

Earthquake strengthening targets

While general information about earthquake strengthening is available to the NZHPT, less information is obtainable that indicates the actual level of earthquake strengthening in terms of percentage of New Building Standard (NBS). This is because the bulk of the strengthening-related information within the NZHPT's building files is limited to 'concept plans' for consultative purposes only and does not often include detailed engineering drawings. Despite this limitation, some information about targets was obtained from the NZHPT archive and with the assistance of Jason Ingham, Lisa Moon and Michael Griffith.

Earthquake Strengthening Targets/Level, 100 heritage buildings, Christchurch			
Above 67%NBS	33-67% NBS	Less than 33%NBS	Unknown
8	11	7	74

As indicated in the table, for 74 of the 100 heritage buildings the level of earthquake strengthening is largely unknown. The NZHPT however suspects, on the basis of research for this report, a large number of the severely damaged 'unknown' buildings would be likely to have a strengthening level of below 33%NBS.

The eleven buildings considered to have a strength of 33-67% NBS include the Theatre Royal (Isaac Theatre Royal), Christ's College, Arts Centre of Christchurch, Old Government Buildings (Heritage Hotel), Nurses Memorial Chapel and the Antigua Boatsheds. It is worth noting that nearly all of these buildings have received some financial assistance for strengthening work from bodies such as the Christchurch City Council, NZHPT or NZ Lotteries Grant Board.

Eight buildings have been identified in the research as being above 67% NBS prior to September 2010. These buildings are:

- Lyttelton Times Building
- Canterbury Times & Star Building.
- Regent Theatre.
- Whitcoulls Building.
- Christchurch Cathedral.
- Former Magistrates Court (Family Court).
- Cashfields.
- Former Canterbury Society of Arts (Environment Court).

In addition, the research for this report suggests that recently strengthened buildings of Christ's College, Arts Centre and parts of Canterbury Museum (including McDougall Art Gallery) would potentially be in excess of 67%NBS. Further, other potential buildings above 67% NBS would include St Luke's Vicarage, the Canterbury Club, St Luke's Chapel and the Fleming and McKellar Houses.

It would be expected that buildings strengthened above 67% NBS would have a greater chance of survival. But of the eight identified, only 1 building survived with minimal damage (the Former

Canterbury Society of Arts, Environment Court building). This statistic, however, should be viewed with caution due to the high number of buildings with unknown strengthening targets.

Building condition

Generally, it has been considered that well-maintained buildings have a better chance of surviving an earthquake than poorly maintained buildings. In 1987, Bernard Feilden commented that ‘observation shows that well-maintained buildings survive much better than those that are poorly maintained. Indeed it has been estimated that some 50 percent of the damage that occurs in an earthquake may be attributed to lack of proper maintenance’.³⁹ However, in the context of Feilden’s observation, ‘maintenance’ means taking action on structural decay and weaknesses (for example repairs to foundations) rather than simply painting a building.

Maintenance in New Zealand generally means repair work involving comparable materials or replacement with a comparable component excluding any structural work. The most common types of maintenance work includes:

- Cleaning.
- Painting.
- Repair and replacement of decayed or damaged fabric.
- Re-pointing, patching and sealing exterior masonry and timber.
- Roof repairs.
- Repairs to spouting, internal gutters, downpipes and wastewater.

As part of the research for this report, the status of building condition has been identified prior to the September 2010 earthquake. The condition of the buildings have been assessed using four categories:

1. Poor condition – Buildings known to the NZHPT that have physically deteriorated as a result of lack of maintenance and repair.
2. Fair condition – Buildings known to the NZHPT in variable condition with some evidence of irregular maintenance and repair work.
3. Good condition – Buildings known to the NZHPT in good condition having evidence of regular maintenance and repair work.
4. Insufficient information. Buildings where the condition is not known by the NZHPT.

As indicated in the Figure 11, the research indicates that the majority of heritage buildings (71%) were subject to regular repair and maintenance and were in good condition.

³⁹ Sir Bernard M. Feilden, *Between Two Earthquakes, Cultural Property in Seismic Zones*, ICCROM and the Getty Conservation Institute, 1987, p 32

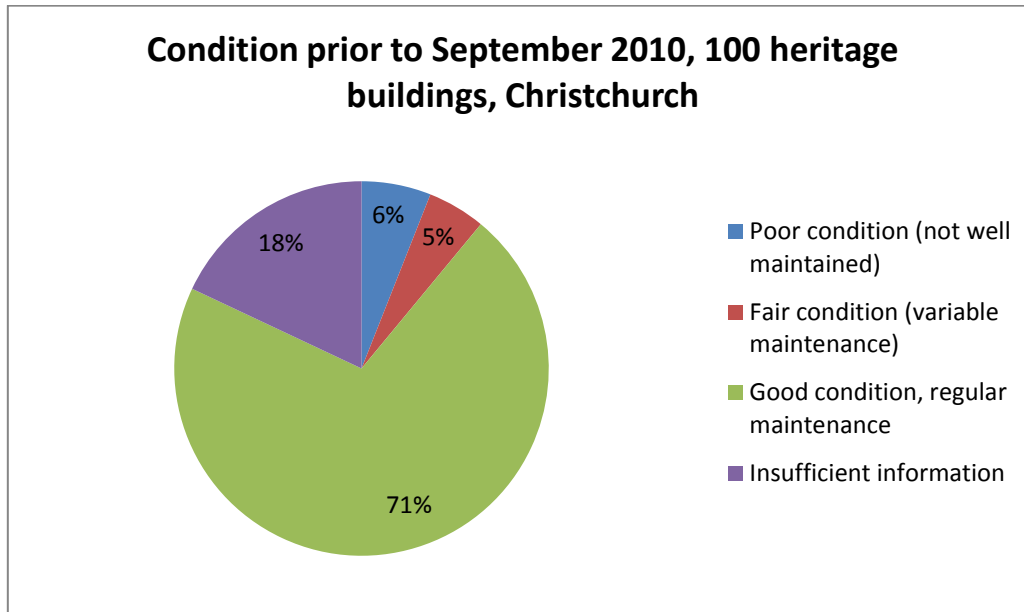
**Figure 11**

Figure 12 indicates that many of the heritage buildings which were in good condition sustained only minimal or moderate damage in the Darfield earthquake and associated aftershocks. This outcome changed dramatically after 22 February 2011 with major/severe damage and collapse of buildings that were in good condition (Figure 13).

Clearly condition, while an influencing survival factor, cannot be viewed in isolation. Figure 14 examines the relationship between condition, earthquake strengthening and damage from the January-June 2011 earthquakes. As indicated in Figure 14 even a number of buildings that were strengthened and were in good condition still sustained moderate and severe damage. However, the highest number of buildings that suffered only minimal damage were in good condition and were strengthened.

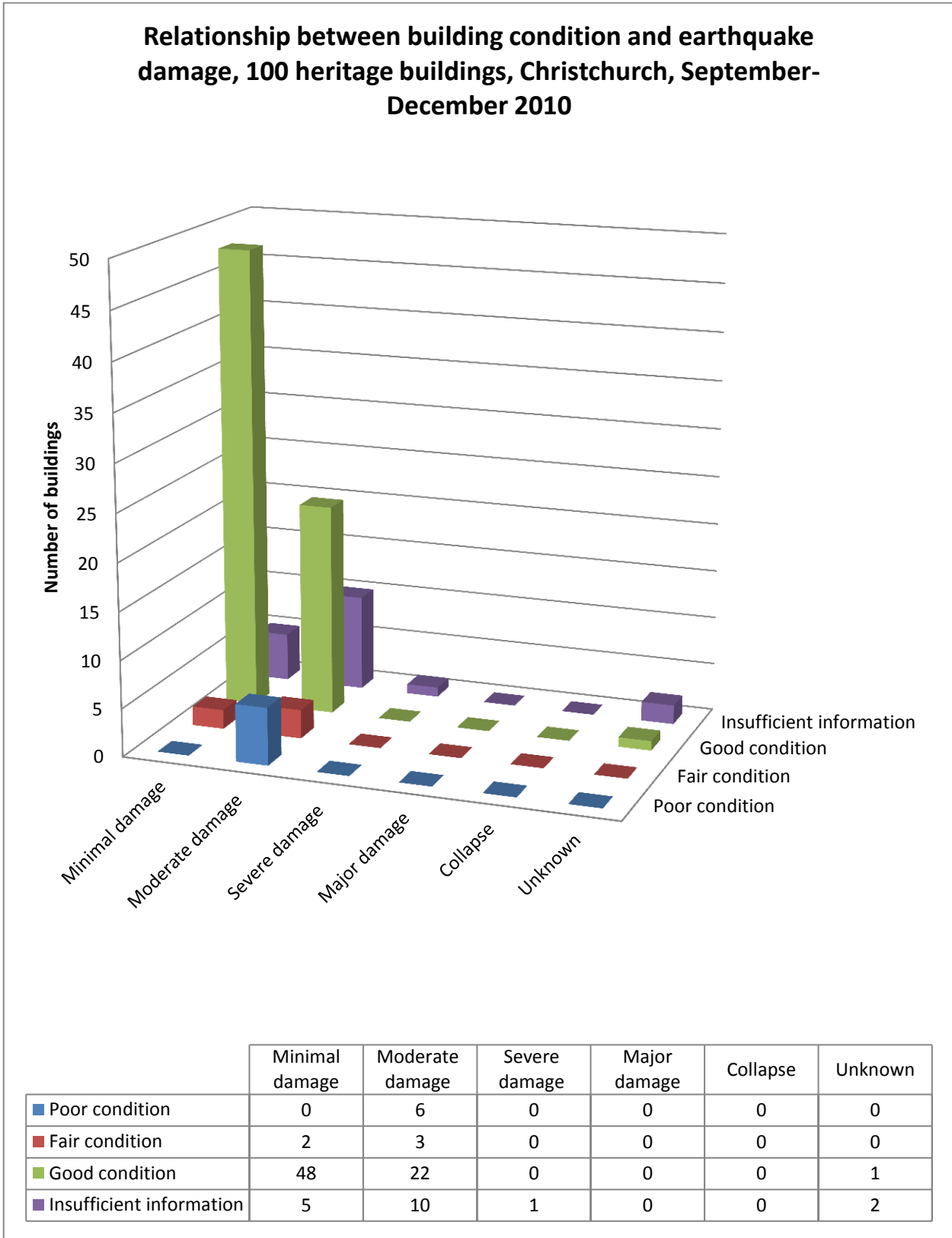


Figure 12

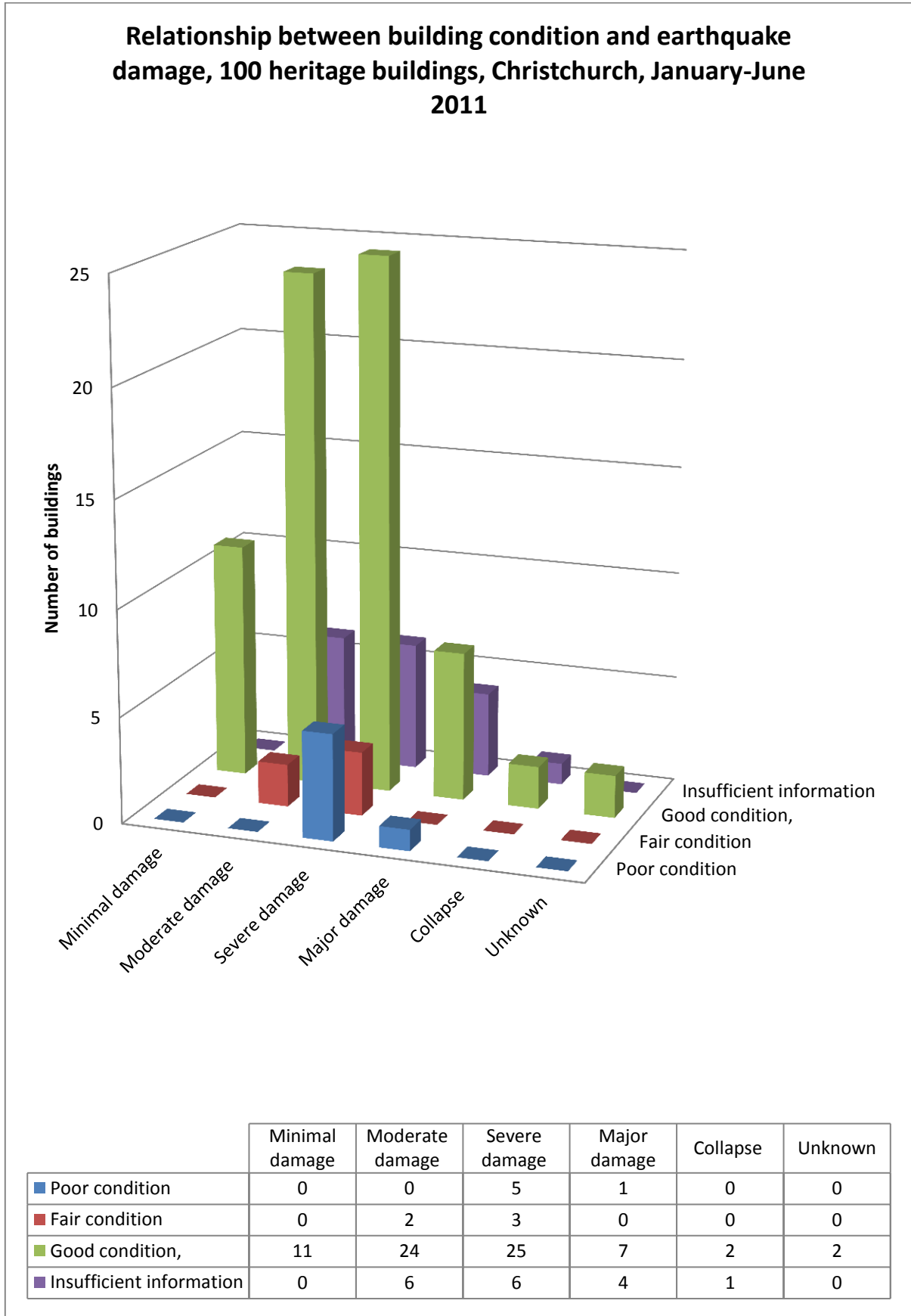


Figure 13

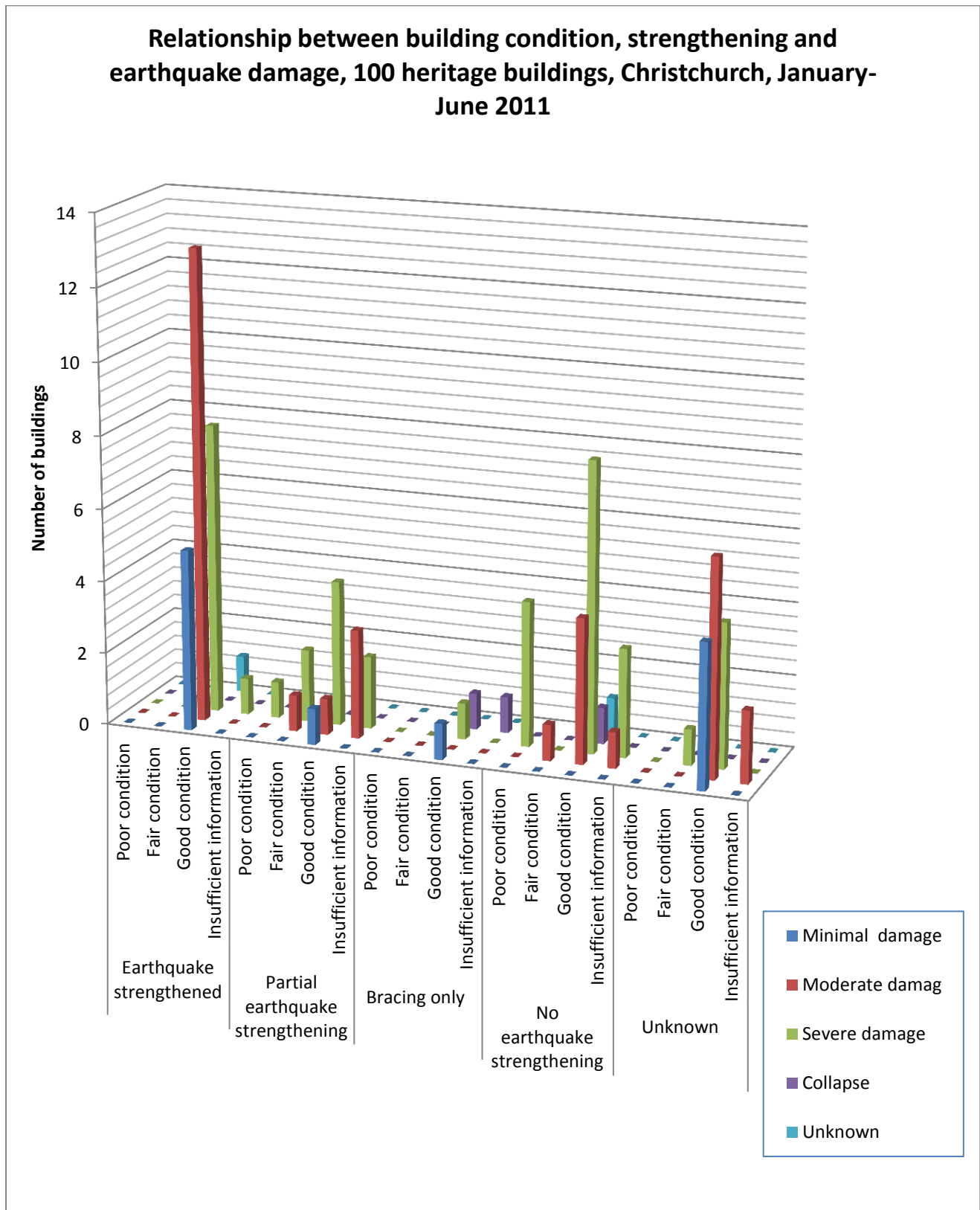


Figure 14

Heritage Buildings Summary Information

Methodist Church

Corner Durham Street & Chester Street West
 1864
 Crouch & Wilson Architects
 Registered Category I historic place
 Listed Group 1
 Private ownership



Significance: The Durham Street Methodist Church opened on Christmas Day 1864. Built of stone it was the first church to be erected in permanent materials on the Canterbury Plains and was Gothic Revival in style. It was designed by the Melbourne architectural firm, Crouch and Wilson, who won the 1863 competition for the design of the new church. The church was a significant example of early ecclesiastical architecture in Christchurch.

Construction: Stone (URM)

EQP assessment prior to September 2010 (CCC, 2009): Potentially Earthquake Prone

Condition prior to September 2010: Good

Strengthening history: While historical bracing and ties of walls, floor and roofs was observed following earthquake damage,⁴⁰ there is no record of strengthening works on the NZHPT's file. Alterations occurred in 1986 and 1994, including fire safety work.

Level of Damage: September-December 2010: Moderate-severe damage.

January-June 2011: Collapse.

NZHPT post-earthquake response: On 28 September 2010, the NZHPT supported Engineer's recommendations that the site be made safe by removing gable stonework, strapping of towers and construction of supporting frame with recording of deconstruction. Later on 15 February 2011, the NZHPT recommended to Christchurch City Council that all risks of collapse should be addressed. After the 22 February 2011 earthquake, the NZHPT did not oppose demolition as the building had collapsed.

Current status: Demolished

⁴⁰ Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

Press Building

32 Cathedral Square

1903

Armson, Collins and Harman Architects

Registered Category I historic place

Listed Group 1

Private ownership



Significance: The Press Building (1903) was a distinctive feature of Cathedral Square and, in conjunction with the Lyttelton Times building, illustrates the history of the two main Canterbury newspapers. The Press Building was a noted example of the work of Armson, Collins and Harman in the ‘Perpendicular Gothic style’ and was technically important as one of the earliest reinforced concrete buildings in Christchurch.

Construction: Reinforced concrete

EQP assessment prior to September 2010 (CCC, 2009): Potentially Earthquake Prone.

Condition prior to September 2010: Unknown

Strengthening history: A conservation plan was prepared for the Press Building in October 2009 by Heritage Management Services and Fulton Ross Team Architecture.⁴¹ The conservation plan states that the first internal alterations were carried out in 1929 with further interior fit-outs and alterations through the 1970s to the late 1990s. The conservation plan further says that ‘in the interests of earthquake safety’, the top of the parapet detail and finials were removed in the late 1960 noting that ‘this was a fate that befell many of the inner-City buildings of the late Victorian early Edwardian period.’⁴²

No major earthquake strengthening work was undertaken on the building is indicated in the conservation plan or to the knowledge of the NZHPT.

Level of Damage: September-December 2010: Moderate damage (damage to corner tower).

January-June 2011: Major damage (collapse of top floor, damage to façade).

NZHPT post-earthquake response: The NZHPT did not oppose the demolition of the building following the 22 February 2011 earthquake based on engineer reports.

