ing. Ordre des ingénieurs du Québec

COMPETENCY ASSESSMENT GUIDE FOR THE ENGINEER'S PERMIT ACQUISITION PROCESS

DOCUMENT FOR CEPS AND SUPERVISORS

ADMISSION DEPARTMENT

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1 INTRODUCTION

In Québec, use of the engineer title is reserved and regulated. Only holders of an engineer's permit who are entered on the roll of the Ordre des ingénieurs du Québec (OIQ) may practice engineering in Québec.

The professional admission program is the process that candidates to the engineering profession (CEPs) must follow to acquire their engineer's permit. In other words, CEPs must successfully complete the program and its three components:

- the theoretical component (complete all the hours of online theoretical training and pass the professional examination);
- the practical component (assess acquired competencies, particularly in the context of engineering work experiences);
- the language component (meet the requirements of the Charter of the French language).

In the practical component, a competency-based assessment system is used to determine whether CEPs' engineering work experiences have enabled them to make progress toward and attain the required professional skill level.

This guide addresses only the practical component, and particularly the assessment of competencies acquired by CEPs through their engineering work experiences, internships and additional training activities, as applicable. Its goal is to help CEPs fill out the assessment request on the OIQ's portal, and guide supervisors in verifying and assessing CEP competencies.

2 DEFINITIONS RELATED TO COMPETENCIES

2.1 COMPETENCY

The term "competency" means an aptitude or ability to accomplish tasks and assume professional roles in keeping with standards that are expected and recognized by employers and the community in general.

2.2 KEY COMPETENCIES

The competency reference guide for the professional admission program outlines **six key competencies**. These essential competencies enable engineers in all disciplines to adopt exemplary professional practices and ensure public safety.

The six key competencies are:

1) Have the required technical competencies
2) Communicate effectively
3) Manage projects
4) Work on a team
5) Act professionally
6) Manage your professional development

2.3 SUB-COMPETENCIES

Each key competency has a detailed list of necessary sub-competencies. There are 28 sub-competencies in total.

The sub-competencies determine what CEPs must demonstrate to attain the required level of expertise in knowledge and actions.

CEPs must attain the required skill level for each sub-competency to satisfy the OIQ's requirements.

2.4 SKILL LEVEL

The competency assessment scales help determine whether CEPs have attained the required skill level for all sub-competencies of the six key competencies.

The scales include six skill levels, from 0 to 5. Depending on the key competency, the minimum level required for each sub-competency is 2 or 3.

The table below defines each level for all competencies.

Table 1

COMPETENCIES	Minimum level required
1) Technical Competency	3
2) Communication	3
3) Project Management	2
4) Working in a Team	3
5) Professional Accountability	3

SCALE
Level 0 Little or no exposure to the competency
Level 1 Competency knowledge, but not mastery
Level 2 Possesses knowledge and understanding. Uses standard engineering methods and techniques to resolve problems
Level 3 Carries out projects from moderate to complex. Typically seen to be prepared to assume professional engineering responsibilities.
Level 4 Responsible for various projects demanding good general knowledge in engineering.
Level 5 Uses engineering knowledge of an experienced professional and capable of coordinating complex projects.

COMPETENCY	Minimum level required
6) Professional Development	2

SCALE
Level 0 No professional development completed and/or planned; no gap analysis
Level 1 Minimal amount of professional development completed and/or planned; professional development completed may not address professional competence; an incomplete gap analysis
Level 2 A marginal amount of professional development completed and planned; a marginal/insufficient gap analysis
Level 3 Adequate amount of professional development completed and/or planned; an adequate gap analysis
Level 4 A good amount of professional development completed and/or planned; a strong gap analysis
Level 5 Provides and demonstrates leadership in continuing professional development activities; a superior gap analysis

2.5 INDICATORS

Indicators are examples of tasks or skills that illustrate the acquisition of a competency.

Table 2 (in the appendix) provides a list of indicators for each sub-competency that CEPs can use as a guide to show that they have acquired the competencies they need to practice the engineering profession.

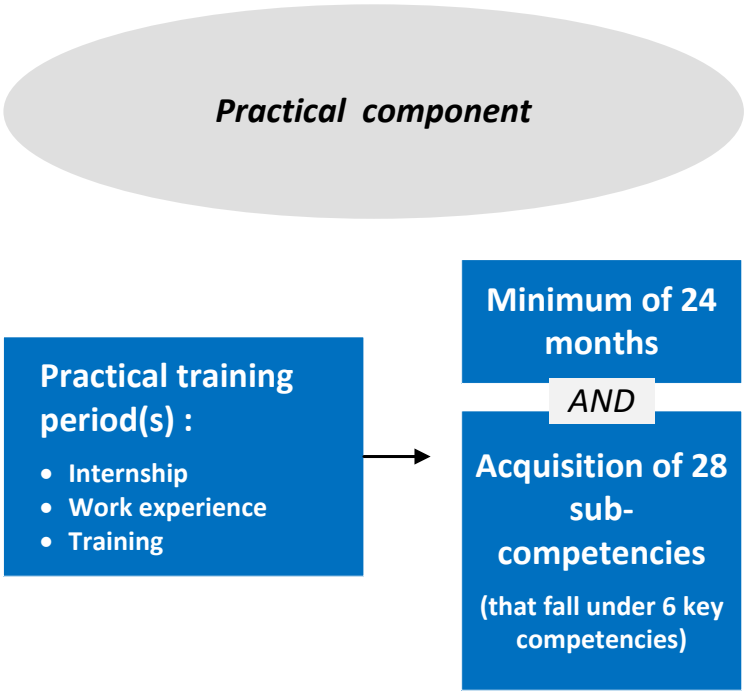
The indicators proposed in the table are generally common to all engineering disciplines; the list of indicators is not exhaustive.

3 GOAL OF THE PROFESSIONAL ADMISSION PROGRAM

The professional admission program is designed to help CEPs apply their knowledge and develop the competencies they need to practice the profession in keeping with the values of the profession and the professional obligations of engineers.

4 PRACTICAL COMPONENT

The practical component of the professional admission program consists of one or more periods of practical training that add up to a minimum of 24 months in total. This component aims to help CEPs apply the knowledge they have acquired in their training and acquire the competencies they need to practice engineering in Québec.



5 DIFFERENT TYPES OF PRACTICAL TRAINING

These are the different types of practical training that CEPs can take to acquire the competencies and complete the 24 months of engineering experience:

- **Internships**:
  → These engineering internships may be completed after 60 university credits have been earned, but before the OIQ-qualifying degree has been obtained. Engineering internships that are not supervised by a university (example: summer jobs) are also considered internships.
  → A maximum of 8 months may be recognized. However, experience acquired during internships cannot be used to demonstrate the acquisition of competencies.
  → Internship supervisors are not required to meet the conditions specified in section 6.1, unlike supervisors of other types of practical training.

