

**Submission
to the
CleanBC
Job Readiness Plan
consultation**





Attn: Citizen Engagement
PO Box 9049 Stn Prov Govt
Victoria, B.C. V8W 9V1
LabourMarketPartnerships@gov.bc.ca

November 29, 2019

Introduction: Job Readiness in the BC Green Building Sector

The Canada Green Building Council (CaGBC) supports the Province of BC in its goals to protect the environment, reduce GHG emissions and create economic opportunity. We would like to commend the B.C. government for its leadership towards a low-carbon economy and developing an innovative and ambitious long-term strategy for transitioning its labour force to the jobs of the future. Today's complex and changing labour market requires workers to adapt, retrain, or upskill to be successful in an ever-changing economy. CaGBC appreciates the opportunity to comment on the proposed strategy on behalf of the green building industry in B.C. What follows are the CaGBC's recommendations related to the built environment.

Summary of Recommendations:

1. Prioritize the construction sector for green jobs
2. Up-skill and re-skill the trades, architects and engineers
 - 2.1 Develop low-carbon skills training and continuing education for the trades
 - 2.2 Integrate low-carbon skills into the existing education for construction trades
 - 2.3 Update the training for architects and engineers to include low-carbon competency
 - 2.4 Develop accreditation for certified retrofit professionals
3. Amend the modes of training and create new training opportunities
 - 3.1 Consider making some construction apprenticeships compulsory
 - 3.2 Develop a certificate for low-carbon skills
 - 3.3 Make continuing education credentials mandatory for trades and other green building professionals
 - 3.4 Train the trainer: create a peer-network for trainers, professors and coaches
4. Identify and introduce incentives
 - 4.1 Leverage government funds to subsidize training and lower the cost barriers for trades to participate
5. Use government leadership to create market signals
 - 5.1 Change the procurement process and contract agreements for public sector buildings

Appendices

Appendix A: Trading Up: Equipping Ontario Trades with the Skills of the Future.



Head office / Siège social
400-100 Murray Street
Ottawa, ON K1N 0A1



613.241.1184
Toll free / Sans frais: 866.941.1184
Fax / Téléc: 613.241.4782





About CaGBC

The **Canada Green Building Council (CaGBC)** is a not-for-profit, national organization that has been working since 2002 to advance green building and sustainable community development practices in Canada through market-based solutions. We are an industry-led organization providing value-added solutions that benefit the environment, economy, and public health. Our in-depth market research and analysis, building certification program (LEED, Zero Carbon Standard), and capacity building efforts have accelerated the transformation to high-performing green buildings, homes, and communities throughout Canada. Our reach is enhanced by the work of eight provincial Chapters that provide regionally tailored market education and advocacy.

Recommendations

1. Prioritize the construction sector for green jobs

Green buildings represent significant potential for economic growth through innovation, investments and job creation and we are pleased to see that the CleanBC Labour Readiness Plan recognized the built environment as one important subsector. The decarbonization of B.C.'s building stock represents a tremendous opportunity to create local green jobs across the province. Buildings can effectively reduce GHG emissions by up to 91 per cent when properly designed, built, and commissioned. However, high-performing buildings are still relatively new and often not well-understood by industry and governments regarding the necessary conditions for implementation, efficient operation, as well as the associated training required to build on a large scale with reliable performance.

In addition, B.C. is already in the midst of a shortage of skilled labour, and this issue is likely to be exacerbated by the aging demographics of the construction industry. A provincial construction labour strategy should provide support for and access to training for the trades, but also other profession in the construction workforce such as architects and engineers. Up- and re-skilling the construction workforce will help to meet the higher standards for more efficient buildings and enable BC's workforce to compete in a globally market.

To be able to work in the green building sector, specific skills, capabilities and knowledge are needed to support the construction of new buildings and retrofitting of existing buildings to achieve the lowest possible carbon dioxide emissions. Workers designing, constructing and commissioning high-performing buildings must handle new technologies and low-emissions mechanical systems, be it geo-thermal energy systems, photovoltaics, biomass boilers, ground source heat pumps, high-efficiency lighting technologies or similar equipment for heating, cooling, ventilation and air-conditioning.

