Published in PLAN,
May 2009, page 34

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TRAINING ON DOMESTIC WASTE WATER TREATMENT

You're sure to be surprised!

The training session on domestic waste water treatment has been given for the past three years and participants are still amazed, even engineers who have considerable experience in the field. The reason is that this area of practice requires much more knowledge than it appears!

How does one evaluate soil? What system should one design based on such soil? What calculations should one carry out to assess the change in flow? How does one make sure that the absorbent pad ("matelas colmatant") does not block water infiltration? At first glance, installing a waste water treatment system linked to a home or business requires a great deal of skill and knowledge.

However, a few years ago, the Ordre des ingénieurs du Québec (hereafter the "Ordre") noticed that engineers who specialized in this field showed signs of serious deficiencies. Rightly so: there were no refresher courses or training to speak of aimed at acquiring knowledge in basic theory and technology on the matter. It's not surprising that many complaints and proceedings ensued at an alarming rate. Consequently, the Ordre tried to remedy the situation by implementing a technical training program, in conjunction with the École polytechnique.

Mr. Yves Barabé, a retired engineer specialized in waste water treatment, prepared the plan for the program and was assigned to give the first of three modules, a three-day training on site characteristics and soil analyses. Ever since he started giving the course three years ago, Mr. Barabé notices the same surprise reaction every time. "Engineers who take the course are always amazed at how little they know!" However, this lack of knowledge is easy to explain…

A HISTORICAL MISHAP

Let us go back in time. A few decades ago, the province of Québec was developing and new municipalities were created; it was believed that the waterworks and sewer systems installed in these new subdivisions would be connected to existing systems. As a result, purification fields were considered temporary installations. Given that this area of engineering was not taught in universities, engineers working in the field had to learn "on the job"...

The passage of time revealed our mistake since this area of expertise is flourishing more than ever before! In fact, municipalities often refuse to take over waste water treatment for new neighbourhoods given the high costs associated with providing such services to remote areas. Consequently, engineers specialized in domestic waste water treatment are very much in demand, but they still use an "on the job training" approach, relying mostly on their experience. However, for the past three years, the training offered by the Ordre allows them to work on "solid ground"!

> *"Participants learn how and why a system works, and how to target and concentrate on the weak links."*

LIKE A WELL-DESIGNED CHAIN

Yves Barabé is well aware of the lack of knowledge which is characteristic of this area of practice. Employed by Hydro-Québec at the time, he had to travel to the United States to gain procedural knowledge developed in the 1980s and 1990s. "It is impossible to acquire these skills and knowledge solely through practical experience. Certain calculations, particularly with respect to the absorbent pad ("matelas colmatant"), the heart of the system, must not be done based on theoretical values but on an empirical assessment of existing systems", explains Mr. Barabé.

In his course, engineers, young and old, discover, among other things, multidisciplinary principles and know-how which guarantee the system's effectiveness. "The design of a domestic waste water treatment system is like a chain: all it takes is one weak link for the whole system to fail. Participants learn how and why a system works, and how to target and concentrate on the weak links."

The other two training modules focus on the Regulation respecting waste water disposal systems for isolated dwellings (Q-2, r-8) and on designing systems for flows ranging between 3,240 litres and 50,000 litres. "We teach engineers to go beyond simply applying the Q-2, r-8 regulation. They must be able to evaluate various contexts according to soil conditions and come up with a design that adapts to the actual situation and complies with the regulation", notes Mr. Barabé.

CRITICAL ASSETS!

Interested engineers have everything to gain by taking all three training modules. First of all, they would be putting all the chances on their side when it comes to guaranteeing that their practice ensures the public's protection and respects the Code of ethics of engineers. It bears reminding that a faulty system may lead to surface water contamination. In a densely constructed area, an ill-conceived system also increases the risk of contaminating the water table.

Trained engineers also learn how to raise their clients' awareness with respect to the importance of treatment system maintenance. "Maintaining these systems is as important as looking after a car; maintenance contributes to keeping them in good working order for a long time", points out Yves Barabé.

Finally, through training, engineers protect themselves against future claims and complaints, which is quite significant given that, proportionally speaking, this area is the one that garners to most legal actions. During the courses, participants review Québec jurisprudence on this matter.

In short, training on domestic waste water treatment has everything to become a "must"!. To learn more about this program and the next courses offered, visit: **http://www.polymtl.ca/cfc/cours/index.php**. Register now!

DO YOU HAVE THE REQUIRED SKILLS?

What skills should you have to be able to design a stand-alone domestic waste water system? The Ordre has prepared a skills profile which will help you answer this question. To refer to it, click on **http://www.oiq.qc.ca/pdf/Profil_eau_usees.pdf**.