

Getting to Zero Carbon Construction: What Can We Do to Promote Climate Literacy?

ICERES Research Forum

Washington, August 25, 2023

John Calvert,
Simon Fraser University

Structure of Presentation

- **Part 1:** Background and overview of recent Canadian research on labour and climate issues
- **Part 2:** Documenting what Canadian construction unions have done
- **Part 3:** Outlining the impact of the Canadian Red Seal system in limiting climate material in the apprenticeship curriculum
- **Part 4:** Description of the Canadian Building Trades Union Climate Literacy initiative and its research program
- **Part 5:** Assessment of findings and progress on curriculum development

A Little History of Canadian Research on on Climate Literacy and Labour

- 2007 to 2009 Carla Lipsig-Mumme of York University organizes a team of academics & union researchers to explore climate change & Labour
- 2009 First small Social Science and Humanities Council (SSHRC) Research Grant for Work in a Warming World research project
- 2009 – 2010 initial research “What Do We Know? What Do We Need to Know? This laid out our research agenda
- 2011 – 2013 two more research grants, each larger than the previous
- 2014 – 2021 Fourth SSHRC Grant: Adapting Canadian Work and Workplaces to Climate Change – 5 years \$2.5 million

Assessing the State of Research on Work, Employment and Climate Change

- This was the first research publication released by the Work in a Warming World team in 2010. It laid out the framework for much of the research that followed.