While investment in innovative, high-performing smart green buildings and retrofits represents a significant economic opportunity, it can only be achieved if we have a strong construction workforce

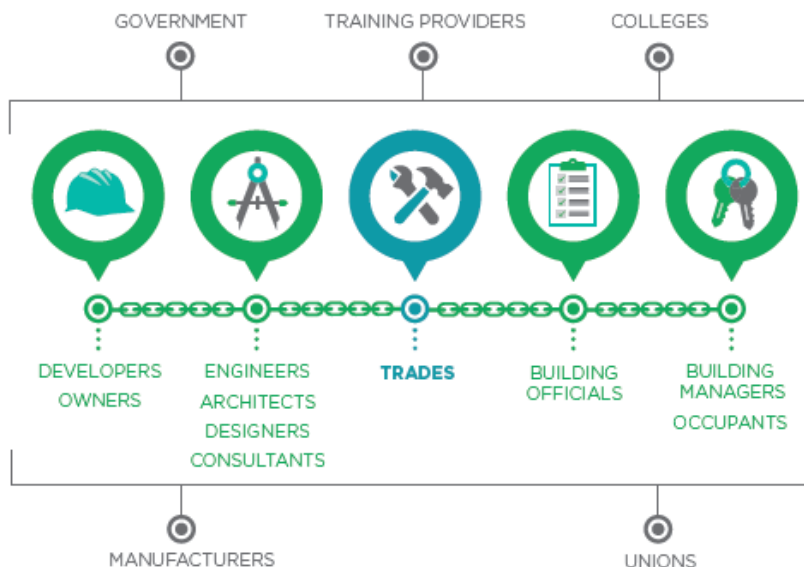




with the skills and capabilities needed to create these buildings. High performance buildings can provide excellent employment opportunities in an innovative area with growing demand.

The green building workforce requires effective education and upskilling opportunities to be successful and competitive (see graphic). Each occupation in the construction industry has different challenges that affect their professional development and career advancement. Although upskilling is needed across the entire green construction workforce, this submission focusses on recommendations for trades, architects and engineers to indicate a priority and as a first step towards a low-carbon construction workforce. In some cases, entire new professions will need to be created. Traditional trade roles need to adapt. The most pressing skills gaps and the challenges in accessing education opportunities need to be identified and addressed.

THE CONSTRUCTION ECOSYSTEM





2. Up-skill and re-skill the trades, architects and engineers

Due to the collaborative requirements of the complex new technologies and practices needed for smart green buildings, both new technical and soft skills are needed to up- and re-skill green construction professionals. Soft skills such as creativity, problem-solving, critical thinking and a broad ecological mindset are essential but have mostly been overlooked in favour of a technical skill set. Soft skills are equally important to effectively deliver low-carbon buildings. Not least, because they support the successful application of more technical skills and competencies.

2.1 Develop low-carbon skills training and continuing education for the trades

A skilled workforce will help with the adoption of the Step Code and CleanBC activities. Training and education courses and curricula that address the technical skills as well as soft skill gaps for construction trades need to be developed. This will include training on how to assemble building envelopes, install low-carbon mechanical systems, including heating, cooling, ventilation and air conditioning, as well as maintain energy efficient furnaces, boilers, water heaters, solar panels and geoexchange systems, but also for energy modelling and training for building officials. When developing training opportunities, trades already working in the sector will require different training than individuals entering the profession, such as apprentices. It will be necessary to create new course offerings especially for Part 3 and Part 9 new construction, but also retrofits. These should specifically aim for mid-career workers. There are no requirements for the trades to take any training or invest in continuing education once they started their career, many also never completed an apprenticeship training.

