MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

Proposals for Regulations under the Building (Earthquake-prone Buildings) Amendment Act 2016

DISCUSSION DOCUMENT
September 2016

New Zealand Government

Minister's Foreword

The Canterbury earthquakes have changed forever the way we view the safety of New Zealand's buildings, given that these earthquakes caused such widespread destruction and, on 22 February 2011, such tragic loss of life.

An important part of the Government's response has been to make sure the performance of our existing buildings is managed in a way that improves New Zealand's resilience to future seismic events. A challenging component of this work has been to develop suitable regulatory requirements for identifying and upgrading those older buildings that are significantly below today's requirements for seismic resistance.

These changes are an important part of the Government's vision for a world class building regulatory system that delivers high quality and safe buildings. The way we manage and improve our existing buildings is an important part of this vision.

Our proposals for improving the seismic resilience of New Zealand's existing buildings have had considerable input from New Zealanders, and have gradually evolved to take account of the findings of the Canterbury Earthquakes Royal Commission Te Komihana Rūwhenua o Waitaha, the Government's subsequent earthquake-prone building policy review, and the resulting parliamentary process to complete the legislative change.

A key change in the new law is that it provides a nationally consistent approach to managing the risks posed by earthquake-prone buildings. Under the current system, which was introduced a decade before the Canterbury earthquakes, local councils were asked to develop their own systems for identifying and managing these risks.

For this new approach to work, it is important we have your views on the details of these proposed regulations. We want to make sure they are practical, fair and appropriate for the range of different circumstances that apply across New Zealand.

These proposals aim to strike the right balance between protecting people from harm in an earthquake, the costs of strengthening or removing buildings, and the impact on our built heritage. The detail they provide will help give more clarity and certainty about how the law will apply, while still providing councils with a degree of flexibility to cater for the different circumstances of affected buildings in their districts

We welcome your input, with our ambition being to bring the new law into effect on 1 July 2017.

Hon Dr Nick Smith
Minister for Building and Housing

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This publication is also available on the Ministry of Business, Innovation and Employment website at http://www.mbie.govt.nz/about/our-work/have-your-say

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PART A – HAVING YOUR SAY

Section 1: Submissions

1.1 Why we're consulting

The Building (Earthquake-prone Buildings) Amendment Act 2016 (the Amendment Act) was enacted in May 2016. It contains major changes to the current system for identifying and remediating earthquake-prone buildings under the Building Act 2004 (the Building Act).

The provisions of the Amendment Act are anticipated to commence on 1 July 2017.

The Amendment Act defines the criteria for earthquake-prone buildings, establishes national timeframes and procedures for addressing earthquake-prone buildings, and provides for establishment of a publicly available national earthquake-prone building register.

Regulations may be made across a number of areas necessary to support commencement of the Amendment Act. This discussion document sets out a number of policy proposals from the Ministry of Business, Innovation and Employment (MBIE) for regulations relating to earthquake-prone buildings and seeks your views.

Note:

The Building (Earthquake-prone Buildings) Amendment Act 2016 sets out the new requirements, powers and time frames to address earthquake-prone buildings.

The proposed Earthquake-prone Buildings Regulations will provide more detail on the new requirements and set out how the Amendment Act will be implemented at a practical level.

1.2 Proposals at a glance

The following table summarises the proposals we are consulting on: details are in section 5 of this document along with key questions. Questions are numbered sequentially throughout the document and are also summarised in Appendix 5.

Table 1: Proposals for regulations

Proposals for regulations	What this does	Why
Definition of 'ultimate capacity' (section 5.1)	Clarifies the level of building performance required to help determine whether or not a building is earthquake prone	Promotes more consistent identification of earthquake-prone buildings by territorial authorities **Note**: this term is used in the definition of an earthquake-prone building in the Building Act, but is currently not defined
Earthquake ratings categories and EPB notices (section 5.2)	Prescribes two categories of earthquake ratings for earthquake-prone buildings and expresses these in terms of %NBS*	Provides information about the risk of specific buildings, allows prospective building users to make decisions about building use
	Establishes the 'look' of notices applied to buildings in each category	Provides information about the risk of specific buildings, creates more incentive for owners to address the highest risk buildings **Note**: the content of these notices is prescribed in the Amendment Act
Criteria for 'substantial alterations' (section 5.3)	Sets criteria for territorial authorities to identify when alterations to an earthquake-prone building trigger requirements for earlier seismic upgrades	Promotes more progressive and earlier upgrades of earthquake-prone buildings, which helps achieve improved building safety
Exemptions (section 5.4)	Prescribes characteristics an earthquake-prone building must have for territorial authorities to consider exempting owners from carrying out seismic work	Allows owners of earthquake-prone buildings to be exempted from upgrading their buildings if the consequence of failure is low

Note to table:

* %NBS means percentage of the 'new building standard' (see Appendix 2).

1.3 How to provide your feedback

MBIE invites written comments on these proposals by **5pm on Thursday 15 December 2016.**

You are welcome to make submissions on some or all of the questions and you can also incorporate relevant material provided to other reviews or inquiries. A submission may range from a short email or letter on one issue to a substantial response covering multiple issues. We have made available a submission form alongside this discussion document to assist you with your submission should you choose to use it. We appreciate receiving an electronic copy of posted submissions, preferably in Microsoft Word or searchable PDF format.

You can:

- request a printed copy of this document, a submission form, or both by emailing your name and postal address to: EPBconsultation@mbie.govt.nz
- download a submission form and complete it electronically or on a printed copy
- provide your written feedback in a letter or email (if you choose not to use the submission form).

Please return your submission via one of the following methods:

- email to: EPBconsultation@mbie.govt.nz, or
- post or courier to:
  Ministry of Business, Innovation and Employment
  15 Stout Street
  PO Box 1473
  Wellington 6140
  Attention: Earthquake-prone buildings consultation

Please ensure you provide your contact details with your submission, whichever format you choose.

Alert:

Submissions on the proposals for earthquake-prone buildings regulations must be received by the Ministry of Business, Innovation and Employment by **5 pm on Thursday 15 December 2016.**

Disclaimer:

The opinions and options contained in this document are for consultation purposes only and do not reflect final Government policy. Please seek specific legal advice from a qualified professional person before undertaking any action based on the contents of this document.

The contents of this document must not be construed as legal advice.

The Government does not accept any responsibility or liability whatsoever for an action taken as a result of reading, or for reliance placed because of having read, all or any part of the information contained in this document, or for any error, inadequacy, deficiency, or flaw in, or omission from, this document.

1.4 Your submission may be made public

MBIE intends to publish all submissions, including the names of submitters, on its website at www.mbie.govt.nz other than submissions that may be defamatory.

MBIE will not publish the content of your submission on the internet if you state that you object to its publication when you provide it. However, your submission will remain subject to the Official Information Act 1982 and may, therefore, be released in part or full.

The Privacy Act 1993 also applies to your submission. This means that any personal information you supply to MBIE in the course of making your submission will be used by MBIE only in conjunction with matters covered by this document.

When making your submission, please state if you have any objections to the release of any information contained in your submission. If so, please identify which parts of your submission you request to be withheld and the grounds under the Official Information Act that you believe apply.

1.5 Your views also sought on proposals for the EPB methodology

MBIE is also consulting on proposals for the earthquake-prone building (EPB) methodology at the same time as this consultation. You may also wish to provide feedback on these proposals: go to http://www.mbie.govt.nz/about/our-work/have-your-say to view the discussion document and make a submission.

The Amendment Act requires MBIE's chief executive to set a methodology for identifying potentially earthquake-prone buildings and assessing whether or not buildings are earthquake prone. The EPB methodology will:

- set out how territorial authorities (TAs) are to identify the buildings that are potentially earthquake prone
- set out how territorial authorities determine whether or not buildings are earthquake prone, and if they are, how to identify their earthquake rating
- specify the requirements for engineering assessments, and
- set out how engineering tests completed under the current system may be taken into account by territorial authorities.

The Amendment Act requires that the chief executive must do everything reasonably practicable to consult with those who are likely to be substantially affected by the setting of the methodology.

1.6 What happens next?

Your submission will help inform the development of policy proposals for the content of regulations to help manage earthquake-prone buildings.

MBIE will analyse all submissions it receives. We will then report to the Minister for Building and Housing, who will consider the advice and seek agreement from Cabinet about the final policy for regulations about earthquake-prone buildings.

The new regulations will take effect on the commencement date of the Amendment Act, which will either be on 12 May 2018 or an earlier date appointed by the Governor-General by Order in Council. It is currently envisaged that the Amendment Act will commence on 1 July 2017.

Table 2: Key dates for development of regulations

Key dates	Action
September 2016	Public consultation opens on proposals for regulations under the Amendment Act
15 December 2016	Public consultation closes
1 July 2017	Amendment Act 2016 commences Regulations under the Amendment Act come into force

PART B – THE EARTHQUAKE-PRONE BUILDING FRAMEWORK

Section 2: Some key definitions

The following definitions provide important context for understanding the proposals in this document.

What these earthquake-prone building provisions apply to:

The Amendment Act (section 133AA) identifies the buildings to which the earthquake-prone building provisions apply. It excludes certain residential housing, farm buildings, retaining walls that are not integral to the structure of a building, fences, certain monuments, wharves, bridges, tunnels and storage tanks.

In particular, the provisions in the Amendment Act do not apply to any building used 'wholly or mainly for residential purposes' unless it has at least two storeys and is either: a hostel, boardinghouse or other specialised accommodation; or contains three or more household units.

2.1 What is an earthquake-prone building?

The Amendment Act revises the previous definition of 'earthquake-prone building'.

The Amendment Act (section 133AB) defines an earthquake-prone building as one that:

> *"having regard to the condition of the building or part and to the ground on which the building is built, and because of the construction of the building or part –*
>
> *(a) the building or part will have its ultimate capacity exceeded in a moderate earthquake and*
>
> *(b) if the building or part were to collapse, the collapse would be likely to cause –*
>
> *(i) injury or death to persons in or near the building or on any other property; or*
>
> *(ii) damage to any other property".*

To be identified as earthquake prone, a building must therefore meet both the 'ultimate capacity' test and the test relating to the likely consequences for life safety or property damage if the building were to collapse.

The definition of an earthquake-prone building takes into account a range of factors, including different levels of seismic hazard around New Zealand (refer Appendix 1). Generally speaking, an existing building will be required to achieve at least 34% of the design standard for a new building in an area of the same seismic hazard. This is referred to as "34% of the new building standard (NBS)".

This means that a building at 34%NBS in Wellington, where there is a relatively high seismic hazard, is stronger (in absolute terms) than a building at 34%NBS in Auckland, where the seismic hazard is lower.

What is 'part 'of an earthquake-prone building?

The definition of 'earthquake prone' may also apply to a part of a building. The EPB methodology will describe how parts of buildings will be dealt with in the identification of potentially earthquake-prone buildings, in engineering assessments and in decisions about earthquake-prone buildings. Generally speaking, it is expected that 'parts' will comprise certain individual elements of the structure or critical non-structural elements that could lead to a life safety hazard if they were to fail.

