STRATEGY FOR A LOW-CARBON LEARNING MODULE

Toronto Community Benefits Network

TAF

Geography & Planning
UNIVERSITY OF TORONTO

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INTRODUCTION

Strategy for a Low-Carbon Learning Module is a project that emerges from the intersection of community benefits and just-transition movements, and the momentum towards a low-carbon, economy, seeking to actualize a path forward for equity-seeking groups in this context. The project has been catalyzed by the City of Toronto's TransformTO Climate Action Strategy and is the culmination of research done and supported by project partners, the Toronto Community Benefits Network (TCBN) and the University of Toronto (U of T), which has brought us around tables with diverse stakeholders who have become key collaborators.

With the emergence of the TransformTO strategy, the project partners have examined opportunities for shared prosperity as businesses and municipalities set low-carbon goals. With targets that seek to ensure that 100 per cent of existing homes and buildings be retrofitted, and new buildings be designed and built to be near zero GHG emissions by 2030[1]— these bold targets and directives present factors that are shaping the building sector in profound ways. Urgently, there is consensus that decent green jobs are a central component of our model for a green economy, situated at the intersection of environmental sustainability, social inclusion and equity, and a strong labour market. This is significant as the conversation about what the low- carbon economy needs to grow gives rise to a demand for new sets of skills — of both a technical and "soft" nature. The question of who can participate in this process, and how, becomes more important.

As more investments are made in upgrading building systems, it has been estimated that the Toronto area will see 150,000 job openings over the next decade and a half. This growth highlights the need for the construction trades to keep pace with innovations in design and construction techniques that address climate change, by adapting apprenticeship requirements and advanced training opportunities accordingly[2]. Specifically, training for framers, insulators, window installation, installation and maintenance of advanced mechanical systems, such as furnaces, boilers, water heaters, solar panels and geo-exchange systems, will require new skill sets as these jobs will be done differently or require different materials.

The just-transitions and community-benefits movements ask for us to consider how definitions of growth in the areas of education and skilled labour can deepen and exacerbate opportunity gaps for persons in equity-seeking groups. The just-transition concept was borne out of the labour movement to refer to public policy approaches that seek to minimize the impact of environmental policies on workers in affected industries and communities and to involve workers in decisions about their livelihoods[3]. The driving principle

[1] Reducing Greenhouse Gas Emissions in the BuildingSector: Response to the Fall 2017 Ontario Building Code Consultation, (City of Toronto, 2017), https://www.toronto.ca/legdocs/mmis/2017/pg/bgrd/backgroundfile-107226.pdf [2] Ibid.
[2] Kristin Rushwoy. "Ontario urged to invest in green construction skills training", (Toronto Star, 2019).[4] Minden Symposium: The Politics of Climate Change. A New Green Deal for Canada? (U of T, 2019), https://environment.utoronto.ca/events/minden-symposium-the-politics-of-climate-change-a-new-green-deal-for-canada/
[3] Karen Cooling, Marc Lee, Shannon Daub and Jessie Signer. Just Transition: Creating a Green Social Contract for BC's Resource Workers, (Vancouver, Canadian Centre for Policy Alternatives, 2015), 10.

of just transition concept is that the impacts of *environmental adjustments should be shared across society rather than shouldered alone by those most affected by them*[4].

Therefore, the aim of this module is to prompt "social learning" which means to offer a valuable learning experience to participants while also facilitating learning across the construction ecosystem. Social learning theory describes changes in thinking or actions that go beyond the individual learner to be taken up by collectives such as networks and organizations. The field of Sustainability Transitions, particularly the Transitions Management Sector, emphasizes the value of social learning in the context of governance and experimentation[5] to inform policy development and planning and addresses broad resource management or governance challenges[6]. Transition- management processes have been designed to create a space at the social level for short-term innovation to develop long-term sustainability visions to address persistent problems. The skills gap within the construction trades fits the criteria of a persistent problem because solutions to sustainability within the sector occur on varying levels and involve various actors with different perspectives, norms, and values[7].

[4] Ibid.
[5] Jifke Sol et. al. Reframing the future: The Role of Reflexivity in Governance Networks in Sustainability Transitions, (Environmental Education Research, 2017), DOI: 10.1080/13504622.2017.1402171.[6] Kristin Rushwoy. "Ontario urged to invest in green construction skills training", (Toronto Star, 2019).
[6] Chris Blackmore. What kinds of knowledge, knowing and learning are required forf addressing resource dilemmas?: A Theoretical overview. (Environmental Science and Policy, 2007), 512-525.
[6] Jifke Sol et. al. Ibid.

