

**Advancing Climate Literacy in  
Union Vocational Education and Training Programs in English  
Canada, Quebec, Europe and the US: Analysis, Findings and Lessons  
Learned**

**Appendix 7:  
Do Red Seal Apprenticeship Guidelines for the Construction Trades  
Adequately Incorporate Canada's Climate Change Commitments?**

## **How Well Do the Red Seal Apprenticeship Guidelines for the Construction Trades Incorporate Canada’s Climate Change Commitments? <sup>1</sup>**

Canada’s Red Seal Standards are based on the National Occupational Analyses (NOA) system. The Standards identify the knowledge and skills that apprentices must learn to pass their Red Seal examinations, enabling apprentices to be certified as qualified journeypersons in a specific trade. <sup>2</sup>The Red Seal documents outlining the Standards for each trade are quite comprehensive, normally including between 100 to 200 pages of detailed knowledge and skill requirements. These requirements become the basis for the curricula used in trades training programs in provinces and territories across Canada. These training programs are not confined to teaching to the Red Seal standard and can add additional learning resources depending on local and regional factors. But they must, at a minimum, include the Red Seal requirements.

Given its standard setting function, the Red Seal knowledge and skill guidelines provide an important signal to trades’ trainers across the country about what should be included in their curricula. In light of Canada’s growing concern about mitigating and adapting to climate change, the question of whether and, if so, to what extent, climate change issues are currently being covered in the Red Seal guidelines is of considerable interest. Buildings and related infrastructure account for about one third of GHG emissions and energy consumption, globally and about 15% in Canada due to the larger role of transportation and resource extraction in Canada’s economy.

Lowering Canada’s carbon footprint is a major objective of Canada’s climate policies. Over the past three decades, both federal and provincial/territorial governments have been ratcheting up the requirements of their Building and Energy codes to enforce tougher GHG and energy targets. This trend will continue in the coming years as the Federal Government has announced that it plans to reduce Canada’s GHG emissions by between 40% and 45% by 2030<sup>3</sup>. Accordingly, governments will be implementing tougher standards in the construction industry in the coming years.

---

<sup>1</sup> Note: this was written before the August 2023 statement by the Red Seal Secretariat that indicates that all Red Seal Standards will contain a 2-page statement on climate change including the need for a climate literate workforce. It is attached as appendix A at the end of this document – John Calvert, author.

<sup>2</sup> The Pdf files of the various Red Seal Trades are posted on its web site. <http://www.red-seal.ca/resources/wh.1t.3sn.4.1-eng.html>

<sup>3</sup> Environment and Climate Change Canada. (2020) A Healthy Environment and a Healthy Economy. Ottawa: <https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/climate-plan-overview/healthy-environment-healthy-economy.html>;

Canada (2021) Bill C-12, An Act Respecting Transparency and Accountability in Canada’s Efforts to Achieve Net Zero Greenhouse Gas Emissions by the year 2050. Ottawa, June 29;

<https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/net-zero-emissions-2050/canadian-net-zero-emissions-accountability-act.html> ;

Environment and Climate Change Canada. (2020) Canada’s Greenhouse Gas and Air Pollutant Emissions Projections 2020. Ottawa: <https://publications.gc.ca/site/eng/9.866115/publication.html>

To meet these objectives, the construction industry will have to implement low carbon, or near zero carbon outcomes in the buildings and related infrastructure it produces. While a variety of professionals – architects, engineers, planners, building scientists and developers – will play a major role in this process, much of the actual work will be done by the qualified trades’ workforce. It is trades’ workers who will have the responsibility of ensuring that the industry’s efforts to reduce its carbon footprint are properly implemented. And this will require a strong commitment to carrying out effective low carbon construction methods on building sites. It will require a ‘climate and energy literate’ workforce.

A key factor that can contribute to the development of climate/energy literacy is the way in which the workforce is trained. Incorporation of climate awareness into the content of the curriculum in the classroom and in the practical, hands-on experience construction workers have on building sites will play an important role in this process. It can give the workforce knowledge about climate science and the reasons why low carbon construction is now so important. It can also provide the trades’ workforce with the skills required to implement it on construction projects.

However, a logical starting point is to examine what is now being taught about climate change issues in Canada’s current trades training programs. The focus of this short paper is to examine the extent to which Canada’s current training and apprenticeship system promotes an awareness of the contribution the construction industry can make to meeting our climate goals by examining the extent to which the issue is being incorporated into the apprenticeship curriculum, both in the classroom and on job sites.

