

# The Heritage Problem

## is current policy on earthquake-prone heritage buildings too costly?

### Introduction

Earthquakes are a major hazard around the world (Bjornerud, 2016). A recent example is New Zealand, where three major earthquake events occurred within a six-year period. The 2010–11 earthquakes in Canterbury, centred close to the city of Christchurch, led to 185 fatalities, mainly due to two collapsed buildings and crumbling facades (Crampton and Meade, 2016). In addition, the rebuild of Christchurch after the earthquakes cost \$40 billion (English, 2013), a large sum for a small country. Subsequent large earthquakes occurred in 2013 in Seddon (close to Wellington) and in 2016 in Kaikōura.

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This series of earthquakes has acted as a wake-up call for many citizens of earthquake-prone regions and has highlighted the importance of preparing for earthquakes (McClure et al., 2016). These events have also reinforced the political drive to strengthen legislative policy for earthquake-prone buildings, particularly after the Canterbury earthquakes. Earthquake resilience has become an issue in political discourse and public policy in New Zealand. Although earthquakes are unpredictable events, the damage they trigger can be greatly reduced through actions to ensure the resilience of building structures (Spittal et al., 2008). The major cause of fatalities in earthquakes is the collapse of buildings (Spence, 2007), as demonstrated in the Canterbury earthquakes. Strengthening buildings is thus a key measure to reduce harm from earthquakes, and may also provide economic benefits (Auckland Council, 2015). New Zealand, like many countries, has policies on earthquake legislation that affect these mitigation actions.

### The special case of heritage buildings

Risk mitigation is vital not only for the regular building stock but also for heritage buildings, which have specific

protections in government and local council legislation. About 1,000 buildings in New Zealand in medium- and high-risk earthquake zones are categorised as category 1 or category 2 heritage buildings (Hunt, 2016). In Wellington, situated in a high earthquake risk area, the city council holds a list of all 633 earthquake-prone buildings (at February 2017). Of these, 124 are heritage listed, and 20 of these are Heritage New Zealand historic places category 1, while 42 are category 2. A category 1 historic place is defined as: 'of *special* or *outstanding* historical or cultural significance or value' (Heritage

masonry buildings to secure street-facing parapets and facades within a one-year time frame (Ministry of Business, Innovation and Employment, 2017), with the work part-funded by the government. As most parapets are on heritage buildings, the new legislation should reduce the risk stemming from earthquake-prone heritage buildings.

#### The heritage buildings problem

Despite the value of strengthening buildings for public safety, the legislation and policies are still widely debated. A key part of this debate concerns earthquake-

and remediation of difficult-to-insure buildings; the high cost of repairs due to like-for-like heritage replacement specifications; commercial tenants avoiding hazardous buildings; tenants' unwillingness to pay a premium for strengthened buildings; and owners being forbidden from tearing down their heritage building if they find strengthening economically unviable.

Egbelakin et al. (2015) similarly noted that despite the benefits of strengthening buildings, there are other significant barriers to this work which prevent many owners from adopting this mitigation policy. One barrier is that earthquake risk is poorly accounted for in property valuations. In addition, disclosure of seismic risk is not mandatory and there is no unified system for seismic risk information. They also claim that the cost of strengthening is unlikely to be recovered, because renters are unwilling to pay an increased rent on the basis of building strengthening. High insurance premiums and a lack of risk-based insurance premiums pose another cost-related barrier. Furthermore, property owners often judge that upgraded older buildings are less in demand than newer, more energy efficient ones, and thus pose a financial loss. These barriers point to the common factor of cost, which is a major point in the discussions about the risks and benefits of strengthening heritage buildings. This issue is particularly pressing in the capital city, Wellington, where a major earthquake on one of five known faults is possible (New Zealand Government, 2015).

The alternative point of view in this policy debate argues that Wellington should preserve its heritage buildings (Hunt, 2016). This view is represented by Arts, Culture and Heritage Minister Maggie Barry, city councillor Iona Pannett, chairperson of the council's strategy committee, and Ian Cassels, Wellington property developer. They highlight that there are relatively few earthquake-prone heritage buildings in Wellington and that there is steady progress in strengthening them, especially since the Christchurch and Seddon earthquakes in 2011 and 2013. Pannett states: 'That [number of earthquake-

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New Zealand website). Category 2 places are defined as: 'of historical or cultural significance or value'. Thus, heritage buildings vary in their cultural value to the country.

