

**REPORT INTO BUILDING SAFETY EVALUATION
PROCESSES IN THE CENTRAL BUSINESS DISTRICT
FOLLOWING THE 4 SEPTEMBER 2010 EARTHQUAKE**

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GLOSSARY

Building Safety Evaluation Manager

Manages the Building Evaluation Team during the state of emergency, also called the Rescue Manager in the Christchurch City Civil Defence Emergency Management Arrangements.

Building Evaluation Team

Responsible for the rapid assessment of buildings and other dangerous building issues during the state of emergency.

Customer Service Request

A request for assistance or other notification received by the Council from a member of the public or other organisation, either by email or through the Council call centre.

Emergency Operations Centre

The Local Emergency Operations Centre for Christchurch which operated from the Christchurch Art Gallery.

Placard

The green, yellow or red notices issued for buildings during the rapid assessment process carried out in the state of emergency.

Rapid assessment

The process for the assessment of buildings during a state of emergency, set out in the August 2009 "Building Safety Evaluation During a State of Emergency Guidelines for Territorial Authorities" prepared by the New Zealand Society for Earthquake Engineering.

LIST OF ABBREVIATIONS

BETT	Building Evaluation Transition Team (post state of emergency)
BRO	Building Recovery Office (post state of emergency)
CBD	Central business district
CDEMA	Civil Defence Emergency Management Act 2002
CDEMG	Civil Defence Emergency Management Group
CERA	Canterbury Earthquake Recovery Authority
CPEng	Chartered Professional Engineer New Zealand
EOC	Emergency Operations Centre
IPENZ	Institute of Professional Engineers New Zealand
NZSEE	New Zealand Society for Earthquake Engineering
NZSEE Guidelines	The August 2009 “Building Safety Evaluation During a State of Emergency Guidelines for Territorial Authorities” prepared by the New Zealand Society for Earthquake Engineering
SOE	State of Emergency

1. INTRODUCTION/CONTEXT- 4 SEPTEMBER 2010 RESPONSE

1.1 Background

This report provides information about the building safety evaluation process carried out by the Christchurch City Council ("Council") during the state of emergency following the 4 September 2010 earthquake and thereafter following the uplifting of the state of emergency, including the 26th December 2010 aftershock. It deals with events and processes up until the 22 February 2011 earthquake.

The information provided in this report has been collated from a variety of sources including interviews with various Council staff members and other personnel involved in the emergency response. The information relating to dates, times and strengths of aftershocks has been collated from the Geonet website.

While the Council has endeavoured to ensure the information included in this report is as accurate as possible, time has elapsed since the events described in the record and recollections will differ. This report of necessity covers events only in general terms. It is also important to note that while the emergency response procedures described in this report were followed in most instances, there were inevitably variations in such procedures.

This report only covers the building evaluation response during and after the state of emergency following the 4 September 2010 earthquake. The Council had many other roles in the earthquake response, including for example water and sewer repairs, responding to welfare needs, operating welfare centres, repairing damaged roads and carrying out its general obligations as an employer and building owner. In addition, the processes discussed in this report were carried out against a background of disruptions caused by ongoing and significant aftershocks.

Again this report provides the Council's perspective of the emergency response. However there were many other organisations that had a role in the response, for example USAR, the Fire Service, the Police, the Ministry of Health and Environment Canterbury.

A timeline of the events referred to in this report is attached as **Appendix 1**.

1.2 Declaration of State of Emergency – 4 September Earthquake and Immediate Response

Immediate Events Following the 4 September 2010 Earthquake

An earthquake with a magnitude of 7.1 struck at 4.35am on Saturday 4 September 2010.

At 4.51am, the Local Controller on duty (Michael Aitken)¹ contacted the EOC Manager (Murray Sinclair) to ask whether the EOC should be opened. Mr Sinclair advised the Local Controller that the EOC should be opened.

¹ The Council's Controllers are rostered on a monthly basis.

The earthquake occurred when the Council was in the process of moving from its Tuam Street building to its new Civic Offices in Hereford Street. The Council's civil defence management support equipment relating to building evaluation was packed at the Council's Tuam Street building ready to be moved to the new building.

The Local Controller and the EOC Manager met at the Tuam Street building with a view to using the building as an EOC. However, the Tuam Street building had suffered some damage and was deemed to not be operational. The Local Controller decided that it would be preferable to move to the new Hereford Street Building.

At 5.10am, the EOC Manager and the Local Controller reconvened at the Hereford Street building. The Building Evaluation Manager (John Buchan) arrived at 5.30am, after an initial reconnaissance of building damage, as discussed in Section 3.1. The Mayor also arrived at 5.30am. Other Civil Defence staff also began arriving at the Hereford Street building with a view to setting up the EOC. However the Hereford Street building had also sustained minor damage and the building's emergency power generator was not operating.

At 6.10am, a decision was made to move to the Christchurch Art Gallery, and security personnel were contacted to gain access to the building. Civil Defence pre-planning had determined that the Art Gallery would be a suitable second location for an EOC. Staff also began recovering Civil Defence equipment from the Tuam Street offices, and transferring it to the Art Gallery. The education room at the Art Gallery was set up as the EOC under the CIMS model.²

A state of local emergency was declared at 9.33am on 4 September 2010 under section 68 of the CDEMA. The state of local emergency was extended on several occasions and eventually lapsed at midday on 16th September 2010.

Implementation of State of Emergency

Upon the declaration of the state of emergency on 4 September 2010, the relevant provisions of the CDEMA became activated, along with the Canterbury Civil Defence Emergency Management Group Plan and the Christchurch City Local Civil Defence Emergency Management Arrangements. An outline of the Civil Defence Emergency framework is contained in **Appendix 2**.

2. THE NZSEE BUILDING SAFETY EVALUATION GUIDELINES

The building safety evaluation processes following the 4 September 2010 earthquake drew on the second edition of the Building Safety Evaluation during a State of Emergency Guidelines for Territorial Authorities (NZSEE Guidelines).

An overview of the NZSEE Guidelines is included as **Appendix 3**. The overview outlines how the Guidelines evolved and the essential features. Council building officers had received training on the application of the NZSEE Guidelines prior to the earthquake on 4 September 2010.

² The CIMS model is outlined in **Appendix 2**.

3. IMPLEMENTATION OF THE NZSEE GUIDELINES AFTER 4 SEPTEMBER 2010

3.1 Overall Damage Survey

The NZSEE Guidelines state that the first step in the building evaluation process is an "Overall Damage Survey". The Guidelines provide that this survey should take place within hours after an event and should be conducted by emergency services, territorial authority staff and Civil Defence volunteers.³

The Guidelines anticipate that the Overall Damage Survey will not involve any entry of premises and no formal records will be kept. The emphasis is to be on determining the extent of the damage, identifying the areas where there has been significant impact, identifying rescue tasks, determining the areas of priority for rapid assessment and estimating the need for resources.⁴

As a first step in the Overall Damage Survey, shortly after the earthquake on 4th September 2010, the Council's designated Building Safety Evaluation Manager drove from his house in Somerfield to the nearby Princess Margaret Hospital. His purpose was to review the condition of the hospital buildings as a general guide to the strength of the earthquake and the possible damage that it may have caused. The Building Safety Evaluation Manager found that all of the lights were on at the hospital and the building did not appear to have suffered any major structural damage.

The Building Safety Evaluation Manager then proceeded to the Council's Civic Offices on Hereford Street, reviewing the extent of building damage along his route. The Building Safety Evaluation Manager also noted that contractors were already clearing away fallen bricks and setting up barriers around some damaged buildings in the CBD.

The Building Safety Evaluation Manager arrived at the Council's new Civic Offices on Hereford Street at approximately 5.30am. Staff from the Council's Building Inspections team and engineers volunteering their services had also started arriving at the Civic Offices (and at the Art Gallery when operations moved there).

The building inspectors and engineers were arranged into informal teams to begin general damage assessments in the CBD and along the city's main arterial routes (Colombo Street, Papanui Road, Riccarton Road, Ferry Road and Lincoln Road).

The information gathered from these initial assessments was transferred to whiteboards in the EOC, and an overview of the level of damage caused by the earthquake was gradually pieced together. A media release at 6.00am on 5th September 2010 stated that more than 500 buildings in the city had been found to be damaged; and more than 90 of those buildings were in the central city area.

3 New Zealand Society for Earthquake Engineering, Building Safety Evaluation During a State of Emergency Guidelines for Territorial Authorities, August 2009, page 9.

4 New Zealand Society for Earthquake Engineering, Building Safety Evaluation During a State of Emergency Guidelines for Territorial Authorities, August 2009, page 9.

The information collected from this Overall Damage Survey was then used as a guide for directing resources for the rapid assessment of buildings, as discussed below.

3.2 The Rapid Assessment Process

Level 1 Rapid Assessments

The initial preparations for the rapid assessment process began on 4th September 2010.

Level 1 Rapid Assessment Teams

In accordance with the NZSEE Guidelines, teams were formed to carry out the Level 1 rapid assessments. The teams included at least one building inspector, one CPEng engineer and one civil defence rescue team member⁵.

The building inspectors included Christchurch City Council employees and employees from other territorial authorities (arranged with the support of Local Government New Zealand).

The engineers were volunteers from Christchurch and other centres. Some engineers had volunteered their services of their own accord and others were arranged through IPENZ.

All engineers were required to sign the “Memorandum of Understanding for Engineers Volunteering to Assist Territorial Authorities in a State of Emergency” in the form set out in Appendix F of the NZSEE Guidelines.

Level 1 Rapid Assessment Process

On the evening of 4th September 2010 the area within the CBD cordon (discussed in section 6.1) was divided into 25 grids. The area included in each grid was decided by staff from the Christchurch City Council, the Department of Building and Housing and an external consulting firm specialising in civil defence emergency management.

The information considered when defining the boundaries for each grid included –

1. the details of building damage obtained from the Overall Damage Survey;
2. the number of buildings included in the grid;
3. the type of buildings within the grid (for example whether any buildings were multi-storey); and
4. the use of particular buildings within the grid (for example whether any high density residential buildings were included).

The boundaries of each grid were marked on a laminated map and each was labelled with a code letter. Level 1 rapid assessment teams were assigned to each grid.

⁵ The role of the civil defence rescue team members was to ensure the safety of the other team members.

At 9.30am on 5th September 2010 the rapid assessment teams were given a powerpoint briefing on the NZSEE Guidelines and the process that would be followed.⁶ The teams then began the Level 1 assessments.

In accordance with the NZSEE Guidelines, the rapid assessment teams conducted only an external assessment of the buildings. The teams could also only assess the parts of buildings that they could get to safely.

The rapid assessment teams filled out a "Christchurch Eq. RAPID Assessment Form – LEVEL 1" for each building assessed ("the Level 1 Form"). A template Level 1 Form is attached as **Appendix 4** of this report.

All buildings were classified as either Inspected (Green), Restricted Use (Yellow) or Unsafe (Red), in accordance with the NZSEE Guidelines.⁷ A corresponding Green, Yellow or Red placard was affixed to the building. Examples of these placards are attached at **Appendix 5**.

The Level 1 Forms were returned to the EOC. Members of the Building Evaluation Team would check the forms to ensure they were completed and signed. All buildings classified as "Unsafe" were marked on a laminated map, to provide an overview of the scale and location of damage.

The details from Level 1 Forms (and later Level 2 Forms) were entered into a "Building Safety Evaluation" spreadsheet. An extract showing the column headings for this spreadsheet is attached as **Appendix 6** of this report. The Council understands that this spreadsheet was developed by a contractor working for the Department of Building and Housing.

It would take between two and six hours to complete the Level 1 assessments for all buildings within a grid.

By the evening of 5th September 2010 the majority of the Level 1 assessments in the CBD had been completed. Engineers from the National USAR Task Force Team then conducted a brief review of the placards issued in the CBD. The engineers walked around the CBD to obtain an overview of the assessments that had been made. Some placards were changed as a result of this review, but most classifications were considered to be appropriate.

All Level 1 rapid assessments in the CBD were completed by midday on 6th September 2010.

Level 1 assessments of buildings on the city's arterial routes (Riccarton Road, Papanui Road, Colombo St, Ferry Road and Lincoln Road) were also carried out on 6th September 2010, following the same process as described above.

⁶ It is understood that a copy of the presentation is held by Dave Brunsdon/Kestrel Group Limited.

⁷ New Zealand Society for Earthquake Engineering, *Building Safety Evaluation During a State of Emergency Guidelines for Territorial Authorities*, August 2009, page 10.

Level 2 Rapid Assessments

The Level 2 rapid assessments in the CBD began on the morning of 6th September 2010. A Level 2 rapid assessment team consisted of the same members as a Level 1 rapid assessment team and one additional CPEng engineer.

A further briefing was given to the Level 2 rapid assessment teams on the morning of 6th September 2010 and the teams then began the Level 2 assessments. The Level 2 assessments began on buildings identified as being high priority, in accordance with the process explained below.

Not all buildings that had a Level 1 assessment also had a Level 2 assessment. As discussed below, the NZSEE Guidelines state that a Level 2 assessment is only intended for certain buildings. As discussed in Section 3.3, in some cases building owners/managers would engage their own engineers to carry out an assessment comparable to a Level 2, rather than the Building Evaluation Team completing the assessment.

In contrast to a Level 1 assessment, a Level 2 rapid assessment team is required to review both the exterior and interior of the subject building. In many cases, this would require the rapid assessment team to contact the owner of the building prior to visiting the site, to arrange entry.

The rapid assessment teams completed a “Christchurch Eq RAPID Assessment Form – LEVEL 2” for all buildings that received a Level 2 assessment (“the Level 2 Form”). The template of the Level Two Form is attached as **Appendix 7** of this report.

All buildings that received a Level 2 assessment were classified in accordance with the “Usability Category” table on page 2 of the Level 2 Form, as follows:

- Inspected (Green) -
 - G1 - occupiable, no immediate further investigation required; or
 - G2 - occupiable, repairs required.
- Restricted Use (Yellow) –
 - Y1 - short term entry; or
 - Y2 - no entry to parts until repaired or demolished.
- Unsafe (Red) –
 - R1 - significant damage: repairs, strengthening possible; or
 - R2 - severe damage: demolition likely; or
 - R3 - at risk from adjacent premises or from ground failure.

If the Level 2 assessment resulted in a different classification to the Level 1 assessment, a new placard would be affixed to the building.

Level 2 assessments continued until the end of the state of emergency on 16 September 2010, although most had been completed by 12 September 2010. By 16th September 2010 approximately 850 Level 1 and 2 building assessments had been carried out in the CBD.

Determining Priority Buildings for a Level 2 Rapid Assessment

The NZSEE Guidelines do not envisage that Level 2 assessments will be carried out on all buildings that have received a Level 1 assessment. The Guidelines anticipate that Level 2 assessments will be performed on:

- All critical facility buildings; and
- Large, typically multi-storey buildings; and
- Any other buildings where the Level 1 rapid assessment identifies the need for further and more specific inspection.⁸

As a result, it was necessary to review the information recorded in the Level 1 Forms to determine which buildings required a Level 2 assessment, and to determine the order of priority for performing these. Staff from the Council's Building Consents Team who were engaged in the EOC Building Evaluation Team were tasked to conduct this review.

As a first step, all buildings in the CBD and along arterial routes in the following categories which had received a Level 1 assessment were identified:

- All buildings which had received a red or yellow placard in the Level 1 assessment.
- All green placarded buildings with 4 or more levels.
- All green placarded buildings with high occupancy levels.
- All green placarded buildings where the Level 1 rapid assessment form recommended that a Level 2 assessment be carried out.

These buildings were then allocated to one of the following categories of priority:

- VH = very high
- MH = medium high
- M = medium
- L = low.

⁸ New Zealand Society for Earthquake Engineering, Building Safety Evaluation During a State of Emergency Guidelines for Territorial Authorities, August 2009, page 12.

Buildings with yellow placards were generally allocated to the M category and buildings with red placards were generally allocated to the L category. The reasoning was that the features rendering these buildings unsafe had already been identified as requiring action.

As a general rule, the green placarded buildings that had been identified for a Level 2 assessment in the first step were allocated to either the VH or MH category. Green placarded buildings were allocated to the VH category if there was some urgency due to the building being critical to the reduction of the CBD cordon or if the building was important for another reason (for example, it was to be used for welfare purposes, or for other critical purposes). Other green placarded buildings were allocated to the MH category.

However, factors particular to certain buildings may have resulted in a different category of priority being allocated.

The priority task list of buildings was updated on an ongoing basis as further information was received from rapid assessment forms. This task list also included other tasks relating to dangerous buildings that the Building Evaluation Team was required to respond to, as discussed below. The buildings were allocated to the level 2 assessment teams to be dealt with in the order of priority set out in the task list.

3.3 Arrangements Made Independently by Building Owners

During the state of emergency a number of building owners also engaged their own engineers to carry out rapid assessments of their buildings. This often occurred where a building owner wished to have the Level 1 rapid assessment classification of a building changed, as discussed in Section 5.1.

In some cases, the engineers acting for these building owners contacted the EOC, obtained and completed Level 2 forms for the buildings and issued the relevant placards. Alternatively, the engineers would provide the assessment information to the EOC and the Building Evaluation Team would arrange for an appropriate placard to be issued.