Current status: Demolished

⁴¹ Heritage Management Services and Fulton Ross Team Architecture, *Conservation Plan The Press Building, 32 Cathedral Square Christchurch*, October 2009

⁴² *ibid*, p 34

St Paul's-Trinity-Pacific Church

(Presbyterian) Corner Cashel & Madras Streets
1877
Samuel Farr Architect
Registered Category I historic place
Listed Group 1
Private ownership



Significance: St Paul's-Trinity-Pacific Presbyterian Church was significant as a church particularly well suited to the Presbyterian way of worship, with excellent acoustics. Built of brick and then plastered to resemble stone, the church was designed by Samuel Charles Farr. It was a distinctive example of ecclesiastical architecture in a city renown for its Gothic Revival buildings.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially Earthquake Prone
Condition prior to September 2010: Poor with fire damage (but repairs and conservation work under action)

Strengthening history: A condition report was prepared in December 2006 which noted that the church has 'remained relatively unchanged since it was constructed.'⁴³ However, the condition report did state that the building had suffered from lack of maintenance over the years with defects to roof and walls. Also that the 'swampy nature of the land and the high water table combined with the weight of the building has caused some slumping and cracking has appeared – notably on the western façade.'⁴⁴ Further, the condition report found that the building has been identified as earthquake-prone under section 122 of the Building Act 2004 and a structural assessment had been prepared by Holmes Consulting Ltd.

In 2008, the NZHPT supported a NZ Lotteries Board application for funding assistance to undertake structural strengthening and conservation work in five stages. This work had yet to begin when a fire damaged the building in August 2009. Structural strengthening work and fire/earthquake damage repairs were in progress before and after the September 2010 earthquake. The building, however, was severely damaged by the February 2011 earthquake and was demolished.

Level of Damage: September-December 2010: Moderate-severe damage.

January-June 2011: Major damage (dome, roof and wall collapse).

NZHPT post-earthquake response: The NZHPT did not oppose the demolition of the building following the 22 February 2011 earthquake due to severity of damage.

Current status: Demolished

⁴³ Dave Pearson, *St Paul's Trinity Pacific Church, Christchurch, A Condition Report and Assessment of Cultural Heritage Values*, December 2006, p 12

⁴⁴ *ibid*, p 14

Church of St Luke the Evangelist

Corner Manchester and Kilmore Streets
 1909
 Mountfort Architect
 Registered Category I historic place
 Listed Group 1
 Private ownership



Significance: The Church of St Luke the Evangelist was situated on one of the original five church reserves set aside in the plans of the Canterbury Association for the town of Christchurch. The church was designed by Julian Cyril Mountfort (1852- 1920) and completed in 1909. It was a competent example of early English Gothic Revival church of substantial scale. The construction method of a brick lining and stone facing was of note, which was complimented by an extensive use of Oamaru stone dressings and a high roof structure.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially Earthquake Prone

Condition prior to September 2010: Good

Strengthening history: In 2001, the NZHPT supported a NZ Lotteries Board application for funding assistance for the preparation of a conservation and structural report. The NZ Lotteries Board application stated that the structural report was 'suggested by one of the architects quoting for the conservation report. St Luke's is a large building and may well require strengthening to ensure that it is earthquake-proof, particularly because of its similarity to the earlier Napier Cathedral. Further, it is important for us to know that it is structurally sound or what is required to make it so.'

Powell Fenwick Consultants Ltd prepared a seismic assessment report in January 2003. The consultant's considered that the church had a 'resistance of about 25% of the current loading code's elastic response. But it would still suffer significant damage in a major earthquake. The risk to life would be mitigated because of the short time that the church is occupied. It would be a major undertaking and cost to strengthen this building to resist a major earthquake.'⁴⁵ The consultant recommended:

1. The church is not deemed to be earthquake-prone under the current legislation and therefore does not legally need to be strengthened.
2. The legal requirements for strengthening may increase in the future.

⁴⁵ Powell, Fenwick Consultants Ltd, 'St Lukes Church, Corner Kilmore & Manchester Streets, Christchurch', 20 January 2003

3. It is your decision whether you proceed with any significant strengthening work, to mitigate seismic building damage and the risk to people.
4. As the church has a low occupancy, the risk to people is less than normal similar buildings.

No strengthening work was carried out following the 2003 seismic assessment report.

The seismic assessment report was revised by the consultants in September 2008 following the preparation of a conservation plan in 2003 (which was revised in 2006).⁴⁶ In the 2008 report, it was stated that 'the building in its current state has a global strength in the longitudinal (E/W) direction of 43%NBS. The global strength in the transverse (N/S) direction is 25%NBS.' The consultant recommended short term work be undertaken to tie the gables back to the main structure to prevent any further damage to the building. In the medium term, the consultants suggested two options – strengthening to the legal requirement of 34%NBS and another to strengthen the building to 67%NBS.

In 2008-2009, planning for some repair and strengthening work was in progress in association with roof conservation works. This work focused on repairs to the cracked gables, involving reconstruction of stone work and the installation of new M16 threaded tie rods to brace the gables (Dave Pearson Architects Ltd, Nov 2008 drawings). This work was consented and completed by mid-2009.

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Major damage (partial collapse, cracking and liquefaction).

NZHPT post-earthquake response: On 5 May 2011, the NZHPT did not oppose demolition following an assessment by the NZHPT's engineer and due to severity of damage.

Current status: Demolished

⁴⁶ Dave Pearson Architects Ltd, *St Luke the Evangelist Christchurch, A Conservation Plan & Condition Assessment*, Revised 2006

Church of St John the Baptist

Corner Latimer Square and Madras Street (234 Hereford Street)
 1864-5
 Bury Architect
 Registered Category I historic place
 Listed Group 1
 Private ownership



Significance: St John the Baptist Church was the first stone church to be built for the Anglican community in Christchurch. The church was designed by Maxwell Bury (1825-1912), an architect who arrived in Lyttelton in 1854 and who was also responsible for the Nelson Provincial Council Chambers. The church was gothic revival in style and built of stone and was distinguished by a squat Norman tower and polygonal chancel. The Church stood as a reminder of the detailed planning of the Canterbury Association and of their desire to establish a wholly Anglican settlement in NZ.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially Earthquake Prone

Condition prior to September 2010: Unknown

Strengthening history: No record of earthquake strengthening work to the knowledge of the NZHPT.

Level of Damage: September-December 2010: Moderate-severe damage.

January-June 2011: Major damage (collapse of bell tower, partial wall collapse, cracking).

NZHPT post-earthquake response: Following September-December 2010 earthquakes, the NZHPT recommended the site be made safe to allow time for a comprehensive engineering review to be undertaken and future options for the building to be considered. Later in April 2011, the NZHPT did not oppose demolition on engineering advice.

Current status: Demolished

Cranmer Centre (Former Christchurch Girls' High School)

40 Armagh Street
 1881 Original School Building (Armson Architect)
 1908 Armagh Street wing (Collins and Harman Architects)
 1913 Montreal Street wing (JG Collins Architects)
 1962 Assembly Hall (Collins and Harman Architects)
 Registered Category I historic place
 Listed Group 2
 Private ownership



Significance: Known today as the Cranmer Centre, the two-storey brick building on the corner of Armagh Street and Montreal, was built to house Christchurch Girls' High School. Architecturally the Cranmer Centre was significant as an example of the work of notable architect W.B. Armson and as a fine example of Victorian school architecture in a Venetian Gothic style. Historically the building is identified with the development of women's education in New Zealand. It housed, for over one hundred years, the first public girls' school in Christchurch. Since the 2000s, Cranmer Centre has been part of Christ's College.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially Earthquake Prone

Condition prior to September 2010: Good

Strengthening history: The school was vacated in 1986 and was leased for a period by the Arts Centre Trust. In 2001 ownership passed to Ngai Tahu Property Group and then later Quadrangle Holdings Ltd. At this time a structural report was prepared by Holmes Consulting Group which recommended strengthening including the installation of steel angle braces within the roof spaces, the timber plywood diaphragms over tongue and groove floors to provide shear elements, the replacement of lath and plaster ceilings with plywood and the construction of concrete shear walls to a number of internal walls and the inside face of various exterior walls.⁴⁷

The conservation plan of 2002 also highlighted the need for strengthening by noting a number of cracks to the exterior and interior of the building. However, the conservation plan commented about the design of the proposed strengthening and the potential impact of earthquake strengthening on the historic fabric of the building, especially the installation of concrete shear walls and concealment of the floors. The conservation plan did not include specific policies relating to earthquake strengthening. Despite the structural report, no earthquake strengthening work was undertaken on the building to the knowledge of the NZHPT.

⁴⁷ Dave Pearson Architects Ltd, *The Cranmer Centre (Formerly Christchurch Girl's High School Christchurch), A Conservation Plan*, October 2002

The building was damaged in the September 2010 earthquake. Repairs and strengthening were proposed in November 2010 to improve structural performance to 67%NBS. Severe damage occurred following the February 2011 earthquake while earthquake strengthening work was underway.

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Severe damage (partial collapse, major cracking).

NZHPT post-earthquake response: In April 2011, the NZHPT did not oppose demolition of the building after an assessment by NZHPT's engineer due to severity of damage. Architectural and historical features retrieved.

Current status: Demolished

A. J. White's Department Store, McKenzie and Willis Ltd (Former)

236 Tuam Street
1879
Simpson Architect
Registered Category I historic place
Listed Group 2
Private ownership



Significance: This store was built for A. J. White who arrived in Canterbury in 1861 and established a prosperous business as a furniture and furnishing retailer. Built in 1879, this red brick building was designed by the architect Alfred William Simpson, who also designed a number of other commercial buildings in Christchurch. The building continued to be used as a furniture shop and was owned by McKenzie and Willis. It was significant because of its unusually fine Venetian Gothic façade with facings of Oamaru stone and Bluestone. Alongside White's other former stores it formed a noteworthy part of the cityscape.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially Earthquake Prone

Condition prior to September 2010: Unknown

Strengthening history: In 1998 rear alterations and an addition to extend the furniture showroom were built. There were further alterations to the building during mid- 2000. No record of earthquake strengthening work to the knowledge of the NZHPT.

The building was damaged in September 2010, but was considered to be repairable (staff were still operating within the building after the September 2010 earthquake). Severe damage occurred following February 2011 earthquakes.

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Major damage (partial collapse).

NZHPT post-earthquake response: The NZHPT did not provide comment since the building was demolished after the 22 February 2011 earthquake under emergency provisions.

Current status: Demolished

Lyttelton Times Building

Cathedral Square
1902
Luttrell Brothers Architects
Registered Category I historic place
Listed Group 2
Private ownership



Significance: The Lyttelton Times building formed part of a significant group of heritage buildings fronting Christchurch's Cathedral Square, which were built around the turn of the nineteenth century at a time of economic growth. Its primary significance was its architectural merit, as the first building to introduce elements of the Chicago skyscraper style to New Zealand. The newspaper began in Lyttelton in 1851 and moved to Christchurch in 1863 where it first occupied a small cottage on Gloucester Street and then a two-storey timber building that fronted onto Cathedral Square. Internally, the building was substantially modified in the 1930s to accommodate new rotary presses and some strengthening work occurred at this time.⁴⁸

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially Earthquake Prone
Condition prior to September 2010: Good

Strengthening history: The building was threatened by demolition in 1994 and was registered by the NZHPT at this time (interim registration issued by the NZHPT to stop demolition of the Lyttelton Times Building and the Savoy Theatre in September 1994). A revised proposal for demolition was put forward in 1996 involving the Lyttelton Times Building, Warners Hotel and the Old Star Building. The proposed demolition was contested at the Council hearing and Environment Court in 1999. The Environment Court received expert engineering evidence about the structural performance and feasibility of strengthening of the buildings.⁴⁹ The Court commented that 'in Christchurch the risk of a major earthquake is real and if the Council wishes to impose seismic strengthening on a building owner it needs to offer it the alternative of demolition' (page 14). The Court allowed the demolition of the Lyttelton Times, Old Star Building and Warners Hotel six months from the date of the decision. Only the Gloucester façade of the Old Star building was to be retained. Despite the Environment Court decision, the Lyttelton Times building and Old Star Building were saved as a result of a purchase by the Christchurch Heritage Trust for \$1.35 million in 2001. The Council made a contribution of \$250,000 towards the purchase. The Warner's façade was also preserved as a consequence of negotiations following the Environment Court decision. Following purchase, the Christchurch Heritage Trust undertook to convert the building into backpacker's accommodation and applied to the NZ Lotteries Board for financial assistance to undertake earthquake strengthening with work involving steel bracing to external and internal

⁴⁸ Heritage Team, City Solutions, Christchurch City Council, *Lyttelton Times/Star, A Conservation Report*, 2001

⁴⁹ AA McFarlane Family Trust v Christchurch City Council, C46/99

walls, upper floor diaphragm strengthening and parapet strengthening. Specific strengthening targets were not identified in the NZHPT file.⁵⁰ Following successful restoration and change of use, the buildings were sold by the Christchurch Heritage Trust in 2003.

Level of Damage: September-December 2010: Moderate damage involved loss of parapet and chimneys. Following the September 2010 earthquake, repair work was undertaken and the backpacker accommodation reopened in October 2010.

January-June 2011: Severe damage (parapet collapse and cracking).

NZHPT post-earthquake response: While initial NZHPT comment promoted repair and making safe, by June 2011, damage had become severe and the NZHPT did not oppose demolition.

Current status: Demolished

⁵⁰ Research following the earthquakes, estimates that the building was strengthened to >67%NBS Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

Guthrey Centre (former Bell's Arcade)

126 Cashel Street
1881
Armson Architect
Registered Category I historic place
Listed Group 1
Private ownership



Significance: This building was originally erected to house shops and offices for John Anderson (1820-1897), whose iron foundry was situated at the rear. Anderson arrived on one of the first four ships, served as the city's mayor and his foundry firm constructed many bridges in the 1870s. The three storey façade of this building by architect WB Armson was a fine example of the Venetian Renaissance style.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially Earthquake Prone

Condition prior to September 2010: Unknown

Strengthening history: Strengthening of ground floor was observed following earthquake damage.

Level of Damage: September-December 2010: Moderate damage (chimney damage and parapets removed)
January-June 2011: Severe damage (partial collapse to parapets upper level and rear wall, cracking).

NZHPT post-earthquake response: The NZHPT recommended façade retention and funding was approved from the Canterbury Earthquake Heritage Building Fund. However, the owner was concerned about liability issues and the building was demolished with no retrieval of heritage features.

Current status: Demolished

Music Centre of Christchurch

(Sisters of our Lady of the Missions Chapel and Convent)

Barbadoes Street

1877-1907

Petre and Munnings Architects

Registered Category I (chapel) and Category II (former convent) historic place

Listed Group 1

Private ownership



Significance: The chapel was believed to be the only fully realised Byzantine Revival church in New Zealand and therefore had considerable architectural significance. Its design also launched Munnings' successful international career as an architect. The Convent and Chapel along with the Cathedral of the Blessed Sacrament formed an important element of the streetscape. This complex was an important part of the history of the Roman Catholic Church in New Zealand and served as a reminder of the role the church played in education. The chapel and convent were converted to a music centre which was a success.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially Earthquake Prone

Condition prior to September 2010: Good

Strengthening history: The former chapel and convent was proposed for demolition in 1991 by the Sisters of our Lady of the Missions due to the financial cost of maintaining the building, including cost of earthquake strengthening. The cost of earthquake strengthening at the time was estimated at \$461,300. Council intervened with a heritage order to save the building and an agreement was reached between the Council and the Mission Sisters to convert the building into a community music centre. By 1994, the upgrade and earthquake strengthening was completed at a cost of \$930,000. The strengthening work involved nailing 18mm plywood to the stairs and floors and the screwing of metal ties to the plywood and bolted to the brick walls to tie the structure

together. The chapel was strengthened by the pouring concrete between the inner and outer brick walls.⁵¹

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Severe damage (collapse of gables and parapets with major cracking).

July 2011-January 2012: Severe damage (further partial collapse).

NZHPT post-earthquake response: The NZHPT did not oppose demolition based on engineering advice.

Current status: Demolished, January 2012.

⁵¹ Robyn Burgess, *Conservation Plan Former Convent and Chapel Buildings*, Opus International Consultants Ltd , 2006

Oxford Terrace Baptist Church

288 Oxford Terrace
1882
Saunders Architect
Registered Category II historic place
Listed Group 1
Private ownership



Significance: The Oxford Terrace Baptist Church had historical and social significance as Christchurch's main Baptist church and a centre of Baptist community life in the city since its construction in 1882. The Church was one of the best remaining examples of neo-classical architecture in the city, by little-known Christchurch architect Edward Saunders.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially Earthquake Prone

Condition prior to September 2010: Good

Strengthening history: No earthquake strengthening undertaken on the building to the knowledge of the NZHPT.

The building was damaged by the September-December 2010 earthquakes and was in the process of being secured. The building suffered severe damage and collapse following the February 2011 earthquake and was demolished.

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Collapse.

NZHPT post-earthquake response: As the building had collapsed there was no opportunity for NZHPT input.

Current status: Demolished

ANZ Bank (former)

188 High Street
 1908-12
 Clarkson & Ballantyne Architects
 Registered Category II historic place
 Listed Group 2
 Private ownership



Significance: The former ANZ Bank building was significant as an Edwardian commercial building designed by well-known Christchurch architects Clarkson and Ballantyne. The building became an instant landmark within the city due to the domed tower which dominated the corner site. The former ANZ Bank building, with its decorative classical facades, reflected the economic optimism of the city in the early 20th century.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially Earthquake Prone

Condition prior to September 2010: Unknown

Strengthening history: The former ANZ Bank building had been converted into apartments during the early 2000s and had a high degree of interior modification. The extent of earthquake strengthening undertaken on the building is not known by the NZHPT.

Historical bracing and ties of walls, floor and roofs was observed following earthquake damage.⁵²

Level of Damage: September-December 2010: Moderate damage (parapet damage).

January-June 2011: Collapse.

NZHPT post-earthquake response: The front section partially collapsed on 22 February 2011 and was demolished without NZHPT input. The NZHPT did not oppose demolition of rear section after assessment by NZHPT engineer due to severity of damage.

Current status: Demolished

⁵² Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

Sevicke-Jones Building

53 Cathedral Square

1913-14

Collins and Harman Architects

Registered Category II historic place

Listed Group 2

Private ownership



Significance: The Sevicke-Jones building was a fine example of a building in the Italianate revival style and was a good example of a design by well-known Christchurch architects, Collins and Harman. It had townscape value, and represented the small manufacturing concerns which developed in inner-city suburbs between the wars.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially Earthquake Prone

Condition prior to September 2010: Poor

Strengthening history: In 1995, the building was purchased by an overseas developer who planned to undertake earthquake strengthening and refurbishing. There is no record of earthquake strengthening work, however, being undertaken on the building to the knowledge of the NZHPT.

Since 1995 the building has been largely vacant and has been suffering neglect for some time. On 3 August 2009, the Council issued a 'dangerous building' notice under section 124 of the Building Act 2004 requiring work be carried out to reduce or remove the danger due to broken window glass falling onto the pedestrian route at Chancery Lane. The Council required the owner to secure all windows, secure the building, ensure regular inspections are undertaken and attach a notice to warn people not to approach or enter the building. The building was damaged in the September-December 2010 earthquakes, but was considered to be repairable. Severe damage occurred following February 2011 earthquakes.

Level of Damage: September-December 2010: Moderate damage (cracking in main façade).
January-June 2011: Severe damage.

NZHPT post-earthquake response: In June 2011, the NZHPT did not oppose demolition due to severity of damage.

Current status: Demolished

The Deanery

80 Bealey Avenue
1920
England Bros Architects
Registered Category II historic place
Listed Group 2
Private ownership



Significance: The Deanery was built in 1920 as a residence for senior clergy of the Anglican Church in Canterbury, initially as the home of the Dean of Christchurch Cathedral. Designed by Christchurch architectural firm the England Brothers, the Deanery was a significant example of the Arts and Crafts style.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: Alterations and fire safety works took place in 2002. There is no record of earthquake strengthening work to the knowledge of the NZHPT.

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Severe damage.

NZHPT post-earthquake response: The NZHPT was not provided with an opportunity for input with regards to the demolition of the building but supported initial propping and securing.

Current status: Demolished

City Council Civic Offices (Former)

194-198 Manchester Street
 1899
 Registered Category II historic place
 Listed Group 2
 Private ownership



Significance: This former Christchurch City Council Offices was constructed in 1899-1900 as the exhibition hall to house Canterbury's jubilee exhibition in 1900. In 1917 the hall had been leased to Fuller's Vaudeville Company, and soon after there was a fire which destroyed the majority of the building leaving the façade intact. This structure was then rebuilt in 1920-22 as offices for the Christchurch City Council. It was of architectural and aesthetic significance to the city and region as evidencing the work of local architects, and as an example of a highly decorative Edwardian Baroque style façade.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially Earthquake Prone

Condition prior to September 2010: Good

Strengthening history: The rebuilding of the former Christchurch City Council Offices in 1920-22 and various alterations resulted in a URM façade and a reinforced concrete structure. A report by William Fulton of Stewart Ross Team Architecture Ltd in 2002 identified some deterioration of the main façade and some spalling concrete on the northern elevation which had exposed rusting reinforcing. Cracking to the concrete parapets on the south side was also identified. William Fulton recommended the preparation of a structural report to investigate these issues. While repairs of exterior stonework were undertaken in March 2003, there is no record on the NZHPT's file of substantial earthquake strengthening works.

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Major damage (front façade removed by USAR).

NZHPT post-earthquake response: The NZHPT was not provided with an opportunity for input with regards to the demolition of the building.