2.2 What is a moderate earthquake?

For the purposes of identifying an earthquake-prone building, a moderate earthquake is one that would generate shaking at the site of the building that is of the same duration as, but 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 if it were designed on the date the provisions of the Amendment Act commence. The design standard to be used will be the Standard that is in place when the Amendment Act commences. Currently the applicable Standard is NZS 1170.5:2004 – Structural Design Actions Part 5: Earthquake actions – New Zealand.

The definition of moderate earthquake will be included in regulations alongside the other regulations proposed for the identification and management of earthquake-prone buildings. Refer to section 6.1 for more information on the definition of 'moderate earthquake'.

2.3 How many earthquake-prone buildings are there in New Zealand?

The exact number of earthquake-prone buildings in New Zealand is not known. However, MBIE's indicative estimates are that in the order of around 15,000 to 25,000 buildings across New Zealand could be earthquake prone. This represents approximately 8 to 13 per cent of all non-residential and multi-storey/multi-unit residential buildings.

The Amendment Act provides for the establishment of a national register of earthquake-prone buildings. Over time, the register will provide a much better understanding of how many earthquake-prone buildings there are, where they are located and when they are due to be strengthened.

Section 3: About the new earthquake-prone building provisions

3.1 Why a new regulatory framework was developed

The 2010 and 2011 Canterbury earthquake sequence caused extensive damage to residential and commercial buildings in the Canterbury region, with significant loss of life and injury resulting from the earthquake on 22 February 2011.

A Royal Commission of Inquiry into Building Failure caused by the Canterbury Earthquakes was established in April 2011. The Royal Commission made 189 recommendations, including a number of recommendations about improving the seismic performance of the country's existing building stock.

In 2012, the then Department of Building and Housing (now MBIE) completed technical investigations into four multi-storey buildings that collapsed or failed during the 22 February 2011 earthquake. This investigation similarly resulted in a number of recommendations being made to improve the seismic performance of the country's existing building stock.

Note:

The exact number of earthquake-prone buildings in New Zealand is not known. However, MBIE's indicative estimates are that in the order of around 15,000 to 25,000 buildings across New Zealand could be earthquake prone. This represents approximately 8 to 13 per cent of all non-residential and multi-storey/multi-unit residential buildings.

The Amendment Act provides for the establishment of a national register of earthquake-prone buildings. Over time, the register will provide a much better understanding of how many earthquake-prone buildings there are, where they are located and when they are due to be strengthened.

The new framework for managing earthquake-prone buildings draws on lessons learned from the Canterbury earthquakes, the findings of the subsequent Royal Commission, and public submissions. It aims to:

- establish a more effective and nationally consistent framework for identifying and remediating earthquake-prone buildings
- better target those districts, buildings and parts of buildings that pose the greatest risk
- provide improved information for territorial authorities, building owners, engineers and the public, and
- strike an appropriate balance between protecting people from harm, the cost of strengthening or removing earthquake-prone buildings, and impacts on heritage.

Figure 1: Considerations for the earthquake-prone building framework

It means that:

- central government provides more leadership and direction for managing earthquake-prone buildings
- territorial authorities no longer have to develop individual policies to manage earthquake-prone buildings, but will still be responsible for administering the Act's requirements in their districts
- suitably qualified engineers will continue to carry out engineering assessments on buildings in accordance with the EPB methodology, and
- building owners will still need to ensure that their buildings undergo seismic strengthening work within the specified time frame.

3.2 How earthquake-prone buildings will be managed

The following figure shows the structure of the new framework for managing earthquake-prone buildings. The way the changes will be achieved is through:

- extensive additions and changes to the Building Act (via the Amendment Act)
- new regulations that set out how the Amendment Act will be put into practice
- a new identification and assessment methodology – the EPB methodology – which will link with the latest guidelines *The Seismic Assessment of Existing Buildings: Technical Guidelines for Engineering Assessments* (Engineering Assessment Guidelines), and
- a new, publicly available national register of buildings that are earthquake prone (the EPB register).

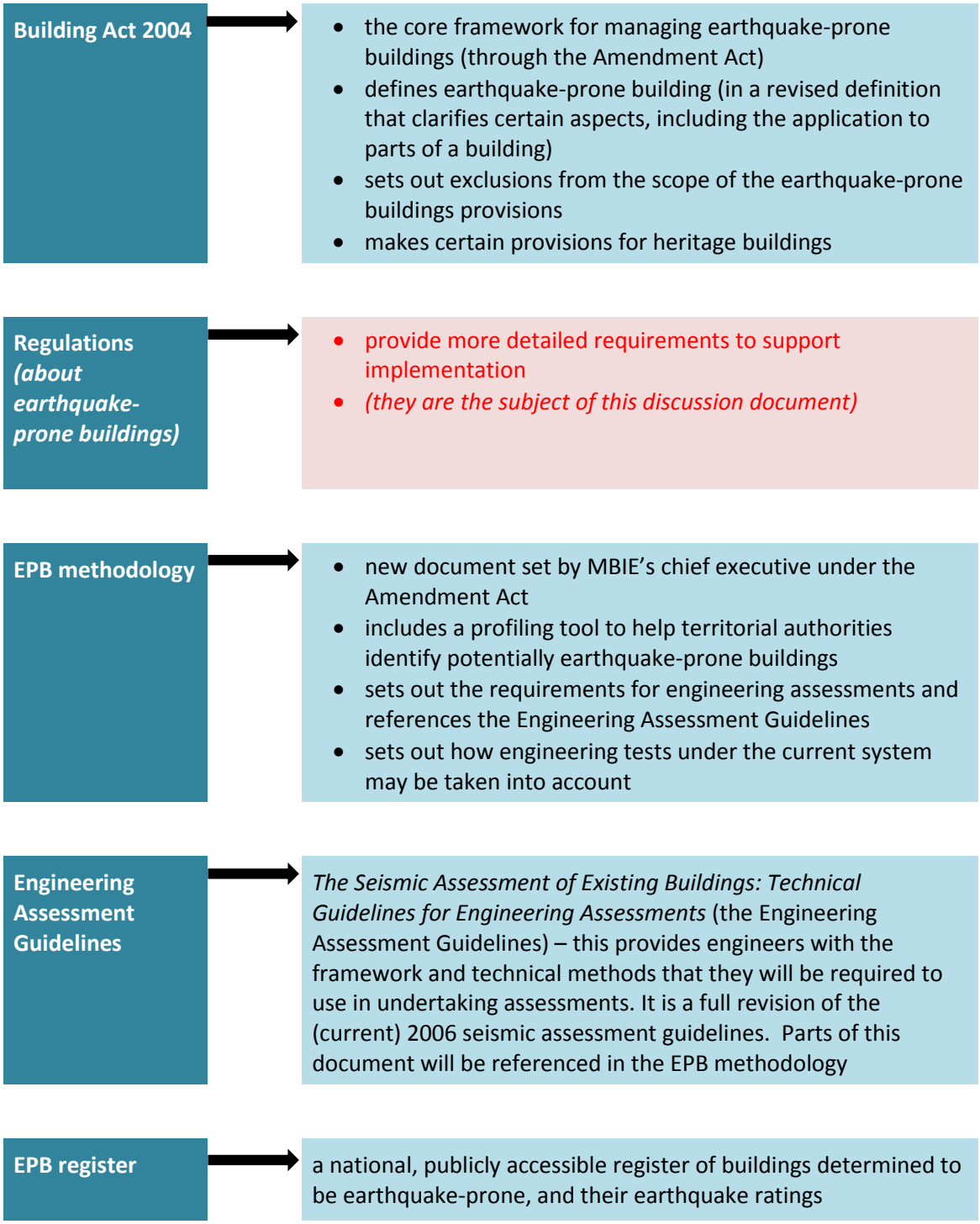


Figure 2: Framework for managing earthquake-prone buildings

3.3 Engineering Assessment Guidelines

The current document used by engineers to assess buildings is the *"Assessment and Improvement of the Structural Performance of Buildings in Earthquakes*" published by the New Zealand Society for Earthquake Engineering (NZSEE)[1]. This document is also known as "the Red Book" and is widely adopted by engineers in New Zealand as the basis for undertaking building assessments.

The "Red Book" has now been fully revised, with the new version produced by the three key technical engineering societies – NZSEE, the Structural Engineering Society New Zealand (SESOC) and the New Zealand Geotechnical Society (NZGS) – in conjunction with MBIE and the Earthquake Commission. This discussion document refers to the updated version as the Engineering Assessment Guidelines.

It is anticipated that the final version of the Engineering Assessment Guidelines will be formally released in 2017 to coincide with the commencement of the new system.

A draft of the revised Engineering Assessment Guidelines may be obtained from: http://www.eq-assess.org.nz

3.4 Do the earthquake-prone building provisions apply to heritage buildings?

The Amendment Act recognises the complexities associated with remediating earthquake-prone heritage buildings within the set time frames by providing options to extend these times in some cases.

For the purposes of the Amendment Act, heritage buildings are defined as buildings included on the New Zealand Heritage List/Rārangi Kōrero maintained under section 65 of the Heritage New Zealand Pouhere Taonga Act 2014 or on the National Historic Landmarks/ Ngā Manawhenua o Aotearoa me ōna Kōrero Tūturu list maintained under section 81 of the Heritage New Zealand Pouhere Taonga Act.[2]

Under the Amendment Act, owners of these heritage buildings that have been determined as earthquake prone (including those that are priority buildings) can apply to their territorial authority for more time to complete the required seismic work. A territorial authority may grant them an extension of up to ten years.

[1] New Zealand Society of Earthquake Engineering, *Assessment and Improvement of the Structural Performance of Buildings in Earthquakes, Recommendations of a NZSEE Study Group on Earthquake risk Buildings*, New Zealand, June 2006.

[2] The New Zealand Heritage List/Rārangi Kōrero identifies New Zealand's significant and valued historical and cultural heritage places. Category 1 historic places are "of special or outstanding historical or cultural heritage significance or value". Category 2 historic places are "of historical or cultural heritage significance or value".

In addition, some owners of earthquake-prone heritage buildings may also be able to apply for an exemption from remediation requirements if their building has certain prescribed characteristics and the consequence of failure of the building is low (the proposed regulation for exemptions is set out in section 5.4).

In August 2016, the Government introduced a support package designed to assist private owners to strengthen significant heritage buildings that are earthquake prone. The Heritage Earthquake Upgrade Incentive Programme (Heritage EQUIP) provides discretionary funding to help with the costs of strengthening for Category 1 heritage buildings in private ownership in any seismic risk area and of Category 2 heritage buildings in private ownership in high and medium seismic risk areas.

Heritage EQUIP will be managed by the Ministry for Culture and Heritage in association with MBIE. The Heritage EQUIP website will include information to help owners of heritage buildings to understand what will be required to strengthen their buildings.

3.5 What are priority buildings?

Under the Amendment Act a subset of earthquake-prone buildings called 'priority buildings' (in high and medium seismic risk areas only) will have accelerated identification and remediation time frames.

Generally speaking, priority buildings are those with a strong life safety or emergency response function (refer to Appendix 2 for the full definition). They include certain education buildings, hospital buildings, emergency shelters or centres, and buildings used by emergency response services such as fire or police.