    ➢ For more information, please refer to section 10.1.

- **Work experience:**
  → This refers to any engineering work experience that CEPs have begun to acquire after earning their OIQ-qualifying degree.
    ➢ For more information about work experiences already in progress, please refer to section 7.1.
    ➢ For more information about previous work experiences, please refer to section 10.2.
  → Work experiences may be recognized in the calculation of months of experience and as demonstrating the acquisition of competencies.

- **Master's degree and doctorate in engineering:**
  → A master's degree in engineering (research or equivalent profile) or a doctorate in engineering may be recognized in the calculation of months of experience and as demonstrating the acquisition of competencies. Months of experience will be calculated based on the actual time spent researching and drafting a dissertation or thesis.
  → For more information, please refer to section 10.3.

- **Additional training or certification**:
  → These are training activities that qualify candidates to receive an engineering or related certification once they have been completed. For **master's degrees in engineering** (research or equivalent profile) or **doctorates in engineering**, please refer to the section above.
  → For more information, please refer to section 10.4.
  → Additional training activities and certifications may be recognized as demonstrating the acquisition of competencies. However, they are not recognized in the calculation of months of experience.

EXPERIENCE TYPE	DURATION (Possibility of accumulating months of experience)	COMPETENCIES (Possibility of acquiring competencies)
Internship	YES (8 months maximum)	NO
Work experience	YES	YES
Master's degree in engineering (research or equivalent profile)	YES (for the duration of the research)	YES
Doctorate in engineering	YES (for the duration of the research)	YES
Additional training or certification	NO	YES

6 SUPERVISION OF PRACTICAL TRAINING

During their practical training, CEPs work under the supervision of an engineer in a workplace that allows them to develop the competencies they need to practice engineering. This gives CEPs an opportunity to perform engineering activities according to generally accepted engineering standards and practices and take on increasing responsibilities in engineering projects.

Their supervisors are engineers. As a general rule, supervisors are the immediate managers of CEPs. However, if that is not possible, supervisors may also be colleagues, clients, suppliers or other engineers with direct personal knowledge of the work done by CEPs.

6.1 Conditions for being a supervisor

To be a supervisor, engineers must meet certain conditions.

- Supervisors must **have an engineer's permit that entitles them to practice engineering without restriction**.

  In other words, engineers must be entered on the OIQ's roll or, if they do not practice in Québec, on the roll of any other regulatory body that supervises the engineering profession in another Canadian province or country. When engineers practice in a country where there is no regulatory body regulating the engineering profession, their engineer title must be recognized in the country in question.

However, for all acts that are reserved for engineers and performed in Québec, supervisors must either be full-fledged engineers who are members of the Ordre des ingénieurs du Québec or ensure that their CEPs act under the direction and responsibility of an engineer who is an OIQ member.

- Supervisors must have practiced engineering for **at least three** of the last five years in a function related to the objectives of their CEP's practical training.

- Supervisors must not have been **fined**, had their **engineer's permit revoked**, been **struck off the roll** or **suspended**, or had their right to practice **restricted**. Furthermore, they must have not have been required to complete a course, take refresher training or fulfill any other obligation in the last five years by the regulatory body that oversees the profession of which they are members.

6.2 The supervisor's role during the practical training period

Supervisors help CEPs develop competencies during their practical training period. For that purpose, supervisors:

1) set the objectives of the practical training period with CEPs;

2) make sure that the workplace allows CEPs to reach the objectives set for the period;

3) assist CEPs with workplace integration;

4) make themselves available to CEPs to answer their questions and provide them with advice;

5) behave professionally at all times in accordance with the standards and values of the profession;

6) regularly evaluate the progress made by CEPs toward the objectives of the practical training period and offer them the necessary feedback to help them advance;

7) make sure that CEPs work under the direction and responsibility of an engineer whenever they engage in an activity reserved for engineers. When CEPs perform reserved acts under the direction and responsibility of an engineer who is not their supervisor, their supervisor must consult with the engineer who provided the direction and responsibility for them;

8) assume responsibility for the professional activities performed by CEPs, except when said activities are performed under the ICS of another engineer;

9) assess CEPs.

6.3 Assessments by supervisors

Supervisors who are designated by CEPs to supervise them will receive an e-mail from the OIQ inviting them to start the assessment process. They will perform their assessments in a specific portal (separate from the OIQ member portal). All login information will be included in the e-mail.

The steps in the assessment process differ depending on the type of experience submitted by CEPs. **Table 3** (see appendix) shows the steps in the assessment process that supervisors must complete, depending on the type of experience submitted by their CEPs.

7 CEP RESPONSIBILITIES

CEPs must demonstrate that they meet the OIQ's competency requirements by reporting relevant situations from their practical training (academic internships, work experiences, additional training activities). To do so, CEPs must demonstrate that they have accumulated a minimum of 24 months of engineering work experience and that they have attained the skill level required for each of the sub-competencies.

7.1 REPORTING THE START OF A WORK EXPERIENCE

When they begin an engineering work experience, CEPs must report this in the OIQ's portal by providing information about their supervisor and the work experience.

7.1.1 Supervisor information

CEPs must choose an engineer to supervise them at work and act as their supervisor. Then, CEPs must click on the "*Add a supervisor*" button to enter their supervisor's name, e-mail address, telephone number, position or office title and member number, as well as the name of their supervisor's employer and their professional connection to their supervisor.

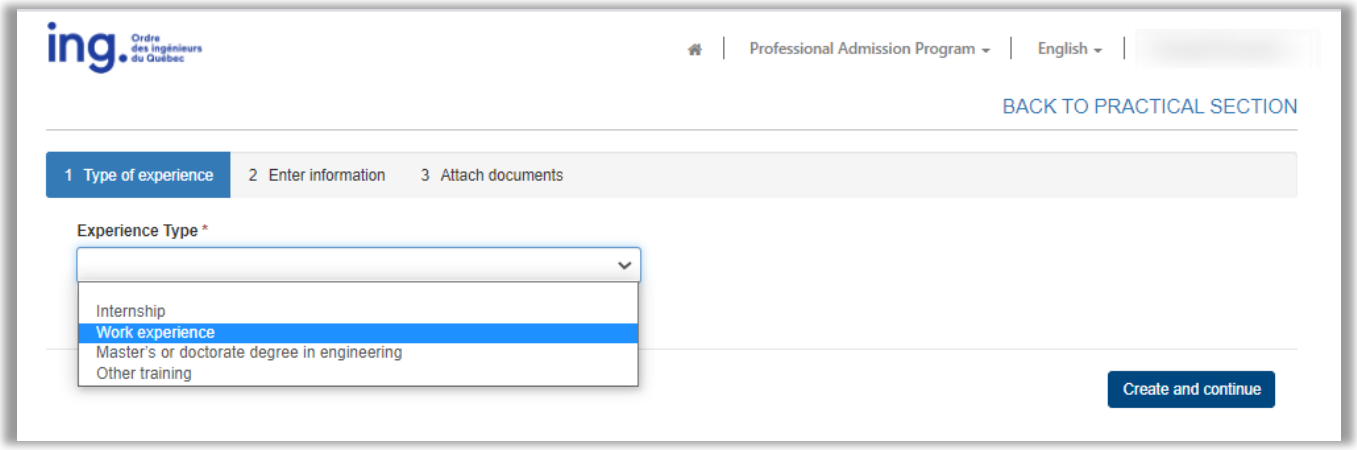
Steps taken by the OIQ: As soon as CEPs report the start of a work experience and name their supervisor, the OIQ makes sure that the person they have named meets the conditions for acting as a supervisor. (To find out the conditions for being a supervisor, refer to section 6.1) The period of practical training and the competencies acquired during that period may not count if their chosen supervisors do not meet the conditions.