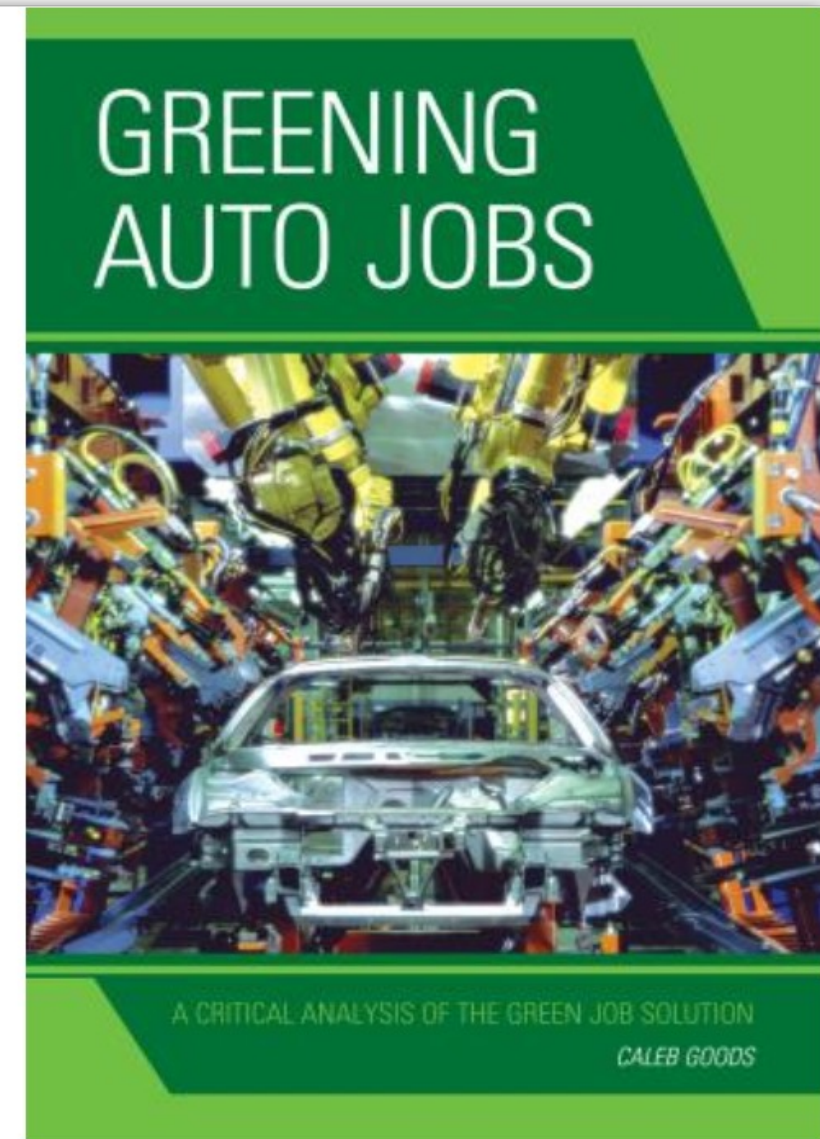
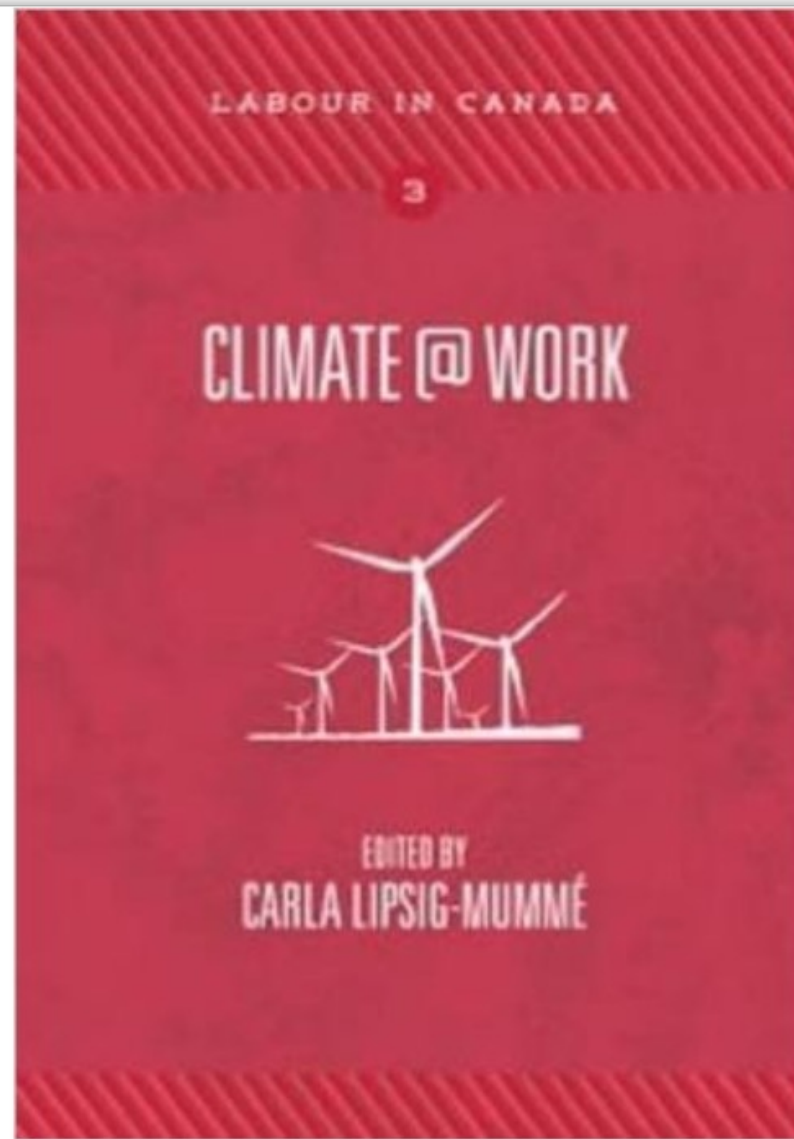
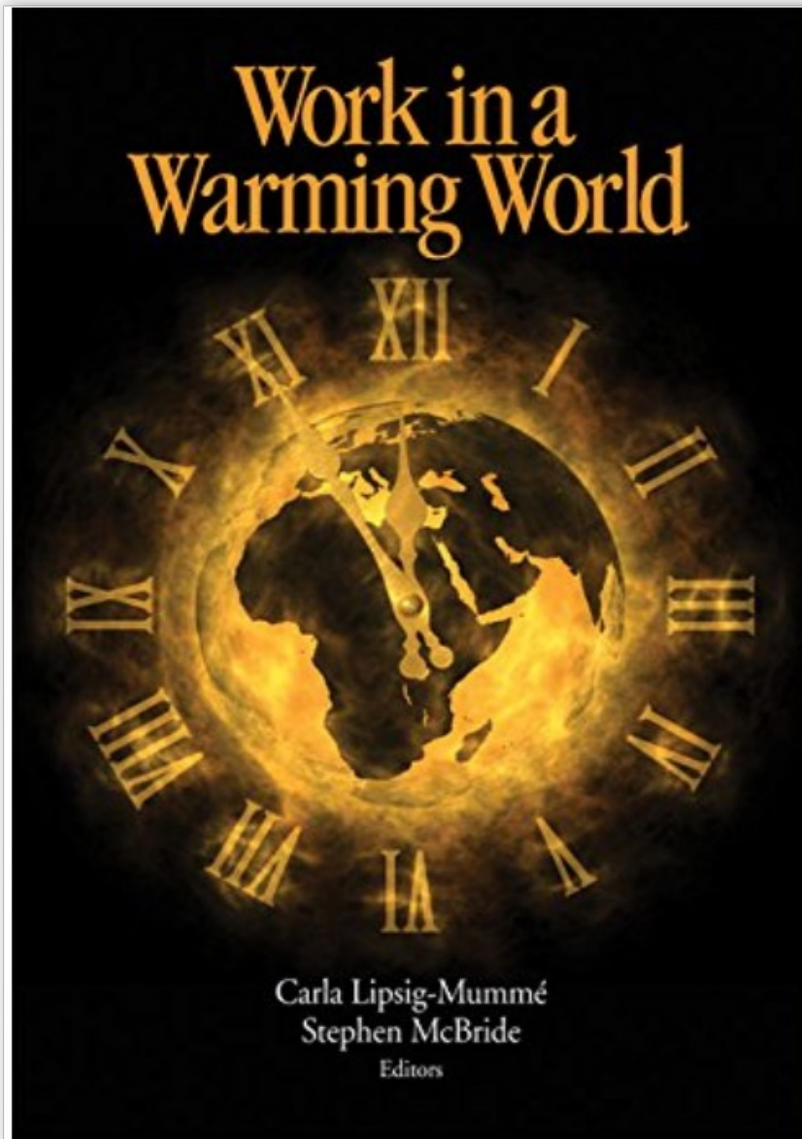
**WHAT DO WE KNOW?
WHAT DO WE NEED TO KNOW?**

