By Magdaline Boutros

TWO NEW COMPETENCY PROFILES

The Ordre des ingénieurs du Québec has revamped and expanded the competency profile on building electricity and wrote a brand new profile on industrial electricity. These documents were prepared by experienced volunteer engineers with the goal of helping members evaluate their own work. They detail the technical competencies that engineers must master. All members can use these profiles to determine whether they are doing the right things and doing them correctly. These competency profiles will be updated periodically to keep in step with changes in practice. Below is a discussion with two engineers who participated in preparing these two profiles.

INDUSTRIAL ELECTRICITY

To Claude Noreau, Eng., construction manager at the Nemaska Lithium mine located at James Bay, it is clear that engineers who work in the field of industrial electricity will always have to update and improve their engineering-related competencies. "There will always be more and more challenges in the field," he thinks. When he landed his first job in 1975, slide rules and mainframes were a key part of engineering, he remembers; this fact alone shows just how much the field has rapidly changed. Research methods, technology monitoring and technical data are no longer the same. Internet access now makes it possible to obtain a wealth of information in just one click and dialogue with members of international engineering groups about current best practices.

According to Claude Noreau, that is why all engineers who work in the field of industrial electricity have a responsibility to stay up to date and find, interpret and apply the latest standards. "Engineering is a huge branch and the challenge is to be unflinching and diligent in our approach to it," he emphasizes.

In the last few months, Claude Noreau and several of his colleagues have devoted themselves to drafting the competency profile on industrial electricity. The profile

THIS PROFILE IS INTENDED FOR ENGINEERS WHO STUDY, DESIGN, INSTALL AND MAINTAIN ELECTRICAL SYSTEMS AND EQUIPMENT.

concerns the regular and high-power industrial sectors as much as the heavy industry, manufacturing industry, agri-food industry, pharmaceutical industry and infrastructures. It includes and explains each and every technical competency required of engineers who work in the field of industrial electricity.

Claude Noreau recalls just how "critical the issue of competence is nowadays." In his view, it is essential for the OIQ to establish clear guidelines that inspectors in the field can use to evaluate members' work.

In some cases, he notes, several opinions may be helpful to determine whether an engineer has actually mastered a competency. In such cases, the competency profile is an invaluable tool for separating good practice from deficient practice, and can help young engineers do the right things from the very beginning of their practice. Another decisive aspect for young engineers is to find "an environment that properly supports them and helps them develop," mentions Claude Noreau.

He explains that "according to some research, only 10% of competencies come from knowledge gained in formal training programs, 20% of development comes from knowledge gained from other people or colleagues and the remaining 70% is acquired in professional experience." Therefore, every engineer is responsible for making full use of their experiences, learning lessons from the problems they encounter and building confidence over the years.

"When a prospective job is in the works, engineers should avoid situations where a person questioning them about their competencies wonders, for example, whether he or she is dealing with an engineer who has 20 years of experience or 20 years of wear and tear," explains Claude Noreau.

BUILDING ELECTRICITY

Robert Villemaire, electrical engineer at GRV Experts Conseils, says that the field of building electricity has also

seen many changes in recent years. "These changes are mainly due to codes and standards that have become more demanding to ensure greater safety and reliability and make it easier to service electrical equipment," he states. Mr. Villemaire points out that the technical aspect of the work became easier when engineering software arrived.

The Internet has also transformed certain aspects of engineering practice. The number of technical representatives who visit engineers has decreased, which is why the Web sites of electrical equipment manufacturers have become virtually essential sources of technical information. "The challenge is now to evaluate the quality of the information you find on the Internet," says Robert Villemaire; "you should use it with a degree of caution." He also suggests that the larger number of lighting sources "requires engineers to have greater knowledge and better expertise."

BUT GREATER DILIGENCE IS NECESSARY DURING THE VALIDATION STEP. SUPERVISION BY MORE EXPERIENCED COLLEAGUES IS OFTEN RECOMMENDED.

When contributing to the new version of the competency profile for building electricity, Robert Villemaire bore in mind the fact that more competencies are now required of engineers who work in this field.

The profile is intended for all engineers involved in studying, designing, installing, commissioning and servicing electrical systems and equipment. It concerns the residential and commercial sectors, office buildings, institutions, data centres, production and distribution systems for emergency power networks, as well as the light industry and transportation sectors.

Robert Villemaire reports that several new criteria must now be considered when engineers work on building electricity designs. These include energy efficiency and conservation, system safety, signal quality and automatic power distribution systems.

To support members who have to acquire the higher number of competencies, Robert Villemaire believes that more technical training should be offered to them. "The field will change when more engineers take technical training that is focused on practical aspects, based on tangible examples and instructive on how decisions made in the design phase can affect the systems." More training opportunities might also be valuable for young engineers who need "to acquire and master a large number of competencies as quickly as possible," he adds.

Robert Villemaire believes that "once they have acquired the many competencies involved in building electricity, young engineers will gain the trust of those around them and a better idea of the challenges they will face."

To consult the competency profile for industrial electricity:
http://bit.ly/electriciteindustrielle

To consult the competency profile for building electricity:
http://bit.ly/electricitebatiment