



InfraGuide®

MCGILL UNIVERSITY - DEPARTMENT OF CIVIL ENGINEERING AND APPLIED MECHANICS

CASE STUDIES

INFRAGUIDE HELPS BRIDGE EDUCATION GAP

The Department of Civil Engineering and Applied Mechanics (est. 1871) at McGill University offers programs at the undergraduate and graduate levels. There are approximately 300 undergraduate and 80 graduate students in the department, of whom nearly 35% are women. Broad programs of study are available that offer specialized courses in all areas of civil engineering.

The Challenge

During the next 10 to 15 years, working “Baby-Boomers,” who represent close to 30% of the population, will retire at a rate that will result in a workforce reduction of around 20% by the year 2020. Meanwhile, the next group, known as the “Gen-Xers,” represents only about 16% of the population. Obviously, this is not large enough to replace the retiring baby-boomers. This will likely pose two major problems for the infrastructure community:

1. A large amount of knowledge and experience will retire along with the baby-boomers and needs to be captured and transferred to others in the community.
2. Technical resources will become increasingly scarce, and competition for those resources will increase.

The Solution

Knowledge sharing is the only way to meet these two challenges. At present, InfraGuide represents the only distillation of thousands of professional years of experience in infrastructure management and operations. By including infrastructure issues and InfraGuide Best Practices (BPs) in the curriculum, universities can help facilitate and leverage the experience that baby-boomers bring to the workplace. McGill is among the group of Canadian universities that is spearheading this initiative.

Professor of Civil Engineering, Saeed Mirza, teaches infrastructure and durability related courses at McGill, construction materials, rehabilitation of infrastructure and infrastructure and society being three of them. The university also has a 4th year project course that incorporates the sustainability of real life systems.

According to Mirza, InfraGuide has contributed to the developments at McGill in many ways: “InfraGuide materials are useful in all courses...it has triggered a revision of thinking.”

The Value

Professor Mirza notes that civil engineering courses in the past used to focus only on the “first cost” (i.e., design, build and forget). InfraGuide has helped professors and students to think beyond the “first cost” to take into consideration the life cycle performance of the infrastructure. It has brought about a change in philosophy — from the present “cradle to grave” mindset (i.e., produce, consume and dispose) to the “cradle to cradle” philosophy (i.e. reduce, reuse and recycle). Courses are no longer taught in a compartmentalized manner but rather become a multi-disciplinary training. In addition to engineering techniques, InfraGuide has helped students appreciate economic, social and environmental aspects, as well as many different parts of infrastructure management, such as law, finance, management, politics and sociology.

Testimonial

“The students have demonstrated their deep knowledge of decision-making and investment planning in this semester’s mock municipal council meeting dealing with infrastructure issues. It is very fulfilling to note the tremendous progress in the learning process resulting from the use of InfraGuide Best Practices over the past five years. These best practices are an invaluable tool for all students about to join the work force.”



National Guide to
Sustainable Municipal
Infrastructures

Canada

NRC · CNRC

FCM
Federation of Canadian Municipalities
Fédération canadienne des municipalités

Contact InfraGuide toll-free at 1-866-330-3350 or visit our Web site at <www.infraguide.ca> for more information.

© 2005 Federation of Canadian Municipalities and National Research Council