The State of Research on Work, Employment and Climate Change in Canada

Work in a Warming World and Adapting Canadian Work and Workplaces to Climate Change Research

- Focus on key areas of the economy, including public and private sectors
- Construction component of project looked at what the building unions had done on climate issues in Europe, US and English Canada
- Adapting Work and Workplaces (ACW) held regular conferences (2011 – 2020)
- ACW published three books & numerous papers on climate change & labour issues. These are available at the York University Website:
- <https://yorkspace.library.yorku.ca/collections/e30563e4-b16d-4dd8-9333-8cd4aac95ca4>

Books Published through ACW



Roadmap to a Canadian Just Transition Act

A path to a clean and inclusive economy

Hadrian Mertins-Kirkwood and Clay Duncafe

RESEARCH ANALYSIS SOLUTIONS



JUST TRANSITION AND BEYOND JUST TRANSITION: CANADA IN ACTION



Roundtable Summary Report

August 27, 2018

Ottawa

Prepared by Christopher Flynn



ACW | Adapting Canadian Work and Workplaces to Respond to Climate Change



ACW | Adapting Canadian Work and Workplaces to Respond to Climate Change

Darker Politics: Democracies, Labour Rights and Climate Change

An ACW International Panel

From the shock of Brexit to the American election and Trump's alt-right political choices in his first 100 days, racist nationalism is spreading, fostering the growth of extreme-right political parties.

The winds of the 1930s are stirring again. For Canada in 2017, this poses three sets of challenges:

- How do we protect Canadian democracy in the Trump era? What can we learn from history and other countries? How better can Canada respond to the refugee crisis?
- We are committed to reducing the GHGs we produce. In the face of Trump's destruction of climate strategy how do we fulfill our promise? What alliances for Canadian and American unions, in their internal and external struggles to play a significant role in slowing climate warming?
- Trump promises to bring the jobs back home. But whose jobs is he bringing back to the US? At what social and economic cost to Canada? What options and actions for labour unions to avoid competitive isolation while protecting their members? The Trump ascendancy is committed to a race to the bottom: Will shredding labour rights and climate strategies spread to other countries?

The three speakers on the 2017 Darker Politics panel will take up the questions of democratic options in a volatile world; labour and climate change; the impact of Trump's America; and softwood lumber, Canada and trade.

PANELISTS

DR. ELAINE BERNARD, Harvard University
Trump's war on workers and the environment

TONY BURMAN, Ryerson University and the Toronto Star
Democracy under threat

JIM CHOROSTECKI, British Columbia Federation of Labour
The softwood lumber dispute is the Hatfields vs. McCoys feud without the guns, so far

MODERATOR

LARRY BROWN, National Union of Public and General Employees

Friday May 26, 2017, 4:30 P.M. - 6:30 P.M.

Innis Town Hall Theatre, University of Toronto
2 Sussex Avenue, Toronto, M5S 1J5
Reception to Follow

ATTENDANCE IS FREE
To register, visit us at: www.adaptingcanadianwork.ca/darkerpolitics/

Inquiries? Contact acwinfo@yorku.ca



CLIMATE STABILITY, WORKER STABILITY: Are they compatible?