Current status: Demolished

Cathedral Grammar School Main Block

8 Chester Street West
 1928
 Trengrove Architect
 Registered Category II historic place
 Listed Group 2
 Private ownership



Significance: The Cathedral Grammar School opened in 1881 as a school primarily for the choristers of Christ Church Cathedral. In 1928 a new building was designed for the school by W. H. Trengrove. Trengrove designed a brick neo-Georgian building, which contained an assembly hall and gymnasium on the ground floor and classrooms on the next floor. The top floor was intended as dormitories, but was altered to contain a chapel, library, and matron's quarters and eventually re-converted to classrooms. The building was designed to provide as much fresh air and light as possible.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially Earthquake Prone

Condition prior to September 2010: Good

Strengthening history: No record of earthquake strengthening undertaken on the building to the knowledge of the NZHPT.

Damaged in the September 2010 earthquake and further severe damage in February 2011.

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Severe damage (partial collapse).

NZHPT post-earthquake response: The NZHPT was not opposed to demolition of the building due to severity of damage.

Current status: Demolished

Fisher's Building (Former)

Corner High and Hereford Streets
 1880
 Armson Architect
 Registered Category I historic place
 Listed Group 1
 Private ownership



Significance: Fisher's Building was a fine example of Venetian Gothic architecture which occupied a prominent site. Of the more than ten William Armson-designed buildings erected in Hereford Street between 1870 and 1883, Fisher's Building was the only one remaining.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: Strengthening work was undertaken in 2003. The work involved reinforcing to columns and construction of new concrete walls and strengthening of floors. The work was designed without alterations to the exterior and minimal visibility within the interior. The NZHPT's file does not indicate the target level of strengthening that was achieved.

The building suffered minor damage in the September and December 2010 earthquakes. Major damage occurred in the February 2011 earthquake and the building was demolished.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Severe damage (partial collapse of upper level and extensive cracking)

NZHPT post-earthquake response: In April 2011, NZHPT recommended retention of ground and first floor as a partial demolition, however, demolition was approved by CERA as requested by building owner.

Current status: Demolished

Regent Theatre

(former Royal Exchange), Cathedral Square

1905

Luttrell Brothers Architects

Registered Category I historic place

Listed Group 1 (main façades & dome are listed only)

Private ownership



Significance: The first Edwardian Baroque commercial building in Cathedral Square and was a significant part of the townscape, this Luttrell brothers building was completed in 1905 as a commercial premises and was converted in 1930 into one of the grandest theatres in the city and continued to operate as a cinema.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Unknown

Strengthening history: The NZHPT was aware that internal alterations and strengthening was carried out for the twin cinema (date of strengthening unknown) with work involving a braced steel frame to support the tower and floor ties to walls. Historical bracing and ties of walls, floor and roofs was also observed following earthquake damage.⁵³

The building suffered moderate damage in the September and December 2010 earthquakes. Major damage occurred in the February 2011 earthquake and the building was demolished in July 2011.

Level of Damage: September-December 2010: Moderate damage (parapet damage).

January-June 2011: Moderate damage (parapet damage, cracking, dome roof collapse).

NZHPT post-earthquake response: In June 2011, the NZHPT recommended that the building be secured to allow time for a comprehensive engineering review to be undertaken and future options for the building to be considered. Demolition, however, was approved by CERA as requested by the owner.

Current status: Demolished

⁵³ Research following the earthquakes, estimates that the building was strengthened to >67%NBS. Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

Harald's Building

80 Lichfield Street
 1881
 Armson Architect
 Registered Category I historic place
 Listed Group 1
 Private ownership



Significance: Harald's Building was an important example of Victorian commercial buildings in Christchurch and was a fine example of the work of W. B. Armson. It formed part of the cluster of Victorian and Edwardian commercial buildings in the Lichfield Street/High Street area. Built in 1881 for the Butterworth brothers' wholesale drapery business, the building was designed in the Italian palazzo style which was popular for commercial premises during the nineteenth century. As is characteristic of this style, the three floors of Harald's Building were distinguished on the exterior by the differing treatment of the windows.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Unknown

Strengthening history: While, there is no record of earthquake strengthening work, the NZHPT's file records that the interior of the building was substantially altered and rebuilt in 1980.

Level of Damage: September-December 2010: Moderate damage (parapet and chimney damage).

January-June 2011: Severe damage to upper level.

NZHPT post-earthquake response: In June 2011, the NZHPT recommended removal of 2nd floor only and building to be made safe. Demolition, however, was approved by CERA as requested by the owner.

Current status: Demolished

Strange's Building

Corner 219-223 High and 83 Lichfield Streets
 1900
 Armson, Collins and Harman Architects
 Registered Category I historic place
 Listed Group 2
 Private ownership



Significance: Strange's Building, was the first department store in Christchurch to develop out of the drapery trade. In 1899, at the height of firm Strange and Co.'s success, Armson, Collins and Harman designed the four-storey, Oamaru stone-faced building that wrapped around the corner site. The design continued the Italianate style employed in the 1893 building, commonly used in Victorian times for mercantile buildings. It was an excellent example of this style and was also significant for its association with a highly successful business.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Unknown

Strengthening history: The building was refurbished in 1987 with some earthquake strengthening work undertaken.⁵⁴ No details of the work have been identified on the NZHPT file. Historical bracing and ties of walls, floor and roofs was observed following earthquake damage.⁵⁵

Level of Damage: September-December 2010: Moderate damage.
 January-June 2011: Severe damage.

NZHPT post-earthquake response: The NZHPT recommended that the building be made safe work to allow time for a comprehensive engineering assessment to be undertaken.

Current status: Demolished

⁵⁴ Research following the earthquakes, estimates that the building was strengthened to ~30%NBS. Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

⁵⁵ Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

Weston House

62 Park Terrace
1923-24
Cecil Wood Architect
Registered Category I historic place
Listed Group 2
Private ownership



Significance: Weston House was significant as a fine example of a Neo-Georgian house designed c.1923 by well-known NZ architect, Cecil Wood, built for George T Weston, a Christchurch solicitor. The west facade of this substantial two-storied brick house exhibited the complete range of Neo-Georgian elements, including a centralised porch, brick walls, symmetrically arranged windows, a deep cornice and a hipped roof with dormer windows.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): No record of EQP assessment prior to September 2010.

Condition prior to September 2010: Good

Strengthening history: No record of earthquake strengthening to the knowledge of the NZHPT.

Damaged in September 2010 and repairs were proposed by the owners. The building was further damaged following the February 2011 earthquakes and deteriorated over time.

Level of Damage: September-December 2010: Moderate damage (three chimneys were damaged).

January-June 2011: Severe damage (partial collapse and cracking)

NZHPT post-earthquake response: The NZHPT recommended repair but noted that these repairs were likely to be expensive. Following further deterioration of the building, demolition was approved by CERA in June 2011.

Current status: Demolished

Former Canterbury Public Library, Children's Library and Librarian's house Corner

Hereford Street and Cambridge Terrace.
 1870s – Original Canterbury Public Library (William Armson architect)
 1894 Librarian's house
 1902 and 1924 – Children's Library and addition
 Armson, Collins and Harman Architects

Registered Category I (1875 Canterbury Public Library) and II (Librarian's House and Children's Library and addition) historic place
 Registered wahi tapu (Puari Pa Urupa)
 Listed Groups 1 and 2
 Private ownership



Significance: Located on the urupa for Puari Pa, a registered wahi tapu site, the library was commissioned by Canterbury University College. The complex of library buildings on the site on the corner of Cambridge Terrace and Hereford Street in Christchurch including the original 1875 brick Venetian Gothic-style library building designed by William Armson (Category I historic place, Register No.297), the adjoining 1900s and 1920s section that fronted Hereford Street (Category II historic place, Register No.4910) and the stand alone librarian's house (Category II historic place, Register No.3704). The Venetian Gothic brick building by Armson received a National Award from the NZ Institute of Architects in 1983 and was the oldest of a complex of former public library buildings. The Children's Library was in built in brick in two stages by Collins and Harman, the architectural firm founded by William Armson responsible for the original 1874 library.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: To the NZHPT's knowledge, some minor strengthening was carried out to the 1902 building during mid- 2000s.

Level of Damage: September-December 2010: Moderate damage.
 January-June 2011: Severe damage (parapet damage, liquefaction, cracking).

NZHPT post-earthquake response: On the basis of engineering advice, the NZHPT advocated for retention of original library Armson building but noted that these repairs were likely to be expensive. Demolition was approved by CERA as requested by building owner.

Current status: Demolished with significant amount of building fabric retrieval.

Canterbury Times and Star Building

Gloucester Street

1884

Armson, Collins and Harman Architects

Registered Category II historic place

Listed Group 2

Private ownership



Significance: The Lyttelton Times newspaper's growth during the 1880s led to a new building being erected on the Gloucester Street frontage in 1883 - 1884. This landmark brick building became the Star Building which interconnected to the Lyttelton Times building on Cathedral Square.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: (see entry for the Lyttelton Times Building which was integrated into this building and also strengthened).

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Moderate damage (parapet and corner damage)

NZHPT post-earthquake response: While initial NZHPT comment promoted repair and making safe, by June 2011, damage had become severe to the attached Lyttelton Times Building and the NZHPT did not oppose demolition.

Current status: Demolished

Repertory Theatre

144-148 Kilmore Street West
1929
Registered Category II historic place
Listed Group 2
Private ownership



Significance: The Repertory Theatre was built by the Radiant Health Club, as both a hall and a theatre for operetta productions. Most of the finance was contributed by one of its members, prominent city businessman and philanthropist, Thomas Edmonds, founder of the iconic New Zealand baking powder brand. The theatre was hired by the Canterbury Repertory Theatre Society from the time of its construction.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially Earthquake Prone

Condition prior to September 2010: Good

Strengthening history: Major interior changes were undertaken in 1967 when J.A. Hendry remodelled the theatre which involved altering the foyer and closing in the gallery. During the 1980s, further changes involved refurbishment of the façade and canopy and lowering of the orchestra pit.⁵⁶

In 2007, a conservation report was prepared for the theatre which stated that a major problem was the inability of the building to meet the Council's Earthquake-Prone, Dangerous and Insanitary Buildings Policy adopted in 2006.⁵⁷ It noted that R.D. Sullivan, Consulting Engineer, has been engaged to examine the building and 'has advised that the building is a Category A building which means that it has a highest priority for upgrading and the overall strengthening programme should be carried out within fifteen years. This figure is not confirmed but is anticipated that the street frontage should be stabilised within two to three years.'⁵⁸

The NZHPT supported an application by the Canterbury Repertory Theatre Society to the NZ Lotteries Board for funding assistance to undertake earthquake strengthening work in April 2009. Work had not yet started in September 2010 and earthquake repairs were planned in early 2011. The building was severely damaged after February 2011.

Historical bracing and ties of walls, floor and roofs was observed following earthquake damage.⁵⁹

⁵⁶ Heritage Management Services, *Conservation Report for the Repertory Theatre, Kilmore Street, Christchurch, 2007*

⁵⁷ *ibid*, p 5

⁵⁸ *ibid*

⁵⁹ Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Major damage.

NZHPT post-earthquake response: The NZHPT did not oppose demolition as building had partially collapsed.

Current status: Demolished

Coachman Inn

144 Gloucester Street
1902
Maddison Architect
Registered Category II historic place
Listed Group 2
Private ownership



Significance: The Coachman Inn was significant as one of the oldest hospitality locations in the city that was still in use for that purpose and as one of the most successful designs of prominent turn-of-the-century hotel architect Joseph Maddison.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially Earthquake Prone

Condition prior to September 2010: Fair

Strengthening history: No record of earthquake strengthening works to the knowledge of the NZHPT.

The building experienced damaged parapets in the September-December 2010 earthquakes and repairs were being planned. Further damage followed the February 2011 earthquake and the building was demolished in July 2011.

Level of Damage: September-December 2010: Moderate damage (parapet damage).

January-June 2011: Moderate damage (rear wall partial collapse, damage to parapets, cracking).

NZHPT post-earthquake response: In June 2011, the NZHPT recommended that the building be secured and a strengthening scheme developed.

Current status: Demolished

Houses (semi-detached)

90-92 and 94-96 Chester Street East
1892
Widdowson Architect
Registered Category II historic place
Listed Group 3
Private ownership



Significance: Located between 86 to 100 Chester Street East, the four sets of semi-detached townhouses were designed by William Widdowson. They were unusual in their design as two storey grouped townhouses were uncommon in Christchurch during the late colonial era. Their near identical form, materials and design added to the architectural significance of the townhouses, along with the scale and streetscape value.

Construction: Timber-framed, brick party walls.

EQP assessment prior to September 2010 (CCC, 2009): Not listed as earthquake-prone (residential building).

Condition prior to September 2010: Good

Strengthening history: The NZHPT is aware that some structural weakening occurred by alterations to make ground floor open plan (also see entry for houses 86-88/98-100 Chester Street East).

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Severe damage.

NZHPT post-earthquake response: The NZHPT did not oppose demolition of the two middle buildings based on engineering advice.

Current status: Demolished (the corner and end houses remain).

Old Theatre Royal

148-154 Gloucester Street
 1876
 Simpson Architect
 Registered Category II historic place
 Listed Group 2
 Private ownership



Significance: The Former Theatre Royal had architectural and aesthetic significance primarily for its flush-boarded timber facade, designed to resemble masonry. At the time of its construction by little-known Christchurch architect, Alfred Simpson, and builders Allen and Son, the theatre would have been one of the largest and most impressive of the city's buildings. The building represented the final phase of the timber-built city before masonry construction became *derigeur* in the inner city in the 1880s. This was the last timber classical facade and was the most significant of the city's remaining timber commercial building facades to remain extant.

Construction: URM/Timber-framed

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Poor

Strengthening history: The interior of the building was substantially modified since its purchase by the Christchurch Press Company in 1910 for retail purposes. In particular, substantial alterations were carried out in 1940 with the demolition of the auditorium and construction of a new building to the rear.⁶⁰ By the late 2000s, the building was in a poor state of repair and was acquired by an Australian developer who proposed the construction of three tower blocks on the site and the partial demolition of the former theatre. There is no record of earthquake strengthening works undertaken on the building to the knowledge of the NZHPT.

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Severe damage (damage behind the façade).

NZHPT post-earthquake response: The NZHPT was not provided with an opportunity to comment as this building was demolished as part of the Press Building.

Current status: Demolished

⁶⁰ Heritage Management Services, Fulton Ross Architects, 'Heritage Assessment Report Former Theatre Royal & Kings Theatre, Gloucester Street, Christchurch', March 2008, p 8

Whitcoulls Building

111 Cashel Street
 c.1914
 Collins and Harman Architects
 Not registered by NZHPT
 Listed Group 2
 Private ownership



Significance: The firm of Whitcombe and Tombs (now Whitcoulls) was established on this site in a small two storey building built in 1883. The building was erected on the same site c.1914, built primarily for retail, professional and commercial office use. It was designed by Collins and Harman, architects of the adjacent Press and Weekly Press Building. The building was an outstanding example of a classical inspired commercial Edwardian building.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: NZHPT file indicates an interior central wall was removed in 2003 with associated structural work. Further, the file indicates that the owners at the time intended to remove the upper floor to remove the heavy load on the ground floor. The NZHPT considered that the integrity of the upper floor was largely intact and this integrity would be compromised by the removal of the upper floor. The NZHPT recommended that structural engineering consultants should investigate the retention and strengthening of the upper floors. It is unknown if this work progressed and no further details are recorded by the NZHPT file. The NZHPT is, however, aware that selective strengthening was carried out to the central book arcade.⁶¹ Historical bracing and ties of walls, floor and roofs was observed following earthquake damage.⁶²

Level of Damage: September-December 2010: Moderate damage.
 January-June 2011: Severe damage.

NZHPT post-earthquake response: The NZHPT advocated for façade retention, but demolition was approved by CERA.

Current status: Demolished

⁶¹ Research following the earthquakes, estimates that the building was strengthened to >67%NBS. Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

⁶² Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

Former Press and Weekly Press Building

109 Cashel Street
1879-96
Collins and Harman Architects
Not registered by the NZHPT
Listed Group 2
Private ownership



Significance: This building was erected to accommodate the expansion of the Press and Weekly Press newspapers that were printed at this location in timber premises from the 1860s. The building was an example of the work of noted Christchurch architects Collins and Harman and was built in stages from 1879 to 1896. The Cashel Street façade was brick with stone facings with Gothic stylistic elements in the Corinthian columns and arched windows on the first floor.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Fair

Strengthening history: Unknown

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Severe damage (partial collapse of upper levels and partial demolition by USAR).

NZHPT post-earthquake response: The NZHPT provided post-February 2011 on-site advice to USAR about the extent of any demolition needed to carry out a search of the building.

Current status: Demolished

Provincial Hotel

274 Cashel Street
 1902-03
 Clarkson and Ballantyne Architects
 Not registered by NZHPT
 Listed Group 2
 Private ownership



Significance: The Provincial Hotel was significant as the only Edwardian Baroque/Free-style hotel in Christchurch, the best example of this style in the city, and the only hotel designed by Christchurch architectural partnership, Clarkson and Ballantyne. The Hotel was an exemplar of Edwardian masonry construction and exterior plasterwork.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): No record of EQP assessment prior to September 2010.

Condition prior to September 2010: Good (conservation work under action)

Strengthening history: The current owners acquired the building in 2007 with a view towards restoration and strengthening in order to open a new boutique hotel and bistro. Consents were granted for the work in 2009 and strengthening works had started in September 2010, but were incomplete. The building suffered severe damage from the February/June earthquakes.

Historical bracing and ties of walls, floor and roofs was observed following earthquake damage.⁶³

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Major damage.

NZHPT post-earthquake response: The NZHPT was not opposed to demolition based on engineering advice.

Current status: Demolished

⁶³ Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

Bain's Building

84 Lichfield Street
 1890
 Architect unknown
 Not registered by NZHPT
 Listed Group 2
 Private ownership



Significance: One of commercial premises established in this block which subsequently became known as the “golden mile”, during the period 1881 to 1920. Increasing numbers of successful and wealthy international firms established themselves in Christchurch to serve the growing city. Built for Ross & Glendining Ltd, importers, warehousemen and manufacturers, and proprietors of the Roslyn Worsted and Woollen Mills, the building was subsequently occupied by D.M. Bain & Sons Ltd. The design was based on Renaissance palazzo, but the detailing was more restrained than the neighbouring Harald's building.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Unknown

Strengthening history: Unknown

Historical bracing and ties of walls, floor and roofs was observed following earthquake damage.⁶⁴

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Major damage (top floors collapse).

NZHPT post-earthquake response: The NZHPT did not provide input to the demolition assessment as the building was not registered under the Historic Places Act 1993 and due to the severity of earthquake damage.

Current status: Demolished

⁶⁴ Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

Crown Hotel

192 Moorhouse Ave
1906
Architect unknown
Not registered by NZHPT
Listed Group 2
Private ownership



Photo: Google maps online

Significance: The site's first hotel was in business around 1864 and has continued to be used as a licensed premises. The hotel, built between 1905 and 1906, was one of a number of hotels designed by architect Joseph Clarkson Maddison and completed for the 1906-1907 International Exhibition held in Christchurch. The connection between the Crown Hotel, Maddison, and the Exhibition is of high significance as Maddison not only designed other hotels for the Exhibition visitors, but he also designed the imposing international exhibition buildings that were temporarily erected in North Hagley Park.⁶⁵

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good (conservation works under action)

Strengthening history: While strengthening work was proposed in 1987, it was not until 1996 that a structural assessment was prepared, with structural drawings in 2007. The NZHPT supported strengthening and consents were granted by Council and work was carried out to 67% NBS. As a result of the September 2010 earthquake, there was minor damage to the building (mainly parapet damage) and repairs and strengthening followed. The building suffered further damage in February 2011.

Level of Damage: September-December 2010: Moderate damage.
January-June 2011: Moderate damage (cracking of brickwork and damage to parapets)

NZHPT post-earthquake response: In May 2011, the NZHPT supported making safe, stabilisation and an engineering assessment to guide repairs. The building, however, was demolished without further input from the NZHPT.

Current status: Demolished

⁶⁵ Statement of significance from Christchurch City Council, Heritage Grants Agenda, 2009

Colombo Road Wesleyan Church (Sydenham Methodist Church)

343 Colombo Street
1878
Crouch and Wilson Architects
Registered Category II historic place
Listed Group 2
Private ownership (Sydenham Heritage Trust)



Significance: The growth of a Wesleyan congregation in the largely working class suburb of Sydenham (then known as New Town) in the 1870s necessitated the establishment of a place of worship. The by-then redundant St James Wesleyan Church was relocated from Montreal Street in the central city to a new site in Harper Street (Orbell Street), Sydenham in 1875, and was reopened the following year. Later in 1876 however, the decision was made to constitute Christchurch South as a separate circuit. St James was thought both too small and poorly placed to service the intended circuit, so a new, more centrally located site suitable for the erection of a larger building was sought. Initially a section on Colombo Road (Colombo Street) was purchased. However in October 1876, £200 was spent exchanging this section for a half-acre site further south on Colombo Road, at the Pound Road (Brougham Street) corner.

Construction of the Colombo Road Wesleyan Church by builder James Goss commenced in 1877, under Thomas Lambert's supervision. Due to budgetary constraints, Lambert was forced to modify the original design for the large 400 seat stone church. Two large transept vestries, an orchestra loft and spire above were left out of the building contract. The building opened in February 1878 at a cost of £2,650.