Steps taken by the supervisors (commitment): As soon as the OIQ has confirmed that the named person meets the conditions for acting as a supervisor, that person receives an e-mail from the OIQ inviting them to agree to act as a supervisor.
These steps are carried out on the online platform. Supervisors will receive an e-mail with their login information.
To ensure that work experience is recognized, it is important for supervisors to log in to the platform as soon

as possible so that they can confirm to the OIQ that they agree to act as supervisors.

7.1.2 Work experience information

After adding their supervisor, CEPs must add their experience by clicking on the “Add experience/training” button and selecting the type of experience from the dropdown menu. CEPs must select “Work experience” and then click on the “Create and continue” button.



Afterwards, CEPs must also specify the name of their employer, the country and the city where the experience is acquired, their position or office title, as well as the date on which the work experience starts.

When CEPs work part time, they must specify this. "Part time” means working less than 35 hours a week. The work period is calculated on a prorated basis according to the number of part-time hours.

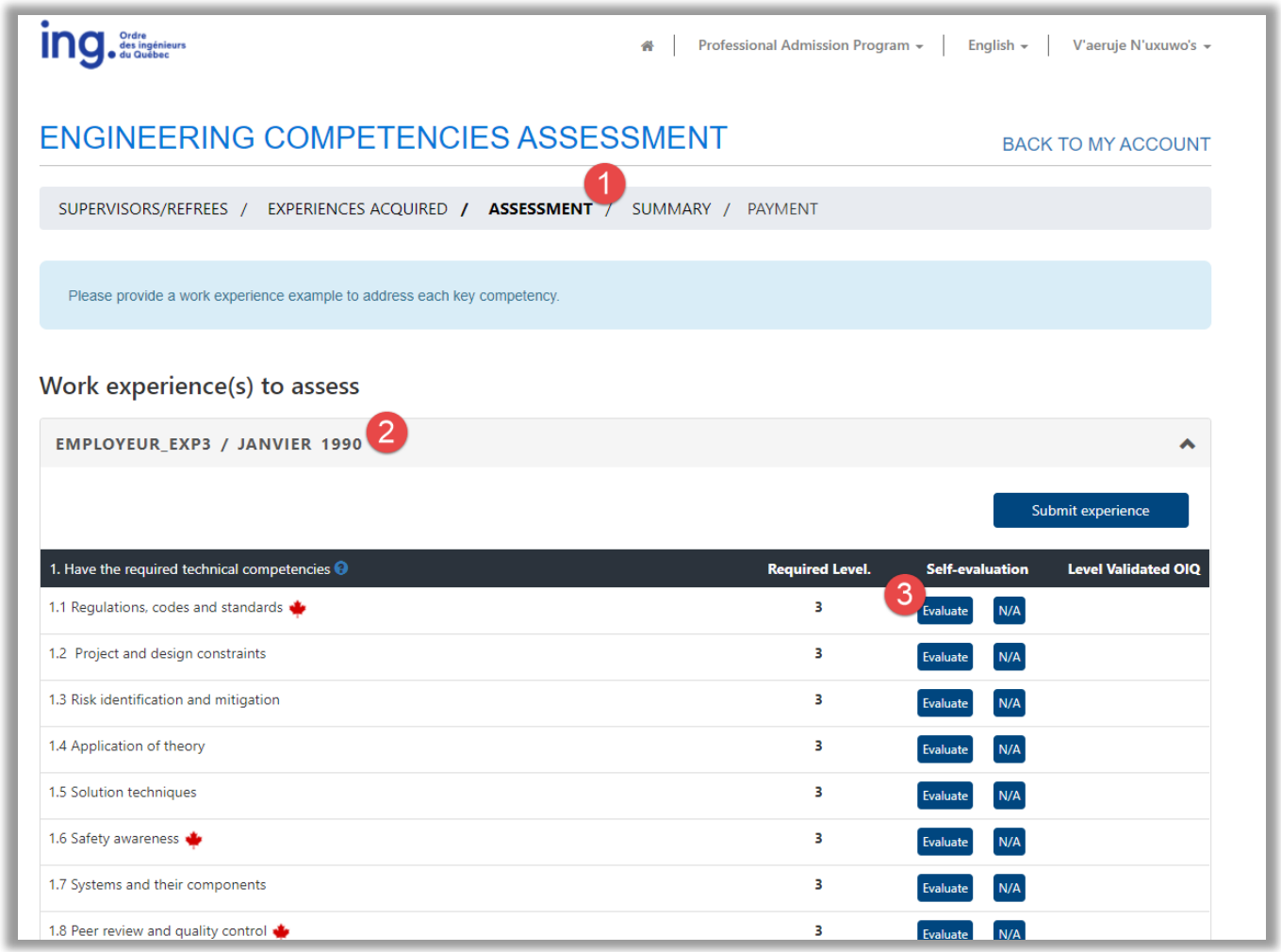
Likewise, CEPs must report a work interruption of more than 30 consecutive days.

CEPs are then asked to briefly describe the context of their work experience as well as their responsibilities at the company.

Steps taken by the OIQ: As soon as CEPs report the start of a work experience, the OIQ makes sure that the work experience described by them falls within the field of engineering and is relevant to the competencies they must acquire.

7.2 PROVIDING INFORMATION ABOUT COMPETENCIES

After reporting the start of a work experience, **and at any time during their experience**, CEPs can go to the "Assessment" section to provide details on the sub- competencies they have acquired. To do so, they must click on the experience concerned and then on the "Evaluate" button across from the sub- competency they believe they have acquired.