Dr. Louise Comeau

Devin Luke



ACW | Adapting Canadian Work and Workplaces to Respond to Climate Change



LABOUR UNIONS AND GREEN TRANSITIONS IN THE USA:

Contestations and Explanations

Dimitris Stevis



ACW | Adapting Canadian Work and Workplaces to Respond to Climate Change



EVALUATING GOVERNMENT PLANS AND ACTIONS TO REDUCE GHG EMISSIONS IN CANADA:

Provincial and territorial progress through October 2016



ACW | Adapting Canadian Work and Workplaces to Respond to Climate Change



CCPA
CANADIAN CENTRE
for POLICY ALTERNATIVES
CENTRE CANADIEN
de POLITIQUES ALTERNATIVES



THE TRAINING OF CANADIAN ARCHITECTS FOR THE CHALLENGES OF CLIMATE CHANGE

John Mummé
Karen Hawley



ACW | Adapting Canadian Work and Workplaces to Respond to Climate Change

www.adaptingcanadianwork.ca



CITY BUILDING (GLASGOW): an inspirational model of low energy social housing and public building production

Linda Clarke
Melahat Sahin-Dikmen



Adapting Canadian Work and Workplaces to Respond to Climate Change (ACW), 2014-2021



ACW

Permanent URI for this collection <https://hdl.handle.net/10315/38822>

The documents archived at this website are the result of research done under the direction of Principal Investigator Dr. Carla Lipsig-Mummé, Professor of Work and Labour Studies at York University, from 2014- 2022. This research was pioneering in its foresight about the problem of global heating and the potential role of workers to contribute to a cleaner economy. Building from [What Do We Know? What Do We Need To Know? The state of research on work, employment and climate change in Canada](#) (2010), one of the goals of the Adapting Canadian Work and Workplaces to Climate Change (ACW) project was to produce practical tools for education and action – for example, through the [Green Collective Agreements database](#) (which was featured by the International Labour Organization in its 2018 publication, [Greening With Jobs: World Employment and Social Outlook 2018](#)), and by the W3/ACW Environmental Racism project, which produced, for example, the [Environmental Racism Workshop Companion Guide](#) to support the many labour-focused workshops it conducted. The [Just Transition and Beyond Roundtable Summary Report](#) documents the 2018 gathering of Canadian unionists that was part of a broader series of reports undertaken by the Adapting Canadian Work and Workplaces research grant in cooperation with the Canadian Centre for Policy Alternatives.

The ACW research project was unique, not only in its subject area, but in how it was conducted. This was recognized by the Social Sciences and Humanities Research Council in 2018 when it awarded the [SSHRC Impact Partnership Award](#) to Professor Lipsig- Mummé for her accomplishment in building a unique, “community-university network partnership” which grew from five partners and eight researchers initially to 52 partners in seven countries. One of the rarest features of this collaborative approach was that it brought together researchers in academia with those in civil society organizations – especially labour unions. For many years, academics, environmental activists, and union leaders convened annually in informal, face-to-face meetings and discussions.

Green Collective Agreements database



Files

[GreenCollectiveAgreements 20220316.csv](#)
(408.09 KB)

[GreenCollectiveAgreements-20220316.rar](#)
(55.24 MB)

[Green Bargaining Language 2022 Samples from the ACW Database.pdf](#) (338.12 KB)

Date

2022

Authors

Perry, Elizabeth

Publisher

Adapting Canadian Work and Workplaces (ACW)

Abstract

The Green Collective Agreements database identifies almost 300 green clauses which reflect the ways in which Canadian labour unions have sought to protect their members' health, safety, job security, or pay, and to discharge their broader social responsibility to mitigate climate change impacts. The database was compiled by searching the publicly available websites such as the federal government's Negotech website (<https://negotech.labour.gc.ca/cgi-bin/RechercheSearchNegotheque/index.aspx>), as well as provincial websites. Key unions also provided texts of their agreements.

The ACW Green Collective Agreements searchable database may still be available at https://www.zotero.org/green_agreements/library, but has not been updated since December 2021.

Green Bargaining Language 2022 Samples from the ACW Database.pdf is provided as an easy-to-read sampling of agreements and the text of clauses.

The GreenCollectiveAgreements20220316.csv file can be used by those with the Zotero application installed on their computers. To download the free Zotero application, go to <https://www.zotero.org/>. Then download the CSV file to your hard drive, open the Zotero application, and use the "Import" function in Zotero to save the contents.

Work in a Warming World and Adapting Canadian Work and Workplaces to Climate Change Research

Construction team included:

- Lee Loftus, President of BC Building Trades Unions,
- Linda Clarke, of University of Westminster & colleagues,
- John Calvert of Simon Fraser University,
- Bela Gologaczi of European Trade Union Institute

Research team looked at what the construction unions had done on climate issues in Europe and English Canada

Documenting the Campaign to Promote Climate Literacy in BC's Construction Industry

- ACW conducted interviews with union staff, municipal managers, industry professionals and government officials
- Documented BC Insulator's campaign
- Assessed impact in raising awareness of how Mechanical Insulation could lower climate footprint of buildings
- This is documented in a report available on the ACW website
- Project produced many other ACW reports on construction in Europe