EQUITY IMPACT

While we know that participants of pre-apprenticeship and/or apprenticeship programs will be working on these projects, there are no tangible steps forward to build their capacity to understand the climate impacts that their work offers and what is needed for them to be ready to build green infrastructure.

Therefore, this project responds to key recommendations that have been made throughout the years, which have called for the creation of clear entry points to green work for racialized and marginalized communities while also being attuned with shifts in the economy[8]. Specifically, recommendations have included the following:

- Design programs with wrap-around training and support for marginalized and racialized communities to access job opportunities in the green economy
- Partner with employers and unions to help break down the barriers to employment in the green economy and help build long-term career pathways for marginalized communities
- Build a broad-based diverse coalition to guide the design and implementation of programs and engage the wider community in the process[9] [10]

Community Benefits Agreements are often cited in these recommendations as an innovative approach to realizing the goal of the improved social equity that can be achieved as investments are made in greener infrastructure and initiatives that support broader climate-action targets. Specifically, Community Benefits Agreements are considered especially impactful as an approach towards narrowing the access gaps between employment opportunities and equity-seeking groups. As it pertains to Neighbourhood and Environmental Improvements and climate-action goals, we aim to see equity-seeking groups realize what Toronto Environmental Alliance calls a triple-bottom-line of co-benefits, such as improved social equity, increased community wealth, and a reduction in greenhouse gas emissions[11].

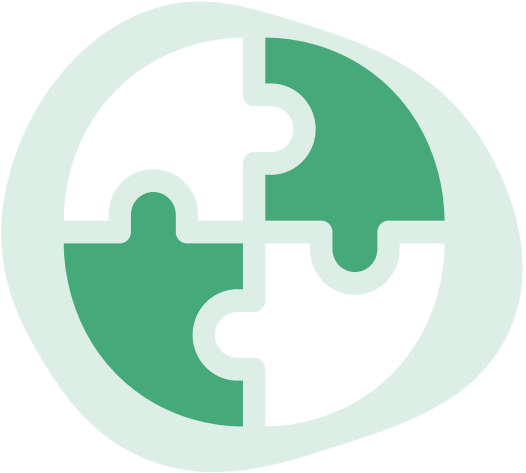
Presently, there are four Community Benefit Agreements active in the City of Toronto: the Eglinton Crosstown Light Rail Transit (LRT), Finch West LRT, Casino Woodbine – Rexdale, and West Park Healthcare Centre. Each of these Community Benefit Agreements have targets to allocate up to 10 percent of all construction hours to apprentices from equity-seeking groups. However, there are pain points for those entering the construction trades that require strategies to support equity seeking groups that envelop the above recommendations. The NexGen Builders Mentoring Program crystallizes this commitment.

[8] Cheryl Teelucksingh and Laura Zeglen. Building Toronto: Achieving Social Inclusion in Toronto's Emerging Green Economy, (Metcalf Foundation, 2016) https://metcalffoundation.com/stories/publications/building-toronto/
[9] Ibid.
[10] Dusha Sritharan. Climate Solutions That Work: Bringing Community Benefits and Climate Action Together, (Toronto Environmental Alliance, 2018), https://www.torontoenvironment.org/report_climate_solutions_that_work
[11] Ibid.

Piloted with an emphasis on Black youth through the Ontario Black Youth Action Plan, the NexGen Builders Mentoring Program was developed by TCBN in partnership with: Urban Rez Solutions; Direct Your Life; JustUs: A Centre for Restorative Practices; the Labourers' International Union of North America (LiUNA) African American/Canadian Caucus; a Lived Experience Leadership Team comprised of Black youth and adults at various stages in the apprenticeship journey [from pre-apprenticeship to Journeyperson], and youth-employment counsellors from Youth Employment Services (YES); the Somali Workers Network, and the City of Toronto. This process identified challenges experienced by Black construction workers and Black youth trying to access the system that mentoring could support. The goal of the NexGen Builders Mentorship Program is to equip underrepresented groups with the knowledge, skills, experience, guidance, tools, resources, and support they need to:

- Secure employment in the construction industry
- Fulfill their potential in the workplace and in apprenticeship
- Achieve success as valued employees, co-workers, and team members
- Explore opportunities for career growth

The proposed strategy will build on and add value to this unique project by identifying a plan for developing carbon-reduction and energy-efficiency content that can be plugged into the existing curriculum and training materials. This will enhance the learning experience of participants toward triggering climate action at key scales. With social learning for climate action as the core pedagogical approach, this strategy is inherently synergistic in its intent and approach. As such, it will identify potential partners and complementary resources to support the NexGen Builders Mentoring Program in applying a carbon-reduction layer to its programs. Furthermore, our aim is for the strategy to be freely shared with other Greater Toronto Hamilton Area community groups whose programming may not have explicit carbon-reduction aims, but which might aptly leverage their social capital to advance climate action.



PARTNER INVOLVEMENT

This project is funded by The Atmospheric Fund through the Strong Social Innovation Skills stream. The funding supported the following strategic elements of this project: program design, development, evaluation, and inclusive engagement.

Shannon Holness MES (PI.) is a Community Benefits Organizer at the Toronto Community Benefits Network where she is responsible for the Neighbourhood and Environmental Improvements portfolio and the Mentorship Program for the Black Youth Action Plan.

PhD Candidate, Kim Slater and her supervisor, Dr. John Robinson, researchers from the University of Toronto, contributed to the development of the learning-module strategy, which is part of a broader research study to examine the role of social and experiential learning in contributing to transformative change.

GRATITUDE TO CO-DEVELOPERS

This project has benefited from the contribution of diverse actors in the low-carbon sector who have been gracious with their expertise and commitment to narrowing the opportunity gap for equity-seeking groups.

HOK ARCHITECT

SUSTAINABLE ENERGY AND BUILDING TECHNOLOGY, SCHOOL OF APPLIED TECHNOLOGY, HUMBER COLLEGE

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TORONTO ENVIRONMENTAL ALLIANCE

MATTAMY HOMES

GREEN INFRASTRUCTURE

TRCA

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OVERVIEW OF PROJECT ACTIVITIES

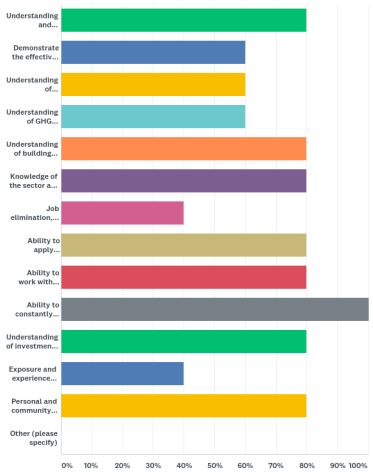
The project team convened and participated in four key engagements over the Winter and Spring of 2019 to carry out the deliverables of the Strategy. The engagements were prominently held with diverse stakeholders comprised of network and industry actors, project stakeholders, partners and members of the Toronto Community Benefits Network. The engagement with stakeholders provided significant contributions to the project scope. Participants of the project brought demonstrated expertise in building climate awareness, net-zero building design, and labour market analysis, community outreach and program delivery to equity seeking groups. There was also room in this process to include the perspectives of stakeholders that sit outside of the "expert" group and was comprised of community residents of varied backgrounds and lived experiences that spoke to their experiences with climate action from a broad perspective.

WEBINAR & SURVEY

The development of this strategy to create a low-carbon learning module began with an information webinar providing an overview of the project, including intended aims and activities, to TCBN's stakeholders. Eleven stakeholders joined the webinar with numerous questions raised to indicate that the project was generating a high degree of interest. Questions included: What kinds of experts will be brought on to guide strategy development? How will the strategy be translated into an action plan? What kinds of resources are needed to develop the low-carbon learning module? How will the module affect my organization/efforts to support the shift to low carbon?

Following the webinar, a survey was circulated to gain deeper insight into how the low-carbon economy is conceptualized and being responded to by TCBN stakeholders and their respective organizations. The surveys also probed respondents' views on essential "low-carbon" skills for Black youth entering or advancing within the construction and trades [industries]. Six stakeholders responded to the survey.

Q4 For those considering employment in Toronto's construction and trades industries, what kinds of general skills are needed for them to thrive in the low carbon economy?