As heritage buildings are protected by law, their owners cannot simply demolish them and replace them with more resilient new buildings. Local councils set their own regulations dealing with alterations to heritage buildings. In Wellington, internal alterations or repairs to heritage buildings are permitted (with some exceptions), whereas any external alterations or repairs, relocation or demolition are not permitted unless the council and Heritage New Zealand approve (for details, see chapter 21 of the Wellington District Plan (Wellington City Council, 2014)). So owners of heritage buildings have to follow due process when planning to alter their building. There is a 15-year deadline for strengthening earthquake-prone heritage buildings in Wellington.

New legislation on parapets and facades was also introduced in 2017. This legislation requires owners of unreinforced

prone heritage buildings. There are two opposing arguments. As noted by Property Council New Zealand chief executive Connal Townsend, 'Cuba Street [in Wellington] revealed a rift between the Government's stance of focusing purely on security of life inside buildings and the public's desire to save heritage' (Cann and Devlin, 2016).

One point of view in this debate argues for the right of building owners to demolish heritage buildings to increase public safety. This is exemplified by the *Deadly Heritage* report, a collaboration between the New Zealand Initiative and Deloitte New Zealand (Crampton and Meade, 2016). The report argues that for many property owners the protection of heritage buildings is not economically viable and demolition should be an option 'where demolition or protective works are needed to prevent injury or death' (p.4). The report highlights several barriers for owners: 'arbitrary' national building standard guidelines; lack of knowledge among owners of heritage buildings of the rules that apply to their building and where to get help; costs of investigations

prone heritage buildings] for me is manageable. If we had a thousand heritage buildings that were prone, that would be more problematic' (Fitzsimmons, 2016). Cassels agrees: 'Take Cuba St. The combined rateable value of the quake-prone heritage buildings on the street is not particularly high – perhaps \$80 million. That's not a big job. It's not a large part of the city, but it is a huge part of the city's character' (ibid.).

An underlying reason for protecting heritage buildings is that these buildings serve to give a city its unique character and also provide a sense of belonging and cultural identity. They also contribute to social well-being and the quality of life in increasingly cosmopolitan societies (Tweed and Sutherland, 2007). Cultural identity is difficult to measure in economic terms, but it needs to be considered in urban policy, especially in cities like Wellington where only a limited number of heritage buildings remain.

Many people in Wellington agree that heritage buildings have value, and have expressed to the council that they put a premium on the city's architectural history: 'Heritage advocates say that historic buildings and areas build a "sense of place" that can be powerfully useful even after a disaster' (Fitzsimmons, 2016). Heritage buildings also have economic value. In 2007 the estimated annual benefit from heritage buildings in Wellington was \$39 million, mostly due to tourism (ibid.). Of course, these benefits may not go to the owners of these buildings.

Kaur's (2015) review of motives for strengthening earthquake-prone buildings in New Zealand highlights that many citizens hold positive views towards strengthening. These include: feeling safer around strengthened buildings; protecting a part of history; and owners gaining a financial investment by strengthening their building. These positive views, in conjunction with the relevant legislation, are reflected in the ongoing reduction in the number of earthquake-prone buildings due to strengthening and demolition. Kaur suggests that a new norm of strengthening earthquake-prone buildings is emerging parallel to the legislation which is encouraging building

owners to strengthen their (heritage) buildings.

In addition, one outcome of the recent earthquakes is that public funding for strengthening heritage buildings has increased in Wellington and nationwide. For example, heritage building owners can apply for financial support from the Wellington City Council built heritage incentives fund (increased from \$400,000 to \$3 million) and the new government-funded Heritage Earthquake Upgrade Incentive Programme (Heritage EQUIP), which provides \$12 million over four years for heritage building upgrades throughout New Zealand. In the last year (2016), 26 building owners received funds

category 1 buildings in Wellington, but no articles have examined the status of this whole class of heritage buildings. To address this issue, we review data on current strengthening upgrades to category 1 buildings, to clarify progress on this important group. This specific issue has a bearing on broader questions that form the context for this work. Do the costs really outstrip the benefits of strengthening heritage buildings, as some suggest? Does the public in earthquake-prone Wellington need to accept demolition of heritage buildings in return for greater safety? Is the policy on this issue fair?