One way to assess how well Canada is preparing its construction workforce for low carbon, or near zero construction working practices is to examine the frequency with which climate change terminology is included in the text of the Red Seal occupational guidelines. These guidelines set out the knowledge and skills apprentices must master to obtain their Red Seal ticket as a fully qualified trades’ worker. Analysing the use of climate terminology is only one measure for evaluating the extent to which climate issues are covered in the apprenticeship programs. It needs to be used cautiously as it does not necessarily reflect what Canada’s trades instructors are teaching in the classroom component of their trades’ programs. Nor does it necessarily reflect what apprentices are learning in the on-the-job component of their training program. But it does provide one indicator of the extent to which climate change issues are being covered in the training apprentices receive.

To do this we have identified key climate related terms and then carried out a word search in the text of the Red Seal Standards Pdf documents which outline the knowledge and skills required for each trade. These are posted for all apprentices to download for guidance about what they need to know to pass their exam. In several cases we also reviewed the actual classroom curricula for a trade using the same word searches to see if there was any significant difference.

Of course, using a word search is admittedly a rather simple and perhaps rather crude indicator. In using this approach, we are not claiming that the methodology captures the many ways in which climate issues are now being incorporated into the work of Canada’s building trades. But it does provide some insight about the extent to which climate science is now affecting what the trades’ workforce is expected to know.

A significant number of terms can reflect climate objectives. Choosing the right ones is, admittedly, somewhat arbitrary. But some of the most common can be readily identified and others that have some relationship to dealing with climate issues can also be noted based on the content of the documents being surveyed. This analysis has been carried out using the following terms: Climate Change, Global Warming, LEED, Energy Star, Low Carbon Construction, Environment (as related to sustainability) Energy Conservation, Renewable Energy, ASHRAE, Green House Gas, Green Energy, Emissions (reducing), Energy Efficiency, Green energy & Green, Construction, Sustainability, Eco Friendly and Net Zero. Of course, we might have added other climate related terms to this list. But for the purpose of an overview of how climate change is included in the Red Seal Standards, the terms identified arguably provide a reasonable, if not exhaustive, sample.

For the purpose of this analysis, we selected 32 construction, or construction related, trades. The sample includes some small trades and some that overlap with skills outside the core construction sector, but we felt we should be as comprehensive as possible. We then carried out a word search for each of the above noted climate related terms to see the extent to which climate issues were being identified in Pdfs of the Red Seal documents. Some of the terms, such as environment required interpreting in the context in which they were being used. Most uses referred to working environment, which was distinguished from the use of the term in relation to climate change. In some cases, the use was ambiguous, so we normally included the reference in the count for climate related terms. But this was essentially a judgement call on our part.

In the following tables, we have summarized the key findings of our word search for each of the 32 trades. As a quick review of the data on the first table will reveal, climate change is not referenced even once in the Red Seal pdfs. Nor is global warming mentioned. However, some other climate related terms are used occasionally - and in several cases - more frequently, including the terms LEED, environmental protection, renewable energy, ASHRAE and energy efficiency. References to climate related terms tend to be clustered in a few trades, with other trades having very few such terms. Many of the climate related references that we found are also directly connected with describing a particular skill or piece of knowledge such as skills required to build a LEED building or install a piece of equipment such as solar panels, wind farm components or electric charging stations.

A further examination of the pdfs indicates that there is almost nothing that deals with the broader science of climate change or the consensus in the scientific community that climate change poses what is perhaps the most important threat to our civilization that our species has ever faced. Similarly, while there are references to the importance of meeting building and energy code requirements, the underlying rationale behind government efforts to promote low carbon construction is not articulated. What emerges from this survey is that explicit references to the science on which climate change policies are based is not being included in the terms used in the discussion of knowledge and skills included in the Red Seal documents.

Below is the first of four tables that summarize our 2019 word search. It lists the frequency of 5 key terms associated with climate change: climate change, global warming, Leadership in Energy and Environmental Design (LEED), Energy Star and Low Carbon Construction mentioned in the

Red Seal Pdfs for the 32 trades surveyed. As the table indicates, the most common climate term is LEED which reflects the use of this approach by architects and designers of low energy buildings and hence the need for apprentices to be knowledgeable about this construction technique.

