

Earthquake-prone Building Programme



Subject: **EARTHQUAKE-PRONE BUILDING PROGRAMME**
To: **WHAKATĀNE DISTRICT COUNCIL**
Meeting Date: **THURSDAY, 28 JULY 2016**
Written by: **MANAGER STRATEGIC PROJECTS**
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1 REASON FOR THE REPORT

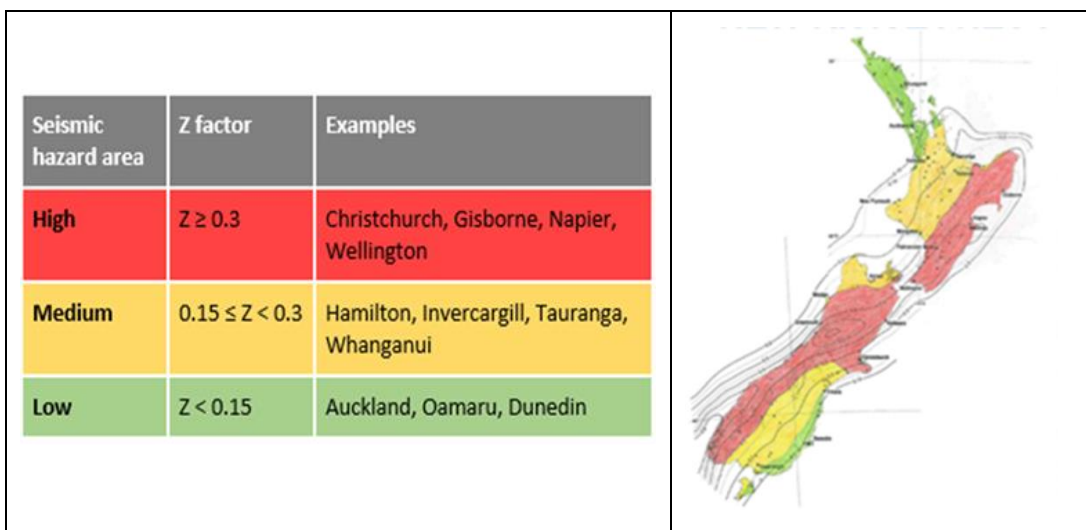
To update Councillors on the recent changes to the earthquake-prone building provisions of the Building Act 2004, and their implications on the Council's earthquake-prone buildings (EQPB) programme.

2 BACKGROUND

The Building (Earthquake-prone Buildings) Amendment Act 2016 has been passed by Parliament. Before it takes effect, consultation on supporting regulations is to be undertaken and guidance material is to be developed by the Ministry of Business Innovation and Employment (MBIE). MBIE has up to 2 years to develop the regulations but these are likely to be delivered before July 2017.

Key points of the Amendment Act are:

1. Territorial authorities EQPB policies will be revoked.
2. The threshold for defining an earthquake-prone building remains at less than 34% of the new building standard (NBS).
3. The threshold applies to parts of buildings (previously the assessment related to the entire building). Examples of parts of buildings include unreinforced masonry: infill walls, unreinforced masonry parapets, facades, verandas.
4. New Zealand is divided into three areas based on seismic risk (diagram courtesy of MBIE).



5. The seismic hazard areas set the deadlines and timeframes for territorial authorities to identify potentially earthquake-prone buildings of five, 10 and 15 years, and for building owners to strengthen earthquake-prone buildings of 15, 25 and 35 years, dependent on the seismic risk of the area. The Whakatāne District is within a high seismic risk area, meaning the lesser of the timeframes will apply.
6. Certain buildings are excluded (farm buildings, stand-alone retaining walls, fences, bridges, wharves, dams, some monuments, tunnels, dams, and most residential buildings¹).
7. The methodology for identifying earthquake-prone buildings, to be set by the chief executive of MBIE under the new legislation, will further target buildings that pose the greatest risk. The methodology will detail the requirements for determining whether or not a building is earthquake-prone and the processes to be followed by territorial authorities.
8. Some earthquake-prone buildings are prioritised for strengthening by requiring that, in medium and high seismic risk areas, they are identified and remediated in half the standard time. These buildings include education buildings, emergency service facilities, certain hospital buildings and buildings located on strategic routes. Where vehicle and pedestrian traffic could be affected, certain parts of unreinforced masonry buildings (such as parapets or verandas) in areas of medium and high seismic risk will also be prioritised. A summary of the seismic hazard areas and associated identification and strengthening timeframes is provided in the following table (courtesy of MBIE).