## A number of news articles have anecdotally referred to strengthening of individual category 1 buildings in Wellington, but no articles have examined the status of this whole class of heritage buildings.

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through the built heritage fund to strengthen their heritage buildings in Wellington. Of course, these subsidies do not cover the costs of strengthening all heritage buildings, or even a single expensive project, but they do constitute a financial incentive to strengthen, and they do add up over time.

### Progress despite regulations on heritage buildings

McRae, McClure and Henrich (2017) show that earthquake-prone buildings in general are continuously being removed from the Wellington City Council earthquake-prone buildings list, most often due to strengthening. In this article we examine whether, in spite of the costs of strengthening, there is significant progress on strengthening heritage buildings in Wellington. We focus here on category 1 heritage buildings because of their greater cultural importance. A number of news articles have anecdotally referred to strengthening of individual

### What do the data on heritage buildings show?

In July 2015 there were 22 category 1 listed heritage buildings that were classified earthquake-prone in Wellington. They range from large buildings, such as Saint Gerard's monastery – one of Wellington's iconic heritage buildings – to smaller building structures such as the Fort Ballance gun emplacements. Twelve of those buildings are privately owned and ten publicly owned (see Table 2). Using the Wellington City Council's earthquake-prone buildings list, newspaper articles and other sources, we assessed the current status and strengthening activities for these 22 buildings and classified each building into one of five categories:

- No plan yet: there are no specific plans to strengthen the building;
- Planned: plans to strengthen the building have been documented but there is no obvious commitment to proceed with this plan;

**Table 1: Number of Category 1 listed heritage buildings and their progress status**

Progress category	Number of Category 1 EQP buildings
No plan yet	5
Planned	5
Committed	3
Started	3
Finished	6

- Committed: building owners have committed themselves to strengthening the building/have received funds to start the building work/have commissioned planning;
- Started: strengthening work has started on the building but is not yet complete;
- Completed: the strengthening work was successfully completed (but the building may not yet have been removed from the list).

Second, we collected publicly available data from the council's earthquake-prone buildings lists at three points in time (July 2015, October 2016 and February 2017)

and calculated the reduction in the number of earthquake-prone buildings in each heritage building category (Table 3). We also obtained data on the allocation and uptake of the built heritage fund and reviewed whether category 1 heritage buildings were among the recipients.

The distribution of category 1 buildings across the five categories is shown in Table 1. Table 2 shows details of the category 1 buildings and their status. To the best of our knowledge the strengthening work for three of these buildings has been completed, but they have not yet been removed from the earthquake-prone buildings list (as of May 2017). This explains the discrepancy between the data from the city council earthquake-prone buildings list and the data in Table 1 showing the work in progress on category 1 heritage buildings.

The data in Tables 1 and 2 show significant progress on Wellington's category 1 heritage buildings. Furthermore, as shown in Table 3, steady progress has been made across all earthquake-prone heritage-listed buildings. Between

July 2015 and February 2017, 11 Wellington City Council heritage-listed buildings were removed from the list, reducing the total from 135 to 124. Two of these are Heritage New Zealand category 1 buildings (the Public Trust building and Buckle St Home of Compassion) and seven are Heritage New Zealand category 2 buildings. Table 3 displays only the number of heritage buildings that remain on the list and omits current strengthening work that will lead to removal from the list. Since 2012, 38 heritage buildings have been removed from the city council list due to strengthening or new engineering reports (Fitzsimmons, 2016).

These data show that there is steady progress on strengthening buildings, including category 1 and 2 heritage-listed buildings. We focus here on data for category 1 heritage buildings, but there is also progress for non-heritage buildings. Between July 2015 and February 2017 there was a total reduction of 74 buildings from the list, 63 of which were not heritage-listed buildings.