**References to Climate Change Terms in Red Seal Templates for Construction Trades (A)**

Occupation	Climate Change	Global Warming	LEED	Energy Star	Low Carbon Construction
Boilermaker RSOS 2016	0	0	0	0	0
Boilermaker Curriculum 2016	0	0	0	0	0
Bricklayer 2016	0	0	3	0	0
Cabinetmaker 2012	0	0	0	0	0
Carpenter 2013	0	0	0	0	0
Concrete Finisher (RSOS) 2017	0	0	0	0	0
Construction Craft Worker (NOA) 2015	0	0	2	0	0
Construction Electrician (RSOS) 2015	0	0	2	0	0
Construction Electrician (Curriculum) 2015	0	0	2	0	0
Drywall Finisher and Plasterer 2013	0	0	2	0	0
Gasfitter--Class A 2014	0	0	5	0	0
Gasfitter--Class B 2014	0	0	5	0	0
Glazier 2012	0	0	3	1	0
Heavy Equipment Operator (Dozer) 2015	0	0	0	0	0
Heavy Equipment Operator (Excavator) 2015	0	0	0	0	0
Heavy Equipment Operator (Tractor-Loader-Backhoe) 2015	0	0	0	0	0
Industrial Electrician (RSOS) RSOS 2016	0	0	0	0	0
Industrial Electrician (Curriculum) 2016	0	0	0	0	0
Insulator (Heating and Frost) 2018	0	0	2	0	0
Ironworker (Generalist) 2015	0	0	0	0	0
Ironworker (Reinforcing) 2015	0	0	0	0	0
Ironworker (Structural/Ornamental) 2015	0	0	0	0	0
Metal Fabricator (Fitter) 2012	0	0	0	0	0
Mobile Crane Operator 2013	0	0	0	0	0
Oil Heat System Technician 2015	0	0	0	0	0
Painter and Decorator 2011	0	0	0	0	0
Plumber (RSOS) 2016	0	0	1	1	0
Plumber (Curriculum) 2016	0	0	1	1	0
Powerline Technician 2013	0	0	0	0	0
Roofer 2012	0	0	4	0	cut carbon footprint 1
Sheet Metal Worker 2018	0	0	5	0	0
Sprinkler System Installer [NOT FOUND]					
Steamfitter/Pipefitter (RSOS) 2015	0	0	4	0	0
Steamfitter/Pipefitter (Curriculum) 2015	0	0	3	0	0
Tilesetter 2010	0	0	4	0	0
Tower Crane Operator 2012	0	0	0	0	0
Welder 2014	0	0	0	0	0
<b>TOTALS</b>	<b>0</b>	<b>0</b>	<b>48</b>	<b>3</b>	<b>1</b>

A: Note: Year refers to the year the Red Seal Standard was last revised

Note: the dates shown are the most recent Red Seal available on its web site, on May 11,2021 the day the survey was completed

The term environment is used extensively in the Red Seal Pdfs. However, in most cases it does not refer to climate change. The principal meaning relates to ‘working environment’, which includes matters such as health and safety provisions, shop environment, environmental regulations, supervision/team environment, appropriate facilities/equipment and so forth. Sometimes it refers to the environment in the context of avoiding pollution, toxic chemicals and managing waste properly. It also can refer to the impact of weather on the job. And it sometimes refers to the concept of learning environment. In a small minority of cases the term is used to refer to climate change.

To give a concrete example, in the 214 page Pdf for Construction Electrician, the 72 references to various environment-related issues is broken down as follows: harm/impact on the environment - 40; installation environment - 11; safety and environment- 7; work environment - 4; environmental factors - 3, environmental damage - 3, LEED – 2; environment friendly - 1,.The largest category, harm/impact on the environment refers almost exclusively to the environment directly around the job site. A similar pattern emerges with other trades, with references to the environment making no explicit reference to climate change issues or the contribution the work can make to lowering GHG emissions or energy consumption.

The following table includes the extensive number of references to the term environment in the 32 Pdfs as well as those that have some connection with conservation or environmental protection. It also contains two columns, energy conservation and renewable energy that are more directly related to climate objectives. In the case of renewable energy, the references are largely about work on these kinds of projects but not about their link to meeting Canada’s climate objectives. The dates adjacent to the trade name is the latest version of the Red Seal requirements posted on its web site.

