

CERA Announcement

28 October 2011

New foundation design categories for Canterbury

Three new categories for residential foundation design have been developed and will be required for repairing and rebuilding homes in Canterbury following the earthquakes of 2010 and 2011, it was announced today.

Canterbury Earthquake Recovery Minister Gerry Brownlee said the foundation designs apply to the flat land in the residential green zone in Canterbury, which has now been divided by engineering experts into three new technical categories (TC1, TC2 and TC3).

The categories, and the areas they apply to, are based on ground conditions, including the susceptibility to liquefaction, and the extent of land and building damage caused by the earthquakes.

"Following the damaging earthquakes in Canterbury, extensive scientific and geotechnical investigation and research has been undertaken by a range of experts to identify land issues and ways to reduce the risk of injury to people and damage to homes in any future earthquakes," Mr Brownlee said.

"This is part of ongoing work to improve building standards in New Zealand and the Government's coordinated response to long-term recovery in Canterbury. The information released today will allow homeowners with damaged properties in the residential green zone to get on with the process of repairing or rebuilding their homes with greater confidence," he said.

The three new technical categories are part of the Department of Building and Housing (DBH)'s updated guidance for repairing or rebuilding houses in Canterbury following the earthquakes.

DBH first issued guidance for repairing or rebuilding homes in land damaged areas of Canterbury in December 2010 following the 4 September 2010 earthquake. This guidance is currently being updated following two more damaging earthquakes in Canterbury on 22 February and 13 June 2011.

Building and Construction Minister Maurice Williamson said the three technical categories relate to the performance of flat land in the earthquakes and its susceptibility to liquefaction in any future significant earthquakes.

A map has been released today with the three different technical categories of land colour coded on it - TC1 is grey, TC2 is yellow, and TC3 is blue.

"The good news is homeowners whose property is in TC1 or TC2 with foundations that require repairing or rebuilding, they can get on with the process with confidence. The only further site-specific geotechnical investigation required is the simple shallow soil strength testing which is standard for all homes. A range of standard solutions are available for the repair and rebuilding of foundations in these areas.

"Property owners in TC3 who need to carry out repair or rebuilding of foundations can do so, but they will require site-specific geotechnical investigation and specific engineering foundation design," Mr Williamson said.

- Technical Category 1 (TC1)

Properties in TC1 (grey) are unlikely to experience significant land damage from liquefaction in future earthquakes. Standard concrete slabs and timber floors are acceptable for foundation repairs or rebuilds.

- Technical Category 2 (TC2)

For properties in TC2 (yellow), minor to moderate land damage from liquefaction is possible in future significant earthquakes. Lightweight construction, for example corrugated iron not tiled roofs, or enhanced foundations such as more robust floor slabs that better tie the structure together will be required for foundation repairs or rebuilds.

- Technical Category 3 (TC3)

For properties in TC3 (blue), moderate to significant land damage from liquefaction is possible in future significant earthquakes. Foundation solutions should be based on site-specific geotechnical investigation and specific engineering foundation design where foundation repairs or rebuilds are needed. This might involve deep pile solutions.

For properties not in these categories, normal consenting procedures will apply. This applies to non-residential properties in urban areas, properties in rural areas or land outside the areas which have been mapped for land damage and properties in the green zones on the Port Hills and Banks Peninsula.

DBH is currently undertaking a trial of foundation systems in Christchurch to test the feasibility and costs of other foundation solutions for properties in TC3 that need to have their foundations repaired or rebuilt due to earthquake damage.

Some of the techniques proposed in the trial have been used in roading but they have not previously been used in residential construction. These techniques have the potential to offer cost effective alternatives to deep pile solutions. The trial is expected to be completed, and peer reviewed internationally with the results released by mid-December 2011. Updated guidance for repairing or rebuilding houses and design guidance in Technical Category 3 is then expected to be issued by the end of February 2012.

A summary of the DBH guidance for repairing or rebuilding houses following the earthquakes in TC1 and TC2 categories is available on www.dbh.govt.nz/canterbury-earthquake-residential-building

Homeowners can find out what technical category their property is in by visiting the CERA land information website: www.landcheck.org.nz. The new technical categories only apply to residential properties in the green zone with foundations that are required to be repaired or rebuilt due to earthquake damage or for future major renovations or new builds.

DBH is one of a number of government departments working with the Canterbury Earthquake Recovery Authority (CERA) on rebuilding greater Christchurch and its surrounds, and supporting the welfare of its residents. For more information visit www.cera.govt.nz