**Table 2: Detailed classification of progress on category 1 heritage buildings (further details in Appendix)**

Building	Ownership	No plans yet	Planned	Committed	Started	Finished
1. Wellington East Girls' College main block	Public				x	
2. Erskine College Chapel	Private		x			
3. St Mary's of the Angels	Private					x*
4. Turnbull House	Public			x		
5. Home of Compassion creche (BuckleSt)	Public					x
6. National War memorial bell tower	Public					x
7. Wellington Railway Station Building 003	Public				x	
8. St James Theatre	Public			x		
9. Albemarle Hotel (GhuzneeSt)	Private		x			
10. Harcourts Building	Private					x
11. St Gerards monastery and church	Private		x			
12. Rowing Club building (Taranaki St Wharf)	Private				x	
13. Karori Cemetery – Old Karori Chapel	Private					x
14. Elliot House (KentTce)	Private	x				
15. The Wellesley Club	Private	x				
16. Truby King mausoleum	Public	x				
17. State Opera House	Public		x			
18. Fort Ballance and Fort Gordon emplacements	Public	x				
19. Wellington Town Hall	Public			x		
20. St John's Church (WillisSt)	Private		x			
21. Red Cross Building	Private	x				
22. Public Trust Building	Private					x
<b>TOTAL</b>		<b>5</b>	<b>5</b>	<b>3</b>	<b>3</b>	<b>6</b>

\*Main building re-opened. The grounds and café are still to be completed.

This strengthening action is supported by the built heritage fund, to which building owners of heritage buildings can apply for financial assistance for the strengthening of their buildings. Between November 2014 and December 2016 about \$1.7 million was allocated to earthquake-prone heritage building owners in Wellington. Many category 1 earthquake-prone buildings have benefited from the fund: for example, Erskine College in Island Bay, the Albemarle Hotel in Ghuznee Street, St Mary of the Angels, and the Wellington Rowing Club on Taranaki Street wharf (Wellington City Council, 2016). It should be noted that the fund provides only some assistance and the larger portion of the cost is usually borne by the owner.

### Discussion

The data reported here show that despite the negative economic factors in strengthening earthquake-prone heritage buildings, many of the most significant heritage buildings (category 1) in Wellington have been strengthened or are being strengthened ahead of the legislated 15-year deadline. This is despite the fact that some of these buildings are the most difficult and costly buildings to deal with. For others, there are clear plans that are yet to be executed. For only five of the 22 are there as yet no plans in place to strengthen them. This suggests that at least for category 1 heritage buildings there is major progress towards securing their future in terms of earthquake risk. This challenges the argument that some heritage buildings should be demolished, although this argument was posed regarding heritage buildings generally and not category 1 buildings specifically. But the data in Table 3 show that significant progress in also being made with all categories of heritage buildings in Wellington.

In New Zealand overall there is also momentum. In Whanganui the focus is on strengthening the most treasured heritage buildings (Martin, 2016), while in Masterton policies favour strengthening buildings (heritage or non-heritage) that pose the greatest threat to life (Farmer, 2016).

The *Deadly Heritage* report does not distinguish between the different

**Table 3: Number of earthquake-prone heritage buildings on the Wellington City Council earthquake-prone buildings list from July 2015 to February 2017, by heritage category**

	Category 1	Category 2	Only WCC listed	WCC (includes Cat. 1 and 2)
July 2015	22	49	64	135
October 2016	20	45	63	127*
February 2017	20	42	62	124

\*128 if including Gordon Wilson flats that were added to the list in late 2015

categories of heritage buildings. It applies a blanket argument to all heritage buildings in terms of economic feasibility, but the cost of strengthening heritage buildings in different categories, and even within each category, is variable (for example, the high cost of strengthening St Mary of the Angels compared to the Fort Ballance gun emplacements). However, some of the most costly heritage projects are already completed (the Public Trust building, St Mary's), many with the support of taxpayers and donors. We note that even privately owned buildings such as St Mary's receive some financial support from local and central government funding (Devlin, 2017). Further, the *Deadly Heritage* report does not account for cultural, societal and tourism benefits of saving heritage buildings, whereas public policy and urban planning needs to consider such issues. The data shown here are consistent with the idea that a norm of strengthening buildings, especially heritage buildings, is emerging, as many of these buildings are being strengthened well before the 15-year deadline.

