



23 August 2012

Background

The Ministry of Business, Innovation and Employment Building and Housing is leading a significant programme of work to ensure the lessons learnt from the Canterbury Earthquakes Royal Commission of Inquiry are applied for the benefit of the Christchurch rebuild, and New Zealand as a whole. These lessons will also be applied internationally.

MBIE Building and Housing has assessed the Royal Commission's Volumes 1 to 3 recommendations and found alignment with the recommendations made by the former Department of Building and Housing's Expert Panel on the Structural Performance of Christchurch CBD Buildings in the 22 February 2011 aftershock, together with the initial recommendations made by the Royal Commission Interim Report released in October 2011.

The three-year work programme developed to address both sets of recommendations will be reviewed to determine what may need to be reprioritised, in light of the Royal Commission's latest recommendations.

Overall, the latest recommendations largely refer to issues that MBIE Building and Housing has been aware of or has already begun work on. More detailed work will be done to determine if any new or additional areas or reprioritisation is needed.

Questions and answers

1. What do Volumes 1 – 3 of the Royal Commission report include:

Volumes 1 – 3 of the Royal Commission's final report include findings and recommendations about:

- Volume 1 - the seismicity of New Zealand (and Canterbury in particular), the nature of the soils of Canterbury and associated considerations for building foundations, and seismic building design concepts
- Volume 2 - the representative sample of buildings the Royal Commission has studied (excluding the CTV building), and resulting findings for the construction of new buildings
- Volume 3 - alternative and new technologies that can assist building performance in earthquakes.

2. What's generally covered by the Royal Commission's recommendations?

There are 70 recommendations included in Volumes 1 to 3 of the report, which broadly range from seismicity issues, recommendations to change Concrete Structures, Structural Steel and Earthquake Actions Standards, through providing guidance or training to structural engineers, to general recommendations on approaches and practices of engineers in the structural and geotechnical fields.

Many of the recommendations are very detailed and provide specific advice on potential changes they would like to see. Others are more general. Some relate to just the Canterbury area in terms of content, but many could be implemented on a national basis.

Together, the recommendations largely focus on issues that will require MBIE Building and Housing to develop and issue specific guidance material for the building and construction sector, along with potential changes to the Building Act and changes to the New Zealand Building Code.

3. What are the key themes and issues raised?

- Areas of work already included in the existing MBIE Building and Housing three-year work programme, such as:
 - Establishing mechanisms to share geotechnical information, particularly in Canterbury.
 - Improving geotechnical information, by having geotechnical site reports and foundation design details kept on property files.
 - Developing detailed guidance and design requirements for limits on axial load levels, strength and ductility of walls and columns, the seismic performance of reinforced concrete structures eg shear walls.
 - Having buildings designed and considered by people who understand how the building and its ancillary structures will behave during an earthquake.
- Areas of work already completed by MBIE Building and Housing, include:
 - Issuing a practice advisory to building owners in flexible frame structures to check stairs are designed to accommodate appropriate levels of earthquake displacement.
 - Issuing guidance to engineers and building owners in Christchurch and nationally about assessing building safety in earthquakes.
 - Establishing a geotechnical database to record geotechnical investigations in Canterbury, including the results of the detailed investigations made in the Christchurch CBD.
 - Carrying out a preliminary review of Territorial Authority records and drawings to identify buildings in New Zealand with three storeys or more that were granted building permits between 1982 and 1995 that have non-ductile reinforced concrete 'gravity' columns.
- Areas of work that will be completed in the short to medium term (12 – 18 months) by MBIE Building and Housing, as they require more consideration (due to their nature or complexity):
 - Proposed changes to existing guidance documentation and developing new guidance documentation for the building and construction sector in areas such as:
 - seismic hazard factors (seismic demand) on buildings and structures in Canterbury
 - geotechnical investigation and foundation design requirements
 - structural element detailing and displacement limits

- damage assessment and repair methods
- Bringing key building and construction sector stakeholders and experts together to revise guidance.
- Areas of work that will be completed in the long term by MBIE Building and Housing (24 months and beyond) - as they will have significant implementation or practicality impact:
 - Proposed changes to the New Zealand Building Code.
 - A review of Building Code Verification Methods for Structural Safety, including all the relevant New Zealand Standards (design actions, concrete design, steel design, timber design).

4. What will it cost to implement the recommendations and who will pay?

Implementing the Royal Commission’s recommendations has implications for MBIE Building and Housing staff resources. MBIE Building and Housing will work closely with key building and construction stakeholders (including other government agencies, industry bodies and tertiary educators) to achieve the changes signalled. Further work is needed to “unpack” the consequences of the Royal Commission’s recommendations for the Government and building and construction stakeholders.

5. Who needs to help implement the Royal Commission recommendations?

MBIE Building and Housing will work with these key stakeholders:

Building and construction sector	Government
<ul style="list-style-type: none"> • Institution of Professional Engineers New Zealand • Structural Engineering Society New Zealand • New Zealand Society for Earthquake Engineering • New Zealand Geotechnical Society • Timber Design Society • Cement & Concrete Association of New Zealand • Heavy Engineering Research Association • Steel Construction New Zealand • Building Research Association of New Zealand • Property Council of New Zealand • New Zealand Construction Industry Council • New Zealand Institute of Architects 	<ul style="list-style-type: none"> • Department of Internal Affairs (Ministry of Civil Defence and Emergency Management) • CERA • Earthquake Commission • Standards NZ • Local Government New Zealand • Christchurch City Council • Waimakariri District Council • Selwyn District Council • GNS Science • New Zealand Forest Research Institute Limited • Relevant tertiary institutions