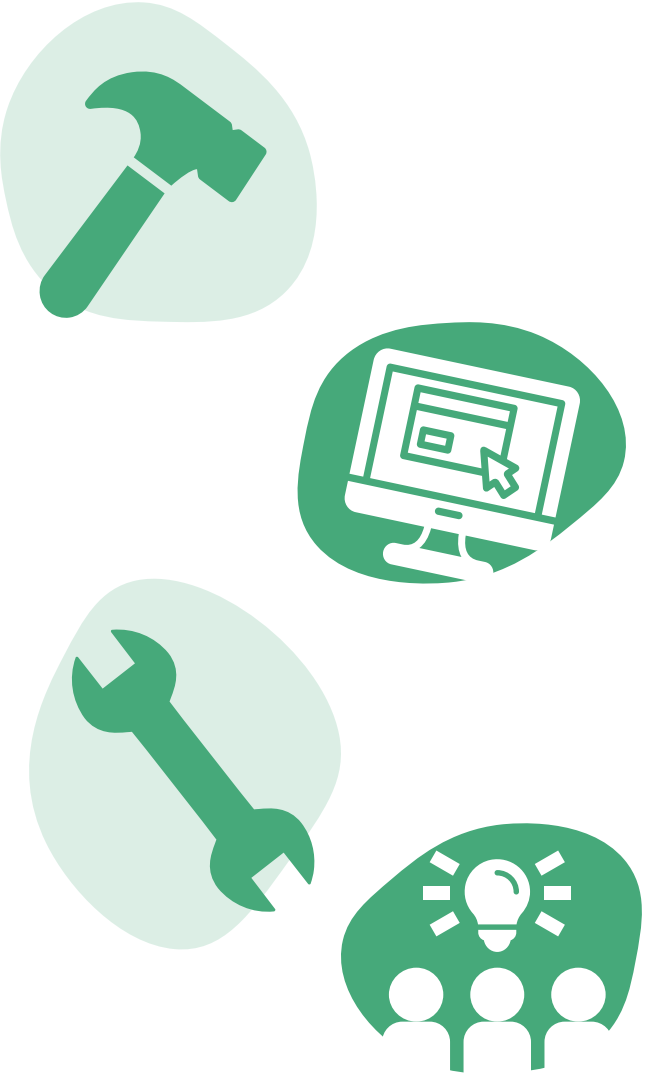


CANADIAN GREEN BUILDING COUNCIL — EMERGING GREEN PROFESSIONALS SPEAKER SERIES

The project team collaborated with the Canadian Green Building Council (CaGBC) to deliver an information-sharing event "Skills Gap in the Zero Carbon Workforce" to CaGBC members and TCBN stakeholders on the kinds of skills needed for building-sector workers to contribute to the transition to a low-carbon economy. Five subject-matter experts from the ecosystems of the construction sector were convened as a panel to share their thoughts with event attendees on the challenges and opportunities afforded by the low-carbon economy, and the competitive advantage that professionals and workers — from architects and engineers to folks in the trades — gain by developing low-carbon skills.

Key takeaways from this event included:

- Learning about the surge in job opportunities in the low-carbon buildings
- Increase in digital fluency and green design, such as technical skills for energy modelling
- Importance of soft skills for cross-sectoral communication and negotiation
- Emphasis on systems-thinking and continual learning for early career practitioners and apprentices



TCBN QUARTERLY GENERAL MEETING—FACILITATED DISCUSSION

The project team guided a Facilitated Discussion at TCBN's Spring 2019 Quarterly General Meeting on the growth of the low-carbon economy and the opportunities and challenges that it presents. Attendees were asked to self-identify with three aspects of the low-carbon economy: Advocacy, Employment-Sector Development, and Local Change to reflect on each aspect from their perspective.

Examples of questions that each group reflected on are:

- (Advocacy) How do you keep ideas around notions of a green new deal + just-transition growing?
- (Employment-Sector Development) Skilling Up — Have you encountered this notion? How is 'Skilling Up' impacting your work?
- (Local Change) If you have worked on a climate-action project in an underserved community, what should the process be towards scaling those efforts up locally?

To establish a common starting point for each table discussion, each group was introduced to the central definitions and concepts that shape how each theme takes shape in the low-carbon economy. For example, a definition of decent green work was shared, and infographics were used to demonstrate the technical skills gap shortage and the concept of social equity as articulated by the TransformTO strategy. This engagement allowed for persons of varied life and work experiences to reflect on their relationship to climate change.