Seismic hazard area	TAs to identify potentially EQP within:		Owners to strengthen/ demolish EQP 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

9. A new requirement is introduced to remediate earthquake-prone buildings when substantial alterations are undertaken.
10. There is provision for an opt-in extension of up to 10 years to remediate Category 1 listed heritage buildings and those buildings on the National Historic Landmarks List.
11. A publicly available national register of earthquake-prone buildings will be established, and enhanced notices are to be issued for such buildings to help the public better differentiate between earthquake-prone buildings, thereby encouraging owners to remediate their buildings.

3 DISCUSSION AND OPTIONS

3.1 Canterbury Earthquakes Royal Commission

The final report of the Canterbury Earthquakes Royal Commission in late 2012 raised a number of concerns around the adequacy of seismic capacity assessment methodologies for existing buildings

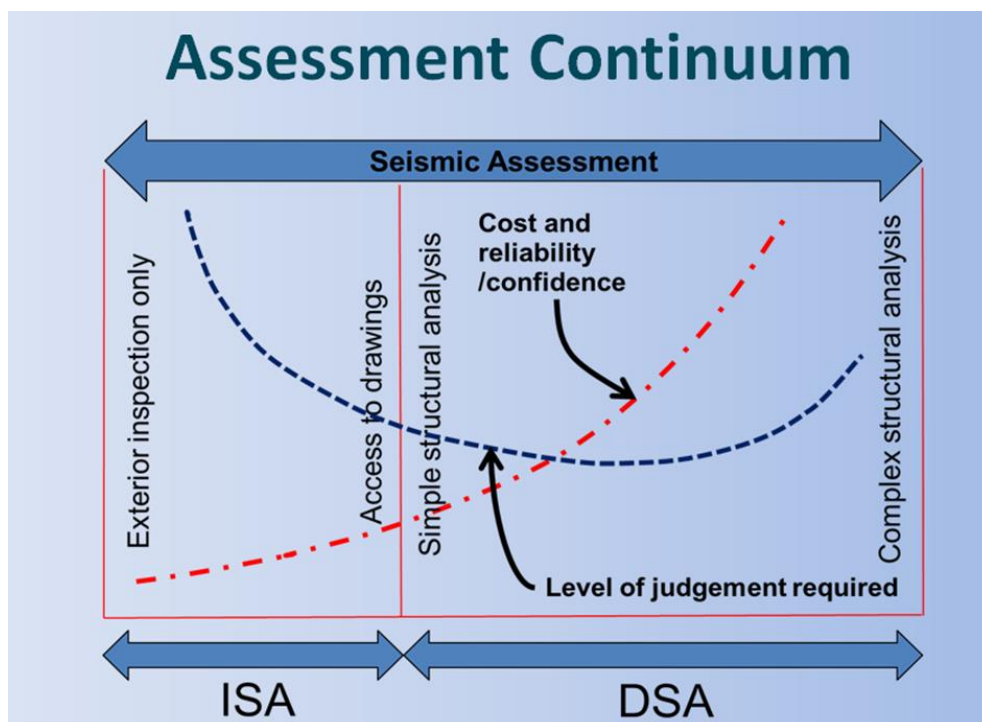
¹ Hostels, boarding houses, and residential buildings of two or more storeys and three or more residential units are not excluded

and the need for research in this area. This direction from the Commission created uncertainties for regulators around the appropriateness of the existing legislative provisions as well as the existing assessment methodologies that had been applied to identify earthquake-prone buildings through implementation of territorial authority earthquake-prone building policies. The assessment methodology typically used by territorial authorities was based on an initial evaluation procedure (IEP), a coarse screening methodology promoted for this purpose by the Department of Building and Housing and the New Zealand Society of Earthquake Engineers (NZSEE).

