study to enhance construction trades recruitment and retention

Andrea C. Wong

Alberta’s labour market is currently defined by a low unemployment rate and a regional skilled labour shortage that has construction industry employers wondering how to best meet labour demands now and into the future. Construction employers are attempting to address this issue by hiring temporary foreign workers and by exploring new ways of mobilizing local labour. Through the Career Paths of Tradespeople project, the Natural Sciences and Engineering Research Council (NSERC) Industrial Research Chair (IRC) in Strategic Construction Modeling and Delivery is investigating a critical dimension of this challenge: how the career paths tradespeople follow affect the available labour supply.

The project revolves around a comprehensive career paths survey developed by Adel Awad, who previously served as the IRC’s postdoctoral fellow. Nima Gerami Seresht, PhD student and researcher currently with the IRC, has since taken over the analysis phase of the project. “The survey collects detailed information about education and career experience that you might touch on in job interviews, but that isn’t usually recorded in a way that can be analyzed,” says Gerami Seresht. This data includes information about education and certifications as well as details regarding career progression in relation to construction sectors, project types, and on-the-job training. The survey also solicited responses regarding general demographic characteristics like age, gender, and city of residence.

IRC partners Building Trades of Alberta, Christian Labour Association of Canada, Merit Contractors Association, Progressive Contractors Association of Canada, and Suncor Energy Inc. have been involved in the project since its inception. They not only collaborated with IRC researchers during survey development to ensure the project scope reflected the data needs of industry, but they also distributed the survey throughout their sizable employee and membership bases, thereby facilitating access to a wide range of construction industry personnel.

Over 900 responses were collected through the secure online questionnaire from March through August 2013.

Data collected through the Career Paths of Tradespeople Survey

The survey includes 159 possible questions that allow respondents to report on their career progression from Registered Apprenticeship Program participant all the way up to company owner, if applicable.
In the Alberta construction industry, jobs are plentiful, qualified people are in high demand—and the labour market shows no signs of slowing down. According to the Alberta Ministry of Treasury Board and Finance, over the past year, Alberta had the highest employment growth of all Canadian provinces, with 78,100 jobs added. For the year ending June 30, 2013, Alberta also achieved record population growth thanks to international and interprovincial migration. Despite this inward migration, job vacancies have persisted, which indicates a shortage of qualified candidates. Given these trends, how will we meet labour demands now and into the future? The NSERC Industrial Research Chair (IRC) in Strategic Construction Modeling and Delivery team is working to address this very problem through numerous projects.

In IRC KeyNotes, we have previously highlighted the ongoing Labour Productivity Analysis and Modeling study, and the Tracking Tool we developed to help the Association of Construction Workforce Acquisition (ACWA) monitor and report on data involving temporary foreign workers in their employment. This time, in our cover feature about the Career Paths of Tradespeople project, we turn our attention to another angle of the industry’s labour sourcing strategy.

When proposing a new project, IRC researchers work closely with industry partners to assess business needs and objectives and to define the project scope, objectives, and end product. These measures ensure that the IRC fulfills academic requirements while providing industry with the best possible solution for the problem at hand. Successful collaboration doesn’t end after the initiating and planning stages. Partners and researchers continually work together to develop relevant tools and best practices that will help the Alberta construction industry lead the way into the future. As Mohamed ElBarkouky points out (“Mohamed ElBarkouky: Building Connections”), the support and involvement of NSERC and our industry partners gives our student researchers real-world exposure to construction issues. It also gives them the opportunity to work directly with industry leaders (see “Curtis Llewellyn: From sea to sky without limits”). This results in smarter tools ready to be adopted immediately, and savvier students who upon graduation enter the workforce as highly qualified personnel.

The continued success of our projects is built on consistent communication and collaboration between researchers and partners for the entire project duration. In the case of the Career Paths of Tradespeople study, a number of partners helped during survey development and distribution. As a group, we are already discussing possible extensions for this project based on the data we have collected so far.

Maintaining a culture of collaboration gives us the flexibility we need to fine tune our research. Working closely with industry enables us to remain current despite any shifting needs and unforeseen challenges that may arise. This is how we keep our research on the cutting edge.

Aminah Robinson Fayek, PhD, PEng
NSERC Industrial Research Chair in Strategic Construction Modeling and Delivery
Professor, University of Alberta

Partner Profile

Curtis Llewellyn: From sea to sky without limits

Andrea C. Wong

Before moving to Edmonton at the age of 15, Curtis Llewellyn grew up in Squamish, BC, a small town en route to Whistler on the winding Sea-to-Sky highway. Though his own career path has also taken many twists and turns—not all of them expected—Llewellyn has proved that a lifelong enthusiasm for learning takes you places.