Importantly, the reflections encouraged a perspective of environmental stewardship to be strengthened in the proposed curriculum. Attendees suggested that success in the low-carbon economy will flourish if we:

- Provide soft entry points into the climate change conversation (Climate Change 101)
- Establish opportunities for hands on learning
- Create opportunities for youth to build confidence through teaching them how to advocate for themselves

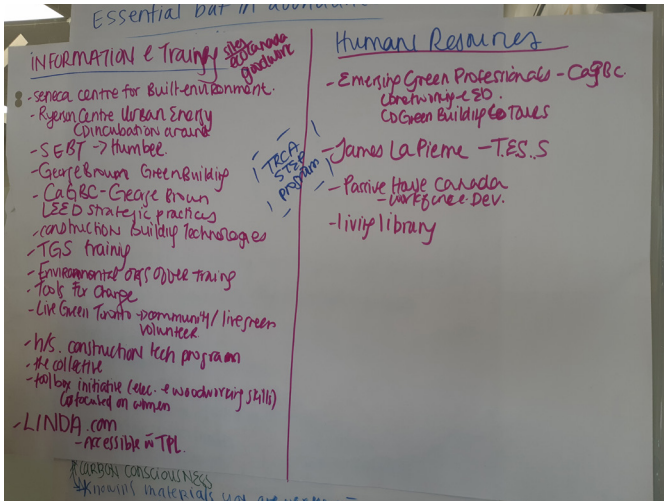
STRATEGY IMPLEMENTATION WORKSHOP

The objectives for the Strategy Implementation Workshop included:

1. Deepening understanding of what organizations in the sector are doing to prepare for the low-carbon economy
2. Identify essential technical and soft skills
3. Identify resources for implementing the strategy and launching the module
4. Deepening understanding of the needs of workers, employers and stakeholders with respect to preparing for and responding to the demands and opportunities of the low- carbon economy

To ground the conversation, we invited Farida Abu-Bakare, an Associate and Project Designer at the global architecture, design, engineering and planning firm HOK, and Tim Nash, an expert on socially responsible investing, impact investing, and the green economy. Abu-Bakare and Nash provided an overview of emerging trends in their respective fields of work as it relates to the low-carbon economy. While Abu-Bakare highlighted the challenges and innovations that a commitment to sustainable design brings to the development and construction sector from client to construction, Nash demonstrated the prominence of "green" investments in the global economy and in doing so highlighted the immediacy of opportunities to participate in the sector.

A SWOT (Strengths, Weaknesses, Opportunities, Threats) exercise was undertaken prompting stakeholders to share internal strengths and weaknesses and identify external threats and opportunities in the low-carbon economy. Stakeholders were asked to identify essential skills that respond to the factors named in the SWOT exercise. These exercises provided an opportunity for examining how to leverage strengths and opportunities and to generate ideas to mitigate weaknesses and threats. The skills were further divided into low-carbon skills that are essential but abundant in the industry and, therefore, would be a lower priority for the module; and essential low-carbon skills that are needed and presently scarce, which are of highest priority for the module.



SUMMARY OF KEY LEARNINGS

Through these activities, the project team has been able to devise a curriculum that has been co-developed with partners who have demonstrated expertise in their area of focus. The project team has identified the key aspects of the curriculum and defined the following: *guiding principles for the program, needs and priorities of target populations, and practical elements for program implementation and delivery*. Further, insights on necessary soft and technical low-carbon skills, combined with the partnership building that occurred through coordinating the events contributed substantially to the concept development and experiential learning journey that strongly defines the learning module. The learning outcomes of the curriculum allow us to better equip pre-apprentices to identify how their jobs contribute to climate actions.

High-priority technical skills

1. understanding the technical language used by other actors in the building sector
2. energy audits
3. understanding the policy environment

Scarce administration/life skills

1. sector-specific job seeking/coaching
2. career pathways
3. personal financing for additional training

High-priority soft skills

1. knowing when to delegate
2. breaking down complex issues using empathy and evaluation of experiences
3. understanding the sequencing of the build

High-priority interpersonal/communication skills

1. conflict resolution
2. intersecting design
3. stakeholder engagement

LOW-CARBON LEARNING MODULE STRATEGY

CURRICULUM

The curriculum of the Low-Carbon Learning Module complements the curriculum of the NexGen Builders Mentoring Program and creates an opportunity within a nurturing environment to expose the mentees to greater opportunities to think big and have a long career in the construction trades. This is in alignment with TCBN's strategic priorities, which see the organization building and populating the pathways to economic opportunities provided by Community Benefit Agreements. This goal is essential to the realization of common agreement among stakeholders that for the economic opportunities offered by CBA to be realized, a pathway for underrepresented groups had to be developed. This has resulted in the Ready to Build and Community Host programs, and marketing and communications campaigns. These initiatives bring opportunities created through Community Benefits Agreements to the attention of the groups who have previously not been present or welcomed in the industry.

