



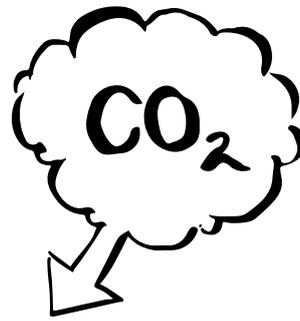
Leading the industry in the transition to a zero-carbon future

The building and construction sector will need new tools and skills to help achieve Aotearoa New Zealand's goal of reducing net emissions of greenhouse gases to zero by 2050. The sector needs to develop and adopt low-carbon practices for how we design, construct and operate our homes, offices and infrastructure. With two decades of climate change research experience, BRANZ is well equipped to play a key role in enabling New Zealand's transition to a zero-carbon built environment.

It has been estimated that the construction sector produces up to one-fifth of the total greenhouse gas emissions in New Zealand. These emissions stem from the materials we use, the construction process, the operation of buildings over their lifetime and their eventual demolition.

New Zealand's Zero Carbon Act provides a framework for our country to work towards the global goal of limiting to 1.5°C above pre-industrial levels. The 2019 legislation brings us in line with the Paris Agreement which New Zealand signed in 2015 along with 196 other nations. The Zero Carbon Act also sets the target to reduce net emissions of greenhouse gases to zero by 2050. This is a huge undertaking and will impact on every aspect of how we live, work and travel.

In December 2020, Aotearoa New Zealand joined 32 nations in declaring a climate emergency. As most houses we build today will be part of the net-zero carbon world after 2050, we must change how we build now. We must also determine how to retrofit our existing housing stock.



The carbon budget project completed by Massey University and BRANZ scientists in 2019 showed typical Kiwi homes need to shrink their carbon footprint by 80% to meet our 2050 net-carbon zero targets. There is no time to lose.

This year, we launched a national programme of research that coordinates the development of solutions needed for our country's successful transition to a carbon-zero environment. We are also expanding the suite of tools and the body of research and information resources that will help industry and consumers make environmentally conscious decisions.

Providing evidence to policy makers

This year, we worked with the Ministry of Business, Innovation and Employment (MBIE) on a public consultation document, reviewing Building Code Clause H1 *Energy efficiency* as part of the *Building for climate change* programme. We provided MBIE with thermal modelling and a cost-benefit analysis that showed what the options would cost the consumer initially and the net savings over the lifetime of a building. Our calculations also indicated annual embodied and operational carbon savings. MBIE's proposal, published in April 2021, considers options to increase the minimum insulation levels for roofs, windows, walls and floors to make buildings more energy efficient. It also proposes new climate zones to better recognise variations in conditions around the country.

We then responded to MBIE's H1 proposal. BRANZ's research and evidence supports MBIE's intent to greatly improve energy efficiency in Aotearoa New Zealand's homes. We took a wider view than MBIE's proposal and challenged the Ministry to take a systems approach. We believe a residential buildings needs to be recognised as a complex system that needs more attention than just wall or ceiling insulation, as was proposed. We also asked the Ministry to consider the implications for the whole building and construction sector rather than just for individual businesses.

We suggested an alternative pathway, supported by our science and evidence. We believe this proposed pathway, while aligned to the approach that MBIE's own *Building for climate change* programme takes, will deliver much better outcomes than the original proposals.

Internationally acclaimed research

The BRANZ carbon budget project calculated the amount of greenhouse gases that a New Zealand house could allowably emit while still moving towards New Zealand's 2050 net-zero carbon goal. The research was presented at the BEYOND 2020 World Sustainable Built Environment Conference in November 2020, where it received the award for best paper.

Read more:

- ▶ **BRANZ CO₂NSTRUCT**
[BRANZ CO₂NSTRUCT](#) provides embodied carbon and energy values for building materials, including concrete, glass, timber and metals, as well as products such as lifts and fittings for bathrooms and kitchens.
- ▶ **LCAQuick**
[LCAQuick](#) helps building practitioners assess the environmental impact of a building over its life cycle.
- ▶ **BRANZ BULLETINS**
[BU651 - Climate change, net-zero carbon and the building industry](#)
[BU596 - An introduction to life cycle assessment BRANZ](#)
- ▶ [Research Now Zero-carbon built environment series](#)
- ▶ **BRANZ's submission to the Building Code update 2021 consultation - 31 May 2021**
[Building Code: Energy efficiency for housing and small buildings](#)
[Building Code: proposal 2 through to 7](#)
- ▶ **BUILD articles:**
[Future brings changes to work](#)
[Preparing for climate change](#)
[Performance roadmap](#)