Priority buildings also include two categories of building which the TA will identify with community input. The first is earthquake-prone buildings which, if they were to collapse, would have the ability to impede a transport route of strategic importance (in terms of emergency response). The second is any part of an unreinforced masonry building that could fall onto any part of a public road, footpath or other thoroughfare that the TA has identified as having sufficient vehicle or pedestrian traffic to warrant prioritising.

One of the early requirements of territorial authorities under the Amendment Act is to identify potentially earthquake-prone buildings that are 'priority buildings' in their districts. In high seismic risk areas this must be done within 2.5 years of the commencement date, while in medium seismic risk areas this must be done within 5 years of the commencement date (ie in half the time allowed for identifying all other potentially earthquake-prone buildings).

If the TA then identifies a priority building as earthquake prone, the building owner must remediate it within 7.5 years for high seismic risk areas and 12.5 years for medium seismic risk areas (this is half the time allowed for remediating other earthquake-prone buildings).

PART C – PROPOSED REGULATIONS

Section 4: The need for regulations

4.1 Why regulations for earthquake-prone buildings are needed

We propose that regulations will help to set out the detail about how the changes to the Building Act will work at a practical level.

Sections 38 and 39 of the Amendment Act (see Appendix 1) provide for regulations to be made about the following:

- the definition of 'ultimate capacity',
- categories of earthquake ratings, and the form of the earthquake-prone building notices, including transitional notices',
- exemptions (from the requirement to undertake seismic work),
- criteria for 'substantial alterations' that will trigger early upgrade work,
- prescribing matters that a territorial authority must take into account when deciding whether or not to allow seismic work without the building complying with specified provisions of the Building Code,
- administrative matters – such as additional information requirements for the register of earthquake-prone buildings, and
- infringement offences.

The proposals and options in this discussion document relate to the requirements that would be prescribed in regulations. For example, the definition of 'ultimate capacity' is critical to the identification of an earthquake-prone building. If a building is determined as earthquake prone this can have potentially significant implications for owners, who will be required to either undertake seismic strengthening work or demolish it.

Note:
It may not be necessary for regulations to be made in all these areas, as certain provisions in the Amendment Act may be able to be implemented successfully without associated regulations. In some areas, we do not propose that regulations will be made.

4.2 Objectives for all regulations

We have used the following objectives to develop the proposals for regulations for earthquake-prone buildings. These are that each regulation, to the extent practicable, should:

- promote clarity/transparency – so that territorial authorities and building owners are clear about how the requirements will affect them and what their obligations are,
- be workable and efficient – the option can be readily implemented and does not introduce unnecessary compliance costs,

- be effective – the option promotes achievement of the policy objective for the earthquake-prone building regulations (e.g. regulations for 'substantial alterations' will help to ensure more progressive upgrades of earthquake-prone buildings and therefore shorten remediation timeframes),
- promote consistency with other applicable requirements:
  - other requirements under the amended Building Act; eg provisions such as those relating to priority buildings (defined in Appendix 2) or exemptions, and
  - interfacing legislative requirements in other sectors (Resource Management Act 1991, Health and Safety at Work Act 2015, Heritage New Zealand Pouhere Taonga Act 2014), and
- promote equity/fairness – they should be able to be applied impartially and consistently across the regions, so they treat buildings and building owners in the same circumstances in the same way.

What do you think (Objectives for all regulations)?

1. Do you agree with the objectives for making regulations?
2. Are there any other objectives that should be considered?

Section 5: Proposals for regulations

5.1 Definition of 'ultimate capacity'

Key issue
A clear definition of 'ultimate capacity' is a critical component in consistently identifying those buildings in New Zealand that are earthquake prone and that must therefore be strengthened within the time frames applicable for their seismic hazard areas.
Objectives
The objective of defining the meaning of 'ultimate capacity' in regulations is to clarify the level of building performance required to help determine whether or not a building is earthquake prone.

5.1.1 What the Amendment Act says

The Amendment Act amends section 402(1) of the Building Act to enable a regulation to be made for the purposes of:

> *"defining ultimate capacity for the purposes of section 133AB (meaning of earthquake-prone building)".*

Section 133AB of the Amendment Act defines an earthquake-prone building as:

> *"a building or part of a building is earthquake prone if, having regard to the condition of the building or part and to the ground on which the building is built, and because of the construction of the building or part, -*
>
> *(a)* ***the building or part will have its ultimate capacity exceeded in a moderate earthquake;*** *and*
>
> *(b) if the building or part were to collapse, the collapse would be likely to cause-*
>
> *(i) injury or death to persons in or near the building or on any other property; or*
>
> *(ii) damage to any other property.*

5.1.2 What happens currently?

The Building Act currently contains provisions to identify and manage earthquake-prone buildings. However, it does not define the term 'ultimate capacity'. The current NZSEE publication *"Assessment and Improvement of the Structural Performance of Buildings in Earthquakes*" (refer section 3.3) uses the term 'ultimate limit state capacity':

> "…the ultimate limit state capacity as defined in current design standards".

'Ultimate limit state' refers to the point at which design strength and deformation limits are reached, and is based on lower bound materials strengths. For new buildings, this provides a significant margin in the event of more extreme loadings.

The current approach provides a process that is intended to reduce the probability of collapse of new buildings (and therefore the risk to human life) to an acceptably low level. However, this has sometimes been difficult to apply to older, existing buildings.

5.1.3 What is 'ultimate capacity'?

The term 'ultimate capacity' is intended to refer to the probable load resisting capacity of an existing building, and is the point beyond which an engineer can no longer reliably establish the way the load-bearing capability of the structure will perform.

How do ultimate limit state capacity and ultimate capacity differ?

The term 'ultimate capacity' has clear contrasts with the capacity that is used for the design of new buildings. Firstly, it is applied to the assessment of existing buildings. Secondly, instead of the dependable strengths used for new building design, engineers assessing existing buildings use 'probable strengths'. So, while some of the criteria for new buildings may be met by an existing building, it is unlikely that they will all be achieved.

How the definition of 'ultimate capacity' will be used

Once a building is identified by a TA as being 'potentially earthquake prone' then its ultimate capacity will need to be assessed by an engineer.[3]

This involves the assessment of the building's seismic capacity in order to identify whether or not the building or a part of the building will have its ultimate capacity exceeded in a moderate earthquake (refer to section 133AB of the Amendment Act).

In determining the building's ultimate capacity, the engineer is also likely to identify the likely mode of failure of the building to see if the failure of the building or part would be likely to lead to a significant life safety hazard. The engineer's assessment of the likely mode of failure would assist the territorial authority in considering the likely consequences of the failure of the building on life safety for people in or near the building, when the authority is determining whether or not the building is earthquake prone.

When conducting engineering assessments to determine the ultimate capacity of a building, engineers will be guided by the requirements of the EPB methodology in conjunction with the Engineering Assessment Guidelines.

[3] Under section 133AI of the Amendment Act, a building owner can choose to not have an engineering assessment undertaken for their building. In these situations, the TA must proceed as if it had determined the building or part to be earthquake prone.

Could 'ultimate capacity' be linked to the risk of collapse of the building?

At first glance, this suggestion appears to have merit, given that the second of the two criteria that need to be satisfied for a building to be defined as 'earthquake prone' in section 133AB(1)(b) is:

> *"(b) if the building or part were to collapse, the collapse would be likely to cause-*
> *(i) injury or death to persons in or near the building or on any other property;*
> *(ii) damage to any other property"*

However, the question in section 133AB(1)(b) is a separate question to section 133AB(1)(a). The test in section 133AB(1)(b) does not require a judgment to be made on the likelihood of collapse or on the point at which any given building might collapse.

The standards for new building design (earthquake actions) set out in NZS 1170.5:2004 state:

> *"Given the current state of knowledge of the variables and the inherent uncertainties involved in reliably predicting when a structure will collapse, it is not currently considered practical to either analyse a building to determine the probability of collapse or base a code verification method around a collapse limit state."*

Submissions during the development of the Amendment Act also supported that the collapse point of a specified building cannot be reliably assessed and should not be included within the definition of 'ultimate capacity'. Once a building exceeds its yield and sustains damage, its behaviour becomes increasingly unpredictable. The collapse point depends on a number of variables including features of the building itself, the land on which the building is built, previous seismic activity in the area, and features of the earthquake such as magnitude and the intensity of shaking at the site (peak ground acceleration and displacement).

For these reasons, the proposed definition of ultimate capacity is not linked to the risk of collapse of the building.

5.1.4 Why we consider regulations are needed to define 'ultimate capacity'

A clear definition of 'ultimate capacity' is a critical component in identifying which buildings in New Zealand are earthquake prone. A building that is earthquake prone will need to be either strengthened or demolished within the time frame specified for its seismic hazard area.

The decision that a building is earthquake prone has financial implications for building owners, who will need to meet the costs of the necessary seismic work so that their buildings are no longer earthquake prone.

MBIE believes that setting regulations to define ultimate capacity will:

- give clarity to engineers about the requirements for undertaking assessments of potentially earthquake-prone buildings,
- remove the need to rely on interpretation through sector definition, and other processes such as determinations made by MBIE's chief executive under the Building Act,

- help to ensure that territorial authorities have the information they need when determining whether or not a building is earthquake prone, and
- promote consistent decision-making by territorial authorities.

Proposal for regulations: definition of 'ultimate capacity'

It is proposed that a regulation will be made to define what 'ultimate capacity' means for the purposes of identifying whether or not an existing building is likely to be earthquake prone.

The key concepts proposed for this regulation are:

- ultimate capacity relates to the probable load-resisting ability of a building to withstand actions caused by a moderate earthquake, and to maintain vertical load-carrying capacity.

We envisage that a regulation could be worded along the following lines:

"Ultimate capacity means the building's probable capacity to withstand earthquake actions and maintain gravity load support calculated by reference to the building as a whole and its individual elements or parts."

What do you think (Ultimate capacity)?

3. Do you agree that defining 'ultimate capacity' will help to achieve the objectives for all regulations? What are the reasons for your views?
4. Do you agree with the suggested definition? Please give reasons for your views.
5. Are there any other technical criteria that should be included in the definition of 'ultimate capacity'? If so, what are these and why do you think they are relevant?
6. If you did not agree with the suggested definition, what definition do you think should be used? Please give reasons for your views.
7. Do you have any other comments on the proposals about the definition of ultimate capacity?

5.2 Earthquake ratings categories and the form of earthquake-prone building notices

Key issues

- Most earthquake-prone buildings will be assigned earthquake ratings which indicate the degree to which the building meets the requirements of the Building Code in relation to seismic performance.[4]
- Categories of ratings will differentiate earthquake-prone buildings by their earthquake rating.
- The notices will enable potential building users to make decisions about building use.

Objectives for establishing categories of earthquake ratings and parameters for the form of notice for earthquake-prone buildings

The objectives of assigning a ratings category and then reflecting the category assigned to particular form of notice affixed to the building are:

- to provide the public with clear information about the earthquake risk of specific buildings.
- to place additional incentives on owners to address those buildings+ with the highest earthquake risk.

