

Adapting to climate change

The increase of climate-related impacts on our homes, offices, schools and public buildings is a driving force for many new areas of research. From considering the potential relocation of marae vulnerable to flooding and erosion to improving resilience in hillside housing, we are collaborating on fields of research that will make our communities safer.

Building resilience into our built environment

More than 440,000 homes, sheds and sleepouts throughout Aotearoa New Zealand are in known flood risk areas, according to a 2023 report by National Institute of Water and Atmospheric Research (NIWA) | Taihoro Nukurangi and University of Auckland | Waipapa Taumata Rau. It is estimated the replacement value of these buildings would be \$218 billion.⁴

After Cyclone Gabrielle in 2023, people urgently sought advice on how to recover their homes from damage. With extreme weather events and flooding on the rise, BRANZ has initiated a 2-year project to help improve the resilience of our built environment. **Climate resilience – building back better (new)** is the first phase of an ongoing research stream that will create practical guidance to strengthen homes against disasters and severe weather.

This project aims to help ensure people and authorities have the right advice to safeguard homes before disaster hits as well as practical recovery information for when they need it most.

BRANZ researchers will work with Ministry of Business, Innovation and Employment (MBIE) | Hīkina Whakatutuki, NIWA, University of Canterbury | Te Whare Wānanga o Waitaha, University of Waikato | Te Whare Wānanga o Waikato, Fire and Emergency New Zealand (FENZ) | Whakaratonga Iwi, and environmental and engineering consultancy Tonkin + Taylor. Other collaborators include local councils, National Emergency Management Agency | Te Rākau Whakamarumaru, Insurance Council of New Zealand | Te Kāui Inihua o Aotearoa and the New Zealand Claims Resolution Service.

Together, they will create a framework to help people make informed and evidence-based decisions to protect and strengthen new and existing homes. This will include practical guidance on repairs post-event for existing buildings, including material choices, cost-benefit analysis and design considerations. This mahi will support decision making for different audiences with a range of potential benefits – for instance, reducing costs and the associated stress of damaged buildings for homeowners.

It will also provide homeowners, occupiers and building consent authorities with guidance on rebuilding decision-making during disaster recovery. Insurance companies will have evidence-based data around the best options for incentivising higher standards of building repairs for improved resilience.

With the impacts of flooding as the initial focus, the project will also include landslides, increasing temperatures and wildfires. It will consider wind, volcanic and earthquake risk and the combined impact of multiple hazards occurring at once.