

Demolition planning lessons from Statistics House

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Engineers, building consent authorities (BCAs) and contractors involved in the demolition of buildings with precast concrete floors should be aware of the learnings from the demolition of the Statistics House building in Wellington.

The Statistics House building in Wellington suffered partial floor collapse during the 2016 Kaikōura Earthquake. The Ministry of Business, Innovation & Employment (MBIE) commissioned an expert panel to investigate the cause of the collapse to decide whether changes to the Building Code system were needed. After the investigation was completed the building was demolished in December 2017 and January 2018.

During demolition new information was discovered relating to the partial floor collapse, so in March 2018 MBIE reconvened the expert panel to review this information. During this review the demolition contractors reported that it had been relatively simple to demolish Statistics House. This was because the building had precast concrete floor units, and once one floor unit was dropped onto the floors below they collapsed progressively as a sequence. The contractors noted that this collapse was different to what is typically observed in the demolition of buildings with cast-in-situ floor slabs.

The Statistics House demolition highlighted the importance of having an appropriate demolition plan and methodology, and having this reviewed by a structural engineer to ensure the safety of those involved. The demolition highlighted the potential for precast concrete floor units to collapse under impact loading and cause multiple floor level collapse. Demolition methodologies need to take this possibility into account so that demolition teams are prepared for this kind of floor collapse.

Building consents are required for the demolition of buildings above three floors. When assessing building consent applications for the demolition of buildings with precast concrete floors, BCAs should be aware that the potential for progressive floor collapse must be considered by the demolition contractor and structural engineer as they develop the demolition methodology.

[Read Statistics House investigation final addendum \(https://www.mbie.govt.nz/building-and-energy/building/investigations-and-reviews-for-safer-buildings/statistics-house-investigation/2018-statistics-house-investigation-addendum-report/\)](https://www.mbie.govt.nz/building-and-energy/building/investigations-and-reviews-for-safer-buildings/statistics-house-investigation/2018-statistics-house-investigation-addendum-report/).