EARTHQUAKE RATINGS

5.2.1 What the Amendment Act says

The Amendment Act sets the following framework for earthquake ratings:

- **Section 133AC(1)** sets out the meaning of 'earthquake rating'.
- The rating for an earthquake-prone building is determined by a territorial authority **[section 133AC(2)(a)].**
- The rating is determined **in accordance with the chief executive's methodology [section 133AC(2)(a)].** Also addressed by section 133AV… the methodology will specify how territorial authorities are to determine ratings (for buildings that are earthquake-prone) **[section 133AV(1)(b)].**
- The rating is specified on the EPB notice **[section 133AC(2)(b)].**
- The rating determines the form of the EPB notice **[section 133AC(2)(c)].**
- The rating may be expressed as a percentage or as a percentage range **[section 133AC(3)].**

[4] Buildings with earthquake-prone building notices already issued will have new notices issued by they will not be required to have nan earthquake rating if that rating is not known.

- If the rating is a percentage range that spans more than one ratings category then the notice issued must be in the form prescribed for the category that includes the lowest point in the range **[section 133AL(3)].**
- Regulations may prescribe categories of earthquake ratings **[section 401C(a)(i)].**
- Regulations may prescribe the form of EPB notice to be issued in each ratings category **[section 401C(a)(ii)].**

5.2.2 Why make regulations for earthquake ratings?

The Amendment Act allows for regulations to be made to prescribe categories of earthquake ratings, and to prescribe the form of the earthquake-prone building notices.

Having their building determined as earthquake-prone may have some significant cost and other implications for building owners as they will either have to meet the costs of strengthening work, or demolish their building. The earthquake rating of a building is a critical indication of a building's status under the Amendment Act.

It is important that the process to establish a building's rating is transparent. Regulations will clearly articulate the requirements and help make sure they are implemented consistently across the country.

5.2.3 What is an earthquake rating?

Earthquake ratings provide a way to classify buildings according to the standard they achieve and therefore how well they might perform in an earthquake. The Amendment Act (section 133AC(1)) defines earthquake rating as meaning the *"degree to which the building or part meets the requirements of the Building Code:*

(a) that relate to how a building is likely to perform in an earthquake; and
(b) that would be used to design a new building on the same site; and
(c) as they apply on the day on which this section comes into force".

Earthquake ratings will reflect the expected performance of the building in an earthquake expressed as a percentage of the New Building Standard requirements for seismic performance (%NBS).

Publishing the earthquake rating of a building on the EPB register and placing this information on building notices will place additional incentives on owners to address the highest-risk earthquake-prone buildings.

5.2.4 How will a building be given its earthquake rating?

Engineering assessments

The engineering assessment process will provide an assessment of the expected performance of a building in an earthquake, expressed as a percentage of NBS.

The parts of the Engineering Assessment Guidelines that are proposed to be incorporated by reference in the EPB methodology will identify the global seismic capacity of the overall building, and its relationship with the seismic demand on an equivalent new building. Hence, the resulting rating broadly indicates how likely it is that a significant life safety hazard could occur.

Earthquake ratings categories

The current engineering guidelines (the Red Book - see section 3.3) already identify a sector grading scheme to classify buildings according to their earthquake performance. This scheme groups the results of building assessments into six grades (A+ to E) based on their %NBS seismic rating. Each grade represents a relative seismic risk. This framework is similar to that provided for by the Amendment Act.

To avoid confusion, it is proposed that the regulations setting out categories of ratings will reflect the definition only of the two lowest grades in the current sector grading scheme. Thus, the regulations will propose categories that are equivalent to the sector scheme's categories D and E but will refer to these categories as two %NBS bands.

Table 3: Categories for earthquake ratings – current and proposed

Seismic Rating (*%NBS*)	Equivalent category in current sector grading scheme	Proposed earthquake ratings category	Relative risk (approx..) compared to buildings at 100%NBS	Risk classification
20–33%NBS	D	20-33%NBS	10 – 25 times	High risk
<20%NBS	E	<20%NBS	>25 times	High risk

What does a building's earthquake rating mean?

The risk of failure under seismic load increases exponentially in relation to decreasing building capacity. For example:

- Buildings with an earthquake rating of 20-33%NBS would pose 10-25 times the risk of buildings that are 100%NBS.
- Buildings with an earthquake rating of less than 20%NBS would pose more than 25 times the risk of buildings that are 100%NBS.

Figure 3 indicates the increased risk to life safety that results from the decreasing strength rating in buildings. Whilst this was not specifically prepared for assessment of risk under the earthquake-prone buildings regulatory regime, the principles can be broadly applied to the likely performance of an existing building at any given assessed level of %NBS up to 100%NBS.

Figure 3*: Strength versus risk and Ultimate Limit State (ULS) as reference point

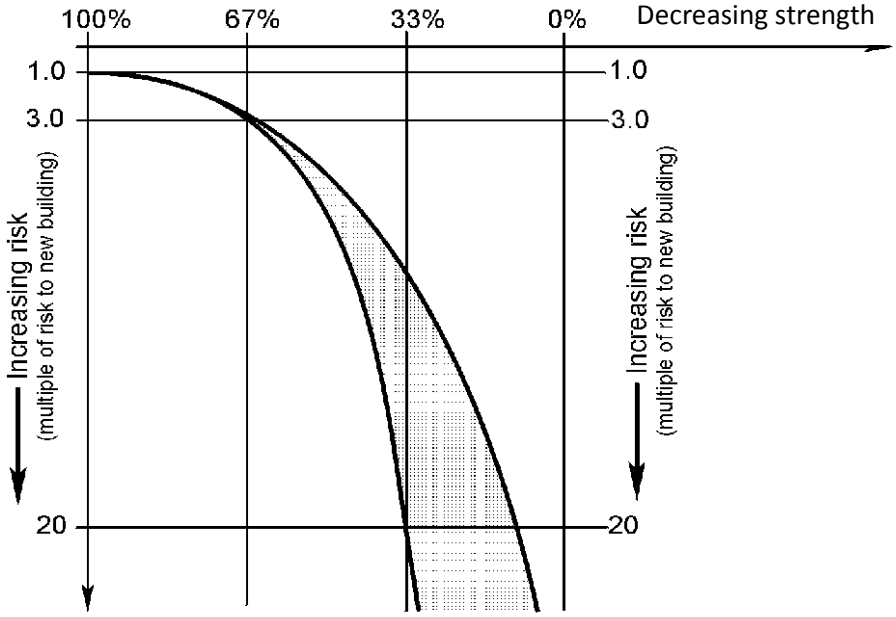


Figure 4.1: Strength versus risk and ULS as reference point

* Source: ***'Assessment and Improvement of the Structural Performance of Buildings in Earthquakes'*** Recommendations of a NZSEE Study Group on Earthquake Risk Buildings, published in June 2006 by the New Zealand Society for Earthquake Engineering.

Accordingly, an earthquake rating of less than 20%NBS means that a building has a relatively high risk of failure under seismic load (greater than 25 times that of a building that is 100%NBS).

However, it is acknowledged that there are considerable uncertainties associated with assigning %NBS ratings, particularly at the lower end of the %NBS levels.

FORM OF NOTICES

5.2.5 What the Amendment Act says?

The Amendment Act [section 401C(a)(ii) and (iii)] provides that regulations may be made to prescribe the form of EPB notices to be issued for buildings or parts of buildings in each earthquake ratings category, and for transitional notices.

The Amendment Act (section 133AL) also sets out requirements for the content of these notices. These include:

- details to identify the building or part that is earthquake prone,
- details to identify whether the building is a priority building,
- the building's earthquake rating (unless this has not been determined), and
- the timeframe for remediation.

5.2.6 Proposals for three forms of notice

Buildings these notices apply to

We propose to prescribe three forms of notice for earthquake-prone buildings ie one for each of the following:

- buildings or parts of buildings assessed under the new requirements with an earthquake rating of 20-33%NBS,
- buildings or parts of buildings assessed (or classified because no assessment is provided) under the new requirements as having an earthquake rating of less than 20%NBS, and
- a transitional notice for buildings or part of buildings that were assessed under section 124 of the Building Act 2004 (which will be flexible to cover situations where the rating used may or may not be known or may be unreliable).

We consider separate notices are required for each category to provide clarity for territorial authorities and for building owners and users.

We propose that notices for all buildings assessed as earthquake prone under the new requirements will show the categories of earthquake rating. Transitional notices will show the timeframe for remediation, but will not show the earthquake rating (ie %NBS) unless this is reliably known.

Territorial authorities are also required to issue an exemption notice when an exemption from the requirement to remediate is granted under section 133AN(4). This exemption notice must:

(a) identify the building or the part of the building that is subject to an EPB notice, and
(b) state that the owner of the building or the part of the building is exempt from the requirement to carry out seismic work on the building or part, and
(c) give the territorial authority's reasons for granting the exemption.

Notice layout

The forms of the notices will be prescribed by regulations and MBIE's website will include templates of the forms of notice that TAs must download and use.

Refer to Appendix 6 for examples of the proposed forms of notice.

Notice colours and design

Earlier submissions during the development of the Amendment Act suggested that the ratings categories could be linked to red (for buildings with the lowest earthquake ratings) and orange (for all other earthquake-prone buildings) notices respectively.

The colours of red and yellow are commonly associated with 'risk', both in New Zealand and overseas. While few countries have established systems for identifying earthquake-prone buildings[5], the Californian ATC-20 report[6], which sets out procedures for rapid assessment of earthquake-damaged buildings, uses red (unsafe/do not enter) and yellow (restricted use) to guide human behaviour relating to building use following an earthquake. The colour orange is not currently assigned to any form nationally approved for use in post disaster recovery.

However, there are likely to be some issues with the use of red or yellow notices to identify earthquake-prone buildings in New Zealand. These include the potential for confusion with:

- territorial authority notices covering dangerous or insanitary buildings that should not be entered (red), and
- building notices assigned in post-disaster situations (yellow – restricted access).

MBIE also considered other options including:

- black and white notices with no other distinguishing features – these would provide clarity of information but may blend with other general building notices, or be confused with "Can be Used" notices issued during a State of Emergency, and
- branded notices – with logos or other branding to clearly indicate the purpose of the notice is to identify the building as being earthquake-prone.

After consideration we favour using a black and white notice with a 'feature' border for buildings determined as being earthquake prone. The use of black and white is consistent with the international post-disaster colouring that 'continued use' of the building is still appropriate. However, the feature border would signal that action (ie seismic upgrade work) is required.

However, we propose to differentiate the notice for buildings in the two earthquake ratings categories. For the lowest category (<20%NBS), we propose to incorporate colour in the border (for example orange and black diagonal stripes). For buildings in the 20-33%NBS category, we propose a black and white striped border.

[5] Italy identifies its earthquake-prone buildings with purple notices.

[6] *Procedures for Post-earthquake Safety Evaluation of Buildings,* California, USA, 1989 (revised 1995). The ATC-20 report is the *de facto* national standard for the safety evaluation of earthquake-damaged buildings in the USA and elsewhere.