7.2.1 Drafting tips

For each sub-competency, CEPs must choose the situations in their work experiences that best illustrate their use of the sub-competency. **Table 2** in the appendix has a list of indicators that CEPs can use to guide them. We recommend paying close attention to this list.

CEPs must be specific when describing the situation so that they demonstrate how it enabled them to acquire the sub-competency.

Each situation that they choose must cover the details below.

- **Context**: This means giving a brief overview of a situation or specific problem that CEPs had to solve.

- **Actions**: This section is the most important part of describing the experience. CEPs must describe the actions and steps they took in response to the situation, as well as the technical judgments they made or the solutions they found.

  It is important to give specific examples that best show their acquisition of the sub-competency. The examples must be specific enough to give the OIQ a clear picture of the nature and complexity of the work they did, and to understand how their work is related to the sub-competency concerned. For instance, it is unacceptable to write:

  "*I am a project manager and I have to be able to communicate clearly to do my job.*"

  CEPs must provide specific examples of their communication skills (example: *"I preside over meetings with clients, I manage subcontractors, I report to senior management.")*

  Using "I" and making a list is recommended. In addition, CEPs are encouraged to exercise good judgment when determining which details are important.

- **Results**: CEPs must explain the impacts of their actions, the solutions they proposed and the judgments they made.

- **Self-assessed skill level**: This section is where CEPs assess themselves. They must specify the level on the competency assessment scale that they believe they have attained.

- **Canadian environment**: It is important to specify whether they acquired each sub-competency in a Canadian environment. To be considered relevant, the following sub-competencies must be demonstrated by an engineering work experience acquired in a Canadian environment:

  - Regulations, codes and standards (1.1)
  - Safety awareness (1.6)
  - Peer review and quality control (1.8)
  - Sustainable, social, economic and environmental development (1.10)
  - Verbal communication (2.1)
  - Written communication (2.2)
  - Reading and comprehension (2.3)
  - Code of ethics (5.1)

Note: It is important to keep in mind that one situation can be used to demonstrate several sub-competencies. In such a case, the "Context" section will be the same, but the "Actions" and "Results" sections will need to be different.

7.2.2 Growth

Throughout their work experience, CEPs are encouraged to become familiar with the competencies and their indicators to determine which situations (projects and tasks in their engineering experience) best illustrate their progress toward acquiring the sub-competencies.

It is important to point out that information about competencies can be edited or added as long as CEPs have not submitted their experience for assessment. If CEPs feel that a new task or project better illustrates their acquisition of a sub-competency, we recommend that they edit the text they already drafted.

If a sub-competency was not covered in their work experience, CEPs must specify this by checking the "N/A" button (for “not applicable”). That way, the sub-competency concerned will not be assessed.

7.3 SELF-ASSESSING

Once CEPs have provided all the information about their work experience, they must determine the skill level they have attained for each sub-competency according to the assessment scale.

The required level is 3. To find out more about the levels, please refer to the table presenting the competency assessment scale. (**Table 1**)

For sub-competencies that are not covered by their work experience, CEPs must check the "N/A" button.

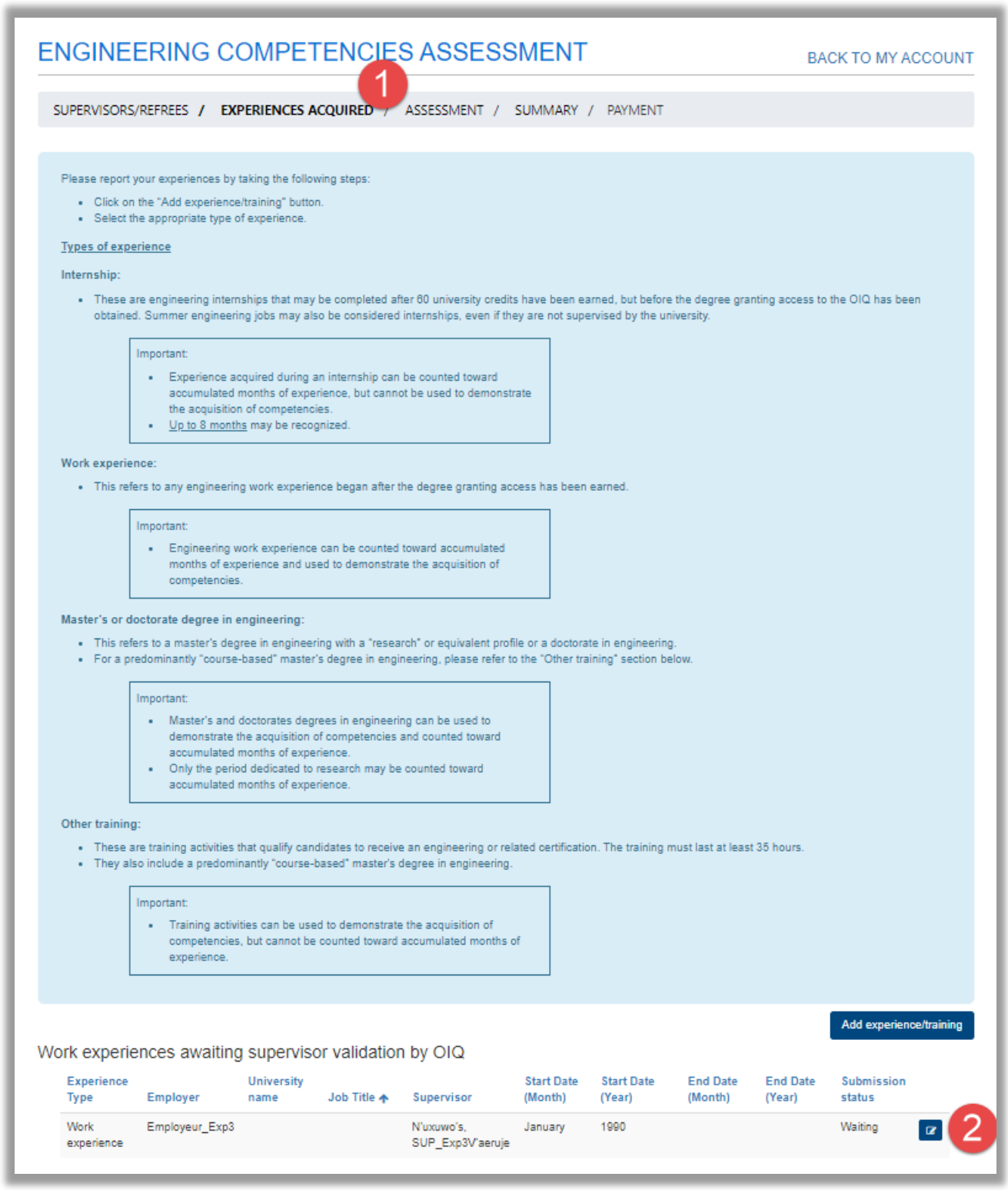
7.4 REPORTING THE END OF A WORK EXPERIENCE

CEPs must report the end of a work experience as soon as they:

- quit a job;
- or change supervisors;
- or have completed a minimum of 24 months and feel that they have attained the skill level required for a sub-competency.

