

Seismic Testing of Anchor Failures on Unreinforced Masonry Buildings

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Recent Progress

- This week our research team focused on finalizing the designs of the testing rig we will be constructing next week. The following problems were solved:
 - Thickness of loading plate under a point load of 100KN with dimensions of 190mmx305mm
 - Minimum number of bolts needed to resist the 33KN/m moment at the end of the rig
 - Shear capacity of the weld and bolt connections
 - Section modulus of the square hollow tubing (the main body of the testing device)
 - The minimum number of screws and placement of screws needed to attach the device to the timber joist (parallel to the grain) without ripping out the joist from the diaphragm
- The data from bed joint shear test in Whangagnui was also categorized and analyzed according to the NZSEE standards
- The data from the mortar tests in Whanganui was organized and the capacity was then calculated from the h/l ratio
- The extent of “punching” failure of a 200mm end plate was then predicted for the walls of Whanganui based on these results

Future Goals

- From the data collected and analyzed this past week, we are now capable of predicting the failure modes of the existing anchors in Whanganui as well as the resulting damage to the building upon extracting these anchors.
- Goals for next week are to construct the testing device in the machine shop using the calculated measurements and materials
- This device is set to be tested in Whanganui with the next 2 weeks.



CULTURE!

- This week I took a ferry to an uninhabited island and climbed the largest volcano in the Auckland volcanic field, Rangitoto.
- Farmers market in Britomart!
- Saw Kimbra in concert at the Vector Arena!
- Tried Pavlova for the first time
- Watched the Kiwis win gold in the Olympics! (secretly rooting for the USA)



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