Proposal for regulations about earthquake ratings and the form of notices

It is proposed that a regulation is made under section 401C(a)(i) to set out how a building's earthquake rating, or if applicable the earthquake rating of part of a building, will be expressed and to set out the form of the rating notice issued under section 133AL of the Amendment Act.

The key concepts proposed for this regulation are:

Notices will be prescribed for:

- buildings or parts of buildings assessed under the new requirements with an earthquake rating of 20-33%NBS;
- buildings or parts of buildings assessed (or determined as being earthquake prone because no assessment is provided) under the new requirements with an earthquake rating of <20%NBS; and
- buildings or parts of buildings that had notices issued under section 124 of the Building Act 2004.

Ratings:

- two earthquake ratings categories are proposed:
  - 20-33%NBS
  - <20%NBS (and buildings determined as being earthquake prone because no assessment is provided).

Form of notices:

- three forms of notice are proposed. All have black typeface on a white background, with borders that differentiate their status:
  - 20-33%NBS - border featuring black and white diagonal stripes,
  - <20%NBS or determined as being earthquake prone because no assessment is provided - border featuring orange and black diagonal stripes, and
  - buildings or parts of buildings that were assessed under section 124 of the Building Act 2004 where the rating is not known - orange border.

What do you think (Categories of earthquake ratings)?

8. Do you agree that establishing categories of earthquake ratings will help to achieve the objectives for all regulations? What are the reasons for your views?
9. Do you agree that regulations are required to prescribe categories of earthquake ratings or do you think some other mechanism should be considered? What are the reasons for your views?
10. Do you agree with the proposal to create two bands of earthquake ratings for buildings? What are the reasons for your views?
11. Do you agree with the proposal to delineate the categories of ratings as 'less than 20%NBS' and '20-33%NBS'? What are the reasons for your views?

12. Are there any other risk parameters that could be taken into consideration in establishing the earthquake ratings categories?
13. Do you have any other comments on the proposals about categories of earthquake-ratings?

What do you think (Notices)?

14. Do you agree that issuing different forms of EPB notices will help to achieve the objectives for all regulations? What are the reasons for your views?
15. Do you agree with the proposal to issue three forms of notice? Do you think this number and type is sufficient? What are the reasons for your views?
16. If you did not agree that there should be three forms of notice, how many and what type of forms do you suggest we should use?
17. Is the information layout clear and easy to read? If not, what would you suggest to improve the forms?
18. Should we make the forms more distinctive? If so, what do you think would achieve this?
19. Is there any other comment you would like to make about the forms of notice?

5.3 Criteria for substantial alterations

Key issues

Owners of earthquake-prone buildings who are making substantial alterations to their building (and are thus making a substantial investment in their building for reasons other than earthquake strengthening) will be required to complete their necessary seismic work at the same time.

Regulations determining what substantial alterations are need to use criteria that can be consistently and fairly applied across the country.

Regulations need to capture appropriate alterations within scope, while minimising opportunities for building owners to circumvent the substantial alteration requirements.

Objectives for substantial alterations

The objectives of the substantial alterations policy are:

- to promote more progressive upgrades of earthquake-prone buildings, and thus achieve improved building safety earlier than the time frames that would otherwise apply.

5.3.1 What the Amendment Act says

Under the Amendment Act [section 133AT(2)(c)] if a building consent is sought for 'substantial alterations' to an earthquake-prone building, the consent may not be granted unless the seismic work necessary to ensure the building is no longer earthquake prone is also undertaken.

Under section 401C(c) of the Amendment Act, regulations may be made to prescribe the criteria for determining whether a building alteration is a substantial alteration.

Note that the provisions relate to both a building as a whole and to part of a building (section 133AB).

5.3.2 Why make regulations?

Regulations to define the criteria for determining whether an alteration is a substantial alteration will give territorial authorities a clear basis for deciding whether or not proposed building alterations trigger the need for remediation to be carried out earlier than the statutory timeframes that would otherwise apply.

The preferred approach is that alterations that qualify as 'substantial alterations' will be consistently identified across the country. Prescriptive regulations will ensure that building owners are treated fairly. It is not the policy intent that territorial authorities will have broad discretion in identifying qualifying alterations.

5.3.3 What is a 'substantial alteration' to a building?

Generally, a 'substantial alteration' to an earthquake-prone building is one where the proposed building work requires a building consent and where the cost or nature of the proposed alterations meet threshold levels (based on financial value criteria) that will be specified in regulations.

Territorial authorities will decide whether or not the proposed alterations meet the criteria and are 'substantial alterations'.

5.3.4 What substantial alterations 'test' is proposed?

Broadly, there are three approaches that could be taken when developing the substantial alteration thresholds. These are to base the thresholds on:

- the nature of the proposed building work, or
- a financial value, or
- a combination of these.

We have considered the substantial alteration parameters in territorial authorities' current earthquake-prone building policies and note:

- Some territorial authorities use a single fixed amount (eg one policy states that a 'significant' alteration is one where the cost of alterations requiring a building consent exceeds 10% of the rateable value of the building, excluding land).

- Others use multiple criteria to better cover the range of buildings and building work (eg one policy states that a 'significant' alteration is building work that adversely affects the structural performance of the building, or building work that requires building consent and '…has a value of more than $200,000 or 25% of the rateable value of the building, whichever is higher".[7]

We propose using a single financial measure as the primary criterion to determine whether or not proposed alterations to an earthquake-prone building qualify as 'substantial alterations'.

So, a 'substantial alteration' would be building work requiring a building consent that

- has a value that is more than a set percentage of the rateable value of the building (excluding the land value).

This proposal is consistent with the approach taken by some territorial authorities within their current earthquake-prone building policies. The approach has the advantage of being easy to implement because it uses financial information known to the territorial authority (ie the rateable value of the building).

For single-owner buildings, considering whether or not a building meets the threshold in this manner would place no additional burden on building owners and a minimal additional burden on territorial authorities. It would also be clear to building owners when their proposed work will trigger the substantial alterations provision.

The main disadvantages of this approach are that setting the threshold as a proportion of the work against the value of the building only could create issues for small centres where property values were generally not high.

Also, the provisions may not be sensitive enough to cater to situations such as multiple-title buildings, where each unit has its own rateable value, or adequately accommodate the higher costs associated with heritage building projects which are required to protect heritage features.

To avoid providing incentives for qualifying work to be 'split up' to avoid the criteria, we also propose that 'substantial alterations' work would relate to all consented work on the building within a specified period of time. That would involve a TA "tracking" consents granted to an earthquake-prone building over the relevant time period. We note that some territorial authorities already aggregate consented building work for the purposes of their 'significant' alterations policies.

[7] Dunedin City Council, *Earthquake-prone Buildings Policy,* www.dunedin.govt.nz; *accessed May 2016*.

What happens if my building does not have a rateable value?

If the building does not have a rateable value, then the owner should propose to the territorial authority a reasonable value for their building and provide some evidence to support this value. The territorial authority would then consider whether that was a reasonable value to attribute to the building, and if it is, determine whether the value of the alterations was more than 25% of that value.

Will the nature of the proposed building work also be a consideration?

The Amendment Act already requires that qualifying work must be the subject of a building consent.

At face value, it could make sense to specify that any changes to the main building structural systems – that is, those carrying the lateral seismic and gravity loads through to the ground – should be a 'substantial alteration'. However, this may have unintended consequences, given that work to a single column of a building would then qualify as 'substantial'.

Therefore, we do not propose to further define the nature of the proposed building work.

5.3.5 What will the substantial alterations criteria mean for building owners?

Once a building is determined as being earthquake prone, seismic work must be completed within the timeframes specified by section 133AM of the Amendment Act. These timeframes depend on the building's area of seismic risk (see Appendices 3 and 4) and on whether or not the building is a priority building.

The 'substantial alterations' provisions apply when the owner of an earthquake-prone building applies for a building consent to undertake work on the building that is not related to the remediation work necessary to ensure the building is no longer earthquake prone. If this work meets the criteria for 'substantial alterations', then a consent may not be issued unless the owner also completes the seismic work necessary to ensure the building is no longer earthquake prone.

Phased remediation work (under an earthquake-prone building notice) should not trigger the 'substantial alterations' requirement as that could result in an owner being required to undertake all of the necessary remediation work to ensure that the building is no longer earthquake prone. This would penalise building owners who are proactively completing seismic work in stages to progressively improve the safety of their building (eg they could be securing or strengthening a parapet before considering more extensive remediation work at a later stage).

Will the 'substantial alterations' provisions apply to buildings in low seismic risk areas?

The substantial alterations provisions apply to earthquake-prone buildings in all seismic areas, including in low seismic areas.

Buildings in low seismic risk areas are required to meet building standards to a lesser threshold than buildings in medium and high seismic risk areas. They also have longer remediation time frames. One of the drivers behind the establishment of the 'substantial alterations' provision in the legislation, therefore, was to bring forward remediation timeframes in low seismic areas where appropriate.

Will the 'substantial alterations' provisions apply to priority buildings?

Yes. Priority buildings are identified (in high and medium seismic risk areas only) for a range of reasons, including because of their current use, their anticipated use during recovery and response following an earthquake event, and the nature of their construction (eg unreinforced masonry). Under the Amendment Act, owners of priority buildings must complete the necessary seismic work in half the time allowed for other buildings in their seismic hazard area.

If owners of priority buildings are planning to make significant investments in their buildings for other reasons, it is considered that the substantial alterations provisions should apply to them.

Proposal for regulations about substantial alterations

It is proposed that a regulation should be made to set out the criteria for 'substantial alterations' under section 133AT of the Amendment Act:

It is proposed that a substantial alteration will be building work requiring a building consent that has a value that is more than 25% of the rateable value of the building (excluding the land value).
If the building does not have a rateable value, then the owner should propose to the territorial authority a reasonable value for their building and provide some evidence to support this value. The territorial authority would then consider whether that was a reasonable value to attribute to the building, and if it is, determine whether the value of the alterations was more than 25% of that value.

It is further proposed that the value of the building work will be taken as the value of the work in the building consent plus the sum of the value of all work on the building that required a building consent in the preceding 24-month period.

It is proposed that the value of building work which primarily relates to the work required under a building's earthquake-prone building notice will not be included in the substantial alterations calculation.

What do you think (Substantial alterations)?

20. Do you agree that establishing criteria for substantial alterations will help to achieve the objectives for all regulations? What are the reasons for your views?

