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THE FUTURE OF WORK

Towards a pathway for the implementation of zero carbon construction skills and competencies within Aotearoa New Zealand

Aotearoa New Zealand requires a large-scale transformation of the construction sector to support and implement the transition to a net-zero built environment. However, our construction sector currently lacks the expertise at scale needed for the successful implementation of zero-carbon construction. Zero-carbon construction requires a workforce that has comprehensive climate change literacy for all construction occupations, as well as high qualification levels, and that can aid with crossing the vocational divide between theory and practice. Zero-carbon construction also requires occupational skill and competency profiles to allow for dynamic teamwork and effective communication across and within worksites. Aotearoa New Zealand's construction sector needs to reconfigure its current practices around design and construction of buildings and enable greater capability for skills development to allow greater climate change literacy, better teamwork and effective communication to meet our zero-carbon goals.

The BRANZ research project *Future of Work: What do we know and what do we need to know to transition to zero carbon construction?* aims to begin the sector on this journey. The *Future of Work* research project sought to understand:

1. What expertise (knowledge, skills and competencies) are required for the delivery of zero-carbon buildings across their life cycle?
2. Does the building and construction industry have the existing expertise to deliver zero-carbon buildings? If not, what are the barriers to developing and deploying this expertise across industry?
3. How will the expertise needed to deliver zero-carbon buildings be provided?

AIMS OF THE WORKSHOP

A co-creation and design workshop was held by BRANZ on 30 May 2023 alongside a range of participants from across the construction sector:

Architectural Designers New Zealand (ADNZ)	MBIE Building for Climate Change
BCITO	Ministry of Education
BRANZ	New Zealand Certified Builders (NZCB)
ConCOVE Tūhura	Registered Master Builders Association (RMBA)
Construction Sector Accord	Russell Group
Engineering NZ	Tennant Brown Architects
Environmental Communications Ltd	Waihanga Ara Rau
LT McGuinness Ltd	Waka Group Architecture

The workshop had two key aims:

1. To share research insights from the BRANZ research project: Future of Work: what do we know and what do we need to know to transition to zero carbon construction?
2. To help create a roadmap (next steps) for the implementation of zero-carbon skills and competencies (especially for builders, designers and architects) within the construction system and to enable coordination and collaboration to help address this challenge.

The workshop participants were split into four groups and given a series of tasks related to what they thought were some of the challenges for implementing zero-carbon knowledge, skills and competencies within the construction sector. The key themes from this process were collated by the research team at BRANZ and are presented below.

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KEY THEMES

A Clear Vision

A strategy for zero-carbon construction was discussed as a necessary phase for any skill transition. Some of the key criteria for delivering on this successful vision included:

- There is a need to create a New Zealand Standard for zero-carbon buildings, which would remove options and create more repeatability and simplicity in the design and construction process.
- No specific organisations were named, but the participants specified that the construction sector requires an agent of change, a person or organisation (but not a new entity) who has power to help drive the implementation of zero-carbon construction, especially with the how; that is, what guidance is needed to support zero carbon practice within the sector?
- There is a need for a clear pathway forward, such as mechanisms or standards in place to help shape this work. This could be done by integrating clear zero-carbon knowledge, skills and competencies into industry guidelines and standards, including existing New Zealand standards like NZS 3604 Timber-framed buildings.

A Shared Common Language

To deliver this vision, the sector requires a clear common language on zero carbon that can be used interchangeably across all professional occupations within the construction process.

The language must be kept as simple as possible, breaking down terms and concepts so that they are meaningful across professional boundaries and free of jargon. For example, the term "zero-carbon building" was brought up. The term needs to have a simple meaning that is universally understood, so what is an Aotearoa New Zealand definition of a zero-carbon building?

