

BUILD BACK SMARTER: CASE STUDIES OF HOUSE PERFORMANCE RETROFITS AT THE TIME OF EARTHQUAKE REPAIRS

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Beacon Pathway has been researching ways in which improved house performance upgrade measures can be included alongside repairs of residential houses damaged during the Canterbury earthquakes. Because of the nature of residential renovation behaviors, combined with the large number of houses requiring repair (as many as 100,000), the rebuild represents the most significant opportunity to improve the performance of residential dwellings in Christchurch for perhaps the next 20-30 years.

The kind of damage sustained in the earthquakes – broken chimneys, damaged roofs, ceilings or walls, broken or poorly fitting windows and frames, cracked or damaged floors or foundations – is exactly the time to consider improving the performance of homes. In particular improvements such as installing insulation (particularly in the walls), clean heating, and efficient hot water systems would ideally be undertaken alongside earthquake repairs. Getting earthquake repairs underway is a complex process and, even though improving home performance is commonsense, there are considerable barriers to including these improvements.

In order to trial undertaking house performance upgrades at the time of repair, and to develop and demonstrate a robust approach to including home performance upgrades into “standard” repairs, six case study houses were looked at. A range of performance improvements were undertaken in the case studies including: ceiling, wall and underfloor insulation; double glazing retrofits; hot water system upgrades; heating upgrades; water efficiency measures; and ventilation improvements.

The process of implementing the upgrades in the case studies was evaluated and this has informed the design of a city wide Build Back Smarter Service to upscale the process to the wider residential rebuild. The paper will outline the methodology for the project and the findings from the demonstration case studies.

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