Some engineers working privately for building owners also adapted the rapid assessment forms in the NZSEE Guidelines for their own use.

All engineers were asked to advise the Building Evaluation Team of the details of assessments carried out, but there was no obligation for the engineers to do this.

3.4 Other Building Evaluation Team Responsibilities

In addition to managing the rapid assessment process, the Building Evaluation Team was also responsible for other dangerous building issues, for example:

- Responding to reports received from parties such as the Police, Fulton Hogan, the Fire Service and USAR that a building required re-assessment as a result of damage caused by demolition or repair work on neighbouring buildings, or as a result of any significant aftershocks.
- Responding to reports from members of the public advising of dangerous buildings that needed to be checked.

- Issues identified by the rapid assessment teams while they were carrying out rapid assessments on other buildings.

These issues were added to the Building Evaluation Team's priority task list as necessary and the building evaluation inspection teams would investigate as required. During the state of emergency the Council received approximately 3,200 telephone calls, emails and notifications from other bodies (such as the Fire Service) of potentially dangerous buildings or dangerous building related issues (both residential and commercial).

3.5 Information About Building Access

Information about the rapid assessment process, the meaning of the assessment categories and the need for building owners to obtain their own engineering assessments was included on the placards issued, on the Council's website and in media releases, pamphlets and email alerts prepared by the Council, as discussed below.

Information Included in the Placards

The placards that were issued during the state of emergency include guidance for building owners about the assessment that has been carried out and the effect of the classification of the building. The following extracts are taken from the placards:

Green Placard – “Inspected – No Restriction on Use or Occupancy”

“This building has received a brief inspection only. While no apparent structural or other safety hazards have been found, a more comprehensive inspection of the exterior and interior may reveal safety hazards...

Owners are encouraged to obtain a detailed structural engineering assessment of the building as soon as possible. Report any unsafe conditions to the Territorial Authority. Subsequent events causing damage may change this assessment. Re-inspection may be required. Secondary damage (partitions, windows, fittings and furnishings) may be hazardous. Electrical and mechanical equipment, gas connections, water supplies and sanitary facilities have not been inspected”.

Yellow Placard – “Restricted Use – No Entry Except on Essential Business”

“This building has been damaged and its structural safety is questionable. Enter only at own risk. Subsequent aftershocks or other events may result in increased damage and danger, changing this assessment. Re-inspection may be required.”

The placard also includes a check list for the options available for use of the building, to be completed by the rapid assessment team.

Red Placard – “Unsafe – Do Not Enter or Occupy”

The sub heading for the red placard includes the statement “this placard is not a demolition order”. The placard also states:

“WARNING: this building has been seriously damaged and is unsafe. Do not enter. Entry may result in death or injury...Enter only with specific written authorisation from Territorial Authority acting under the authority of the Civil Defence Emergency Management Controller”.

Information Pamphlet / Council Website

The Council prepared a pamphlet explaining the meaning of the different placards. This pamphlet is attached as **Appendix 8** of this report. The pamphlet was available on the Council's website and in Council Service Centres and Libraries.

Council Media Releases

The Council issued a number of media releases both during and after the state of emergency in relation to earthquake response and recovery matters. Many of these media releases provided advice to building owners about how to deal with their damaged buildings. The main themes from these media releases are discussed below.

The Council's media releases in relation to the rapid assessment process began on 4 September 2010, at 9.00pm. The first media release about the process, which is attached as **Appendix 9**, advised that building inspections would begin in the central city on 5th September 2010. The media release states:

“Tomorrow morning, Sunday 5 September, 20 to 25 teams from the Council's Building Evaluation Team will be inspecting all buildings within the area currently cordoned off. The teams will be placing red placards on buildings that are considered unsafe and cannot be entered, yellow placards on buildings with restricted use and green placards on buildings with no restriction on use”.

A more detailed media release about building access and the meaning of the green, yellow and red placards was made on 6th September 2010, at 5.45pm. This media release is attached as **Appendix 10**. The media release includes the following comments:

“...if a building has a Green, Yellow or Red placard:

- *Green placard – the building has had an initial assessment and there is no restriction on use or occupancy. Follow the instructions on the placard. Please note that in some circumstances Council will conduct an additional more detailed evaluation to verify the green placard status.*
- *Yellow placard – building has been inspected. Follow the instructions on the placard. A second more detailed inspection may allow the placard to be upgraded to green status. These second evaluations will be carried out by Council on a priority basis, however, building owners should engage a structural engineer which may allow earlier occupation.*
- *Red placard – building has had an initial assessment and is not ok to use. A second evaluation will be carried out by Council on a priority basis. To clear the building for use the building owner needs to*

engage a structural engineer and arrange for their engineer to provide a report declaring the building is safe for purpose to Council via the Emergency Operations Centre...

- *If building does not have a Green, Yellow or Red placard:*
- *It is the building owner's or occupier's responsibility to check the structural integrity of any building particularly those open to the public. Check the building by observation from the outside initially. If there is no visible damage then you may check the inside of the building at your own risk. If there is visible damage or you have concerns then the building owner should engage a structural engineer and arrange for their engineer to provide a report declaring the building is safe for intended purpose to Council via the Emergency Operations Centre.*

All structural engineer reports commissioned privately by building owners need to be forwarded to Council via the Emergency Operations Centre”.

Other media releases on 6th and 7th September 2010 included a brief summary of the meaning of the placards, as follows:

“A green placard means the building is considered safe for its intended use...

A yellow placard means the building has limited access, as noted on the placard, and further structural assessment is needed by the owner's consultants...

A red placard means the building is considered unsafe and further structural assessment is needed”.

A media release issued on 8th September 2010 at 8pm (attached as **Appendix 11**), suggests that there had been some confusion around the interpretation of the placards. In an effort to deal with this confusion, the media release contained a detailed description of the meaning of the placards, as follows:

“a red placard means that people should not enter or occupy the building because it has been determined as unsafe. It is not a demolition order. Nor does it mean the adjacent building is ‘red’.

Buildings with a red placard require a further detailed structural assessment by a building professional engaged by the owner. That assessment must then be discussed with the Christchurch City Council's building evaluation and inspection team to determine options.

There have also been reports that some people have misinterpreted a red placard to mean that they have 10 minutes to collect their belongings. This is not the case. Buildings with red placards are unsafe and should not be entered.

A yellow placard means the building has limited access, as noted on the placard, and further structural assessment is needed by the owner's consultants.

The meaning of green placards, and buildings that have not yet received placards, has also been clarified. A green placard means there has been a brief inspection only. While no apparent structural or other safety hazards have been found, a more comprehensive inspection of the exterior and interior may reveal structural or safety hazards.

It is the building owner's or occupier's responsibility to get further independent advice regarding the safety of any building if necessary. This is also the case for buildings with no placards."

On 16th September 2010 a media release was made to advise on the status of the placards when the state of emergency ceased. This media release is attached as **Appendix 12**. The media release states:

"Can I remove the placard now that the state of emergency has been lifted?"

Buildings that have been assessed for earthquake damage have placards on them that follow a colour-coded 'traffic light' system, based on international engineering best practice and adapted for New Zealand conditions.

The placards should not be removed when the states of emergency are lifted, because they indicate that a building has had an initial assessment...

These building safety evaluation placards were developed by the New Zealand Society for Earthquake Engineering with support from the Department of Building and Housing and the Ministry of Civil Defence and Emergency Management.

The placards are temporary notices that will be replaced by notices issued by the Council under Sections 124 and 125 of the Building Act 2004".

Email Alert

Following the 4th September 2010 earthquake the Council developed a "Stronger Christchurch" eNewsletter to advise of earthquake recovery activities and related matters. This eNewsletter was available to all members of the public who registered to receive it.

The 6th October 2010 eNewsletter included the following paragraphs in relation to red and yellow placards:

"Does your business have a red or yellow placard on it?"

Please remember if you have a commercial building that has either a red or yellow sticker on it – these placards are still in effect. This means that the buildings are not suitable in their current earthquake damaged state for their intended use.

- *Red placards mean that the building is unsafe for any occupation, so do not enter.*
- *Yellow placards mean that there is limited access to the building and building owners and occupiers should follow the restrictions on the use as detailed on the placard.*

Owners of buildings with red or yellow placards should be obtaining a structural engineering assessment of their building and should contact the Council's Building Recovery Office before doing any work on the building.

The Council is continuing to review the status of commercial buildings where we learn of further damage that may put public safety at risk. If you have any questions about your placard please contact the Council on 941 8999."

A copy of this Stronger Christchurch eNewsletter is attached as **Appendix 13**.

4. PROCESSES AFTER THE STATE OF EMERGENCY

The NZSEE Guidelines anticipate that the rapid assessment placards placed on buildings during the state of emergency will be replaced with Building Act 2004 notices, where further building work is required to reduce or mitigate any danger posed. The Guidelines state that the Building Act notices should be issued before the emergency declaration is lifted.

However, on average, the Council's Enforcement Team in business as usual deals with approximately 65 dangerous building complaints a year, and issues only 2 -5 Building Act notices in relation to dangerous buildings. In contrast, approximately 1,230 residential and commercial buildings across the city received red or yellow placards during the state of emergency in September.⁹ It was not possible to deal with this volume of buildings under the Council's business as usual processes. In addition, there was no precedent for managing the transition from the state of emergency for the scale of building damage that had occurred in Christchurch.

As discussed in section 8.2¹⁰, changes were implemented by the Canterbury Earthquake (Building Act) Order 2010 to assist the Council to deal with placarded buildings on the transition from the state of emergency. In particular, the Order in Council provided that the red and yellow placards warning people to keep out of buildings, or restricting their entry to buildings, continued in force for a further 60 days.

The Council also needed to develop its own operational policies and procedures for the management of these buildings.

⁹ *Approximately 80 of these placards related to sanitary/health issues rather than building safety.*

¹⁰ *Under the heading "Building Act 2004 Powers as Amended by the Canterbury Earthquake (Building Act) Order 2010".*

The Council established two new teams with responsibility for the management of damaged buildings following the state of emergency – the Building Evaluation Transition Team (“BETT”) and the Building Recovery Office (“BRO”). The following paragraphs explain the functions of these teams. As there was no existing precedent that could be adopted, the processes followed by these teams for the management of damaged buildings evolved as work continued.

4.1 Building Evaluation Transition Team

Purpose

The BETT was established on 20 September 2010 and existed until the end of November 2010. The purpose of the BETT was to preserve public safety and to facilitate a return to normal operations following the earthquake by:

- Continued identification of unsafe buildings.
- Reviewing and updating information held in the Council’s property files as engineering reports were received and/or additional damage was noted following any aftershocks.
- Reviewing cordon placement.

The BETT was tasked with managing damaged buildings in both the CBD and originally in residential areas. However, with the Earthquake Commission involved in dealing with assessments and repairs of residential buildings, the main focus was on commercial buildings.

Structure

The BETT consisted of a Project Manager, an Inspection Team Coordinator, an Administration Support Coordinator and an Engineering Support Coordinator. CPEng structural engineers working on contract and building inspectors from the Council and other territorial authorities were also engaged as required.

The BETT reported to the Council’s Inspections and Enforcement Unit Manager and ultimately to the Regulation and Democracy Services Manager.

An organisation chart is attached at **Appendix 14**.

Activities

The main functions carried out by the BETT were:

- Receiving and processing independent engineering assessments and detailed engineering reports from building owners.
- Monitoring cordons erected around buildings/structures identified as dangerous during the state of emergency, with a view to reducing cordons to limit inconvenience to residents and to enable a return to business as usual for retailers and business owners, provided public safety was not jeopardised.
- Monitoring access to cordons.
- Responding to Customer Service Requests to investigate the safety of buildings - both commercial and residential.

- Re-inspecting commercial buildings issued with a red or yellow placard during the state of emergency.
- Identifying properties that were dangerous or insanitary under the Building Act 2004 and arranging for the appropriate Building Act notice to be issued.

The process followed in relation to the receipt of independent engineering assessments is discussed in section 5.2. The processes for monitoring and removing cordons are discussed in section 6.3.

Audit of Unsafe and Restricted Entry Buildings

Between 5th and 20th October 2010, BETT field inspection teams completed an audit of commercial buildings in the CBD and on arterial routes that had received a red or yellow placard during the state of emergency. A total of 580 buildings were re-inspected. The re-inspection process was timely, due to the significant aftershock on the night of 4th October 2010 (the 8th largest aftershock since the 4th September 2010 earthquake, at that time).

The purpose of the audit was to determine the current state of the buildings, the extent of any remedial action taken and whether any further action was required to remedy the danger posed by the building. All buildings that were deemed to still be in a dangerous or insanitary state were referred to the Council's Enforcement Team to be issued with an appropriate Building Act 2004 notice as discussed below.

The BETT audit process involved a visual review of the buildings by field inspection teams and peer reviews of any engineering evaluations that had been supplied by the building owners, where applicable. BETT field inspection teams included a CpEng engineer or two territorial authority building inspectors. However, all field inspection teams were working closely together and the building inspectors could request assistance from the BETT engineers as they considered appropriate.

The field inspection teams re-assessed the buildings in a similar manner to the NZSEE rapid assessment process. The teams would review the interior of the building if they were able to gain access, or would rely on the information available from an external review. A rapid assessment form would be completed as appropriate, along with a standard BETT coversheet. An example of the cover sheet template is attached as **Appendix 15**. This cover sheet evolved over time and was later used by the BRO, in a modified form.

Buildings issued with a green placard were not included in the audit process as such buildings had not been identified as unsafe during the rapid assessment inspections. The green placards advised owners they should obtain further structural assessments of their buildings. If an owner or any member of the public later made a complaint or inquiry to the Council about a building, this Customer Services Request would be dealt with by the applicable Council team at the time of the request, regardless of whether the building had received a green, yellow or red placard.

All buildings that the BETT identified as dangerous received a Building Act 2004 notice and a cover letter. There were several different versions of notices and letter depending on the circumstances of the particular building. See section 8.2 for further details about the types of Building Act notices that could be issued. The Building Act notices specified that the damage identified during the Level 1 and 2 rapid assessments was the danger to be reduced/removed.

The compliance date included in the Building Act notices was based on the nature of the risk the building posed. A 10 day resolution period was considered reasonable for some buildings that were impeding traffic flows or public access and where some initial steps could be taken to sufficiently remove the danger and improve traffic flow and access. The majority of the building owners received notices requiring compliance by 31 January 2011.

Responding to Customer Service Requests

The BETT Field Inspections Co-ordinator was also tasked with reviewing and prioritising all Customer Services Requests received by the Council concerning potentially dangerous buildings. The majority of these requests related to buildings in residential areas.

The Field Inspections Co-ordinator would review the information in the Customer Services Request and would contact the requester where necessary. A BETT field inspection team would be sent out to review the building if required and would follow the inspection process set out in **Appendix 16** of this report.¹¹

In some cases (for example, reports of damaged chimneys) the requester would be referred to the Earthquake Commission as the appropriate body to deal with the issue.

The Council received approximately 1,670 notifications of potentially dangerous buildings or related dangerous building issues between the end of the state of emergency and 22 February 2011.

4.2 Building Recovery Office

Original Purpose

The BRO was established on 13 September 2010. The initial purpose of the BRO was to provide a single point of contact at the Council for building and home owners to:

- Register the need for demolition work, major repairs or rebuilds;
- Quickly obtain any consents needed to proceed;
- Obtain architectural and engineering advice;
- Obtain property records; and
- Determine eligibility for financial assistance from the Mayoral fund.

The BRO also responded to queries about the building evaluation process, the meaning of the rapid assessment placards and Building Act notices, and how the rapid assessment placards and Building Act notices could be changed.

By the end of November 2010 this initial work of the BRO was beginning to wind down. The activities of the BETT had also finished by the end of November. However, a need remained to continue managing dangerous buildings in Christchurch, and to encourage building owners to deal with ongoing issues with these buildings.

¹¹ Note that the part of the process set out in Action 6 refers to a section 124(1)(c) Building Act notice being issued if a building was not dangerous but required repairs. However, if a building was assessed as not dangerous the Council could not take enforcement steps under section 124. The intention was that the Council would issue a letter to those building owners stating that repair work or other steps may be required.

A new BRO team was therefore established to replace the original BRO functions and the BETT. A new team leader was appointed on 28 November 2010.

Purpose from 28 November 2010

From 28 November 2010 the new BRO team was responsible for the case management of all remaining dangerous buildings, both in the CBD and other areas. The BRO also took over responsibility for responding to earthquake related dangerous building Customer Service Requests.

Structure from 28 November 2010

From 28 November 2010 the BRO consisted of a team leader, an administration assistant, a CPEng engineer and a Christchurch City Council building inspector. Two case managers were also appointed early in December 2010. Additional case managers and administration personnel were appointed between December 2010 and February 2011, and four CPEng engineers were contracted in as required.

The BRO reported to the Council's Inspections and Enforcement Unit Manager, and ultimately to the Regulation and Democracy Services General Manager.

Activities from 28 November 2010

Case Management

The purpose of the BRO case management process was to manage to resolution all buildings that had received Building Act notices as a result of the earthquake. The priorities for case management were buildings in the CBD and other commercial areas (for example, the Sydenham shopping area), in particular buildings that were causing significant interruption to neighbouring building owners and to traffic flow.