With the gradual industrialisation of Sydenham and a general decline in church-going during the 1960s, the congregation of the Sydenham Methodist Church began to dwindle. The church finally closed in 1971, and the property was leased to the Seventh Day Adventists. In 1986 the building was purchased by the Samoan Congregationalists, who used it until 1997 when they built a new church in Linwood. In 2001, Council purchased the church on behalf of the Sydenham Heritage Trust.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: In 1997, the Samoan Congregational Church applied for consent to demolish the church on the basis that the building was in a poor state of repair and an earthquake-risk. The costs of maintenance and strengthening were estimated at the time at \$500,000. The Spreydon-Heathcote Community Board and NZHPT led a campaign (including a petition that attracted 3,400 signatures) to save the building. This advocacy resulted in an agreement in 2001 for the Council to purchase the church on behalf of the newly established Sydenham Heritage Trust.

Following the successful acquisition, the Sydenham Heritage Trust raised funds for a conservation plan, maintenance work and earthquake strengthening. A preliminary seismic strengthening report was prepared by Alan Reay Consultants Ltd in November 2001. The proposed work included:

- Construction of reinforced concrete buttresses to support face-loading of the west wall.
- Securing of stonework to the roof and ceiling diaphragm.
- Securing parapet capping stones.
- Installation of intermediate beams in the lower roof.
- Installation of diagonal roof bracing.
- Post-tensioning and repointing of mortar joints.

The strengthening measures aimed to increase the structural performance of the building to at least 66%NBS. It was noted in the documentation from Alan Reay Consultants that the 66%NBS level should ensure that the 'building should not collapse during a severe earthquake, thereby protecting human life, but may still be extensively damaged and require demolition.' (Alan Reay Consultants to Sydenham Heritage Trust, 14 September 2001). It was further noted that 'experts in seismic geology are currently predicting that a severe seismic event has a greater than 50% chance of occurring in Christchurch in the next 50 years. The consultants also recommended soils investigation, including checking whether liquefaction may be a potential hazard in an earthquake.

The proposed strengthening work had not taken place by September 2010 and the building was demolished following the February 2011 earthquake.

Level of Damage: September-December 2010: Minimal damage (dislodged capping stones and steel cross).

January-June 2011: Severe damage.

NZHPT post-earthquake response: The NZHPT was not provided an opportunity to comment on the demolition.

Current status: Demolished immediately after February 2011 earthquake without consultation or adequate assessment.

Windsor Private Hotel

52 Armagh Street
1904
Registered Category II historic place
Listed Group 3
Private ownership



Significance: Windsor Private Hotel was originally owned and operated by Duncan Rutherford as a private hotel. The hotel had a high reputation and was popular for country residents coming into Christchurch for Cup Week. The hotel continued in operation up to the September 2010 earthquake. The hotel was the base accommodation for the NZ Antarctic Expedition and the US Antarctic Programme.⁶⁶

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): No record of EQP assessment prior to September 2010.

Condition prior to September 2010: Good

Strengthening history: While there is no record of earthquake strengthening to the knowledge of the NZHPT, historical bracing and ties of walls, floor and roofs was observed following earthquake damage.⁶⁷

Level of Damage: September-December 2010: Minimal damage (chimneys down, hotel continued to operate).

January-June 2011: Severe damage.

NZHPT post-earthquake response: In April 2011, the NZHPT commented that it was not opposed to demolition of the building based on the engineering report.

Current status: Demolished

⁶⁶ Adapted from 'Windsor Hotel', Christchurch City Council Libraries – www.christchurchcitylibraries.com

⁶⁷ Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

Carlton Hotel

21 Bealey Ave
1906
J.C. Maddison
Registered Category II historic place
Listed Group 2
Private ownership



Significance: A hotel has stood on this site since 1865, initially catering for travellers to Christchurch from the north. The Carlton was traditionally associated with a number of 'firsts' in New Zealand's brewing history, including the serving of the first beer on tap in 1939-1940, the opening of the first beer garden in 1947 and the first drive-through bottle store in 1954. While part of the building was used as a bar, the bulk of the ground floor was occupied by Burger King.

The Carlton Hotel was significant as an example of Maddison's hotel architecture, as a prominent local landmark and as part of the history of the New Zealand brewing industry. Its link with the 1906-1907 International Exhibition and the other hotels in Christchurch built at that time is also important.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone.

Condition prior to September 2010: Good

Strengthening history: Renovations were undertaken in 1994 with four chimneys being removed. The removal of the chimneys was opposed by the NZHPT Canterbury Branch Committee. In 1997 a new Burger King was proposed for the site involving significant alterations and additions. After a notified consent application process, the consents were granted by Council in 2000. There is no record of earthquake strengthening in the NZHPT file.

Level of Damage: September-December 2010: Moderate damage (parapet damage, external walls separated from roof).

January-June 2011: Severe damage (south-west corner collapse, north parapet collapsed).

NZHPT post-earthquake response: The NZHPT recommended make safe and a further engineering assessment to guide repair works.

Current status: Demolished.

Harbour Light Theatre

24 London Street, Lyttelton

1916-1917

J.S. & M.J. Guthrie

Registered historic area

Listed, Banks Peninsula District Plan, Schedule V – Notable Buildings

Private ownership



Significance: The Harbour Light Theatre was a landmark building in the town and reflected the significant social role that cinemas played for most of the 20th century in New Zealand. Buildings existed on the site prior to 1862 but presumably these were destroyed by the 1870 fire. In 1916 the land was bought by Lyttelton Pictures Ltd for the creation of a local variant of the overseas 'picture palace'. Harbour Light Theatre was designed by J.S. & M.J. Guthrie as a purpose-built picture house and theatre. It was built for the Lyttelton Picture Company and opened on 20 March 1917.⁶⁸ Lyttelton residents and visitors had enjoyed films since the late 19th century (notably at the Salvation Army building at 36 London Street and Oddfellows Hall). The increasing popularity and technological advances in cinematography led to the Guthrie brothers, architects, designing the picture house for the Lyttelton Picture Company. At the time of its opening in March 1917, *The Press* described the Harbour Light Cinema as having 550 seats and being the most up to date in the dominion. The theatre remained in use until the mid-1970s when it fell into disrepair. Some renovation work was carried out in the 1980s and the theatre was used as a licensed night club and apartment

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone.

Condition prior to September 2010: Unknown.

⁶⁸ Skews Hey Ussher Architects, *Harbour Light Theatre Lyttelton Conservation Plan*, 24 June 1998

Strengthening history: In March 1995, Holmes Consulting Group carried out a preliminary assessment of the theatre in association with a proposal for apartment conversion.⁶⁹ The assessment proposed strengthening to 67%NBS for the purposes of providing for new apartments. This proposed strengthening work and the apartment's conversion was not progressed at the time. The need for earthquake strengthening was acknowledged in the conservation plan prepared in 1998.⁷⁰

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Severe damage (rear wall collapse, parapet collapse, extensive cracking, towers damaged and unstable).

NZHPT post-earthquake response: In April 2011, the NZHPT stated that it was not opposed to the demolition based on engineering report.

Current status: Demolished.

⁶⁹ John Hare, *Holmes Consulting Group Ltd to The Crater Company*, 14 March 1995. Included in Skews Hey Ussher Architects, *Harbour Light Theatre Lyttelton Conservation Plan*, 24 June 1998

⁷⁰ Skews Hey Ussher Architects, *Harbour Light Theatre Lyttelton Conservation Plan*, 24 June 1998

Zetland Hotel

88-92 Cashel Street
 1903
 Joseph Maddison Architect
 Registered Category II historic place
 Listed Group 3
 Private ownership



Significance: The first Zetland Lodge was an early wooden hotel built that was originally created as an eating house, and then later converted to a hotel. This building was condemned by the Licensing Committee in 1902 and plans for a new hotel were approved in March 1902. The hotel operated until 1990 when the Zetland Arms Hotel was substantially renovated and transformed into a restaurant, bar, and nightspot - Cafe Bleu.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Unknown

Strengthening history: Some earthquake strengthening work was undertaken on the building in 1990 when the building was converted into Café Bleu. Further alterations were carried out in 1999 and 2008. Details of this earthquake strengthening work are not known to the NZHPT.

Level of Damage: September-December 2010: Minimal damage (chimney damage from adjoining building).

January-June 2011: Moderate damage (parapet collapse, partial stair collapse, wall cracking, water ingress).

NZHPT post-earthquake response: The NZHPT recommended that the building could be made safe, repaired and strengthened based on engineering report.

Current status: Demolished.

Smith's Bookshop

133-139 Manchester Street

1905

Not registered by NZHPT

Listed Group 3

Private ownership (Christchurch Heritage Trust)

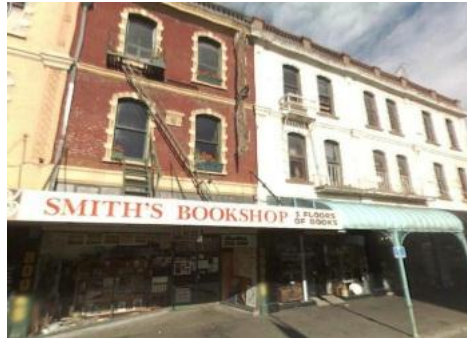


Photo: Google Maps online

Significance: The buildings at 133-139 Manchester Street include Smith's Bookshop, an iconic Christchurch institution. Smith's Bookshop first opened in 1894 and originally sold popular fiction and stationary. After Norman Oberg took over the business in 1967, Smith's Bookshop expanded the shop and filled all three floors of the building with floor to ceiling shelves full of books, maps, sheet music, old photographs and postcards.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Poor (conservation work in progress)

Strengthening history: Strengthening work was proposed by the Christchurch Heritage Trust in 2009. This work was not completed prior to September 2010. The building was damaged in the September 2010 and February 2011 earthquakes.

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Severe damage.

NZHPT post-earthquake response: NZHPT did not provide comment as the building was not registered under the Historic Places Act 1993.

Current status: Unknown (possibly demolished).

Duncan's Buildings

135-165 High Street

1905

Luttrell Brothers

Registered Category II historic place

Listed Group 3

Multi-private ownership



Significance: High Street contained a significant complex of late 19th century Victorian and early 20th century Edwardian retail buildings. The Duncan Buildings of 1905, built for E.R. Duncan, were designed in Italianate Palazzo style and consisted of some 16 separate small retail units. The shops have included confectioners, fruiterers, butchers, furniture dealers, restaurants and hairdressers. Office and residential apartments occupied the floor above the shops.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Unknown

Strengthening history: Strengthening work began in 2008 in association with internal alterations with the owners intending to undertake progressive strengthening to 100%NBS. Further repair and strengthening work was undertaken prior to 23 July 2011-January 2012 earthquake.

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Severe damage: The façade of No.135 High Street was partially demolished by USAR to enable access to the McKenzie Willis building.

July 2011-January 2012: Severe damage: The façade of No.165 High Street collapsed and the rest of the façade is unstable.

NZHPT post-earthquake response: The NZHPT advocated retention of the building and an engineering assessment to guide make safe and repair works.

Current status: Partial demolition of the collapsed end of the building, repair and strengthening work undertaken to the remaining part of the building, but now future is uncertain as in February 2012 CERA has issued a section 38 demolition notice.

NZ Express Co Building (MLC Building or Manchester Courts)

160 Manchester Street
 1906
 Luttrell Brothers Architects
 Listed Category I historic place
 Listed Group 2
 Private ownership



Significance: This building was built for the New Zealand Express Company in 1905-1906 and at the time of its construction it was the tallest commercial building in Christchurch. The New Zealand Express Company was a Dunedin-based firm established in 1867, with offices throughout New Zealand. They acted as carriers, and customs, shipping and express forwarding agents, and by the beginning of the twentieth century were a major New Zealand employer. Their Christchurch building was designed by Alfred and Sidney Luttrell, who arrived in New Zealand in 1902, and whose principal contribution to the history of New Zealand architecture was the introduction of the Chicago 'skyscraper'. They were also noted for their use of concrete. The foundation and first two storeys of the New Zealand Express building are reinforced concrete. This was probably, according to Geoffrey Thornton, the first use of reinforced concrete in a commercial building in Christchurch. Stylistically, this building is a compromise between British Edwardian architecture and the Chicago skyscraper style of the 1880s and 1890s. One example of this eclecticism can be seen in the corner tourelle, which was unusual in contemporary American architecture, but common within the English tradition. Technically the use of steel ties and standards, combined with the traditional brick masonry of the top five floors showed the same mix of sources. With the New Zealand Express Company building the Luttrells moved one step closer towards a true 'skyscraper' construction method, which they finally achieved with their design for the same company's head office in Bond Street, Dunedin, two years later.

Construction: Reinforced concrete foundations, ground and first floor. URM above first floor with steel ties and standards.

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Unknown

Strengthening history: While it appears that some strengthening work was undertaken on the building around 1970, details of this strengthening work are not recorded on the NZHPT file. In 2006 the owner (Richard Peebles) indicated to the NZHPT that earthquake strengthening was the most obvious and expensive upgrade that will have to be undertaken sometime in the future. At the time, the cost of the strengthening work was estimated \$1,000,000.00. Earthquake strengthening work had not taken place by September 2010.

Manchester Courts was moderately damaged in the September 2010 earthquake and the proposed demolition of the building sparked a major public debate. On 6 October, the Council voted 10-2 to demolish the building. Despite some media reporting at the time (*The Press*, 6 October 2010), the NZHPT did not oppose the demolition of the building in the interests of public safety on the basis of professional engineering advice.

Level of Damage: September-December 2010: Severe damage.

NZHPT post-earthquake response: The NZHPT did not oppose demolition of the building based on engineering advice and risk to public safety.

Current status: Demolished (October 2010, Christchurch City Council decision)

Timeball Station

2 Reserve Terrace, Lyttelton

1876

Thomas Cane Architect

Registered Category I historic place and registered historic area

Listed, Schedule IV, Protected Buildings

Public ownership (NZHPT)



Significance: The Lyttelton Timeball Station (1876) was one of a handful of timeball stations that have survived throughout the world, and was the only original one that was standing in New Zealand. It illustrated the role of the timeball stations within the history of Western navigation and shipping, and its connection to the accurate calculation of longitude is of particular significance. The construction of the timeball station reflects the positive economic state, and the associated pre-eminent role within New Zealand that Canterbury, along with Otago, enjoyed in the last years of the provincial government system. It was a major landmark for Lyttelton and was an important part of the town's historic identity. Timeball Station was constructed in three principal stages: the original 3-storey stone building and tower (1876), stone kitchen (1878) and a large 2-storey brick addition (1912).

Construction: URM.

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history:

In association with the preparation of a conservation plan, the NZHPT engaged Holmes Consulting Group to prepare a structural survey of Timeball Station in 2000. The survey was a preliminary assessment in order to scope the need for strengthening and other works. The survey found that the building was earthquake-prone under section 66 of the Building Act 1991 being less than 10% (0.05g) of the full building code level (NBS).⁷¹

The structural survey recommended a number of methods for improving the structural performance to at least the minimum Building Act 1991 strengthening levels:

⁷¹ Holmes Consulting Group, 'Timeball Station – Lyttelton Structural Survey' prepared for NZHPT, December 2000

- Ground Floor Roof Level - New grouted connections between the roof and walls and new plywood overlay under the roofing or new structural diaphragm ceiling.
- First Floor Roof Level – New grouted connections between walls and roof and new plywood overlay under the roofing or new structural diaphragm ceiling.
- Second Floor Roof Level - New grouted connections between walls and roof and new plywood overlay under the roofing or new structural diaphragm ceiling.
- South Wall – Grouted connections and a diaphragm.
- Tower Walls – Heavy steelwork and grouted connections extending along the walls of the main building to tie the tower into the rest of the building.
- Parapets – All parapets require securing using steel rods and pins.
- Securing of two chimneys by concrete filling, grouted steel rods and ties.
- Timeball and Mast – Upgrade connections, in particular at the base of mast stay wires.⁷²

It was also noted that ‘if a decision were made to strengthen the Timeball Station to higher load levels the required work would be of a similar nature to that described above but would be heavier in nature.’⁷³

Further strengthening planning followed and in 2002 the NZHPT commissioned Hadley & Robinson Ltd to prepare a more detailed structural assessment.⁷⁴ In contrast with the earlier Holmes Consulting Group survey, the Hadley & Robinson structural assessment considered that the building had an earthquake resistant capacity ‘equivalent to about 15% the required capacity for a new building’ as an initial evaluation.⁷⁵ Consequently, Hadley & Robinson stated that ‘the building was found not to be earthquake prone in terms of the present provisions of the Building Act.’ However, the building would be earthquake-prone under the forthcoming new building legislation (Building Act 2004).

The Hadley & Robinson structural assessment focused on improving the connections between floors, roofs and walls. It was commented:

It is known that improvement of interconnection among floors, roofs and walls is the most direct means of improving structural performance in earthquakes. We have therefore examined the likely performance of the building when the roofs and the floors are connected to the walls.

The detailed evaluation of the building shows that the out-of-place capacity of the most critical walls can reach up to 150% what would apply to a new building. For the assessment of the in-plane response, the in-plane shear capacity, rather than the flexural capacity, governs, but the walls are strong enough to resist 112% of the earthquake actions that would be generated under earthquake intensity assumed for the design of new buildings.

Bear in mind that this assessment (for both in-plane and out-of-plane response) is conducted on the basis that there are adequate connections between the stone walls and

⁷² *ibid*, pp 4-5

⁷³ *ibid*, p 5

⁷⁴ Hadley & Robinson Ltd, ‘The Timeball Station, Lyttelton Report on Earthquake Resistance’, September 2002

⁷⁵ *ibid*, p 6

the floors and roofs to maintain the structural integrity of the whole building during the earthquake.⁷⁶

To improve the strength of the building to at least 67%NBS, the structural assessment recommended improving the connection between the walls and roof using steel brackets and bolts. This work would involve removal of the roof adjoining the brick parapet, drilling through the existing timber trusses and inserting new steel holding down bolts between the timber trusses and masonry walls. No work was recommended to strengthen the chimneys, parapets or tie the tower into the rest of the building as had been earlier identified by Holmes Consulting Group.

The work involving connecting the roof to the walls using steel brackets and bolts, as guided by Hadley & Robinson, was completed in January 2006.

As a result of the 4 September 2010 earthquake, Timeball Station sustained moderate damage with loss of a chimney, widespread cracking of masonry walls and damage to parapets. Following the earthquake, Ruamoko Solutions Ltd were engaged to prepare options for the repair and strengthening of Timeball Station. Ruamoko estimated that the building had a strength of approximately 50%NBS in East/West direction and around 26-36%NBS in the other N/S direction. Ruamoko recommended strengthening work involving installation of stainless steel pins to the rubble-filled masonry walls, use of new 'Helifix' veneer ties to brick walls, new concrete walls and floor diaphragms, new ply ceiling diaphragm, parapet ties and rebuilding of chimneys in reinforced concrete.

As the NZHPT prepared to repair the building, severe damage resulted from the 22 February 2011 earthquake with parapet collapse and major cracking. The damage involved:

- 2-storey building 1912: Partial collapse and extensive cracking. The Tower: Extensive damage, wide cracking, unstable and could collapse at any time.
- 3-storey building 1876: Brick and stone sections on North wall are relatively undamaged; East wall - parapet and upper two level collapsed outwards; South wall – parapet collapsed, large cracks in wall; West wall – parapet and upper level have collapsed, extensive cracking in remaining walls.
- 1-storey building 1878: minor cracking of brick sections.

Structural inspections after the 22 February 2011 earthquake recommended careful deconstruction which began in April 2011. The building, however, partially collapsed in June 2011 while dismantling was underway.

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Major damage.

NZHPT post-earthquake response: NZHPT undertook controlled dismantling on the basis of engineering advice. Some of this dismantling work was compromised by partial collapse during the earthquake of 13 June 2011.

Current status: Demolished.

⁷⁶ *ibid*, p 8

London Street Cafe (former Chemist, United Friendly Societies Building, former Noko's Restaurant)

Corner Oxford & London Streets (No.2 London Street), Lyttelton
1912

Registered historic area
Listed Schedule V, Notable Buildings
Private ownership



Photo: Google maps online

Significance: No.2 London Street is part of the Lyttelton Township Historic Area and is the main commercial area of Lyttelton. It has a wide variety of commercial and public buildings. London Street, named after the Bishopric of London, was part of the commercial area of Lyttelton which included Norwich Quay and the connecting lower parts of Oxford Street and Canterbury Street. The majority of its original buildings (dating from c1850) were destroyed by fire on 24 October 1870, the worst urban fire to that date in New Zealand. The spread of fire along London Street could not be contained due to a lack of adequate water supply, even though the west end of London Street had a pump which tapped water from a spring discovered when the railway tunnel was constructed. Only a few buildings survived, so most buildings on London Street post-date 1870. Some of these new buildings contain more brickwork due to Lyttelton Borough Council requirements in an effort to prevent such spread of fire in the future. No. 2 London Street dates from 1912 and is a plastered brick two-storeyed semi-classical corner shop, formerly chemist's dispensary. The building was built on the site of the original Queen's Hotel and a 1875 dispensary.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Unknown

Strengthening history: In 2002 alterations involving removal of internal partitions, internal staircase, and alterations to existing entrance, creation of a new main entrance and extension of the veranda were proposed. The NZHPT file contains no information about structural strengthening of the building at the time. The NZHPT opposed the proposal due to impact on the heritage integrity of the building. As a result, the owner redesigned the proposed alterations to reduce loss of heritage fabric and NZHPT's support and resource consents were obtained.

