Managing Buildings in Emergencies in New Zealand

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New Zealand Context
Presentation Overview

1. Context – key enhancements to NZ arrangements following the Canterbury and Kaikoura earthquakes

2. Key Developments
   • Understanding the scope of ‘Building Management in Emergencies’
   • Having all the system elements lined up: ‘Legislation through to Field Guides’
   • An additional process component for multi-storey buildings: Targeted Damage Evaluation

3. Stocktake – current capability, gaps and future challenges
Recap on the development of NZ arrangements

1. Guidelines first developed in 1990s, based on ATC 20 document
2. Revised in 2009, following Gisborne earthquake 2007
3. Refined following experience in Padang Indonesia 2009
4. Implemented on a city-wide scale in Christchurch following the Darfield earthquake 4 September 2010
5. Improvements following the 22 February 2011 Christchurch earthquake
6. New lessons from the 14 November 2016 Kaikoura earthquake
7. Revised documentation and legislation
Developments Post-Canterbury Earthquakes

- New field guides - earthquake, flooding, geotechnical
- New forms
- New placards – colour change and plain English

Resources on [www.building.govt.nz](http://www.building.govt.nz)
Training programme in place

- Tier 2 training undertaken
  - Engineers/ Architects
  - Incl. Geotechnical
  - Council Staff
  (approx 400 on register)

- On-line training modules

Tier 1:
National resources capable of leading an assessment operation

Tier 2:
Senior Building Officials, Chartered Professional Engineers (structural, geotechnical) and Registered Architects

Tier 3:
Building Officials, Structural and Civil Engineers, Registered Architects
Kaikoura earthquake 14 November 2016
Wellington Buildings Affected
Targeted Damage Evaluation

• Targeted Damage Evaluation (TDE) procedure quickly developed to assess a specific category of buildings (www.sesoc.org.nz)

• Approximately 70 Wellington concrete buildings of 5 to 15 storeys with precast flooring were assessed over three months

• Approximately 50% had issues that were not uncovered in the original rapid assessments
Wellington Buildings **Not** Affected
Building Management in Emergencies: Key Elements

1. Understanding the extent of the emergency and the nature of its impact on buildings within the affected community

2. Then, if appropriate, carry out a rapid building assessment operation within an identified area where there is cause for concern for public safety in or around buildings.

3. The management of public safety issues both inside and outside any rapid building assessment operational area.
   - working with owners on repairs and barricades
   - urgent demolition where key public access routes are affected

4. Managing the issues caused by the emergency to enable the community to recover to business as usual.
Recovering to ‘business as usual’

This includes:

• providing timely information to the public
• monitoring urgent repair work
• active monitoring of the suitability of damaged buildings for continued habitability
• managing, updating and the eventual removal of building placards, cordons and barricades; and
• seeking more detailed assessments from owners where appropriate

And continues for a considerable period of time....
Appropriate preparedness across the four elements

Requires:

- Leadership and preparedness by local councils
  - Building Control and Emergency Management working together
- Support from local and national engineers
- Support from the national building regulator
  - in NZ, the Ministry of Business, Innovation and Employment (MBIE)
New Guidance for Councils and Engineers

• New guidance issued by MBIE in 2018
• Support and training under development for Councils to better understand the building management process following emergencies
Legislation: Changes to the Building Act

• Bill currently before Parliament proposes to amend the Building Act to include Building Management in Emergencies
• Introduces end-to-end process for managing buildings from response to recovery
• Powers to inspect, placard, restrict entry, mitigate risk, require owners to provide information, and investigate building failure
• Can be used when no ‘state of emergency’ or ‘transition period’ declared, if approved by Minister
• Requires proportionate use – framework for recognising personal and property rights
Current Initiatives (1)

- The NZ Ministry of Civil Defence & Emergency Management is preparing a Director’s Guideline on Damage Assessment to outline the functional roles and responsibilities across the response phases
  - The objective is maximizing efficiencies in how data is collected and represented across agencies in order to establish and communicate the common operating picture
  - The focus is on clarifying the Emergency Services/Council interface

- Continuing to promote structured and standardized data across agencies, including an Australasian ‘data dictionary’
Current Initiatives (2)

• Internationally, initiatives are underway to link this work more effectively with the roles of Urban Search and Rescue Engineers
  – ‘Beyond the rubble pile’
  – Reflects the practical continuum of scientific and engineering inputs

• Looking to enhance the role of USAR Engineers as defined in the INSARAG Guidelines
Stocktake: Capability and Gaps

• Significantly more trained resources available than prior to Canterbury earthquakes

• Advances in tools and processes for electronically recording data in the field

• However decision-maker attention and prioritisation of this work remains a challenge

• Other key gaps include:
  – Identification and training of operational leaders (Tier 1)
  – The means of aggregating early intelligence on which types of buildings are most affected and may need a closer look
  – Procedures for evaluating the residual capacity of damaged reinforced concrete buildings
Building Management in Emergencies: Summary of Required System Components

The overarching system components needed to enable effective management of buildings in emergencies are:

1. Legislation and plans that enable a clear interface between building and emergency management aspects

2. Operational arrangements across that actively engage engineers, building officials and emergency managers

3. Resource capacity and capability to deliver on these arrangements

4. Consistently structured and standardised data gathering and mapping across agencies
Thank You!