NEW ZEALAND'S BUILDING (EARTHQUAKE-PRONE BUILDINGS) AMENDMENT ACT 2016: RISK, EQUITY, AND THE AUTHORITY TO GOVERN

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Part 1

The Canterbury earthquakes highlighted the risks the built environment poses in an earthquake. The earthquakes had devastating effects on both people and property. The Canterbury Earthquake Royal Commission was charged with investigating building failure in the earthquakes and making recommendations to central government to improve the system. After the commission issued its findings, the Minister for Building and Housing introduced the Building (Earthquake-prone Building) Amendment Bill. During its 5 year gestation, it underwent many changes during this time, including two rounds of Select Committee submissions. The bill passed in May 2016, and comes into force within the next two years – MBIE have indicated it will likely be quarter 2 2017.

The act will require retrofitting of NZ's most earthquake prone buildings, many of which were effectively unregulated until 2016. It increases central government's role in regulating building safety, and sets different timelines according to risk level. The buildings that pose the greatest risk to the public in the highest seismic risk zones of the country will be prioritised. This represents a major change to urban governance in New Zealand, and has implications for building owners, municipalities, and the public. This paper will explore issues of equity in this regulatory shift.

The paper will proceed as follows: Part 2 introduces the new the building act and the narrative of its development; Part 3 explores questions of equity in the Act's prioritising masonry buildings, many of which are listed heritage, and which pose more risk to passers-by than other types of earthquake prone buildings; Part 3 also concludes.

Part 2: Recent History of NZ's Building Laws

In the last 25 years New Zealand has faced a series of reforms around building safety. The 1991 Building Act introduced a national framework of building standards, known as the building code. This Act did not apply retrospectively and as a consequence, many potentially dangerous buildings were not recognised as earthquake-prone. In the 1991 Act, to be defined as earthquake prone, buildings had to be constructed of unreinforced concrete or masonry and undergo catastrophic failure causing injury or death during shaking half as intense as the requirements for a new building.[1] The Building Act (2004) gave a much wider definition of buildings to be considered earthquake-prone. They would collapse, causing injury or death under a moderate earthquake, which is shaking at one-third the requirement for a new building; it is more commonly known as 34%NBS. The 2004 Act also gave Territorial Authorities (TAs) the power to create their own policies to respond to earthquake-prone buildings. This resulted in a variety of policies, ranging between active and passive building identification. An active policy generally identified buildings within a defined timeframe and required remediation by a particular date. Whereas, passive policies were used only when there was an application for a building consent.[2] This resulted in huge variation between districts in response to managing the hazards of the built environment in an earthquake.

[1] Section 66
[2] Section 122

Seismic Risk Zones. The amendment divides New Zealand into zones based on the seismic risk. Seismic hazard (Z) factors have been used to divide the country into three zones. Low areas (0.15 < Z) include Dunedin and Auckland, medium zones (0.15 ≤ Z >0.3) such as Hamilton and Invercargill, and high risk zones (Z ≤ 0.3) include Wellington and Christchurch. Figure 1 below indicates how New Zealand has been divided into zones.[3]

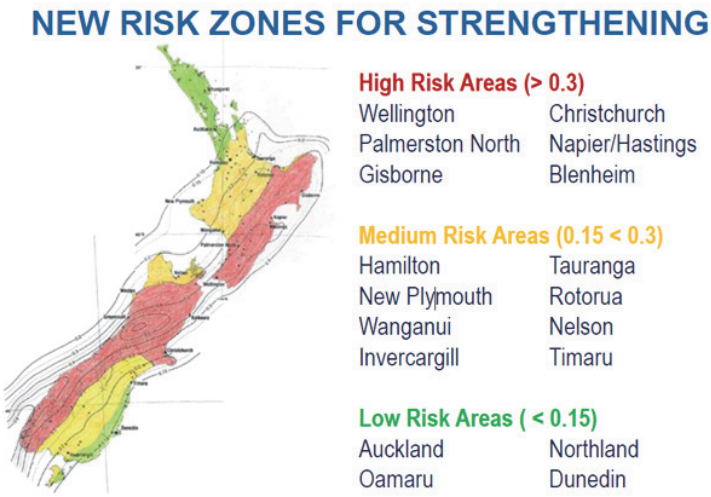

Figure 1. Seismic zones for strengthening.

