

| REVIEWED MARCH 2010

| **Proposed**  
**Earthquake-Prone Dangerous and  
Insanitary Buildings Policy 2010**

| ~~(As adopted by the Christchurch City Council, 25 May 2006)~~

# Earthquake-Prone Dangerous and Insanitary Buildings Policy 2006

(As adopted by Christchurch City Council, 25 May 2006)

## 1 Policy Approach

### 1.1 Policy principles

The Council has noted that provisions of the Building Act in regard to earthquake-prone, dangerous and insanitary buildings reflect the government's broader concern with the health and safety of the public in buildings and, more particularly, the need to address life safety in earthquakes. The Council has also noted that the development of these policies is up to each TA and has responded accordingly. This policy has been finalised after due consultation with Council ratepayers and stakeholders in accordance with section 83 of the Local Government Act 2002.

### 1.2 Definitions:

#### Earthquake-prone buildings

Under Section 122 of the Building Act, the meaning of earthquake-prone building is

- "(1) A building is earthquake-prone for the purposes of this Act if, having regard to its condition and to the ground on which it is built, and because of its construction, the building –
- (a) will have its ultimate capacity exceeded in a moderate earthquake (as defined in the regulations); and
  - (b) would be likely to collapse causing –
    - (i) injury or death to persons in the building or to persons on any other property; or
    - (ii) damage to any other property.
- (2) Subsection (1) does not apply to a building that is used wholly or mainly for residential purposes unless the building –
- a) comprises 2 or more storeys; and
  - b) contains 3 or more household units."

#### Moderate earthquake

Moderate earthquake is defined in regulation 7 in the Building (Specified Systems, Change the Use and Earthquake-prone Buildings) Regulations 2005 where –

'...moderate earthquake means, in relation to a building, an earthquake that would generate shaking at the site of the building that is of the same duration as, but that is one-third as strong as the earthquake shaking (determined by normal measures of acceleration, velocity, and displacement) that would be used to design a new building at that site.'

Buildings will need to be assessed to determine whether they are earthquake-prone. As a general guide, **an earthquake-prone building will have strength that is less than 33% of the seismic loading standard in NZS 1170.5: 2004.**

#### Significant alteration

Significant Alteration, for the purpose of the Policy, is building work on the structural support of the building or building work that has a value of more than 25% of the rateable value of the building ([not land](#)).

### 1.3 Overall approach

#### Earthquake-prone buildings

Christchurch City lies in an intermediate seismicity zone some distance from a zone of high activity associated with the Alpine fault. However, known earthquake sources - in particular the Ashley, Springbank and Pegasus fault zone - exist within the region and are large and close enough to cause significant damage throughout the city.

The city buildings comprise a range of types reflecting steady development over more than 100 years and range from wood, unreinforced masonry, and brick buildings to modern multi-storey steel and reinforced concrete buildings. Refurbishment and redevelopment for new uses has meant some of the unreinforced masonry and brick buildings have undergone some levels of strengthening.

This policy reflects the Council's determination to reduce earthquake risk over time in a way that is acceptable in social and economic terms to its ratepayers. This policy does not serve as a guarantee that when an earthquake occurs buildings will not be destroyed or damaged, possibly causing injuries to people in or around the building, but this policy does aim to minimise some of the risk for, and arising from buildings in an earthquake.

~~The Council proposes therefore in this policy to carry out an initial desktop review to ascertain the number of possible earthquake-prone buildings and to establish reliable data on the number of buildings which were considered earthquake-prone buildings under the 1991 Act and the degree of strengthening, if any, which has been undertaken to date.~~

### **Categories and timeframes**

~~The Council proposes to establish timeframes for earthquake strengthening of buildings which do not meet 33% of the building code requirements. The timeframes will ~~commence~~ be introduced on 1 July 2012 by which time provision will have been made for a Council officer to liaise with building owners and consideration will have been given to the establishment of a seismic fund to support owners of priority Heritage and Character buildings.~~

The buildings will be categorised depending on the importance of the building and this data will be used to review the policy and set times for implementation of the strengthening programme. ~~The timeframes have been 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 Council will categorise earthquake-prone buildings as follows:~~

