Retro-fitting houses might save lives

September 9 2010

Retro-fitting existing house foundations to resist earthquakes could save lives and reduce the extent of rebuilding required after a large quake, Victoria University, New Zealand, researchers say.

Dr Geoff Thomas from Victoria's School of Architecture is leading a team that is investigating cost-effective, practical systems of retro-fitting houses, particularly for foundations with difficult access.

"Previous research by Masters student Jamie Irvine, sponsored by the Earthquake Commission, showed that more than half of domestic dwellings randomly sampled in Wellington did not meet current code requirements and their ability to resist a major earthquake is highly questionable," says Dr Thomas.

"Houses moved on their foundations during the Edgecumbe and recent Canterbury earthquake, but the potential consequences are far more severe for houses on sloping sites, such as many in Wellington."

Houses found to be especially at risk were those with fully piled foundations built before 1978 and those with damp, poorly ventilated sub-floors.

"After a house is constructed it is very difficult, if not impossible, to install some types of foundation bracing and most standard connection details cannot be used due to space and access constraints or material incompatibilities. Our project will investigate alternative systems."

The project involves designing and building alternative bracing and connections, with testing in the structures laboratory at BRANZ.

"We aim to find a solution that is cheap and easy to install, making it accessible to homeowners."

Provided by Victoria University