THE UNION AS CLIMATE CHANGE ADVOCATE:

the BC Insulator's Campaign to "Green" the Culture of the Building Industry in British Columbia



ACW | Adapting Canadian Work and Workplaces to Respond to Climate Change

← Back to Results

Promoting Climate Literacy in British Columbia's Apprenticeship System



PROMOTING CLIMATE LITERACY
IN BRITISH COLUMBIA'S
APPRENTICESHIP SYSTEM:
Evaluating One Union's Efforts to
Overcome Attitudinal Barriers to
Low Carbon Construction



Abstract

This research paper examines the efforts of the BC Insulators union to promote climate literacy within British Columbia via the a 'Green Awareness' course it provides as part of the apprenticeship training for all mechanical insulation trades' workers in the British Columbia. The two-module course was introduced in 2011 and is taught over the course of the first two years of the four-year program. After conducting a review of the 'Green Awareness' course content, the research team performed qualitative interviews with a cohort of 2nd and 4th year apprentices to determine how effective the training had been. These findings indicate the need for further refinements in the content and delivery of the 'Green Awareness' course material. The authors conclude that incorporating climate change-related course content into the training process is an important step in fostering climate literacy within the industry and should be encouraged in other trades. However, its degree of impact will be limited unless more sweeping changes are made to the organization and culture of the construction industry itself. This paper was first presented in April 2017 at the International Labour Processes Conference, Sheffield, U.K..

Files

[201_Calvert_Tallon_2017_-BC-insulators-climate_literacy_training.pdf \(736.55 KB\)](#)

Date

2017

Authors

Calvert, John

Tallon, Corinne

Analysis of Canadian Red Seal National Occupational Classification (NOC) Standards

