

EARTHQUAKE-PRONE, DANGEROUS AND INSANITARY BUILDINGS POLICY 2010

1 Introduction

1.1 Policy Context

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 territorial authority 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.

Section 2 of this policy primarily targets buildings constructed prior to 1976. Buildings constructed after this date are unlikely to be earthquake-prone, although it is recognised that some buildings constructed after 1976 will be, or could become, earthquake-prone.

1.2 Definitions

1.2.1 *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.”

Note: “Ultimate capacity” means seismic load capacity.

1.2.2 *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 (see Section 2.3.1). 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.**

1.2.3 Significant alteration

Significant alteration, for the purpose of the Policy, is:

- (a) any building work that affects the structural performance of the building; or
- (b) building work that has a value of more than \$50,000 or 25% of the rateable value of the building, whichever is the higher, in any twelve month period.

Notes:

- (i) “building work” in (a) and (b) means building work as defined by the Building Act 2004;
- (ii) the calculations in (b) are based on the value of the building, not the value of the land;
- (iii) the twelve month period in (b) starts from the date of issue of the building consent;
- (iv) where there is more than one building consent in a twelve-month period, the “significant alteration” is the alteration that takes the total value of building work over \$50,000 or 25% of the rateable value of the building.

1.2.4 Dangerous buildings

Under section 121 of the Building Act, a building is dangerous if:

- (a) in the ordinary course of events (excluding the occurrence of an earthquake), the building is likely to cause—
 - (i) injury or death (whether by collapse or otherwise) to any persons in it or to persons on other property; or
 - (ii) damage to other property; or
- (b) in the event of fire, injury or death to any persons in the building or to persons on other property is likely because of fire hazard or the occupancy of the building.

1.2.5 Insanitary buildings

Under section 123 of the Building Act, a building is insanitary if it:

- (a) is offensive or likely to be injurious to health because—
 - (i) of how it is situated or constructed; or
 - (ii) it is in a state of disrepair; or
- (b) has insufficient or defective provisions against moisture penetration so as to cause dampness in the building or in any adjoining building; or
- (c) does not have a supply of potable water that is adequate for its intended use; or
- (d) does not have sanitary facilities that are adequate for its intended use.

2 Earthquake-Prone Buildings

2.1 Background and overall approach

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 and the new 'Darfield' fault zone—exist within the region and are large and close enough to Christchurch to cause significant damage throughout the city.

The following information was prepared before the September 2010 earthquake and will require revision.

The city's 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. It is estimated that there are potentially 7600 buildings in Christchurch that are "earthquake prone" as defined in the Building Act 2004. These are commercial buildings constructed before 1976.

Those at highest risk of collapse are the approximately 960 unreinforced masonry buildings, which are likely to fail in a moderate earthquake, although refurbishment and redevelopment for new uses has meant some of the unreinforced masonry and brick buildings have undergone some level of strengthening.

There are around 490 heritage buildings that are earthquake-prone as defined by the Building Act. The majority (295) are unreinforced masonry, and there are 29 reinforced concrete and 163 timber-frame and other types.

In the Council's first policy, the Council 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 benefit to the city of strengthening the applicable buildings to 33% of current code to be \$97.2 million (in 2002 dollars). The Council has continued to rely on this study in reviewing the Policy.

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).

This Policy reflects the Council's determination to reduce the risk to the public in an earthquake over time in a way that is acceptable in social, cultural and economic terms to its ratepayers. The Council recognises that this Policy will mean additional costs for building owners, but notes the benefits of strengthening: not only improved safety, but also greater resilience and a quicker recovery after an earthquake, both for individual businesses and for the city's economy as a whole.

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 it does aim to minimise some of the risk for, and arising from, buildings in an earthquake.

The Council will continue to use a mix of regulatory and non-regulatory tools to encourage the seismic strengthening of the city's buildings.

2.2 Categories and Timeframes

The Council proposes to establish timeframes for earthquake strengthening of certain buildings that do not meet 33% of the current Building Code requirements. 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. They 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.

The Council will categorise and prioritise earthquake-prone buildings as follows:

Category A

- Buildings with special post-disaster functions as defined in AS/NZS 1170.0:2002—Importance Level 4.
- **Must be strengthened within 15 years from the date the owner is notified that their building is potentially earthquake-prone.**

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. Note that “contents of high value to the community” does not include the fabric of the building itself.
- Buildings constructed of unreinforced masonry or unreinforced concrete.
- **Must be strengthened within 20 years from the date the owner is notified that their building is potentially earthquake-prone.**

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 the date the owner is notified that their building is potentially earthquake-prone.**

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

Attached to this Policy 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. (See section 4 of this Policy.)

