

# Realities of earthquake strengthening

Strengthening earthquake-prone buildings is currently a hot topic, with changes proposed to speed up the process. We look at what's been suggested and where the cost will fall.



**THE CANTERBURY** earthquakes of 4 September 2010 and 22 February 2011 gave all New Zealanders a wake-up call. It reminded us of our vulnerability to seismic activity and the harsh realities of large earthquakes – loss of life and widespread destruction.

In December 2012, the Canterbury Earthquakes Royal Commission released its report on the earthquakes.

Aside from the loss of 133 lives caused by the failure of two, now notorious buildings – the CTV and Pyne Gould Corporation buildings – the primary cause of loss of life was unreinforced masonry.

Unreinforced masonry buildings caused 41 deaths. Thirty-five were people outside unreinforced masonry buildings and were due to wall and façade failure. Four died inside unreinforced masonry buildings.

## **Current system is failing**

In December 2012, the Ministry of Business, Innovation and Employment – Building and Housing (MBIE) set out its proposals for addressing the hazards posed by New Zealand's earthquake-prone building stock.

MBIE proposed a broad overall review of the current system that relies on local authorities to develop policies for dealing with earthquake-prone buildings under the Building Act 2004. It says the current system is failing to identify and deal with earthquake-prone buildings in a timely and cost-effective way. There is too much variance between local bodies, insufficient information and a lack of overall guidance to local authorities.

## **What's on the table**

There are several key proposals:

- Local authorities will be required to assess all non-residential and multi-unit, multi-storey buildings within 5 years of new legislation taking effect. Assessments would be provided to building owners, and there will be mechanisms for them to challenge assessments.
- The national earthquake-prone threshold will remain at 33% of new building standard.
- All strengthening will take place within a 15-year period – 5 years for the assessment process referred to above and 10 years for the work to be carried out following assessment.
- Once a building is assessed as earthquake-prone, the building owner will need to submit a plan for strengthening, or demolition, within 12 months.

MBIE also identified buildings to be targeted first – for example, buildings on transport routes that are critical in an emergency. Some buildings may be exempted or given a longer period of time to strengthen including buildings in low-risk areas. The public consultation process on the proposals closed on 8 March 2013.

Issues already circulating in respect of earthquake strengthening, include the cost, who will pay and who will do the work.

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### ***What's the likely cost?***

MBIE estimates a budget of \$1.7 billion over the 15-year period. However, this is based on estimates of between 15,000 and 25,000 earthquake-prone buildings, and many local authorities have no accurate numbers for their districts.

### ***Who pays ... and can they afford it?***

Building owners will have to pay for earthquake strengthening. However, many owners may not be able to afford work that does not provide any additional economic return and may opt for demolition.

The loss of heritage buildings can be an emotive issue for the public, as illustrated by objections to the ChristChurch Cathedral demolition. However, many heritage buildings, such as halls, churches and memorials, are owned by non-profit and community groups that may not have the resources to carry out strengthening work.

Earthquake strengthening may also change the character of many parts of New Zealand. There are large stocks of older unreinforced masonry buildings in smaller cities and towns where the lower commercial value of the buildings may make it particularly difficult to justify the cost of strengthening work.

Local authorities also face increased costs in carrying out the assessment work and associated monitoring and enforcement.

### ***Tenants may be charged***

Some tenants may have to make a contribution to strengthening work under the terms of their lease. The improvements rent clause in the Auckland District Law Society 2008(2) Deed of Lease provides that, where a landlord is required by any legislation or requirement to spend money improving or altering a property, the landlord can charge an amount additional to the rent up to the next review date.

The additional amount is recorded as a percentage in the lease and is likely to cover substantial and permanent earthquake strengthening work. This improvements rent clause has been removed from the 2012 version of the ADLS lease, which contains other provisions relating to earthquake strengthening work.

### ***Weighing cost and risk***

These are just a few of the issues already identified by MBIE and other commentators. One interesting statistic in the MBIE consultation paper is the low risk of dying in an earthquake - around 1 in a million - compared with about 1 in 10,000 in a road accident.

That said, the Christchurch earthquakes have starkly illustrated the huge social and economic cost of a big seismic event. The government now seeks to strike a balance between reducing this risk against the social and economic cost of future-proofing. ◀