The Presbyterian Church
Property Trustees

Building up the Presbyterian Church for God's Mission

EARTHQUAKE PRONE BUILDINGS POLICY

Updated 24 November 2022

INTRODUCTION

Unfortunately, many Presbyterian buildings fall within the earthquake prone classification. It is important that these buildings are identified for the safety of users and to enable the development and implementation of strategies for the future.

To assist Church Councils and Presbyteries, a Church-wide policy has been adopted on the assessment and management of earthquake prone buildings.

While one of the primary objectives of this policy is to reduce the potential for injury or loss of life - the other is to safeguard buildings for the future use of the Church - this policy will also ensure that the Church meets its legal obligations under:

- the Building Act 2004;
- the Health and Safety at Work Act 2015 ('OSH' legislation); and
- the Trustees' responsibilities as the title-holder.

The priority is focussed on identifying buildings at risk and ensuring that, if the building is to remain in the medium to long term, appropriate remedial work is undertaken.

Under the Book of Order and the Presbyterian Church Property Act 1885, the leadership of each Congregation has the primary responsibility for ensuring that its public buildings are safe and functional.

The Council of Assembly statement on this issue is:

> *Our Council of Assembly, after consulting with our Doctrine Core Group, has reached the conclusion that Church owned buildings that are unsafe should not be used for church or community activities. This conclusion is not just a matter of risk management, but one that the Council believes affirms the integrity and nature of our Church and its Christian witness and mission; none of us wishes to knowingly place anyone at risk by worshipping or working in an unsafe environment.*

The Council of Assembly has requested the Church Property Trustees to oversee this policy on their behalf for Property north of the Waitaki River.

Strengthening our buildings to strengthen our mission

There is no doubt that earthquake prone buildings are a challenge. We are looking ahead to ensure that we end up with churches that are: (a) safe for our congregations; (b) able to offer shelter and serve the community as a meeting place and a service centre after a major seismic incident; and (c) strong enough to provide a place from which congregations can carry out their mission and ministry for several years to come.

If you wish to discuss this policy, or to have practical advice on its implementation, please contact the Church Property Trustees' Executive Officer, Russell Garrett.

ACKNOWLEDGEMENT

We want to acknowledge the stress this has caused and to thank you for all the work that has been done already.

The Trustees want to acknowledge the vast amount of good work that has already taken place to address our earthquake prone buildings. We are very aware of the stress that earthquake strengthening is placing on many people and parishes.

CHANGES

This 2022 revised policy reflects changes in legislation and guidance from the government, and follows a 2021 revision based on a review of progress that parishes had made.

The key changes made in 2021 were:

1. ***We extended the deadline for confirming the state of your buildings to 30 June 2022***

   We commend the very many congregations that have already completed a seismic assessment of their buildings. However, several congregations have not yet done so by the new deadline, and we are now following up with these congregations. It is important for Presbyteries and Congregations to be responsible property owners. At the very least, this means knowing the state of your buildings.

   The policy requires all parishes in default to obtain an Initial Seismic Assessment (or a Detailed Seismic Assessment) as soon as possible now that the deadline of **30 June 2022 has passed**. A copy of the ISA/DSA needs to be sent to your Presbytery and the Trustees as soon as it has been obtained.

2. ***We lengthened the timetable for strengthening buildings to at least 67% of New Building Standard for most buildings as follows:***

			Old Deadline	New Deadline
All	Parapets and Facades		30 June 2019	**30 June 2023**
Region	Low Risk	Pre-1991 buildings	2020 - 2025	**2027**
		1991 and later	2030	**2030**
	Medium Risk	Pre-1991 buildings	2019 - 2025	**2025**
		1991 and later	2025	**2027**
	High Risk	Pre-1991 buildings	2019 - 2023	**2023**
		1991 and later	2023	**2025**

3. ***We clarified the basis on which a congregation can apply for an exemption from strengthening a building.***

   In certain limited circumstances, a congregation can apply to the Presbytery and Trustees for an exemption from the requirement to strengthen a building to at least 67% of NBS.