Level of Damage: September-December 2010: Unknown.
January-June 2011: Severe damage and demolished prior to the 13 June 2011 earthquake.

NZHPT post-earthquake response: The NZHPT did not oppose demolition based on engineering report.

Current status: Demolished

Arts Centre of Christchurch

Hereford, Montreal, Worcester & Rolleston Streets (including Dux le Lux)

From 1876

Various incl. Mountfort, Cane & Seager

Registered Category I and Category II historic places

Listed Groups 1 and 2

Public ownership (Arts Centre Trust)



Significance: This splendid collection of Gothic Revival buildings housed Canterbury University, one of the earliest of New Zealand's university colleges, from 1876 to 1975. Its clock tower was the first building designed specifically for a university in New Zealand. Renowned New Zealanders such as Ernest Rutherford and Apirana Ngata were amongst those educated here.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history:

The Arts Centre comprises of a large number of buildings constructed in a unified Gothic-revival style. The table provides a summary of the primary buildings constructed prior to 1923⁷⁷:

⁷⁷ Adapted from Robyn Burgess, *Architectural History of the Buildings of Canterbury College, 1876-1923*, 1988, pp 46-47

Date of construction**Arts Centre of Christchurch buildings**

1876-7	Chemical Laboratory
1876-7	Clock Tower
1876-8	Christchurch Girl's High School (School of Art from 1882)
1878-9	Eastern Wing adjacent to Clock Tower
1879-81	Boy's High School
1881-2	College Hall and Staircase Turret (often called the Great Hall)
1883	Student Union (acquired by the University in 1929)
1887-8	Classics Lecture Block (Hight Block)
1890-1	Mechanical Engineering
1893	School of Art additions to north
1895-6	Biological Laboratory and Observatory Tower (includes Zoology)
1895-6	Boy's High School additions
1901-2	Electrical Laboratory
1901-2	School of Art
1905-10	Hydraulics Laboratory (former Court Theatre)
1908	Boy's High School Gymnasium
1908-10	Chemical Laboratory (Chemistry)
1912-13	Boy's High School, additions to south west
1913-14	Hydraulics Laboratory additions
1914-15	College Library
1915-16	School of Art additions
1915-17	Lecture Room and West Arcade (Maths), Lavatory Block, remainder of arcades, Registry
1917	School of Art stone facing
1917	Physics
1917-18	Biological Laboratory additions (Botany)
1921-3	School of Engineering extension

All of the Arts Centre buildings were built of unreinforced masonry (largely stone) with the exception of the Student Union building which was built in 1883 as a private house being a mixture of brick (ground floor) and timber-framing (upper floor). This house was acquired by the former Canterbury University in 1929.

In 1966, the University of Canterbury shifted to Ilam and the buildings were vacated with the eventual adaptation of the site for a range of arts, commercial and community purposes under the ownership and management of the Arts Centre of Christchurch Trust Board. This Board was established in 1978.

As part of the planning for the new Arts Centre, the Community Arts Centre Steering Committee reviewed earthquake strengthening issues associated with the former University buildings in July 1974. The Steering Committee established the following strengthening priorities:

1. Brace all chimneys, pinnacles by securing to roofs and walls.
2. Strengthening by tying the walls together through roof and roof planes and by supplementary bracing in some areas. This work would begin in the Clock Tower and Great Hall.
3. Build new structures (shear walls, steel frames) within the former Chemistry, Biological, Engineering and Observatory Tower buildings.⁷⁸

In order to carry out this work, it was recommended that the future arts centre would have a full time team of maintenance staff who could carry out strengthening work on a progressive basis.

Following the establishment of the Arts Centre of Christchurch Trust Board in 1978, stage one strengthening work began by Mr Jim Loper, building contractor and engineer Brian Wood. In 1982 Holmes Wood Poole & Johnstone Ltd reported that about 50% of the buildings on the site had been strengthened under stage one by tying all the principal elements together and the bracing of parapets and chimneys (including the removal of a few chimneys).⁷⁹ The report commented that stage two will involve the bracing of stone mullions of windows and tying to walls (this had already been done in the Great Hall) and installing a greater density of ties between the major elements. It was considered that the strengthening work of stages one and two would ensure that the buildings could withstand a MM VIII earthquake which was expected to occur in 1-200 years.⁸⁰ In short, the early strengthening work was not designed to prevent major damage or collapse, but to prevent partial collapse of critical elements in a moderate earthquake of MM VII-VIII intensity.⁸¹

In 1991 a further engineering report was prepared by Holmes Consulting Group. This report provided an overview of strengthening work completed and recommendations for further work as summarised below:

⁷⁸ Community Arts Centre Steering Committee, *Old University Precinct Future Use Feasibility Study*, July 1974, p 13

⁷⁹ Holmes Wood Poole & Johnstone Ltd, 'The Arts Centre of Christchurch Report on strengthening to resist earthquakes', 25 March 1982

⁸⁰ *ibid*, p 16

⁸¹ Chris Cochran and Rod Cook, *Arts Centre Christchurch Conservation Plan*, NZHPT, June 1991, p 125

**Arts Centre of Christchurch Overview
of Strengthening Work 1991**

Building	Earthquake strengthening work completed	Recommended for further work
Arts School	Cross bracing installed in skylights to reinstate roof diaphragm	Steel frame be installed under stone roof of south entry
Hight Block (Classics)	Securing largely complete	West wall and chimney requires securing. Archway over entrance requires steel transoms to improve face-load stability
Great Hall	West wall has been vertically post-tensioned and fully grouted with extra foundations to provide independent stability. East wall secured by steel beam spanning from south wall to Old Math Block walls. North and south walls strengthened for face loads, south wall has in-plane steel truss added. Window mullions added	Chimney in the east wall requires strengthening and finial on north wall requires tying. Steeple on stair shaft on Rolleston Ave boundary requires strengthening. Gable end wall of entry vestibule on east face needs to be tied to roof
Lecture Room and West Arcade (Maths)	General integration completed, but limited ability of flooring to provide diaphragm	Two steel transoms to be added to east and west walls of entry stairwell
Clock Tower	General securing complete, including steel braced frame within clock tower, tied between 1 st floor and roof installed	Steel transom required at 1 st floor level, south wall and main stair. Window replacement to involve steel mullion straighteners
Electrical Engineering (Theatre)	General securing complete	
Mechanical Engineering (Scott Block)	General securing complete	
Centre Gallery (Library)	General securing complete	Chimney on west gable end requires strengthening. Bay windows in the north wall may require stone mullions
Cloisters	Steel angle connections between roof slabs and stone piers/walls have been fixed	Further work required to add extra angles to steel connections
Men's Common Room (Collins Block)	General securing complete	Extra cleats to secure roof trusses principals to inside faces of north and south walls
Physics	General securing complete including steel trusses at centre east-west walls and on east and west walls, on inside faces	
Botany	General securing complete	
Biology (incl' Zoology), Observatory Tower	No securing work done	Floors and roof to be tied to walls and observatory to be assessed. Chimney on west wall in very poor condition and requires urgent assessment
Chemistry	Securing, post-tensioning of north and south walls and parapet bracing complete	
Boiler House	No strengthening required	
Hydraulics Laboratory (former Court Theatre)	Work complete, general securing and horizontal post-tensioning at 1 st floor and roof levels to provide spandrel frame capacity	
Old Boys High School	General securing complete	Gable ties required on south brickwork wall. Stone steeple and parapets require securing
Craftshops (Old	No work required	

Boys High School additions)		
Gymnasium (Academy Cinema)	Strengthening work completed prior to acquisition by Trust Board	
Old Registry Building	General securing complete, including leaning chimneys	New steel frame required at first floor level in the entry stair area
New Registry addition	No work required	
Student Union Building (Dux de Lux)	Minor work required only	

As earthquake strengthening progress on the buildings and as the new Arts Centre developed, some level of concern emerged about the potential impact of strengthening work on heritage values. This issue and other matters influenced the preparation of a conservation plan by the NZHPT in June 1991.

The conservation plan established the need for a careful planned approach to earthquake strengthening by proposing two stages:

The first stage would establish the basic seismic and geological data specific to the site and define in some detail the expected building response to earthquakes of varying intensity. The second stage would investigate the structural characteristics of each building using the above data and identify those at greatest risk, those at lesser risk and those at least risk. The second stage would also develop a programme for working through the buildings in a systematic manner indicating in broad terms, methods of strengthening, sequence of work, relocation of users and budget costs.⁸²

With regard to costs of strengthening, the conservation plan commented that ‘the cost of strengthening the buildings to preserve them will depend to a large extent on the intensity of the earthquake they are designed to resist.’ This choice was ‘essentially a social choice: the more precious the object the greater the effort we are prepared to make to protect it.’⁸³

As recommended by the conservation plan, the Holmes Consulting Group prepared a comprehensive strengthening report in 1993.⁸⁴ The report provided detailed information about the site soil profile of the Arts Centre, a detailed and computerised evaluation of the Clock Tower, strengthening alternatives, costs and recommendations. By reviewing existing strengthening works and the detailed analysis of the Clock Tower, the report estimated that the Arts Centre buildings had an existing capacity of between .15g and .25g or approximately 50%NBS.⁸⁵ The proposed third stage strengthening work was recommended to involve a system of new concrete walls within the cells of the buildings with strengthened diaphragms and grouting to exterior walls with an estimated total cost of \$8.5 million.⁸⁶

Concerns in the community remained about the impact of strengthening work. As described by Glyn Strange in her discussion above conservation issues – ‘...a full programme of strengthening may

⁸² Chris Cochran and Rod Cook, *Arts Centre Christchurch Conservation Plan*, NZHPT, June 1991, p 126

⁸³ *ibid*, p 127

⁸⁴ Holmes Consulting Group Ltd, *The Arts Centre Stage Three Strengthening Report*, Draft, November, 1993

⁸⁵ *ibid*, p iii

⁸⁶ *ibid*, p iv

intrude further upon the historic fabric of the buildings and alter their appearance to such an extent that it might obscure some of the reasons for their preservation.⁸⁷

Since the mid-1990s, earthquake strengthening work slowed (in comparison to the earlier period from 1980-1990) with the preparation of individual conservation plans for the Art Centre buildings. While earlier in 1993 it was considered that the structural performance of the buildings was estimated at around 50%NBS, this estimate has been reduced during the 2000s to around 36%NBS. In 2008, the Trust Board set a target of strengthening of 67%NBS at a cost in order of \$28 to \$30 million.

The most recent (pre-September 2010) strengthening project has involved an upgrade to the 1878 Christchurch Girl's High School (School of Art from 1882). Designed by Holmes Consulting Group, the work involved the use of advanced Carbon Fibre Reinforced Polymers (FRP) wrap to the walls. This technique removes the need for heavy 150mm concrete walls with instead heavy gluing of fibreglass sheets to form a 6mm layer over key bracing walls. This approach means that internal linings can be reinstated over the FRP strengthened walls without visible impacts on the fabric of the building. In addition, the level 1 floors of the building were overlaid with plywood to provide a diaphragm bracing element for tying to the walls and the roof was tied to the gables with extra bracing installed within the roof. The NZHPT understands that there has been no or minimal damage to the 1878 Christchurch Girl's High School building.

Level of Damage: September-December 2010: Mostly minimal damage except for Great Hall as a result of a falling chimney.

January-June 2011: Some severe damage with partial collapse (Observatory Tower). Recently strengthened parts of the complex have minimal damage.

July 2011-January 2012: Mostly minimal damage with some areas of moderate damage.

NZHPT post-earthquake response: The NZHPT is working with the Arts Centre of Christchurch Trust and Christchurch City Council to make safe, repair and strengthen, including some partial deconstruction and demolition. Resource consents have been obtained, and work has begun, for repair and strengthening (to 67%NBS) of the Clock Tower and Great Hall. Consenting for the repair and strengthening of the Registry building is being processed.

Current status: Some partial deconstruction and demolition repair and strengthening work is underway, but currently about 75% of the site has been 'mothballed' due to insurance and funding issues.

⁸⁷ Glyn Strange, *The Arts Centre of Christchurch Then and Now*, Clerestory Press, 1994, p 126

Former Canterbury Provincial Government Buildings

Corner Durham and Armagh Streets From
1858

Mountfort Architect

Registered Category I historic place

Listed Group 1

Public ownership (Department of Conservation and Christchurch City Council)



Significance: The only surviving purpose-built provincial government buildings in New Zealand, these superb Gothic Revival buildings were built in three stages by Mountfort to house one of the original six councils that governed the country's provinces between 1852 and 1876 and in 1928 became the first buildings in New Zealand to be protected for heritage reasons by legislation.

Construction: Timber-framed, URM

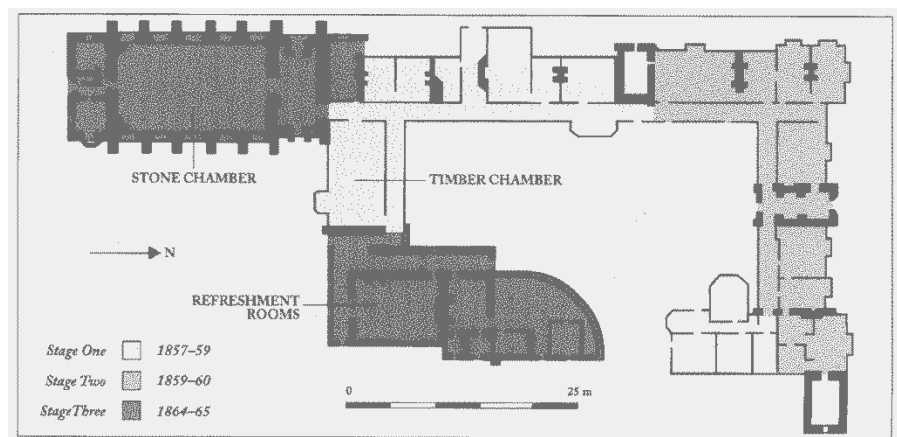
EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history:

The Former Canterbury Provincial Government Buildings has four main parts:

1. The largely-timber part of the building dating from 1857-60 including the Council Chamber (timber).
2. The stone towers within the timber-part of the building also dating from 1857-60.
3. The stone Council Chamber of 1864-1865.
4. The masonry refreshment rooms (known as Bellamy's) of 1864-1865.



Canterbury Provincial Government Buildings. Plan showing stages of construction.
Source, Ian Lochhead, *A Dream of Spires, Benjamin Mountfort and the Gothic Revival*, Canterbury University Press, 1999, p 117

Earthquake strengthening proposals for the Former Canterbury Provincial Government Buildings dates from 1986 as a result of advice from the Architectural Division of the Ministry of Works and Development (MWD). The MWD had assessed the timber-part of the building in February 1986 and recommended a programme of strengthening to 67% NBS. This assessment and the need to carry out strengthening on the stone sections of the building, resulted in the Canterbury Provincial Buildings Board to submit an application for funding assistance to the NZHPT in April 1986. The 1st stage of this work was proposed for the stone Council Chambers and the Durham Street tower. At the time, the Board considered that:

1. That earthquake was the most likely cause of destruction of the Provincial Buildings.
2. That in the event of that there would be little likelihood of reconstruction.
3. That it would therefore be more appropriate to invest in earthquake protection rather than insurance.
4. That fully indemnity cover be maintained on the basis of full cost less depreciation.
5. That damage rather than total destruction is the most likely outcome of a disaster and that the amount of insurance cover should be adequate to cover that damage.

The MWD prepared a structural report on the stone Council Chamber, Bellamy's and the stone towers in February 1987. The stone Council Chamber was found to have no effective roof tie or diaphragm bracing and therefore the stone gables were not considered capable of 'sustaining a 'moderate' earthquake without failing.'⁸⁸ Strengthening to 2/3 of the current building code was recommended using of staged system involving options of:

1. Test and investigation.
2. Tying the three gables into the roof and bracing/strengthening of chimneys.
3. Strengthening of walls using chemical foam to fill rubble cavity where it occurs between the skins of stone work.
4. Installing post-tensioned reinforcing rods fixed to the walls and tying the existing roof sarking to these walls.

⁸⁸ MWD Engineering Services Division, 'Canterbury Provincial Buildings Structural Report on Existing Buildings, Old Stone Council Chamber, Bellamy's Block, Stone Towers, February 1987, p 14

5. Isolation by installing a line of small diameter micro piles around the outside perimeter of the building and constructing post tensioned continuous concrete beams below ground level over the piles and against the foundation wall (this option was considered to be ambitious and novel at the time).⁸⁹

Bellamy's was used by the Justice Department and included two Court rooms and Judge's Chambers. As for the stone Council Chamber, it was found that the floors and roofs were not tied laterally to the walls and so the building had limited diaphragm capability. This meant that the upper storey walls, supporting the roof, and the chimneys and gables would fail in a 'moderate' earthquake. A similar staged scheme was proposed for Bellamy's as outlined for the stone Council Chamber. However, this scheme also proposed spray coating critical internal walls with a 150mm reinforced concrete layer.

The gables of the Durham Street tower were also assessed to fail in the 'moderate' earthquake and strengthening proposals involved tying of gables and walls at roof level, installing and fixing roof, floor and ceiling in-plane bracing, and spraying of the inner face of existing walls of reinforced concrete. Comparable strengthening work was also proposed for the Armagh Street tower.

Following the disestablishment of the Canterbury Provincial Buildings Board, the buildings were vested in the Canterbury Regional Council and the Department of Conservation in the late 1988. Five years later, responsibility was transferred from the Canterbury Regional Council to the Christchurch City Council. The Canterbury Regional Council implemented the first stages of strengthening work involving tying and the installation of post-tensioning reinforcing rods fixed to the interior of the stone Council Chamber and Durham Street tower in 1990. The completed stone Council Chamber strengthening work involved:

- Strengthening work on 2 chimneys on south gable, imitation chimney using lightweight materials on north gable and strengthened chimney on north stairwell.
- Tying using steel rods with cast iron rose head washers on the north and south gables and Durham Street entrance gable. Steel bracing installed within roof space over north and south ends of the Chamber.
- Concrete beam installed along the top of the east and west walls along the full length of the Chamber.
- Steel bracing installed over parapet above the speaker's room and clerk's room, south end.
- Steel bracing installed beneath the floor of the strangers (public) gallery.
- Stone window mullions on east and west walls braced by steel mullions with ties to stonework.⁹⁰

Sometime after this work, exposed steel cross ties were also installed within the ceiling of the stairwell and it appears some strengthening of the Durham Street tower was also carried out at this time.⁹¹

In 1991, the Regional Council also prepared a conservation plan which contained structural reports and a commitment to research and implement 'sympathetic securing and strengthening of the at-risk areas of the Canterbury Provincial Government Buildings against earthquakes.'⁹²

⁸⁹ *ibid*, p 24

⁹⁰ Shews Hey Ussher Architects, *Canterbury Provincial Council Buildings Conservation Plan*, October 1991

⁹¹ Opus International Consultants, *Canterbury Provincial Council Buildings, Christchurch, Revised Conservation Plan*, December 2009, p 52

⁹² Shews Hey Ussher Architects, *Canterbury Provincial Council Buildings Conservation Plan*, October 1991, p 141

Following the conservation plan and NZHPT concerns about the potential impact of earthquake strengthening on the heritage values of the building, the Christchurch City Council commissioned Holmes Consulting Group Ltd to prepare a strengthening report for Bellamy's in September 1994.⁹³ The report considered that the building had an estimated strength of .16g or approximately 30% of the current loading code design earthquake. The proposed strengthening programme tried to find a balance between strengthening and retention of heritage fabric especially regarding the application of sprayed reinforced concrete to the walls:

The proposed strengthening system involves application of new concrete facings to some or all of the walls, full strengthening of the floor diaphragms and tying together of the various elements of the building. The analyses revealed that the whole building could be fully strengthened, but only by application of large areas of concrete, much of which would be hopelessly intrusive. A more acceptable alternative is proposed, by which the main areas of the building are fully strengthened, while the areas which cannot be unintrusively strengthened will be allowed to fail in the event of a moderate to large earthquake.⁹⁴

This partial-strengthening approach, however, still involved substantial changes to the building including the removal of the existing floor, new foundations and new concrete beams with some reroofing required.

After some negotiations between NZHPT, DOC and the Christchurch City Council, a programme of partial-strengthening work was agreed upon in June 1996 involving new foundation alongside the existing and ceiling beam and new sprayed 150 mm reinforced concrete walls designed to minimise impacts on heritage fabric. This work was finished in 1999.

After the strengthening of Bellamy's, Holmes Consulting Group also designed strengthening proposals for the towers in 1998 and three chimneys with proposals for post tensioned steel cables, new base foundations and a concrete ring beam. This level of strengthening was aimed to achieve 40% of the current code.⁹⁵ After some further discussions between Council, DOC and NZHPT, the strengthening work was completed in 2001.

