RESEARCH HIGHLIGHT

March 2015 Technical Series

Exploration of Options for "Greening" of the Plumbing Industry in Canada

INTRODUCTION

The Canadian residential sector accounts for approximately 17% of total energy consumption and 57% of municipal water consumption. While historically Canada has been considered a water-rich nation, regional disparity in water availability, higher energy costs, and increased water rates to reflect the true cost of water supply have led municipalities and individual consumers to consider options for reducing water use in the home.

Canada's 44,000 plumbers are key players in consumer acceptance of water-efficient products given their influence on purchasing decisions. Additionally, plumbers are part of the overall construction teams that build and renovate housing. When the project has sustainable objectives, plumbers must not only be able to ensure their systems comply with the overall project goals, they also must be knowledgeable of the "green" objectives of other contractors to effectively coordinate activities and not work at cross-purposes.

While training on innovative technologies and practices is relatively common for builders and renovators, similar training for their subtrades has been more limited. This has been a common concern among builders that specialize in the construction of sustainable, energy-efficient housing that is also healthy to live in. In their view, subtrades who lack knowledge of sustainable construction and renovation practices can undermine the overall project. In an effort to promote a greater uptake and acceptance of water-efficient technologies in the residential sector and to support the construction and renovation of sustainable housing in general, CMHC supported a multi-stakeholder-funded study to investigate sustainable (or "green") training options for the plumbing industry, similar to initiatives such as the Green Plumbers® program in Australia and the United States.

Phase 1 of this project explored the interest of Canadian industry stakeholders in developing a water efficiency program for Canadian plumbers and examined possible program models based on those in use locally and internationally. Phase 2 of the project included the development of a pilot "green" training curriculum for Canadian plumbers, deployment of the training in three urban centres, and market research on opportunities for sustainable training.

RESEARCH PROGRAM

Phase 1 was undertaken to identify potential opportunities in establishing additional training for apprentice and licensed plumbers in the areas of water-use efficiency and environmental sustainability. Interviews with key stakeholder groups indicated that across Canada there is very little dedicated training in sustainability topics and little awareness of programs such as the Green Plumbers®. While the survey found generalized support for sustainability training, it was tempered with the perceived lack of market interest that might be expected from the plumbing industry. Regardless, many survey participants expressed hope and optimism that demand for dedicated sustainability training for plumbers will grow in the future as consumer awareness of, and demand for, higher-performing plumbing systems, appliances and practices develop.

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The survey also identified six international training programs with potential application for the Canadian plumbing market. Within Canada, a number of entry level courses on specific topics (such as rainwater harvesting and solar hot water installation) were identified. However, no overarching program on water-efficient technologies and practices and overall sustainable housing principles for plumbers was found. A final conclusion drawn from this work identified the need for further market research targeted specifically to plumbers.

Phase 2 activities included the development of a Canadian-oriented workshop based on existing water efficiency and plumbing curriculum as well as targeted market research to determine plumber awareness and attitudes toward water efficiency and conservation, best practices, innovative technologies and interest in related training. As part of an arrangement with the International Association of Plumbing and Mechanical Officials (IAPMO), a condensed version of the U.S. Green Plumbers® program, adapted for the Canadian regulatory environment, was provided.

The training developed was piloted in three workshops held in Vancouver, Toronto, and Kitchener-Waterloo-Guelph. Overall, 128 plumbers and apprentices attended.

FINDINGS

Generally, apprenticeship instructors and students were the most enthusiastic in obtaining sustainability training. Young tradespersons seemed eager to learn skills that may help to differentiate themselves in a highly competitive marketplace. That's not to say that experienced plumbers were not interested in the training—they were. However, foregoing paying work while in voluntary training and changing long-standing practices can be barriers to participation and implementation. The findings indicate that licensed plumbers can have much less opportunity to participate in additional training on account of their workload. Nevertheless, workshop evaluation findings indicated that 77% found the training to be valuable with interest in the specific areas of rainwater harvesting, greywater reuse, and water auditing. A further 86% of participants intended to include water-saving devices more often in the future as a result of the workshop.

After the pilot training, follow-up focus groups on the workshop were conducted with both participants and non-participants. Results from the focus groups indicated a number of highlights:

- Plumbers are experts when it comes to water-using appliances, piping, fixtures and fittings. Many of them are personally interested in sustainability and already install high-efficiency shower heads, toilets and faucets. Furthermore, they are keen to learn. Of the 200 randomly selected plumbers interviewed, 47 per cent were interested in attending sustainability training.
- To be successful, such workshops need to showcase and demonstrate emerging products, technologies and practices. Content on proper installation procedures and access to manufacturers was also seen to be important. The focus group consultations indicated that if innovations are appropriate and are competitively priced, plumbers will want to know about them. In their view, the more plumbers know, the better chance they have of successfully making a recommendation to their clients.
- The focus groups also indicated that fragmented governance of the trade makes it challenging to implement a program of this nature on an ongoing basis. Local governments were found to be supportive of the program, but ultimately represent only their local jurisdictions. Training and accreditation is governed on a provincial basis, which makes integration of a national program into apprenticeship programs a formidable bureaucratic task. As well, there is no overarching national professional body or organization with a mandate for this kind of training, leaving an obvious gap for program continuation.
- With the proliferation of do-it-yourself TV shows and websites, easy access to low-cost materials through retailers, and the strain on Canadians' pocketbooks, the plumbers consulted indicate that their clients are looking to cut costs wherever possible and this can make the benefits of green plumbing features difficult to articulate and sell. However, the health and safety aspects of designing and implementing innovative water technologies are best met through an informed plumbing industry versed in the latest green plumbing requirements.

IMPLICATIONS FOR THE HOUSING INDUSTRY

This project indicated that, while plumbers who participated in the research are interested in water-efficient technologies and practices, there may not be sufficient interest to support a national program at this time. However, it is worth noting that approximately 30 years ago, Natural Resources Canada launched its R-2000 Program under similar conditions and challenges. However, by targeting leading builders, NRCan was able to develop a national cadre of highly trained and knowledgeable builders who demonstrated that highly energy-efficient housing was practical, cost-effective to build and had a place in the market. A similar approach might prove equally successful within the residential plumbing sector and serve as a model for the development of similar training for the other trades involved in the delivery of housing in Canada. The deployment of such training would help address a concern of builders working to deliver sustainable housing projects that their subtrades are not sufficiently aware and knowledgeable of innovative products and practices.

Further opportunities would need to be explored before a bonified sustainable plumbing training program could be successfully introduced in Canada. Such a program would benefit from the support of a host organization that could develop and offer training and certification, seek out financial assistance for training participants and work to increase consumer and industry awareness and demand for water-efficient products and services and trained plumbers to deliver them.

CMHC Project Manager: Cate Soroczan

Consultant: Econics

Housing Research at CMHC

Under Part IX of the ***National Housing Act***, the Government of Canada provides funds to CMHC to conduct research into the social, economic and technical aspects of housing and related fields, and to undertake the publishing and distribution of the results of this research.

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or contact:

Canada Mortgage and Housing Corporation
700 Montreal Road
Ottawa, Ontario
K1A 0P7

Phone: 1-800-668-2642
Fax: 1-800-245-9274

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