

## COUNCIL POLICY

**TITLE:** EARTHQUAKE-PRONE BUILDINGS

**MEETING:** Regulatory & Services

**EFFECTIVE DATE:** 16 August 2011

**FILE REFERENCE:** 304860

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### **1. BACKGROUND**

The Building Act 2004 (the Act) requires territorial authorities to adopt a policy on earthquake-prone buildings. The policy must state the approach a council will take to performing its functions under the Act, its priorities in undertaking these functions, and how the policy applies to heritage buildings.

This policy shall be reviewed every five years.

### **2. APPROACH**

Kawerau District Council (Council) has chosen to adopt a moderate approach to its functions relating to earthquake-prone buildings. This is more than a passive, do-nothing approach, but less stringent than inspecting the entire stock of buildings in Kawerau. A moderate approach coincides with Council's response procedures for public complaints and the inspection regime for Building Warrants of Fitness (BWof) audits.

### **3. POLICY OBJECTIVES**

The objective of this policy is to reduce the risk of harm to people in an earthquake by:

- Identifying and prioritising the buildings with the highest risk of causing harm to people in an earthquake; and
- Strengthening earthquake-prone buildings in a timely and cost effective manner.

### **4. PRINCIPLES**

All decisions and activity relating to earthquake-prone buildings should be guided by the provisions and principles contained in the Building Act, the Building Code and any relevant standards.

Of particular relevance are those principles which:

- . Protect the safety of people
- . Minimise the risk and severity of damage to buildings in the event of an earthquake,
- . Recognise any cultural and traditional aspects of the intended use of a building, and
- . Preserve buildings with significant cultural, historical or heritage value

There is a need to reduce the risks posed by earthquake-prone buildings in a timely manner and within the context of the broader social and economic issues affecting the Community.

## 5. DEFINITIONS

**Earthquake-prone building** means a building which, 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; 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.

The definition does not apply to a building that is used wholly or mainly for residential purposes unless the building comprises 2 or more storeys and contains 3 or more household units.

**Heritage building** means a building which is registered as a historic place under the Historic Places Act or which carries a heritage classification.

**Moderate earthquake** means an earthquake which would generate shaking at the site of the building that is the same duration, 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 the site.

**Owner** in relation any building, means the same as in the Building Act 2004.

## 6. POLICY STATEMENT

### 6.1 Identifying potentially earthquake-prone buildings

Kawerau District is in a zone of high seismicity. An active subduction zone extends beneath the East Cape/Bay of Plenty Region, evidenced by the volcanic and thermal activity in the District. Major earthquakes originating within this zone could be damaging.

The District is situated on the southern edge of the Whakatane Graben shelf which is strewn with many active fault lines, including the Edgecumbe fault. In 1987, this fault showed a two-metre displacement, causing damage to buildings in the Kawerau District. Other faults in and around the District could give rise to damaging earthquakes.

The range of building styles in Kawerau reflect building trends since the town was established in the 1950's. The major buildings in the district are industrial buildings and are well separated from residential development. A range of buildings can hold large numbers of people. No Kawerau buildings carry a heritage classification and few are classed as culturally significant.

Considering these factors, the Council:

- a) Has categorised and prioritised buildings in the following order:
  - i. Special post-disaster functions as listed in AS/NZS 1170:2002, importance level 4.
  - ii. Holding large numbers of people or contents of high value to the community as defined in AS/NZS 1170: 2002, importance level 3.
  - iii. Heritage classification A or B.
  - iv. Importance level less than 3 as defined in AS/NZS 1170:2002.
- b) Holds an up to date seismicity map of the District from the Institute of Geological and Nuclear Sciences.
- c) Maintains an up to date register of buildings which are potentially earthquake-prone, and continues to assess the performance of the buildings on the register against AS/NZS 1170: 2002.

## **6.2 Assessing whether buildings are earthquake-prone**

Buildings that have been identified as being potentially earthquake-prone shall be assessed by:

- Carrying out a brief study during the BWoF site audit to identify the building's construction methods, condition and use.
- Establishing the building's risk level using the Risk Assessment Matrix in Appendix 1.
- Carrying out initial evaluation of the building's performance in an earthquake based on information obtained by using the NZ Society of Earthquake Engineers (NZSEE) Initial Evaluation Method.
- Notifying the owner of any building which has been identified as being earthquake-prone and that they may be required to obtain a detailed assessment of the building within agreed timeframes. Such an assessment must be prepared by a suitably qualified registered engineer.

## **6.3 Taking action**

Council will take action on earthquake-prone buildings according to its powers under the Act.

Council's approach to taking action will be to:

- 1 Advise and liaise with owners of identified earthquake-prone buildings.
- 2 Encourage owners to carry out independent assessment of the structural performance of those buildings identified as earthquake-prone.
- 3 Serve formal notices on owners of earthquake-prone buildings in accordance with the Act, requiring them to remove the danger.
- 4 Allow owners to appeal to the Council against the classification within 12 months of receipt of notice. This can include applying for a determination under the Act.

The timeframes for undertaking structural work are negotiable in general accordance with the following:

- Low Risk - within 15 years of receiving notice
- Moderate Risk - within 10 years of receiving notice
- High Risk - within 5 years of receiving notice

#### **6.4 Dealing with building owners**

Council will endeavour to liaise with owners prior to taking any action under the Act. Where required, Council will:

- Before exercising its powers under the Act, 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.
- In the event that discussions do not yield a mutually acceptable approach and proposal, Council will serve a formal notice on the owner to strengthen or demolish the building.

#### **6.5 Recording a building's earthquake-prone status**

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 placed on the property file for each earthquake-prone building:

- Address and legal description of land and building.
- Statement that the building is on the Council's register of earthquake-prone buildings.
- Date by which strengthening or demolition is required (if known).
- Statement that further details are available from the Council to those who can demonstrate a genuine interest in the property.