A revised conservation plan was prepared by Opus International Consultants in 2009. The conservation plan provided an overview of historical strengthening work and other alterations and conservation work. It stated that there was a need Christchurch City Council to 'develop a clear policy for any future earthquake strengthening that may be required for the Canterbury Provincial Council Buildings.'⁹⁶ The conservation plan also included an intervention policy that recommended detailed strengthening proposals that follow the recommendations of the NZHPT guidelines. It noted that 'some securing has already been carried out in the stone portions of the building, but further analysis is required to determine current and future strengthening requirements.'⁹⁷

Level of Damage: September-December 2010: Moderate damage to Stone Chamber and Corridor and Tower (chimney damage and cracking to stone walls). Minimal damage to timber-framed parts of the building.

⁹³ Holmes Consulting Group Ltd, 'Canterbury Provincial Buildings Bellamy's Strengthening Report', for Christchurch City Council, September 1994

⁹⁴ *ibid*, p ii

⁹⁵ Holmes Consulting Group Ltd, 'Structural strengthening of Armagh St Tower, Durham Street Tower and three chimneys adjacent to the Armagh/Durham Street corner', March 1998

⁹⁶ Opus International Consultants, *Canterbury Provincial Council Buildings, Christchurch, Revised Conservation Plan*, December 2009, p 80

⁹⁷ *ibid*, p 93

January-June 2011: Major damage and collapse of Stone Chamber and Tower, gables and buttresses collapse, partial collapse of Bellamy's (moderate damage to timber-framed parts of the building).

July 2011-January 2012: Further severe damage to Durham Street Tower and Bellamy's.

NZHPT post-earthquake response: NZHPT supports make safe and partial deconstruction. NZHPT successfully nominated for inclusion on World Monument Fund Watch 2012 List.

Current status: Collapse of Stone Chamber, Bellamy's and Towers. The rest of the building is being secured and made safe.

Christ Church Cathedral

Cathedral Square

1864-1904

Benjamin and Cyril Mountfort, and Scott Architects

Registered Category I historic place

Listed Group 1

Private ownership



Significance: Built on land set aside for the purpose by the Canterbury Association, the Cathedral is the only church designed by distinguished British Gothic Revival architect George Gilbert Scott in New Zealand and is one of the most important landmarks and symbol of Christchurch.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history:

The history of the Christ Church Cathedral has been well documented and an authoritative account of the construction of the Cathedral is provided by Ian Lochhead in his account of Benjamin Mountfort and the Gothic Revival.⁹⁸ This account records that George Gilbert Scott originally advocated for a 'hybrid timber and stone structure' which could be fabricated in Britain and be earthquake resistant.⁹⁹ While the hybrid structure was rejected in favour of a stone building, Lochhead's account includes a description of the earthquakes of the 1880s which resulted in damage to the spire and the 'final solution' of 1901 to reconstruct the spire in timber sheathed with copper. Lochhead noted that the 'distinctive cupreous green of the spire's apex acts as a conspicuous record of the cathedral's vulnerability to seismic events and also serves as a reminder of the protracted debates over its structure.'¹⁰⁰

⁹⁸ Ian Lochhead, *A Dream of Spires, Benjamin Mountfort and the Gothic Revival*, Canterbury University Press, 1999

⁹⁹ *ibid*, p 130

¹⁰⁰ *ibid*, p 147

The NZHPT's record of earthquake strengthening of the Cathedral is limited to the February 1998 Seismic Evaluation by Holmes Consulting Group Ltd.¹⁰¹ The seismic evaluation considered that the Cathedral presented a severe life safety risk with failure 'likely under a 50 year return period earthquake, which has a 64% probability of occurring within any 50 year period. The failure mode is collapse at the West face of the buttresses which resist all lateral loads generated by the upper nave walls and roof.'¹⁰² The proposed strengthening measures was to 'add roof bracing to transfer earthquake loads from the upper Nave walls to the North and South exterior walls. Addition of this bracing reduces the probability of failure in a 50 year period from 64% to 22%, a significant decrease in life safety hazard.'¹⁰³ It was also suggested to add concrete skin walls in selected locations to further reduce seismic risk. Caution was provided, however, that even with the proposed strengthening, risk of failure was a possibility:

Even with the roof bracing and the added concrete walls, the probability of failure in a 50 year design life is higher than recommended by the NZNSEE (14% versus 11%). However, there are twin constraints of working with a structural form which is unsuitable for earthquake resistance and a building of an historic nature to which substantial changes cannot be made. Within these constraints, it is inevitable that some compromise must be made to the level of earthquake resistance which can be achieved.¹⁰⁴

By December 1998, further design work had been completed for the resource consent application involving the steel roof bracing and the addition of concrete skin walls to the west walls of the nave aisles and transept. The visual impact of the roof bracing was minimised by utilising the steel rods as the main bracing members and shaping exposed steel cleats and brackets to match in with the form of the existing structure. This work was supported by the NZHPT and was undertaken in 1999-2000.¹⁰⁵

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Severely damaged – The top of the tower (the spire) collapsed and the rest of the church was moderately to severely damaged. The north wall of the tower was demolished.

Further severe damage occurred on 23 July 2011-January 2012 with the collapse of the west end of the nave, including the rose window.

NZHPT post-earthquake response: Prior to January 2012, the NZHPT worked with owners and CERA to develop a make-safe plan for the Cathedral. Following a reassessment of the options by the owners following 15 January 2012, the NZHPT provided advice to CERA on 27 February 2012 supporting reinstatement of the Cathedral in a strengthened form.

Current status: A decision to deconstruct the Cathedral was announced on 2 March 2012.

¹⁰¹ Holmes Consulting Group Ltd, 'Christchurch Cathedral Seismic Evaluation', 4 February 1998

¹⁰² *ibid*, p 2

¹⁰³ *ibid*, p 3

¹⁰⁴ *ibid*, p 3

¹⁰⁵ Research following the earthquakes, estimates that the building was strengthened to >67%NBS Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

Former Trinity Congregational Church

Corner Worcester and Manchester Streets
1873
Mountfort Architect
Registered Category I historic place
Listed Group 1
Private ownership



Significance: The first Mountfort church built in stone, this church was designed for the Congregationalists, who reject state religion in favour of a democratic community and a 'simple and individual faith in Jesus'. It is Gothic Revival in style and its central, octagonal space required by the Congregationalists features a double-barrel vault panelled in timber described as 'one of Mountfort's most impressive and original inventions'. In more recent times used as a restaurant.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: The church was proposed for sale and/or demolition in 1973 which sparked a public outcry to save the building. At the time, the Ministry of Works and Development considered that the church was an earthquake risk and was 'unsuitable for strengthening.' Negotiations between NZHPT, Council and the church owners failed to secure the building and the building was proposed for a change of use as a restaurant in 1974. This change of use was supported by the NZHPT. As part of the change of use for a restaurant, the nave internal walls were substantially strengthened with concrete reinforced skin.

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Severely damaged and partial collapse - tower collapsed and the rest of the church was severely damaged.

July 2011-January 2012: Further moderate damage.

NZHPT post-earthquake response: The NZHPT is working with the owner to retain the octagonal hall part of the building..

Current status: Hall demolished. Church made safe with partial demolition.

Christchurch Club

Corner Worcester St and Latimer Square
 1859
 Mountfort Architect
 Registered Category I historic place
 Listed Group 1
 Private ownership



Significance: Built for the Christchurch Club that was founded in 1856 by a group of wealthy landholders, this Italian villa style timber building is an unusual example of Mountfort's work and was the centre of social and political life for the Canterbury elite in the 19th century.

Construction: Timber-framed

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: No earthquake strengthening undertaken to the knowledge of the NZHPT.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Severely damaged: Latimer Wing collapsed and the rest of the building was moderately damaged. 50% of the building was demolished by USAR during the emergency response.

July 2011-January 2012: Unknown.

NZHPT post-earthquake response: In May 2011, the NZHPT recommended retention of the existing buildings and their interim propping and weatherproofing.

Current status: Secured/made safe.

Cathedral of the Blessed Sacrament

1901

Frank Petre Architect

Registered Category I historic place

Listed Group 1

Private ownership



Significance: A superb example of work by well-known church architect Francis William Petre, the neo-classical Cathedral was built in Oamaru stone involved new, significant methods of construction and has been described as one of the finest examples of church architecture in Australasia and was admired by playwright George Bernard Shaw. It has been the centre of the Catholic diocese in Canterbury since its completion in 1905.

Construction: URM and concrete

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: While a gothic revival design was originally favoured by the Catholic Bishop of Christchurch in the early planning stages of 1899, Petre considered that a neo-classical design would be more resistant to earthquake shaking. The design and the use of concrete influenced a belief that it was 'long presumed that the Cathedral of the Blessed Sacrament is a much stronger building than others of its age.'¹⁰⁶ This belief, however, was tempered by the early problems after the construction of the Cathedral with ground subsidence which affected the two eastern piers carrying arches, drum and dome.

Alterations and restoration between 1970-1975 did not address earthquake strengthening issues and it was in 2001 that the parish started to address the issue. Following the Arcquipa earthquake in Peru of 24 June 2001, the Catholic Cathedral Trustees began a fundraising campaign. The Newsletter of October 2001 stated:

Happily the Cathedral is of fairly massive construction and its form is symmetrical, with walls and piers capable of resisting directional tremors. While a detailed computer analysis has not been carried out, the engineers consulted believe that the basic building will remain stable at well above the minimum seismic load presently required for buildings deemed to be 'earthquake prone'.

However, as was to be expected, certain features of the building are significantly more vulnerable than others. These have been identified and recommendations have been made with a view to securing or strengthening these to reduce their vulnerability to

¹⁰⁶ Newsletter, Friends of the Cathedral, No.46, October 2001

damage and collapse. With little or no visible alteration to the Cathedral, the engineers believe that it can be brought up to 60% of code strength.¹⁰⁷

Further investigations by Holmes Consulting Group (with Soils & Foundations Ltd and input from Dr Berrill and Dr Davis of the University of Canterbury) were reported to the Trustees in February 2002 and found that the site was at risk as a result of the soft fine grained alluvial sediments over dense sands which would give rise to earthquake induced liquefaction. This meant that 'seismic ground shaking at the Cathedral site is likely to be about three times stronger than that implied by the current New Zealand Loadings Code.'¹⁰⁸

As a consequence, the report stated that 'strengthening the building as a whole was, therefore, not considered practical' and 'it was accepted that it would be very difficult to execute a full and proper job of strengthening the building on a cost effective basis. Instead, it was decided to focus on dealing with the more obviously vulnerable building elements.'¹⁰⁹

The focus on securing vulnerable building elements resulted in a strengthening proposal involving a mixture of bracing, concrete wall skins, steel rods and frames. The work, as consented and undertaken in 2002-2003 is summarised below:

Area of work	Cathedral of the Blessed Sacrament Strengthening summary 2002-2003
Bell Towers	New cross bracing added internally on four walls each.
Handrails and Balustrades	Tensioned stainless steel wire and rods.
Barbadoes Street Pediments	150mm thick concrete overlay over the portico area. Four braced steel frames tied into the overlay, parapet and gable wall. 100mm concrete wall overlay to the high-level slab between the parapet wall and gable wall. 89mm square steel sections shaped and fixed to back of each angel. Height of cross shifted down to plinth level and secured by stainless steel rod. Stainless steel wires from top of braced steel frames to the back of each capital
North and South Gables	Removal and rebuilding of cross Steel frames to the back of each gable with anchors. Steel flats along the floor at each side. 65mm square steel sections from the steel frames angled onto the floor with grouted fixings.
Main Dome	200mm thick concrete skin wall to the inside of the dome wall. Five stainless steel wires crossing the dome below the existing timber roof structure level fixed to cast in steel brackets.
Dozy Stonework	Stone replacement (16 stones) and installation of thirty stainless steel threaded rods 600 long pinning vulnerable stonework.
Mezzanine Floor Overlay	100 thick concrete overlay.
Main Ceiling Bracing	100 thick concrete overlay over the existing concrete ceiling to the mezzanine area. Two stainless steel cables from the west gable wall anchored back to the existing concrete beams over the mezzanine columns.
Ceiling Domes	36 connections from three ceiling domes to the surrounding timberwork.

¹⁰⁷ ibid

¹⁰⁸ Holmes Consulting Group, 'Catholic Cathedral Seismic Securing Proposal' Prepared for Catholic Cathedral Trust, 12 February 2002, p 1

¹⁰⁹ ibid

Following the September earthquake, repairs and additional earthquake strengthening was in the planning stages when the building suffered severe damage on the 22 February 2011.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Major damage and partial collapse of twin bell towers, main dome rotated and leaning, key stones and arches badly damaged, severe cracking.

July 2011-January 2012: Severe damage with cracking to the front façade and walls of the nave.

NZHPT post-earthquake response: NZHPT is working with owners and consultants to make safe to retain nave. NZHPT's engineer has proposed an alternative option for minimum demolition.

Current status: Made safe/partial deconstruction. Future uncertain at time of writing.

Former Municipal Chambers (Our City O'tautahi)

Corner Worcester & Oxford Terrace
 1886-1887
 Seager Architect
 Registered Category I historic place
 Listed Group1
 Public ownership (Christchurch City Council)



Significance: A significant and controversial departure from the Gothic Revival style favoured in Christchurch, this brick building constructed for the City Council was the first Queen Anne style building in New Zealand and one of Samuel Hurst Seager's major works.

Construction: URM, tile roof

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: The Christchurch City Council prepared a building survey in 1988 which provided estimates for two options – 'to secure and restore' and to 'strengthen and restore.'¹¹⁰ The 2000 conservation plan states that the option to 'secure and restore' was chosen as an interim measure and restoration works began in 1989 as guided by Don Donnithorne Architects.

As part of these works, the Christchurch City Council engineer designed a strengthening system with three tie rods across the Council Chambers vaulted ceiling in 1990. The work also involved the installation of a lift which added strength, new concrete shear walls in the southwest corner office and the chimneys were lined with concrete with steel angles alongside the chimney on the west elevation. This work was undertaken by the Council without consultation with NZHPT. At the time, the NZHPT indicated to the Council in writing that we wished to have an opportunity to discuss the strengthening work with the council.

The conservation plan of 2000 noted that 'concerns remain, however, regarding the structural integrity of the building in the following areas:

Chimneys

The chimneys constitute a substantial mass above roof level and their collapse in the event of an earthquake cannot be discounted. The chimney in the north corner has a pronounced lean towards the south.

¹¹⁰ Dave Pearson Architects, *Municipal Chambers 159 Oxford Terrace Christchurch, A Conservation Plan*, March 2000, p 26

Toilet Block

The toilet block on the northwest face appears to have settled differently with respect to the remainder of the building. This has resulted in cracks in the brickwork and voussoirs to the arch above the window dropping.

Cracks in Walls

Cracks are apparent in a number of locations. In particular, cracks are evident within the Council Chamber, within the walls, ceilings and beams. Cracks have also occurred in the stairwell on the northwest face.'

Despite these findings, it is somewhat surprising that the conservation plan did not include conservation policies for earthquake strengthening of the building and the NZHPT is not aware of any strengthening work undertaken on the building after 1990.

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Severe damage.

July 2011-January 2012: Severe damage.

NZHPT post-earthquake response: The NZHPT has not provided a response and is waiting for Council's assets team proposal.

Current status: Secured/made safe with extensive propping. Further securing work is underway at time of writing (February 2012).

McLean's Mansion

387 Manchester St
1899
England Brothers Architects
Registered Category I historic place
Listed Group 1
Private ownership



Significance: One of the largest timber houses in New Zealand, this grand Jacobean style mansion was built from the proceeds of a government-forced sale of a large sheep station for Allan McLean by the England Brothers in 1899. Bequeathed for use as a retirement home on McLean's death it was later used for dental services and is now a training centre.

Construction: Timber-framed

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: No record of earthquake strengthening work to the knowledge of the NZHPT.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Severe damage.

July 2011-January 2012: Unknown.

NZHPT post-earthquake response: The NZHPT is working with owner to retain.

Current status: Secured/made safe, with internal wall linings being replaced.

Excelsior Hotel

Corner 120 Manchester and High Streets
 1881-1882
 Armson Architects
 Registered Category I historic place
 Listed Group 1
 Private ownership (Christchurch Heritage Trust)



Significance: An important landmark on a site that has housed a hotel since 1865. Designed by Armson for publican John Barrett as the Barrett's Family Hotel, in the style of an Italian palazzo, an architectural form made famous by Sir Charles Barry's designs for two London clubs, the Travellers' (1829-1830) and the Reform Club (1837-1838). Features of this style can be seen in the block-like plan, the rusticated lower storey, the differing window treatments on the 3 floors, and the elaborate cornice. The building was the first acquisition by the Christchurch Heritage Trust in 1997.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: In 1987, an initial structural assessment was prepared by Halliday, O'Loughlin & Taylor Consulting Engineers Ltd. The building was considered to be an earthquake risk and substantial strengthening was proposed involving providing ties to the cornices, ties at each floor level from the exterior walls to wooden floor diaphragms and removal of parapets and chimneys. Following purchase by the Christchurch Heritage Trust in 1997, a conservation plan was prepared by George W Lucking which included a specific conservation policy for the security of the building and its occupants from seismic forces and from fire and smoke.¹¹¹ As guided by the conservation plan, the Excelsior Hotel was strengthened with works involving internal floor to wall steel ties, steel beams, parapet bracing and roof to wall ties.¹¹² The Christchurch City Council Historic Retention Incentive Grant contributed \$33,750 towards this strengthening work.

Following restoration, the building was sold by Christchurch Heritage Trust in 2010. It was re-purchased by the Christchurch Heritage Trust following the January-June 2011 earthquakes.

Level of Damage: September-December 2010: Minimal damage.

¹¹¹ George W Lucking, *Excelsior Hotel Conservation Plan*, Christchurch Heritage Trust Ltd, January 1998

¹¹² Research following the earthquakes, estimates that the building was strengthened to >33% but <67%NBS. Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

January-June 2011: Severe damage.

July 2011-January 2012: Minimal or no damage.

NZHPT post-earthquake response: In June 2011, the NZHPT advised retention of west Manchester Street façade.

Current status: Manchester Street façade retained.

Odeon Theatre

214 Tuam Street
1883
Lambert Architect
Registered Category I historic place
Listed Group 2
Private ownership



Significance: The Odeon Theatre, erected in 1883, is the oldest, masonry theatre in New Zealand and one of only three intact, purpose-designed theatres that were built in the nineteenth century. First known as the Tuam Street Hall or Theatre it was a popular venue for all types of public meetings, entertainment and exhibitions. Designed by prominent Christchurch architect T.S Lambert (1840-1915), of brick construction with a majestic stone façade of Italianate design with Venetian Gothic elements. The Luttrell Brothers, also notable architects, modified the interior in 1927, providing the theatre with superior comfort, acoustics and viewing qualities.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Poor

Strengthening history: Major interior changes were undertaken in 1927 with new ticket offices, staircase and mezzanine and new proscenium.¹¹³ This interior format survived until 1960 when the theatre was converted into a cinema by Kerridge-Odeon Ltd. Following sale to the Sydenham Assembly of God Church, a structural report was prepared by W.Lewis.¹¹⁴ The heritage assessment of 2006, noted that the structural report highlighted:

The grave need for earthquake proofing. In 1960, the rear section of the theatre was enlarged to accommodate the seventy-millimetre screen. Essentially an unsupported brick shell, this back stage area is a significant earthquake risk. The front façade also needs tying back to the internal walls. Complete renovation was quoted at \$790,000 in 1985.¹¹⁵

The cost of the earthquake strengthening and other retrofit work was prohibitive for the Sydenham Assembly of God Church and the building was sold to 3H Property Development Group in 2003. 3H Property Development Group lodged consents to demolish the building and this action resulted in community interest to save the building. In 2004, the theatre was suggested for a multi-purpose

¹¹³ Ian Bowman, *Odeon Theatre, Christchurch, Heritage Assessment*, June 2006, p 8

¹¹⁴ W. Lewis, 'Structural Report of the Assembly of God Building at 214 Tuam Street', 1985

¹¹⁵ Ian Bowman, *Odeon Theatre, Christchurch, Heritage Assessment*, June 2006, p 10

community arts facility by the Odeon Theatre Trust. As part of the proposal, consultants were commissioned to prepare a structural assessment. This assessment found that the building was earthquake-prone (generally considered to be about 5%NBS) with critical weaknesses being:

- Lack of ties between the top of the masonry walls and the roof structure.
- The large height to thickness ratio of the auditorium and stage walls.
- The significant lack of in plane shear strength of the proscenium wall.
- Lack of roof bracing in the Auditorium and Fly Tower.

Despite substantial advocacy by the Odeon Theatre Trust, Christchurch Heritage Trust and the NZHPT, no progress was achieved on the restoration and strengthening of the theatre and by 2008 the building was in a state of neglect. Various ideas were being discussed at the time of the September 2010 earthquake when the building suffered substantial damage.

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Severe damage to theatre, roof and fly tower. Moderate damage to facade.

July 2011-January 2012: Severe damage.

NZHPT post-earthquake response: In July 2011, the NZHPT advised partial deconstruction and retention. Further comments in January 2012 by the NZHPT recommended façade and front of house retention, demolition of the fly tower and auditorium based on engineering advice.

Current status: Future uncertain at time of writing.

Former Normal School

(Cranmer Court), Cranmer Square
1873
Farr Architect
Registered Category I historic place
Listed Group 2
Private ownership



Significance: This Gothic Revival school was the first Normal School in Canterbury and one of the earliest in New Zealand. ‘Normal Schools’ allowed student teachers to learn through exposure to a normal school environment. The school closed in 1970 and has more recently been converted to apartments.