The BRO case management process began on 1 December 2010 and continued until 22 February 2011.

The first stage of the process was to divide the CBD and Sydenham commercial area into 6 precincts. The map attached as **Appendix 17** shows the boundaries for each precinct.

The precinct boundaries were defined by the Council's Central City Revitalisation Team (Strategy and Planning Unit). The precincts were primarily based on the number of damaged buildings in a particular area. The intention was to align the precincts with the Council's Central City Revitalisation Strategy in order to facilitate re-development of these areas.

A precinct manager was assigned to each precinct from the Strategy and Planning Unit of the Council. The precinct managers were to focus on the longer term revitalisation of the precincts, including the repair or redevelopment of buildings and vacant sites and the retention of businesses through the provision of both financial and non-financial assistance.

BRO case managers were also assigned to the precincts. Once appointed, the BRO case manager and a BRO engineer walked through the precinct, reviewing all buildings that had unresolved Building Act notices. Photographs were taken of the buildings and external

assessments were made. The purpose of the external assessments was to determine the extent of work required to remove any danger to public spaces.

The BRO case managers then prioritised the buildings for the case management process. The priorities were determined on the basis of safety to public spaces and traffic management and cordon issues. Buildings that were assessed as not creating a risk to public safety were given lower priority.

The BRO case management process is summarised in the flowchart and associated notes attached as **Appendix 18** to this report.

The BRO case manager would initially make contact with the building owner to discuss the state of the building and any work that the owner had undertaken to date. If no progress had been made towards repairing the building, the reasons for any delay would be discussed. The case manager was expected to discuss the Building Act 2004 process with the building owner, along with any related traffic management, waste management and resource consent issues.

The degree of assistance and management provided by the BRO case manager for each building was determined by the willingness of the building owner to engage in the process and the extent to which the reasons for the delay in the repair or demolition works could be addressed.

If necessary, the BRO case manager would arrange to meet with the building owner and other interested parties, including tenants, insurance agents and assessors, engineers, contractors and any neighbouring building owners, to discuss options for remedying the issues with the building.

If the building owner offered a work programme to address the dangers posed by the building, the case manager would monitor progress on this work until it was completed. Upon completion of the work the Building Act notice could be lifted (in accordance with the process discussed below in section 5.2).

If the building owner had been attempting to take action, but delays had been caused by insurance issues, heritage issues or contractor availability, a new Building Act notice could be issued to allow additional time to repair or demolish the building.

If a building owner failed to address the dangers associated with the building, the file would be referred to the Council's Enforcement Team for further action.

In December 2010 further section 124(1)(c) notices were issued with very short timeframes in an effort to make progress on buildings where little had been done to remedy the danger posed. These notices required that building owners carry out bracing or demolition to remove the danger and to allow for cordons to be reduced. The notices were issued with the new 5 day timeframe provided for in the Building Act Order in Council and they expired on 24 December 2010. By 25th December 2010, 148 Building Act notices had been issued for buildings in the CBD.

Re-Assessment Process

The majority of Building Act notices that were issued following the 4 September earthquake and 26 December aftershocks required action to be taken to remove the danger created by the building by 31 January 2011.

Therefore, early in January 2011 the BRO wrote to the owners of all buildings that had current Building Act notices. The building owners were advised that the BRO would be re-assessing all buildings with current notices to determine what further action was required.

The re-assessment process is set out in the flowchart attached as **Appendix 19** of this report.

In summary, a CPEng engineer contracted to the BRO would conduct a site visit of the building. The engineer would assess whether the building continued to be dangerous in terms of the Building Act. If the building was considered to be dangerous, a re-inspection report would be completed and photographs would be taken.

The building file would then be handed to the case manager for the relevant precinct. The case manager would review the file and make contact with the property owner to discuss a course of action to address the issues identified by the CPEng engineer. The CPEng engineer would be asked to review and sign off any agreed action plan.

Once an action plan had been agreed between the building owner, the case manager and the CPEng engineer, the BRO administration team would prepare an updated Building Act notice and cover letter. The updated notice and letter would be referred to the Council's Enforcement Team for service.

The building file would then be transferred back to the BRO case manager, who would monitor progress on repairs in accordance with the agreed action plan. Once repairs were completed, the building owner was required to submit a CPEng Certification Form to the BRO requesting that the building's status be updated, as discussed in section 5.2 of this report.

This re-assessment process was still continuing when the 22 February 2011 earthquake occurred.

Customer Service Requests

All earthquake related dangerous building Customer Service Requests were reviewed by the BRO.

If the building identified by the Customer Service Request did not have an existing Building Act notice, a BRO field team would be sent to inspect the building. If necessary a Building Act notice would be issued and the building would be referred to the case management process discussed above.

Precinct Meetings

The BRO also arranged for a series of "precinct meetings" to be held. The purpose was to advise the owners and tenants of buildings in the precincts on the work being carried out by the BRO, to provide information about business recovery initiatives that had been introduced

and to discuss ongoing recovery plans. A question and answer session was also offered at the end of each meeting.

The Mayor was the host of the precinct meetings and the BRO case managers and precinct managers would also attend.

The precinct meetings were notified by letter drops to the buildings within the precincts and by mail to the registered building owners. Meetings were held at 7.30 am and 6.00 pm on the nominated days.

The slideshow attached as **Appendix 20** of this report contains a summary of the material discussed at the Manchester Precinct Meetings on 14 December 2010.

Cordon Management

The BRO's processes in relation to cordon management are discussed in section 6.3.

5 PROCESS TO UPDATE A BUILDING'S STATUS

5.1 During State of Emergency

During the state of emergency, a building owner was required to submit an engineer's report to the EOC if they wished to have the existing placard issued for the building changed by the Building Evaluation Team. The Building Evaluation Team asked engineers to fill out a Level 2 Form for this purpose, but engineers also submitted their own reports in relation to buildings. The engineer's report would recommend a new status for the building and the Building Evaluation Team would issue a new placard on the basis of this recommendation.

In most cases the engineers submitting the reports to the Building Evaluation Team were CPEng engineers who had also been working in the rapid assessment teams, and were familiar with the NZSEE Guidelines and the rapid assessment process.

This process was used to change placards issued as a result of both level 1 and level 2 assessments. In some cases, placards changed to less restrictive categories (for example yellow to green) but in other cases the change could be to a more restrictive category (for example yellow to red).

5.2 Post State of Emergency

After the state of emergency some building owners sought to have the status of their building changed by submitting a report from a CPEng engineer to the Council. However, the BETT became concerned that the level of information provided in some reports insufficiently addressed the dangers posed by the building. In addition, there was some inconsistency between engineers in the interpretation of a "dangerous" building for the purposes of the Building Act 2004, as modified by the Order in Council. All participants in the process were concerned that these issues should be addressed.

After discussions between representatives from the Canterbury Structural Group, the Christchurch City Council and the Department of Building and Housing, a standard form was developed for engineers to complete and submit to the Council ("the CPEng Certification Form"). A copy of the CPEng Certification Form is attached as **Appendix 21** to this report. Engineers began to use this form in October 2010.

A CPEng engineer was required to complete the CPEng Certification Form. The engineer certified that they had inspected any work undertaken to secure or strengthen the subject building and they were satisfied on reasonable grounds that:

1. If the structural integrity and/or structural performance of the subject building (or part of the building) had been materially affected by the earthquake or any aftershocks, interim securing measures had been undertaken to restore the structural integrity and performance of the building to at least the condition that existed prior to the earthquake of 4 September 2010; and
2. All potentially dangerous features of the subject building, such as unreinforced masonry chimneys, parapets and walls, had been removed or secured so that their integrity and level of structural performance was consistent with that generally achieved in other parts of the building, in order to reduce the danger to people's safety and to other property; and
3. (a) Protective measures had been installed to protect the occupants of the building in the event of collapse of potentially dangerous features on nearby or adjacent buildings; or
 - (b) Neighbouring buildings with potentially dangerous features had been identified (and listed on the form) and the owner of the subject building had been advised that approval for resumption of occupancy of the subject building was dependent on Council approval to remove the red or yellow placards from the neighbouring dangerous buildings.

In the notes accompanying the CPEng Certification Form an alternative option is available to building owners (see **Appendix 22**). This option is to improve the structural performance of the building to as nearly as is reasonably practicable to 67% of the building code standard for a new building, as set out in the Christchurch City Council Earthquake-Prone, Dangerous and Insanitary Buildings Policy 2010. (If the building was determined to be earthquake-prone in accordance with the definition in section 122 of the Building Act 2004, then this Policy would apply. The Policy is discussed in further detail in section 8.2¹²).

The building owner was required to submit the CPEng Certification Form to the BETT. A BETT engineer would review the form and the files held for the relevant building. If the BETT engineer was satisfied that all dangerous features had been addressed adequately then the building's status could be changed. If the BETT engineer had any residual concerns about the building the BETT engineer would contact the building owner's engineer to discuss this before allowing the building's status to be changed.

Once the BETT had accepted that the status of a building could be changed, the building owner would be notified in writing. If any changes to barricades or cordons were required as a result of the change of status of the building, the Council's Traffic Management Team would be advised, as discussed in section 6.3.

¹² Refer to the sub-heading "Section 122 – Earthquake-Prone Buildings".

Flowcharts illustrating the process for changing a building's status are attached as **Appendix 23** and **Appendix 24** of this report.

These processes continued to apply when the BRO took over the case management of building files, as discussed above.

An issue arose both during and after the state of emergency with placards being removed without the authority of the Building Evaluation Team (during the state of emergency) or the Christchurch City Council (after the state of emergency). In some cases this was because building owners were unaware that they needed approval to remove a placard and instead thought they could rely on their engineer's report. In other cases, building owners would remove the placards without any authorisation or any independent engineer's report.

If the BETT or BRO teams received a complaint about a placard being removed, a field inspection team would visit the building. If it was considered that the building was still dangerous, a new Building Act notice would be attached to the building.

6 THE BUILDING CORDON SYSTEM

6.1 During State of Emergency

Early on 4th September 2010, the Police closed a number of roads for the protection of members of the public to restrict access to badly damaged areas. Other roads were impassable due to the level of damage to the road or to buildings on the road. A number of bridges were also closed.

Individual buildings that were obviously dangerous were initially cordoned off by contractors at the request of staff working in the Civil Defence Operations Team, or by building owners. Building cordons and barriers took many forms – shipping containers, cones, fencing, razor wire and tape were all used.

On the evening of 4th September 2010 a cordon was established around the CBD between Kilmore Street, Madras Street, St Asaph Street and Montreal Street. A curfew was also imposed from 7.00pm on 4th September until 7.00am on 5th September 2010.

Other individual roads outside of the CBD cordon were also closed or partially cordoned for a number of reasons, including cracking to the road surface, subsidence, flooding, slumps, holes, major pavement failures and the existence of dangerous or collapsed buildings.

While the CBD cordon was in place no access was available to the CBD for the general public. However building owners could obtain permission for themselves or their engineers to enter the cordoned area for the purpose of inspecting their buildings. Permission was available from the EOC.

As the rapid assessment of buildings progressed, the CBD cordon was gradually reduced in size. By 7th September 2010 the cordon had reduced to the area between Worcester Street, St Asaph Street, Colombo Street and Madras Street.

6.2 Removal of Central Business District Cordon

On 8th and 9th September 2010, a team of 2 Police Officers, a structural engineer and a Christchurch City Council Traffic Management Team member, conducted an external review

of all buildings within the CBD cordon, including all buildings that had received a green placard.

The purpose was to put in place a plan to identify and isolate any dangerous structures or other hazards, so that the CBD cordon could be lifted.

All buildings were externally assessed and, based on this external assessment, the structural engineer determined whether any cordons or barriers were required for each building. Any remaining rubble was identified for removal. All buildings were assessed by the Police to ensure they were secure and the Traffic Management Team considered traffic flow and pedestrian safety issues.

The location of cordons and barriers required was marked on a sketch map and on the road. The Traffic Management Team member then arranged with contractors to have the necessary barriers and cordons established around the relevant buildings.

The CBD cordon was removed on the morning of 10th September 2010, when all buildings within the cordon had been assessed and all dangerous buildings and other hazards had been isolated.

6.3 Post State of Emergency

Immediately after the state of emergency, the BETT and the Council Traffic Management Team were responsible for cordon management. This role included managing the process to remove cordons, and ensuring that appropriate cordons had been established around dangerous buildings. This role applied to the whole city.

The BETT processes discussed below were also adopted by the BRO when it took over the case management of dangerous building files. The notes used by the BETT and the BRO in relation to monitoring and reviewing cordons and barricades are attached as **Appendix 25** to this report.

The focus was on reducing the remaining cordons to ease traffic congestion, to allow bus routes to re-open and to assist businesses to return to normal trading conditions; while at the same time protecting the public from damaged and dangerous buildings.

The Traffic Management Team received all instructions through the BETT. It did not take instructions directly from building owners or their engineers. BETT would email detailed instructions to the Traffic Management Team regarding cordon design or removal. The Traffic Management Team liaised with Council contractors who would place and remove cordons.

Issues did occur with building owners making arrangements directly with contractors to establish or remove cordons around their buildings, without reference to the BETT. In other cases, buildings would be demolished, or dangerous features dealt with, but the BETT would not be informed. This resulted in cordons remaining in place where they were not needed.

Process for Establishing New Cordons

Information relating to the need to establish new barricades and cordons came to the BETT from several different sources – from Customer Service Requests relating to dangerous

buildings, from the engineers engaged by building owners and from BETT field inspection teams.

All decisions about the location of new cordons would be made by CPEng engineers in accordance with the notes attached in **Appendix 25**. If the engineer was engaged by a building owner, his or her recommendation would also be peer reviewed by the BETT engineer.

The instructions emailed to the Traffic Management Team in relation to new cordons would include either an aerial photograph or a sketch map with the cordons marked.

Process to Remove or Alter Cordons

The procedure used by the BETT and Traffic Management Team for the removal of temporary cordons and barriers at the request of building owners is attached as **Appendix 26**.

In some cases, a BETT engineer and a member of the Traffic Management Team would conduct a site visit to a building before allowing a cordon to be removed.

BETT Review of Cordons

The BETT and Traffic Management Team also proactively reviewed the use of barriers and cordons. The Traffic Management Team provided a schedule of key cordons to the BETT to review as a priority, to assist with the improvement of traffic flows and pedestrian safety. A BETT engineer inspected these sites and would note all hazards that remained to be addressed.

If it was considered that a cordon could be reduced or removed, the proposed reduction was discussed with the Traffic Management Team. If the Traffic Management Team agreed that the proposal would assist with traffic flows and pedestrian safety the necessary arrangements would be made with Council contractors.

7. 26 December 2010 aftershock

7.1 Immediate Response

On 26th December 2010 a series of aftershocks occurred in Christchurch - the most significant was a magnitude 4.9 which struck at 10.30am, centred very close to the CBD. Christchurch City Council and other emergency services staff established an Emergency Operations Centre at the Hereford Street Civic Offices soon after this aftershock occurred.

A Police cordon was initially established between Lichfield Street, Colombo Street, Hereford Street and Oxford Terrace. The area was not evacuated, but people were not permitted to re-enter the area while initial building evaluations were underway. The cordoned area gradually reduced over the 26th and 27th December 2010 as building evaluations continued.

Shortly after 10.30am, a Christchurch City Council building inspector and a Civil Defence volunteer trained in emergency management conducted an initial reconnaissance of the damage caused. Their reconnaissance route began on the corner of Tuam Street and Madras Street. They continued from there to the Sydenham end of Colombo Street and then returned to Cashel Mall.

Other building inspectors and engineers arriving at the Hereford Street Civic Offices were also sent out to conduct initial reconnaissance work in the CBD and along arterial routes. As with the 4th September 2010 event, the initial reports of damage were recorded on whiteboards in the EOC.

In addition to this initial reconnaissance work, engineers from the USAR Task Force Team also carried out building inspections in the CBD on 26th and 27th December 2010. The USAR teams completed "USAR Damaged Building Reconnaissance Reports" for the buildings inspected. The USAR assessments were made from vehicles and involved only a drive by assessment of the walls that could be seen from the road. As such, they were a very preliminary assessment only. The USAR teams did not issue rapid assessment placards.

7.2 Decision Regarding State of Emergency

Under section 68 CDEMA a state of local emergency may be declared, by a person with the relevant authority, if at any time it appears to the person that an emergency has occurred or may occur within the area.

The state of emergency may be declared for the whole area of the Civil Defence Emergency Management Group concerned, or for 1 or more districts or wards within the area.

Section 4 CDEMA states that "emergency" means a situation that:

- (a) *is the result of any happening, whether natural or otherwise, including, without limitation, any...earthquake,...and*
- (b) *causes or may cause loss of life or injury or illness or distress or in any way endangers the safety of the public or property in New Zealand or any part of New Zealand; and*
- (c) *cannot be dealt with by emergency services, or otherwise requires a significant and co-ordinated response under this Act".*

On 26th December 2010, the Deputy Mayor had the relevant authority to declare a state of emergency for Christchurch under the CDEMA. The Deputy Mayor received advice from the Christchurch City Council Civil Defence and Emergency Management Manager and the Local Controller rostered for that day, and the information from the initial damage assessments was reviewed.