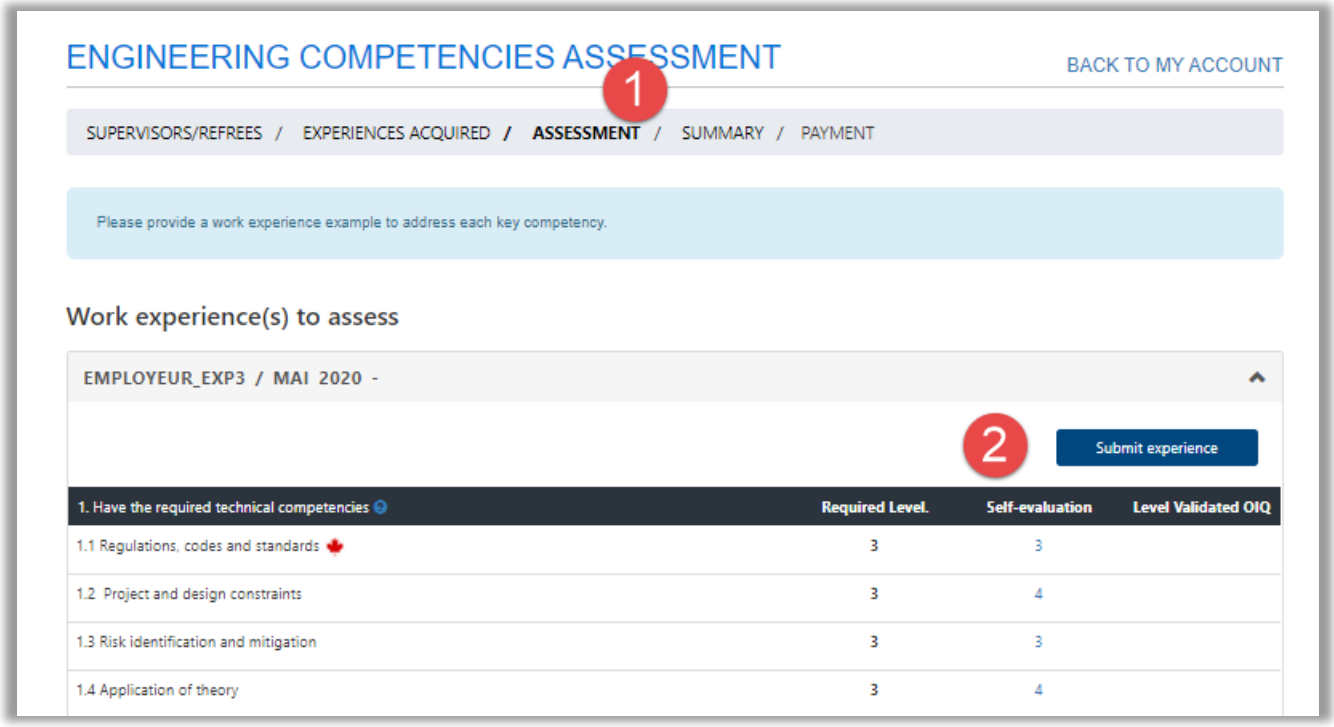
To do so, CEPs must enter an end date for their job and then submit their experience.

To end their job, CEPs must go to the “Experiences acquired” section and click on the “Edit” button across from the experience.



To submit their experience, CEPs must go to the "*Assessment*" section and click on the "*Submit experience*" button.

Their supervisors and the OIQ are notified when CEPs have submitted a work experience.



8 SUPERVISOR CONSENT AND ASSESSMENTS

Supervisors are notified by e-mail when they are requested to assess a practical training period. The e-mail has a link to the online platform where they must log in.

First, supervisors are asked if they agree to assess the work experience of CEPs. If they agree, the supervisors are invited to verify the information submitted by their CEPs and make any comment they feel is useful. Supervisors are encouraged to make comments because they provide invaluable information about CEP competencies. The comments made by supervisors are confidential; CEPs do not see these comments.

Supervisors must also select a skill level for each sub-competency according to the competency assessment scale (**Table 1**). Whenever supervisors assess a competency lower than their CEPs do, the supervisors will have to add a comment to explain this difference. The level selected by supervisors and their comments are confidential; CEPs do not see these comments.

9 THE OIQ'S ASSESSMENT

The OIQ assesses the competencies in the work experiences submitted by CEPs as it receives them. CEPs can track developments in their file through their portal.

CEPs are then notified by e-mail that the information about their assessment is available in their portal.

Finally, when the experiences submitted by CEPs are validated by the OIQ and reach 24 months and 28 competencies, the CEP receives an e-mail asking them to pay the fee to assess their experiences. Once they have made their payment, the OIQ will provide its decision on their practical component assessment.

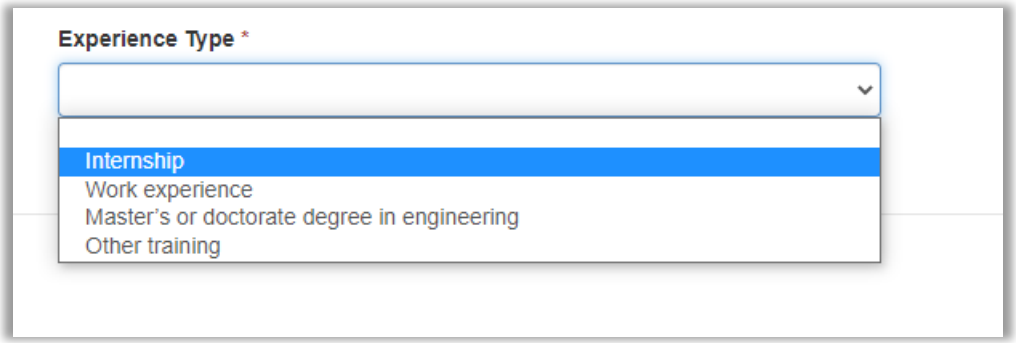
10 OTHER EXPERIENCES CONSIDERED

10.1 Internships

It is an engineering internship that may be completed after 60 university credits have been earned, but before the OIQ-qualifying degree has been obtained. Engineering internships that are not supervised by a university (example: summer jobs) are also considered internships.

An internship may be recognized in the calculation of months of experience. A maximum of 8 months may be granted to CEPs. However, the experience acquired during an internship may not be used to demonstrate the acquisition of competencies.

To report an internship, CEPs must select "*Internship*" from the dropdown menu under "*Experience type*."