The key changes made in 2022 were:

4. ***We clarified the basis on which a congregation can apply to use a building that has been deemed to be earthquake prone.***

   In certain limited circumstances, a congregation can apply to the Presbytery and Trustees to continue to use a building that has been deemed to be earthquake prone in accordance with guidelines issued by MBIE in July 2022.

   https://www.building.govt.nz/assets/Uploads/getting-started/seismic-risk-guidance-for-buildings.pdf

   These changes deal specifically with making decisions about closure or continued occupancy of buildings rated less than 34% NBS. The focus is on life safety, in contrast to the exemption from strengthening to at least 67% NBS where the focus is on the future of the building in the medium to long term.

   Please note the sections on the funding of seismic assessments and the requirement for Trustee approval for work over $50,000 at the end of this document. For commercial buildings, please contact us for the addendum to this policy.

5. ***We noted that some congregations may need to review their seismic assessment.***

   The Building (Earthquake Prone Buildings) Amendment Act 2016 outlined new requirements for managing earthquake prone buildings. In particular, it provided new guidance on the treatment of buildings constructed by, or with components of, unreinforced masonry, and flexible buildings with pre-cast concrete floors.

   As a result, congregations with these sorts of buildings may have to revisit seismic assessments secured before 2017 (as their rating may have changed) or revisit strengthening work already completed (as this may no longer be sufficient to meet the new standards).

CONTENTS

UNDERSTANDING THE BASIC FRAMEWORK AROUND EARTHQUAKE PRONE BUILDINGS

The NBS number

In New Zealand all buildings are rated as a percentage of the New Building Standard (% NBS). The loading code requirements aspect of the NBS vary across the country depending on the risk of earthquake, local seismicity factors and ground conditions. The assessment against the standard is based on The Seismic Assessment of Existing Buildings: Technical Guidelines for Engineering Assessments 2017 document (jointly managed by MBIE and others). Table A below sets out the implications of different percentages of the NBS. The risk of failure (life safety risk) increases significantly as the rated percentage drops.

Table A: Understanding New Business Standard Ratings

% NBS	Grade	Relative Risk of failure compared to a 100% rated building	Notes
>100	**A+**	<1 times	Over designed for emergency use
100	**A**	-	Standard for new buildings
80 - 99	**A-**	1 - 2 times	Current preferred standard for existing buildings
68 - 79	**B**	2 - 5 times	Future focus, preferred minimum
34 - 67	**C**	5 - 10 times	Medium term focus
20 - 33	**D**	10 - 25 times	Short term focus, legally earthquake prone if a public building or multi story residential
<20	**E**	>25 times	Immediate focus, legally earthquake prone if a public building or multi story residential

A building that is <34% NBS is considered to be “earthquake prone”. A building that is <67% NBS is considered to be an “earthquake risk”.

The types of evaluation

Since the Christchurch earthquakes the two different types of assessment have been called various names. It has now been decided that they should be called:

- **Initial Seismic Assessment (ISA).** This is a high level screen to indicate the likely seismic rating of a building, taking into account its age and type of construction, local seismicity and the ground conditions. As it is a quick assessment, it can sometimes be considerably more conservative than the next assessment (Note: until recently this was called an Initial Evaluation Procedure or IEP.)
- **Detailed Seismic Assessment (DSA).** This is a more detailed quantitative appraisal by an earthquake engineer that assesses the likely seismic performance of the building based on its individual characteristics. If a building is likely to be under or near the 34% NBS threshold, it may be more cost effective to obtain a DSA initially, as a DSA will provide more certainty and avoid the potential of having to pay for both an ISA and a DSA. (Note: until recently this was called a Detailed Engineering Evaluation or DEE.)

34% or 67% - What is the difference?

It is recommended that Congregations upgrade their property to at least 67%, which is higher than the 34% required by many Local Authorities and the legislation.

The reasons for this are simple:

- **At 34% a building has a high probability of staying sufficiently intact that people will not be injured or killed. But there is a much higher likelihood that the building will no longer be useable.** Government and Local Authorities are primarily concerned about life and limb and have therefore focused on 34%.
- **At 67% it is likely that the building will remain useable, or can be fixed, and so the work of the Congregation can continue.** In the long-term interests of the Church, we want facilities to remain functional.

The 33% level is actually quite low. The New Zealand Society of Earthquake Engineers states:

"33% NBS is the minimum legal limit for a building's earthquake capacity. This is a relatively low level of capacity, with a 10-fold greater risk of significant damage occurring than for a new building. The NZSEE recommend that the minimum should be 67% NBS (5 times the risk compared to a new building) to give an acceptable level of protection in a moderate to severe earthquake."