Construction: URM (stone façade) apartments behind the façade dating from 1981-1985.

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: In 1969, the Former Normal School was vacated by the Christchurch Teachers College and the Department of Education proposed to demolish the school and use the site for an extension to the Christchurch Technical Institute.¹¹⁶ This proposal sparked a major public debate and a campaign to save the building.

Prior to the departure of the school and from the early 1960s, the structural integrity of the school was a concern to the Government. In October 1963, the Director of Education commissioned the Ministry of Works (which later became the Ministry of Works and Development) to prepare a structural report. This report, which remained confidential for some years, considered that the building was an earthquake-risk and in very poor condition. The report recommended that the building be demolished and a new replacement built within three years.¹¹⁷

The structural report of the Ministry of Works and Development was not released to the Christchurch Civic Trust and the wider public until 1978 but in 1970 media reports were circulating about the contents of the report¹¹⁸ A former structural engineer of the Ministry for Works and Development was reported in the media as saying that strengthening of the building ‘could not be done at a reasonable cost’.¹¹⁹

¹¹⁶ *Christchurch Press*, 16 September 1969

¹¹⁷ Christchurch City Council, Town Planning Division, *The Architectural Heritage of Christchurch, The Normal School*, 3rd Edition, October 1986, p 11

¹¹⁸ *Christchurch Star*, 24 October 1970

¹¹⁹ *ibid*

After substantial advocacy, the Minister of Lands confirmed the earlier government decision to demolish the school. This proposal was halted by intense public interest and a proposal by a private company (Paynter and Hamilton Ltd) to purchase the property for apartments. This purchase was successful subject to an agreed conservation covenant and in 1981 the former school was converted into 22 apartments and 15 town houses resulting in partial demolition and façade retention. After some financial difficulties, the project was completed by Fletcher Development and Construction Ltd in 1985. There is no record on the NZHPT's file of earthquake strengthening in association with the conversion of the building into apartments.

Level of Damage: September-December 2010: Moderate damage.

January-June 2011: Severe damage and partial collapse - Octagonal Room collapsed and severe damage to the rest of the building.

July 2011-January 2012: Moderate damage.

NZHPT post-earthquake response: Between May-September 2011, the NHZPT worked with owners to make safe.

Current status: Building is secured and made safe. Further securing work is required following the 2-15 January 2012 earthquakes.

Dorset Street Flats

12 Dorset Street

1956

Miles Warren Architect

Registered Category I historic place

Listed Group 3

Private ownership



Significance: The Dorset Street Flats are one of Sir Miles Warren's earliest architectural projects. The flats set new architectural, social and aesthetic standards for domestic buildings in New Zealand and are recognised as one of the most important Modern Movement buildings constructed in this country.

Construction: Reinforced block-work

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: No record of earthquake strengthening to the knowledge of the NZHPT.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Moderate damage.

July 2011-January 2012: Moderate damage.

NZHPT post-earthquake response: In October 2011, the NZHPT recommended retention with support from owners and Sir Miles Warren and is working with owners on retention proposal.

Current status: The stables apartment building has been demolished and the future is uncertain for the flats at time of writing.

Houses (semi-detached)

86-88 and 98-100 Chester Street East
1892
Widdowson Architect
Registered Category II historic place
Listed Groups 2 & 3
Private ownership



Significance: The remaining two sets of semi-detached townhouses located between 86 to 100 Chester Street East were built by William Widdowson. They are unusual in their design as two storey grouped townhouses were uncommon in Christchurch during the late colonial era. Their near identical form, materials and design add to the architectural significance of the townhouses, along with the scale and streetscape value. (note: two sets were demolished following the earthquakes).

Construction: Timber-framed, brick party walls

EQP assessment prior to September 2010 (CCC, 2009): Not listed as potentially earthquake-prone (residential building).

Condition prior to September 2010: Good

Strengthening history: Each pair of the four sets of semi-detached townhouses on Chester Street East were connected by 225 mm brick party wall. During the early 1990s, cracks appeared in the party wall at No. 86/88 Chester Street East as a result of ground settlement. The owner applied to the NZHPT for financial assistance to repair and strengthen the party wall using steel tie rods. While financial assistance from the NZHPT was not forthcoming, the work was completed in January 1994.

In 2007, substantial alterations were made to No.88 Chester Street East involving wall and chimney removal. Further work was proposed for No.86 in July 2010 involving sub-floor stabilisation and piling to prevent further ground settlement. This work was completed following the 4 September 2010 earthquake.

Level of Damage: September-December 2010: Minimal damage.
January-June 2011: Severe damage.
July 2011-January 2012: Unknown.

NZHPT post-earthquake response: NZHPT supports retention and is working with owners to achieve retention.

Current status: Yet to be secured and made safe.

Knox Church (Presbyterian)

28 Bealey Avenue
 1902
 R.W. England Architect
 Registered Category II historic place
 Listed Group 2
 Private ownership



Significance: Knox Church and its setting make an important contribution to the identity, sense of place and history of the Christchurch metropolitan area. In June 1901 the foundation stone for the present church was laid and the completed church was dedicated on 1 May 1902. It is an important example of the Church designs of prominent local architect R. W. England.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: While there is no record of earthquake strengthening to the knowledge of the NZHPT, the church gables had been tied to the roof as a result of historic strengthening work.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Severe damage.

July 2011-January 2012: Moderate damage.

NZHPT post-earthquake response: The NZHPT is working with owners on a redevelopment proposal.

Current status: Secured, made safe and a proposal to rebuild to 100% NBS subject to resolution of insurance issues.

McKenzie & Willis Building

Corner 179 High and 238 Tuam Street
1910
England Brothers Architects
Registered Category II historic place
Listed Group 2
Private ownership



Significance: This Edwardian building, erected as an addition to the earlier A.J. White Store (demolished following the February 2011 earthquake), was designed by the England Brothers. The England Brothers were one of the foremost architectural practices in Christchurch during the early twentieth century. The building was built for the business of A J White. In connection with adjacent buildings, this store forms a noteworthy part of the cityscape and provides a continuous link to the history of furniture retailing in Christchurch.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Unknown

Strengthening history: No record of earthquake strengthening to the knowledge of the NZHPT.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Severe damage.

July 2011-January 2012: Minimal damage.

NZHPT post-earthquake response: The NZHPT supports facade retention and funding support has been approved by the Canterbury Earthquake Heritage Buildings Fund (with financial assistance from Fletcher Construction Ltd).

Current status: Façade secured and made safe. Strengthening work to begin and the north façade has been propped as part of retention works.

Millers Department Store (Former)

163-173 Tuam Street

1938

Hart Architect

Registered Category II historic place

Listed Group 2

Private ownership



Significance: Of significance to the Canterbury region for its long term use as the Miller's Department Store and secondly by the Christchurch City Council as Civic Offices. Associated with philosophies related to worker's wellbeing and with provision in the building for staff recreation in a central city location, Miller's was considered a leading firm nationally with the building in this respect. The building is of architectural and aesthetic significance as an early example of the International Style of architecture in Canterbury and New Zealand. It is notable as the foremost work of Christchurch architect G.A.J. Hart, and for its successful design both functionally and aesthetically. It has technological significance as an example of the early use in Christchurch of modernist construction techniques using steel and concrete, and is of particular note for the use of waffle slabs, cantilevering, and hexagonal columns.

Construction: Steel and reinforced concrete

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone.

Condition prior to September 2010: Unknown

Strengthening history: No record of earthquake strengthening to the knowledge of the NZHPT.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Moderate damage.

July 2011-January 2012: Unknown.

NZHPT post-earthquake response: The NZHPT has been waiting for CCC assets team proposal for this building.

Current status: Engineering assessment currently underway and securing work commenced late in 2011.

Edmonds Clock, Edmonds Band Rotunda, Poplar Crescent Building and Balustrades

Corner Chester Street East and Madras Street, 230 Cambridge Terrace

1929

Hean and Willis Architects

Registered Category II historic place

Listed Group 2

Public ownership (Christchurch City Council)



Significance: In 1929 Christchurch businessman Thomas Edmonds donated £5,000 towards the River Bank Improvement Scheme, financing the erection of the rotunda and shelter on the Cambridge Terrace riverbank and a clock tower and telephone cabinet/drinking fountain to commemorate 50 years of Edmonds' business in Christchurch. These structures were designed by local architects Victor Hean and H. Francis Willis with sculpture by sculptor William Trethewey. Together with their setting the structures make an important contribution to the Avon River landscape in central Christchurch.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): No record of EQP assessment prior to September 2010.

Condition prior to September 2010: Good

Strengthening works: No record of earthquake strengthening to the knowledge of the NZHPT.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Severe damage.

July 2011-January 2012: Moderate damage.

NZHPT post-earthquake response: NZHPT has commented on proposals for repair and strengthening work as part of a resource consent application for clock tower.

Current status: Christchurch City Council have prepared a resource consent proposal for repair and strengthening of clock tower. The future of the rotunda is uncertain at time of writing.

Wards Brewery Historic Area

Corner Fitzgerald Ave, Kilmore and Chester Streets.

1860s

Registered historic area

Listed Group 2

Private ownership



Significance: Ward's Brewery, the first established in Christchurch, opened in 1854. It moved to its current site in 1860 and has been a significant landmark on the eastern side of the city for well over a hundred years. Constructed of brick and stone, the interesting range and form of the buildings attract attention to the site adjacent to the Avon River. The buildings are notable amongst other industrial structures of the era for their attractive detailing featuring Oamaru stone. The kilns in particular are superb examples of industrial architecture, their design and ornamentation transcending their functionality. Together with the malt-house, brewing tower and other related structures they comprise the largest and most important group of industrial buildings in Christchurch dating from this era.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Unknown

Strengthening history: In 2003, the Crichton Cobbers Youth Club applied to the NZ Lotteries Board for financial assistance to undertake earthquake strengthening work to the former Malthouse. At the time the building had an estimated resistance of about 25% of the NBS as detailed in a building condition report.¹²⁰ The work involved the erection of a SHS horizontal truss in the ceiling plane, spanning the full length of the hall to portals with 5 columns at each end of the hall.

Level of Damage: September-December 2010: Moderate damage.
January-June 2011: Severe damage.

July 2011-January 2012: Moderate damage.

NZHPT post-earthquake response: Between May 2011 and February 2012, the NZHPT has provided various reports and recommended partial demolition and make safe works.

Current status: Malt House, South Drying Kiln, Some Barrel Storage Halls – demolished;
Brewing Tower - partly demolished.

¹²⁰ John W. Warren, *Building Condition Report and Application for Funding for Earthquake Strengthening*, October 2003

Christchurch Town Hall

100 Kilmore Street
 1965-1972
 Warren & Mahoney Architects
 Not registered by the NZHPT
 Listed Group 1
 Public ownership (Christchurch City Council)



Significance: Designed in 1965 by Sir Miles Warren and Maurice Mahoney of the architectural firm Warren and Mahoney, the Christchurch Town Hall was the result of the largest and most significant design competition seen in New Zealand to that date. Warren and Mahoney's design is the pinnacle of a local response to Brutalist principles in modern architecture, a development spearheaded by the firm. The Town Hall was built using significant financial contributions from the public and the commissioning of a civic venue of this nature was perceived as a sign of the city's coming of age. Initially a joint project by the six former metropolitan territorial local authorities, the Christchurch Town Hall is now vested in the City Council (managed by V Base).

Construction: Reinforced concrete

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: No record of earthquake strengthening to the knowledge of the NZHPT.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Severe damage.

July 2011-January 2012: Unknown.

NZHPT post-earthquake response: No input by the NZHPT at time of writing.

Current status: Secure, has been assessed as repairable, loss adjusters and consultants preparing reports. The future of the town hall is uncertain at time of writing.

Former Magistrates Court (Family Court)

Armagh Street

1880

Mountfort Architect

Registered Category I historic place

Listed Group 1

Public ownership (Ministry of Justice)



Significance: The earlier, unpretentious portion (1880-1881) is the work of Mountfort, New Zealand's pre-eminent Gothic Revival architect. It is a simple but refined example of his prodigious design talents. The later portion (1908-1909) was designed in sympathy with Mountfort's original design, and is a rare example of Public Works Department gothic architecture. Together, the two portions of the building constitute an important contribution to a precinct of exceptional Gothic buildings.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: The former Magistrates Court was substantially upgraded in 1997 for the purpose of a Family Court. The work involved changes to the interior of the building including demolition of original cells, removal of internal walls and division of the large courtroom into smaller spaces. As part of this work, earthquake strengthening involved the stripping of brick walls and replacement of the interior brick layer with reinforced concrete. Also floors were completely replaced and mezzanines were installed within the double-height court room ceilings.¹²¹ Chimneys were removed and replaced with lightweight replica structures.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Moderate damage.

July 2011-January 2012: Minimal damage.

NZHPT post-earthquake response: The NZHPT supported make safe and repair work.

Current status: Secured and made safe, repair works are proceeding.

¹²¹ Research following the earthquakes, estimates that the building was strengthened to >67%NBS Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

Christ's College

(including: Big School, Chapel, Hare Memorial Library, Jacobs House, School house, Open air classrooms, Classrooms 1915-21), Rolleston Ave

From 1863

Various architects

Registered Category I and II historic places

Listed Groups 1 and 2

Private ownership



Significance: Planned by the Canterbury Association in Gothic Revival style by some of New Zealand's most renowned architects as a replica of the 'great Grammar Schools of England', Christ's College is now the oldest and one of the most prestigious private boys' schools in New Zealand.

Construction: Pre-1931 buildings are predominantly URM with the exception of the timber-framed Condell's House.

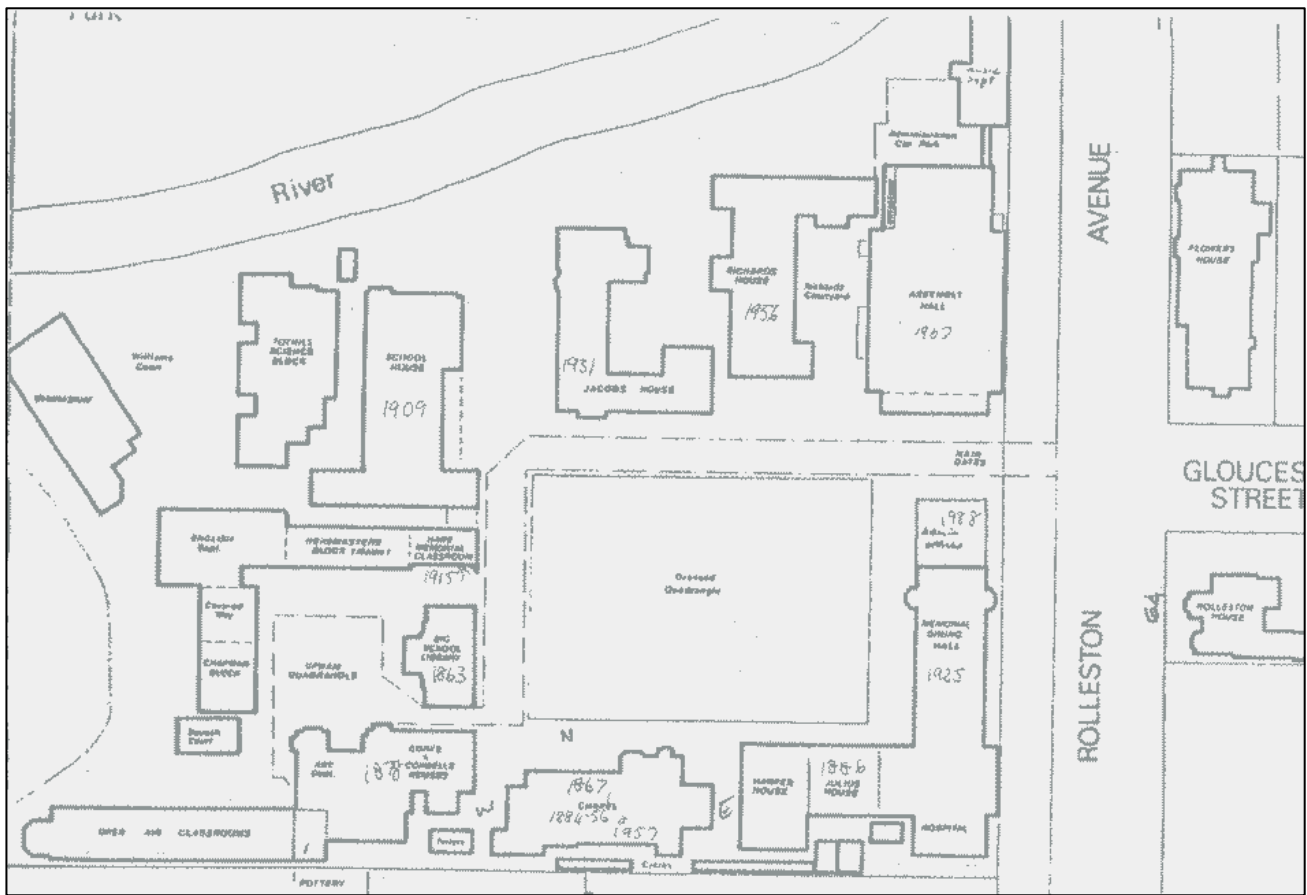
EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history:

Christ's College was built from 1857 with new buildings and additions taking place up to the present day. The primary historic buildings are as follows:

Big School Library	1863
Chapel	1867 and 1884/1888 (rebuilt in the 1950s)
Condell's House	1878 (incl' Corfe House and often named 'Condells Corfe')
New Classrooms	1886 (Harper-Julius House)
School House	1909
Hare Memorial Block	1915
Open Air Classrooms	1915-21
Memorial Dinning Hall	1925
Jacob's House	1931
Richard's House	1956
Chapman Block	1960
Assembly Hall	1967



Plan of Christ's College, Christchurch

The primary construction method of all the existing buildings prior to 1931 was unreinforced masonry (stone), predominantly in the gothic revival style. An exception is Condell's House which is timber-framed with brick chimneys.

The risk of earthquake damage to Christ's College was first raised during the 1970s and the College undertook a number of strengthening projects during the late 1970s and early 1980s with the design work guided by Warren & Mahoney Architects. The first strengthening work involved the School House and Harper-Julius House in 1983-1984 and involved:

- Installation of a stiff core of reinforced concrete within the centre of the building.
- New concrete shear walls attached to the main cross beams and timber trusses.
- New internal steel frames as extensions of trusses.
- Tying of roof frame with steel braces.
- Tying of floor, roof and walls.
- Infilling of chimneys with concrete.¹²²

An addition to the Memorial Dining Hall in 1988 for administration offices provided the opportunity to insert a rigid reinforced concrete block which is tied to the Memorial Dining Hall using steel bracing which was inserted into the roof, inside walls and columns of the Hall with minimal visual impact.

¹²² 'Christ's College takes steps to preserve its architectural heritage', *The Press*, 9 April 1981

Further strengthening work was undertaken on the Big School in 1989 in association with a substantial addition designed by Warren & Mahoney Architects and Holmes Consulting Group. The work involved removal of two tall chimneys which were considered an earthquake hazard and the construction of new foundations and reconstruction of the west wall using reinforced concrete columns. These columns were tied to the original building by additional roof bracing. This work involved the demolition of the west wall and west wall buttresses.

Following a new addition and strengthening of Richard's House in 1998, Christ's College tackled Condells Corfe Houses dating from 1878 (with interior changes having taken place in 1918, 1940, 1960 and 1977). This project involved removal of the rear west wing of the building and the restoration and strengthening of the twin-gabled east block. The twin-gabled east block included large windows, bell tower and two tall chimneys. This project was associated with a new Art and Technology Block which wraps around three sides of Condells Corfe Houses. Resource consent was granted for Condells Corfe House partial demolition and restoration in December 2000.

In 2003, Christ's College upgraded School House which had been previously strengthened in 1983. The upgrade works involve a substantial improvement in the structural performance of the building with new plywood structural floor diaphragms, exterior steel ties, five new concrete shear walls and the replacement of large and visible brackets dating from 1983 with more compatible smaller ones. In the same year, Jacob's House was also strengthened using new reinforced concrete shear walls, new plywood structural floor diaphragms and new steel ties to the exterior. Both the School and Jacob's House were strengthened to 67% NBS.

Christ's College, Christchurch – Summary of Earthquake Strengthening		
Date	Building	Works summary
1983	School House	Shear walls, steel frames, steel braces, infilling of chimneys
1984	Harper-Julius House	Shear walls, steel frames, steel braces, infilling of chimneys
1988	Memorial Dining Hall	Rigid concrete block, steel frame bracing
1989	Big School	Removal of two chimneys, new concrete foundations and wall, roof bracing
1989	Flower's House	Bracing to parapets (the building was demolished in 2004)
1998	Richard's House	Steel frames and shear walls
2000	Condells Corfe	Strengthening of bell tower, gabled east block, two tall chimneys
2003	School House	Upgrade of 1983 works with new shear walls, floor diaphragms, bracket replacement and new steel ties to exterior (to 67%NBS)
2003	Jacob's House	Shear walls, floor diaphragms, steel ties to exterior (to 67%NBS)

Following the September 2010-February 2011 earthquakes, the school suffered generally minor damage except for some damage to Harper-Julius House, School House and the Memorial Dinning Hall. Repairs are in progress and the school was one of the first within the Central City area to reopen.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Moderate and minimal damage.