~~Category A: Buildings with special post-disaster functions as defined in AS/NZ1170.0:2002 - importance level 4. **Must be strengthened within 15 years from 1 July 2012.**~~

~~Category B: Buildings that contain people in crowds or contents of high value to the community as defined in AS/NZS 1170.0:2002 - importance Level 3. **Must be strengthened within 20 years from 1 July 2012.**~~

~~Category C: Buildings with an Importance Level less than 3 as defined in AS/NZS 1170.0:2002. **Must be strengthened within 30 years from 1 July 2012.**~~

~~Any building that falls within more than one category will be assigned to the highest category level.~~

~~Attached to this policy ~~as Appendix A~~ is the current version of table 3.2 of AS/NZS 1170.0:2002 which lists the importance levels and shows the above categories overlaid.~~

~~Heritage buildings will be categorised and assessed in the same way as other buildings, and subject to the same timeframes for strengthening. In determining an acceptable approach to strengthening, however, the Council will take into account the heritage values of these buildings as set out in Section 3.0 of this Policy.~~

~~Where a building owner is unable to meet the timeframes listed but has made substantial progress towards undertaking earthquake strengthening works, they may apply to the Regulatory and Planning Committee of Council for an extension of time. Extensions of time will not exceed three years and will be subject to conditions set by the Committee.~~

### **Dangerous and insanitary buildings**

The Christchurch City Council is committed to ensuring that Christchurch City is a safe and healthy place to live in. The Building Act 2004 provides the means to ensure that buildings which become dangerous or insanitary are improved to meet the Building Code standards, and the Council wishes to administer the Building Act in a fair and reasonable way.

Dangerous and insanitary buildings will be dealt with in much the same way as the Council already deals with those buildings – by responding to complaints received from the public and advice received from the New Zealand Fire Service.

Where heritage buildings become dangerous or insanitary, the Council will take into account their heritage values in determining possible courses of action.

## 1.4 Identification process

### **Earthquake-Prone Buildings**

The Council will undertake an initial desktop review of council files, commencing on 1 July 2012, to assess which buildings could be earthquake-prone and follow this up with letters to the owners with a brief inspection of each building, where necessary.

Buildings that will not require further assessment include those:

- designed or strengthened to the 1976 NZS 4203 and subsequent codes, unless they have a critical structural weakness
- isolated structures unlikely to collapse causing injury, or death to persons or damage to other property (refer Section 122 (1)(b) of the Building Act 2004)
- used wholly or mainly for residential purposes, unless the building comprises 2 or more storeys and contains 3 or more household units (refer Section 122(2) of the Building Act 2004)
- that are infrastructure assets covered by an Asset Management Plan such as infrastructure assets owned or controlled by the Council (including any CCO, CCTO, or local government organisation) Transit New Zealand or the owner of "works" as defined in the Electricity Act 1992)

A list will be collated of earthquake-prone buildings according to the results of the assessments. When the Council reviews this policy, as required by the Building Act 2004, it will be in a position to decide upon a final category list for prioritising earthquake-prone buildings. At that time the desktop study will be completed and more information will be available about the numbers, types of buildings and amount of previous strengthening of buildings in the Council's district that are potentially earthquake-prone. The Review will give consideration to initiating a programme to carry out an initial evaluation of performance in earthquake by using the NZSEE initial evaluation method to assess buildings that are potentially earthquake-prone.

In the meantime, the Council will categorise earthquake-prone buildings according to the following:

Category A: Buildings with special post-disaster functions as defined in AS/NZS 1170.0: 2002, Importance Level 4 and buildings constructed of unreinforced masonry or unreinforced concrete.

Category B: Buildings that contain people in crowds or contents of high value to the community as defined in AS/NZS 1170.0: 2002, Importance Level 3.

Category C: Buildings with a Heritage Classification of 1 to 4 under the Council's register.

Category D: Buildings with an Importance Level less than 3 as defined in AS/NZS 1170.0:2002.

Any building that falls within more than one category will be assigned the highest category level (eg if a building falls under both Category A and C, it will be regarded as being a Category A building).

Attached to this policy as Appendix A is the current version of table 3.2 of AS/NZS 1170.0:2002 which lists the importance levels.