THE PROCESS FOR SEEKING ADVICE

There are four key stages to identifying and addressing earthquake prone buildings, and while most buildings will pass through each stage in succession, this is not mandatory if a well-founded decision can be made earlier on.

1. The Church Council reviews the buildings currently used by the Congregation and decides how best the building resources will fit into the future life and plans for the Congregation. If the building is seen as required in the medium to long term, the Congregation must continue with assessment – if the building is not seen as so required it must be closed and should either be disposed of or an exemption from the need to undertake an assessment sought from the Trustees, which may be granted with such conditions as the Trustees see fit.
2. Unless it proceeds directly to obtain a DSA, the Church Council obtains (or may receive from its Local Council) an Initial Seismic Assessment (ISA).
3. If the ISA is below 67%, or the Church Council elects to proceed directly to a DSA, it will proceed to obtain a Detailed Seismic Assessment (DSA). When seeking a DSA, the Church Council should ask the engineer to identify the key critical structural weakness and key elements that need to be corrected, as focusing on these will reduce the cost of improvements.
4. Any necessary remedial work is undertaken to address the key structural elements so that the building meets the required percentage of NBS. The required percentage is 67% NBS or higher unless an exemption is granted to strengthen to a lower percentage of not less than 34% NBS.

All advice must be obtained from a suitably qualified structural engineer. It is also wise to ensure that the report from a larger firm is signed off by the engineer responsible as well as one of the qualified partners as an internal reviewer. Larger firms should include this automatically. Small firms or sole practitioners may not do so as a matter of course. Therefore, Church Councils need to ensure that these reports are peer reviewed by an independent, experienced and qualified engineer, preferably a consultant who specialises in the materials used in the construction of the property involved.

THE TIMETABLE FOR TAKING ACTION

A timetable has been established that takes into account:

- The likelihood of earthquake frequency and intensity by dividing the country into the Government determined risk zones;
- The likelihood that the building will fail to meet the 67% NBS criteria, based on the age of the building;
- The need to take responsibility rapidly if the initial ISA is low, but at the same time moving on to the fuller (and more reliable) DSA in a timely manner.

Based on these principles the timetable for obtaining an ISA/DSA and upgrading is set out below:

Table B: Strengthening Timetable

			Deadline
All	Securing an ISA/DSA		**30 June 2022**
STRENGTHENING			
All	Parapets and Facades		**30 June 2023**
Region	Low Risk	Pre-1991 buildings	**2027**
		1991 and later	**2030**
	Medium Risk	Pre-1991 buildings	**2025**
		1991 and later	**2027**
	High Risk	Pre-1991 buildings	**2023**
		1991 and later	**2025**

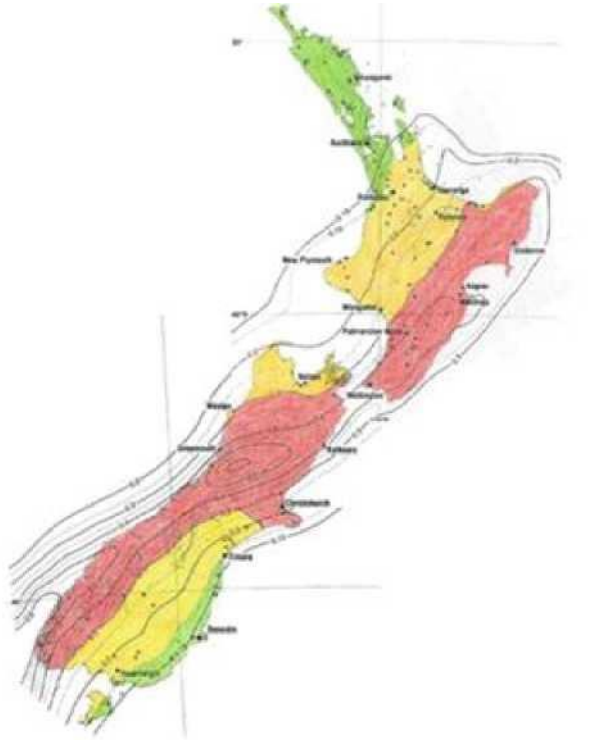
An ISA (only) is sufficient if the resulting rating is above 67% NBS, otherwise a DSA is required in addition to any ISA.

