

# Earthquake Testing of Anchor Failures on Precast Concrete Panels

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# Recent Progress

- This week was mainly focused on researching research the retrofitting of the precast concrete panels used in the buildings prior to the Canterbury earthquake.
- Findings show that the connection failures were present in the vertical joints of the panels (panel-to-panel) as well as in the panel-to-column and panel-to-roof bolted connections
- In summary, these unexpected failures were results of the lack of edge distance, tensile capacity, and anchorage of the panels.
- Another project, specifically testing the anchorage of the existing buildings in Whanganui was also proposed this week and an introductory meeting took place on Friday morning.
- Research on this subject was also done this week, shown in more detail on the next slide

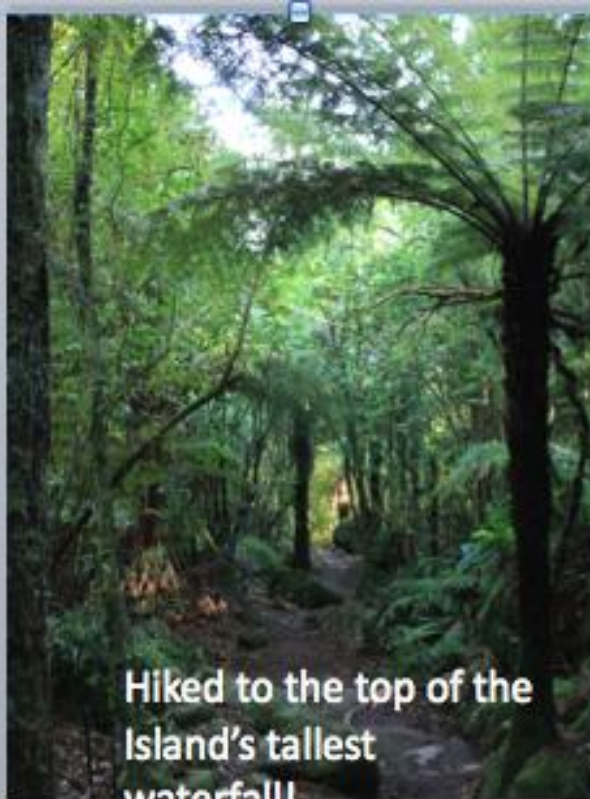
# Extracted Wall-Diaphragm Anchors From Christchurch Unreinforced Masonry Buildings

- The findings from this new project will be beneficial in estimating the capacity of wall-diaphragm anchorage plate connections in relation to expected seismic activity, and ultimately if supplementary connections are required.
- There are 3 types of anchorage loading failures that will be studied in this project:
  - Anchorage “punching” into the wall, mostly influenced by the cross-sectional area of the anchors surface and the mortar located in the joints
  - Failure of timber joists to which the anchor connection is secured
  - The loosening of existing anchors post-earthquake

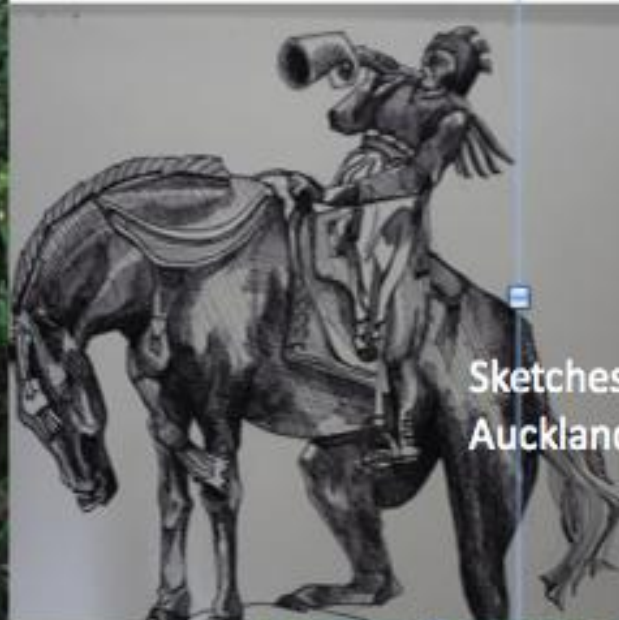
# Plans for the future

- All of next week will be spent in Whanganui, as we will be assisting a pair of PhD students in testing an old building that remains from the earthquake.
- We will be departing Sunday to drive about 8 hours to the town where we will be conducting on-site tests.
- The tests will mainly be implementing anchors into the walls of the existing buildings, then loading these anchors to reenact the earthquake's effect on the structure.
- Since these buildings are set to be demolished soon, we will be free to test these existing structures to their ultimate failure.

# CULTURE!



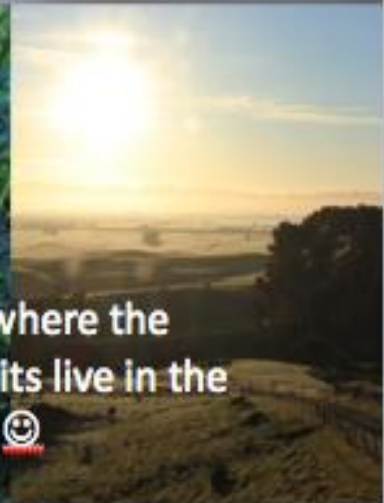
Hiked to the top of the Island's tallest waterfall!



Sketches from the Auckland Museum



Took a nice morning drive on the other side of the road



Saw where the Hobbits live in the Shire 😊