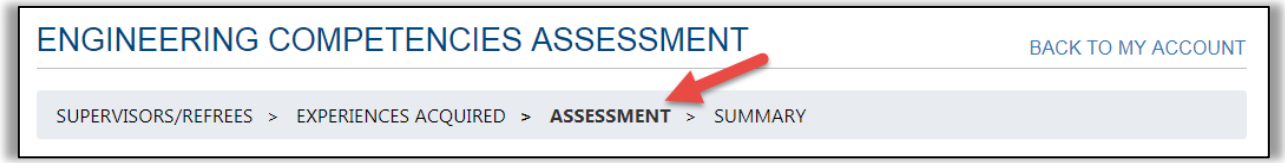
After selecting the type of experience, CEPs must specify the name of their employer and supervisor, the country and the city where the internship took place, their position or office title, as well as the start and end dates of their internship.

When CEPs have completed an internship on a part-time basis, they must specify this. The months of experience will be credited on a prorated basis. "Part time" means working less than 35 hours a week.

Likewise, CEPs must report any work interruption of more than 30 consecutive days during their internship.

CEPs are then asked to briefly describe the context of their work experience as well as the responsibilities they held at the company.

To submit their internship, CEPs must go to the "*Assessment*" section, click on the internship in question, and then on the "*Submit internship*" button.



A green checkmark appears when the internship has been submitted.

10.2 Previous work experiences

"Previous work experiences" mean any work experience that was already finished when CEPs registered with the OIQ as candidates to the engineering profession.

Previous work experiences concern:

- candidates who have practiced outside Québec;
- candidates who have finished a work experience in Québec before they registered as CEPs with the OIQ. (For all work experiences in progress when they register as CEPs with the OIQ, CEPs will have to report these experiences as if they are just beginning them [see section 7.1, "Reporting the start of a work experience"].)

10.2.1 Special features

The process of submitting previous work experiences is similar to the process of reporting the start of a work experience. CEPs are asked to report all their engineering jobs that relate to the sub-competencies they must demonstrate. (For more information, please refer to section 7.1.)

However, previous work experiences have three special features:

→ **End date of the work experience**: Given that the work experience is finished, CEPs must specify the date on which the work experience ended.

→ **No agreement required from supervisors**: Given that the work experience is finished, supervisors will not have to agree to act as supervisors. However, just like for work experiences that have started but not finished, supervisors will have to agree to assess an experience once CEPs have submitted it.

→ **Validation of supervisor eligibility**: Given that the work experience is finished, supervisor eligibility is validated after the fact. As a result, if a supervisor is found to be ineligible, his or her CEP will have to find another supervisor. Otherwise, the CEP's experience will not count.

→ **Validation of work experience relevance**: The OIQ makes sure that the work experience relates to the sub-competencies that must be demonstrated. Given that the work experience is finished, the relevance of the work experience is validated after the fact. As a result, if the experience is not relevant, it will not count.

10.2.2 Preparation tips

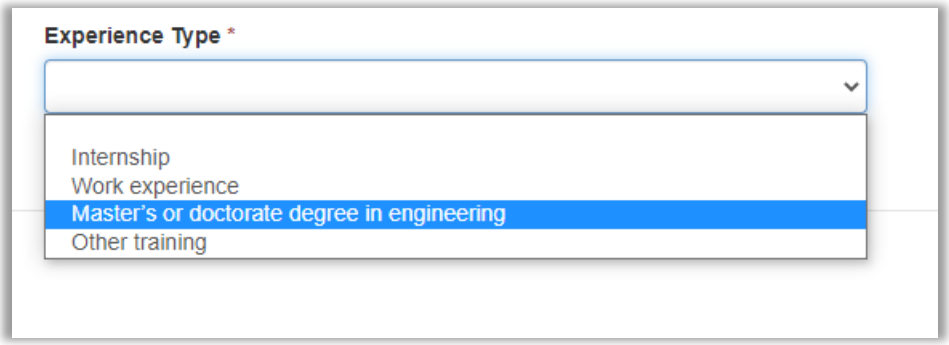
To prepare themselves as effectively as possible, we recommend that CEPs review the table of competencies and indicators (**Table 2**) as well as the assessment scale (**Table 1**), and take the following preliminary steps:

• Make sure that they have an updated résumé that lists their jobs and describes their projects and achievements during the professional experience periods concerned. This will be extremely helpful in selecting relevant projects that demonstrate their acquisition of the sub-competencies.
• We recommend that CEPs consider what they have learned and how this knowledge has impacted their practice to help them demonstrate their acquisition of each sub-competency.

10.3 Master's degrees in engineering (with a research profile) and doctorates in engineering

Research periods may be recognized in the calculation of months of experience and for demonstrating the acquisition of competencies.

To report them, CEPs must select "Master's or doctorate degree in engineering" from the dropdown menu under "Experience type."



CEPs must also specify the name of the university, the country and city where they conducted their research, their position or office title (if they conducted research at a company) and the date on which they began their research.

When CEPs conduct research on a part-time basis, they must specify this. "Part time" means researching less than 35 hours a week. The research period is calculated on a prorated basis according to the number of part-time hours.

Likewise, CEPs must report an interruption of more than 30 consecutive days in their research.

CEPs are then asked to briefly describe the context of their research as well as their responsibilities at the company.

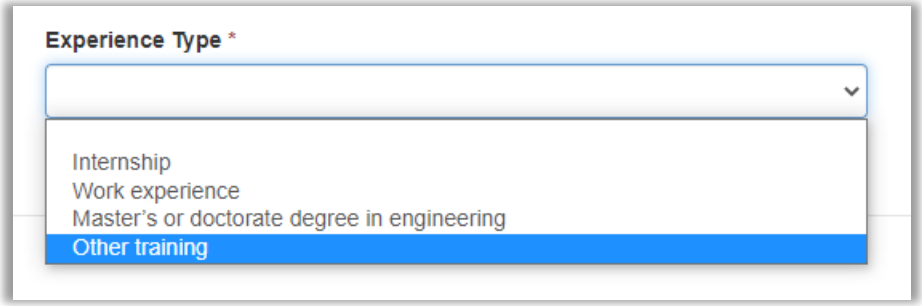
10.4 Additional training and certifications

These are training activities that qualify candidates to receive an engineering or related certification once they are completed, but they must take place over a period of at least one week (35 hours of training), or be equal to one university credit (15 hours of courses and 30 hours of assignments).

Additional training and certification activities may be recognized as demonstrating the acquisition of competencies. However, they are not recognized in the calculation of months of experience.

CEPs are encouraged to report all of their additional training or certifications that relate to the sub-competencies they must demonstrate.