Tables C-F set out the different risk zones and timetables that apply to each zone.

Note: Depending on the results of the ISA/DSA further actions may be required urgently, and these are outlined in the next sections.

RISK ZONES

Table C – Risk zones for strengthening



High Risk Areas – Table D

Wellington	Christchurch	
Palmerston North	Napier/Hastings	
Gisborne	Whakatane	Blenheim

Medium Risk Areas – Table E

Hamilton	Tauranga
New Plymouth	Rotorua
Whanganui	Nelson
Invercargill	Timaru

Low Risk Areas – Table F

Auckland	Northland
Oamaru	Dunedin

Table D – Red Zone – High Risk Area Timetable

Applies to: Whakatane, East Coast, Hawkes Bay, Manawatu, Wairarapa, Wellington, Kapiti, Marlborough, North Canterbury (including Kaikoura), Christchurch, Westland

Year Built	Urgency	ISA / DSA Required by	Upgrade to at least 67% NBS
Facades/parapets	1	June 2022	June 2023
Pre 1991	2		June 2023
1991 - later	3		June 2025

Note: Facades/parapets are any ornamental structures that are adjacent to public spaces and which could fall off the case of an earthquake. While the deadline date is June 2023, any buildings with these features demands urgent attention.

Table E – Medium Risk Area Timetable

Applies to: Taranaki, Central North Island (Whanganui to Bay of Plenty), Waikato, Nelson, Inland South Canterbury (including Timaru)

Year Built	Urgency	ISA / DSA Required by	Upgrade to at least 67% NBS
Facades/parapets	1	June 2022	June 2023
Pre 1991	3		June 2025
1991 - later	4		June 2027

Note: Facades/parapets are any ornamental structures that are adjacent to public spaces and which could fall off the case of an earthquake. While the deadline date is June 2023, any buildings with these features demands urgent attention.

Table F – Low Risk Area Timetable

Applies to: Northland, Auckland, Oamaru, and Dunedin*

Year Built	Urgency	ISA / DSA Required by	Upgrade to at least 67% NBS
Facades/parapets	1	June 2022	June 2023
Pre 1991	4		June 2027
1991 - later	5		June 2030

Note: Facades/parapets are any ornamental structures that are adjacent to public spaces, and which could fall off the case of an earthquake. While the deadline date is June 2023, any buildings with these features demands urgent attention.

* This policy applies to all buildings north of the Waitaki River held by The Presbyterian Church Property Trustees.

ACTIONS REQUIRED FOLLOWING THE OUTCOME OF AN INITIAL SEISMIC ASSESSMENT (ISA)

- **Buildings assessed as Grade E** (below 20%) ***must*** temporarily close, pending a decision on the building's future to be made after a DSA has been obtained.

  The Church Council must also:

  1. Immediately install prominent and permanent signage, notifying visitors of the earthquake status of the building.
  2. Consult within the Congregation and the Presbytery over the role of the building in the life and mission of the Congregation and the Presbytery. (If the building is not seen as having a role, it must remain closed and should either be disposed of or an exemption from the need to undertake further assessment sought from the Trustees, which may be granted with such conditions as the Trustees see fit.)
  3. Depending on the outcome of (2), as soon as possible, and not later than the time frame set out in Tables D-F above, obtain a Detailed Seismic Assessment (DSA);
  4. Obtain advice on what their Local Authority requires for public buildings in this situation.

- **Buildings assessed as Grade D** (between 20% and 33% NBS) may remain open pending a decision on the building's future to be made after a DSA has been obtained.

  The Church Council must also:

  1. Immediately install prominent and permanent signage, notifying visitors of the earthquake status of the building;
  2. Consult within the Congregation and the Presbytery over the role of the building in the life and mission of the Congregation and the Presbytery;
  3. As soon as possible, and not later than the time frame set out in Tables D-F above, obtain a Detailed Seismic Assessment (DSA);
  4. Obtain advice on what their Local Authority requires for public buildings in this situation.