The foundation of the NexGen Builders Mentoring Program is the reflective approach to mentorship that guides the one-year, one-on-one mentorship journey. Developed in partnership with Urban Rez Solutions; Direct Your Life; JustUs: A Centre for Restorative Practices; the LiUNA African American/Canadian Caucus; a Lived Experience Leadership Team comprised of Black youth and adults at various stages in the apprenticeship journey [from pre-apprenticeship to Journeyperson], and youth-employment counsellors from Youth Employment Services (YES); the Somali Workers Network, and the City of Toronto. The project team identified two scenarios for delivering the module. Each scenario is underpinned by the social-learning approach and prioritizes introducing climate action into the NexGen Builders Mentoring Program while leveraging the ancillary activities that respond to TCBN's overall strategic priorities.

Scenario One (S1) proposes a five-unit, fifteen-module experiential learning journey with content focused on skills development in areas that have been defined as "technical" or "soft" by stakeholders. Scenario Two (S2) is a compact version of S1 and will embed content from S1 into three of the eight existing modules in the NexGen Builders Mentoring Program. The curriculum will have a lifecycle perspective on the construction industry, allowing participants to explore the five areas of the construction sector in relational perspective. The strategy allowed us to engage diverse stakeholders and gain enough insight to propose a curriculum that emphasizes the principles of social learning while responding to the limitations that presently exist. The units — Concept and Design, Pre-Construction, Procurement, Construction, and Owner Occupancy — reflect the silos that exist in the construction sector to the detriment of realizing the desired sustainability targets. Through our stakeholder engagement, the project team learned that the best way to ensure success in a low-carbon context is to have these areas of the construction sector in conversation with one another.

The five units are explored through two or three concepts that inform the innovation the sector is undergoing. The modules will be delivered by partners of U of T or TCBN who have expertise in the areas being explored, as educators or practitioners.

SOCIAL LEARNING APPROACH

The proposed module incorporates social learning through creating space for connection: a transition arena where a group of experts on the transitions needed can lend their expertise to create a social network of innovation while building the capacity of first- and second-year apprentices. Social interactions between individuals within a social network is enhanced in environments that promote the following principles as key engagement tools: dialogue, negotiation, communication, experimentation, reflexivity or the challenging of assumptions, experiential learning, systems-thinking, and collective problem-solving and action[12]. In practice, these principles provide opportunities for assumptions to be challenged, experiential learning to be enhanced, and collective problem-solving and action to be promoted[13]. For each principle, we have identified applications in the design and implementation of the curriculum as we develop a learning pathway that incorporates existing projects and training offerings of partners. Together, these elements are likely to increase the uptake of the skills imparted by the learning module while also contributing to collective action or outcomes at collective scales, including network, organizational, and institutional.

Principles	Applications
Dialogue	• Create space for dialogue with stakeholders exploring what the low-carbon economy means to them, their organizations, and the building sector in general, and what skills are needed for sound responses to low-carbon push-and-pull factors. • Dialogue is the centre of the learning module, undergirded by an experiential-learning approach that gives mentees the opportunity to engage with professionals on job sites, gain hands-on experience using low-carbon tools and approaches, and ask questions in an informal environment.
Negotiation & Cross-Sector Communication	• All professionals are brought together to talk through a project at the concept stage. • Building capacity for understanding the language of different actors in the field and sharing concerns and ideas from the mentees' perspectives are vital components of negotiation and collaboration toward a shared end goal.

[12] Chris Argyris and Donald A. Schön. Organizational learning II: theory, method and practice, (Massachusetts, US: Addison Wesley, 1996); Jack Mezirow and Edward Taylor. Transformative Learning in Practice: Insights from Community, Workplace, and Higher Education. New York, US: Jossey-Bass, 2009); Peter Senge. The fifth discipline: The Art and Practice of the Learning Organization, (London, UK: Century Business, 1990)

[13] Ibid.