Delivering Skills

Our sector is diverse and requires a multitude of different educational delivery mechanisms if we are to deliver on zero-carbon construction. Some of the key considerations in this delivery are:

- **Builders respect what builders do** – educators need to be educated in New Zealand specific case studies so they can fully engage with on-site construction workers.
- **Develop zero-carbon building curricula** – that ensure those who are teaching the curricula have all the right technical tools, support and education that support practice and skills development.
  It was also noted by the workshop participants that educators are often employers, so it may be useful to have third parties, such as employers, involved in developing the curricula.
- **Learning is life-long** – although younger people (apprentices) are keen and motivated, the workshop participants stressed that experienced tradesmen and designers/architects should also be targeted. We cannot only rely on the individuals who are currently training.
- **Address workforce issues** - The high turnover in trades also needs to be addressed. If we educate a workforce to have more zero-carbon knowledge and capability, then they move on, then knowledge and capability deficits keep recurring. So, how can we keep experienced people within the sector?
- **Identify "rainmakers"** – that is, people who can create change within the construction system. Sector leaders need to seek out employees and educators who can help drive change and the implementation of zero-carbon knowledge, skills and competencies. It was also acknowledged by the workshop participants that it is important that building skills for zero carbon is also socially and commercially compatible.
- **Deliver training programmes in flexible ways** – that recognise that the building and construction industry workforce are busy. It was suggested by the participants that training programmes take visual forms like short videos or interactive CPD (continued professional development) initiatives, so industry professionals can see and hear good practice. Training programmes should also be designed to accommodate different learning styles.

NEXT STEPS

In determining next steps, we discussed what priority actions could be taken by the workshop participants and their respective organisations within the construction sector.

There was agreement that regardless of whatever priority actions could be taken to assist in the implementation of zero-carbon knowledge, skills and competencies within the sector, there needs to be a clear, coordinated strategy that is driven by industry and Government.

There was also agreement that although we are living within a climate and housing crisis which places urgent demands on climate action and an imperative for timely construction, we cannot rush – we must make sure everything is done properly. Priority actions identified by the workshop participants included:

- **Educate the educators** – Participants highlighted the importance of establishing a zero-carbon building curricula. We must ensure that those who are teaching zero carbon skills and competencies within the curriculum have all the right guidance, tools and support. We also noted that educators are often employers – it may be useful to have a third party involved to support zero-carbon skill development in a way that already works within industry, and also provide guidance of where to go to get knowledge, technical insights and support.
- **Best practice case studies needed** – Participants also expressed the need for the creation of best practice case studies from construction companies based in Aotearoa New Zealand. These cases studies could capture the processes of "doing" zero carbon and sustainable building in the sector, and act as best practice examples of how to implement and use zero-carbon skills.
- **Address the high turnover in the sector** – Participants suggested that irrespective of the implementation of zero-carbon knowledge, skills and competencies, the high turnover in the trades and wider industry needs to be addressed. If we educate a workforce to have more zero carbon knowledge and capability, then they move on, then knowledge and capability deficits keep re-occurring. So, how can we keep experienced people within the sector?
- **Influence standardisation of building elements within zero-carbon design** – Participants were clear that if we are to achieve zero-carbon buildings in Aotearoa New Zealand, as a sector we need to have clear, mandated guidelines on specifications of different building materials. Greater standardisation of key zero carbon design features like house size, as well as building products, would support the uptake of zero carbon construction.

At BRANZ, for the next stage of the Future of Work project, we are prioritising skill acceleration for zero-carbon construction. To do this, we will partner with key organisations such as ConCOVE, Waihunga Ara Rau and the Construction Sector Accord to understand how zero-carbon skills are currently embedded within construction professions in order to in to gain insight into how we can better support zero-carbon expertise within the construction sector.

Our goal is to help identify, educate and empower "rainmakers" on zero-carbon construction through developing support structures that will assist in knowledge transfer and mentorship to nurture zero-carbon construction knowledge, skills and competencies. This work will assist the industry in the short term to help develop zero-carbon construction knowledge and technical expertise into industry until a more comprehensive curriculum and strategy is in place for the construction sector.