- **Buildings assessed as Grade C** (between 34% and 67% NBS): The Church Council must obtain a Detailed Seismic Assessment within the time frame set out in Tables D-F above.
- **Buildings assessed as Grade B** (between 68% and 79% NBS): The Church Council does not have to obtain a follow-up DSA, but it should have a DSA carried out when renovation or structural work is considered to see if further strengthening, e.g., to 100% NBS, is feasible or practical.
- **Buildings assessed as Grade A- and A** (between 80% and 99% NBS) are considered buildings of continual use. The Church Council does not have to obtain a follow-up DSA.
- **Buildings assessed as Grade A+** (over 100% NBS) are "over designed" and will be considered in continuity plans or for civil use by the State or Local Authority. The Church Council does not have to obtain a follow-up DSA.

ACTIONS REQUIRED FOLLOWING THE OUTCOME OF A DETAILED SEISMIC ASSESSMENT (DSA)

- **Buildings assessed as Grade E.** The expectation for buildings determined to be **Grade E** following a DSA is that these buildings **will be closed immediately, if they are not already closed**. Warning notices must be displayed for Grade E buildings notifying visitors of the building's earthquake status.

  The Church Council shall promptly undertake a life safety risk assessment to determine if it is safe to occupy the building (see the later section on Occupancy of Earthquake Prone Buildings). It shall, as part of this assessment, consult with the Congregation and the Presbytery over the future of the building in the life and mission of the Congregation and the Presbytery. If the Church Council believes it is both safe and desirable to do so, it shall apply to the Trustees for their endorsement to reoccupy the building giving details of its assessment in support. If the Trustees endorse the Church Council's decision to reoccupy the building, they may impose such conditions as they see fit, including setting a period of time (normally 6 months) within which the Church Council will need to demonstrate to the satisfaction of the Trustees that plans for strengthening to 67% NBS are in progress or an exemption is being applied for otherwise the permission to occupy may be revoked.

  The application to reoccupy shall include details of the congregation's plans for strengthening the building to at least 67% NBS. If the Church Council believes it is not appropriate to upgrade the building to at least 67% NBS, it shall apply to the Trustees for an exemption to strengthen to a lesser % NBS but not less than 34% NBS. A strategy must then be put in place to bring the building up to the agreed percentage within the time frame set out in Tables D-F above or the time allowed by the Local Authority, whichever is sooner.

- **Buildings assessed as Grade D.** Buildings determined to be Grade D may remain open pending the outcome of a life safety risk assessment. Warning notices must be displayed for Grade D buildings notifying visitors of the earthquake status of the building.

  The Church Council shall promptly undertake a life safety risk assessment to determine if it is safe to occupy the building (see Occupancy of Earthquake Prone Buildings). It shall, as part of this assessment, consult with the Congregation and the Presbytery over the future of the building in the life and mission of the Congregation and the Presbytery to ascertain if continued occupation is desirable. If the Church Council believes it is both safe and desirable to continue to occupy the building, it shall seek the endorsement of the Trustees to do so giving details of its assessment in support. The Trustees may require the Church Council to review its decision to occupy the building after a certain period and may impose such other conditions as they see fit in the interests of safety.

  In seeking the endorsement of the Trustees, the Church Council shall include details of the congregation's plans for strengthening the building to at least 67% NBS. If the Church Council believes it is not appropriate to upgrade the building to at least 67% NBS, it shall apply to the Trustees for an exemption to strengthen to a lesser % NBS but not less than 34% NBS. A strategy must then be put in place to bring the building up to the agreed percentage within the time frame set out in Tables D-F above or the time allowed by the Local Authority, whichever is sooner.

- **Buildings assessed as Grade C** following a DSA require permanent and prominent notification to be installed advising site visitors of the earthquake status of the building. A strategy must be put in place to bring the building up to at least 67% NBS (or to a lesser figure being not less than 34% NBS if the Trustees grant an exemption) within the time frame set out in Tables D-F above or the time allowed by the Local Authority, whichever is sooner.

- **Buildings assessed as Grade B** following a DSA will reference the evaluation as part of renovation or structural works to see if upgrading the building, e.g., to 100% NBS, is possible or practical.

- **Buildings assessed as Grade A- or A** are considered buildings of continual use.
- **Buildings assessed as Grade A+** are "over designed" and will be considered in the church's continuity plans or for civil use by the State or Local Authority.

REVISITING A SEISMIC ASSESSMENT

No one will be surprised to hear that building standards continue to evolve. This is also true when it comes to earthquake-related standards. Each earthquake teaches us something about how different buildings respond to different types of quakes.