The Building (Earthquake-prone Buildings) Amendment Act 2016 sets in place a new earthquake-prone buildings regulatory framework. The requirement for MBIE to introduce regulations within two years will address the uncertainties around the methodologies for the assessment of the seismic capacity of existing buildings. Two MBIE earthquake-prone building assessment methodology workstreams have been established. One workstream has involved a complete rewrite of the NZSEE guidelines for seismic capacity assessment methodologies for engineers. This has been managed in a staged process with individual chapters being made available through the MBIE and NZSEE websites as they are completed. The second workstream relates to the development of regulations that will include a profiling tool for territorial authorities to use to identify buildings that are potentially earthquake-prone. The Council is represented on both of these workstreams.

3.2 Assessment Methodologies

The IEP methodology is a coarse screening filter to identify buildings that are potentially earthquake-prone. It is the most common initial seismic assessment (ISA) option. Once a building has been identified as potentially earthquake-prone, a more detailed seismic capacity assessment (DSA) is undertaken to identify critical structural weaknesses and possible strengthening options. A DSA reflects a more comprehensive holistic understanding of the building’s structural elements, their inter-relationships, and any inherent weaknesses therein. It is the base requirement for asset investment decision-making. The following diagram (courtesy of NZSEE) portrays the range of assessment options together with their associated complexity and reliability.



Understanding the range and basis of the different assessment methodologies, together with their limitations, enables an appreciation of why seismic capacity assessments of structures can differ

from one engineer to another. Add to the mix recent case law around accountability for engineering design and building consent authority approval processes, and revisions to the assessment guidelines, it is not difficult to see why there are significant challenges in the effective management of earthquake-prone buildings faced by engineers, and by building owners and territorial authorities. The MBIE earthquake-prone building workstreams are intended to deliver clarity to practitioners on these issues through a comprehensive suite of tools and guidelines supported with sector training (which has already commenced).

3.3 The Changes and WDC's Earthquake-prone Building Policy

The Building (Earthquake-prone Buildings) Amendment Act 2016 has a commencement date of up to 2 years from enactment, i.e. 13 May 2018, however it is likely that the regulations could come into effect by 1 July 2017. As soon as is reasonably practicable after the commencement of the Amendment Act, territorial authorities are required to amend or replace their Earthquake-prone, Dangerous, and Insanitary Buildings policy to remove references to earthquake-prone buildings. It is considered that if those are the only changes to the policy, and the policy change is a direction through statute, the changes do not invoke the requirement to publically consult on the changes to the policy.

The Building Act 2004 requires territorial authorities to review their Earthquake-prone, Dangerous, and Insanitary Buildings policy every five years. The Council's policy was due for review in May 2016. In order to comply with the Building Act requirement, it is recommended that the policy be rolled over without change for the limited period it will remain in place before it is revoked following commencement of the Building (Earthquake-prone Buildings) Amendment Act 2016.

3.4 The Changes and WDC's Earthquake-prone Building Programme

The Council has been running an earthquake-prone buildings programme for several years. The main objective of the programme is to reduce the risk to people associated with a moderate earthquake event. The programme identified buildings that were potentially earthquake-prone using the IEP assessment methodology. A total of 431 privately owned buildings have been assessed, of which 70% have been identified as potentially earthquake-prone.

Last year, in a response to requests for assistance from owners of buildings on harbour-leased land within the Whakatāne central business district (CBD), and in an endeavour to maintain the long term vitality of the Whakatāne town centre, the Council agreed to undertake a ground study of the CBD. Commissioning the ground study was conditional upon 50% of the owners of potentially earthquake-prone buildings within the CBD commissioning a detailed seismic assessment (DSA) of their building within 12 months of the ground study information becoming available. Approximately 70% of the building owners supported the project. The ground study data was loaded on to the Council's website during 2015 in the form of a Whakatāne geotechnical database and 3D geological model. This work by the Council aligned well to the geotechnical recommendations from the Canterbury Earthquakes Royal Commission.