It was determined that the situation did not require a declaration of a state of local emergency. It was considered that emergency services were responding adequately to the event, that the extent of the damage was limited to a small area and there was little damage or disruption to services in residential areas. It was therefore determined that the requirements of sections 68 and 4 CDEMA were not met.

7.3 Building Assessment Process

The NZSEE Guidelines were also put into operation following the Boxing Day earthquake. As information was collected from the building inspectors conducting the initial reconnaissance work and from the preliminary USAR building evaluations, it became clear that the worst damaged areas were Cashel Mall and Hereford Street. These areas were prioritised for rapid assessment. Priorities also included evaluating buildings in Cathedral

Square, inspecting arterial routes, re-opening the tram routes and responding to Customer Service Requests relating to potentially dangerous buildings.

Rapid assessment teams were formed on 26th December 2010. These teams included one building inspector, one CPEng engineer and, where available, one civil defence rescue team member. Fewer people were available for the rapid assessment teams because the aftershocks had occurred over the Christmas holiday period. In addition, because there had been no declaration of a state of emergency, the indemnity provisions in the CDEMA did not apply. As a result, fewer engineers volunteered their services for the building evaluation process.

Level 1 and 2 rapid inspections were carried out in the CBD by the rapid assessment teams between 26th and 28th December 2010. The rapid assessment teams completed rapid assessment forms as discussed in section 3.2 of this report.

The priorities for Level 2 rapid assessments were determined in the same manner as had been applied following 4th September 2010.

The rapid assessment teams were initially issuing green, yellow and red placards as discussed in section 3.2 of this report. However, during 27th December 2010 it was determined that the NZSEE placards could not be enforced, given that no state of emergency had been declared.

The rapid assessment teams reverted to categorising buildings as either green or red. Red buildings were those considered to be dangerous in terms of the definition in the Building Act 2004, as modified by the Order in Council. Any buildings that had received a yellow placard in the initial stages of the rapid assessment process were re-inspected – either as a Level 2 assessment, or by the BRO team.

On 29th December 2010 BRO staff returned to normal working hours. The BRO field inspection teams took over the inspection process.

All red placarded buildings were referred to the Council's Enforcement Team and were issued with appropriate Building Act notices and cover letters. The notices issued were either a section 124(1)(b) "no entry" notice or both a section 124(1)(b) notice and a section 124(1)(c) notice (requiring a building owner to carry out work within a certain timeframe to reduce or remove the danger).

A total of 177 new Building Act notices were issued for buildings in the CBD as a result of damage caused by the Boxing Day aftershock.

Access to Cashel Mall and Cathedral Square

In addition to the building assessment process described above, two CPEng engineers were engaged to review buildings in and around Cathedral Square, to determine whether it would be safe to hold the New Year's Eve celebration there. The report relating to Cathedral Square and the surrounding streets is attached as **Appendix 27**.

Council officers also recollect that an independent CPEng engineer was engaged to prepare a plan to restore pedestrian access to Cashel Mall.¹³ Cashel Mall re-opened to pedestrians on 29th December 2010 on the basis of this plan, with unsafe buildings cordoned off.

Information About Building Assessments

Further media releases regarding building evaluations were required after the 26th December 2010 event. Initial media releases referred to road closures and advised that building evaluations would be carried out in the central city.

A further media release at 9.30pm on 26th December 2010 states:

“The work being carried out today in the Central City by Civil Defence building assessors, assisted by the New Zealand Fire Service, is an initial check of the extent of damage, with the aim of protecting public safety on footpaths and roads adjacent to damaged buildings.

It is the responsibility of building owners, working with their insurers, to have their buildings structurally assessed by engineers. Any remediation work necessary will be carried out by the building owner and their insurer”.

This media release is attached as **Appendix 28** of this report.

A further media release on 27th December 2010 also refers to building owners obtaining their own assessments of buildings. The media release states:

“Central City business owners urged to check their buildings

Owners of buildings in areas affected by yesterday’s aftershocks are being asked to check the safety of their buildings.

Deputy Mayor Ngaire Button says while most of the city is open for business, the Cashel Street area between Oxford Terrace and Colombo Street and around Hereford Street has sustained some damage and has been cordoned off.

“We need the owners to bring in their structural engineers to assess the buildings and to ensure safety measures are in place. They also need to ensure the security of their property or business.

“Council is working in close conjunction with Police and the Fire Service and we need the building and business owners also to get on board and work with us by having engineers assess their buildings and for them to contact their insurance companies. We do need to ensure public safety””.

A copy of this media release is attached as **Appendix 29** of this report.

¹³ A copy of the Cashel Mall pedestrian access plan has not yet been located.

8. POWERS AVAILABLE TO THE COUNCIL AND OTHER AUTHORITIES TO DEAL WITH BUILDINGS IN RESPONSE TO THE EARTHQUAKES

8.1 Powers exercised during a state of emergency

This report sets out in **Appendix 2** the general powers available to the various bodies, including the Council, under the CDEMA when a state of emergency is declared. Although the CDEMA provides in section 6 that the Act “*does not limit, is not in substitution for, and does not affect the functions, duties, or powers of any person under the provisions of any enactment or any rule of law*”, the Council did not exercise any of its “building” related statutory powers during the state of emergency.

The NZSEE Guidelines, discussed in **Appendix 3**, contemplate that Building Act 2004 notices will replace the rapid assessment placards prior to the state of emergency ceasing, because the rapid assessment placards do not have any effect once the state of emergency is lifted.¹⁴ There was insufficient time for the Council to carry out this replacement exercise before the state of emergency came to an end on 16th September 2010, given the numbers of buildings concerned.

This problem was addressed by clause 8 of the Canterbury Earthquake (Building Act) Order 2010 (“the Order”, attached as **Appendix 30**). That clause provided that the red and yellow placards described in the NZSEE guidelines, and stated to be issued under part 5 of the CDEMA during the state of emergency (described in the Order as red cards and yellow cards) were deemed to be Building Act notices. Clause 9 of the Order meant they would be effective for 60 days from the date each red or yellow card was issued.

The red placards became section 124(1)(b) notices, warning people not to approach the building. The yellow placards became section 124(1)(d) notices (a new notice created by the same Order) restricting entry to a building other than for particular purposes or by particular persons as specified on the placard.

Green placards issued during the state of emergency did not need to be replaced with a Building Act notice. A green placard did not provide any limits on approaching, entering or using a building.

8.2 Building Act 2004 and other statutory powers for dealing with buildings

Introduction

The Council has a number of powers in the Building Act 2004 that enable it to deal with dangerous, insanitary and earthquake-prone buildings. Those powers can be exercised by the Council at any time and are not specifically for use during an emergency. However, those powers were extended and amended in various ways in the Order, so as to provide more effective ways for the Council to use the powers to address issues arising from the 4 September 2010 earthquake.

The Resource Management Act 1991 contains enforcement powers that could potentially be used to address some of the issues arising from the existence of dangerous or insanitary

¹⁴ *New Zealand Society for Earthquake Engineering, Building Safety Evaluation During a State of Emergency Guidelines for Territorial Authorities, August 2009, page 16.*

buildings (or other building related issues) but the more specific powers in the Building Act are generally used. The Council did not deal with buildings affected by the 4 September 2010 or Boxing Day earthquakes by using any of its Resource Management Act powers.

There are also powers in the Health Act 1956 that could be used in conjunction with or separately from Building Act 2004 powers. The Health Act powers are not immediately relevant to addressing structural damage to buildings, and are generally more relevant to unsanitary issues. Those powers are therefore not further discussed. The Council can provide more information about those powers if required.

There are powers in other legislation that could be exercised by the Council which may have an indirect result for a building or block of buildings. For example, the power to close roads temporarily under the Local Government Act 1974, which may be for another purpose, can also assist in keeping people away from dangerous buildings.

Other bodies also have powers and duties that could or should be exercised under other legislation. For example, under the Health and Safety in Employment Act 1992, employers have a general duty in section 6 to take all practicable steps to ensure the safety of employees while at work, which includes providing a safe working environment. Such an environment would include providing a safe building to work in.

Under section 30 of that Act inspectors have functions that include ascertaining whether or not the Act has been, is being, or is likely to be complied with, and to take all reasonable steps to ensure that the Act is being complied with. Section 31 also allows an inspector to direct an employer or any other person controlling that place of work, to conduct inspections. It appears this could include inspections of the building that is the place of work.

The relevant powers in the different pieces of legislation are included in **Appendix 31** to this report. The Building Act sections show the amendments made by the Order, as at the date the Order was made.

The following commentary summarises the powers in each Act.

Building Act 2004 powers prior to 16 September 2010

Sections 71 – 73 – applications for consent on land subject to natural hazards, and clause B1 (Structure) of the Building Code

The Council has powers under sections 71-73 of the Building Act 2004 (there were similar powers in the Building Act 1991) in relation to the approval of building consents where the land on which the building is to be located is subject to a "natural hazard". Rockfall or landslip hazards, which might have been created or made worse by an earthquake, are "natural hazards" that can be addressed by these provisions. However, earthquakes themselves are not a "natural hazard" under these provisions, and neither is the potential for liquefaction to occur on land.

The apparent reasoning for earthquake related hazards/issues not being included in sections 71-73 is that there are building code requirements that address such matters. Clause B1 (Structure) of the Building Code states that "*Buildings, building elements and sitework shall have a low probability of rupturing, becoming unstable, losing equilibrium, or collapsing during construction or alteration and throughout their lives*" (B1.3.1).

B1.3.3 provides that "*account shall be taken of all physical conditions likely to affect the stability of buildings, building elements and sitework, including ... (d) Earth pressure, (e) Water and other liquids, (f) Earthquake ... (l) Reversing or fluctuating effects, (m) Differential movement,....*", etc. Any sitework and associated supports must also take into account certain conditions, including ground loss and slumping (B1.3.7).

A brief summary of the powers in sections 71-73 is included below but the powers are relatively limited, in the context of the Council's ability to deal with buildings in response to the earthquakes.

Section 71 provides that a building consent application must be refused for work on land subject to a natural hazard unless the Council is satisfied that the land, building work, or other property will be protected from the hazard or that any damage will be restored.

An application required to be refused under section 71 must nevertheless be granted under section 72 if the building work will not accelerate, worsen, or result in a natural hazard on the land on which the building work is to be carried out or any other property.

The Council can impose any special conditions it thinks appropriate on a consent that is granted under sections 71 or 72. A mandatory condition, if consent is granted under section 72, is that the Council must notify the Registrar General of Land who puts a "tag" on the title to notify that it is subject to a natural hazard (section 73). With such a condition in place section 392 then exempts the Council from civil liability for issuing a building consent under section 72.

Therefore sections 71-73 are of limited assistance in responding to buildings affected by the earthquake, except for those subject to rockfall or landslip hazards (previously existing or made worse by the earthquakes).

Section 112 – alterations to buildings

Section 112 provides that the Council must not grant a building consent for the alteration of an existing building (the definition of alter also includes repair) unless it is satisfied that the altered building will comply as nearly as is reasonably practicable with the provisions of the Building Code for means of escape from fire and, if applicable to the building, access and facilities for persons with disabilities. This requirement can be modified in some situations, but there still has to be some improvement in the building in relation to either means of escape from fire or disabled access.

For many commercial buildings damaged in the earthquakes, if interim repairs to the buildings required a building consent then the building owners would also need to upgrade the whole of their buildings in relation to means of escape from fire and disabled access immediately. It was not always practical to immediately require this upgrading, particularly for repairs such as interim securing of buildings. To address this issue, in most cases the Council would not require a building consent for interim securing works, which meant the section 112 upgrading would not be triggered until the major repairs to the building were carried out. This approach was identified in the CPEng Certification form, attached at **Appendix 21** of this report.

Section 121 – dangerous buildings

Section 121 of the Building Act 2004 defines what can be a "dangerous" building. There are only two options. They are, if, "*in the ordinary course of events (excluding earthquakes), the*

building is likely to cause injury or death (whether by collapse or otherwise) to any persons in the building or to persons on other property, or damage to other property, and where the building is a fire hazard.

The Canterbury Earthquake (Building Act) Order 2010 amended section 121 by providing 3 additional situations that would qualify a building as a dangerous building. This is discussed below.

Section 122 – earthquake-prone buildings and the Council’s Earthquake Prone Buildings Policy

Section 122 defines an earthquake-prone building. Essentially, a building is earthquake-prone if, in a moderate earthquake, it is likely to cause injury to people or damage to other property. Residential buildings cannot be earthquake-prone buildings unless they comprise 2 or more storeys and contain 3 or more household units.

The definition of “moderate earthquake” is set out in the Building (Specified Systems, Change of Use, and Earthquake-prone Buildings) Regulations 2005. As a general guide, an earthquake-prone building will have a strength that is less than 33% of the seismic loading standard in NZS1170.5:2004. (As noted below, the seismic loading factor for Christchurch in NZS1170 changed on 19 May 2011.)

In relation to an earthquake-prone building the Council also has additional guidance in its policy adopted under section 131 of the Building Act 2004. This policy sets out the Council’s approach in relation to dealing with such buildings. The Council adopted its first policy in 2006, and reviewed and revised this in early 2010. Consultation on its proposed revised policy was carried out from 30 March 2010 to 7 May 2010, before the 4th September 2010 earthquake. The Council Hearings Panel in relation to the policy had met, and already made a decision which was due to be recommended to the Council for adoption at the end of September. The Panel hearing the policy had identified a gap in the current policy and in its report to Council proposed a new section to clarify how to handle known Earthquake-prone Buildings in the event that they were damaged by an earthquake and needed to be repaired.

The Council’s updated policy was adopted on 10th September 2010. It contains a new section (proposed in the consultation documents). The policy can be found on the Council’s website at the following address:

<http://resources.ccc.govt.nz/files/EarthquakeProneDangerousAndInsanitaryBuildingsPolicy2010.pdf>

The policy includes the Council’s requirements and targets for strengthening of buildings and establishes timeframes for earthquake strengthening of earthquake-prone buildings (those that are under 33% strength of the current Building Code requirements).

In relation to the level of strengthening required for buildings, the Council stated in section 2.3.1 of the Policy that:

“The Council will use the New Zealand Society of Earthquake Engineers’ (NZSEE’s) Recommendations as its preferred basis for defining technical requirements and criteria, including the level of strengthening required to reduce or remove the danger posed by each building. These Recommendations state that strengthening existing buildings to 67% of

current Building Code requirements for structural performance is considered to reduce the risk posed by these buildings to a reasonable level, taking into account the economic feasibility of strengthening. The Recommendations are designed to be used in conjunction with AS/NZS 1170 Loadings Standard, NZS 3101 Concrete Structures Standard, NZS 3404 Steel Structures Standard and other materials Standards.”

The only way to enforce the strengthening of earthquake-prone buildings is to use the powers in section 124 of the Building Act 2004. The policy notes that “*before exercising its powers under section 124, the Council will discuss options for action with owners, with a view to obtaining from the owner a mutually acceptable approach for dealing with the danger, leading to receipt of a formal proposal from the owner for strengthening or removal of the earthquake-prone building*” (section 2.3.3 of the policy).

The Council will seek strengthening to 67% of code during this process, but if it has to issue a section 124 notice it can only require that the building owner take steps so that their building is no longer earthquake-prone. A recent determination from the Department of Building and Housing has confirmed this approach with regard to section 124(1)(c) notices for earthquake-prone buildings (see “*The exercise of the powers of an authority to issue a notice under section 124 of the Act regarding a building considered to be earthquake-prone*”, DBH Determination 2010/133, 20th December 2010).

The timeframes in the policy were set in accordance with the Department of Building and Housing’s guidelines and range from 15 to 30 years, depending on the importance of the building. The policy indicates that these timeframes will be introduced from 1 July 2012, by which time consideration will have been given by the Council to the introduction of a package of non-regulatory tools and incentives.

In section 2.3.3 of the Policy the Council also notes that when setting timeframes for action on an earthquake-prone building, it will take into account previous strengthening and/or any contractual or statutory obligations that the building owner may be subject to, as well as any written notification of the timeframes the building owner has already received from the Council.

The Council also allows in section 2.3.4 for possible extensions of time for strengthening, but any extension will not exceed three years, will be subject to conditions set by the Council, and only one extension of time will be granted for each building. The CPEng Certification Form refers to strengthening for buildings needing to be done by September 2013, which relies on this extension provision in the Policy.

There are some situations when the 15-30 year timeframes for earthquake strengthening do not apply. One of these is discussed in the new section on earthquake-prone buildings that are damaged in an earthquake. Section 2.3.6 provides:

"2.3.6 Buildings damaged by an earthquake

Buildings may suffer damage in a seismic event. Applications for a building consent for repairs will be required to ensure structural strength. The Council will follow sections 2.3.1 and 2.3.3 of this Policy in determining the level of strengthening required for each building.

If a building consent application for repairs is not made and/or the repair work is not completed within a timeframe that the Council considers reasonable the Council reserves the right to serve notice under section 124(1) of the Building Act 2004 to require the work to be done."