A key policy argument for demolishing earthquake-prone heritage buildings is that 'lives are literally at stake' (Krupp, 2016). However, with regard to the risk that earthquakes pose in New Zealand, the annual road toll is much higher than the death toll of even the most destructive recent earthquake in New Zealand (the February 2011 Canterbury earthquake) (Fitzsimmons, 2016). Since European settlement, the annual fatality rate due to earthquakes is only about three, and many of these deaths were due to newer buildings, not heritage buildings. The New Zealand Society for Earthquake Engineering states that 'the risks in occupying a building performing at 33% NBS equates with the risk of flying in a commercial aircraft or travelling 10,000 km or more by road per annum' (ibid.).

This risk comparison is no reason for complacency on this issue, but it does suggest that precipitous action to demolish heritage buildings is not justified by the annual fatality rate. No one is suggesting that cars should be banned due to the road toll.

Nonetheless, there are clear arguments for continuing to reduce the number of earthquake-prone heritage buildings. Several different policies can be applied to this task. One policy (supported by the data in this article) is to concentrate on the most precious heritage buildings (category 1) first. A second strategy is to concentrate first on buildings that are cheaper to strengthen, which may or may not include category 1 buildings. A third strategy may be to embrace opportunities when circumstances are favourable due to change of ownership or use. A fourth is to prioritise precincts, such as Cuba Street with its 18 earthquake-prone heritage buildings, which contribute significantly to the ambience of a town or city (Cann and Devlin, 2016). The data here show that there is major progress for Wellington's category 1 heritage buildings, which suggests that the council is supporting the first of these strategies. There may be a need to apply the other policies mentioned here to the lower priority heritage buildings.

### Conclusions

This analysis has certain limitations. Our more detailed data on heritage buildings in Table 2 applies to category 1 heritage buildings. The significant progress in this category may exceed that for other heritage buildings. However, the data for all classes of heritage buildings in Table 3 points to significant progress across all categories, as shown by the number of buildings being removed from the list.

In considering the issue of earthquake-prone heritage buildings, it is important

to consider that under current policies, significant progress is being made on heritage (and non-heritage) buildings. At the current rate of strengthening buildings (approximately 50 buildings come off the Wellington City Council earthquake-prone buildings list each year), it would take 13 years to strengthen all earthquake-prone buildings in Wellington and 15 years to finish all listed heritage buildings.

Further, for the most valuable heritage buildings (i.e. category 1), many of which are also the most difficult or expensive to strengthen, there is major progress already, with plans or action underway on at least 17 of the 22 category 1 buildings. It is important to continue to apply policy that extends the momentum of these building upgrades, at a time when many citizens, the council and (some) owners of

heritage buildings are prepared to support work to save their heritage for the future. Policy arguments for precipitous actions to demolish heritage buildings are not supported by data on the risk from earthquake-prone heritage buildings compared to the risk from other hazards.

