

COUNCIL POLICY**SUBJECT:** EARTHQUAKE PRONE BUILDINGS**COMMITTEE:** ORDINARY COUNCIL**DATE:** 30 MAY 2006**FILE REFERENCE:** 304860**MINUTE BOOK PAGE(S):**

1 Introduction

1.1 Introduction of the Policy

This policy has been prepared by Kawerau District Council (Council) to comply with Section 131 of the Building Act 2004. Section 131 requires that each territorial authority prepares a "Policy on Earthquake Prone Buildings" and to have this in place by 31 May 2006.

In preparing this policy, Council has chosen to adopt a moderate approach. This is more than a passive, do-nothing approach, but not to the extent of inspecting the entire stock of buildings.

Council has adopted a moderate approach that will coincide with its inspection regime of Building Warrants of Fitness (BWof) Audits and a desktop study.

2 Aim of Policy

2.1 The Aim of the Policy is to:

- a) Reduce the level of earthquake risk to people.
- b) Target the most vulnerable buildings.
- c) Strengthen buildings in a timely and cost effective manner.
- d) Reduce the risk to the community of failure in its built infrastructure.

2.2 In setting this policy, Council has endeavoured to strike a balance between the threats posed by Earthquake Prone Buildings and the broader social and economic issues affecting the community who are involved.

2.3 This policy must be reviewed every five years.

3 Definition

3.1 The relevant definitions arising from The Building Act 2004 are as follows:

Section 124 Meaning of earthquake prone building

- (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 person 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.

This definition covers more buildings and requires a higher level of structural performance of buildings than that required by the Building Act 1991.

3.2 The definition of a moderate earthquake as in relation to a building has been defined in regulations as:

“An earthquake that 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.”

4 Identifying Earthquake Prone Buildings (EPBs)

4.1 Initial Approach

Kawerau District is in a zone of high seismicity. An active subduction¹ 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 would 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 considerable damage to both industrial and domestic buildings. Other faults in and around the District could give rise to damaging earthquakes.

Kawerau's buildings comprise a range of types reflecting development trends over the last 50 years since the town was established during the 1950's in association with the development of a pulp and paper mill. The major buildings in the town are industrial buildings and are well separated from residential development. There is also a variety of buildings that cater for people in crowds. There are no buildings carrying heritage classification and few of any cultural significance. Because building development in Kawerau has occurred since the 1960's, most buildings have been reinforced using modern methods.

This policy reflects Council's determination to reduce earthquake risk over time in a way that is acceptable in social and economic terms to its ratepayers.

Considering these factors, Council will:

- Categorise and prioritise buildings according to their function
 - 1) Buildings with special post-disaster functions as defined in AS/NZS 1170.0: 2002, Importance Level 4.
 - 2) 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.
 - 3) Buildings with a Heritage Classification of A or B under the Council's register.
 - 4) Buildings with an Importance Level less than 3 as defined in AS/NZS 170.0:2002.
- Obtain a Seismicity Map of the District from the Institute of Geological and Nuclear Sciences.
- Carry out a desk top study of the buildings in the District to identify possible EPBs.
- Assemble list of EPBs according to result of study.
- Assess broadly the performance of those buildings in relation to the new Building Standard and, in particular, to the standard defined for earthquake prone buildings.

5 Assessing Earthquake Prone Buildings

- 5.1 Buildings that have identified as possibly being EPBs as per section 4 above shall be further assessed by:
- Carrying out a brief building study during the BWoF site audit to identify construction methods and condition as well as use of the building.

¹ The process by which one tectonic plate moves beneath another.

- Establish a risk level for buildings using the EPB Risk Matrix (appendix 1). Low, Moderate or High.
- Carry out initial evaluation of performance in earthquake based on information obtained by using the NZSEE² Initial Evaluation Method.
- Advise Owners that their building has been identified as possibly being Earthquake Prone.
- Advise Owners to obtain a detailed assessment of the building by an Engineer, within the agreed timeframes.

5.2 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.

6 Taking Action

Council will take action on EPBs according to the powers set out in section 124 of the Building Act 2004.

6.1 Approach to Taking Action

- Advise and liaise with owners of identified EPBs.
- Encourage owners to carry out independent assessment of the structural performance of those buildings identified as earthquake-prone.
- Serve formal notices on owners of earthquake-prone buildings in accordance with the Building Act 2004, requiring them to remove the danger.
- 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 section 177.
- The timeframes for undertaking structural work shall be in general accordance with the following:
 - i) Low Risk within 15 years
 - ii) Moderate Risk within 10 years
 - iii) High Risk within 5 years

² New Zealand Society of Earthquake Engineers

6.2 Interaction Between EPB Policy and Related Sections of Building Act 2004

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.)

6.3 Dealing with Building Owners

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

- Before exercising its powers under section 124, 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.

6.4 Recording a Building's EPB 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 LIM 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.

6.5 Access to EPB Information

Information concerning the earthquake status of a building will be contained on the relevant LIM. In addition, Council will keep a record of the NZSEE grade of all buildings assessed, and will encourage all owners of significant buildings to have them assessed and graded.

Council will not require earthquake prone buildings to have an identifying plaque. We believe that having the information available at the Council offices is sufficient notice at present. In granting access to information concerning earthquake prone buildings, Council will conform to the requirements of the relevant legislation.

6.6 Dealing with Heritage Buildings

While there are no buildings in Kawerau carrying heritage classification and few of any cultural significance, it is acknowledged that a detailed assessment of Kawerau's built heritage has yet to be carried out. Council intends to carry out a health check on the Operative District Plan in the 2006/07 year and heritage issues will be a key area of focus in this health check. This would be a first step towards the development of a District Heritage Strategy which would be undertaken in consultation with Environment Bay of Plenty to ensure Council gives effect to any requirements of the Regional Policy Statement. This process will provide an opportunity to examine and assess Kawerau's built heritage having regard to a wide range of statutory mechanisms.

Council believes that it is important that heritage buildings have as good a chance of surviving a major earthquake as any other buildings. However, Council would not wish to see the intrinsic heritage values of these buildings adversely affected by structural improvement measures. Council acknowledges, therefore, that there needs to be flexibility in the level of structural improvement that may be required for such buildings. It will be important to involve the Historic Places from the outset in any discussions with owners.

Should any heritage buildings be identified, these 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 identify a mutually acceptable way forward.

Building Risk Assessment Earthquake Prone Buildings

Address.....

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

Risk Factor	Rating (H/L)	Score
Users		
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"/>
Usage of the building		
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"/>
Building Characteristics		
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 clarification 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"/>
Total Score (out of approx 100)		<input type="text"/>
Note: < 40 Low Risk 40-60 = Moderate Risk) >60 = High Risk)		