Section 2.3.6 only applies to buildings which suffer damage in an earthquake that require a building consent to carry out repairs. If an "Earthquake-prone Building" is undamaged and does not need repair, or does not need a consent to repair, the policy requires seismic upgrading in accordance with the timeframes in the policy.

Following the 4th September 2010 earthquake, the Council developed some additional guidance and processes for dealing with buildings damaged in the earthquake that were also earthquake-prone. The first was a document developed in conjunction with the Canterbury Structural Group, the Department of Building and Housing, Council's legal advisor, the BETT project manager and engineering support coordinator. This document was the CPEng Certification form attached as **Appendix 21**.

The second document was a protocol for assessing buildings damaged in the earthquake (developed in conjunction with the Insurance Council). It set out the Council's general approach to the relationship between earthquake-prone buildings, the Council's earthquake-prone buildings policy and the provisions of the Building Act 2004. A copy of that Protocol is attached as **Appendix 32**.

Sections 124 -128 – Powers in respect of dangerous, earthquake-prone, or insanitary buildings

Section 124 of the Building Act 2004 sets out the Council's options if the Council considers a building to be dangerous, earthquake-prone or insanitary. Section 129 provides options for the Council if the danger posed by the building is immediate (discussed below).

Section 124(1) provides that if the Council "*is satisfied that a building is dangerous, earthquake prone, or insanitary, the territorial authority may*":

- (a) put up a hoarding or fence to prevent people from approaching the building nearer than is safe;
- (b) attach in a prominent place on, or adjacent to, the building a notice that warns people not to approach the building;
- (c) give written notice requiring work to be carried out on the building, within a time stated in the notice (which must not be less than 10 days after the notice is given, to reduce or remove the danger or prevent it remaining insanitary.

It appears these powers can be exercised separately, or one or more of the powers could be exercised at once.

If a notice under section 124(1)(c) is issued, then section 125 sets out the requirements for the notice. It must be attached to the building and served on specified interested parties, but if it is not served on all the parties then provided it is attached to the building, it is valid.

If the owner does not do the work within the time specified then the Council, after giving notice of its intention to do so, may apply to a District Court for an order authorising the Council to do the work and recover the costs from the owner (section 126). Section 127 makes it clear that the work can comprise demolition of a building.

While section 124 includes an offence for non-compliance with a section 124(1)(c) notice, section 128 makes it an offence to use or occupy, or to permit another person to use or occupy, a building for which a hoarding or fence has been erected under section 124(1)(a) or a notice attached under section 124(1)(b).

It is important to note that section 124 of the Building Act 2004 (and section 129) does not override the Resource Management Act 1991. If work required to remove or reduce the danger presented by a building also requires a resource consent, the resource consent must be obtained prior to the work being carried out (unless the emergency powers in section 330 of the Resource Management Act 1991 can be relied on).

Section 129 – Measures to avoid immediate danger or to fix insanitary conditions

Section 129 of the Building Act 2004 also provides an option for the Council in relation to a dangerous building where the state of the building is such that “*immediate danger to the safety of people is likely in terms of section 121*”. (There is no mention of risk of damage to other property in section 129.) The process is that the chief executive issues a warrant to allow immediate action to be taken to remove the danger, and that action can include demolition of buildings as well as the repair of buildings.

The test for “danger to the safety of people” being “likely” requires that the risk of the building causing injury or death to people must be “a reasonable consequence” or “something which could well happen”. But in section 129 the concept of “immediate” is also important.

In *Rotorua DC v Rua Developments Ltd* 3/3/98, Judge McGuire, DC Rotorua NP966/97, the Court held that “immediate danger is apprehended when there is an honest belief that there is an immediate danger” but that does not require a high degree of certainty. Neither does that give the chief executive carte blanche to issue warrants. Issuing a warrant amounts to “a significant invasion of the property rights of the owner”, so it is required to be issued in good faith. Warrants should not authorise work “that is more than what is needed to remove the immediate danger or where immediate danger cannot honestly be said to have been apprehended”.

If the chief executive issues a warrant then the Council is responsible for the costs of the repairs or demolition it undertakes, but it can recover those costs from the owner as a debt and can register a statutory charge against the land. On completion of the action stated in the warrant, the Council must apply to a District Court for confirmation of the warrant, unless the owner does not dispute the entry or the costs.

Sections 222 - 226 – Inspections

Under section 222, the Council's authorised officers are empowered to enter on any land or premises for a number of purposes including for the purpose of determining whether the building is dangerous, earthquake prone, or insanitary.

Despite section 222, an authorised officer may not enter a household unit that is being used as a household unit without the consent of the occupier or with an order from the Court. The authorised officer must produce a warrant and owners and occupiers have a duty to give reasonable assistance with the inspection.

Building Act 2004 powers, as amended by the Canterbury Earthquake (Building Act) Order 2010

The Order, which is in effect until 16th September 2011, enlarges on the “dangerous building” definition in section 121 to include:

- “(c) *there is a risk that the building could collapse or otherwise cause injury or death to any person in the building as a result of an earthquake that generates shaking that is less than a moderate earthquake; or*
- “(d) *there is a risk that other property could collapse or otherwise cause injury or death to any person in the building; or*
- “(e) *a territorial authority has not been able to undertake an inspection to determine whether –*
 - “(i) *the building is dangerous under paragraph (a); and*
 - “(ii) *the territorial authority or the chief executive, as the case may be, is required to exercise powers under section 124 or 129 as modified by this order.”*

Section 124 was amended to provide a further option for the Council to address a dangerous building. The Council could now also “*issue a notice restricting entry to a building for particular purposes or restricting entry to particular persons or groups of persons*”.

As already mentioned, in relation to buildings that received a red or yellow placard under powers in the CDEMA, those placards became deemed Building Act notices under section 124(1)(b) [red] and section 124(1)(d) [yellow]. The notices were valid for 60 days from when they were issued unless they were renewed. Because they were deemed Building Act notices, there was no formal decision made under section 121 (as amended) that the buildings were “dangerous”.

Section 124(1)(c) was also amended to provide that the time stated in the notice must not be less than 5 days after the notice is given (instead of 10 days), and to provide information to the owner that if the work is not done by the owner, the Council can do the work and recover the costs from the owner. As noted above, clause 9 was also amended to provide that both section 124(1)(b) and (1)(d) notices only have a life of 60 days. Under normal Building Act powers a section 124(1)(b) notice does not have an expiry date.

Section 126 was also amended to provide that an application to the Court is not required before the Council does any work in default of the owner doing it, but the owner can still apply to the Court to challenge the costs the Council seeks to recover (clause 11). Sections 127 and 128 were also amended to provide that work carried out by the Council under section 129 may include demolition, and failing to comply with section 124(1)(d) is also an offence under section 128 (clauses 12 and 13).

If the Council uses its powers under section 129, then it does not currently need to apply for any resource consent that may also be required (as a result of the Canterbury Earthquake (Resource Management Act) Order 2010). In addition, the Council is exempted from the

requirement in section 130 to apply to the District Court for confirmation of the warrant (clause 16).

Clause 18 also extended the definition of authorised officer in section 222(4) of the Act so that an authorised officer includes any person accompanying the authorised officer.

Changes to the compliance documents for the Building Code

The changes to the compliance document¹⁵ for clause B1 of the Building Code will now allow the Council to require stronger foundations and to consider the effects on land of liquefaction and lateral spread when it considers building consents for repairs to buildings damaged in the earthquakes, or for the construction of new buildings. It could not have imposed the same requirements for any building consents prior to 19 May 2011, when the changes came into effect.

The B1 compliance document generally requires building foundations to be on "good ground", but also refers to the fact that special foundations will be needed where good ground cannot be established (and the compliance document cannot be relied on).

The amendments to this compliance document, which are specifically for the Canterbury Earthquake region (the area covered by the Christchurch City Council, the Selwyn District Council and the Waimakariri District Council), increase the seismic hazard factor for Canterbury and require stronger foundations for buildings because of new knowledge about the earthquake risk in the region.

Among other changes, there are amendments to the definition of "good ground" to exclude, in addition to other ground movement conditions, liquefaction, and lateral spread. The seismic hazard factor Z (described in AS/NZS 1170 (Structural Design Actions)), has been increased from 0.22 to 0.3 as a minimum.

An information sheet on the changes has been published by the Department of Building and Housing and can be found at: <http://www.dbh.govt.nz/information-sheet-seismicity-changes>.

8.3 Powers under the Canterbury Earthquake Response Act 2011

The Canterbury Earthquake Response Act 2011 has provided for powers that can be exercised by either the Chief Executive of CERA, or the Minister, in relation to buildings. These powers are much more encompassing than the powers that were available to the Council after the 4th September and Boxing Day earthquakes.

The Act includes the following provisions in relation to the demolition of buildings:

Section 38 - Works

This section enables the Chief Executive of CERA to commission works including:

15 Compliance documents provide one means of complying with the requirements of the New Zealand Building Code. They are not mandatory, but buildings built to the method described in a Compliance Document are automatically deemed to comply with the Building Code.

- the demolition of all or part of a building, structure, or other erection on or under land; and
- the removal and disposal of any building, structure, or other erection on or under land, or material.

As part of these works the Chief Executive may remove fixtures and fittings from any building.

Works may be undertaken on or under public or private land, and with or without the consent of the owner or occupier.

The process where the Chief Executive intends to commission works is:

- The Chief Executive gives written notice to an owner of a building, structure, or other erection on or under land that demolition work is to be carried out there.
- The owner must within 10 days after the Chief Executive's notice, respond stating whether or not the owner intends to carry out the works and, if the owner intends to do so, specifying a time within which the works will be carried out.

If the owner fails to respond or the Chief Executive is not satisfied with the time specified, or the works are not carried out in the time specified or otherwise agreed then:

- the Chief Executive may commission the carrying out of the works; and
- in the case of the demolition of a building to which section 40(1) or (2) applies, the Chief Executive may recover the costs of carrying out the work from the owner of the dangerous building in question. The amount recoverable becomes a charge on the land on which the work was carried out.

Section 39 – Demolition & other works

This section provides the steps where section 38 works are being undertaken. They are divided into essentially two areas – health and safety and notice provisions.

Health & Safety

Section 39(2)(a) and (b) permits the Chief Executive to:

- put up a hoarding or fence to prevent people from approaching works nearer than is safe; and
- attach in a prominent place on, or adjacent to, the works a notice that warns people not to approach the works.

Notice

Where the works are being undertaken the Chief Executive may write directly to an owner, occupier, or other person notifying them of the work to be carried out and/or requiring them to leave the works or land for a specified period or until further notice (section 39(2)(c)). There

is no right of appeal or objection to this notice and it must be given at least 1 month in advance of the works (section 39(7)).

The notice should be given to all affected parties if practicable (there is a list in section 39(3)(a)) but this includes the owner and occupiers.

Where the works do not require parties to leave the land, but it is necessary to enter the land to complete works, notice should be given 24 hours in advance of any works.

An exception to the above is where emergency works are required. In this situation no notice is required (these works include where there is risk to life or danger to adjoining property, section 39(5)).

Sections 40, 41 and subpart 5 – Compensation for demolition of buildings and damage to other property

These sections provide for compensation to be made in certain circumstances and also provide when there is no liability for compensation. There is also a procedure for claiming compensation in subpart 5 of the Act. This report does not discuss these provisions or the compensation procedure.

Other powers relevant to dealing with buildings:

Section 44 – Temporary Buildings

Under section 44, the Chief Executive may erect or authorise the erection and use of temporary buildings on any public reserve, private land, road, or street and provide for their removal. This can be done without resource consent or building consent.

Section 46 – Closing and stopping roads

The Chief Executive may totally or partially prohibit or restrict public access, with or without vehicles, to any road or public place within greater Christchurch for as long as he considers necessary.

In order to undertake this power, the Chief Executive must consult the relevant road controlling authority:

- before stopping a road or part of a road under this section;
- if practicable, before exercising any other power under this section in relation to a road.

Section 48 – Directions to take or stop action

Under this section, the Minister for Canterbury Earthquake Recovery can direct any council or council organisation to take or stop taking any action, or to make or not make any decision. This direction cannot relate to setting rates. The section specifically refers to decisions on matters relating to resource management issues, namely any action or inaction required, authorised or prevented by a resource consent, a rule in a plan that permits an activity, a designation, and an existing use right, among other things. However, that list is

stated to be without limitation, so section 48 would also allow the Minister to give directions to the Council in relation to building consents and other Building Act matters.

Section 51 – Requiring structural survey

This section allows the Chief Executive to require any owner, insurer or mortgagee of a building that may have been affected structurally in the earthquakes to carry out a full structural survey of the building before it is reoccupied. This is a key power for CERA that can be exercised in relation to any building, whether it is considered to be a dangerous building (under the Building Act 2004 definitions), or not. The Council does not have the same powers under the Building Act, or any other legislation, to require owners to provide such reports (or have such reports prepared) at the owner's cost.

Section 52 - Adjoining or adjacent owners

The Chief Executive may direct that the owners of any two or more adjoining or adjacent properties act for the benefit of any other adjoining or adjacent owners in the manner specified by the Chief Executive.

Section 53 – Acquiring and disposing of property

The Chief Executive may, in the name of the Crown, purchase or otherwise acquire, hold, sell, exchange, mortgage, lease, and dispose of land and personal property.

Section 54 - Notice of intention to take land

The Minister for Canterbury Earthquake Recovery may acquire land compulsorily (refer to the section for the details of advertising, notice and other requirements).

Section 58 – Offering back land

Under this section where any residential land in the CBD, or any land in greater Christchurch outside the CBD, is compulsorily acquired and the Chief Executive wishes to exercise his or her power under this Act to dispose of the land, the Chief Executive must offer to sell the land by private contract to the person from whom it was acquired or their successor, unless it is impracticable to do so.

Section 83 – Liability

This section provides for indemnity in several scenarios – general indemnity in relation to any actions taken and indemnity in relation to demolition works.

General

Except as provided in the Act the Crown has no liability for any:

- damages or other amount for any loss, damage, or adverse effect that is due directly or indirectly to any action taken under this Act; or
- work required to be carried out or other action to be taken in order to remedy or mitigate any loss, damage, or adverse effect that results directly or indirectly from any action taken under this Act.

This applies whether there was an act or an omission to act, so long as the act or omission occurred in the exercise or performance, or intended exercise or intended performance, of the functions, duties, or powers under this Act.

This exemption does not extend to any act or omission to act that constitutes bad faith or gross negligence on the part of that person.

Where an action is taken under the Act, there is no liability under the Resource Management Act 1991 for any fine, costs, or expenses in respect of that action, except as otherwise provided in the Act.

Demolition

If the Minister for Canterbury Earthquake Recovery or the Chief Executive becomes a party to any agreement or arrangement entered into by a council for the purposes of carrying out demolition or other works, then the Minister or Chief Executive is entitled to the full benefit of any provision in the agreement or arrangement that limits or excludes any liability of the council (such as liability for damage caused by, or for the costs of, demolition work) under the agreement or arrangement.

If the council assumes any liability of the Minister or Chief Executive in relation to demolition or other works under this Act, the council is entitled to the full benefit of any provision in an agreement or arrangement that limits or excludes any liability of the Minister or the Chief Executive (such as liability for damage caused by, or for the costs of, demolition work) under the agreement or arrangement.

Where the Council or a council organisation acts in accordance with a direction from the Chief Executive under section 48(1) [a direction to take action or stop any action] there is no liability for any loss or damage resulting from acting in accordance with the direction, unless it acts in bad faith or with gross negligence.

APPENDIX 1

TIMELINE OF EARTHQUAKE RELATED EVENTS

TIMELINE OF EARTHQUAKE RELATED EVENTS

4 Sept 2010	4.35am – magnitude 7.1 Darfield earthquake.
	Overall damage survey begins.
	6.10am – EOC established at Christchurch Art Gallery.
	9.33am – state of local emergency declared under section 68 Civil Defence Emergency Management Act 2002.
	Preparations begin for rapid assessment of CBD buildings.
	CBD Police cordon established.
5 Sept 2010	9.30am – briefing of rapid assessment teams at the EOC.
	Level 1 rapid assessments begin in the CBD.
	Evening - USAR engineers conduct a general review of placards issued in the CBD.
6 Sept 2010	Level 1 assessments carried out on buildings along the main arterial routes.
	Midday – Level 1 rapid assessments completed in the CBD.
	Level 2 assessments begin on priority buildings in the CBD.
	11.24pm – magnitude 5.2 aftershock.
	11.40pm – magnitude 5.4 aftershock.
7 Sept 2010	3.24am – magnitude 5.4 aftershock.
8 Sept 2010	7.49am – magnitude 5.1 aftershock.
9 Sept 2010	Project East (residential building assessments) begins.
10 Sept 2010	CBD cordon lifted.
	Christchurch City Council Earthquake-prone, Dangerous and Insanitary Buildings Policy 2010 adopted.
12 Sept 2010	EOC begins move back to Hereford Street Civic Offices.
13 Sept 2010	Building Recovery Office (BRO) established.
14 Sept 2010	Canterbury Earthquake Response and Recovery Act 2010 receives Royal Assent.
16 Sept 2010	Midday – state of local emergency ends.
	Canterbury Earthquake (Building Act) Order 2010 takes effect.
20 Sept 2010	Building Evaluation Transition Team (BETT) established.
4 Oct 2010	10.21pm – magnitude 5.0 aftershock.
5 Oct 2010	BETT audit of all yellow and red placarded commercial buildings begins.
13 Oct 2010	4.42pm – magnitude 5.0 aftershock.
19 Oct 2010	11.32am – magnitude 5.1 aftershock.
20 Oct 2010	BETT audit of commercial buildings completed.
28 Nov 2010	BETT and BRO functions merged to form new BRO.
1 Dec 2010	BRO case management begins.
26 Dec 2010	10.30am – 4.9 magnitude aftershock.
	EOC established at Hereford Street Civic Offices.
	Police Cordon established.
	Rapid assessments begin in CBD.
28 Dec 2010	Rapid assessments completed in CBD.
20 Jan 2011	6.03am – magnitude 5.1 aftershock.
22 Feb 2011	12.51pm – magnitude 6.3 aftershock.