21. Do you agree that the criteria for substantial alterations should be set out in regulations? If not, what other mechanism could be used to define the criteria for substantial alterations and why?
22. Do you agree with the concept that there should be a single measure only, common to all earthquake-prone buildings across the country, for identifying what building work will be deemed to be 'substantial alterations'? Please give reasons for your views.
23. If so, do you agree with the proposal that this be 25% of the rateable value of the building (excluding land)? Please give reasons for your views.
24. If you agree with using a single measure to identify substantial alterations, but do not support using the building value as a denominator, then please state what you think the measure and the value should be (eg a fixed financial threshold of *(say)* $200,000 for the total value of building work, or some other measure or value)
25. If you disagree with the proposal, and think that there should be more than one measure to identify substantial alterations, what should these be and why?
26. Should we choose a different approach to setting the threshold for substantial alterations between areas with higher value buildings and areas with lower value buildings (as may occur between some urban and rural areas). If so, what should the approach be?
27. What are the implications of defining 'substantial alterations' (eg through a percentage of rateable value, and/or a fixed financial value for proposed building work) for mixed use buildings and buildings with multiple titles (eg multi-storey unit title apartments, shopping malls)?
28. What are the implications of defining 'substantial alterations' (eg through either a percentage of rateable value, and/or a fixed financial value for proposed building work), for owners of heritage buildings?
29. Are there any situations where it would not be appropriate to impose the 'substantial alterations' criteria on proposed building work? Please explain what situation/s and give reasons for your views.
30. Do you have any other comments on the proposals about the criteria for substantial alterations?

5.4 Requirements for exemptions

This proposal concerns when an earthquake-prone building should be exempted from the requirement to undertake seismic work.

Key issues
Exemptions recognise that, although a building may be earthquake prone, the consequences of the failure of some buildings will be low.

Objectives for exemptions

The objectives of exemptions are to:

- provide a mechanism for owners of earthquake-prone buildings not to be required to upgrade their buildings where the consequence of failure is low
- minimise incentives for building owners to use the mechanism to deliberately avoid having to strengthen their buildings.

5.4.1 What the Amendment Act says

Under the Amendment Act [section 133AN] owners of an earthquake-prone building may apply to their TA for an exemption from the requirement to carry out the necessary seismic work. Territorial authorities may grant an exemption for either a building or a part of a building.

Under section 401C(b), regulations may be made to prescribe the characteristics that an earthquake-prone building (or part) should have in order for a TA to grant an exemption from the requirement to carry out the remediation work.

The Amendment Act already excludes a range of structures from its scope; for example, farm buildings and most residential buildings. These buildings will not be classified as 'earthquake prone' under the Building Act so they will not require any exemption.

5.4.2 Why make regulations?

Exemptions will have a potentially significant impact on building owners because it means they will not be required to meet the costs of building strengthening or demolition.

Regulations give clarity about the requirements for exemption to both building owners and territorial authorities. Therefore, they will promote fairness by helping to ensure that all territorial authorities take a consistent approach to decision making, while still allowing them to consider applications for exemptions on a case-by-case basis.

We believe that allowing too many exemptions will undermine the overall intent of the legislation, which is to improve the performance of certain buildings in New Zealand in an earthquake situation. However, in some cases (for example, smaller towns and rural areas) requiring owners of buildings to meet the costs of seismic work or demolition may have unintended consequences when failure of the building may have a low impact. These unintended consequences could be mitigated if there was a mechanism by which owners could be exempted from the requirement to proceed with that work.

5.4.3 How will these exemptions work?

What does having an exemption mean for a building and building owner?

Exemptions can only be considered on a case-by-case basis for individual buildings that are determined by a TA as being earthquake prone.

Although exempted from the seismic work requirements, affected buildings will still be identified as earthquake prone on the national EPB register. They will also be required to display an exemption notice so that people are aware of the building's status and can decide whether or not they wish to use that building (section 133AP).

An exemption stays in place until it is revoked. The TA may review its decision to grant an exemption at any time and revoke it if the building no longer has the prescribed characteristics required for an exemption.

A building owner can use the determinations process in the Building Act to ask for a review of the decision by a TA not to issue an exemption.

What sorts of buildings might be exempted?

It is intended that the exemptions provision will apply only where there is a low consequence associated with the failure of the building.

We expect that exempted buildings will be those that are used infrequently by small numbers of people. They are likely to be located well away from other buildings or passers-by. Examples of buildings that might qualify for exemptions are small rural community halls and rural churches.

It is arguable that it might be reasonable to grant an exemption for a building that has the potential for a high occupancy, but is only used on an infrequent basis. We believe that the risk associated with the failure of a higher occupancy building in an earthquake would need to be counteracted by very infrequent building use for such a structure to be eligible for an exemption.

Can the owner of a heritage building apply for an exemption?

Owners of heritage buildings will be able to apply for an exemption and may be granted one if their building have the required characteristics. It is not intended that the exemptions provisions will be used as a 'way out' for any building if there are likely to be significant consequences from its failure.

However, where owners of certain earthquake-prone heritage buildings need more time in which to complete their necessary seismic work, the Amendment Act already allows them to apply to their TA for an extension to their timeframe of up to ten years. If their building is granted an extension, owners are required to take all reasonably practicable steps to manage the risks associated with their building.

Can owners of priority buildings apply for an exemption?

We propose that the regulations will not apply to priority buildings. Generally speaking, priority buildings include those with unreinforced masonry that present a falling hazard, buildings that are either currently used to provide emergency response services or that are likely to be needed in an emergency, and certain schools and educational facilities. We consider it unlikely that buildings in the latter groups will have the required characteristics to be able to be granted an exemption.

Note:
Only areas of medium or high seismic risk will have priority buildings (see section 3.5).

Because of their importance, priority buildings are required by the Amendment Act to undertake their necessary seismic work within half the time frame of other earthquake-prone buildings. To then allow these buildings to be exempted from the requirement to carry out seismic work is not consistent with the policy intent of the legislation.

5.4.4 What do we mean by 'low consequence'?

How society perceives risk

While significant earthquakes are rare, they stand out from other hazards in New Zealand in terms of the very large impact they have had as single events. This is both in terms of the numbers of fatalities and the economic costs and wider social and economic impacts.

We know that, in general, society has a "scale aversion" to risk.[8] That is, it is more averse to multiple-fatality events than it is to multiple single-fatality events, even where the net result of both is the same.

We also know that New Zealand society now places a greater level of importance on life safety protection from earthquake-related risk than it did before the Canterbury earthquakes.

There is a potentially high societal cost if a large number of people are occupying a single exempted building and it fails.

When identifying whether or not a building is earthquake prone, the Amendment Act [section 133AB(1))b)] requires a TA to consider the likely consequences of collapse of the building in two ways:

- injury or death to persons in or near the building or on any other property; and
- damage to any other property.

Therefore, the proposed regulations for exemptions, takes account of societal perspectives and focuses on the extent of life safety risk likely to arise as a consequence of failure of the building in a moderate earthquake. However, territorial authorities would also be expected to consider the extent to which failure of the building may impact on neighbouring buildings.

How will 'low consequence' be assessed by a territorial authority?

Assessing the likely consequences for life safety of a building's failure means consideration of:

- the building's occupancy characteristics (eg How many people use the building? Are they young children or members of other 'vulnerable' population groups? How often is the building used? What is the duration of occupancy?); and
- the structural characteristics of the building (eg What is the building made from? How is the building likely to fail?).

[8] P. Slovic, "Perception of Risk," Science, vol. 236, pp. 280-285, 1987.

Table 4 and Table 5 propose parameters for occupancy that a TA will consider if the owner of an earthquake-prone building applies for an exemption.

Table 4: Proposed occupancy bands (exemptions)

Ranking	Number of people at any one time	Rationale
Low	0 – 50	The small rural church has been noted as being representative of the intention behind the exemptions policy. We estimate that such a church might house about 50 people.
Medium	51 – 300	Default - between high and low
High	More than 300	Aligns with the occupancy of buildings accorded Importance level 3 (IL3) under Clause A3 of the Building Code

Table 5: Proposed 'frequency of occupancy' bands (exemptions)

Ranking	Use in calendar year
Seldom	<25 times
Occasional	25 – 100 times
Frequent	>100 times

We believe that, in most cases, an accurate view of the consequences of failure cannot be identified solely through consideration of occupancy characteristics.

Noting this, we consider that the occupancy bands will inform decision making by territorial authorities, rather than establish definite criteria. In addition to occupancy information, we expect that territorial authorities will consider the building's engineering assessment to consider the building's likely mode of failure, and will also consider the specific elements or features of the building that pose risks to life safety.

5.4.5 How will territorial authorities make exemption decisions?

When considering an application for exemption under section 133AN, we expect that a TA will balance the number of people using the building, with the number of occasions on which the building is used in a calendar year.

Some buildings have higher life safety risk because of their occupancy characteristics and would not be suitable for an exemption:

- A building with a high occupancy (capable of holding >300 people) would not be granted an exemption.
- A building with frequent use (used >100 x per year) would not be granted an exemption.

Some buildings have lower life safety risk based on their occupancy characteristics:

- A building with a low occupancy (capable of holding <50 people) and seldom used (<25 times per year) could be granted an exemption.

Buildings with medium occupancy may be suitable for exemption provided that they are seldom used and providing the territorial authority's consideration of the engineering assessment supports this. Likewise, a low occupancy building that is used occasionally may be suitable for exemption providing the territorial authority's consideration of the engineering assessment supports this.

We do not propose setting hard and fast criteria that prescribe the standards that a territorial authority must make in an exemption decision, as each situation will be different. Instead we propose that the regulation will require territorial authorities to take account of occupancy and engineering characteristics. MBIE will provide guidance to territorial authorities for making a risk based assessment using these criteria.

We do not propose that exemptions regulations will consider the likelihood of an earthquake event in the area in which the building is located. This is already addressed by the Amendment Act through the application of seismic hazard (risk) areas (Appendices 3 and 4). Buildings in high seismic hazard areas have shorter remediation time frames and must meet higher building standards than buildings in medium or low seismic areas.

In summary, the regulations will set out the prescribed characteristics that a building must have before it can be granted an exemption; but territorial authorities must be satisfied that the building has those characteristics and, after considering the building's engineering assessment, that the building's failure would have low consequences.

Proposal for regulations about exemptions

It is proposed that a regulation will be made to set out the characteristics of buildings that may be considered for exemption under section 133AN of the Amendment Act.

The proposed regulation would set out:

- that territorial authorities need to be satisfied that the failure of the building or part is likely to have low consequences for life safety or for other property,
- that, when considering the likely impact of failure on life safety, territorial authorities should consider -
  - the use and occupancy characteristics of the building such as:
    - the likely number of people using the building at any one time
    - the likely number of occasions on which the building will be used each calendar year,
    - whether or not the building's occupants are young children or members of other 'vulnerable' population groups; and
    - the duration of occupancy events
  - other structural characteristics of the building that may pose a risk to life safety in the event of failure, such as the age of the building and construction type (these could be set out in detail in an engineering report or be easily ascertainable by the territorial authority)
- that territorial authorities should consider the likely consequences of failure of the building or part on nearby buildings,
- that the following will guide the territorial authority's consideration of use and occupancy characteristics:
  - number of people (low rank - 0-50, medium rank - 51-300, high rank – more than 300), and
  - frequency of use (per calendar year) - (seldom – 1-2 times; occasional – 3-10 times; frequent – more than 10 times)
- that in considering an application for exemption under section 133AN, the territorial authority will balance the number of people using the building with the number of occasions on which the building is used in a calendar year to identify whether or not there will be low consequences from the failure of the building,
- territorial authorities will need to consider the building's use and occupancy characteristics alongside the structural characteristics (with reference to an engineering assessment if available) and use their discretion to decide whether or not the failure of a building is likely to have a 'low consequence' as a result of having those characteristics,
- the regulations may apply to buildings that were issued with earthquake-prone building notices under (the current) section 124 of the Building Act as long as the buildings have the prescribed characteristics for an exemption, and
- the regulations will not apply to priority buildings under section 133AE of the Amendment Act.