RED SEAL OCCUPATIONAL STANDARD

Construction Electrician

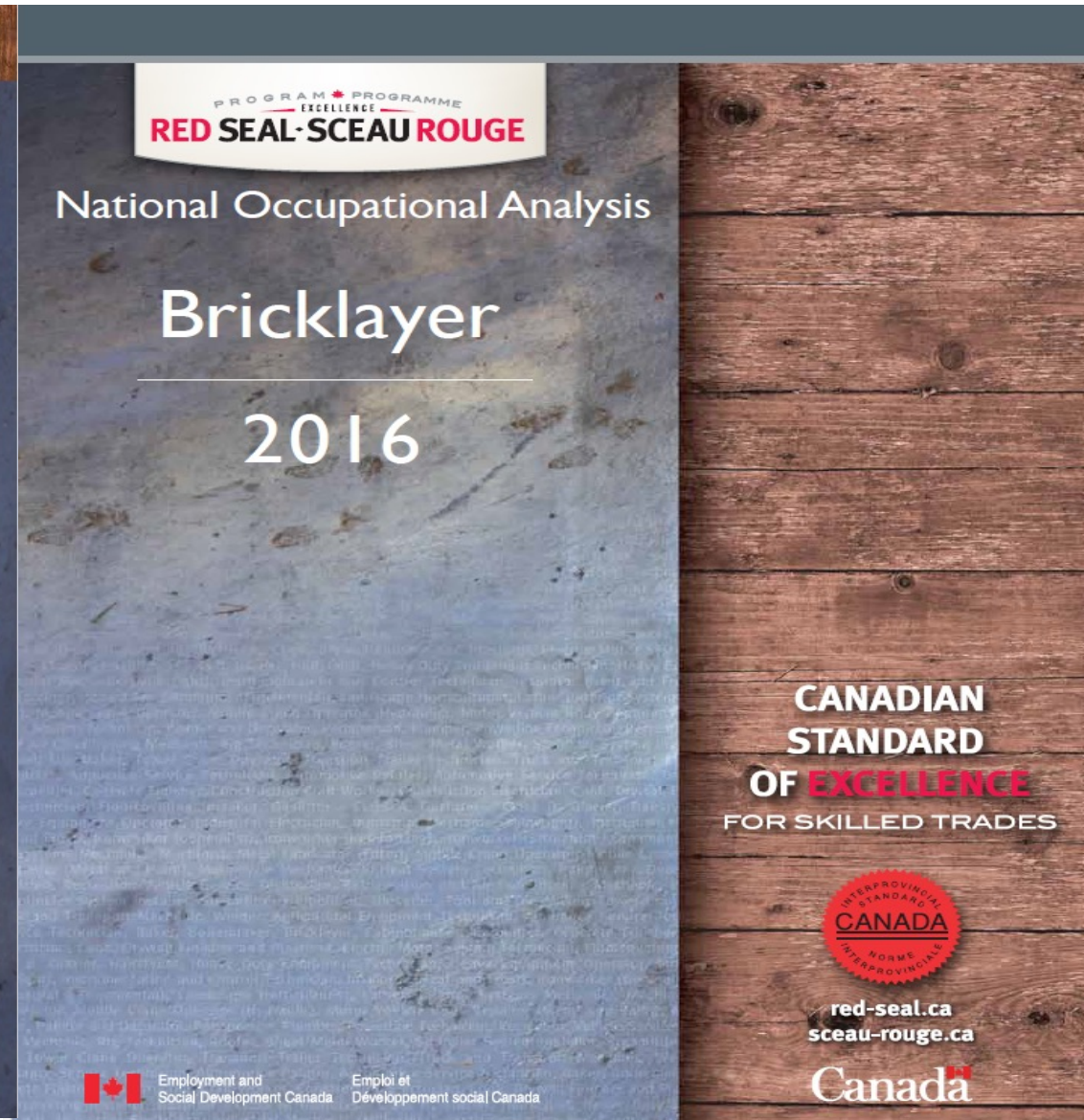
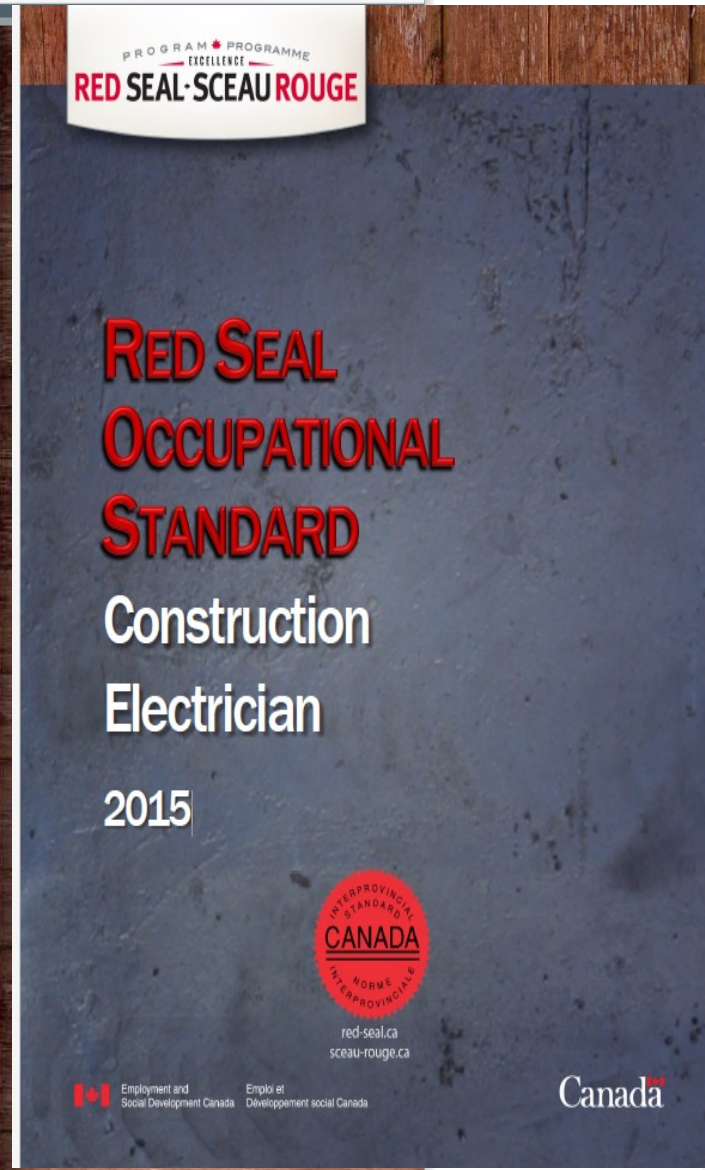
2015



red-seal.ca
sceau-rouge.ca

- Key Question: To what extent are climate change issues being incorporated into Canada’s apprenticeship and training programs?”
- One approach is to see how frequently climate related terms are used in Canada’s Red Seal guidelines for apprentices posted on the national web site

Analysis of National Occupational Standards for Red Seal Trades



Significance of Canada's Red Seal Standards

- The Red Seal Standards provide a Canada-wide template for the trades' apprenticeship curriculum
- Provinces use Standards as their curriculum guidelines
- The Red Seal endorsement is based on a national exam
It enables journey workers to work in virtually all provinces – a major incentive to get endorsement
- So instructors teach skills identified in Red Seal Standards – This precludes climate curriculum material

A Simple Search for Climate Related Terms

- The methodology was very simple
- We searched for climate related terms in the text of the pdf guidelines posted on the Red Seal web site
- We searched particularly for the term “Climate Change”
- But we included others such as Global Warming, LEED, R2000, Energy Star, Renewable Energy, Low Carbon Construction, ASHRAE etc.
- Here are a few of the findings in table form for 37 Red Seal trades