In 2016, the Earthquake-Prone Buildings section of the 2004 Building Act was amended. The new Act, the Building (Earthquake Prone Buildings) Amendment Act 2016, which came to force in July 2017, sets out a new framework for managing earthquake prone buildings, including a new methodology. In response, Assessment Guidelines (including various updates since the last major Guidelines were issued in 2006) were revised and issued by MBIE in 2017. All seismic assessments must use the 2017 Guidelines. Earlier assessments based on the 2006 Guidelines should not be used.

Under the new Act, territorial authorities (local councils) determine whether a building is earthquake prone. In making a determination, a local council will consider whether the 2017 Guidelines has been followed. It also has the power to request building owners to review the previous assessment of buildings with components which are now recognized as being potentially vulnerable to earthquakes.

Key areas of concern

Major changes in the assessment guidelines have been in the areas of unreinforced masonry or brick buildings and flexible buildings with precast floors. Buildings of these construction types experienced extensive damage in the Canterbury and Kaikoura earthquakes. In contrast, timber and steel buildings performed much better in the Canterbury earthquakes, and this is reflected in the new guideline requirements. In some cases, the 2017 Guidelines provide a higher %NBS rating than the 2006 Guidelines for timber buildings.

What does this mean for congregations?

- If you have not completed an assessment – please ensure your engineer uses the 2017 Guidelines.
- If you have completed an assessment based on the 2006 Guidelines, but not provided your assessment to your local council, you will need to have your assessment reviewed and updated to comply with the 2017 Guidelines.
- If you have a one-storey timber or steel building with a pre-2017 assessment already lodged with the local council, you do not need to do anything else, except check and secure heavy vulnerable items in public spaces, e.g., heavy lights and heating units.
- If you have an unreinforced masonry or brick building with a pre-2017 assessment (lodged with the local council), you will need to review the existing assessment to comply to the 2017 Guidelines.
- If you have a multi-storey concrete and steel building with precast cast floors with a pre-2016 assessment (lodged with the local council), you will need to review the existing assessment with respect to the performance of the precast floors for compliance to the 2017 Guidelines.
- If you have an unreinforced masonry or brick building or a multi-storey concrete and steel building with precast cast floors and have completed strengthening work based on pre-2017 Guidelines, you need to have that work reviewed to ensure it meets the new Guidelines.

STRENGTHENING TO LESS THAN 67%

In the light of the request by the 2014 General Assembly, the Trustees may permit Congregations to upgrade to a lesser percentage than 67% NBS but not below 34% NBS when:

a. The cost of going to 67% NBS is excessive; or

b. The building is not one that is critical for the worship, life and mission of the Congregation; or

c. The building is not fit for purpose and would still not be fit for purpose even if strengthened to 67% NBS.

The primary focus for strengthening to not less than 67% NBS is on ensuring that appropriate remedial work is carried out on at risk buildings so that they remain available for the Church in the medium to long term. Granting an exemption is a recognition that this particular building is unlikely to feature in the medium to long term plans of the Church for one or other of the reasons above.

Economic Cost

Before considering an exemption on the ground of cost, the Trustees will require:

a. A Detailed Seismic Assessment (DSA) for the building;

b. Indicative costs for both the 34% NBS (if the building is below 34% NBS) and the 67% NBS options (as sometimes, particularly for wooden buildings, the cost difference is surprisingly small);

c. An indication of the NBS point between 34% NBS and 67% NBS that provides value for money (i.e., weighing up the increase in strength against the expenditure necessary to achieve that increase); and

d. Agreement from the Congregation and the Presbytery that the building does not have a long-term role in the worship, life and mission of the Congregation and of the National Church.

In considering an application for an exemption on economic grounds, the Trustees will look for the percentage of NBS that gives value for money in terms of the work required and the cost of that work - the Trustees may set a higher exemption figure than 34% NBS if this is justified.

Non-Critical Facility

Before considering an exemption on the ground that the building is not critical for the worship, life and mission of the Congregation, the Trustees will require

a. A Detailed Seismic Assessment (DSA) for the building;

b. Clear evidence that the building is non-critical, e.g., it plays an insignificant part in the worship, life and mission of the Congregation, it is used only infrequently, and this is likely to continue into the foreseeable future; and

c. Assurance that the building is otherwise of little economic value to the Congregation or the National Church.

