



Kaikoura Earthquake Technical Clearinghouse

Meeting #5 – Summary

Held at the Royal Society of New Zealand, Wellington, 17 January 2017

Summary Notes by WDC & PRW

Purpose of Meeting

The purpose of this, the fifth, Kaikoura Earthquake Technical Clearinghouse meeting was to provide an update on the Wellington City Council “**Targeted Assessment Programme**” for existing multi-storey buildings. The session presented a briefing on Additional Guidance for Targeted Damage Evaluation of Precast Concrete Floor Systems and Cladding Panels.

Material presented included:

- Introduction to the Wellington Resilience Strategy
- Recap on the WCC Targeted Assessment Programme.
- Update on Targeted Damage Evaluation Guidance and Reporting.
- Briefing on Additional Guidance on Precast Concrete Floor Systems and Cladding Panels.
- Participant Questions and Feedback.
- NZ Fire Service comments on earthquake damage to fire separations.

The PowerPoint presentation material can be downloaded from [HERE](#) as a pdf.

The Guidance documents referred to are available at - http://www.sesoc.org.nz/public_resources/

The Clearinghouse meeting was organised by the New Zealand Society for Earthquake Engineering (NZSEE), the Structural Engineering Society (SESOC) and the New Zealand Geotechnical Society (NZGS) with funding support from WCC. The approximately 95 attendees were mostly structural consulting engineers, together with staff from WCC and government agencies, including MBIE and EQC.

The meeting was run under Chatham House Rules.

Key Points from the Presentations and Discussion

- **Opening**

Peter Smith (President NZSEE) introduced the Wellington City Council programme, and the presenters. He also noted appreciation for the support from EQC and MBIE.
- **Wellington City Resilient Strategy: Overview**

Mike Mendonca (Wellington City Council Recovery Manager and Chief Resilience Officer) set the scene for Wellington’s 2017 Resilient Strategy. This initiative is part of the Rockefeller 100 Resilient Cities programme.

Wellington is facing a series of resilience challenges. We know the earth moves here, we know the sea is rising and that our society is transforming. As Wellington changes, we want everyone here to survive and thrive. To achieve this, the Wellington Resilience Strategy has three goals:

- People are connected, empowered and feel part of a community
 - Decision making at all levels is integrated and informed by knowledge about Wellington's shocks and stresses
 - Our homes, natural and built environment are healthy and robust
- In February 2017 Wellington City Council will consider the Strategy, including 30 specific resilience projects, with a view to formal release of the Strategy in the middle of March. Many of these projects relate to seismic activity and our built environment.

The Council is encouraging homeowners to upgrade their buildings, with particular emphasis on chimneys and subfloor structures. This increase in resilience is also of interest to EQC, insurers, and banks.

The Council is working on various initiatives to enhance the resilience of infrastructure such as:

- Electricity supply.
- Potable water and waste water.
- Transport (road, rail and ports).
- Telecommunications (a complex system to be better understood).

The Council is in the process of reviewing 30 projects to be implemented over the next 3-years, aimed at toughening infrastructure capability to resist hazardous events.

Wellington City Council is very appreciative of the efforts engineers are putting into the current assessment and reporting on targeted buildings.

- **Targeted Assessment Programme**

Derek Baxter ('Bax', Built Environment Lead, Earthquake Recovery, WCC) provided an overview of the WCC programme on Targeted Damage Evaluation of buildings.

Refer PowerPoint presentation pages:

- Context
- Purpose
- Summary of Process
- Additional Information

Questions from the floor asked:

- *Would there be an extension of the building review timetable (it is very tight)?*

WCC will review on a case-by-case basis on application from the owner. Only if the building owner has made a timely and genuine effort to engage an

engineer to carry out the assessment. . What is an acceptable timeframe from engagement to reporting has yet to be tested.

In discussion with other Territorial Authorities.

- *What is the process beyond the assessment report ?*

Will depend on the findings of the assessment reporting and the magnitude of any issues identified.

- *Is there likely to be more than 80-buildings identified in the programme ?*

Possibly. As the inspections are carried out knowledge of damage type and extent is increasing. WCC will be targeting Hollowcore floor systems in particular.

- **Update on Targeted Damage Evaluation Guidance**

Dave Brunson (Wellington Engineering Leadership Group) provided an update of the Targeted Damage Evaluation Guidelines and briefing on the Additional Guidance for Precast Floors and occupancy considerations.

Refer PowerPoint presentation pages:

- Update on Targeted Damage Evaluation Guidance.
- Recap: Reporting Format and Structure.
- Key Changes to Standardised Summary Table Spreadsheet.
- Scope of Additional Technical Guidance.
- Recap: Critical Damage States.
- Progressive Inquiry.
- Building Configuration Issues
- Example 'Hotspots'
- Initial Investigation
(information previously provided on cracking in Dycore)

- **Precast Panels**

Paul Campbell (Wellington Engineering Leadership Group) provided a briefing on the Additional Guidance for Precast Panels.

Refer PowerPoint presentation pages:

- Precast Panels.
- Plan Review.
- External Viewing of Façade.
- Identifying Hotspots for Intrusive Investigation.
- Intrusive Investigation.
- Progressive Inquiry.
- Best Practice Information.

- **Comments and Questions from the floor:**

- The effect of the building seismic displacement on stairs is important to check and report.
- The effect of seismic displacement on precast cladding panels is difficult to identify. Consider the effect of further seismic displacement, particularly for buildings constructed in the 1980s.
- In the past, over tightening of bolts that fix precast panels has been shown to cause failure of the bolt.
- Inspection has also identified bolts that have failed in shear at some time prior to the Kaikoura earthquake. May have failed in the 2013 Seddon Earthquake.
- Reoccupation may be tagged to the requirement for future remedial works.
- Cracking of a structural wall has occurred behind stone cladding panels without reflecting through the cladding panels.
- *The question on an extension of the building review timetable was again raised and discussed.*

The answer was as previously noted under Targeted Assessment Programme questions. It was noted that the time to obtain access to a building for the inspections can cause a significant delay.

- *Two of the documents in the WCC Targeted Assessment Programme have requirements that are in conflict. Are the documents to be amended or will one document take priority over the other?*

If required, direction will be provided in due course.

- *The focus is generally on Dycore. Are there issues identified with Interspan or Stahlton Rib floor system?*

The same or similar issues are to be looked for, but Rib floor system appears to be less of a problem.

- **Fire Separation: Dislodgement of Fire Pillows**

Dave Brunson noted that the NZ Fire Service was concerned that fire pillows may have become dislodged due to seismic displacement of the building, and that fire separation would be compromised.

Please contact Bruce Cole (0274362766) or Peter Fox (0274356041) of the NZ Fire Service if you wish to discuss any aspect of damage to fire separations.

Refer PowerPoint presentation pages:

- Fire Separation – Dislodgement of Fire Pillows
With four photographs of pillow dislodgement.

Next Kaikoura Earthquake Clearinghouse Meeting

To be advised