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SUPERVISION OF ENGINEERING WORKS

Pop quiz for junior engineers

What do you think about the following case? A junior engineer employed by a contractor supervises engineering works: He works from plans and specifications that were prepared, signed and sealed by an engineer and does not sign any plan himself, but rather goes to the site to ensure that the technical requirements are being met. In your opinion, during these site visits, should the junior engineer be under the immediate control and supervision of an engineer?

The answer is: absolutely! In the field of construction, engineers regularly perform acts that are reserved for them when the construction work relates to their field of practice, and the inspection and supervision of engineering works are both reserved acts. (To know more about the field of practice and acts reserved for engineers, read sections 2 and 3 of the Engineers Act, which are provided in the box.)

ADMINISTRATIVE TASK OR RESERVED ACT?

The engineering works supervision guide (Guide de surveillance des travaux) published by the Ordre des ingénieurs du Québec explains that the supervision of engineering works covers a multitude of tasks that must be accomplished.

A JUNIOR ENGINEER WHO SUPERVISES ENGINEERING WORKS MUST BE UNDER THE IMMEDIATE CONTROL AND SUPERVISION (ICS) OF AN ENGINEER.

The distinction between contract administration and supervision is difficult to determine or establish, because these two activities are closely linked" (p. 12).

Administrative tasks can be identified particularly by the fact that they have no direct effect on the quality of the engineering works and structure to be built. For example, these include project planning, cost estimating and process monitoring in construction projects. All these activities can be carried out by a competent person, without the supervision of an engineer.

Here are some examples of activities that, on the contrary, must be supervised by an engineer:

- analyzing plans and specifications in view of planning inspection and supervision tasks and preventing problems;
- preparing supervision plans, compliance certificates, sign plans, traffic plans, formwork plans, shoring plans requiring trenches to be dug, or scaffolding plans;
- modifying construction plans and specifications, due to a requested change.

In summary, unless a junior engineer who supervises engineering works sticks to just the administrative aspects, he or she must be under the immediate control and supervision (ICS) of an engineer. The ICS will continue as the work is accomplished and include close monitoring of activities at appropriate moments, a verification of progress and, finally, a validation of the compliance of the work that has been done. In this way, the junior engineer will acquire solid competencies and public safety will be ensured.

To find out more about the supervision of engineering works, we invite you to consult the engineering works supervision guide (Guide de surveillance des travaux), which can be found in the professional practice guide (Guide de pratique professionnelle at gpp.oiq.qc.ca, in the "Travail de l'ingénieur" section).

The field of practice of an engineer (Engineers Act, section 2)

"Works of the kind hereinafter described constitute the field of practice of the engineer:

a) railways, public roads, airports, bridges, viaducts, tunnels and the installations connected with a transport system the cost of which exceeds $3,000;

b) dams, canals, harbours, lighthouses and all works relating to the improvement, control or utilization of waters ;

c) works of an electrical, mechanical, hydraulic, aeronautical, electronic, thermic, nuclear, metallurgical, geological or mining character and those intended for the utilization of the processes of applied chemistry or physics ;

d) waterworks, sewer, filtration, purification works to dispose of refuse and other works in the field of municipal engineering the cost of which exceeds $1,000;

e) the foundations, framework and electrical and mechanical systems of buildings the cost of which exceeds $100,000 and of public buildings within the meaning of the Public Buildings Safety Act (chapter S-3);

f) structures accessory to engineering works and intended to house them;

g) temporary framework and other temporary works used during the carrying out of works of civil engineering ;

h) soil engineering necessary to elaborate engineering works;

i) industrial work or equipment involving public or employee safety."

Reserved acts for engineers (Engineers Act, section 3)

"The practice of the engineering profession consists in performing for another any of the following acts, when they relate to the works mentioned in section 2:

a) the giving of consultations and opinions;

b) the making of measurements and layouts, the preparation of reports, computations, designs, drawings, plans, specifications;

c) the inspection or supervision of the works."