by the applicant. The inclusion of supporting documents is optional.
6. In the "**Validator Overall Feedback**" section, the assessor reviews the feedback of the validators.
7. The assessor is asked to confirm their final recommendation on whether the applicant has met the competencies at the required level for professional registration (entry to practise).

5.1 Rating an Example

Assessors rate each example in an applicant's competency self-assessment for each competency according to the competency rating scale. An assessor's role is to examine the examples provided for each competency and determine the competence level demonstrated; applicants must have met the required average competence level for each category to be approved.

Example Review Process – Category 1 for Engineering / Category 3 for Geoscience

An evaluation of Competency Category 1 for engineering, (Technical Competence) and Competency Category 3 for geoscience (Geoscience Practice), serves as an example of the review process.

The assessor reads and assesses the examples for each competency, keeping in mind the following:

- Examples must be related to unique problems without obvious pre-determined solutions. Original thinking is used in the analysis and/or synthesis of problems.
- The applicant must have had full or partial responsibility for delivering the outcome.
- Examples typically have taken at least one month to accomplish.

Note

The length of time it takes to perform a task is not indicative of complexity. A complex example can take a short amount of time and a simple example can take an extended period. The typical minimum of one month is for guidance and is not an absolute. For instance, for working well in a team, a significant difference of opinion could be resolved within a week and be an excellent example. The quality of the example is more important than the time it takes to complete it.

- Examples must be clear and specific, and demonstrate the applicant's competence in a particular area. Assessors cannot rely on implied evidence

Based on the evidence provided in the examples, the assessor assigns the applicant a rating on the competency rating scale for each competency in the category. The applicant's self-assessed rating as well as the validator's feedback are available for reference, as well as the detailed descriptions of each competence level included in sections **2.2** and **2.4** of this guide.

The reporting system calculates the average that the applicant has achieved for each competency category based on the ratings assigned by the assessor. If the average rating is equal to or higher than the required minimum overall competence level for the category, then the applicant has satisfied the requirements. If the category average rating is below minimum required, the applicant has failed to satisfy the requirements for that category.

A successful submission requires that an applicant attains, at a minimum, the required average level of competence in all competency categories, with no rating lower than level one for any competency.

- The assessor may look to the competency rating scale and indicators/workplace examples for guidance in determining whether an applicant has met the required standard for each competency.

When the Assessor Does Not Agree or When Any Competencies Do Not Pass

Further assessment is required if the assessor does not agree that a specific competency is passed. Depending on the situation, additional assessors may be contacted, the applicant may be required to submit additional validators, or the submission may go before the Registrar to decide. Other measures may also be taken depending on the circumstances. This process applies to the first submission as well as any re-submissions.

5.2 Results Notification

Within approximately three months of submission, applicants should receive feedback as to whether the experience is acceptable. Results are entered in the applicant's **EngGeoMB Online Profile** and they will receive an e-mail notification to review the results. Applicants should contact EngGeoMB Admissions staff if their results have not been posted within the three-month timeframe.

Should concerns with a submission or the work experience itself be identified by EngGeoMB Admissions staff or the Registration Committee, one or more of the following may occur:

1. The applicant will be contacted by e-mail or phone and asked to provide missing or further information.

2. The applicant will be contacted by e-mail, with copies sent to the validator outlining the concerns and action required, if any.

The possible outcomes of the experience review are as follows:

Approval
- File tabled until the next Registration Committee meeting for one of the following reasons:
    - ° Assessment by additional assessor(s).
    - ° Assessor unable to complete an assessment due to conflict of interest or unforeseen circumstances.
- Request to re-submit the insufficient competency(ies) as insufficient information was provided for the assessor to reach a decision. The applicant will be provided with specific feedback on the issues.
- Denial of experience for professional registration. Specific reasons for the denial will be provided as well options to move forward.

5.3 Re-Submission of Insufficient Competencies

In cases where one or more competencies are assessed as insufficient, the applicant is informed with specific comments and is given an opportunity to re-submit. The specific competencies are made available in the competency assessment reporting system for the applicant to re-enter information. Once completed, those competencies are released for the validator(s) and assessors to review again using the same process as before.

5.4 Appeals

There are three levels of appeal:
1. to the Registration Committee
2. to Council
3. to the Court of Queen's Bench

The Registration Committee's decision on satisfactory experience is a recommendation to the EngGeoMB. If the experience is not approved due to a negative assessment by the Registration Committee, the applicant is given the opportunity to make their case to the Committee. Note that further assessment is part of the standard process for all cases where re-submission is flagged by the original assessor, as outlined in section **5.1** of this guide.

Should the re-submission(s) to the Registration Committee not be successful and the applicant disagrees with the results, this effectively means one component of a professional member application is being denied and the applicant has the opportunity to appeal the decision of the Registrar directly to Council as explained in *The Engineering and Geoscience Professions Act*.

APPLICANT STAGES

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APPLICANT STAGES

6.1 When to Start Entering Competencies

Applicants can create an account for the Competency Assessment Reporting System and start using the system when their application is approved and invited to submit their work experience.

Access the system via **https://CompetencyAssessment.ca/**

Once applicants have followed the instructions to set up an account, EngGeoMB Admissions staff will be notified automatically to approve the account, and the applicant will be notified by e-mail when it is possible to enter their information.

