PROMOTING CLIMATE LITERACY IN BRITISH COLUMBIA'S APPRENTICESHIP SYSTEM:

Evaluating One Union's Efforts to Overcome Attitudinal Barriers to Low Carbon Construction

Abstract

Background

LINKING CLIMATE CHANGE, THE CONSTRUCTION INDUSTRY AND THE BC INSULATORS

The construction industry, therefore, can play an important role in improving the energy efficiency of

promoting low carbon working practices that prioritize energy efficiency and sustainability (Calvert and

Members of the union are highly trained journeypersons with a Trades Qualification (TQ) based on a 4-year apprenticeship program and successful completion of Canada's Red Seal trades certification exam in MI. Certified mechanical insulators are responsible for the installation and maintenance of MI

or other fluids to maintain designated internal temperatures, or to service specific functions within

MI is important to maximize the energy efficiency and longevity of HVAC systems (Graham, 2016; Kephalopoulos, Geiss et. al. 2016; BC Homeowner Protection Office 2015;). Missing, damaged or improperly installed MI can significantly reduce heating and cooling system efficiencies. It can

with modest up-front investments during new construction (or retroût), typically requiring less than 1% of

consulting ûrm, HB Lanarc. It used this evidence in its presentations to municipal governments on the

As part of its overall campaign, the BC Insulators identiûed apprenticeship training as a major

THE DEVELOPMENT OF THE 'GREEN AWARENESS' COURSE CONTENT

SEAL program, meeting national standards of excellence for the training and certiûcation of skilled

economic and environmental benefits associated with MI. Like the LEED 101 module, this module

documents contained the names of the participants and the researchers eliminated any identifiers

union officials. This earlier study provided the framework for the development of the current research

Analysis

Research Findings

Several major themes emerged in the ſndings of the apprentice interviews. Encompassed within these

about the realities of their in-ſeld training, their work in the trade, the role of green or environmentally-

this reason, the discussion on the ſndings from this research will begin with a description of each of the two groups of interview participants. Each of the subsequent sections will then examine ſndings from

the afſliated sub-themes.

DESCRIPTION: DEMOGRAPHIC CHARACTERISTICS OF THE 2ND AND 4TH YEAR COHORTS

Key fndings:

- Fourth-year cohort: all male, tighter age range (average 28), high school educated, heavy industrial sector infuence, preparing for RED SEAL exam, slightly more pessimistic about industry and program experience.
- Second-year cohort: representation for both genders, wider age range, diverse levels of education and work experience, non-union representation, heavy commercial infuence, more optimistic about industry and program experience.

interview content reşected the industrial sector experience and reality.

manifestation of certain frustrations or criticisms regarding their experiences in the program or the ŝeld.

ŝnal classroom session only to ŝnd that they did not have a classroom space. They lost the ŝrst several

other trades programs. This speciŝc experience of having to reorganize their class space and losing

program, without ŝnancial assistance from their employer. This provided a unique perspective not

there were slight differences that emerged. These differences were also amplišed by other factors such

upon completion of the program. The ŝndings encompassed within this theme have obvious, direct

APPRENTICE PERSPECTIVES: THE MECHANICAL INSULATION TRADE:

Key findings:

- Industrial sector and commercial sector differ substantially in terms of: commitment to training/supervision (greater in industrial), pressure to meet tight timeline/deadlines (greater in commercial), quality and quantity of resources (greater in industrial), emphasis on work quality over quantity (greater in industrial) and overall work-site culture and norms.
- Perceived poor treatment of MI within industry (greater on commercial side) – positioned lower in the trade hierarchy.
- Lack of understanding/awareness amongst industry professionals and other trades of what MI is and the skills/training required for proper installation.
- Lack of awareness/understanding translates to devaluation of MI trade.
- Leads to challenges in job performance/quality, working/communicating with other trades, workplace morale.

sions within their trade as well as how their trade fits within the broader construction industry. Many of the interview questions were specifically designed to target apprentices' employment history and

than their fourth-year counterparts. However, both cohorts seemed acutely aware of a signiſcant

who worked on both sides of the industry validated this interpretation by conſrming that when he

ii. Treatment of mechanical insulation trade within the construction industry:

challenges faced by the apprentices in the ſeld tended to differ according to the sector in

BThe thing with being insulators, we're considered a second trade; we're not a ſrst trade. What I mean by that is electricians and plumbers and framers, they're considered like a ſrst trade,

lack of interest or awareness was linked to the signiſcant role cost-savings play in decision-making