APPENDIX 2

CIVIL DEFENCE EMERGENCY FRAMEWORK

CIVIL DEFENCE EMERGENCY FRAMEWORK

1. This Appendix outlines the Civil Defence Emergency framework in order to explain the various positions, groups, functions and roles under the Civil Defence Emergency Management Act 2002 (**CDEMA**). These positions or groups involve:
 - (a) Minister of Civil Defence;
 - (b) National Director of Civil Defence Emergency Management;
 - (c) National Controller;
 - (d) Civil Defence Emergency Management Group;
 - (e) Group Controller;
 - (f) Local Controllers.

2. In outlining the Civil Defence Emergency framework reference will be made to the following:
 - (a) The CDEMA;
 - (b) The Canterbury CDEMG Plan (**Plan**);
 - (c) The Christchurch City Civil Defence Emergency Management Arrangements (**Christchurch City Arrangements**)

Minister's power of direction

3. The Minister of Civil Defence is at the top of the organisational structure. Section 84 gives the Minister broad powers of direction:
 - "(2) ... the Minister may direct the Director or any Civil Defence Emergency Management Group or person—
 - (a) to perform or exercise any of the functions, duties, or powers conferred on that person or Group under this Act; or
 - (b) to cease to perform or exercise any of the functions, duties, or powers conferred on that person or Group under this Act."

Powers of the National Director and National Controller

4. The Director of Civil Defence Emergency Management (**National Director**) has a broad range of powers under sections 8 and 9 of the CDEMA. The National Director can delegate many of these powers to the National Controller.

5. During a state of local emergency, the National Director's powers are limited. However, the National Director does have powers in relation to coordinating

planning, preparation, co-ordination, and carrying out of civil defence emergency management (section 9(2)(i) of the CDEMA).

National CDEM Strategy and National Plan

6. The Ministry of Civil Defence and Emergency Management (**Ministry**) has prepared a National Civil Defence Emergency Management Strategy ("**National CDEM Strategy**") under section 31 of the CDEMA. The National CDEM Strategy sets out the Crown's CDEM goals, policy objectives and measurable targets.
7. The Ministry has also prepared a National Civil Defence Emergency Management Strategy Plan ("**National CDEM Plan**") that sets out the CDEM arrangements necessary at the national level to manage nationally significant hazards and risks and the coordination of CDEM during a period of national emergency. It also provides a basis for local planning for national emergency response organisations. The National CDEM Plan is contained in the Schedule to the National Civil Defence Emergency Management Plan Order 2005. This Plan was not implemented following the September 2010 earthquake.

Statutory functions and powers of the CDEMG, Group Controller and Local Controllers during a state of local emergency

CDEMG

8. Section 12 of the CDEMA requires every regional council and every territorial authority within that region to establish a CDEMG for the region.
9. Section 13(1) of the CDEMA provides that every local authority must be a member of a CDEMG. Section 13(4) sets out the representation requirements for each member of the CDEMG:

"Each local authority that is a member of a Group with other local authorities must be represented on the Group by 1, and only 1, person, being the mayor or chairperson of that local authority or an elected person from that local authority who has delegated authority to act for the mayor or chairperson."

Functions

10. Section 17 of the CDEMA outlines the functions of a CDEMG. Section 17 is as follows:

"The functions of a Civil Defence Emergency Management Group, and of each member, are to—

- (a) *in relation to relevant hazards and risks,—*
 - (i) *identify, assess, and manage those hazards and risks:*
 - (ii) *consult and communicate about risks:*
 - (iii) *identify and implement cost-effective risk reduction:*

- (b) *take all steps necessary on an ongoing basis to maintain and provide, or to arrange the provision of, or to otherwise make available suitably trained and competent personnel, including volunteers, and an appropriate organisational structure for those personnel, for effective civil defence emergency management in its area:*
 - (c) *take all steps necessary on an ongoing basis to maintain and provide, or to arrange the provision of, or otherwise to make available material, services, information, and any other resources for effective civil defence emergency management in its area:*
 - (d) *respond to and manage the adverse effects of emergencies in its area:*
 - (e) *carry out recovery activities:*
 - (f) *...:*
 - (g) *...:*
 - (h) *...:*
 - (i) *develop, approve, implement, and monitor a civil defence emergency management group plan and regularly review the plan:*
 - (j) *...:*
 - (k) *...:*
- (2) *A Group also has any other functions that are conferred or imposed by or under this Act or any other enactment."*

Powers and obligations

11. Section 18 sets out the general powers of the CDEMG:

- "(1) *A Civil Defence Emergency Management Group has all the powers that are reasonably necessary or expedient to enable it to perform its functions, including the power to delegate any of its functions to members, the Group Controller, or other persons.*
- (2) *Without limiting the generality of subsection (1), a Group may—*
 - (a) *recruit and train volunteers for civil defence emergency management tasks:*
 - (b) *conduct civil defence emergency management training exercises, practices, and rehearsals:*
 - (c) *issue and control the use of signs, badges, insignia, and identification passes authorised under this Act, regulations made under this Act, or any civil defence emergency management plan:*

- (d) *provide, maintain, control, and operate warning systems:*
 - (e) *provide communications, equipment, accommodation, and facilities for the exercise of its functions and powers during an emergency:*
 - (f) *exercise any other powers that are necessary to give effect to any civil defence emergency management plan."*
12. Section 18(1) of the CDEMA provides for the CDEMG to delegate its functions, including to the Council as a member, to the Group Controller, or other persons. The Canterbury CDEM Group Plan states (section 6, page 3, part 6.2(e)) that the Group has delegated power under section 85 to the Local Controllers. The Plan states that this delegation was approved by the Joint Committee/Group on 22 April 2005. These powers were also delegated to the Group Controller – see page 1, section 6.1(e).

13. Part 5 of the CDEMA sets out the powers in relation to a Civil Defence Emergency. Section 85 sets out the emergency powers of the CDEMG. It provides:

"(1) *While a state of emergency is in force in its area, a Civil Defence Emergency Management Group may -*

- (a) *carry out or require to be carried out all or any of the following:*
 - (i) *works:*
 - (ii) *clearing roads and other public places:*
 - (iii) *removing or disposing of, or securing or otherwise making safe, dangerous structures and materials wherever they may be:*
- (b) *provide for the rescue of endangered persons and their removal to areas of safety:*
- (c) *set up first aid posts, and provide for first aid to be given to casualties and for their movement to hospital, other place of treatment, or areas of safety:*
- (d) *provide for the relief of distress, including emergency food, clothing, and shelter:*
- (e) *provide for the conservation and supply of food, fuel, and other essential supplies:*
- (f) *prohibit or regulate land, air, and water traffic within the area or district to the extent necessary to conduct civil defence emergency management:*
- (g) *undertake emergency measures for the disposal of dead persons or animals if it is satisfied that the*

measures are urgently necessary in the interests of public health:

- (h) disseminate information and advice to the public:*
 - (i) enter into arrangements, including employment arrangements, with any person for the purpose of carrying out civil defence emergency management as may be agreed:*
 - (j) provide equipment, accommodation, and facilities for the exercise of any of the powers conferred by this subsection.*
- (2) A Civil Defence Emergency Management Group must not act inconsistently with any directions given by the Minister or the Director."*

Civil Defence Emergency Management Co-ordinating Executive Group (CEG)

14. Under section 20 of the CDEMA, a CDEMG must establish and maintain a CEG. The CEG is made up of Chief Executives from each local authority (or persons acting on a Chief Executive's behalf); a senior member of the Police who is assigned for the purpose by the Commissioner of Police; a senior member of the Fire Service who is assigned for the purpose by the National Commander; and the Chief Executive of the hospital and health services operating in the area (or a person acting on the Chief Executive's behalf). The CEG supports the CDEMG by providing advice and assisting in response and recovery.

Group Controller

15. Under section 26 of the CDEMA, a CDEMG must appoint, either by name or by reference to the holder of an office, a suitably qualified and experienced person to be the Group Controller for its area.
16. Section 28 provides the functions of the Group Controllers. It states:
- "(1) The Group Controller must, during a state of local emergency for the area for which the Group Controller is appointed, direct and co-ordinate, for the purposes of this Act, the use of the personnel, material, information, services, and other resources made available by departments, Civil Defence Emergency Management Groups, and other persons.*
 - (2) The Group Controller must also perform any functions or duties delegated to the Group Controller by the Civil Defence Emergency Management Group or conferred on Controllers by this Act or any other enactment, and may exercise any power conferred on the Group Controller by delegation under this Act.*
 - (3) A Group Controller or person directed under section 27 may authorise any suitably qualified and experienced person to*

exercise any power or function or fulfil any duty of that Group Controller or directed person, including the power to authorise the use of those powers, functions, and duties.

- (4) *No Group Controller or person directed under section 27 may exercise any power conferred on Controllers by this Act during any state of national emergency in any manner contrary to any priorities for the use of resources and services that have been determined by the Director or National Controller."*

17. Section 28(1) provides broad functions to the Group Controller during a state of local emergency.
18. Section 28(3) provides the power for the Group Controller or a Local Controller to authorise a suitably qualified and experienced person to exercise their powers under the CDEMA.

Local Controllers

19. Section 27 provides for the CDEMG to appoint one or more persons as a Local Controller, and direct that person or persons to carry out any of the functions or duties of that Group's Group Controller, and exercise the powers of controllers, including under sections 86-94 of the CDEMA.

20. Section 27(2) then provides a limit on the ability of the Local Controller to exercise powers as follows:

"Despite anything in subsection (1), the Local Controller must follow any directions given by the Group Controller during an emergency."

21. Sections 86-92 contain further powers, that can be exercised by a Controller or constable, or a person acting under the authority of a Controller or constable while a state of emergency is in force in the area. As an example, section 91 provides:

"While a state of emergency is in force, a Controller or a constable, or any person under the authority of a Controller or constable may –

- (a) *direct any person to stop any activity that may cause or substantially contribute to an emergency:*
- (b) *request any person, either verbally or in writing, to take any action to prevent or limit the extent of the emergency."*

22. Section 86 provides:

"If a state of emergency is in force and, in the opinion of a Controller or any member of the police, the action authorised by this section is necessary for the preservation of human life, that person or a person authorised by him or her may require, within the area or district in which the emergency is in force,—

- (a) *the evacuation of any premises or place, including any public place; or*

- (b) *the exclusion of persons or vehicles from any premises or place, including any public place."*

23. Section 92 provides:

"While a state of emergency is in force, a Controller or a member of the police, or any person acting under the authority of a Controller or member of the police, may examine, mark, seize, sample, secure, disinfect, or destroy any property, animal, or any other thing in order to prevent or limit the extent of the emergency."

Statutory functions and powers of the Council during a state of local emergency

24. As indicated below the Christchurch City Council is a member of the Canterbury CDEMG. Section 13(4) of the CDEMA states that the Council's representative on the CDEMG will be the mayor or other person who has delegated authority to act for the mayor.

25. In addition to being a member of the CDEMG, the duties of the Council under the CDEMA are set out in section 64:

"(1) A local authority must plan and provide for civil defence emergency management within its district.

(2) A local authority must ensure that it is able to function to the fullest possible extent, even though this may be at a reduced level, during and after an emergency."

26. Under section 64(2) of the CDEMA, the Council has a duty to function to the fullest possible extent. Section 64(2) relates to business as usual functions of the Council.

CANTERBURY CIVIL DEFENCE EMERGENCY MANAGEMENT GROUP

27. The local authority members of the Canterbury CDEMG are:

- (a) Ashburton District Council;
- (b) Christchurch City Council (including the previous Banks Peninsula District Council);
- (c) Environment Canterbury;
- (d) Kaikoura District Council;
- (e) Hurunui District Council;
- (f) Mackenzie District Council;
- (g) Selwyn District Council;
- (h) Timaru District Council;
- (i) Waimate District Council; and
- (j) Waimakariri District Council.

28. The area covered by the CDEMG is shown in Figure 1.1 of the Canterbury Civil Defence Emergency Management Group Plan 2005-2010. The Group area extends to the northern boundaries of Kaikoura and Hurunui Districts, to the west along the boundary with the West Coast Region/CDEMG area, to the south by the southern boundaries of Mackenzie and Waimate Districts, and by the Pacific Ocean to the East.

Canterbury Civil Defence Emergency Management Group Plan 2005-2010

29. Under section 17(1)(i) and section 48, a CDEMG is required to:
- "develop, approve, implement, and monitor a civil defence emergency management group plan and regularly review the plan."*
30. The Canterbury Civil Defence Emergency Management Group Plan 2005-2010 (Canterbury CDEMG Plan) was approved by the Canterbury CDEMG Joint Committee on 22 April 2005.
31. The Canterbury CDEMG Plan was operative for a five year period from 22 April 2005. However, under section 55 of the CDEMA, if the plan is not replaced before the close of the operative period, the plan continues in force until replaced.¹

Relationship to National CDEM Strategy, National CDEM Plan and other Plans

32. Section 53(1) of the CDEMA states that the CDEMG Plans must not be inconsistent with the National CDEM Strategy. Section 53(2) states that the CDEMG Plan must also take into account the guidelines, codes, or technical standards issued by the National Director.

CDEMG Structure

33. The Canterbury CDEMG Plan sets out further detail about positions, appointments and relationships with other key groups in emergency management. The key features of the Canterbury CDEMG governance structure will now be set out.

CDEMG Joint Committee

34. As discussed above, the governance of the Group is provided by a joint committee of elected representatives from all of the local authorities in the CDEMG Area. This CDEMG Joint Committee is a joint standing committee established under clause 30(1)(b) of Schedule 7 of the Local Government Act 2002, and is made up of political representatives from each of the 10 local authorities in the Group's area. This Joint Committee exercises governance and determines Group CDEM policy.
35. The Christchurch City Council's representative on the Canterbury CDEMG Joint Committee was Councillor Bob Shearing until the local government elections held in October 2010. The Council's representative following the local government elections became Councillor Helen Broughton. The Canterbury CDEMG Joint Committee has not met since the elections in October 2010 (as at 31 July 2011).

Coordinating Executive Group (CEG)

36. The CDEMG maintains relationships with a wide range of partner organisations. The primary partners are those with membership on the CEG

¹ The CDEMG Plan had been under review for some months and the Group had reached the stage of assessing feedback on a draft new plan.

established according to section 20 of the CDEMA. The representative members that form the CEG are chief executives or senior officers of their respective organisations in Canterbury.

37. The CEG supports the CDEMG Joint Committee. The CEG implements relevant decisions of the CDEMG Joint Committee, and provides the joint committee with strategic advice, and assists with the all-agency partnership approach to emergency management in Canterbury.
38. The Christchurch City Council's representative on the Canterbury CDEMG CEG is Jane Parfitt (General Manager, City Environment) and the alternate member is Murray Sinclair (CDEM & Rural Fire Manager).

CDEM Group Controller

39. The Plan details the appointment of the CDEMG Controller.
40. The Plan states that the CDEMG Joint Committee has appointed a Group Controller and Alternate Group Controllers in accordance with section 26 and 27 of the CDEMA.
41. The Plan records that the Group Controller for the CDEMG area is Robert N Upton. However, Mr Upton was not in New Zealand on 4th September 2010, so John Talbot (an Alternate Group Controller, as stated below) assumed the Group Controller role.
42. The Plan records that Alternate Group Controllers have been appointed by the CDEMG Joint Committee to act as the Group Controller in the event of a vacancy in the office of Group Controller, or on occasions when the Group Controller is absent, including when the Group Controller is resting between shifts during an emergency and when the Group Controller otherwise delegates their functions and powers to an Alternate Group Controller. The Alternate Group Controllers in September 2010 were John Talbot, Jon Mitchell and Ken Taylor.
43. The Plan records at (Section 6, page 1, 6.1) that the CDEMG Joint Committee has delegated to the Group Controller authority to exercise the powers of section 85 of the CDEMA, in addition to the powers assigned to Controllers by sections 86 to 94 of the CDEMA.