### **Dangerous and Insanitary Buildings**

The Council will respond to building complaints received from the public and to advice received from the NZ Fire Service and then investigate and assess the condition of the building.

## 1.5 Assessment criteria

### **Earthquake-prone buildings**

The definition of Earthquake Prone Buildings is given in Section 122 of the Building Act 2004 and the definition of moderate earthquake is given in the Building (Specified Systems, Change the Use and Earthquake-prone Buildings) Regulations 2005.

The Council will use the NZSEE Recommendations as its preferred basis for defining technical requirements and criteria. These 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.

### **Dangerous and insanitary buildings**

The Council will assess dangerous buildings in accordance with Section 121(1) of the Building Act 2004.

The Council will assess insanitary buildings in accordance with Section 123 of the Building Act 2004.

## **1.6 Taking action on earthquake-prone, dangerous and insanitary buildings**

The Council, on being satisfied that a building is earthquake-prone, dangerous or insanitary, will:

- Advise and liaise with owners of buildings identified as earthquake-prone, dangerous or insanitary to discuss action to be taken.
- Encourage owners of buildings identified as earthquake-prone to carry out an independent assessment of the structural performance of those buildings.
- The Council will liaise with the Fire Service to discuss the proposed action when notification has been received from the Fire Service of a dangerous building.
- Use the powers given in Section 124 of the Building Act 2004 to take action regarding dangerous, earthquake-prone or insanitary buildings to serve formal notice in accordance with the Building Act 2004, and consider whether it should also erect a hoarding, fence or warning sign.
- When setting a timeframe for earthquake-prone building action, the Council will also take into account previous strengthening and/or any contractual or statutory obligations which the building owner may be subject to.
- Where it is considered measures are necessary to avoid immediate danger or to fix insanitary conditions, the Council will use the powers given in Section 129 of the Building Act 2004.
- In the case of a building that, due to its structural condition is considered to be dangerous because it is likely to collapse, in whole or in part, potentially causing injury to occupants or persons in areas adjacent to the building, immediate evacuation, the fencing off of the building, shoring up of structures and the preparation and implementation of a Temporary Protection Plan to ensure security (fire and vandalism) of any vacant buildings will be required.
- On being advised of conditions that are alleged to be insanitary within the provisions of section 123 of The Building Act, the buildings will be inspected and a determination made as to whether action is required under sections 124 or 129 of the Act. [Note: Provisions exist in the Health Act 1956 to deal with nuisance conditions related to certain matters associated with housing under section 29(f) overcrowding likely to be injurious to health or section 42 because of insanitary conditions likely to cause injury to the health of persons or are dwellings unfit for human habitation.]

### 1.6.1 Taking action on buildings damaged by an earthquake that are considered to be earthquake-prone after an earthquake has occurred.

Buildings may suffer damage in a seismic event. Applications for a building consent for repairs will be required to include structural strengthening work to restore the structural strength of the building to the level it was before the earthquake or to 33% of the current building code, whichever is the greater.

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

## **1.7 Interaction between Earthquake-Prone Building Policy and related sections of the Building Act 2004**

When an application for a consent for a Significant Alteration to a building is received and the building ~~has an~~ earthquake-prone ~~strength of less than 10% of the Code~~, the building will be required to be strengthened to at least 33% of Code as part of the consent.

~~Owners of buildings with a strength between 10% and 33% will be given consent for alterations and will be formally advised that when the first review of the policy is completed and timeframes for action~~

~~set, the owner is likely to be served formal notice requiring action to strengthen or demolish the building within the timeframe set in the policy review.~~

When an application for a consent involving a change of use is received, the requirements of the Building Act, section 115, for the building to be strengthened to as near as is reasonably practicable to the strength of a new building will be followed.

### 1.8 Dealing with building owners

Before exercising its powers under section 124, the Council will seek, within a defined time-frame, to 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 owners for strengthening or removal of earthquake-prone buildings, or otherwise dealing with the dangerous or insanitary situation by alterations to the building, removal, or action being taken under the Health Act 1956.

In the event that discussions do not yield a mutually acceptable approach and proposal, the Council will serve a formal notice on the owner in accordance with section 124 of the Building Act 2004.