So, whereas other trades were pushed to meet deadlines, they were simply pushed-out, ‘Bl ŝnd

the ŝeld, and any associated accumulation of experiences of poor treatment. All second-year

they received their RED SEAL certiŝcation. The second-years were also far more likely to link their

until ŝrst year. But, I don’t know, it just makes me feel good about my job.’5 In comparison, the

APPRENTICE PERSPECTIVES: CURRENT CONSTRUCTION INDUSTRY CONTEXT

Key findings:

- Industry culture (particularly commercial sector) a barrier to work performance and to adoption of more environmentally-oriented construction practices: "Business first", "profit-driven", "all about the money" or the "bottom-line".
- Established/ingrained culture characterized by an "old school" mentality that fears or distrusts change and is invested in maintaining the status quo: "just get the job done", fear of change and no "culture of concern".
- Contributes to lack of interest, awareness and understanding around environmental issues.
- Industry organizational structure and size also contributes to unrealistic timelines/ performance expectations and break-down in communication/ relations amongst trades.
- Decision-making at "top" does not consider realities at the "bottom".
- Limited time and resources shared inequitably amongst trades, further contributing to breakdown of trade relations.
- Massive implications for workplace morale, work quality, innovation and overall performance.

signiŝcant based on industrial versus commercial sector perspectives. As discussed previously,

industry ŝrst emerged in response to whether or not the ſGreen Awarenessƀ course content was

When asked about their employers specifically and whether they actively encouraged or promoted

larger companies is a downgrading of trust, of sufficient training, of self-efficacy and that these factors can generate decreased efficiency and effectiveness on project sites. Size also emerged

APPRENTICE PERSPECTIVES: "GREENING" THE CANADIAN CONSTRUCTION INDUSTRY:

Key findings:

-

i. Approaches based on policy, legislation, enforcement and incentives:

again, ŝnancial incentives were offered as a motivator to encourage better interaction; the idea of implementing ℬkickbacksƃ to tradespeople who worked efŝciently and effectively with the

communication was the suggestion that tradespeople would benefit from the incorporation of soft skills or 'people skills' into their training. Ensuring tradespeople are comfortable and confident

make this building 90% energy efficient, which means your energy bill is a lot less. Critical to

is to convince the industry that this public interest can be leveraged to increase profit margins

iii. "Green culture" versus "safety culture" in the industry:

the safety of the workers ŝrst. The comparison of Ɓgreen cultureƃ to safety culture ŝrst emerged in response to a question about whether work site culture reŞected concerns about the sustainability

recalled being told it was a LEED project for the ŝrst time: ƀWhen I found out it was a LEED reminiscent of a LEED project at all!ƃ The apprentice could appreciate the logistical and ŝnancial

building green buildings; 100% green buildings; the most efŝcient we can build; weƀre gonna

Research Limitations and Challenges

The interview setting posed several unique challenges that may have inŞuenced the research process. the instructor, which apprentices had participated and which hadnƀt. Therefore, while conŝdentiality of was impossible. This may have inŞuenced some apprenticesƀ willingness to participate in the research

process. Another factor that may have inşuenced participation rates is the existing limitation around

cohort who were days away from writing their ênal Red Seal exam, might have been too much.

In regards to the interview rooms, both of the private ofêce spaces used for each of the interviews

The second-year interviews took place in the instructor ofêce adjacent to the workshop and other trade instructors had access to the ofêce space in order to use the printer and fax machine. The very êrst

share openly is reşected in the quality and quantity of content provided in the transcripts.

represented in each sample and, therefore, the views and opinions presented in the êndings. The evaluation of the demographic distribution and group characteristics presented in the êndings

sample size would always have been inherently small. As a result of these limitations, the êndings may

Conclusions

The êndings from the interviews highlight several important trends that speak to the impact of the

program, knowing that this research could produce ŝndings that were critical both of the new course

Recommendations

however, are grounded in the speciŝc ŝndings of this research and therefore focus on issues raised by the apprentices in their interviews Ð issues that reŞect the experience of MI apprentices, both in the classroom and in the workplace. The recommendations also reŞect the conclusions that the researchers themselves have reached as a result of the information provided by the interviewees. The ŝrst set of

addressing some of the limitations identiŝed by its apprentices. The second set of recommendations is

more sustainable construction methods. The ŝnal set of recommendations targets the industry itself, and speciŝcally changes that employers can and should be making. This is far from a comprehensive

BC INSULATORS

Regarding the 'Green Awareness' course:

Improving US Building Efficiency and GHG Reductions on an Industrial Scale.

Under the Energy Efficiency Act 2013-2015

Appendix B: Course outline for Green Awareness Training "Green in Mechanical Insulation" module