Local Controllers

Appointment of Local Controllers

44. In accordance with Section 27 of the CDEMA and the Canterbury CDEMG Plan, the following persons have been appointed as Local Controllers for Christchurch City:
 - (a) Jane Parfitt, General Manager, City Environment;
 - (b) Peter Mitchell, General Manager, Regulation & Democracy Services;
 - (c) Michael Aitken, General Manager Community Services; and
 - (d) Kevin Locke, General Manager, Capital Programme.
45. The Canterbury CDEMG Plan states that alternate Local Controllers are to be appointed to act as Local Controller in the event of a vacancy in the office of

Local Controller on occasions when the Local Controller is absent, including when the Local Controller is resting between shifts during an emergency and when the Local Controller otherwise delegates their function and powers to an Alternate Local Controller. The Alternate Local Controllers following the 4th September 2010 earthquake were Clive Manley, Mike Mendoza and Darryl Griffins.

Delegated authority

46. The Canterbury CDEMG Plan states at page three of section 6 that:
- "The CDEM Group Joint Committee delegates to each Local Controller authority to exercise the powers of the CDEM Act s85. This is in addition to the powers assigned to the Controllers by sections 86 to s94 of the CDEM Act, for the part of the CDEM Group area for which the Local Controller has been appointed."*
47. The Canterbury CDEMG Plan states that under section 27 of the CDEMA, the CDEMG directs that the Local Controllers, during a state of emergency for the part of the CDEMG area for which they are appointed, must direct and coordinate the use of personnel, materials, information, services, and other resources made available by departments, CDEMGs, and other persons.
48. Other Local Controller functions include:
- (a) acting on behalf of and as an advisor to the Group Controller;
 - (b) participating in the development, delivery and maintenance of effective CDEM response structures and systems.

Group Emergency Coordination Centre (ECC)

49. The Plan records that the Group ECC is the main facility from which the response to emergencies (declared or otherwise) is coordinated at a regional level in Canterbury. The ECC is located at and provided for by Environment Canterbury under its Service Level Agreement with the CDEMG Joint Committee.
50. The CEG and its various committees provide the basis for coordination and liaison at a Group level.
51. The Group ECC and Local EOCs provide facilities to manage and support the overall response to an emergency event. The distinction between the Group ECC and Local EOCs is that the Group ECC provides a higher level of response coordination, with a focus on prioritising and coordinating the use of scarce response resources.
52. The Canterbury CDEMG Plan provides that the role of the CDEMG ECC is to:
- (a) coordinate and/or support activated Local EOCs;
 - (b) receive, assess and disseminate information for emergency response agencies;

- (c) where possible, provide logistical support when requested by a Local EOC or agencies responding at a regional level;
- (d) ensure major emergency response agencies are involved in the Group response, that the major support agencies have liaison officers available in the ECC, and that regional-level decision makers are involved and integrated into response planning and delivery;
- (e) ensure communications are in place with key regional response agencies and provide a link from those agencies to Local EOCs;
- (f) receive, assess and disseminate information about lifeline utility services through a Lifelines Coordination Centre within the ECC;
- (g) coordinate public information, media liaison and public inquiry services across the response;
- (h) initiate disaster recovery processes, with particular emphasis on engaging the participation of regional and central government organisations with recovery responsibilities and/or resources;
- (i) report to and act as a conduit for information to and from Central Government, via-the NCMC;
- (j) coordinate and manage international assistance to responses locally or elsewhere in New Zealand;
- (k) coordinate the systematic planning, collection, analysis and communication of impact assessment information from member authorities, partner organisations and by other means as appropriate to the event.

Local Emergency Operations Centres (EOCs)

53. Under the Canterbury CDEMG Plan, each Canterbury territorial authority has to maintain a primary EOC from which local emergency events will be able to be coordinated and directed. Each territorial authority had to have arrangements in place to be able to relocate their EOC to an alternate site, either within the territorial authority area or nearby. These alternate sites could be tiered with regard to their size, resources, communication modes and so on.
54. The Canterbury CDEMG Plan states that the EOC must have sufficient suitably trained and experienced personnel to provide for two full shifts. Staff of the respective territorial authorities, augmented by members of partner organisations and CDEM volunteers, are to provide the core of these personnel.
55. The Canterbury CDEMG Plan outlines that the role of each EOC is to:
- (a) coordinate the response of local emergency response agencies within the area of the EOC;
 - (b) arrange, coordinate and systematically manage logistics; systematically monitor events and escalate/de-escalate response as required;

- (c) ensure local emergency response agencies are involved in the local response, and emergency response agency liaison officers are available and supported in the EOC;
- (d) ensure communications are in place with key local response agencies; arrange for community welfare and support facilities and services;
- (e) receive, assess and disseminate information for local emergency response agencies;
- (f) coordinate, with partner organisations, the provision of information about the event and the local response to the public and media; communicate and coordinate with other EOCs and partner organisations; coordinate the initiation of Disaster Recovery arrangements and maintain close communication with the Recovery Office once established; communicate regularly with the Group Controller and ECC;
- (g) coordinate the systematic planning, collection, analysis and communication of local impact assessment information.

Location of the EOC

56. The Christchurch City Arrangements (discussed further below) state that the Christchurch City EOC is located at the Christchurch City Council's Civic Offices, 163 Tuam Street, Christchurch. The alternative location for the Christchurch City EOC is the Christchurch Art Gallery, at the corner of Gloucester and Montreal Streets.
57. In practice, the EOC was moved to the alternative location of the Art Gallery as both the Tuam Street and Hereford Street Civic Buildings were deemed unsafe.

Appointment and development of ECC/EOC personnel

58. The Canterbury CDEMG Plan states that Group and Local EMOs, in conjunction with the respective Controller(s), must appoint primary and, ideally two, alternate personnel to the key CIMS Incident Management Team functions for their ECC/EOC.
59. The Canterbury CDEMG Plan outlines that the key ECC/EOC appointments are:
- (a) Operations Manager;
 - (b) Planning Intelligence Manager;
 - (c) Logistics Manager;
 - (d) Public Information Manager;
 - (e) Community Welfare Manager;
 - (f) Recovery Manager.

CHRISTCHURCH CITY CIVIL DEFENCE EMERGENCY MANAGEMENT ARRANGEMENTS

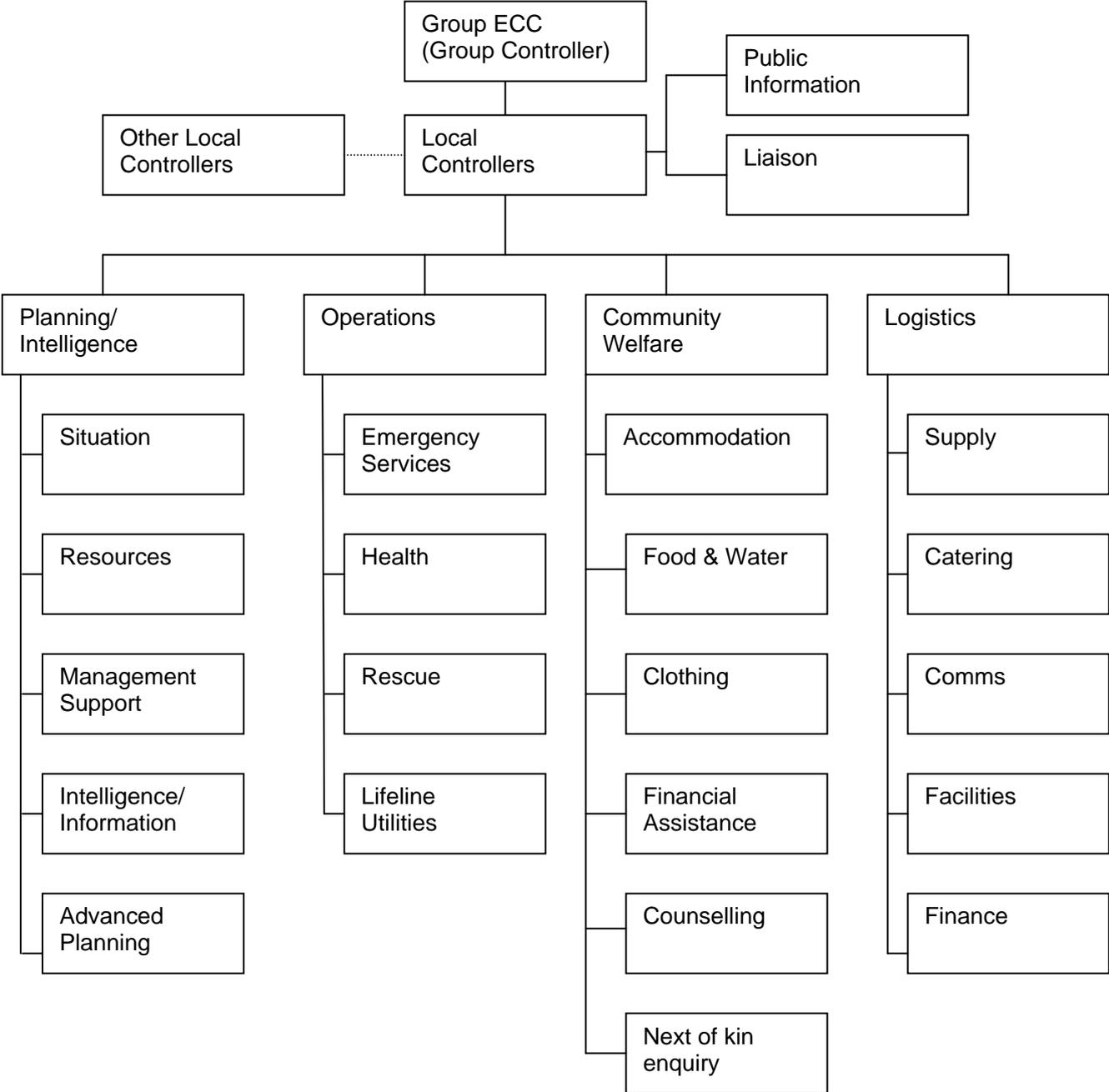
60. The Canterbury CDEMG members decided that each partner local authority should prepare Local CDEM Arrangements. To provide for a fully integrated planning framework across the entire Canterbury Region it was further decided that those Local Arrangements should be incorporated into the CDEMG Plan.

61. The features of the Christchurch City Arrangements are outlined below.

Incident Management Structure

62. The Christchurch City Arrangements record that all the actions during the response phase of an emergency will follow the Coordinated Incident Management System (CIMS) principles. The Christchurch City EOC is organised under the CIMS framework as shown in the diagram below. During the state of emergency in September 2010 the Rescue Manager reported directly to the Local Controller, rather than to the Operations Manager as shown in the diagram.

Incident Management Structure (from Christchurch City Arrangements p 24)



Christchurch City Council Emergency Management Team

63. The Council has an Emergency Management Team that is responsible for ensuring the Council meets the requirements of the CDEMA, in particular section 64 that states:

"(1) A local authority must plan and provide for civil defence emergency management within its district.

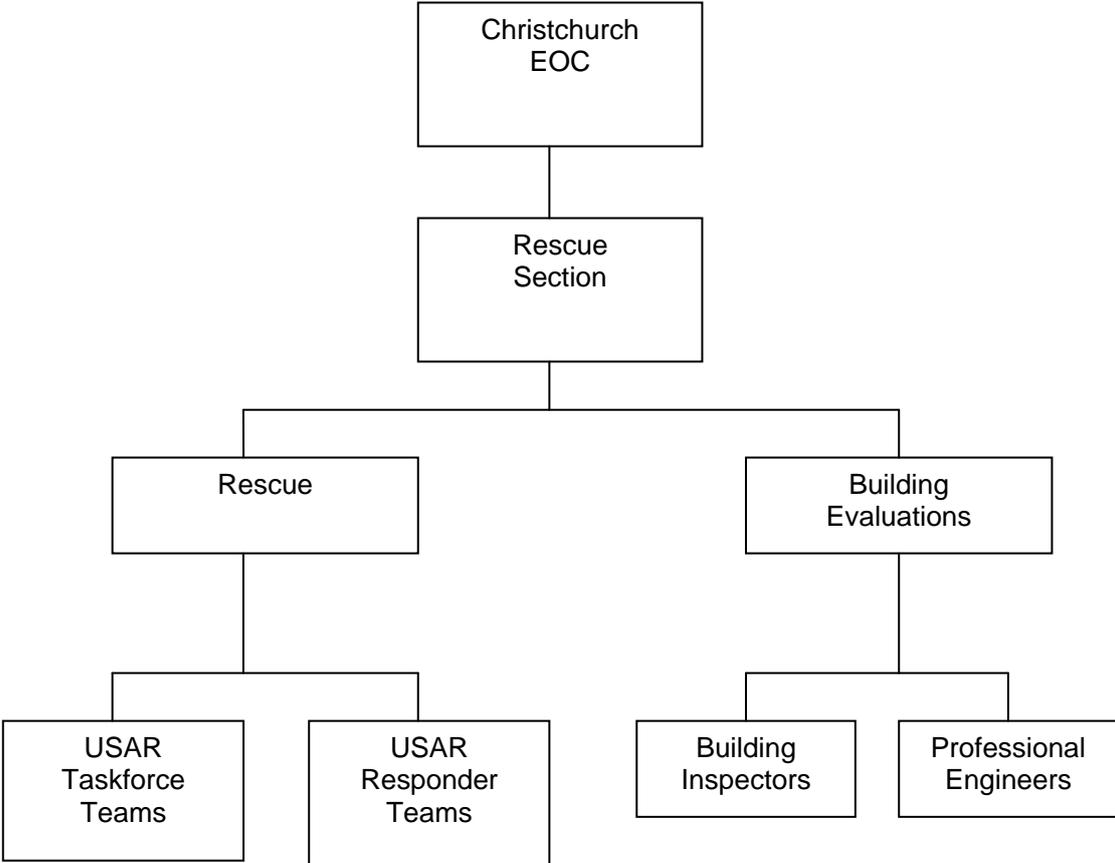
(2) A local authority must ensure that it is able to function to the fullest possible extent, even though this may be at a reduced level, during and after an emergency.."

64. The CCC Emergency Management Team is made up of the following:

- (a) Local Controllers (Chair);
- (b) CDEM & Rural Fire Manager;
- (c) Chief Engineer;
- (d) Rescue (Building Evaluation) Manager;
- (e) Recovery Managers;
- (f) Environmental Health Officer;
- (g) Communications Adviser;
- (h) City Care and Fulton Hogan Representatives;
- (i) Principal Rural Fire Officer;
- (j) Emergency Management Adviser.

65. The responsibility for the Building Evaluation Team rests with the Rescue Manager, as set out in the diagram below. For this reason the Rescue Manager was also referred to as the Building Evaluation Manager during the state of emergency. "Rescue" is primarily a function of the New Zealand Fire Service.

Christchurch Rescue Structure



APPENDIX 3

HOW THE NZSEE GUIDELINES EVOLVED/PREVIOUS USE

HOW THE NZSEE GUIDELINES EVOLVED/PREVIOUS USE

1. This Appendix provides a summary of the history of the Building Safety Evaluation During a State of Emergency Guidelines for Territorial Authorities (**NZSEE Guidelines or Guidelines**) and their main features.
2. The first edition of the Guidelines was produced by the NZSEE in January 1998.
3. In August 2009, a second edition of the Guidelines was prepared by the NZSEE with support from the Department of Building and Housing and Ministry of Civil Defence and Emergency Management.¹
4. The experiences and learnings from the rapid structural safety evaluation of buildings following the 20 December 2007 earthquake in Gisborne assisted in preparing the second edition.
5. The key areas of change were:²
 - (a) Updating of references to relevant legislation ie. Civil Defence Emergency Management Act 2002 and Building Act 2004;
 - (b) Clarification that the building safety evaluation procedures are to be applied under the direction of a Controller (appointed under the Civil Defence Emergency Management Act 2002) during a state of emergency (this addresses issues of liability, including for volunteering professionals);
 - (c) Change from the four placard system to the original US three placard system (ie. Green – *Inspected*; Yellow – *Restricted Access* and Red – *Unsafe*).

THE MAIN FEATURES OF THE SYSTEM

6. The Guidelines outline the primary aims of the document as being.³
 - (a) To provide territorial authorities with guidance to prepare for and manage effectively a process of structural safety evaluations of damaged buildings;
 - (b) To focus on the rapid assessment of buildings to be carried out during the period of a state of emergency declared under the CDEMA;
 - (c) to prepare the building industry personnel to participate in the process – including structural and civil engineers, building control officials, architects and building contractors.

¹ New Zealand Society for Earthquake Engineering, Building Safety Evaluation During a State of Emergency Guidelines for Territorial Authorities, August 2009, page 3. John Buchan from the Christchurch City Council was on the NZSEE Committee which developed the Guidelines.

² Page 5.

³ Page 5.