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# Appendix

- 1 **Wellington East Girls' College main block (started, whole school upgrade to be completed in 2019)**  
<http://www.stuff.co.nz/dominion-post/news/74187289/Wellington-East-Girls-College-will-rebuild-its-heart-thanks-to-39m-upgrade>  
<http://www.stuff.co.nz/national/education/68629841/wellington-schools-earthquake-strengthening-ahead-of-the-game>
- 2 **Erskine College chapel (planned, not committed)**  
<http://www.stuff.co.nz/manawatu-standard/business/83055440/Chapel-restored-as-plans-for-30m-Island-Bay-housing-project-at-heritage-site-unveiled>  
<http://cathnews.co.nz/2016/08/23/last-chance-to-save-derelict-erskine-chapel/> <http://www.thewellingtoncompany.co.nz/news/media-releases/erskine-chapel/>  
<http://www.erskine.nz/>
- 3 **St Mary of the Angels (main building finished)**  
<http://www.stuff.co.nz/national/91522378/wellingtons-st-mary-of-angels-church-reopens-after-95m-quake-strengthening>  
<http://www.stuff.co.nz/dominion-post/news/75691597/Wellingtons-St-Mary-of-the-Angels-Church-refit-could-show-Christchurch-the-way>
- 4 **Turnbull House (committed work will probably begin in 2017)**  
<https://historicplaceswellington.org/advocacy/turnbull-house/>  
<http://www.doc.govt.nz/news/media-releases/2012/historic-turnbull-house-to-close-pending-earthquake-strengthening/>
- 5 **Home of Compassion creche (Buckle St) (finished)**  
<http://www.wilsonbuildingwgtm.co.nz/commercial/heritage-strengthening>
- 6 **National War Memorial bell tower (finished)**  
<http://www.mch.govt.nz/pukeahu/park/national-war-memorial/carillon>
- 7 **Wellington Railway Station building 003 (started, phase 1 complete, phase 2 underway)**  
<http://www.xigo.co.nz/historic-building-gets-a-seismic-makeover/#more-2211>  
<http://www.kiwirail.co.nz/projects/major-projects/wrs-earthquake-resilience-work.html>
- 8 **St James Theatre (committed, designs finished 2016, works planned to start 2018)**  
<https://www.gets.govt.nz/WCC/ExternalTenderDetails.htm?id=17606426>  
<http://www.stuff.co.nz/entertainment/stage-and-theatre/89513910/earthquake-strengthening-set-to-close-wellingtons-st-james-theatre-for-a-year>
- 9 **Albemarle Hotel (Ghuznee St) (planned)**  
<http://wellington.govt.nz/your-council/news/2016/03/council-helps-preserve-the-past-and-secure-the-future>  
<http://wellington.govt.nz/services/community-and-culture/funding/council-funds/built-heritage-incentive-fund/bhif-funded-projects/albemarle-hotel---59-ghuznee-street>  
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- 10 **Harcourts Building (finished)**  
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<http://www.radionz.co.nz/news/national/260109/harcourts-building-to-be-restored>
- 11 **St Gerard's monastery and church (planned)**  
<http://www.stuff.co.nz/dominion-post/comment/77839971/goodwill-key-to-st-gerards-future>  
<http://www.stuff.co.nz/dominion-post/news/83134627/12m-heritage-funding-boost-could-help-wellington-monastery-and-cinema>  
<http://www.stuff.co.nz/dominion-post/news/76803719/Neighbours-fear-iconic-views-of-St-Gerards-could-be-blocked-by-apartments>  
<http://www.stuff.co.nz/dominion-post/news/71339872/Landmark-Wellington-monastery-may-escape-10-million-quake-bill>
- 12 **Rowing Club building (Taranaki St wharf) (started)**  
<http://wellington.govt.nz/services/community-and-culture/funding/council-funds/built-heritage-incentive-fund/bhif-funded-projects/wellington-rowing-club-and-star-boating-club>
- 13 **Karori Cemetery – Old Karori Chapel and crematorium (finished)**  
<http://wellington.govt.nz/your-council/projects/earthquake-strengthening-projects/karori-cemetery-buildings-earthquake-strengthening-and-cremator-renewal>
- 14 **Elliot House (Kent Tce) (no evidence of any plans yet)**
- 15 **The Wellesley Club (no plans yet)**  
<http://www.stuff.co.nz/dominion-post/business/commercial-property/10013188/Business-as-usual-for-cbd-boutique-hotel-as-club-moves-out>  
<http://www.stuff.co.nz/dominion-post/business/commercial-property/9182425/Wellesley-Club-faces-loss-of-heritage>
- 16 **Truby King mausoleum (no evidence of plans yet)**  
<http://wellington.govt.nz/services/rates-and-property/earthquake-prone-buildings/improving-earthquake-resilience/council-properties>
- 17 **State Opera House (planned)**  
'The council has included a contingency in the 2012 to 2022 Long Term Plan for the strengthening of the Opera House', <http://www.stuff.co.nz/dominion-post/news/local-papers/the-wellingtonian/7800357/Opera-House-may-close>  
<http://www.stuff.co.nz/dominion-post/news/67703694/quake-costs-put-squeeze-on-building-owners>
- 18 **Fort Ballance and Fort Gordon gun emplacements (no evidence of any plans yet)**
- 19 **Wellington Town Hall (committed)**  
<http://wellington.govt.nz/your-council/projects/earthquake-strengthening-projects/town-hall-strengthening/about-the-project>
- 20 **St John's Church (Willis St) (planned)**  
<http://www.stjohnsinthecity.org.nz/about/complex.htm>
- 21 **Red Cross building (corner Willis St and Ghuznee St) (no evidence of any plans yet)**
- 22 **Public Trust Office Building (finished)**  
<http://www.stuff.co.nz/business/73279197/wellingtons-old-public-trust-building-restoration-complete>