Seismic risk zones allow the act to be applied differently across New Zealand in response to the likelihood of an earthquake occurring. Arguably this introduces a better balance between the economic and social costs and life-safety, by recognising that the hazards differ across New Zealand. There are concerns that New Zealand does not have enough experts to carry out all of the necessary identification and subsequent assessments. The introduction of seismic risk zones ensures that the expertise can first be utilised where it is most necessary – in the highest risk districts. The costs of assessment and remediation will be spread over a longer time period, which may make the requirement more manageable for business owners.

Assessment and Identification. The current assessment and identification system, under the 2004 Act, has resulted in a lack of consistency between assessments across districts, and even between buildings.[4] Accordingly, a strong identification and assessment methodology is necessary to ensure the changes to the act operate effectively, with the intended consequences, as failure under the current system does not bode well for faith in the amendment Act. The Ministry of Business, Innovation and Employment (MBIE) are required to consult with TAs, and other interested parties, such as the New Zealand Society of Earthquake Engineers, to develop the necessary methodology.

TAs are given 5, 10 or 15 years, relative to their high, medium or low seismic risk to use the methodology to identify buildings as potentially earthquake-prone.[5] Building owners are then given 12 months to have their building assessed by a suitably qualified engineer.[6] If they have been unable to do this due to factors outside their control they may apply for an extension of up to 12 months.[7] The assessment must then be provided to the council, who will then determine if the building is

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[3] Aimee Gulliver "Major changes to earthquake strengthening rules" (10 May 2015) Stuff.co.nz <www.stuff.co.nz>
[4] Jenny Ruth "MBIE concerns a consistency problem in assessing earthquake-prone buildings" (14 August 2015) The National Business Review <www.nbr.co.nz/>
[5] Section 133AG
[6] Section 133AH; Section 133AI.
[7] Section 133AJ

earthquake-prone.[8] If a building is deemed earthquake-prone an earthquake-prone building notice will be issued. This notice must identify the building as earthquake-prone; state the earthquake-rating of the building based on compliance with the NBS; identify the deadline for remediation; and state any other factors such as exemptions, extensions or priority building classifications. A copy of the notice must be given to people who have an interest in the building or land, such as the owner, or Heritage New Zealand.[9] The notice must also be attached to the building.[10] EPB notices allow the public to be aware of the risk of injury or death a building may have in the event of an earthquake.

Remediation. If a building has been assessed to be earthquake-prone, it will need to be remediated, to make in no longer earthquake-prone. Remediation options broadly include strengthening or demolishing a building or building part. In the instance of a facade, possible methods include tying back the facade of replacing it with an alternative material. Buildings will need to be remediated within 15, 25 or 35 years, respective to their low, medium or high risk zone.[11] This timeframe is reduced for priority buildings, as summarised in Table 1.

Heritage Buildings contribute significantly to the aesthetic value of a town, but often they are recognised as expensive and difficult to fix. The Act recognises these concerns, to some extent, by allowing owners of any Category 1 Heritage Place – as recognised by the New Zealand Heritage List or included on the National Historic Landmarks list – to apply for an extension of up to 10 years. However, the building owner must reduce the risk of the building or part being earthquake-prone, and may need to comply with additional conditions imposed by the TA, during the period before remediation works commence.[12]

A TA can exempt some buildings from the requirement to no longer be earthquake-prone. This recognises that some buildings are infrequently used, or have low occupancy rates and as such the risks of being potentially earthquake-prone are very minor. MBIE will determine the methodology used to identify buildings that are eligible for exemptions. The guiding criteria for this process include, building location, age, construction type and occupancy. When a TA grants an exemption a new EPB notice must be affixed to the building, so people are aware why the building has been granted an exemption, and any implications resulting from this. [13]