Fitness for Purpose

Before considering an exemption on the ground that the building is not fit for purpose, the Trustees will require

a. Clear evidence of this, e.g., the building has very low levels of use because it is not well designed or the building is otherwise unsuited to the functions of contemporary congregational life;

b. A Detailed Seismic Assessment (DSA) for the building;

c. Indicative costs for both the 34% NBS (if the building is below 34% NBS) and the 67% NBS options; and

d. Confirmation that, at 67% NBS, the facility would still be unfit for purpose.

Consequences of Granting an Exemption

If the Trustees give approval to strengthen to less than 67% NBS, the Trustees will regard this as a clear indication to the Congregation and the Presbytery that the building will not be restored if it suffers significant damage in a natural disaster.

A decision to grant an exemption from strengthening to 67% NBS will therefore need to be approved by the Church Council, the Congregation, the Presbytery and the Trustees.

Union and Co-operating Parishes

The Methodist Church requires its buildings to be strengthened to 67% NBS and so do many, perhaps all, Anglican Dioceses. An application for exemption from a Cooperative Venture will therefore, in addition to any other consents, require the consent of each of the other participating partners at the regional level to an exemption being granted. It may also require the consent of the Trustees of the other participating partners.

Where a congregation is a Cooperative Venture, the Church Council must consult the other participating partners at an early stage if it is applying to the Trustees for an exemption.

OCCUPANCY OF EARTHQUAKE PRONE BUILDINGS

Process for making occupancy decisions

A building assessed as Grade E (below 20% NBS) or Grade D (20%-33% NBS) is an earthquake prone building for purposes of this policy. It has a low seismic rating and is therefore, seismically vulnerable. Given the Church's low tolerance for seismic risk, a low seismic rating triggers the question of whether the building should continue to be occupied while planning, funding, and implementing a seismic upgrade that addresses the identified vulnerabilities.

If a congregation wishes to continue to occupy an earthquake prone building while working towards its strengthening, the earlier sections require the Church Council to undertake a *life safety risk assessment* to determine if continued occupancy can be justified under this policy. This section deals with the process for undertaking this assessment and making occupancy decisions.

The primary focus of this assessment is on safety. This sets a high standard in light of the conclusion of the Council of Assembly that, to safeguard the integrity and nature of the Church, "Church owned buildings that are unsafe should not be used for church or community activities."

The starting point for carrying out a life safety risk assessment is an independently reviewed DSA listing the seismic vulnerabilities of the building and the potential consequences of their failure.

> "Any decision to change the occupancy of the building should be based on a sound and complete understanding of the building and its potential vulnerabilities. Generally, an ISA does not provide enough detail to make a decision about occupancy of a building." (MBIE, p. 10)

The key components of a life-safety risk assessment are set out in the MBIE Guidelines (https://www.building.govt.nz/assets/Uploads/getting-started/seismic-risk-guidance-for-buildings.pdf), and the Church Council should refer to these. In summary, they require the Church Council to:

1. Identify the critical vulnerable building elements,
2. Identify the consequences of the potential failure of each vulnerable element,
3. Consider the likelihood of an earthquake that could trigger failure of those building elements (this likelihood increases the longer the building is left unstrengthened),
4. Consider how many people might be exposed to the vulnerable building elements on a daily basis each week,
5. Consider how long before strengthening the building is likely to be completed (the remediation date),
6. Consider how long this exposure will continue in light of the proposed remediation date and the likelihood of a damaging earthquake during this time,
7. Determine the life safety risk based on the information gathered,

   > "Once you understand the exposure of people to the vulnerable building elements, the duration people will be exposed to the increased risk, and the likelihood of a damaging earthquake occurring during that time, you can determine the overall life safety risk." (MBIE, p. 15)

   > "Life safety risk increases with higher exposure of people and longer periods before the risk is remediated. How you evaluate the life safety risk, and what is considered low or high 'exposure of people' will depend on your organisation's own risk tolerance." (MBIE, p. 15)

   The times specified for remediation in this policy vary according to the seismic risk area a building is in. The shorter times, compared to the longer times in the 2016 Act, reflect both the Church's low tolerance for seismic risk and the wish of the Church to address the state of its buildings now and not leave this to future generations to address. The longer times in the Act may however help

in assessing the likelihood of a damaging earthquake.