2.3 Implementation

2.3.1 Identifying and recording the status of earthquake-prone buildings

From 1 July 2012, the Council will begin reviewing Council files to identify buildings that could be earthquake-prone, beginning with Category A and progressing through to Category C.

Buildings that will not require further assessment include those that are:

- 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); or

- infrastructure assets covered by an Asset Management Plan such as infrastructure assets owned or controlled by the Council (including any Council Controlled Organisation, Council Controlled Trading Organisation, or local government organisation), Transit New Zealand, or the owner of “works” as defined in the Electricity Act 1992.

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 establishment and recording of a building’s earthquake-prone status will take place in three stages.

Stage 1: Identification of Potentially Earthquake-Prone Buildings from review of Council files

The Council will use information in its files to identify buildings that could be earthquake-prone, and write to owners advising them that their building could be earthquake-prone and that further assessment will be needed. Owners will be advised that they have 60 days from the date of the letter to provide evidence that the building is not earthquake-prone. If satisfactory evidence is not provided within 60 days, it will be noted on the property file and in the GIS system that the building is **potentially earthquake-prone**. The Council will accept an initial assessment using NZSEE’s Initial Evaluation Procedure, or an equivalent method, as satisfactory evidence that a building is not earthquake-prone.

Stage 2: Initial assessment

When an **initial assessment** using the NZSEE’s Initial Evaluation Procedure, showing that a building does not meet 33% of the current Building Code requirements, has been received by the Council, it will be noted on the property file and in the GIS system that the building is **likely to be earthquake prone**. This assessment is the owner’s responsibility, and its timing is at the owner’s discretion, subject to sections 2.2 and 2.3.5 of this Policy. This does not prevent the Council from carrying out an initial assessment at any time. An initial assessment may provide sufficient evidence to justify the Council issuing a section 124 notice (see section 2.3.3 of this Policy).

Stage 3: Detailed assessment

When a **detailed assessment** using the NZSEE’s detailed assessment method, showing that a building does not meet 33% of current Building Code requirements, has been received by the Council, it will be noted on the property file and in the GIS system that the building is **earthquake-prone**. This assessment is the owner’s responsibility, and its timing is at the owner’s discretion, subject to sections 2.2 and 2.3.5 of this Policy. This does not prevent the Council from carrying out a detailed assessment at any time. A detailed assessment that shows a building does not meet 33% of current Building Code requirements will result in the Council issuing a section 124 notice (see section 2.3.3 of this Policy).

The process is shown in the attached diagram. Note that not all buildings will go through all three stages of the identification and recording process. A building owner may, for example, elect to proceed straight to a detailed assessment if s/he believes the building is earthquake prone and wants more detailed advice on the issues to be addressed.

2.3.2 Access to information

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. Information concerning the earthquake-prone status of a building will also be contained in the property file and GIS system.

The following information will be provided in the Land Information Memorandum (LIM) for each building:

- Address and legal description of land and building.
- Earthquake-prone status: potentially earthquake-prone, likely to be earthquake prone, or earthquake-prone (as above), and what these categories mean.
- Date by which strengthening or demolition is required (if known).
- A record of any notice issued under section 124 of the Building Act.
- Statement that further details are available from the Council property file.

In granting access to information concerning earthquake-prone buildings, the Council will comply with the requirements of the relevant legislation.

2.3.3 Taking action on earthquake-prone buildings

The Council encourages building owners to get independent assessments of the structural performance of their buildings. It will also use the powers given in section 124 of the Building Act 2004—including the power to give written notice requiring work to be carried out, and to erect a hoarding, fence or warning sign—to take action regarding earthquake-prone buildings.

As noted in section 2.3.1 of this Policy, the Council will determine the level of strengthening required to reduce or remove the danger on a building-by-building basis. It will be guided by the Recommendations of the New Zealand Society of Earthquake Engineers that 67% of Full Code Levels is a reasonable level of strengthening to reduce the risk posed by existing buildings.

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. 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.

When setting a timeframe for action on an earthquake-prone building, the Council will take into account previous strengthening and/or any contractual or statutory obligations that the building owner may be subject to, as well as the timeframes in this Policy and any written notification of the timeframes the building owner has already received.

In determining an acceptable approach to strengthening, the Council will take into account the heritage values of listed heritage buildings as set out in section 4 of this Policy.