Principles	Applications
Experimentation & Reflexivity	• Moments of reflection are built into each unit, prompting both mentees and instructors to examine the learning that is unfolding and where opportunities exist for deeper learning.
Experiential & Social	• Explore design challenges together with professionals in the sector to ensure learning is applied and grounded in real-world contexts appropriate to adult learners. This approach enables mentees to build upon hard-skills knowledge and perspectives to said design challenges to the benefit of others in the sector.
Normative Sustainability	• Aims to address the needs of a marginalized community by enhancing the technical and relational skills of mentees entering or advancing in the construction and trades [industries], such as problem-solving, negotiation, and collaboration, can be beneficial in all facets of life. • The learning module addresses multiple dimensions of sustainability. • Building sector identified by the CaGBC in Trading Up report. • Module is to impart a deeper understanding of climate change and responsive actions that can be taken by workers in the construction and trades [industries].
Systems-thinking	• Exposure to the entire construction project lifecycle and demonstrating how low-carbon approaches can be embedded in each step. Mentees will gain a more holistic or "systems view" of [the] sector and their role in it, with a broader set of attendant skills to accompany that broader knowledge base.
Problem-solving	• By using projects in various stages of the construction lifecycle (from concept to design, to build, to operation and maintenance) as the basis for each unit, program participants get acquainted with real-world design challenges and how professionals respond to them — problem-solving in action.

SKILLS EMPHASIZED

Building experts and stakeholders offered input into identifying low-carbon skills that are important for workers entering or advancing within Toronto's construction industry. Skills are categorized as technical or soft, however, there is considerable overlap between them.

Technical Skills

- Energy modelling and management
- Building operations and maintenance
- Smart building software — AI data-driven network
- LEED certification
- Sustainability science
- Understanding of financial systems and low-carbon investment opportunities
- Understanding of health and safety, risks, and hazards as they relate to green design and building