What do you think (Exemptions)?

31. Do you agree that establishing prescribed characteristics for exemptions will help to achieve the objectives for all regulations? What are the reasons for your views?
32. Do you agree that the prescribed characteristics for exemptions should be set out in regulations? If not, what other options could be considered and why?
33. Do you agree that territorial authorities should have some discretion to make decisions about exemptions using parameters for building occupancy and use as a guide?
34. Do you think the proposed occupancy thresholds are appropriate to represent life safety risk? (These are: low - 0-50 people, medium - 51-300, high - more than 300.) What are the reasons for your views? If you disagree, what do you think the thresholds should be?
35. Do you think the proposed 'frequency of occupancy' thresholds are appropriate to represent life safety risk? (These are: low - <25 times per year, occasional -25-100 times per year, frequent - more than 100 times per year.) What are the reasons for your views? If you disagree, what do you think the thresholds should be?
36. Do you think that the exemptions provisions should apply to priority buildings? What are the reasons for your views?
37. Do you think that the seismic hazard area of the building should be a consideration for exemptions?
38. Should the occupancy thresholds be lower if the main occupants of a building are young children or people who would require mobility assistance to leave?
39. What other factors should a territorial authority consider when considering an application for an exemption under section 133AN?
40. Do you have any other comments on the proposals about exemptions?

What do you think (General)?

41. Do you have any other comment to make on the proposals (for example, matters related to implementation and monitoring)?

Section 6: Other regulatory provisions

Decisions about amending two existing regulations were made during the process to develop the Amendment Act. They are set out below for completeness. However, no further public consultation is required on these matters.

6.1 Definition of 'moderate earthquake'

The definition of 'moderate earthquake' is critical for the decision making about the need for, and level of, seismic strengthening work to be undertaken on existing buildings to reduce the life safety risks associated with their collapse in earthquakes.

A 'moderate earthquake' is currently defined in the Building (Specified Systems, Change the Use, and Earthquake-prone Buildings) Regulations 2005.

The Amendment Act directly amended this definition in the regulations to clarify that the building standards that will apply to the assessment and remediation of a particular building will be those that are in place at the date the Amendment Act commences. The new definition is:

> **"r.7 Earthquake-prone buildings: moderate earthquake defined**
>
> (1) For the purposes of section 133AB of the Act (meaning of earthquake-prone building) **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 if it were designed on the commencement date)."

This new definition clarifies that the definition of 'moderate earthquake' does not change as building standards are changed over time.

6.2 Infringements

The infringement regime that currently applies with respect to earthquake-prone buildings under the Building Act 2004 and Building (Infringement Offences, Fees, and Forms) Regulations 2007 will continue to apply in the revised system. In summary, these provisions currently relate to:

- $1,000 fee for failure of a building owner to comply with an earthquake-prone building notice issued under section 124 of the Building Act, and
- $2,000 fee for using or occupying a building in a manner contrary to a prohibition notice issued by a territorial authority under section 128 of the Building Act.

The applicable infringement fees under the Amendment Act will be included in amended regulations. These relate to:

- the failure to complete seismic work (ie failure to comply with an EPB notice (section 133AU(1)) ($1,000 fee),
- the failure to display an EPB notice or exemption notice under section 133AU(2) ($1,000 fee),
- the failure to notify that a notice ceases to be attached or becomes illegible under section 133AU(3) ($1,000 fee), and
- using or occupying a building in a manner contrary to a prohibition notice issued by a territorial authority under section 133AR, for which the person who fails to comply with section 133AR ($2,000 fee).

Appendix 1: Regulation-making powers in relation to earthquake-prone buildings

The Building (Earthquake-prone Buildings) Amendment Act 2016 provides the following regulation-making powers:

New section 401C (Regulations: earthquake-prone buildings)

The Governor-General may, by Order in Council made on the recommendation of the Minister, make regulations that:

(a) for the purpose of section 133AL–

i. prescribe categories of earthquake ratings:

ii. prescribe the form of EPB notice to be issued for buildings or parts of buildings in each earthquake ratings category:

iii. prescribe the form of EPB notice to be issued for a building or a part of a building to which clause 2 of Schedule 1AA (which is a transitional provision) applies:

(b) prescribe the age, construction type, use, level of occupancy, location in relation to other buildings or building types, and any other characteristics that a building or a part of a building must have for a TA to grant an exemption under section 133AN from the requirement to carry out seismic work on the building or part:

(c) prescribe the criteria for determining whether a building alteration is a substantial alteration for the purpose of section 133AT(2)(c)

(d) prescribe the matters that a TA must take into account when making the assessments required by section 133AT(3)(b) and (c) (for the purpose of deciding whether to allow the alteration of a building or a part of a building that is subject to an EPB notice without the building complying with specified provisions of the building code

(e) prescribe information that must be kept in the EPB register, and specify whether the chief executive is required to make that information available for public inspection (see section 275B).

Amended Section 402 (Regulations: general)

(2) After section 402(1)(p), insert:

(pa) defining ultimate capacity for the purposes of section 133AAB (meaning of earthquake-prone building).

Appendix 2: Terms used in this document

The terms used in this document have the following meanings:

Term	Definition
Building Code	Schedule 1 of the Building Regulations 1992
Building elements	Elements of a building's primary of secondary structure or non-structural items.
EPB methodology	The Earthquake-prone Building methodology, issued under section 133AV of the Building (Earthquake-Prone Buildings) Amendment Act 2016 by the chief executive of the Ministry of Business, Innovation and Employment
Chief executive	The chief executive of the Ministry of Business, Innovation and Employment
Heritage building	A building included on the New Zealand Heritage List/Rārangi Kōrero or the National Historic Landmarks/Ngā Manawhenua o Aotearoa me ōna Kōrero Tūturu list maintained under the Heritage New Zealand Pouhere Taonga Act 2014. Heritage buildings have historical or cultural heritage significance or value.
Ministry of Business, Innovation and Employment (MBIE)	The Ministry responsible for the consultation process and this document.
NBS	New building standard
Percentage of new building standard (%NBS)	A seismic rating for a building as a whole expressed as XXX percent of new building standard achieved, based on an assessment of the expected seismic performance of an existing building relative to the minimum that would apply under the Building Code to a new building on the same site. A seismic score for an individual member/element/system is also expressed as XXX percent of new building standard achieved. This is intended to reflect the degree to which the individual member/element/system is expected to perform in earthquake shaking, from a life safety perspective, compared with the minimum performance prescribed for the element or component in Clause B1 of the Building Code. In general, the seismic rating for the building should not be greater than the seismic score for the lowest scoring element or component.
Potentially earthquake-prone building	Those buildings identified by territorial authorities in accordance with the Amendment Act as requiring an engineering assessment to confirm whether or not they are earthquake prone. The process of identifying potentially earthquake-prone buildings is based on a building's likely

	seismic performance, which can be linked to certain construction types or building features
Priority building	A building that meets at least one of the criteria set out in section 133AE of the Amendment Act ('meaning of priority building' - see below)
Territorial authority (TA)	A city council or district council as defined in the Local Government Act 2002, Part 2 of Schedule 2.

Building (Earthquake-prone buildings) Amendment Act 2016

s.133AE Meaning of priority building

(1) In this subpart, **priority building** means any of the following that are located in an area of medium or high seismic risk:

(a) a hospital building that is likely to be needed in an emergency (within the meaning of the Civil Defence Emergency Management Act 2002) to provide—

(i) emergency medical services; or

(ii) ancillary services that are essential for the provision of emergency medical services:

(b) a building that is likely to be needed in an emergency for use as an emergency shelter or emergency centre:

(c) a building that is used to provide emergency response services (for example, policing, fire, ambulance, or rescue services):

(d) a building that is regularly occupied by at least 20 people and that is used as any of the following:

(i) an early childhood education and care centre licensed under Part 26 of the Education Act 1989:

(ii) a registered school or an integrated school (within the meaning of the Education Act 1989):

(iii) a private training establishment registered under Part 18 of the Education Act 1989:

(iv) a tertiary institution established under section 162 of the Education Act 1989:

(e) any part of an unreinforced masonry building that could—

(i) fall from the building in an earthquake (for example, a parapet, an external wall, or a veranda); and

(ii) fall onto any part of a public road, footpath, or other thoroughfare that a TA has identified under section 133AF(2)(a):

(f) a building that a TA has identified under section 133AF(2)(b) as having the potential to impede a transport route of strategic importance (in terms of an emergency response) if the building were to collapse in an earthquake.

(2) For the purposes of subsection (1)(a) and (b), the likelihood of a building being needed in an emergency for a particular purpose must be assessed having regard to—

(a) any national civil defence emergency management plan made under section 39 of the Civil Defence Emergency Management Act 2002; and

(b) the civil defence emergency management group plan approved under section 48 of the Civil Defence Emergency Management Act 2002 that covers the district in which the building is situated.

(3) If only part of a building meets the criteria set out in subsection (1), only that part of the building is a priority building.

(4) Whether a building is a priority building affects—

(a) the deadline by which a TA must identify whether the building or a part of the building is potentially earthquake prone (see section 133AG); and

(b) the deadline for completing seismic work on the building or a part of the building, if it is subject to an EPB notice (see section 133AM).