To report additional training or a certification, CEPs must select "Other training "in the dropdown menu under "*Experience type.*"



After selecting the type of experience, CEPs must specify the title of the training, the date when they took it, and the name of the training organization. CEPs must also include a copy of the confirmation or certificate given to them at the end of the training.

Additional training or certification activities that relate to sub-competencies are an opportunity to demonstrate the acquisition of competencies. The process for submitting additional training or certification activities is similar to the process for reporting the start of a work experience (please refer to section 7.1).

Attachments: CEPs must attach any document that will be useful in reviewing their file and any certificate of success, document confirming the number of training hours, etc.

11 APPENDICES

Table 2 - Indicators

It is important to note that the sub-competencies shown in blue must be demonstrated by CEPs in an engineering experience that they acquired in a Canadian environment.

COMPETENCIES (6)	SUB-COMPETENCIES (28)	INDICATORS (guidance on example content that will demonstrate the competencies)
1. Have the required technical competencies	**1.1 Regulations, codes and standards** Demonstrate knowledge of regulations, codes and standards, including applicable Québec and Canadian engineering regulations, codes, standards and practices.	1. Identify and comply with legal and regulatory requirements for project activities. 2. Incorporate knowledge of codes and regulations into the design. 3. Prepare reports assessing project compliance with codes, standards, and regulations. 4. Recognize the need to design for code compliance while considering feasibility. 5. Be aware of and/or apply any specific sustainability clauses that have been added to practice guidelines that apply to their area.
	1.2 Project and design constraints Demonstrate knowledge of materials, or operations as appropriate, project and design constraints, and the optimal design for the intended purpose or use, while taking interdisciplinary impacts into account.	1. Demonstrate knowledge of materials, operations, project and design constraints, e.g. cost, design, material, labour, schedule, budget, production. 2. Demonstrate an understanding of and coordination with other engineering and professional disciplines. 3. Understand the role and regulations of the various professions whose practices overlap or interact with those of engineering, and also understand the regulations that apply to persons practicing these professions.
	1.3 Risk identification and mitigation Analyze the technical risks and offer solutions to mitigate them.	1. Demonstrate familiarity with system protection and/or damage/hazard mitigation objectives, underlying principles, practices, procedures, and functions. 2. Identify risk areas including causes of risks and their impacts. 3. Develop risk management/mitigation plans (elimination, mitigation, prevention). 4. Demonstrate an understanding of the difference between technical risk and public safety issues.

	1.4 Application of theory 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 and selection of the preferred/optimal design solution.
	1.5 Solution techniques 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. 3. Participate in the validation of the design/solution by considering the parameters, criteria, methods of analysis, trials, simulations, etc.
	1.6 Safety awareness Demonstrate knowledge and awareness of Canadian regulations, codes and standards pertaining to safety. Demonstrate on-site safety awareness and knowledge of applicable safety authorization/certification requirements, and be aware of safety risks inherent in the design.	1. Demonstrate specific knowledge of safety regulations. 2. Identify, incorporate, and/or participate in the review of safety considerations, safety procedures and safety equipment as they apply to system operations and/or maintenance programs. 3. Incorporate explicit human and public safety considerations into the design and all other relevant activities. 4. Understand and take into account safety risks associated with processes. 5. Identify relevant protection equipment and process modifications to mitigate safety risks.
	1.7 Systems and their components Understand systems and their components.	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 Peer review and quality control Demonstrate an understanding of the role of peer review and quality management that is essential to engineering practice in Canada. Understand the concept of quality control during design and construction, including independent design reviews and verifications, field checks and project reviews.	1. Conduct checks, including field checks, to verify the validity of the design. 2. Follow quality management principles in practice. 3. Verify the conformity of the work with plans and specifications. 4. Prepare quality control plans, including frequency and test parameters, for specific processes or products. 5. Evaluate test results, determine adequacy, and develop recommended actions. 6. Participate in peer reviews. 7. Demonstrate that completed projects, systems or sub-systems meet project objectives in terms of functionality and operational performance.
	1.9 Engineering documentation Transfer design intentions to drawings, sketches and documents. Understand the process of transmitting design information.	1. Review the designs of others and communicate findings and issues, including suggested alternatives. 2. Communicate your ideas and concepts to project team members. 3. Understand the value of project completion reports and lessons learned reports that you or others will apply to future projects. 4. Produce sketches, notes, documentation and design documents to prepare proposals, preliminary and final design drawings/documents for acceptance by the client and approval by regulatory authorities.
	1.10 Sustainable, social, economic and environmental development Understand the safeguards required to protect the public and the methods of mitigating adverse impacts.	1. Follow public safety regulations and advice during design and implementation of a project. 2. Prioritize public protection by taking into account customer issues, health and safety issues, environmental protection issues and sustainable development principles.

2. Communicate effectively	**2.1 Verbal communication** Communicate verbally in a Canadian environment (in English or French). Note: Even if they are able to demonstrate this competency in English, candidates must also demonstrate appropriate knowledge of the French language in accordance with the Charter of the French Language.	1. Communicate in a simple and concise manner. 2. Communicate official project data to team members, clients, contractors. 3. Express both technical and non-technical issues and ideas clearly to both technical and non-technical personnel. 4. Give presentations and/or training sessions to technical and non-technical groups; presentations to superiors and subordinates; internal (colleagues) and external (clients) presentations. 5. Present the project parameters to the public. 6. Actively participate in meetings. 7. Take training in verbal communication.
	2.2 Written communication Communicate in writting with team members, clients, contractors and members of the public in a Canadian environment (in English or French). Note: Even if they are able to demonstrate this competency in English, candidates must also demonstrate appropriate knowledge of the French language in accordance with the Charter of the French Language.	1. Tailor communications to the intended audience. 2. Draft and review technical documents 3. Draft clear memos and reports to both technical and non-technical personnel. 4. Use drawings and sketches to demonstrate key points and concepts. 5. Prepare written reports on a technical subject. 6. Prepare written reports based on field observations. 7. Take training in technical report writing. 8. Work with common office programs (e.g. Excel, Word, Outlook, internet browsers).
	2.3 Reading and comprehension Communicate effectively in a Canadian environment (in English or French). Note: Even if they are able to demonstrate this competency in English, candidates must also demonstrate appropriate knowledge of the French language in accordance with the Charter of the French Language.	1. Review technical documents to understand the implications and summarize key points.

3. Manage projects	**3.1 Project management principles** Awareness of project management principles.	1. Be aware of resource planning, budgeting, change management, scope management, schedule and unforeseen issues in managing a project from start to end. 2. Understand the impacts that benefits and risks of various design solutions have on a project. 3. Understand the needs and expectations of internal and external clients.
	3.2 Level of responsibility Demonstrate an increasing level of responsibility for project planning and implementation.	1. Follow and contribute to the 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 your practical development. 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. 7. Include sustainability analysis in project descriptions.
	3.3 Expectations versus resources Manage expectations based on available resources.	1. Update the schedule and budget on a regular basis and communicate status. 2. Provide market assessment and/or availability of resources for a project. 3. Meet deadlines without undermining other impacts on the project (e.g. health and safety, environmental impacts, quality, financial, etc.)