6.2 Tracking Progress of the Assessment

Once applicants have submitted their competency self-assessment through the Competency Assessment Reporting System, they are able to log back into the reporting system at any time to track the progress in the Competency Self-Assessment screen.

6.3 Professional Registration & Licensure

Once the competency-based assessment report is accepted and the National Professional Practice Exam (NPPE) has been passed, the report is sent to the Registration Committee for approval. The Registration Committee is the final approving body, and they will determine if professional registration or licensure is obtained.

APPENDICES

Appendix E-1 – Engineering Competency Framework

1. Technical Competence (minimum overall competence level: 3)

Competencies

1.1 Demonstrate knowledge of regulations, codes, standards, and safety - this includes local engineering procedures and practices as applicable.

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.

1.3 Analyze technical risks and offer solutions to mitigate the risks.

1.4 Apply engineering knowledge to design solutions.

1.5 Be able to understand solution techniques and independently verify the results.

1.6 Safety awareness: Be aware of safety risks inherent in design; and demonstrate safety awareness – on-site; possible safety authorization/certificate as appropriate.

1.7 Demonstrate understanding of systems as well as of components of systems.

1.8 Exposure to all stages of the process/project life cycle from concept and feasibility analysis through implementation.

1.9 Understand the concept of quality control during design and construction including independent design check and independent reviews of design, field checks and reviews.

1.10 Transfer design intentions to drawings and sketches; understand transmittal of design information to design documents.

2. Communication (minimum overall competence level: 3)

Competencies

2.1 Oral

2.2 In writing

2.3 Reading and comprehension

3. Project and Financial Management (minimum overall competence level: 2)

Competencies

3.1 Awareness of project management principles.

3.2 Demonstrate increasing level of responsibility for project planning and implementation.

3.3 Manage expectations in light of available resources.

3.4 Understand the financial aspects of their work.

3.5 Ask for and demonstrate response to feedback

4. Team Effectiveness (minimum overall competence level: 3)

Competencies

4.1 Work respectfully and with other disciplines/people.

4.2 Work to resolve differences.

5. Professional Accountability (Ethics and Professionalism) (minimum overall competence level: 3)

Competencies

5.1 Work with integrity, ethically, and within professional standards.

5.2 Demonstrate an awareness of own scope of practice and limitations.

5.3 Understand how conflict of interest affects practice.

5.4 Demonstrate awareness of professional accountability.

5.5 Demonstrate an understanding of appropriate use of the stamp and seal.

5.6 Understand own strengths/weaknesses and know how they apply to one's position.

6. Social, Economic, Environmental, and Sustainability (minimum overall competence level: 2)

Competencies

6.1 Demonstrate an understanding of the safeguards required to protect the public and the methods of mitigating adverse impacts

6.2 Demonstrate an understanding of the relationship between the engineering activity and the public.

6.3 Understand the role of regulatory bodies on the practice of engineering.

6.4 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 his/her specific work.

7. Personal Continuing Professional Development (minimum overall competence level: 3)

Competencies

7.1 Demonstrate completion of professional development activities.

7.2 Demonstrate awareness of gaps in knowledge and areas requiring further development.

7.3 Develop a professional development plan to address gaps in knowledge and maintain currency in field of practice.

The list of engineering competency indicators for all disciplines can be found in the competency assessment reporting system under the heading called "**The Competencies**."

Appendix G-1 – Geoscience Competency Framework

1. Professional Competencies

Competencies

1.1 Comply with relevant legislation, regulations, and statutory reporting requirements.

1.2 Practice within the bounds of personal expertise and limitations.

1.3 Increase relevant knowledge, skills, and level of performance over time.

1.4 Apply engineering knowledge to design solutions.

1.5 Apply ethical principles.

1.6 Respond to obligations and responsibilities to the public, to the natural environment, to clients, and to employers.

1.7 Contribute to health and safety in the workplace.

2. Competencies in Scientific Method

Competencies

2.1 Apply scientific principles.

2.2 Effectively utilize scientific literature.

2.3 Identify uncertainty and ambiguity in data, and limits to knowledge.

2.4 Apply principles of quality assurance and quality control (QA/QC).

2.5 Undertake relevant investigation and due diligence.

3. Competencies in Area of Geoscience Practice

Competencies

3.1 Plan investigations based upon purpose of study, incorporating existing site-specific information and appropriate approaches.

3.2 Acquire, process, and analyze data using appropriate methodologies.

3.3 Incorporate relevant data from other sources.

3.4 Interpret and evaluate data to construct models consistent with purpose of investigation.

3.5 Critically evaluate models.

3.6 Formulate conclusions and recommendations.

3.7 Adapt methodologies to address unfamiliar situations.

4. Complementary Competencies

Competencies

4.1 Deliver and comprehend oral communication.

4.2 Deliver and comprehend written communication.

4.3 Communicate technical information effectively to a variety of audiences.

4.4 Manage activities.

4.5 Use time management skills.

4.6 Provide direction to others.

4.7 Contribute to budgetary management.

4.8 Apply basic principles of risk management.

4.9 Contribute to secure data management.

4.10 Maintain comprehensive professional records.

The list of geoscience competency workplace examples for all disciplines can be found in the competency assessment reporting system under the heading called "**The Competencies**."