2.3.4 Extensions of time

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 Council for an extension of time. Extensions of time will not exceed three years and will be subject to conditions set by the Council. Only one extension of time will be granted for each building.

2.3.5 Interaction between Earthquake-Prone Building Policy and other sections of the Building Act 2004

When an application for a consent for a Significant Alteration to a building is received and the building may be earthquake-prone as defined in the Building Act 2004, evidence must be provided that the building has a collapse strength of over 33% of the current Building Code, or the building will be required to be strengthened as part of the consent. 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. As a general rule, commercial buildings constructed after 1976 are unlikely to be earthquake-prone.

When an application for a consent involving a change of use is received, the requirements of section 115 of the Building Act 2004 for the building to be strengthened to as near as is reasonably practicable to the strength of a new building will be followed.

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.

2.4 Other methods to encourage seismic strengthening of buildings

The Council will continue its current provision of Heritage Incentive Grants and free advice to owners of heritage buildings. It will also review whether it should introduce other tools to encourage seismic strengthening in the process of developing the 2012-22 Long-Term Council Community Plan.

3 Dangerous and Insanitary buildings

3.1 Overall approach

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 that 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.

3.2 Implementation

3.2.1 Identifying dangerous and insanitary buildings

Where a building complaint is received from the public and/or advice is received from the NZ Fire Service that a building is dangerous, the Council will investigate and assess the condition of the building to determine whether it is dangerous or insanitary in terms of sections 121 and 123 of the Building Act 2004.

3.2.2 Taking action on dangerous and insanitary buildings

On being satisfied that a building is dangerous or insanitary, the Council will advise and liaise with the owner to discuss action to be taken. If notification was received from the Fire Service that the building was dangerous, it will liaise with the Fire Service to discuss the proposed action. If the building is a listed heritage building, the Council will take into account its heritage values in determining a course of action, as set out in Section 4 of this Policy.

The Council will use the powers given in section 124 of the Building Act 2004—including the power to give written notice requiring work to be carried out, and to erect a hoarding, fence or warning sign—to take action on dangerous and insanitary buildings.

Before exercising its powers under section 124, the Council will seek, within a defined timeframe, 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 the owner for dealing with the dangerous or insanitary situation by alterations to the building, removal, or action being taken under the Health Act 1956 (see below). 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.

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.

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.

Note: Provisions also 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, and under section 42, insanitary conditions likely to cause injury to the health of persons, or a dwelling that is otherwise unfit for human habitation).

4 Heritage Buildings

4.1 Special considerations and constraints

The Council believes it is important that heritage 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. For this reason, heritage buildings will be categorised and assessed in the same way as other potentially earthquake-prone buildings, and subject to the 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. As noted above, the Council intends to continue to support the upgrading of heritage buildings through its Heritage Incentive Grants and the provision of rates-funded advice.

When considering heritage buildings under this Policy, account will be taken of:

- (a) The importance of recognising any special traditional and cultural aspects of the intended use of the building;
- (b) The need to facilitate the preservation and ongoing use of buildings and areas 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 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.

5 Disputes

If a building owner disputes Council's decision, or proposed decision, to classify their building as earthquake-prone, or any other matter relating to the exercise of the Council's powers under sections 124 and 129 of the Building Act 2004 relating to earthquake-prone, dangerous or insanitary buildings, they may apply for a determination from the Chief Executive of the Department of Building and Housing, as set out in the Building Act 2004. Such a determination is binding on the Council.

6 Monitoring and Review

The number of buildings strengthened and the level to which they are upgraded will be monitored. This Policy will be reviewed within five years of its adoption.