## References to Climate Change Terms in Red Seal Templates for Construction Trades (2)

Occupation	Environment (total)	Environmental Protection/Sustainability	Energy Conservation	Renewable Energy
Boilermaker RSOS 2016	23	5	0	1
Boilermaker Curriculum 2016	15	1	0	1
Bricklayer 2016	22	10	0	0
Cabinetmaker 2012	18	4	0	0
Carpenter 2013	19	10	0	1
Concrete Finisher (RSOS) 2017	13	2	0	0
Construction Craft Worker (NOA) 2015	28	16	0	0
Construction Electrician (RSOS) 2015	72	50	0	53
Construction Electrician (Curriculum) 2015	16	4	0	40
Drywall Finisher and Plasterer 2013	11	5	0	0
Gasfitter--Class A 2014	18	12	2	0
Gasfitter--Class B 2014	18	12	2	0
Glazier 2012	14	4	0	0
Heavy Equipment Operator (Dozer) 2015	22	11	0	0
Heavy Equipment Operator Excavator 2015	22	12	0	0
Heavy Equipment Operator (Tractor-Loader-Backhoe) 2015	21	11	0	0
Industrial Electrician (RSOS) RSOS 2016	64	13	0	48
Industrial Electrician (Curriculum) 2016	33	8	0	34
Insulator (Heating and Frost) 2018	27	9	1	0
Ironworker (Generalist) 2015	11	3	0	0
Ironworker (Reinforcing) 2015	9	3	0	0
Ironworker (Structural/Ornamental) 2015	9	1	0	0
Metal Fabricator (Fitter) 2012	10	3	0	0
Mobile Crane Operator 2013	11	2	0	0
Oil Heat System Technician 2015	16	10	0	0
Painter and Decorator 2011	23	12	0	0
Plumber (RSOS) 2016	22	11	0	0
Plumber (Curriculum) 2016	17	9	0	0
Powerline Technician 2013	30	24	0	0
Roofer 2012	25	8	1	0
Sheet Metal Worker2018	33	11	2	0
Sprinkler System Installer [NOT FOUND]				
Steamfitter/Pipefitter (RSOS) 2015	77	39	0	4
Steamfitter/Pipefitter (Curriculum) 2015	30	7	0	3
Tilesetter 2010	31	5	0	0
Tower Crane Operator 2012	14	4	0	0
Welder 2014	15	3	0	0
<b>TOTALS</b>	<b>848</b>	<b>386</b>	<b>8</b>	<b>185</b>

Note: Year refers to the year the Red Seal Standard was last revised

Note: the dates shown are the most recent Red Seal available on its web site, on May 11,2021 the day the survey was completed

### References to Climate Change Terms in Red Seal Templates for Construction Trades (3)

Occupation	ASHRAE	Green House Gas (GHG)	Green Energy	Lower Emissions -	Energy Efficiency
Boilermaker RSOS 2016	0	0	1	1	0
Boilermaker Curriculum 2016	0	0	1	1	0
Bricklayer 2016	0	0	0	0	2
Cabinetmaker 2012	0	0	0	0	0
Carpenter 2013	0	0	0	0	6
Concrete Finisher (RSOS) 2017	0	0	0	0	0
Construction Craft Worker (NOA) 2015	0	0	0	0	0
Construction Electrician (RSOS) 2015	2	0	0	0	1
Construction Electrician (Curriculum) 2015	2	0	0	0	0
Drywall Finisher and Plasterer 2013	0	0	0	0	0
Gasfitter--Class A 2014	0	0	0	emissions specs 1	15
Gasfitter--Class B 2014	0	0	0	cut energy use 1	17
Glazier 2012	0	0	0	0	0
Heavy Equipment Operator (Dozer) 2015	0	0	0	emissions control 1	0
Heavy Equipment Operator (Excavator) 2015	0	0	0	emissions control 1	0
Heavy Equipment Operator (Tractor-Loader-Backhoe) 2015	0	0	0	emissions control 1	0
Industrial Electrician (RSOS) RSOS 2016	0	0	0	0	0
Industrial Electrician (Curriculum) 2016	1	0	0	0	0
Insulator (Heating and Frost) 2018	0	0	0	net zero target 1	0
Ironworker (Generalist) 2015	0	0	0	0	0
Ironworker (Reinforcing) 2015	0	0	0	0	0
Ironworker (Structural/Ornamental) 2015	0	0	0	0	0
Metal Fabricator (Fitter) 2012	0	0	0	0	0
Mobile Crane Operator 2013	0	0	0	0	0
Oil Heat System Technician 2015	0	0	0	0	0
Painter and Decorator 2011	0	0	0	0	0
Plumber (RSOS) 2016	0	0	0	0	1
Plumber (Curriculum) 2016	0	0	0	0	1
Powerline Technician 2013	0	0	0	0	efficient lighting 1
Roofer 2012	0	0	0	0	1
Sheet Metal Worker 2018	36	0	alt energy 1	0	System efficiency 16
Sprinkler System Installer [NOT FOUND]					
Steamfitter/Pipefitter (RSOS) 2015	0	0	0	0	1
Steamfitter/Pipefitter (Curriculum) 2015	0	0	0	0	1
Tile Setter 2010	0	0	0	0	0
Tower Crane Operator 2012	0	0	0	0	0
Welder 2014	0	0	0	0	1
<b>TOTALS</b>	<b>41</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>47</b>

