POLICY ON EARTHQUAKE PRONE BUILDINGS
Opotiki District Council
Adopted 2006

1 Introduction

1.1 Introduction of the Policy

This policy has been prepared by 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 Opotiki District Council has chosen to adopt a moderate approach. This is the midway between a totally passive approach and a proactive approach of inspecting the entire stock of buildings.

Opotiki District Council has adopted the moderate approach to coincide with our 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) To 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 the 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 that are involved.

2.2 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

Opotiki District is in a zone of high seismicity and its buildings comprise a range of types and ages reflecting steady development over the last 150 years. Considering this factor Opotiki District Council will;

- Categorise and prioritize buildings according to their function
  - 1) Buildings with special post-disaster functions as defined in AS/NZS 1170.0: 2002[1], 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 1170.0:2002.

- Obtain a Seismicity Map of the district from the Institute of Geological and Nuclear Sciences and this will be overlaid on an aerial photograph of the district.
- 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.

[1]AS/NZS 1170.0:2002 provides the procedure for structural design. It includes design procedures, reference to design actions, combinations of actions, detailing for robustness, methods of analysis and methods for confirmation of a limit states design. It also includes criteria for selection of annual probability of exceedance and serviceability.

- 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.

- 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 NZSEE[1] Initial Evaluation Method.

- Advise Owners that their building has been identified as possibly being Earthquake Prone.

- Advise Owner to obtain a detailed assessment of the building by an Engineer. Within the agreed timeframes.

5.2 Opotiki District Council will use the NZSEE[1] 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

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

1.New Zealand Society of Earthquake Engineers.

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 Council against the classification within 12 months of receipt of notice. Which can include applying to the department of Building and housing 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

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 Opotiki District Council for dealing with earthquake-prone buildings, the 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 the 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 Opotiki District Council for dealing with earthquake prone buildings, it will be a requirement of the building consent that the owner make 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

Opotiki District Council will endeavour to liaise with owners prior to taking any action under the Building Act. Where required Opotiki District 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, Opotiki District Council will serve a formal notice on the owner to strengthen or demolish the building.

6.4 Recording a Building's EPB Status

Opotiki District 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, the 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.

Opotiki District 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, the Council will conform to the requirements of the relevant legislation.

6.6 Dealing with Heritage Buildings

Opotiki District Council believes it is important that its heritage buildings have a good chance of surviving a major earthquake. However, Opotiki District Council does not wish to see the intrinsic heritage values of these buildings adversely affected by structural improvement measures.

Heritage buildings will be assessed in the same way as other potentially earthquake-prone buildings and discussions held with owners and the Historic Places Trust to identify a mutually acceptable way forward.

Special efforts will be made to meet heritage objectives. Council will provide advice during the structural review of these buildings and the identification of suitable means of improvement. Following this consultation period, notices will be served requiring improvement or demolition within a stated (and preferably agreed) time-frame. In particularly important cases, public consultations will be included.

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	
2. What is the predominant age group of the building users?	Children or Infants (H) = 10 Adults (L) = 3	
3. What is the general capability of the building users?	Mentally handicapped/immobile (H) = 10 Physically handicapped but mobile (H) = 6 Normal (L) = 3	
Usage of the building		
4. What is the sleeping activity rating for the building in terms of the building code?	Hospitals Care Institutions, Motels, Hotels, Hostels, Boarding houses, Boarding schools, Halls (H) = 10 Multi-unit dwellings, flats, apartments + Residential accommodation above shops (L) = 3	
5. Is the building used for any of the following activities?		
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?	Manufacturing of combustible materials, cinemas, schools, colleges, libraries, restaurants (when occupant loads exceed 100)(H) = 10 Manufacturing non-combustible materials, pack houses, banks, hairdressers, dentists, doctors, police stations, professional services, Cinemas, churches, court rooms, halls, day care centres, gyms, museums, eating places (when occupant loads up to 100) (L) = 3	

Building Characteristics

7. Does the building have common walls with others?	>1 (H) = 5 <1 (L) = 3	
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	
9. Any historic clarification or significance?	Yes = 2	
10. Is the building in the inner city, in a known geothermal area or previous seismic activity?	Yes (H) = 10	
11. What is the age and condition of the building? e.g. Pre 1940 = 10 Pre 1965=8	Assign score 1-10 accordingly	
12. Are there any other factors to be considered? e.g. Parapets, verandahs, attachments or adornments	Assign score 1-10 accordingly	
Total Score (out of approx 100) ***Note: < 40 Low Risk 40-60 = Moderate Risk) >60 = High Risk)***		