To be able to create new programs and enhance and expand the extensive existing training that already exists mostly around the Step Code and Part 9 buildings (such as the High-performance building lab at BCIT), it will be important to engage key stakeholders such as trade unions, colleges and universities, professional organizations as well as product manufacturers. These organizations can assist with skills development, including continuing education. Collaboration will be needed to create an education system that reaches a maximum number of people, especially those who are not member in a union or another professional association.

It would therefore be valuable for the Province to partner with industry associations such as the CaGBC and the Zero Emissions Building Exchange (ZEBx) to collaborate on aspirational targets for market transformation, ensuring that B.C.'s designers, builders and trades have the skills and training to build to net-zero ready ahead of the 2032 deadline. These partnerships will also be central in delivering the capacity building measures and should be integrated with a wider construction labour strategy.

2.2 Integrate low-carbon skills into the existing education for construction trades

Knowledge of low-carbon skills needs to be included in all available courses, including the BC apprenticeship programs for people entering the construction industry and the Red Seal program and not be merely an appendix to existing training to make low-carbon skill part of a broader, greener mindset. There needs to be more offerings and options for existing trades, ranging from full- and part-time college programs, to seminars, webinars and on-the-job training, and include specific training for retrofits and renovations. Overall, green building practices need to be added to all existing training





programs and courses to ensure uptake. For this to be accomplished, collaboration with colleges, unions and other training providers will be essential.

2.3 Update the training for architects and engineers to include low-carbon competency

To decrease GHGs from the built environment, other construction professionals, such as engineers, and architects need to be upskilled. Existing training programs need to be adapted and new programs need to be developed to cover the competencies that the industry is currently lacking. Currently there is a lack or limited access to education resources on the following technical competencies, so that these professionals are missing valuable information needed for the delivery of zero-carbon buildings. In addition, architects, designers and engineers need to be aware on how to implement an integrated design process to high-performing buildings as in addition to technical knowledge it is also crucial that the process on how we construct these buildings is adapted.

- Knowledge on Embodied Carbon
- Competence in Energy Modelling
- Calculating a Zero Carbon Balance
- Greenhouse Gas Accounting
- Developing Transition Plans
- Calculating Thermal Energy and Cooling Demand Intensity
- Competency in adaptable Building Design
- Designing for Future Weather Conditions
- Knowledge on an Integrated Design Approach

2.4 Develop accreditation for certified retrofit professionals

We support the Province's intention to establish accreditation for Certified Retrofit Professionals. This could include multiple trade disciplines including HVAC, insulation, and window fitting. We encourage the Province to consider not only the proper application of these components, but also how they can be integrated over time in a whole building phased retrofit approach targeting a low-carbon end goal. This accreditation should eventually be required as a qualification for incentive programs, motivating contractors and suppliers to earn this credential. The CaGBC has a long history of developing training for the green building workforce and can assist with the creation of credential-based education.

3. Amend the modes of training and create new training opportunities

3.1 Consider making some construction apprenticeships compulsory

Many trades working for low-carbon projects are highly experienced and often are union members who went through an apprenticeship program. Having undergone this rigorous training, they are highly qualified to take on low-carbon projects. They are also more likely to participate in training courses offered by their union throughout their career. Making apprenticeships mandatory would be beneficial to ensure quality of the industry as a whole and would improve the reputation of the trades.





3.2 Develop a certificate for low-carbon skills for the trades

Developing a low-carbon certification or specialization would help project developers identify and secure the right design team and skilled trades for their projects. Although the construction industry should strive to embed low-carbon skills as part of all curricula and course offerings, additional “green” programs can help the labour market transition to a low-carbon economy. These specialty programs or add-on courses will help to develop capacity and knowledge on the part of teachers and students and lead to a separate certification for low-carbon skills. Especially a low-carbon accreditation for tradespeople could enable more contractors to bid for green building projects even without previous hands-on experience on a low-carbon building and facilitate finding a job. A separate low-carbon certificate for apprenticeships could also be designed. Other green building professionals, such as consultants, designers, engineers and architects, already benefit from similar certificates such as the LEED Green Associate or LEED Accredited Professional (AP) for LEED projects.