Note: Year refers to the year the Red Seal Standard was last revised

Note: the dates shown are the most recent Red Seal available on its web site, on May 11,2021 the day the survey was completed



**References to Climate Change Terms in Red Seal Templates for Construction Trades (4)**

Occupation	Green Construction	Energy saving	Sustainability	Eco-friendly	Net Zero
Boilermaker RSOS 2016		0	0	0	0
Boilermaker Curriculum 2016		0	0	0	0
Bricklayer 2016		0	0	0	0
Cabinetmaker 2012	green market	1	0	0	1
	green cleaners	2			
Carpenter 2013	green building	1	0	0	0
Concrete Finisher (RSOS) 2017	green concrete	2	0	0	0
Construction Craft Worker (NOA) 2015	green construction, green roofs ,green practices	4	0	0	0
Construction Electrician (RSOS) 2015		0	1	0	0
Construction Electrician (Curriculum) 2015		0	1	0	0
Drywall Finisher and Plasterer 2013		0	0	0	0
Gasfitter--Class A 2014	green building	1	cut energy use	1	0
Gasfitter--Class B 2014	green building	3	0	0	0
Glazier 2012		0	1	0	0
Heavy Equipment Operator (Dozer) 2015		0	0	0	1
Heavy Equipment Operator (Excavator) 2015		0	0	0	1
Heavy Equipment Operator (Tractor-Loader-Backhoe) 2015		0	0	0	1
Industrial Electrician (RSOS) RSOS 2016		0	2	0	0
Industrial Electrician (Curriculum) 2016		0	1	0	0
Insulator (Heating and Frost) -2018		0	2	0	1
Ironworker (Generalist) 2015		0	0	0	0
Ironworker (Reinforcing) 2015		0	0	0	0
Ironworker (Structural/Ornamental) 2015		0	0	0	0
Metal Fabricator (Fitter) 2012		0	0	0	0
Mobile Crane Operator 2013		0	0	0	0
Oil Heat System Technician 2015		0	energy /fuel savings	2	0
Painter and Decorator 2011		0	0	0	0
Plumber (RSOS) 2016	green initiatives	1	0	0	0
Plumber (Curriculum) 2016	green initiatives	1	0	0	0
Powerline Technician 2013		0	0	0	0
Roofer 2012	green roof alternatives, sustainable	12	0	6	0
Sheet Metal Worker 2018	green roof	2	Cut energy use	1	0
Sprinkler System Installer [NOT FOUND]					
Steamfitter/Pipefitter (RSOS) 2015		0	0	0	0
Steamfitter/Pipefitter (Curriculum) 2015		0	0	0	0
Tile Setter 2010		0	0	0	0
Tower Crane Operator 2012		0	0	0	0
Welder 2014		0	0	0	0
<b>TOTALS</b>		<b>0</b>	<b>8</b>	<b>6</b>	<b>5</b>
					<b>1</b>

Note: Year refers to the year the Red Seal Standard was last revised

Note: the dates shown are the most recent Red Seal posted on its web site, on May 11,2021 the day the survey was completed

As noted, the previous survey only captures a portion of what apprentices are learning on the job and it is not intended to convey the impression that climate issues are absent from what they are learning both in the classroom and in the on-the-job portion of their training. But it does indicate that there is room to examine the Red Seal Standards to see where and to what extent information about climate science could be incorporated into the actual curricula being used for apprenticeship training. If we are to meet Canada's climate change targets, all avenues for promoting this objective need to be explored. What we expect apprentices to know as part of their training should be one part of this effort.