Priority Buildings. The priority building provisions of the Act recognise the post-disaster function of some types of buildings, and their importance to recovery. They also recognise the undue risk some buildings and building parts can pose in an earthquake. There are five types of priority building, fitting under these aims. However, priority buildings can only be identified in high and medium seismic risk zones, where they have reduced identification and remediation timeframes, as per Table 1.
Firstly, parts of hospitals that provide essential health-care services. Secondly, buildings that provide emergency service functions, such as police, fire or ambulance stations or Civil Defence centres including emergency shelter. It is evident that ensuring these types of buildings are not earthquake-prone is essential, so they can continue to provide health-care and disaster management services, in the event of an earthquake. Thirdly, TAs can identify 'corridor buildings' as priorities. These are buildings that would impede strategic transport routes in a disaster, which could impact on emergency response.

The final two classes focus on managing undue risk of injury or death. All educational facilities, be they private or public institutions, at any level, are priority buildings. Often these facilities have high occupancy rates, thus are an opportunity to reduce risks. The final class was added to the bill after it

[8] Section 133AK
[9] Section 133AL
[10] Section 133AP
[11] Section 133AM.
[12] Section 133AO.
[13] Section 133AN.

had returned from the local Government and Environment Select Committee. It is a result of interest groups and individuals wanting to address the 'lowest hanging fruit' first. [14] Consequently, priority buildings include parts of unreinforced masonry buildings that can fall from a building in an earthquake onto a public access way identified by the TA using the special consultative procedures in the Local Government Act (2002). [15] In the February 2011 Canterbury earthquake there were 42 deaths due to building failure, beyond the Canterbury Television and Pyne Gould Corporation Buildings. 35 of these fatalities were people in public spaces where unreinforced masonry elements collapsed away from the property. Six were killed by unreinforced masonry inside a building.[16] Including this provision in the Act addresses this undue risk. Parapets, chimneys, verandas etc. and the like are seen as the easiest and cheapest to fix, and have a great impact on life safety – giving the best outcomes for the smallest cost.

Table 1. Summary of Timeframes

Seismic Risk Zone	*Identification*	*Assessment*	*Remediation*
Low	15 years	12 months from issue of earthquake-prone building notices	35 years
Medium	10 years, 5 years for priority buildings		25 years, 12.5 years for priority buildings
High	5 years, 2.5 years for priority buildings		15 years, 7.5 years for priority buildings
Category 1 Heritage Buildings	Same as others		May apply for an extension of 10 years

The Scope of Buildings Included. The Act does not apply to all buildings in New Zealand, and there are two principal reasons for these exclusions. Firstly, bridges, dams, monuments (that cannot be entered), tunnels, fences, wharves, storage tanks and retaining walls have been excluded from the act. They are not typically seen as buildings, but are defined as such by the Building Act (2004), accordingly they have been excluded as they are in conflict with the spirit of the bill. The second exclusion is in relation to buildings that have a low risk to life-safety in the event of an earthquake. This includes farm buildings, and residential buildings that do not have more than two floors and three family units. [17] Farm buildings are often isolated, and rarely have people in them, and thus the potential danger is very limited. Residential properties were excluded in both the 1991 and 2004 Building Acts,[18] and as such are not identified to pose a significant threat to injury or death in the event of an earthquake.

The amendment act also clarifies that parts of buildings, not just the entire building can be identified as earthquake-prone. This is consistently applied throughout the Act, so any other provisions in the bill may also apply to building parts. This allows TAs to identify any parts of a building that would be potentially earthquake-prone and require remediation.[19] For example a building as a whole may meet the required 34% NBS, however, if it has a parapet that has not be strengthened, this building

[14] Jenny Ruth "GNS sees unnecessary deaths resulting from earthquake strengthening legislation" (6 August 2015) The National Business Review <www.nbr.co.nz/>
[15] Section 133AE.
[16] Rebecca Macfie "Earthquake-prone buildings: how to reduce the risk" (7 December 2012) New Zealand Listener www.listener.co.nz/
[17] Section 133AA.
[18] Building Act 1991 s. 66; Building Act 2004 s.122
[19] Section 123A.

element, could be hazardous to life-safety in the event of an earthquake. As a result, the TA can require it to be strengthened, reducing the risk to all persons including those away from the property.