Llewellyn’s first introduction to the industrial construction sector was as a teenager in the early 1970s, when he spent summers working as a labourer for Dow Chemical. Following graduation, he registered for computer programming courses at the Northern Alberta Institute of Technology (NAIT). In those days, computer programming meant fumbling with punch cards and enduring long delays while waiting for programs to run. In the end, Llewellyn said, “I found it was not for me,” so when his summer employer Dow Chemical offered to take him on as a pipefitter apprentice, he seized the opportunity.

In the mid-1970s, a shortage of tradespeople meant work was plentiful. Llewellyn rapidly accumulated work hours, completing his four-year apprenticeship in just three and a half years. However, by the early 1980s, he was again contemplating going back to school to further his education. “There was no work for pipefitters—or trades in general. Engineers were unemployed.”

Observing the state of the industry and the economy, and assessing his own interests and strengths, he made a strategic choice: “The only folks doing well were the bankers, and the banks were run by economists. Thus, I became an economist—the idea of doing math seemed easier than writing reports.”

While completing his bachelor of arts degree in economics and mathematics at the University of Alberta, Llewellyn again returned to the trades for summer employment, this time as a turnaround supervisor or foreman/manager on construction sites.

Llewellyn was so interested in economics, he began postgraduate studies. However, life took him down a different road, as “I also started a family at the same time—poor planning on my part.”

Looking for work that would allow him to support his new family, he was offered a job as an economist, but as the pay was “significantly less” than what he knew he could make as a construction tradesperson, he decided to consider other possibilities.

Through his diverse training and experience in the trades and in academia, Llewellyn had acquired a unique skill set. He had become a skilled communicator adept at acting as an intermediary between tradespeople, owners, and engineers. He had a strong background in economics, and could read and understand technical drawings and specifications. He also discovered a knack for planning and forecasting.

Soon enough, he was offered work as a supervisor, then as a project manager, and then as a manager of construction. He was employed in a variety of settings including with industrial construction companies; engineering, procurement, and construction houses; and owners.

Currently, Llewellyn works for Suncor Energy Inc. as construction director for the offsite fabrication team. In this capacity, he represents Suncor on the technical advisory committee of the Natural Sciences and Engineering Research Council (NSERC) Industrial Research Chair (IRC) in Strategic Construction Modeling and Delivery. He has also served as a panelist at the annual Innovation in Construction Forum hosted by the Hole School of Construction Engineering at the University of Alberta.

Llewellyn has built a career on his ability to bring seemingly separate elements—academia and industry, trades and engineering, and economic theory and technical drawings—together so that each informs the other. It comes as no surprise, then, that his vision for the future involves innovation in the form of broad-based collaboration.

“We need to be more innovative, get the trades, construction companies and owners working together, with all groups winning and losing together. If we do not, we will see a decrease in project growth in Alberta,” Llewellyn said.

By actively collaborating with the contractors, labour groups, and other construction owners represented in the IRC’s partnership base, Llewellyn is already helping the industry take strides toward that future.

“Our world is changing. We need to be competitive, and the easiest [way to make] gains is through proven innovations. For all [these] groups to benefit from innovation, we need to communicate what is available and what has been successful.”

He believes such efforts will lead to “increased acceptance” and “ultimately, increased utilization” of new technologies and practices.

He similarly encourages recent university graduates and trades apprentices to draw connections between their own different experiences and areas of learning.

“Go and learn as much as you can, ask questions, try new areas of work, and set the example that every job can be done efficiently and safely.”

Above all, Llewellyn says, “Do not let barriers hold you back.”

Curtis Llewellyn, construction director of offsite fabrication at Suncor Energy

Llewellyn is an active member of the NSERC Industrial Research Chair in Strategic Construction Modeling and Delivery’s technical advisory committee, where he represents Suncor. He makes a point of getting involved in the IRC’s collaborative research initiatives and events.

“...”

IRC KEYNOTES | DECEMBER 2013
The high number of responses is good news to Peter Pilarski, vice president of Merit Contractors Association. In Pilarski’s mind, labour strategies focused on immigration programs are only temporary solutions. He said that longer term solutions will require a “collective” effort to attract and recruit Canadians to the trades, and to support them through training and other career development opportunities once they enter the industry’s workforce. Results of the Career Paths study will offer insight into how to accomplish these tasks.

This is not the first time that IRC researchers have turned their attention toward sourcing and optimizing skilled labour in a province where human resources are in short supply. Previously, the research group designed a database tool to track and report on statistics regarding hired temporary foreign workers, and the group continues to study labour productivity. The Career Paths of Tradespeople project is unique in that it considers construction employees not only in the contexts of their present organizations, but in the contexts of the many sectors and roles that have contributed to their careers.

“Finding new leaders... will benefit our industry’s growth and hopefully we will be better able to compete internationally for investment in Alberta projects.”