Number of References to Climate Change in Red Seal National Occupational Standards 2018

Occupation	Climate Change	Global Warming	LEED	Energy Star	Low Carbon Construction	Environment	Energy Conservation	Renewable Energy
Boilermaker RSOS						3		1
Boilermaker Curriculum						1		1
Bricklayer			3			9		
Cabinetmaker						4		
Carpenter						6		1
Concrete Finisher (OAS)						2		
Construction Craft Worker			2			13		
Construction Electrician (RSOS)			2			44		53
Construction Electrician (Curriculum)			2			2		40
Drywall Finisher and Plasterer			2			3		
Gasfitter--Class A			5			7	2	
Gasfitter--Class B			5			8	2	
Glazier			3	1		2		
Heavy Equipment Operator (Dozer)						9		
Heavy Equipment Operator (Excavator)						9		
Heavy Equipment Operator (Tractor-Loader-Backhoe)						8		
Industrial Electrician (RSOS)						14		47
Industrial Electrician (Curriculum)						3		33
Insulator (Heating and Frost)						7	energy saving	
Ironworker (Generalist)						3		
Ironworker (Reinforcing)						3		
Ironworker (Structural/Ornamental)						2		
Metal Fabricator (Fitter)						3		
Mobile Crane Operator						2		
Oil Heat System Technician						9	energy saving	
Painter and Decorator						11		
Plumber (RSOS)			2	1		9		
Plumber (Curriculum)			2	1		7		
Powerline Technician	1					19		
Roofer			3			6	1	
Sheet Metal Worker			6			4	1	
Sprinkler System Installer			2			6		
Steamfitter/Pipefitter (RSOS)			7			36		4
Steamfitter/Pipefitter (Curriculum)			3			5		3
Tilesetter			4			10		
Tower Crane Operator						2		
Welder						1		

Tabulating Curriculum References to Climate Change in 37 Red Seal Standards

- Climate Change referenced in one occupational standard
- Global Warming not referenced at all
- Low Carbon Construction not referenced at all
- However, there are references to LEED in 16 occupations, Energy Star in 3 references; conservation in several etc.
- Every trade references the environment, but normally this is used to refer to the 'working environment'

Of Course, This is Only Part of the Story

- Many construction projects do focus on low/zero energy, LEED, Passive House, BOMA Best, ASHRAE & other environmental standards
- Building codes are incorporating climate objectives
- Trades' workers have the skills needed for Net Zero
- The trades are already building low carbon projects
- The issue is not that nothing is being done
- It is that climate literacy is not covered in the curriculum

Canadian Building Trades Unions Initiative

- Submitted proposal to the Canadian government to develop climate literacy training modules for the Red Seal Trades
- Awarded a 4 ½ Year Project Grant
- CBTU established an Advisory Committee to oversee the project from its 14 member unions
- Commissioned 3 organizations to research, develop and evaluate the proposed curriculum

Integrating Climate Literacy into Skilled Trades Education and Training

CBTU Application for Employment and Social Development Canada: Union Training and Innovation Fund



CBTU SMCC

CANADA'S BUILDING TRADES UNIONS
LES SYNDICATS DES MÉTIERS DE LA CONSTRUCTION DU CANADA
Value on Display. Every Day. Valeur sûre à tous les jours.



CBTU SMCC

CANADA'S BUILDING TRADES UNIONS
LES SYNDICATS DES MÉTIERS DE LA CONSTRUCTION DU CANADA
Value on Display. Every Day. Valeur sûre à tous les jours.

July 13, 2021

Canada's Building Trades Unions are excited to announce a new project we have undertaken called Building It Green. Funded through the Federal Government's Union Training and Innovation Program, Building It Green is focused on bringing together industry best practices from around the world to improve skilled trades workers education and understanding of their role in to construct and maintain net-zero projects to help Canada meet its climate goals.

Because, while skilled trades workers have been building green energy projects, and incorporating net-zero practices in construction projects for years, the relationship between the work they do and the overall impact on the climate is not always explained or understood.

Through a partnership with SkillPlan, Social Research and Development Corporation, and the Climate and Industry Research Team (CIRT), CBTU will standardize and incorporate curricula and training that exists, identifying best practices, utilizing and testing various models to incorporate and standardize climate literacy training into apprenticeship and skills training.

Canada's Building Trades Unions are leaders in apprenticeship training, producing the safest, most highly trained and productive skilled craft workers found anywhere in the world - something we're very proud of. This Project will allow us to build on our existing training institutions and incorporate progressive practices that will help skilled trades workers construct and maintain net-zero projects to help Canada meet its climate goals.