	3.4 Financial and budgetary aspects Understand the financial aspects of the work.	1. Become familiar with the project budget during design and construction. 2. Provide a technical/financial report and compare the options. 3. Understand the place of finance in business decisions. 4. Understand the principles of budgeting and financing. 5. Understand the relevant business processes. 6. Understand how to work with and develop contracts. 7. Develop financial risk management/mitigation plans (elimination, mitigation, prevention).
	3.5 Response to feedback Ask for and respond to feedback.	1. Apply the lessons learned and performance reviews in meetings. 2. Understand the scope of a project and know how to respond appropriately when a project exceeds its scope.
	3.6 Project and process life cycle Gain exposure to the various stages of the process/project life cycle, from the design and feasibility analysis to implementation.	1. Identification: Come up with the initial project idea and preliminary design. 2. Preparation: Provide a detailed design of the project that addresses technical and operational aspects 3. Appraisal: Analyze the project from the technical, financial, economic, social and environmental perspectives. 4. Preparation of specifications and tender documents: prepare documents for tenders, invitations to tender and opening of tenders, pre-qualification, evaluation of bids and award of work. 5. Implementation and monitoring of the solution: carry out project activities, with on-going checks on progress and feedback. 6. Support operation.

4. Work on a team	**4.1 Working effectively** Work effectively with other disciplines/people.	1. Demonstrate respect for others' responsibility and expertise. 2. Integrate engineering with other inputs. 3. Demonstrate leadership in achieving team goals. 4. Actively collaborate. 5. Adhere to objectives, decisions and priorities.
	4.2 Conflict resolution Work to resolve conflicts.	1. Demonstrate leadership in resolving conflict. 2. Work to facilitate beneficial conflict resolution. 3. Take training in conflict resolution. 4. Demonstrate a positive attitude. 5. Show willingness to accept comments and criticism. 6. Identify situations where you received feedback and how you responded to that feedback.
5. Act professionally	**5.1 Code of ethics** Work with integrity, ethically and according to professional standards.	1. Comply with Quebec's Code of Ethics and/or with the code in the jurisdiction where you practice. 2. Apply professional ethics in meeting corporate directives. 3. Understand how conflict of interest affects your practice.
	5.2 Awareness of personal limitations Know your field of practice and expertise.	1. Ask questions, ask for assistance and incorporate input. 2. Interact with your supervisor, colleagues and others. 3. Recognize your level of expertise and its limits.
	5.3 Professional responsibility Understand professional responsibility.	1. Be aware of the potential professional liability involved in all aspects of your work. 2. Demonstrate personal skills with judgment, rigour, analytical skills and resourcefulness.

	5.4 Seal and signature use Master the guidelines for engineering documents.	1. Fully understand appropriate use of your seal and signature. 2. Document your activities, decisions and work in a registry**.** 3. Maintain of the traceability your documents. 4. Protect the security, sustainability and confidentiality of information.
6. Manage your professional development	**6.1 Professional development activities** Demonstrate completion of professional development activities.	1. Participate in community, technical, industry and/or professional association committees and task forces. 2. Participate in a variety of self-directed and formal professional development activities to learn and stay up to date in your field of practice and report your progress to applicable parties.
	6.2 Identify training needs Demonstrate awareness of knowledge gaps and areas where you require additional training.	1. Gap analysis of knowledge and skills; highlight the gaps that exist. 2. Identify areas of weakness where additional training is needed. 3. Prepare a self-criticism list and the ways to mitigate or eliminate the weaknesses.
	6.3 Professional development plan Develop a professional development plan to address knowledge gaps and stay up to date on advances in your field of practice.	1. Plan to pursue training in areas of weakness and remedy knowledge gaps. 2. Stay up to date in your field of professional practice by participating in planned activities such as self-directed and formal professional development activities. 3. Keep up to date with developments and new technologies in your field. 4. Apply new skills in your practice.

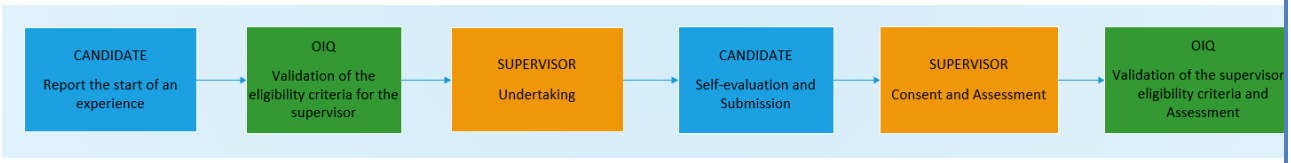
Table 3 – Steps in the assessment process for supervisors

Internship

As a supervisor, you must consent to assess a CEP's internship. Assessments consist in confirming or correcting information submitted by the candidate concerning their responsibilities and the dates of their internship, and potentially making comments that you consider relevant.

Experience in progress

(Work experience, master's degree and doctorate in engineering)



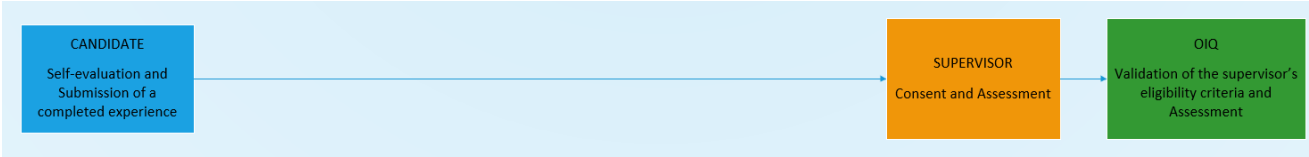
Once the OIQ has confirmed that you meet the criteria to be a supervisor, you must agree to supervise the candidate and assess their experience when it ends.

When the candidate completes their self-evaluation and submits their experience, you must give your consent to assess it. Assessments consist in confirming information submitted by the candidate concerning their experience (dates, responsibilities, level achieved) and sharing your general point of view with us on their experience.

During the assessment process, the OIQ checks again whether you still meet the eligibility criteria to be a supervisor.

Completed experience

(Work experience, master's degree and doctorate in engineering)



As a supervisor, you must consent to assess the experience submitted by the candidate. Assessments consist in confirming information submitted by the candidate concerning their experience (dates, responsibilities, level achieved) and sharing your general point of view with us on their experience.

During the assessment process, the OIQ checks again whether you meet the eligibility criteria to be a supervisor.