— Curtis Llewellyn
Construction director, offsite fabrication at Suncor Energy Inc.

Specialized training and experience are required for trade positions, so trends in the educational and career trajectories of tradespeople can significantly impact the numbers of qualified candidates looking for work in different construction sectors and at different levels of expertise. By revealing these trends, the Career Paths of Tradespeople project is unique in that it considers construction employees not only in the contexts of their present organizations, but in the contexts of the many sectors and roles that have contributed to their careers.

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Though Gerami Seresht’s analysis is still in progress, so far, he finds the results “exciting, and full of research potential.” The results of the analysis will provide important feedback regarding education, training, and career development in the Alberta construction industry that will help enhance recruitment practices, on-the-job training, and employee retention. Furthermore, the study’s methodology and web-based survey product can be re-used in future to periodically collect career path data. The survey can also be used to target specific groups of construction industry personnel for further study.

Initial results of the Career Paths of Tradespeople survey will be released to participating industry partners in the new year. ■

CONGRATULATIONS

...to all our 2013 award and appointment recipients!

**ERNIE TROMPOSCH**
IRC Management Advisory Committee Member
Construction Owners Association of Alberta
NOVA Chemicals Corporation
*Outstanding Individual Contribution to the Enrichment of the Hole School of Construction Engineering*

**MOATAZ OMAR**
PhD Candidate and IRC Researcher
Ernie Tromposch Graduate Scholarship

**ABRAHAM TESHAYE**
PhD Candidate and IRC Researcher
Robert Stollery/USF and G Insurance
*Company of Canada Award in Construction Engineering and Management*

**AMINAH ROBINSON FAYEK**
Chairholder
*Killam Annual Professorship*
*Appointment to NSERC Advisory Committee on University–Industry Grants (three-year term)*
ElBarkouky bridges gap between theory and practice

Mohamed ElBarkouky

Formerly a PhD researcher with the NSERC Industrial Research Chair in Strategic Construction Modeling and Delivery, ElBarkouky has returned to the group in the position of postdoctoral fellow. He also finds the theoretical basis of the work exciting. “Many of our theories are brought over from other disciplines, like electrical engineering and business. Fuzzy logic and other artificial intelligence techniques come from the world of process control and information technology, but we have borrowed and adapted them to fit our work,” he said.

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This emphasis on interdisciplinarity and collaboration are what make the IRC’s research so interesting, as “There are so many opportunities for innovation.”

As he helps support and coordinate the research efforts of the IRC as a group, ElBarkouky is also continuing his own research with Dr. Robinson Fayek.

Working with Dr. Robinson Fayek was the best opportunity I got as a student, and I am lucky to be working with her now.”

The IRC is just as lucky to have ElBarkouky back on the team.

The IRC’s previous postdoctoral fellow, Dr. Adel Awad, has since moved on to Major Projects Group Inc. where he currently serves as Project Controls Manager. We wish him all possible success in his new position.

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The Hole School of Construction Engineering invites you to Innovation in Construction: Forum 2014.

Last year’s event showcased a diverse array of presenters from Alberta and beyond representing many different perspectives on and expertise in construction. Forum 2014 will continue to showcase high calibre speakers of direct interest to our industry partners and the regional construction industry as a whole.

Join us for:

- Engaging presentations featuring renowned experts and case studies of recent, high profile projects
- Interactive, hands-on workshops introducing the latest industry software advancements taught by the experts who developed them
- Networking and recruitment opportunities with recent engineering graduates

Joint IRC Meeting on January 23

New collaborations to set course for the future

Dr. AbouRizk and Dr. Robinson Fayek

Dr. Simaan AbouRizk holds the NSERC IRC in Construction Engineering & Management. Dr. Aminah Robinson Fayek holds the NSERC IRC in Strategic Construction Modeling and Delivery. On January 23, 2014, representatives of the NSERC Industrial Research Chair in Strategic Construction Modeling and Delivery will be meeting with those of the NSERC Industrial Research Chair in Construction Engineering and Management. The two Chairs, under the direction of Dr. Aminah Robinson Fayek and Dr. Simaan AbouRizk, respectively, will be meeting to discuss opportunities for collaboration.

The two Chairholders have a long history of working together. Dr. Robinson Fayek joined the University of Alberta’s Department of Civil and Environmental Engineering in 1997. With Dr. AbouRizk and his senior NSERC IRC in Construction Engineering and Management providing mentorship, in 2007 she was awarded an NSERC Associate IRC in Construction Engineering and Management. In 2012, she was awarded her own senior NSERC IRC in Strategic Construction Modeling and Delivery. This Chair retained some of the partners she worked with as an Associate IRC while adding new partners to the group.

The two IRCs and their advisory committees will be discussing areas of their current research programs that may benefit from the amalgamation of their distinct areas of expertise.