### 1.9 Recording a building's EPB status

The Council will keep a register of all earthquake-prone buildings noting the status of requirements for improvement or the results of improvement, as applicable. In addition, the following information will be provided in the LIM for each earthquake-prone building:

- Address and legal description of land and building
- Buildings identified by the desktop study that have not had a detailed engineering assessment which shows they have a greater than 33% collapse strength will be noted as potentially earthquake-prone
- Buildings identified as having less than 33% collapse strength by the initial assessment method of NZSEE will be noted as likely to be earthquake-prone
- Buildings assessed as having less than 33% collapse strength using the detailed assessment method of NZSEE and about which the Council is satisfied are earthquake-prone under Section 124 of the Building Act 2004 will be noted as earthquake-prone
- Date by which strengthening or demolition is required (if known)
- Statement that further details are available from the Council property file.

### 1.10 Economic impact of policy

~~In the Council's first policy, the Council has had~~ reviewed the 2002 report 'Strengthening Existing New Zealand Buildings for Earthquake: An analysis of cost benefit using annual probabilities' prepared for the Department of Internal Affairs. For Christchurch, this report estimated the Net Present Value (NPV) of the cost of strengthening the applicable [listed heritage](#) buildings to 33% of current code to be \$97.2 million.

~~The economic impact will be able to be assessed in more detail when the first review of this policy is undertaken. At that stage a database of buildings will be available.~~

[The cost of strengthening all the earthquake-prone listed or scheduled heritage buildings to 33% of current code has been estimated at \\$169 million \(plus or minus 25%\) \(Holmes Consulting Group, Heritage Earthquake Prone Building Strengthening Cost Study, June 2009\).](#)

### 1.11 Access to information

Information concerning the earthquake status of a building will be contained in the property file and GIS system. If a notice under section 124 is issued in respect of any earthquake-prone, dangerous or insanitary building then a record of that will also be available on the relevant property file and be included in the relevant LIM.

In granting access to information concerning these buildings, the Council will conform to the requirements of the relevant legislation.

## 2. Priorities

### Earthquake-Prone Buildings

The Council has prioritised both the identification and the requirement to strengthen or demolish buildings ~~as follows~~. ~~The identification process is now complete, following four studies carried out for the Council since 2006. From these it has been determined that there are 7600 earthquake prone buildings in Christchurch. These are commercial buildings constructed before 1976. The highest risk amongst these buildings are the 958 unreinforced masonry buildings which are likely to fail in a moderate earthquake. There are around 490 heritage buildings which are earthquake-prone. The majority (295) are unreinforced masonry, there are 29 reinforced concrete and 163 timber frame and other types.~~

~~The Council will undertake an initial desktop review of Council files to assess which buildings could be earthquake-prone and follow this with a brief inspection of each building, where necessary.~~

~~The desktop study will record the details of when a building was constructed, any subsequent strengthening or improvement and will record the number of buildings in each category set out in Section 1.4.~~

~~When the information is available the Council will review this policy, as required by the Building Act 2004 and will be in a position to decide on a final category list for prioritising earthquake-prone buildings and to set realistic timeframes for action.~~

~~In the meantime the category list will be as indicated below:~~

~~Category A: Buildings with special post-disaster functions as defined in AS/NZS 1170.0: 2002, Importance Level 4 and buildings constructed of unreinforced masonry or unreinforced concrete.~~

~~Category B: Buildings that contain people in crowds or contents of high value to the community as defined in AS/NZS 1170.0: 2002, Importance Level 3.~~

~~Category C: Buildings with a~~

~~The Council prioritises these earth quake prone buildings as noted in section 1.3.~~

## 3. ~~Heritage Classification of 1 to 4 under the Council's register.~~ buildings

~~Category D: Buildings with an Importance Level less than 3 as defined in AS/NZS 1170.0:2002.~~

### **Dangerous and Insanitary Buildings**

~~Priority for action will be decided after investigation of complaints and Fire Service notifications are complete.~~