Reporting Earthquake-Prone Buildings. CERC recommended that each TA publish a list of earthquake-prone buildings in their district or city, with the intention of increasing awareness of the dangers of a building, and incentivising owners to strengthen their buildings so they are no longer earthquake-prone. [20] MBIE are required to implement a national earthquake-prone building register to serve this purpose. TAs will be required to input information on all buildings into this database that they identify as potentially earthquake-prone.[21] Information such as, remediation timeframe, seismic capacity rating, and if extension or exemptions have been provided. MBIE, through the regulations can require additional information to be included.[22] TAs will also report their progress to MBIE, yearly, biennially, or triennially, relative to the high, medium or low seismic risk of the area.[23]

Managing Earthquake-Prone Buildings. TAs are granted some powers to manage EPB buildings, to reduce the hazards to life safety in an earthquake. TAs may stop people from approaching too close to a building by putting up a hoarding or fence. Access can also be restricted for two periods of up to 30 days. A TA may also require a notice be affixed to the building warning people not to approach or enter the building or part. These provisions recognise that some buildings pose a higher risk in the event of an earthquake, and as they need to be managed, as they could have significant pejorative life-safety impacts. They also allow TAs to respond these hazards when there are unsafe buildings after an earthquake.[24]

There may be instances when a building owner has not remediated his or her building by the required deadline. In these cases, the TA may carry out the required remediation work, at the owner's expense. The District Court must give permission to the TA to carry out the required the work, which could include demolition.[25]

Finally, many of the provisions explained above have regulations or methodology that needs to be developed to allow effective implementation of this amendment Act. This will allow central government and TAs to appropriately manage the risks to life safety of earthquake-prone buildings. These are intended to make the implementation of the bill clearer, improving its effectiveness. MBIE have begun developing all of the necessary regulations and will need to work with TAs, and other interested groups such as the New Zealand Society for Earthquake Engineering to ensure they create appropriate methodologies that TAs can implement easily, and will achieve the intended outcomes of the amendment act.[26]

Part 3: Equity and Authority to Govern Buildings

The act raises questions of equity and authority, with particular regard to regulating the space inside vs. outside a building and the imposition of private costs associated with that regulation of private or public space. These equity questions also arise from the Act's singling out a particular group of property owners (owners of buildings with parapets, facades, and other non-structural elements at risk to well trafficked thoroughfares in medium or high seismic risk areas of the country) to bear those private costs sooner than the rest.

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[20] Canterbury Earthquakes Royal Commission "Final Report. Volume 4: Earthquake-prone buildings" Canterbury Earthquake Royal Commission <http://canterbury.royalcommission.govt.nz/>
[21] Section 273.
[22] Section 275A.
[23] Section133AG.
[24] Section 133AR.
[25] Section 133AS.
[26] Ministry of Business, Innovation and Employment "Earthquake-prone Buildings" Ministry of Business, Innovation and Employment (31 May 2016) <www.mbie.govt.nz/info-services/building-construction/current-work/earthquake-prone-buildings>

In the eyes of the centre-right coalition Government, differing likelihoods of harm to passers-by creates differing levels of authority to govern the private spaces, and private finances, of the nation's buildings. Previously earthquake-prone buildings had largely been the purview of local governments, but the 2010-11 earthquake sequence in a city previously thought to be lower seismic hazard made manifest the clear danger posed by lightly regulated earthquake-prone buildings. As such in the new Act the Government created for itself an authority to take regulatory power from local governments. It also created for itself the authority to treat different owners differently, placing higher burdens on those whose buildings contain non-structural elements at risk of falling outwards. Thus the outside vs inside distinction yields different government powers.