Approval Date: 10 September 2010

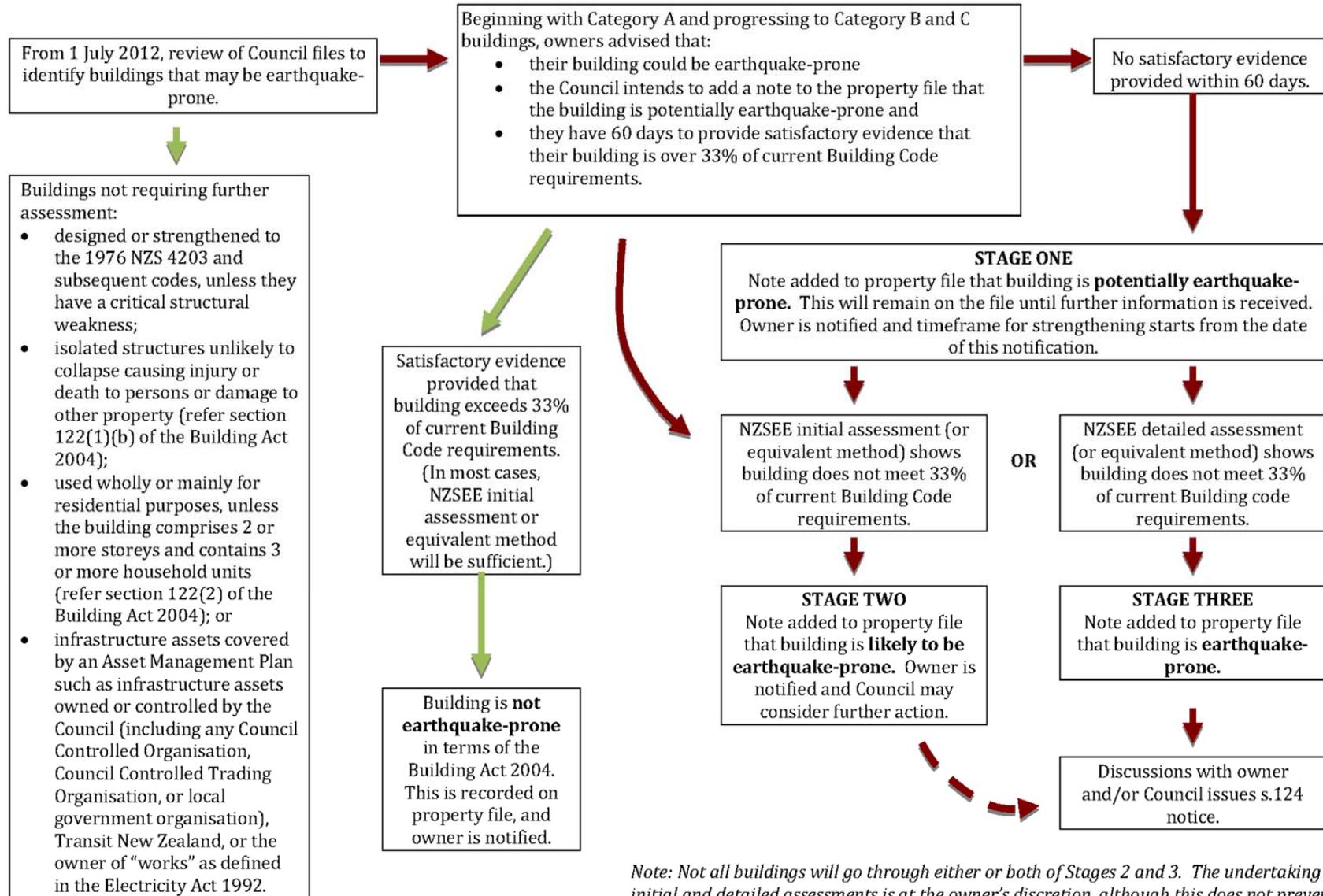
Group Responsible: Regulation and Democracy Services

TABLE 3.2
IMPORTANCE LEVELS FOR BUILDING TYPES—NEW ZEALAND STRUCTURES

| Importance level | Comment | Examples |
|------------------|---|--|
| 1 | Structures presenting a low degree of hazard to life and other property | Structures with a total floor area of <30 m ² Farm buildings, isolated structures, towers in rural situations Fences, masts, walls, in-ground swimming pools |
| 2 | Normal structures and structures not in other importance levels | Buildings not included in Importance Levels 1, 3 or 4 Car parking buildings |
| 3 | 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 For this Policy, Category B also includes <i>all</i> earthquake-prone buildings constructed of unreinforced masonry or unreinforced concrete that are not in Category A. | 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 ² (i) Public assembly buildings, theatres and cinemas of greater than 1000 m ² Emergency medical and other emergency facilities not designated as post-disaster Power-generating facilities, water treatment and waste water 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 |
| 4 | 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 Buildings and facilities containing hazardous materials capable of causing hazardous conditions that extend beyond the property boundaries |
| 5 | 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 ²) or a large number of people (e.g., 100 000) Major dams, extreme hazard facilities |

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Identifying and Recording the Status of Earthquake-Prone Buildings



Note: Not all buildings will go through either or both of Stages 2 and 3. The undertaking of initial and detailed assessments is at the owner's discretion, although this does not prevent the Council from carrying out an assessment at any time.