

In New Zealand, we are exposed to considerable risk from natural hazards. Our changing climate increases risk to some natural hazards, such as fire and flood. Almost certainly Ministers of this Government will be required to lead responses to significant weather events or other natural disasters. Engineers work hard to support New Zealand's resiliency. Engineers play essential parts across all stages of events – mitigation and preparedness, response, and recovery. This briefing provides a brief overview for Ministers on the management of natural hazard risk and opportunities to strengthen resilience and response.

Natural hazard risk management

Regardless of the natural hazard in question, there are common management processes:

- **Understanding and communicating the risk:** Research is critical to understanding New Zealand's natural hazard risk. We strongly support the work of across a number of organisations (GNS Science, Crown Research Institutes, universities, other tertiary institutes and others) to quantify risk.
- **Changing design and asset management practices to address risk:** To increase New Zealand's resilience we must respond to research and change the way we operate. Guidance and legislation are critical levers in this. Engineering New Zealand supports changes to guidance and legislation to address risk and manage our assets better. One example of this is Engineering New Zealand's current hosting of the National Seismic Risk Working Group¹, who are working to update the Building Code on the seismic hazard risk research released in 2022. Another is the work of the New Zealand Society on Large Dams to provide updated technical guidance that complements Government's newly introduced Building (Dam Safety) Regulations 2022.
- **Preparing for an event:** Continuing to prioritise and strengthen New Zealand's emergency management response system is critical for preparing for the inevitable. We support the Department of the Prime Minister and Cabinet's work to strengthen the resilience of New Zealand's critical infrastructure system.² We support the progression of the new Emergency Management Bill.³ We also support the Ministry of Business, Innovation and Employment's post-disaster building emergency management programme of work. In this work, MBIE selects and trains engineers to respond to events, and continues to provide guidance to these engineers. Based on experience following the Canterbury earthquake sequence, we know this work is critical to saving lives.
- **Responding to events:** In the immediate aftermath of natural hazard events, engineers play a critical role in swiftly assessing the structural integrity of buildings and slopes, ensuring safe evacuation and re-entry, and determining the suitability of properties for occupancy to safeguard public safety. This service is a point of pride for the profession. Engineers have first-hand experience of the devastation caused by events and the need for preparedness. Engineers are also involved in subsequent recovery phase, as individuals and communities work to rebuild their lives. Engineering New Zealand is proud to manage the Expert Engineering Panel for the New Zealand Claims Resolution Service.⁴
- **Building back better:** Following events, we need to build back stronger. We saw this in Christchurch, with world-leading seismic engineering work. We are seeing this in Auckland and on the East Coast, as communities rebuild after this year's extreme weather events. Often, hard decisions need to be made. This is where engineers need to be involved in supporting government. Alliances are powerful tools to reinstate infrastructure following events, as has been evidenced by the North Canterbury Transport Infrastructure Recovery Alliance and recent alliances formed following Cyclone Gabrielle's impact on the East Coast.

Earthquake prone buildings

We know that this Government is already dealing with subpart 6A (Special provisions for earthquake prone buildings) of the Building Act 2004. In Wellington alone, there are approximately 600 buildings that have been identified as earthquake prone and are due for resolution between now and 2035. Engineers are at the forefront of work to strengthen these buildings and understand the complexity of the challenges, as well as opportunities to address these challenges. Leadership is needed as the way forward is uncertain and fraught. We welcome an expediated review of subpart 6A and are available to support this work.

Next steps

Engineers are central to New Zealand's natural hazard risk management systems. We welcome an opportunity to discuss the following with Ministers:

1. **New Zealand's emergency management system:** Our members have first-hand experience following events. We can provide insights into work done on the ground and opportunities to better prepare for future events.
2. **Ongoing work to strengthen the Building Act and Code:** As highlighted above, Engineering New Zealand actively supports work to strengthen the Building Act and Building Code. We work with key technical groups, whose expertise shapes this work, namely the New Zealand Society for Earthquake Engineering, the Structural Engineering Society of New Zealand, New Zealand Society on Large Dams, the New Zealand Geotechnical Society and the Society of Fire Protection Engineers.
3. **Earthquake prone buildings:** As the Government works through the impacts of subpart 6A of the Building Act following its introduction in 2016, we are available to support reviews and planning for the future.

1 Ministry of Business, Innovation and Employment. 2023. www.building.govt.nz/getting-started/seismic-work-programme

2 Engineering New Zealand's submission to DPMC on Critical Infrastructure. July 2023. www.engineeringnz.org/documents/1678/Engineering_New_Zealand_Submission_DPMC_Critical_Infrastructure_JULY_2023.pdf

3 Engineering New Zealand's submission to Governance and Administration Committee. November 2023. www.engineeringnz.org/documents/1803/EngineeringNewZealand_Submission_Emergency_Management_Bill_2023.pdf

4 Engineering New Zealand – New Zealand Claims Resolution Service. 2023. www.engineeringnz.org/public-tools/new-zealand-claims-resolution-service