7. The Guidelines state that the building safety evaluation procedures are to be applied under the direction of the controller appointed under the CDEMA during a state of emergency, to address issues of liability for volunteering professionals.⁴
8. During the state of emergency, the persons carrying out inspections need authorisation from the controller to:⁵
 - (a) carry out inspections;
 - (b) issue placards;
 - (c) require evacuation and/or limit entry to buildings and place.
9. The Guidelines anticipate that inspections require mobilisation of all available inspection resources and the co-ordination of additional resources from other areas.⁶
10. Appendix F of the Guidelines contains a “Memorandum of Understanding for Engineers Volunteering to Assist Territorial Authorities in a State of Emergency”. The purpose of the Memorandum is to provide standard agreement conditions for the volunteer engineers carrying out the rapid assessments. The Guidelines include a protocol that people can volunteer for three days, but after this time work should be paid.⁷
11. The Guidelines’ focus is on the period from when the initial reconnaissance by emergency services and the territorial authority (to determine the extent of the problem and areas of major concern have been identified) has been completed, until the state of emergency declaration is lifted.⁸
12. The Guidelines set out a two stage building safety evaluation process consisting of an initial Level 1 Rapid Assessment and a more detailed Level 2 Rapid Assessment. The focus is on immediate public safety, and not the provision of an engineering assessment service to building owners.⁹
13. Important short-term aims for inspections include¹⁰:
 - (a) safe use of streets adjacent to damaged buildings;
 - (b) safe occupation of buildings for:
 - continued use, especially emergency facilities
 - minimisation of impact on commercial activity
 - minimisation of displacement of people;
 - (c) assessment of the need for temporary works such as shoring, temporary securing and making safe;
 - (d) saving property from unnecessary demolition
 - conserving heritage fabric
 - minimising economic impact for the owners and community.

⁴ Page 5.

⁵ Page 15.

⁶ Page 10.

⁷ Page 19.

⁸ Page 6.

⁹ Page 6.

¹⁰ Page 8.

14. The Guidelines are not intended to cover non-structural damage that does not pose a risk to human life.¹¹ More detailed engineering evaluations are considered to be part of the disaster recovery phase, usually undertaken by engineers contracted by the building owners.¹²

Level One Assessments

15. The Guidelines state that Level One assessments may be undertaken by teams comprising building control officers, structural and civil engineers, architects, experienced building contractors, and other suitably experienced building professionals.¹³
16. Level One assessments involve the following steps¹⁴:
- (a) identifying the building;
 - (b) assessing the current building structural damage by external observation only;
 - (c) noting any other observed non-structural hazards for follow up assessment by others;
 - (d) recommending further detailed inspections if appropriate;
 - (e) recording site details for the database;
 - (f) assigning a placard according to the severity of damage that can be seen;
 - (g) fixing the appropriate placards at all entrances;
 - (h) placing barrier tape to stop access into a building assessed as unsafe (red placard), and directing the cordoning off of adjacent areas with barrier tape where there is danger from collapse; and
 - (i) providing an information sheet on the state of the building to the building owner, if possible, where access needs to be restricted.
17. The Level One assessment will result in one of the following placards being issued:¹⁵
- | | | |
|-----|------------------|--------|
| (a) | Inspected - | GREEN |
| (b) | Restricted use - | YELLOW |
| (c) | Unsafe - | RED |
18. The Guidelines state that where a restriction applies to part of a building or a specific tenancy within a building only, the extent of the restriction must be stated on the yellow placard that is posted. Further actions to reduce danger in and around the building may be identified, and the assessors may cordon off some areas or recommend that either a Level 2 Rapid Assessment or a Detailed Engineering Evaluation be carried out.¹⁶
19. The Guidelines also provide guidance on how best to accurately identify buildings as identification of buildings can often be difficult. The Guidelines suggest that the inspector records the official address on the inspection sheet, but also that any observed variance such as what the building is 'also known as' or the building name is recorded.¹⁷

¹¹ Page 6.

¹² Page 10.

¹³ Page 10.

¹⁴ Page 10.

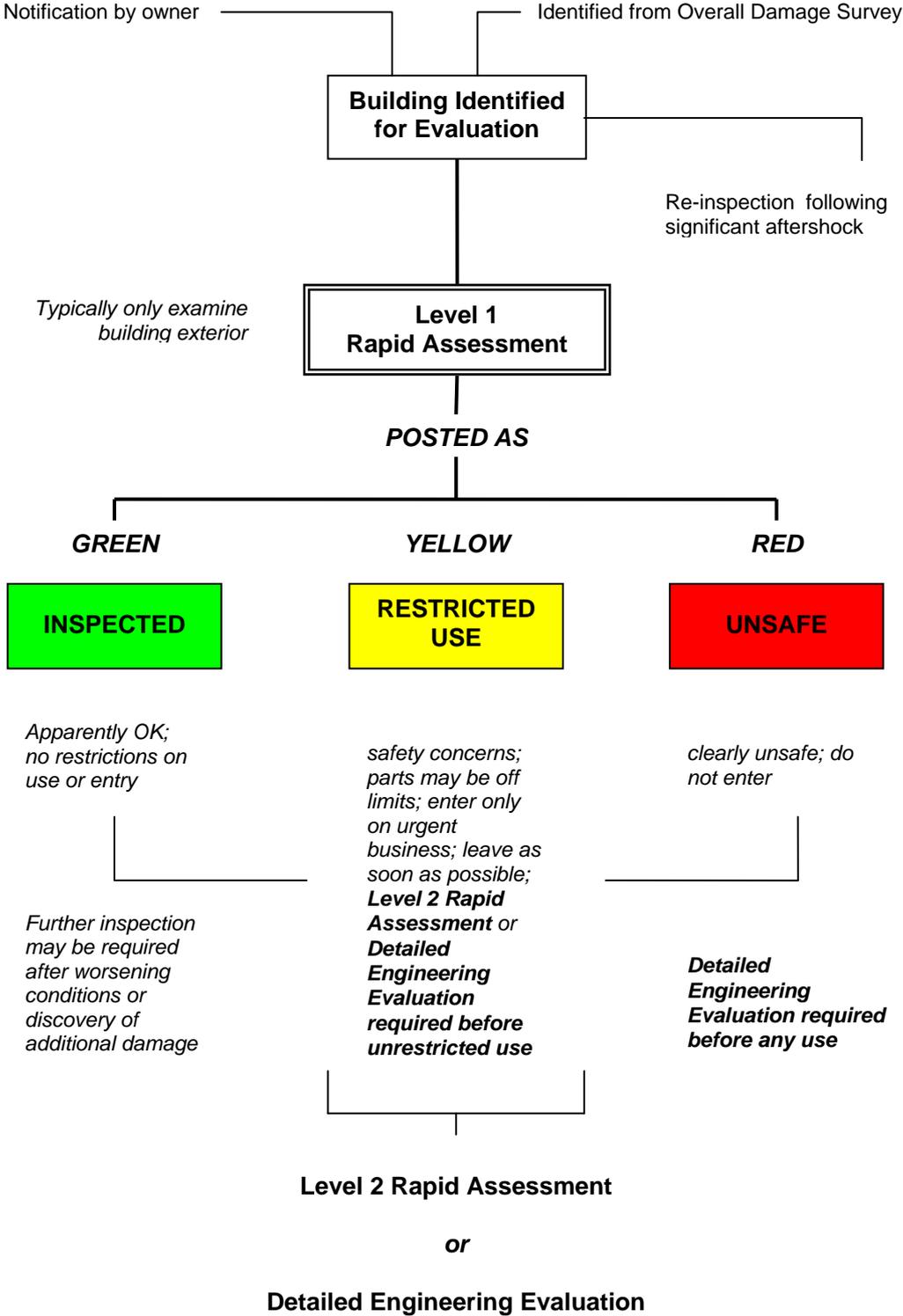
¹⁵ Page 10.

¹⁶ Page 10.

¹⁷ Page 14.

20. The Guidelines state that an "other ID" field to physically describe the position of a building where there is more than one building on a property would be helpful.¹⁸ The Guidelines also suggest that the inspectors take a photograph of the building with the placard posted to aid with future identification and future monitoring over time.¹⁹
21. A flow chart summarising the Level 1 Rapid Assessment and Posting Process is set out on page 11 of the Guidelines and is set out below:

¹⁸ Page12.
¹⁹ Page 12.

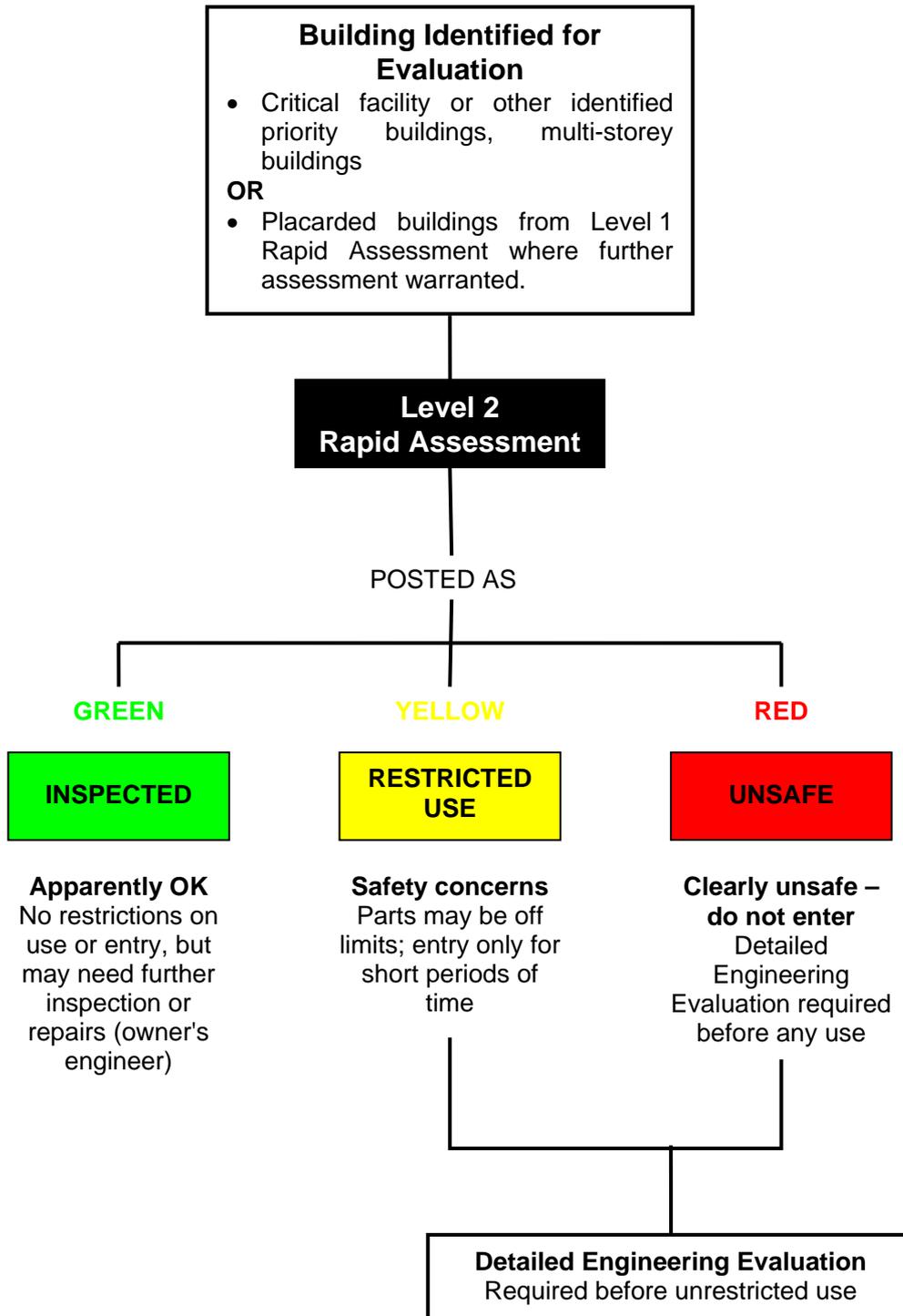


Level Two Assessments

22. The Guidelines indicate that a Level 2 assessment should be performed on all critical facility buildings, and large, typically multi-storey buildings, and on any other buildings where the Level 1 Rapid Assessment identifies the need for further and more specific inspection. Structural and building services engineers must carry out Level 2 Rapid Assessments of multi-storey buildings, supplemented as required by geotechnical engineers.²⁰
23. The Level 2 assessment may result in a revised placard. The Guidelines note that the assessing teams may also make recommendations for work to be done under urgency where there is a need to demolish or secure the structure to ensure the safety of the public or to protect adjacent property.²¹
24. A flow chart summarising the Level 2 Rapid Assessment and Posting Process is set out on page 13 of the Guidelines and is reproduced below:

²⁰ Page 12.

²¹ Page 12.



Sections Four and Five

25. Section 3 of the Guidelines deals with the management and administration of the rapid assessment process. Sections 4 to 5 of the Guidelines deal with planning before the event and training modules. These sections are not further discussed in the Report.

APPENDIX 4

CHRISTCHURCH EQ RAPID ASSESSMENT FORM – LEVEL 1

Christchurch Eq. RAPID Assessment Form - LEVEL 1

Inspector Initials _____
Territorial Authority

Christchurch City

Date of Inspection _____
Time _____

Exterior Only _____
Exterior and Interior _____

Building Name

Short Name _____

Address _____

GPS Co-ordinates S° _____ E° _____

Contact Name _____

Contact Phone _____

Storeys at and above ground level _____
Below ground level _____

Total gross floor area (m²) _____
Year built _____

No of residential Units _____

Photo Taken Yes _____ No _____

Type of Construction

- Timber frame
- Steel frame
- Tilt-up concrete
- Concrete frame
- RC frame with masonry infill
- Concrete shear wall
- Unreinforced masonry
- Reinforced masonry
- Confined masonry
- Other: _____

Primary Occupancy

- Dwelling
- Other residential
- Public assembly
- School
- Religious
- Commercial/ Offices
- Industrial
- Government
- Heritage Listed
- Other _____

Investigate the building for the conditions listed below:

Overall Hazards / Damage	Minor/None	Moderate	Severe	Comments
Collapse, partial collapse, off foundation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Building or storey leaning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Wall or other structural damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Overhead falling hazard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Ground movement, settlement, slips	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Neighbouring building hazard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

Choose a posting based on the evaluation and team judgement. Severe conditions affecting the whole building are grounds for an UNSAFE posting. Localised Severe and overall Moderate conditions may require a RESTRICTED USE. Place INSPECTED placard at main entrance. Post all other placards at every significant entrance.

INSPECTED
GREEN

RESTRICTED USE
YELLOW

UNSAFE
RED

Record any restriction on use or entry:

Further Action Recommended:

Tick the boxes below only if further actions are recommended

- Barricades are needed (state location): _____
- Level 2 or detailed engineering evaluation recommended
 - Structural
 - Geotechnical
 - Other: _____
- Other recommendations: _____

Estimated Overall Building Damage (Exclude Contents)

- None
- 0-1 %
- 2-10 %
- 11-30 %
- 31-60 %
- 61-99 %
- 100 %

Sign here on completion

Date & Time _____
ID _____

Inspection ID _____ (Office Use Only)

APPENDIX 5

RAPID ASSESSMENT PLACARDS

NO RESTRICTION ON USE OR OCCUPANCY

This building has received a brief inspection only. While no apparent structural or other safety hazards have been found, a more comprehensive inspection of the exterior and interior may reveal safety hazards.

This facility was inspected pursuant to the Civil Defence Emergency Management Act 2002

Exterior Only

Exterior and Interior

Inspector ID: _____

Acting under the authority of the Civil Defence Emergency Management Controller: _____

Facility/ Tenancy Name and Address

Date: _____

Time: _____

Please ensure the owners are advised of this notification. Owners are encouraged to obtain a detailed structural engineering assessment of the building as soon as possible. Report any unsafe conditions to the Territorial Authority. Subsequent events causing damage may change this assessment. Re-inspection may be required. Secondary damage (partitions, windows, fittings and furnishings) may be hazardous. Electrical and mechanical equipment, gas connections, water supplies and sanitary facilities have not been inspected.

Do Not Remove this Placard. Placed on Behalf of the Civil Defence Emergency Management Controller Under the Authority of the Civil Defence Emergency Management Act 2002

NO ENTRY EXCEPT ON ESSENTIAL BUSINESS

WARNING:

This building has been damaged and its structural safety is questionable. Enter only at own risk. Subsequent aftershocks or other events may result in increased damage and danger, changing this assessment. Re-inspection may be required. The damage observed from external inspection is as described below:

Facility/ Tenancy Name and Address

This facility was inspected pursuant to the Civil Defence Emergency Management Act 2002

Inspector ID:

Restrictions on use:

- No public entry or residential occupation
- Entry for
 - Emergency purposes
 - Damage assessments, making safe
 - Removal of essential business records
 - Removal of valuables only
 - Removal of property
 - Conducting essential business with minimum staff

Acting under the authority of the Civil Defence Emergency Management Controller:

Date:

Time:

Do Not Remove this Placard. Placed on Behalf of the Civil Defence Emergency Management Controller
Under the Authority of the Civil Defence Emergency Management Act 2002



UNSAFE

DO NOT ENTER OR OCCUPY
(THIS PLACARD IS NOT A DEMOLITION ORDER)

WARNING:

This building has been seriously damaged and is unsafe. Do not enter. Entry may result in death or injury. The damage observed from external inspection is as described below :-

Enter only with specific written authorisation from Territorial Authority acting under the authority of the Civil Defence Emergency Management Controller.

Facility/ Tenancy Name and Address

This facility was inspected pursuant to the Civil Defence Emergency Management Act 2002

Inspector ID: _____

Acting under the authority of the Civil Defence Emergency Management Controller:

Date: _____

Time: _____

Do Not Remove this Placard. Placed on Behalf of the Civil Defence Emergency Management Controller Under the Authority of the Civil Defence Emergency Management Act 2002