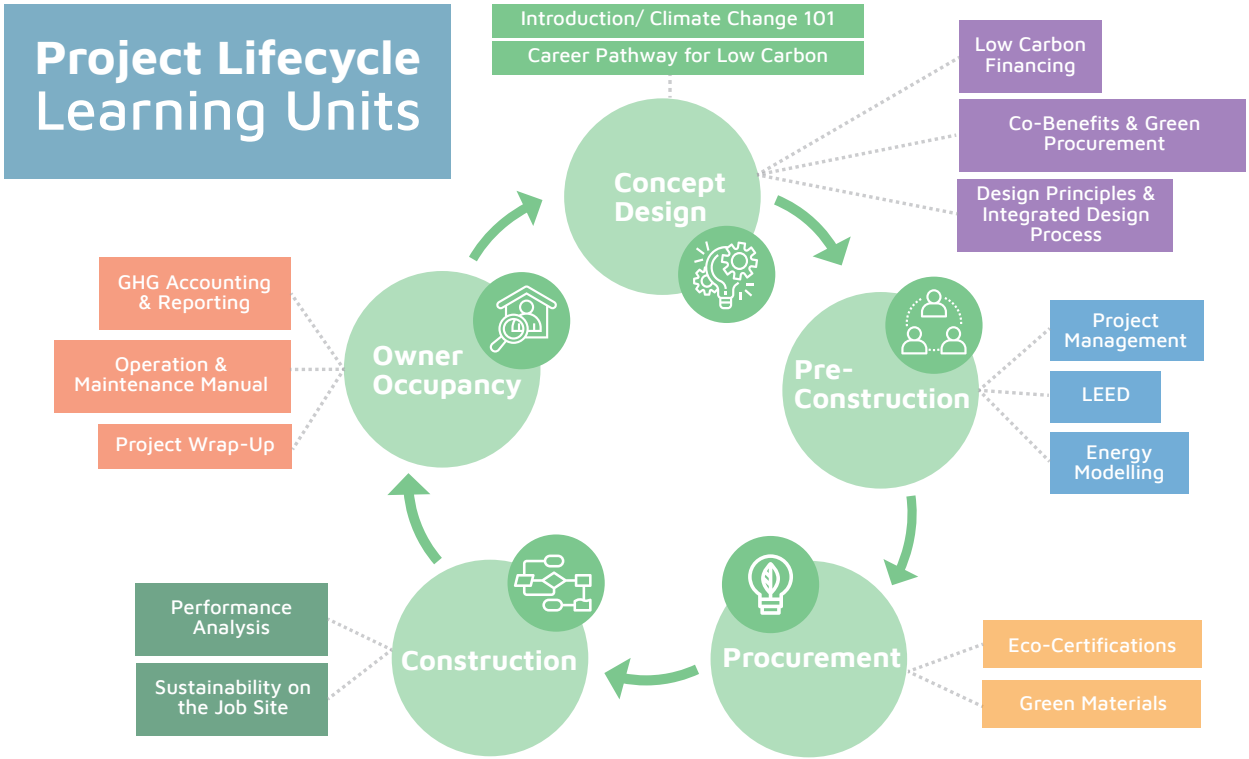
Soft Skills

- Ability to constantly learn and update skills (and adapt)
- Knowledge of sector and where trade fits (i.e. trans-disciplinarity — working across disciplines)
- Ability to apply systems-thinking to complex challenges
- Ability to work collaboratively with diverse partners and stakeholders on finding low-carbon solutions
- Cross-sectoral communication and negotiation
- Problem-solving

STRUCTURE FOR CURRICULUM DELIVERY: PROJECT LIFE CYCLE UNITS

These units will be combined in a learning journey showcasing low- carbon building projects at various stages interspersed with classroom experiences. The topics and skills at the core of each unit are based on input from stakeholders and experts in the field pertaining to needed low-carbon skills. Each unit will entail working collaboratively with professionals in the field who can guide mentees on real-world challenges and showcase the various ways sustainability are embedded at each step of the construction project lifecycle.

Unit Format- Each unit would be roughly 90 minutes with reflexivity and guidance for further developing skills occurring in the final unit on career pathways for the low carbon economy.



Concept and Design

This unit explores the emergence of the low-carbon economy. Participants will be exposed to the policy landscape and understand how construction workers are addressing climate actions through the adaptation and mitigation strategies inherent in the jobs they do, and how the requirements for these strategies arise within current social and political initiatives.

Pre-Construction

The industry is moving toward Integrated Design Processes, where professionals are brought together to talk through a project at the concept stage. Having the capacity to understand perspectives of different professionals is a vital component of negotiation and collaboration.

Procurement

The unit will specifically target carbon reduction and energy efficiency in the construction industry and ensure that participants have up-to-date information on opportunities for growth within the trades, that correspond with new skills that support a low-carbon economy.

Construction

Exposing mentees to the role that each skilled trade contributes to the construction project lifecycle will be important to demonstrate how low-carbon approaches will be embedded in each step. Mentees will gain a "systems view" of each sector and their role in it and a broader set of attendant skills.

Owner Occupancy

Mentees will be given an opportunity to reflect on the impact of their work on everyday life. As innovation in the low-carbon economy grows, feedback has been given along the way to improve the user experience of the projects and learn about opportunities to participate in the maintenance of sustainable efforts.

CONCLUSION

With the Low-Carbon Learning Module, we will be preparing new entrants to the trades with an understanding of climate change, its growing impact on building practices, and the need to learn new skills and processes that will be required in their sector. The majority of trades are doing "green work" but this is not promoted within the value proposition of these career paths. This is a missed opportunity to attract underrepresented groups, including youth and women, who will be seeking careers that align with their values. Surfacing this important feature of trades work through the curriculum, will encourage future construction workers to track and pursue, or advocate for, new skills and opportunities as they arise. They will become allies with leadership within the sector in planning the way forward as their trades' skill sets must change in response to climate change and climate action. There are limited formal and informal mechanisms for the sector to track, understand and respond to, and skill-and-career trends and opportunities that climate change adaptation produces.

Our project has the potential to produce highly motivated leaders within the trades' workforce to participate in strengthening the sectors' capacity to respond to opportunities that result from the need for climate-change adaptation and mitigation. Apprentices will become agents of change internally within the workplace. This project will build their capacity to become active union members who participate in their union caucuses to advance conversations and initiatives on climate change. Furthermore, when working alongside Toronto Community Benefits Network with communities engaged in securing Community Benefits Agreements, this cadre of trades workers — who are highly attuned to climate change — can assist community members to advocate for meaningful community and environmental improvements through Community Benefit Agreements.