3.3 Make continuing education credentials mandatory for trades and other green building professionals

Today there is no requirement for many green professionals to invest in continuing education – mostly notably the trades. Continuing education should be required for professional development and credential maintenance throughout the green construction industry. Low-carbon buildings rely on a range of design and construction best practices that could be translated into a valuable credential or made mandatory for obtaining and keeping a license and/or for being able to bid for low-carbon projects. Architects already are licensed to encourage to improve their skills and maintain high standards in the practice of architecture. This should serve as an example for other green professions, from the trades to other green construction professionals. Continuing education requirements would be an important mechanism to stay abreast of the latest technology, materials and approaches necessary to construct or renovate a building to a high-performance standard.

Train the trainer: create a peer-network for trainers, professors and coaches

In addition, a network of educators and trainers would be helpful to teach each other about low-carbon technologies and a more holistic approach to construction. The demand for training tends to be highly connected with building code updates so that it is difficult for teachers or educational institutions to develop and sustain their courses, programs and teaching staff. Mandatory training credits for maintaining licensing for the trades similar to other construction professionals, such as architects, may ease this issue and stabilize the historically cyclical demand for trainers.

4. Identify and introduce incentives

4.1 Leverage government funds to subsidize training and lower the cost barriers for trades to participate

To accelerate uptake of training, particularly for the trades, the right incentives to convince them and their employers to expand their training and include green building skills need to be created, especially if they are already experienced and mid-career. Those who are already in the workforce are often limited by time and financial constraints. Learning new skills and developing more advanced knowledge needs to be incentivized to educate the older generation of workers. Today, winning bids for projects is not dependent on an understanding of green building skills, and many in the industry often do not have the time to work on increasing their skills base. There is a distinct gap between training offerings and actual





uptake. Currently, there is no incentive for tradespeople to upgrade or adapt their skills through further education because they are only paid when they are working. It has been proven very successful to subsidize training courses to lower cost barriers for trades to participate. CaGBC has successfully cooperated with colleges on delivering green building courses to the trades with exceptional uptake when offered without tuition.

5. Use government leadership to create market signals

5.1 Change the procurement process and contract agreements for public sector buildings

Getting the right team together and having them cooperate in an integrated design process is vital for successful low-carbon building projects. The conventional design-bid-build delivery model institutionalizes a separation of functions. This works against delivering projects that perform in line with their design aspirations; and suggests that an alternative design-build-operate model be leveraged that includes tradespeople from a very early stage and fosters communication between the design team and contractors. Adapting the bidding process and amending contract agreements in a way that requires the design team and the contractors to either demonstrate experience with low-carbon buildings or to attend on-the-job training for the skills needed to execute their tasks would strengthen the connection between intentions and actual performance of low-carbon buildings. Especially in the public sector, bids often have to be chosen on (capital) cost alone. To improve the process and the quality of public sector buildings, the content of the bid or offer should also include 'green' requirements for the design team and contractors, such as a requirement for low-carbon skills, a certain certification or for taking low-carbon training before or during a project.

CONCLUSION

CaGBC supports the CleanBC Job Readiness plan of the B.C. government. Our submission encourages the government of BC to take on a national and international leadership role by supporting its construction workforce to the skills and capabilities needed to plan, construct and maintain green low-carbon buildings. A starting point is directing more attention to updating the knowledge of skilled trades, architects and engineers. However, ultimately, the whole construction ecosystem workforce needs support in transitioning their skills to the jobs of the future. To tackle the economic and ecological challenges brought on by climate change, efforts need to be made to train the workforce and enable them to adapt to the coming changes in BC's economy. To make sure that BC continues to be a green construction industry leader within Canada and globally, the skills gap for low-carbon buildings needs to be addressed that will transform and boost BC's construction industry but also prevent a shortage of skilled labour in the future.

CaGBC's recommendations offer several opportunities to drive low-carbon skills development for the green construction workforce working on new low-carbon, green buildings and retrofitting the existing building stock. This will add to the Province's efforts for a strong green economy and meet the objectives of a low-carbon building sector.