#### **6.6 Access to information**

Information held on the relevant property file concerning the earthquake-prone status of a building will be made available on enquiry and recorded on any LIM or PIM issued in relation to the property. Details relating to any strengthening work may be made available to those who can demonstrate a genuine interest in the property on written application, subject to the requirements of the Local Government Official Information and Meetings Act (1987).

Council will not require earthquake-prone buildings to have an identifying plaque. Any building posing an immediate risk of injury or death to people will be dealt with according to Council's policy for dangerous buildings.

#### **6.7 Heritage buildings**

There are no buildings in Kawerau carrying heritage classification and Council has yet to assess Kawerau's built heritage or develop a heritage strategy.

While this is a reflection that Kawerau has a relatively young building stock, Council will nevertheless consider the heritage values of buildings on their merits.

Council considers it important that any heritage buildings have as good a chance of surviving a major earthquake as any other buildings. Council would not, however, wish any structural improvement measures to adversely affect the intrinsic heritage value of such buildings.

Council acknowledges, therefore, that there needs to be flexibility in the level of structural improvement that may be required. It will be important to involve the Historic Places Trust from the outset in any discussions with owners.

Any building identified as a heritage building will be assessed in the same way as other potentially earthquake-prone buildings, but no action will be taken to seek corrective work or other improvements until discussions have been held with owners and the Historic Places Trust to develop a mutually acceptable way forward.

**7. RELEVANT DELEGATIONS**

The Chief Executive Officer or his/her nominee has delegated authority for the implementation of this policy.

**8. REFERENCES AND RELEVANT LEGISLATION**

- Building Act 2004
- Historic Places Act 1993
- Kawerau District Plan

**8.1 Relationship between this policy and related sections of the Building Act**

Section 112: Alterations to Existing Building

Whenever a building consent application is received for significant upgrading or alteration of a building that is, or could be earthquake-prone, then, irrespective of the general priorities set by Council for dealing with earthquake-prone buildings, Council will not issue a building consent unless it is satisfied that the building is not earthquake-prone and that the building work will not detrimentally affect the building’s compliance with the Building Code. If the building is shown to be earthquake-prone, then Council will require that the building be strengthened to comply as nearly as is reasonably practicable with the provisions of the Building Code.

Section 115: Change of Use

Whenever a building consent application is received for change of use of a building that is, or could be earthquake-prone, then, irrespective of the general priorities set by Council for dealing with earthquake prone buildings, it will be a requirement of the building consent that the owner makes a detailed assessment of the earthquake performance of the building to determine whether or not it is an earthquake-prone building in its existing condition. If the building is shown to be earthquake-prone, then the Council will require that the building be strengthened to comply as nearly as is reasonably practicable with every provision of the Building Code that relates to structural performance as is required by section 115(b)(i)(a). (In this instance the requirement for earthquake-prone buildings would be the same as that for non-earthquake-prone buildings.)

# Appendix 1: Risk Assessment of Earthquake-Prone Buildings

Address.....

Lot No:..... DPS No:..... Building Consent No:.....

<b>Risk Factor</b>	<b>Rating (H/L)</b>	<b>Score</b>
<b>Users</b>		
1. What is the maximum number of users at any one any one time	100 + people (H) = 10 Less than 100 people (L) = 7	<input type="text"/>
2. What is the predominant age group of the building users?	Children or Infants (H) = 10 Adults (L) = 3	<input type="text"/>
3. What is the general capability of the building users?	Mentally handicapped/immobile (H) = 10 Physically handicapped but mobile (H) = 6 Normal (L) = 3	<input type="text"/>
<b>Usage of the building</b>		
4. What is the sleeping activity rating for the building in terms of the building code?	SD, SA, SC, (H) = 10 SR (L) = 3	<input type="text"/>
5. Is the building used for any of the following activities?		<input type="text"/>
a. Education	Children (H) = 10 Adults (L) = 5	
b. Old people's home	Geriatric (H) = 10 Mobile (L) = 5	
c. Hospital (private or public)	Bedridden (H) = 10 Mobile (L) = 8	
d. Residential institution	Bedridden (H) = 10 Mobile (L) = 5	
e. Place of Assembly	>100 people (H) = 10 <100 (L) = 3	
f. Hotels and motels	>20 people (H) = 7 <5 (L) = 3	
g. Backpackers and Home stays	>20 people (H) = 9 <5 (L) = 5	
h. Attached multi-unit buildings	>5 apartments (H) = 7 3-5 (L) = 5	
6. What is the crowd, working, business or storage activity for the building in terms of the building code?	WD, WM, CL, CM (H) = 10 WL, CS (L) = 3	<input type="text"/>
<b>Building Characteristics</b>		
7. Does the building have common walls with others?	>1 (H) = 5 <1 (L) = 3	<input type="text"/>
8. How many storeys does the building have? 1 2 3 4 5 6 7 8 9 includes basements	2 = 5 add 5 for every subsequent storey	<input type="text"/>
9. Any historic classification or significance?	Yes = 2	<input type="text"/>
10. Is the building in the inner city, in a known geothermal area or previous seismic activity?	Yes (H) = 10	<input type="text"/>
11. What is the age and condition of the building? e.g. Pre 1940 = 10 Pre 1965=8	Assign score 1-10 accordingly	<input type="text"/>
12. Are there any other factors to be considered? e.g. Parapets, verandahs, attachments or adornments	Assign score 1-10 accordingly	<input type="text"/>
<b>Total Score (out of approx 100)</b>		<input type="text"/>
<b>Note: &lt; 40 Low Risk 40-60 = Moderate Risk) &gt;60 = High Risk)</b>		<input type="text"/>