Appendix 3: Seismic risk areas

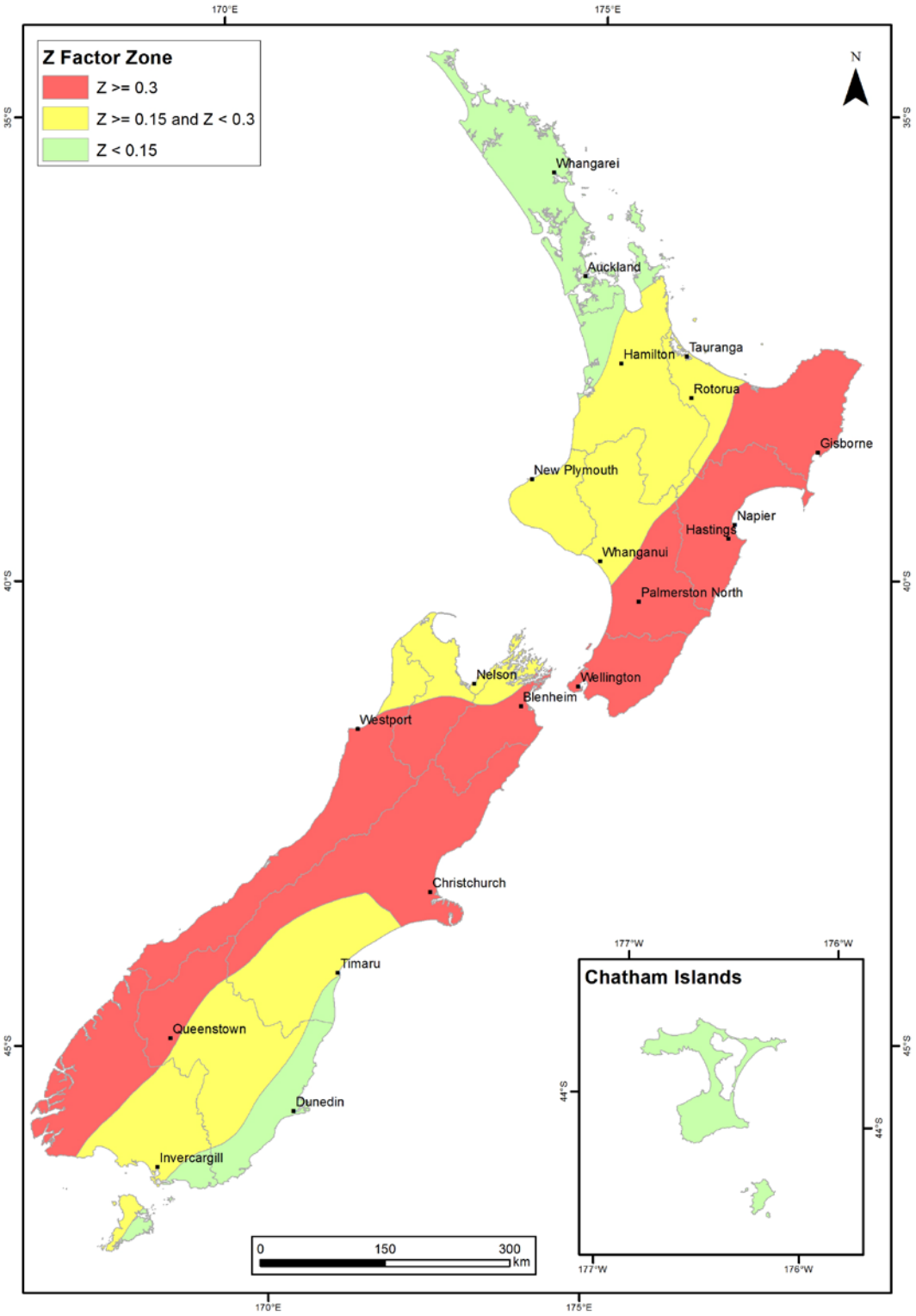
Seismic risk areas are defined in the Amendment Act for the purposes of setting time frames for TAs to identify potentially earthquake-prone buildings and owners to complete seismic work on earthquake-prone buildings.

Areas of high, medium and low seismic risk are defined in terms of the 'Z factor', which is the seismic hazard factor that would be used to design a new building on a site in that area in accordance with the Building Code and other documents (refer section 133AD of the Amendment Act for more details).

The map below illustrates the seismic risk areas across New Zealand to which the timeframes set out in the Amendment Act apply (refer also Appendix 4). This map is intended to be used for consultation purposes only and does not reflect final Government policy. Please seek specific legal advice from a qualified professional person before undertaking any action based on the contents of this map.

Disclaimer

Neither the Government nor GNS Science accepts any responsibility or liability whatsoever for any action taken as a result of reading, or for reliance placed because of having read, all or any part of the information contained in this map, or for any error, inadequacy, deficiency, or flaw in, or omission from, this map.



This Map has been prepared by the Institute of Geological and Nuclear Sciences Limited (GNS Science) on contract to the New Zealand Government.

The table below gives examples of the seismic risk areas for a range of cities and towns across New Zealand under the Amendment Act. This list is not exhaustive, and more detailed information is being produced by MBIE.

Seismic risk area	Z factor	Locations
High	$Z \geq 0.3$	Gisborne, Napier, Hastings, Palmerston North, Wellington, Blenheim, Christchurch
Medium	$0.15 \leq Z < 0.3$	Tauranga, Hamilton, Rotorua, New Plymouth, Whanganui, Nelson, Timaru, Invercargill
Low	$Z < 0.15$	Whangarei, Auckland, Oamaru, Dunedin

Appendix 4: Time frames for identification and remediation of earthquake-prone buildings

The following time frames apply to the identification and remediation of earthquake-prone buildings across the three seismic areas. These time frames are set in the Amendment Act.

Seismic risk area	TAs must identify potentially earthquake-prone buildings within:		Owners must strengthen or demolish earthquake-prone buildings within:	
	Priority	Other	Priority	Other
High	2 ½ years	5 years	7 ½ years	15 years
Medium	5 years	10 years	12 ½ years	25 years
Low	n/a	15 years	n/a	35 years

Notes:

1. The time frames for territorial authorities to identify potentially earthquake-prone buildings (in accordance with the EPB methodology) apply from the date the provisions of the Amendment Act take effect; ie the commencement date.
2. Once a TA notifies a building owner that their building is potentially earthquake prone the owner has 12 months to provide an engineering assessment. Alternatively, they may accept that the building is earthquake prone without providing an assessment. Owners can apply for a 'one time' extension of up to 12 months in certain circumstances.
3. Once a TA determines that a building is earthquake prone and notifies the building owner, the owner must strengthen or demolish the building within the given time frame.
4. Owners of earthquake prone buildings will be able to apply for an exemption from the remediation requirements if their building has certain characteristics prescribed in regulations.

Appendix 5: Summary of key questions

This Appendix lists the questions corresponding to the proposals provided throughout this document. These questions are indicative only and are not intended to limit your response. Please refer to section 1 of this document for details of how to make your submission.

Objectives for all regulations

1. Do you agree with the objectives for making regulations?
2. Are there any other objectives that should be considered?

Ultimate capacity

3. Do you agree that defining 'ultimate capacity' will help to achieve the objectives for all regulations? What are the reasons for your views?
4. Do you agree with the suggested definition? Please give reasons for your views.
5. Are there any other technical criteria that should be included in the definition of 'ultimate capacity'? If so, what are these and why do you think they are relevant?
6. If you did not agree with the suggested definition, what definition do you think should be used? Please give reasons for your views.
7. Do you have any other comments on the proposals about the definition of ultimate capacity?

Categories of earthquake ratings

8. Do you agree that establishing categories of earthquake ratings will help to achieve the objectives for all regulations? What are the reasons for your views?
9. Do you agree that regulations are required to prescribe categories of earthquake ratings or do you think some other mechanism should be considered? What are the reasons for your views?
10. Do you agree with the proposal to create two bands of earthquake ratings for buildings? What are the reasons for your views?
11. Do you agree with the proposal to delineate the categories of ratings as 'less than 20%NBS' and '20-33%NBS'? What are the reasons for your views?
12. Are there any other risk parameters that could be taken into consideration in establishing the earthquake ratings categories?
13. Do you have any other comments on the proposals about categories of earthquake-ratings?

Notices

14. Do you agree that issuing different forms of EPB notices will help to achieve the objectives for all regulations? What are the reasons for your views?
15. Do you agree with the proposal to issue three forms of notice? Do you think this number and type is sufficient? What are the reasons for your views?
16. If you did not agree that there should be three forms of notice, how many and what type of forms do you suggest we should use?
17. Is the information layout clear and easy to read? If not, what would you suggest to improve the forms?

18. Should we make the forms more distinctive? If so, what do you think would achieve this?
19. Is there any other comment you would like to make about the forms of notice?

Substantial alterations

20. Do you agree that establishing criteria for substantial alterations will help to achieve the objectives for all regulations? What are the reasons for your views?
21. Do you agree that the criteria for substantial alterations should be set out in regulations? If not, what other mechanism could be used to define the criteria for substantial alterations and why?
22. Do you agree with the concept that there should be a single measure only, common to all earthquake-prone buildings across the country, for identifying what building work will be deemed to be 'substantial alterations'? Please give reasons for your views.
23. If so, do you agree with the proposal that this be 25% of the rateable value of the building (excluding land)? Please give reasons for your views.
24. If you agree with using a single measure to identify substantial alterations, but do not support using the building value as a denominator, then please state what you think the measure and the value should be (eg a fixed financial threshold of *(say)* $200,000 for the total value of building work, or some other measure or value)
25. If you disagree with the proposal, and think that there should be more than one measure to identify substantial alterations, what should these be and why?
26. Should we choose a different approach to setting the threshold for substantial alterations between areas with higher value buildings and areas with lower value buildings (as may occur between some urban and rural areas). If so, what should the approach be?
27. What are the implications of defining 'substantial alterations' (eg through a percentage of rateable value, and/or a fixed financial value for proposed building work) for mixed use buildings and buildings with multiple titles (eg multi-storey unit title apartments, shopping malls)?
28. What are the implications of defining 'substantial alterations' (eg through either a percentage of rateable value, and/or a fixed financial value for proposed building work), for owners of heritage buildings?
29. Are there any situations where it would not be appropriate to impose the 'substantial alterations' criteria on proposed building work? Please explain what situation/s and give reasons for your views.
30. Do you have any other comments on the proposals about the criteria for substantial alterations?

Exemptions

31. Do you agree that establishing prescribed characteristics for exemptions will help to achieve the objectives for all regulations? What are the reasons for your views?
32. Do you agree that the prescribed characteristics for exemptions should be set out in regulations? If not, what other options could be considered and why?
33. Do you agree that territorial authorities should have some discretion to make decisions about exemptions using parameters for building occupancy and use as a guide?

34. Do you think the proposed occupancy thresholds are appropriate to represent life safety risk? (These are: low - 0-50 people, medium - 51-300, high - more than 300.) What are the reasons for your views? If you disagree, what do you think the thresholds should be?
35. Do you think the proposed 'frequency of occupancy' thresholds are appropriate to represent life safety risk? (These are: low - <25 times per year, occasional -25-100 times per year, frequent - more than 100 times per year.) What are the reasons for your views? If you disagree, what do you think the thresholds should be?
36. Do you think that the exemptions provisions should apply to priority buildings? What are the reasons for your views?
37. Do you think that the seismic hazard area of the building should be a consideration for exemptions?
38. Should the occupancy thresholds be lower if the main occupants of a building are young children or people who would require mobility assistance to leave?
39. What other factors should a territorial authority consider when considering an application for an exemption under section 133AN?
40. Do you have any other comments on the proposals about exemptions?

General

41. Do you have any other comment to make on the proposals (for example, matters related to implementation and monitoring)?

Appendix 6: Proposed form of earthquake-prone building notices

EARTHQUAKE-PRONE BUILDING

PROPOSED NOTICE BORDER
FOR BUILDINGS THAT ARE ASSESSED
UNDER THE AMENDMENT ACT PROVISIONS
AS BEING <20%NBS

OR WHERE NO ENGINEERING ASSESSMENT IS PROVIDED

EARTHQUAKE-PRONE BUILDING

PROPOSED NOTICE BORDER FOR BUILDINGS THAT ARE ASSESSED UNDER THE AMENDMENT ACT PROVISIONS AS BEING 20-33%NBS

EARTHQUAKE-PRONE BUILDING

PROPOSED NOTICE BORDER
FOR BUILDINGS THAT ARE ASSESSED
AS BEING EARTHQUAKE PRONE UNDER S.124
OF THE
BUILDING ACT 2004
AND WHERE THE %NBS OF THE
BUILDING IS NOT KNOWN