In a parallel workstream, IEPs (and subsequently DSAs) have been undertaken of some of the Council's own building assets - the Civic Centre, War Memorial Hall, water treatment building, Whakatāne airport, and Awakeri Hall. The water treatment building was strengthened as an extension of scope to a planned alteration project. Note that budget is provided for strengthening of the Civic Centre over two financial years commencing this year.

Participation in the MBIE earthquake-prone building assessment methodology workstreams has provided an opportunity to have a sample of this Council's IEP assessments tested against the proposed methodologies. Indicative results from the small sample suggest some historic IEP assessments utilising the initial assessment guidelines may now be considered conservative in the context of the revised guidelines. That will mean some buildings assessed as being potentially

earthquake-prone (NBS score <34%) on review will not be potentially earthquake-prone (NBS score of 34% or greater) utilising the new assessment methodology. Samples from other local authorities (Wellington City Council, Gisborne District Council, Auckland City Council, Hamilton City Council, and Dunedin City Council) have returned similar results.

MBIE is indicating the Regulations may recognise previous assessments and how they are used for determining whether or not a building is earthquake-prone.

The likely change in methodology can reasonably be expected to reduce the number of potentially earthquake-prone buildings within each territorial authority jurisdiction. Those building owners who had been directed towards having a DSA completed of their building because of the earlier interpretation of an assessment methodology may now find that their commissioning of a DSA is prudent to optimise the use of their asset rather than through statutory compliance.

The Council's earthquake-prone building programme will be paused until the revised assessment methodologies have been finalised. Now that the MBIE/NZSEE assessment methodology workstream is nearing completion, it is appropriate that the Council revisit its programme. Key actions moving forward include:

- Continue to monitor and participate in MBIE's development of assessment methodologies
- Continue to monitor and participate in MBIE's work on developing the Building (Earthquake-prone Buildings) Regulations
- Ensure any new assessments are consistent with the latest version of the MBIE/NZSEE Guidelines for the Assessment and Improvement of the Structural Performance of Buildings in Earthquakes
- Reconvene the Earthquake-prone Building Collaborative Working Group
- Update building owners
- Progress the prioritisation and assessment of Council owned building assets

4 ASSESSMENT OF SIGNIFICANCE

The decisions or matters of this report are not significant in accordance with the Council's Significance and Engagement Policy.

5 COMMUNITY INPUT AND PUBLICITY

Community input has not been sought. The Building (Earthquake-prone Buildings) Amendment Act 2016 was a public process to which the Council participated through submissions to the Local Government and Environment Select Committee. This report is an update of Parliament's response to the Select Committee recommendations and will be summarised in a newsletter to building owners.

6 CONSIDERATIONS

6.1 Policy and Planning Implications

Review of the Council's Earthquake-prone, Dangerous and Insanitary Buildings Policy is slightly overdue. Despite the earthquake-prone provisions of the policy being revoked once the Building (Earthquake-prone Buildings) Act 2016 commences, Council's policy is required to be reviewed in the interim.

The Council will need to give consideration to defining priority routes. Priority routes are transport routes of strategic importance in relation to emergency response. Buildings (or parts of buildings) of unreinforced masonry that could collapse on to a priority route and impede emergency response are required to be identified and strengthened within half of the prescribed timeframe. The process of defining priority routes will involve community consultation and territorial authorities will be required to follow the Local Government Act 2002 public consultative process.