John Calvert May 12, 2021

***Postscript***

As noted earlier, the Red Seal Secretariat released a major statement on Climate Literacy in July 2023. This represents a significant step towards incorporating knowledge of climate science into the trades' curriculum. It signals to instructors that they will now need to incorporate material about climate change in their classroom training programs and, consequently, that they will need to familiarize themselves with how climate change is impacting the construction industry and their specific trade. While it will take some time for the Standards for all trades to reflect this change fully, given the current schedule of revisions which normally occur about every five years, the statement will encourage instructors in all trades to prepare for this change to the curriculum. It will also enable those instructors who currently have a significant interest in climate change to add it to their lesson plans and to begin discussing it with apprentices in the classroom. The next key challenge will be to ensure that the issue is added to the list of potential questions on the Red Seal exam so that apprentices will have a strong motivation to learn about climate change as they prepare for the exam.

## *Appendix A: New Red Seal Guidelines on Climate Change*

### **Roles and Opportunities for Skilled Trades in a Sustainable Future**

<https://www.red-seal.ca/eng/resources/roles.shtml>

Climate change affects all of us. Trades play a large role in implementing solutions and adjusting to changes in the world.

Throughout this standard, there may be specific references to tasks, skills and knowledge that clearly show this trade's role in a more sustainable future. Each trade has different roles to play and contributions to make in their own way.

For example:

- Construction tradespeople need to consider the materials they are using, building methods, and improvements to mechanical and electrical installations. There are important changes to codes and standards to help meet the climate change goals and commitments set for 2030 and 2050. Retrofits and new construction of low-energy buildings provide enormous opportunities for workers in this sector. Concepts, such as energy efficiency and regarding buildings as systems are foundational.
- Automotive and mechanical trades are seeing a shift towards the electrification of vehicles and equipment. As a result, new skills and knowledge will be required for tradespeople working in this sector. There are mandates for sales of new light-duty zero-emission vehicles (ZEV) in Canada, with the goal of achieving 100% ZEV sales by 2035. Due to this mandate, the demand for these vehicles is growing quickly among consumers and fleets. With this escalating demand, the need for skilled workers to maintain and repair these vehicles is also increasing.
- In industrial and resource sectors, there is pressure to move towards increased electrification of industrial processes. Many industrial and commercial facilities are also being upgraded to improve energy efficiency in areas such as lighting systems, and new production processes and technologies. There are also opportunities in carbon capture, utilization and storage (CCUS), as well as the production and export of low-carbon hydrogen.
- Trades in the service sector may also need to be aware of responsible sourcing, as well as efficient use of products and materials. New ways of working better are always a part of the job.

There are fast-moving changes in guidelines, codes, regulations and specifications. Many are being implemented for the purpose of energy efficiency and climate change. Those that affect specific trades may be mentioned within the standard. Examples of these guidelines and legislation include:

- The National Energy Code of Canada for Buildings (NECB).
- The *Canadian Net-Zero Emissions Accountability Act (CNZEAA)*.
- programs that encourage sustainable building design and construction such as Leadership in Energy and Environmental Design (LEED) and the Zero Carbon Building (ZCB) standards.
- the Montreal Protocol for phasing out R22 refrigerants.

- energy efficiency programs such as Energy Star.
- principles of the United Nations Declaration for the Rights of Indigenous Peoples pertaining to energy sector development.

Apprentices and tradespeople need to increase their climate literacy and reinforce their own understanding of energy issues and environmental practices. It is important for them to understand why these changes are happening and their effect on trades' work. While individual tradespeople and apprentices may not be able to choose certain elements like; the architectural design of buildings, building material selection, regulatory requirements, use of electric vehicles and technologies, they must understand the impact of using these elements in their work. Impacts include using environmentally friendly products and following requirements related to the disposal and recycling of materials.

In apprenticeship, as well as in ongoing professional development, employers and instructors should encourage learning about these concepts, why they are important, how they are implemented, and the overarching targets they are aiming to achieve.

All in all, it's about doing the work better and building a better world.