A member of the CIRT Team will be reaching out to you to conduct an interview and related research activities to help build out this project. Your knowledge, expertise and experiences are integral to the success of Building It Green. For more information, go to www.buildingtrades.ca/buildingitgreen

Sincerely,

A handwritten signature in blue ink, appearing to read "Sean Strickland".

Sean Strickland

Structure of 4-Year Build It Green Project

- CBTU has contract with Federal Government to manage project
- The project team has four partners:
 - Canadian Buildings Trade Union (CBTU) Advisory Committee
 - Climate & Industry Research Team (CIRT) academic research
 - SkillPlan to develop curriculum modules
 - Social Research & Demonstration Corporation – evaluation
 - Project is on CBTU web site

[Building It Green • Canada's Building Trades Unions](#)

CBTU Project Phases 2021 - 2025

- **Phase 1:** Literacy Review, Environmental Scan and Needs Analysis (2021 – 2022) – primarily CIRT
- **Phase 2:** Curricula Development and Pilot with Selected Cooperating Employers (2022 – 2023) – primarily Skillplan with CIRT and SRDC
- **Phase 3:** Roll Out of Curriculum to a Larger Group of Trades Trainers and Apprentices (2024) Skillplan & SRDC
- **Phase 4:** Analysis, Report and Dissemination to union training centres (2025) - Entire Team

Climate Industry Research Team (CIRT)

Task: carry out a literature review and environmental scan of existing climate literacy curriculum for apprentices, journeymen & instructors

Team members:

- **Europe:** Linda Clarke, & Melahat Sahin-Dikmen, University of Westminster and Christopher Winch, Kings College London
- **US:** Vivian Price, California State University
- **Quebec:** Pier-Luc Bilodeau, Evelyn Dionne, Laval University
- **English Canada:** John Calvert Simon Fraser University and Lee Loftus, BC Building Trades analyst

CIRT Project Objectives

- Identify best practices and innovative climate literacy training initiatives in Canada and internationally
- Explore ways climate change and environmental sustainability can be included in apprenticeship programs and upgrade modules for journey persons.
- Synthesize the most promising curriculum material for use in developing curriculum modules for the industry
- Support the work of Skillplan in developing the actual curriculum modules and SRDC in evaluating project success

CIRT Research Program

- **Europe:** Interviews and Site visits to training facilities in UK, Ireland, Belgium, Sweden, Germany and Denmark
- **US:** Interviews and site visits with Construction Union instructors, state and local government officials and community coalitions
- **Quebec:** Interviews and site visits with unions, government officials and the Quebec Construction Commission
- **English Canada:** Interviews with CBTU trainers, Canadian Apprenticeship Forum, government officials and numerous industry researchers

Results of Lit Review, Environmental Scan and Needs Analysis

- CIRT has research reports from all four jurisdictions
- European research has found good examples of incorporating climate awareness into trades' training programs
- Much of the progress has been due to the EU's aggressive climate change policies and emission/energy targets
- But considerable variation among countries in Europe – UK is a laggard: Scandinavia, Belgium & Germany more successful
- Best curriculum in English has been developed in Ireland
- Unions have a mixed record, supportive but not always leaders

Results of Lit Review, Environmental Scan and Needs Analysis

- Climate literacy not included in most US apprenticeship programs
- But several US unions use Green Building Council's GPRO program
- Some unions have good climate modules, but delivery is very limited
- Quebec is different from other jurisdictions due to its labour system
- Quebec Commission controls training – not interested in climate
- Climate change not widely covered in English Canadian curriculum
- But individual unions are advancing the issue – Red Seal is barrier

Results of Lit Review, Environmental Scan and Needs Analysis

- There is a “performance gap” between low carbon building design specifications and their measured energy use and carbon footprint – lack of training is a major part of this
- While there are exceptions, most apprentices do not receive information about climate change, how it impacts the construction industry or the work they are learning to do.
- They do not learn about how the industry can play a major role in being part of the ‘solution’ to climate change
- Nor do they learn about the value of their contribution

Current Status of the Project

- Climate Literacy Curriculum is now being piloted in BC, Newfoundland and other provinces
- Curriculum has two parts: general climate modules for all trades apprentices, instructors and journey workers
- Followed by 14 trade-specific curriculum modules
- Modules are interactive and focus on issues of direct interest to apprentices or journey workers
- Much attention is paid to how to sequence introduction of climate issues and make curriculum relevant for each trade

Final Comments

- The project is still a 'work in progress', but we are enthusiastic
- CBTU highlighted the project at its 2022 Convention
- Others in the industry & government are becoming aware of it
- Red Seal directorate now consulting with its trades' advisory committees about including a climate change section at the beginning of the revised Standards.
- One instructor put it this way: We are teaching the 'how' but not the 'why'
- **We are now trying to move from the how to the why**

Final Comments

Thank You for Your Interest and Attention

John Calvert