"It is useful to think of the time people will be exposed to the risk relative to the times set out in the Building (Earthquake-prone Buildings) Amendment Act 2016, as these times account for the Seismic Risk Area a building is in and hence the likelihood of an earthquake occurring in the region. If you are planning to remediate within or significantly faster than the times set out in the Act, you are significantly reducing the risk to building users." (MBIE, p. 15)

8. Identify what can be done, if anything, to mitigate the life safety risk in the period to the proposed remediation date,

   This might involve closing parts of the building where structural failure could occur in more frequent earthquakes, or removing, propping or tying back high-risk features of the building such as parapets or heavy cladding.

9. Identify the consequences of immediate closure of the building, including those for Christian witness and mission,

   The Presbytery must confirm that the property is considered critical to the Presbytery's mission. The less critical to this mission, the less are likely to be the consequences of closure.

   "How you measure each of the impacts will depend on your organisation's own risk tolerance and organisational priorities. For example, some organisations will place high importance on supporting their community, while others may have vulnerable customers that are a high priority. If you have a risk management framework or set of strategic objectives, this could be a useful frame for measuring building closure consequences against." (MBIE, p. 17)

10. And, in light of all this information, determine whether the building is safe to occupy, not just as a matter of risk management but also as a decision that "affirms the integrity and nature of our Church and its Christian witness and mission."

    "As schematically shown in Figure 5, vacating a building should generally only be considered where the consequences of closure are low and the life safety risk is very high. Such a building will typically have one or more severe structural weaknesses, and a range of vulnerabilities which suggest a propagating failure from one vulnerability to another (progressive collapse) is possible in strong ground shaking. Alternatively, a building with very low consequences of closure, for example a low use building where closure will not notably affect staff or service delivery, could be justified based on fewer, less severe vulnerabilities." (MBIE, p. 17)

RESPONSIBILITY

The responsibility for making an occupancy decision rests with the Church Council. Congregations can apply to the Trustees for an endorsement of this decision. If granted, congregations can use the building in accordance with any restrictions set by the Church Council or the Trustees. Due to the nature of the assessment, the Trustees will endorse or support a Church Council's decision. This endorsement signifies that the Trustees believe the Church Council has followed the guidelines provided, but the Church Council remains responsible for the decision.

GENERAL PROVISIONS

Seismic restraint of non-structural components

Items such as suspended ceilings, suspended heaters, air ducts, lights, projector screens, wall hangings, sound system speaker boxes and organ components have to be restrained for seismic activity in accordance with the building code. Congregations should seek the advice of a structural engineer or specialist service engineer to ensure these items are restrained to the standards as detailed in NZS 4219.

Cooperative Ventures

In Cooperative Ventures this policy only applies to Presbyterian-owned buildings. Buildings owned by other churches should be dealt with in line with their policies.

Synod of Otago and Southland

For information regarding policies and funding for church buildings in the Synod of Otago and Southland area please contact the Executive Officer, Fergus Sime: phone 0800 76 22 22.

Funding of Seismic Assessments

Where the Congregation does not have the funds available to commission the seismic assessment, the Church Council may apply to use any capital funds held by the Trustees on behalf of the Congregation to meet the cost of the ISA or DSA. Where a Congregation has no funds available to undertake the evaluation, the Church Council should raise the issue with Presbytery.

The standard approvals process will apply to any work on church property

Before work over the value of $50,000 is undertaken on any church property (or if the property is to be demolished or sold), the usual approval process must be followed (please refer to the Property Handbook available on the website).

Keeping everyone informed

Please forward a copy of the seismic assessment and other relevant information to both your Presbytery and the Church Property Trustees' office for their records.

If you want to know more

The NZ Society of Earthquake Engineering has produced a guide for building owners which has some useful advice on managing these issues. It can be found online at
www.presbyterian.org.nz/sites/default/files/cpt/20140807 155647.pdf

MBIE Guidelines

The MBIE document *Seismic Risk Guidance for Buildings: using seismic assessments in occupancy decision-making* referred to in this policy is available online at
https://www.building.govt.nz/assets/Uploads/getting-started/seismic-risk-guidance-for-buildings.pdf.
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