6.2 Risks

Risks associated with proceeding with the Council's programme prior to the pending changes being finalised are not considered to be high. The Building (Earthquake-prone Buildings) Regulations will prescribe the assessment methodologies for undertaking seismic capacity assessments of existing buildings. The regulations will be put out for public consultation. This could result in changes to the development work that has been done. MBIE has worked hard at managing this risk through sector engagement. Of the two assessment methodology workstreams, little change is anticipated on the rewrite of the NZSEE guidelines for seismic capacity assessment methodologies for engineers. National training sessions for engineers on the revised methodology have been well attended and the feedback has been very supportive. Similarly, national briefing sessions on the development of regulations have also been well received by regulators.

7 CONCLUSION

The Building (Earthquake-prone Buildings) Amendment Act 2016 has been passed by Parliament and has up to 2 years to develop the supporting regulations. It is likely that the Act will commence by the middle of 2017.

The Act introduces a number of changes to the way the earthquake-prone buildings will be managed in the future. Key points are:

1. Territorial authorities EQPB policies will be revoked.
2. The threshold for defining an earthquake-prone building remains at less than 34% of the new building standard (NBS).
3. The threshold applies to parts of buildings (previously the assessment related to the entire building).
4. New Zealand is divided into three areas based on seismic risk
5. The seismic hazard areas set the deadlines and timeframes for territorial authorities to identify potentially earthquake-prone buildings of five, 10 and 15 years, and for building owners to strengthen earthquake-prone buildings of 15, 25 and 35 years, dependent on the seismic risk of the area. The Whakatāne District is within a high seismic risk area.
6. Certain low risk buildings are excluded.
7. New methodologies for identifying earthquake-prone buildings will detail the requirements for determining a whether or not a building is earthquake-prone and the processes to be followed by territorial authorities.
8. Some earthquake-prone buildings are prioritised for strengthening by requiring that in medium and high seismic risk areas, they are identified and remediated in half the standard time.
9. Where sufficient vehicle and pedestrian traffic could be affected, certain parts of unreinforced masonry buildings (such as parapets or verandas) in areas of medium and high seismic risk will also be prioritised.

10. A new requirement is introduced to remediate earthquake-prone buildings when substantial alterations are undertaken.
11. A publicly available national register of earthquake-prone buildings will be established.

Two MBIE earthquake-prone building assessment methodology workstreams have been established. One workstream has involved a complete rewrite of the NZSEE guidelines for seismic capacity assessment methodologies for engineers. The second workstream relates to the development of regulations that will include a profiling tool for territorial authorities to use to identify buildings that are potentially earthquake-prone. These regulations may be available for public submission as early as September 2016. The Council will consider the content of these regulations and prepare a submission in response.

The Building (Earthquake-prone Buildings) Amendment Act 2016 is required to commence within two years, however the commencement date is likely to be as early as 1 July 2017. As soon as is reasonably practicable after the commencement of the Amendment Act, territorial authorities will be required to amend or replace their Earthquake-prone, Dangerous, and Insanitary Buildings policy to remove references to earthquake-prone buildings. This change should not require public consultation as it being driven through a law change. In the interim, the Council needs to review its own Earthquake-prone, Dangerous and Insanitary Buildings Policy. It is recommended that the Policy be rolled over without change.

Reviews of seismic capacity assessment methodologies have identified that some historic assessments now appear to have been overly conservative with the result that some buildings previously identified as potentially earthquake-prone are now considered to not be earthquake-prone. It is appropriate that new assessments utilise the latest version of the MBIE/NZSEE Guidelines for the Assessment and Improvement of the Structural Performance of Buildings in Earthquakes.

RECOMMENDATIONS:

1. **THAT** the report “Earthquake-prone Building Programme be received;
2. **THAT** the Council’s Earthquake-prone, Dangerous, and Insanitary Buildings Policy be rolled over without change, with a further review to be completed as soon as practicable after the commencement of the Building (Earthquake-prone Buildings) Amendment Act 2016;
3. **THAT** owners of buildings to which the earthquake-prone building legislative provisions apply, be updated on the Building (Earthquake-prone Buildings) Amendment Act 2016.

Attached to this report:

- Appendix 1 - Earthquake-prone, Dangerous, and Insanitary Buildings Policy

Report Authorisation

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