IPENZ
ENGINEERS NEW ZEALAND

ACENZ

INFORMATION SHEET FOR HOMEOWNERS

TO ACCOMPANY ENGINEER'S REPORTS AND DESIGNS

What to expect when an engineer is working with you or your insurer to repair and rebuild houses affected by the Canterbury Earthquakes

The 2010 Canterbury earthquake and subsequent aftershocks caused significant damage to people's homes as the result of ground shaking and land damage, including from liquefaction, landslip and rock fall.

This information sheet helps home owners understand the role and responsibilities of engineers involved in:

- Assessing the impact of damage to buildings
- Developing repair and rebuild solutions
- Advising on the associated risks.

Professional engineering input might be needed for various parts of the investigation, assessment, design, and specification processes, depending on the level of damage and the foundation technical category of your home. This input might relate to only some elements of the house, for example the foundations.

Making decisions about repairs and rebuilds

In addition to complying with the Building Code and other relevant regulations, decisions about the extent of repairs or reconstruction will be influenced by a home owner's insurance policy and decisions made with the insurance company. Any technical guidance given by a professional engineer is given as input to those decisions.

The Ministry of Business, Innovation and Employment (MBIE) has produced guidance on repairing and rebuilding houses affected by the Canterbury earthquakes that provides a comprehensive framework for engineers around the three technical categories of land, TC1, TC2 and TC3. You can access a copy of the Guidance at:

www.dbh.govt.nz/guidance-on-repairs-after-earthquake

The guidance provides information and criteria to help engineers, building control officials and insurance assessors determine if foundations and other building elements can be repaired or replaced. It aims to provide appropriate repair and reconstruction solutions that will comply with the Building Act. In addition, it provides a basis for Building Consent Authorities to accept the solutions submitted by engineers and to issue building consents.

For houses that need significant repairs or new foundations on property categorised as Technical Category 3 (TC3), MBIE guidance calls for the use of a Chartered Professional Engineer (CPEng) competent in geotechnical engineering to undertake a geotechnical assessment. If a rebuild is required, you will also need the geotechnical engineer to recommend what foundation type is appropriate for the property.

Future Performance Expectations

An engineer, in applying the MBIE guidance and providing advice to the home-owner, will be required to use their engineering judgement. This is particularly true for those areas categorised as TC3. Houses in this category may be on land with a higher risk of liquefying than other category areas, and this land's performance in a future seismic event is therefore more difficult to predict.

In the event of a significant earthquake or aftershock, damage to repaired or rebuilt buildings may occur even though the design has met regulatory requirements. No structure is totally earthquake proof.

For foundation rebuilds and new houses, the MBIE guidance generally provides for improved robustness, while being mindful of costs. It follows the principles of "readily repairable", which means that should there be damage in a future aftershock or earthquake, the required repairs should be able to be completed with a lesser degree of disruption to residents.

The MBIE guidance, coupled with advice from a professional engineer, will assist you and your insurer to identify and assess future risks to the property.

Engineer's Obligations

Professional engineers must follow a code of ethical conduct that includes requirements to:

- Take reasonable steps to safeguard the health and safety of people
- Act with honesty, objectivity, and integrity
- Practice only within their competence, and not misrepresent their competence
- Inform others of any significant consequences of not following the engineer's professional advice

Engineers are prepared to discuss with home owners, via their insurers where applicable, the design solution options available, and the benefits and risks associated with each one. The engineer might recommend a particular option, but ultimately it is the insurer and/or the home owner who must weigh up the risks and costs to select the option that best meets their needs.

Providing engineering advice, particularly following an event like the Canterbury earthquakes, carries with it an element of uncertainty as engineered designs are based on various assumptions. Engineers provide professional advice based on the best information available at the time. For houses in the Greater Christchurch area, this includes the repair and rebuild guidance published by MBIE. However there will be uncertainties that remain, and home owners and insurers will want to understand these and their associated risks. Professional engineers can help explain these.

If you wish to speak to the engineer advising on the options available for your home ask your insurer to put you in touch.

The Canterbury earthquakes have been a stark reminder of the effects of earthquakes on structures, land and infrastructure. Recovering the safety and function of earthquake affected or earthquake-prone buildings requires a regulatory framework that is well supported by the engineer's and architect's professional advice. New Zealand's professional engineering community is committed to supporting the Canterbury rebuild.

For more information about how to engage and work with an engineer to repair or rebuild your home contact the Institution of Professional Engineers New Zealand (IPENZ) or Association of Consulting Engineers New Zealand (ACENZ).

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