## ~~3. Heritage buildings~~

### ~~3.3.1~~ **Special considerations and constraints**

~~The Council believes it is important that its City Plan heritage listed buildings, structures and objects identified in the Christchurch City Plan and Banks Peninsula District Plan are protected and appropriately upgraded to mitigate the risk of loss of life and loss of heritage fabric in the event of a major earthquake. ~~However, intrinsic~~ For this reason, heritage ~~values of these buildings, places and objects must be protected and not adversely affected by structural improvement measures.~~ Heritage buildings will be categorised and assessed in the same way as other potentially earthquake-prone buildings. ~~To ensure that buildings, and subject to the heritage values are retained, protected and adequately secured against earthquakes~~ same timeframes for strengthening. When a heritage building must be strengthened, however, every effort will be made to protect the heritage values of the building, and to meet the Council's heritage objectives set out in this policy, the Christchurch City and Banks Peninsula District Plan, and the Christchurch City Council Heritage Conservation Policy.~~

~~When considering heritage buildings under the Earthquake-Prone, Dangerous and Insanitary Buildings Policy, account will be taken of:~~

- ~~(a)~~ (a) The importance of recognising any special traditional and cultural aspects of the intended use of a building
- ~~(b)~~ (b) The need to facilitate the preservation of buildings of significant cultural, historical, or heritage value.

(c) The circumstances of each owner and each building, including whether the building has undergone any previous strengthening work.

~~When dealing with earthquake-prone, dangerous and insanitary heritage buildings, the Council will ensure the development of special and appropriate recovery management and planning for heritage buildings to ensure, where possible, risk mitigation for the protection of heritage fabric and values.~~

~~When considering what action to take on listed or scheduled heritage buildings that have become dangerous or insanitary, the Council will take into account the heritage values of the building in determining possible courses of action and seek to avoid demolition wherever possible.~~ The skills of suitably qualified professionals with heritage expertise will be engaged where necessary to advise and recommend actions.



## Appendix A

Table 3.2

## Importance Levels for Buildings Types – New Zealand Structures

Category	Importance Level	Comment	Examples
<b>C</b> 30 Years	<b>1</b>	Structures presenting a low degree of hazard to life and other property	Structures with a total floor area of <30m <sup>2</sup> Farm buildings, isolated structures, towers in rural situations Fences, masts, walls, in-ground swimming pools
	<b>2</b>	Normal structures and structures not in other importance levels	Buildings not included in Importance Levels 1, 3 or 4 Single family dwellings Car parking buildings
<b>B</b> 20 Years	<b>3</b>	Structures that as a whole may contain people in crowds or contents of high value to the community or pose risks to people in crowds	Buildings and facilities as follows: (a) Where more than 300 people can congregate in one area (b) Day care facilities with a capacity greater than 150. (c) Primary school or secondary school facilities with a capacity greater than 250. (d) Colleges or adult education facilities with a capacity greater than 500. (e) Health care facilities with a capacity of 50 or more resident patients but not having surgery or emergency treatment facilities. (f) Airport terminals, principal railway stations with a capacity greater than 250. (g) Correctional institutions. (h) Multi-occupancy residential, commercial (including shops), industrial, office and retailing buildings designed to accommodate more than 5000 people and with a gross area greater than 10,000 m <sup>2</sup> . (i) Public assembly buildings, theatres and cinemas of greater than 1000 m <sup>2</sup> . Emergency medical and other emergency facilities not designated as post-disaster. Power generating facilities, water treatment and waste treatment facilities and other public utilities not designated as post-disaster. Buildings and facilities not designated as post-disaster containing hazardous materials capable of causing hazardous conditions that do not extend beyond the property boundaries.
<b>A</b> 15 Years	<b>4</b>	Structures with special post-disaster functions	Buildings and facilities designated as essential facilities. Buildings and facilities with special post-disaster function Medical emergency or surgical facilities Emergency service facilities such as fire, police stations and emergency vehicle garages. Utilities or emergency supplies or installations required as backup for buildings and facilities of Importance Level 4. Designated emergency shelters, designated emergency centres and ancillary facilities. Building and facilities containing hazardous materials capable of causing hazardous conditions that extend beyond the property boundaries.
	<b>5</b>	Special structures (outside the scope of this Standard-acceptable probability of failure to be determined by special study)	Structures that have special functions or whose failure poses catastrophic risk to a large area (e.g. 100 km <sup>2</sup> ) or a large number of people (e.g. 100,000). Major dams, extreme hazard facilities.