

17116 - Seismic assessment of corroded reinforced concrete buildings

Assessing the seismic capacity of existing reinforced concrete (RC) buildings is a complex task, and this challenge is compounded when the structure has deteriorated due to corrosion of the reinforcement. Currently there is a lack of industry guidance on the residual seismic capacity of corroded RC members or the effect of corroded members on the overall seismic response of the building. From discussions with industry, this issue is prevalent in many older buildings, and remediation techniques being used have had limited testing to validate their effectiveness in reinstating seismic performance to the member, which could result in asset owners assuming a significant cost that has limited benefits.

This proposed project will investigate the effect of corrosion on the seismic performance of New Zealand's reinforced concrete building stock. As a preliminary study, this project will collect information on previous work regarding the assessment of residual load and deformation capacity of corroded RC members and the performance of different remediation techniques. Several case study buildings will be used to determine the effect of different corrosion mechanisms and severities on the residual seismic capacity of New Zealand RC buildings. Findings from this project will inform the need for future study on this topic.