July 2011-January 2012: Unknown.

NZHPT post-earthquake response: The NZHPT is working with owners to make safe and repair, consent received for Harper-Julius House for earthquake strengthening.

Current status: Made safe and repair for the majority of the site, with demolition of Maths block (registered Category II historic place).

Former Chief Post Office (facade only)

Cathedral Square
1877
Clayton Architect
Registered Category I historic place
Listed Group 1
Private ownership



Significance: Designed by New Zealand's first and only Colonial Architect William Clayton, the Italianate style building combined classical and Venetian Gothic elements and was one of the early major post offices and the home of the first telephone exchange in New Zealand. The 7 story addition built to house Telecom was completed in 1991.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone.

Condition prior to September 2010: Good

Strengthening history: In 1974, the Post Office Department proposed partial-demolition of the building with façade retention. This proposal sparked public debate and pressure to 'save' the building. The NZHPT engaged Smith Leuchars Consultants in 1980 to undertake a structural assessment. The consultants considered that earthquake strengthening of the Post Office was possible for a cost of the order of 90% of that required to construct a new replacement building. After some negotiation, Telecom Property Services (replacing the Post Office Department) agreed to façade retention and the structural upgrading of the Clock Tower in 1985. As work progressed during the early 1990s, a greater proportion of the interior was preserved than originally planned and demolition was limited to the rear third of the east facing part of the building. Details of the earthquake strengthening work undertaken by Telecom Property Services are not recorded in the NZHPT file.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Moderate damage.

July 2011-January 2012: Unknown.

NZHPT post-earthquake response: In June 2011, the NZHPT recommended make safe works.

Current status: Secured and made safe - future uncertain at time of writing with the owner wanting to demolish the building.

Bishopspark Main Building and Chapel

100 Park Terrace
 1927
 Cecil Wood Architect
 Registered Category I historic place
 Listed Group 1
 Private ownership



Significance: Bishopspark (formerly Bishopscourt) was designed in 1926. The Main Building is built in the Colonial Georgian style and shows the influence of American architecture on domestic design in New Zealand in the 1920s and 30s. It is a large house with over twenty rooms contained in its three storeys. It remains as an excellent example of the work of Cecil Wood and one of the finest Colonial Georgian houses in NZ. A small Georgian chapel is joined to the house by a covered way and is probably the only Georgian styled building of its type in NZ. The house and chapel have historical significance as the traditional residence of the Bishops of Christchurch, an influential body of men in a city founded as an Anglican settlement.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone.

Condition prior to September 2010: Good

Strengthening history: No record of earthquake-strengthening to the knowledge of the NZHPT.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Moderate damage.

July 2011-January 2012: Moderate damage.

NZHPT post-earthquake response: The NZHPT supported make safe and repairs.

Current status: The NZHPT is discussing options with owners and the future of the building is uncertain at time of writing.

Saint Michael and All Angels Church

(Anglican) (incl. belfry, hall and School)

1861: Belfry – Mountfort

1870-72: Church – Strouts and Crisp Architects

1877: Stone school building – Thomas Cane

Registered Category I historic place

Listed Groups 1 & 2

Private ownership



Significance: One of the largest timber Gothic Revival churches in the Southern Hemisphere, this renowned as a 'High' Anglican church was opened in 1872 and is one of the few remaining major works by Anglican church architect William Crisp.

The stone school building was originally St Michael's Parish Hall and was designed by Thomas Cane in 1877. In 1883, the parish hall was converted as the main schoolroom of St Michael's School and was also used for Sunday School.¹²³ In 1912 the stone school building was relocated on the site to make space for a new classroom block designed by Cecil Wood.

Construction: Church and belfry – timber-framed; school stone building - URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening works: In 2001, the stone school building was altered and strengthened with the NZHPT's support (no details of this work were recorded on the NZHPT's file). Regular maintenance has also occurred on the church and in 2007, the NZHPT supported restoration works including external timber conservation and some earthquake strengthening.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Moderate damage to school stone building with gables having fallen out.

July 2011-January 2012: Minimal damage.

NZHPT post-earthquake response: The NZHPT supported make safe and repair.

Current status: The church is intact with little damage and is open to the public. The stone school building has been secured and made safe.

¹²³ Tony Ussher Architect and Conservation Consultant, *St Michael and All Angels Anglican Church Day School Stone Classroom Block, Christchurch, Conservation Plan, 2nd Draft, September 2001*

Wellington Woollen Manufacturing Company Building (Former)

96-98 Lichfield Street
 1919
 W.H. Gummer Architect
 Registered Category I historic place
 Listed Group 2
 Private ownership



Significance: A significant example of William Henry Gummer's commercial architecture, this building gave the Wellington Woollen Manufacturing Company a progressive and distinctive image, as well as a facility that met practical requirements. Its use of large glazed areas and the paring back of decoration foreshadows the introduction of architecture of the Modern Movement to New Zealand. The NZHPT's registration report also noted the use of reinforced concrete floors, beams and columns. The building forms an important part of the commercial townscape. It was recently converted into Living Space apartments.

Construction: URM and Reinforced concrete

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: The building was upgraded in association with the conversion to Living Space apartments. Specific strengthening work, however, undertaken on the building in association with the alterations is not recorded by the NZHPT.

No earthquake strengthening work has been undertaken on the building to the knowledge of the NZHPT.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Minimal damage.

July 2011-January 2012: Unknown.

NZHPT post-earthquake response: No NZHPT input as yet.

Current status: Secured but future uncertain at time of writing.

Shand's Emporium

88 Hereford Street
1860
Architect unknown
Registered Category I historic place
Listed Group 2
Private ownership



Significance: Built in 1860, this simple timber office building is one of the oldest and now a very rare remaining example of an early commercial building in central Christchurch. The neighbouring brick Olympia building on the right of Shand's has been demolished.

Construction: Timber-framed

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Unknown

Strengthening history: In 1979, the owners (Hereford Holdings Ltd) were informed by the Council that the building was 'unsafe' and did not meet current building codes in terms of fire ratings, earthquake strengthening and egress requirements. There is no record of earthquake strengthening work being undertaken on the building to the knowledge of the NZHPT.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Moderate damage.

July 2011-January 2012: Minimal damage.

NZHPT post-earthquake response: In June 2011, the NZHPT has recommended retention and weatherproofing works.

Current status: Secured and made safe. Currently (February 2012) there is a proposal to relocate the building on a temporary basis while the adjacent Gough House (former offices of the NZHPT Canterbury/West Coast office) is demolished.

Cranmer Bridge Club

Corner Cranmer Square and Armagh Street (25 Armagh Street)

1864

Hurst Seager Architect

Registered Category I historic place

Listed Group 1

Private ownership



Significance: Built in 1864, this is one of the earliest brick residences in Christchurch and was later home to significant architect Samuel Hurst Seagar whose 1899 timber addition reflects his importance as one of the first architects who sought to design houses with a New Zealand character.

Construction: Timber-framed addition (1899), URM residence (1864, brick)

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: The Cranmer Bridge Club informed the NZHPT in 1990 that the brick section of the building was an earthquake hazard as a consequence of cracks in the brickwork. These cracks were investigated by Jim Espie (Conservation Architect) in 1993 who considered they were caused by ground settlement (possibly as a result of adjacent new construction or by changes in ground water conditions). In addition to repair works, Jim Espie recommended that the cracks be monitored and that a structural engineer be engaged to design a strapping system and/or a bond-beam at coping level. The brick repair works were carried in 1994 out with the financial support of the NZ Lotteries Board. No specific earthquake strengthening work or structural repairs were undertaken to the knowledge of the NZHPT.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Severe damage to brick residence, moderate damage to timber-framed addition.

July 2011-January 2012: Minimal damage.

NZHPT post-earthquake response: NZHPT recommended retention of the timber addition and is currently working with owners for redevelopment options.

Current status: Brick residence demolished, timber addition retained, plans to redevelop site.

Community of the Sacred Name

181 Barbadoes Street

1895-1912

B & CJ Mountfort (timber-framed building) & J.G. Collins (brick buildings)

Registered Category I historic place

Listed Group 1

Private ownership



(Collins Building)

Significance: The only Anglican convent in New Zealand, the Community of the Sacred Name founded by Sister Edith Mary Mellish (1861-1922) and has been associated with the Christchurch diocese for over 100 years. The Community has also played an important role in Canterbury women's history and in the history of non-governmental welfare assistance. The complex has three buildings. The first timber-framed building was designed by Benjamin Woolfield Mountfort in 1895. The second building (also timber-framed) was designed by C.J. Mountfort (son of Benjamin Woolfield Mountfort) in 1900 and the final building, built of brick, two and a half storeys high, was designed by J.G. Collins.

Construction: URM and timber framed

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Fair

Strengthening history: In 1998, a preliminary structural assessment was undertaken in association with proposed upgrade, new lift and restoration works. This assessment resulted in the construction of two new exterior structural buttresses to the rear of the building.¹²⁴ It is unknown what other strengthening work was undertaken at this time.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Severe damage to brick buildings, moderate damage to timber-framed building.

July 2011-January 2012: Unknown.

NZHPT post-earthquake response: The NZHPT recommended retention of the Collins building but demolition was approved.

Current status: B.W Mountfort and C.J. Mountfort buildings secured, J. G Collins building demolished

¹²⁴ Research following the earthquakes, estimates that the building was strengthened to >33% but <67%NBS. Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

New Regent Street

1930

Willis Architect

Registered Category I historic place and historic area

Listed Group 2

Private ownership



Significance: Designed by Christchurch architect Mr H.F. Willis, this set of two-storey Spanish Mission style shops was one of the only substantial building projects undertaken in the South Island during the Depression. The street was closed to traffic in the 1990s.

Construction: URM (solid interlocked brick walls with two layers of steel reinforcing mesh).

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Fair (conservation works under action)

Strengthening history: In 1990, the NZHPT was informed by Paul Dunlop, Optometrist of New Regent Street, that the walls of his shop were found to be very difficult and costly to demolish for alterations. This was because of the solid interlocked brick walls with two layers of steel reinforcing mesh. Further, the walls on each ends of the shop rows have reinforced concrete beams.

In 2009, Council facilitated a significant structural upgrade and retrofit project for New Regent Street. The strengthening work involved cavity wall tie renewal using the Helifix system. Both Council and NZHPT provided financial assistance for the project. This work was partially completed in September 2010.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Minimal and moderate damage.

July 2011-January 2012: Minimal damage.

NZHPT post-earthquake response: The NZHPT supported the owners financially (via the National Heritage Preservation Incentive Fund) to undertake strengthening work.

Current status: Secured.

Victoria Street Clock Tower (Jubilee Clocktower)

Victoria Street
1860
Mountfort Architect
Registered Category I historic place
Listed Group 1
Public ownership (Christchurch City Council)



Significance: The Victoria Street Clock Tower was too heavy to ornament the Canterbury Provincial Council Chambers for which it was designed. The iron structure, imported from England, was finally set in place in 1897 on the corner of Manchester and High Streets to commemorate Queen Victoria's Diamond Jubilee and is a landmark in Christchurch. The tower was relocated and re-erected on its present position in 1930.

Construction: URM with cast iron frame

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: The clock tower was restored in 1978 and by the late 1990s was in a poor state of repair. A conservation plan was prepared by George W Lucking in November 2000 which highlighted the need for earthquake strengthening. In particular, the conservation plan outlined the need for strengthening of the stone base, reinforcing of the cast iron framed middle section, the attachment of the spire to the middle section and the attachment of the three different sections of the structure.¹²⁵ The conservation plan ensured that earthquake strengthening was one of priority actions for the conservation of the structure and part of the schedule of the proposed conservation works.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Moderate damage.

July 2011-January 2012: Moderate damage.

NZHPT post-earthquake response: NZHPT recommended retention.

Current status: Secured and made safe.

¹²⁵ George Lucking Consultant, *Conservation Plan for Structure, The Jubilee Clocktower*, November 2000, p 16

Theatre Royal (Isaac Theatre Royal)

145 Gloucester Street
1906
Luttrell Brothers Architects
Registered Category I historic place
Listed Group 1
Private ownership (Theatre Royal Charitable Trust)



Significance: One of the oldest theatres in Christchurch still in use as a theatre, the ornate structure was built for the syndicate headed by American-born J.C. Williamson and initially used for live theatre before being refitted as a cinema in 1928.

Construction: URM (reinforced)

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: In 1975, the Friends of the Christchurch Theatre Royal were established to 'save' the building from demolition as it was considered to be an earthquake-risk. A report from Holmes, Wood, Poole & Johnstone Consultants from 1978 stated that the building was very prone to earthquakes and 'clearly must be strengthened'. Eventually, the Theatre Royal Charitable Trust purchased the building with community support and by the mid-1990s was in a position to seek NZ Lotteries Board financial backing for earthquake strengthening. A structural assessment was prepared by the Holmes Consulting Group in 1997, as a result of a Council Heritage Grant, which proposed work involving mostly steel trusses, mullions and braces attached within the roof spaces, the fly tower and the workshop.¹²⁶ This strengthening work, costing about \$1 million, was designed to resist an earthquake with an equivalent ground acceleration coefficient of $C=0.24$ (0.24g) and was completed in December 2000. In the draft conservation plan of May 2010, it was noted that Holmes Consulting Group considered that the strengthening work to the façade would have achieved approximately 33% NBS.^{127,128}

Level of Damage: September-December 2010: Minimal damage.

¹²⁶ Holmes Consulting Group, 'Report on Seismic Strengthening the Theatre Royal for a $C=0.24$ Earthquake, 15 August 1997

¹²⁷ Tony Ussher, *Isaac Theatre Royal Gloucester Street Principal Façade, Conservation Plan, First Draft, May 2010, p49*

¹²⁸ Research following the earthquakes, estimates that the building was strengthened to ~50%NBS Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

January-June 2011: Moderate damage.

July 2011-January 2012: Severe damage.

NZHPT post-earthquake response: The NZHPT is working with owners to make safe, repair and strengthen.

Current status: Make safe and repair works ongoing, structural upgrade. Future uncertain at time of writing.

State Insurance Building (Former)

Worcester Street
 1933-1935
 Cecil Wood Architect
 Registered Category I historic place
 Listed Group 2
 Private ownership



Significance: Architect Cecil Wood's traditional approach to design is seen in his large commercial buildings, beginning with the Public Trust Office, Christchurch (1922–25). Although constructing it of reinforced concrete, he employed a stripped classical idiom. Wood gradually refined and abstracted the classical language in subsequent buildings. In the State Insurance Building the concrete piers became flat strips and art deco and Maori motifs were introduced.

Construction: Reinforced concrete

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: Unknown

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Moderate damage.

July 2011-January 2012: Unknown.

NZHPT post-earthquake response: No NZHPT input as yet.

Current status: Secured, future unknown.

Former Teachers' College (Peterborough Centre)

Corner of Peterborough Street and Montreal Street
 1924-1930
 Penlington Architects
 Registered Category II historic place
 Listed Group 2
 Private ownership



Significance: Designed by Canterbury Education Board Architect George Penlington, on its completion, Board Chairman Ernest Andrews defended it against criticism that the College didn't really need a castle by stating that all the other local educational institutions were grey stone piles so why not his. This former Teachers' College has been converted into apartments and won an NZIA Heritage and Conservation Award.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: The building was vacated in 1978 by the Christchurch Teachers College and was unoccupied during the 1980s and early 1990s. During the early 1980s, the Arts Centre Trust investigated strengthening and retrofit of the buildings for community purposes. A preliminary report of April 1980 noted the need for strengthening work involving ties from the walls to the floors, roof, gable and tower bracing and horizontal pre-stressing at roof and first floor levels in the external walls.¹²⁹

The former Teacher's College was purchased in 1996 by Peterborough Centre Ltd who planned to strengthen the buildings for apartments/hotel use. Consent was issued for the work in 1998. While the work involved substantial internal alterations, details about the earthquake strengthening work was not identified on the NZHPT's file.

Historical bracing and ties of walls, floor and roofs was observed following earthquake damage.¹³⁰

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Moderate damage.

¹²⁹ Arts Centre of Christchurch Trust, 'The Former Christchurch Teachers College – A Preliminary Report on the Use of the Buildings', April 1980

¹³⁰ Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

July 2011-January 2012: Moderate damage.

NZHPT post-earthquake response: NZHPT is working with owners on a retention plan. Issues with on-going damage, multiple ownership and liquefaction.

Current status: Secured with owners awaiting geotechnical survey to inform future decisions for the property.

Worcester Street Bridge

Worcester Street
1885
Walkden Architect
Registered Category II historic place
Listed Group 2
Public ownership (Christchurch City Council)



Significance: At only 52 ft in width, the Worcester St bridge is one of only two nineteenth century bridges in the city not to have been widened to accommodate modern traffic (the other being the Armagh St Hagley Park Bridge). Today the tourist tram route crosses the bridge, though trams did not pass this way when part of the transport system. With its fine cast iron railings, The bridge contributes much to the townscape and character of Christchurch.

Construction: Cast iron, brick and stone.

EQP assessment prior to September 2010 (CCC, 2009): No record of EQP assessment prior to September 2010.

Condition prior to September 2010: Good

Strengthening history: Unknown

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Moderate damage.

July 2011-January 2012: Unknown.

NZHPT post-earthquake response: NZHPT has been in discussions with Council's consultants.

Current status: Unknown.

Colombo Street Bridge

Colombo Street
1902
Dobson
Registered Category II historic place
Listed Group 2
Public ownership (Christchurch City Council)



Significance: The first bridge across the Avon on Colombo Street was made of timber and erected in 1858. This survived until 1902, when it in turn was replaced - this time with a 44ft. 9 in. wide steel and concrete structure. This was probably designed by City Surveyor Arthur Dudley Dobson. With its fine cast iron railings, Colombo Street Bridge contributes much to the townscape and character of Christchurch.

Construction: Reinforced concrete and steel

EQP assessment prior to September 2010 (CCC, 2009): No record of EQP assessment prior to September 2010.

Condition prior to September 2010: Good

Strengthening history: Unknown

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Moderate damage.

July 2011-January 2012: Unknown.

NZHPT post-earthquake response: NZHPT has been in discussions with Council's consultants.

Current status: Unknown.

Gloucester Street Bridge

Gloucester Street
1886
Walkden Architect
Registered Category II historic place
Listed Group 2
Public ownership (Christchurch City Council)



Significance: A suspension footbridge was erected at the Gloucester Street crossing of the Avon in 1862. Gothic in style to match the adjacent Provincial Government Buildings, the bridge may also have been designed by B.W. Mountfort. In 1886-7 it was replaced with a new iron road bridge. This bridge was designed by City Surveyor Charles Walkden. With its fine cast iron railings, Gloucester Street Bridge contributes much to the townscape and character of Christchurch.

Construction: Cast iron, reinforced concrete.

EQP assessment prior to September 2010 (CCC, 2009): No record of EQP assessment prior to September 2010.

Condition prior to September 2010: Good

Strengthening history: Unknown

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Moderate damage.

July 2011-January 2012: Unknown.

NZHPT post-earthquake response: NZHPT has been in discussions with Council's consultants.

Current status: Secured.

St Saviours Anglican Church (Former)

26 Park Terrace

1885

Cyril Mountfort Architect

Registered Category I historic place

Listed Group 2

Private ownership



Significance: Erected in West Lyttelton in 1885 as the result of an endowment to assist with the provision of a minister specifically for the people of West Lyttelton and visiting seamen. In 1975 St Saviour's parishioners gave the church to the Christchurch Diocese. It was acquired by the Cathedral Grammar School and dismantled and rebuilt on a site on the corner of Park Terrace and Chester Street West. The church serves the school community, as its chapel.

Construction: Timber-framed

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: In 2009 the building was refurbished including some structural strengthening works (details of strengthening works are not recorded in the NZHPT's file).

Level of Damage: September-December 2010: Minimal or no damage.

January-June 2011: Moderate damage.

July 2011-January 2012: Minimal damage.

NZHPT post-earthquake response: NZHPT is working with owners – consents may be required for various options.

Current status: Building is intact, but there are ground movement issues. Secured/made safe/proposal to extend or relocate church to another site.

Girl Guide Headquarters

217- 223 Armagh Street
1865
Speechly Architect
Registered Category II historic place
Listed Group 2
Private ownership



Significance: This dwelling has historical significance for its associations with prominent early settler surveyor Cyrus Davie and prominent lawyer Henry Andrews. It is a rare example of a colonial gothic revival dwelling - a style particularly characteristic of domestic architecture in Canterbury in the 1850s and 1860s, and as an example of the work of early Canterbury architect Robert Speechly.

Construction: Timber-framed

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: Unknown

Level of Damage: September-December 2010: Minimal or no damage.

January-June 2011: Moderate damage

July 2011-January 2012: Moderate damage.

NZHPT post-earthquake response: The NZHPT is involved in discussions with the owners about potential options.

Current status: Secured and made safe, but future uncertain at time of writing.

Theosophical Society Building

267 Cambridge Terrace

1927

Cecil Wood Architect

Registered Category II historic place

Listed Group 2

Private ownership



Significance: The Theosophical Society building was constructed in 1927 for the Christchurch branch of the non-sectarian, non-political, and non-dogmatic society founded in 1894. Thomas Edmonds, local businessman and philanthropist, contributed funds and a loan to assist with the cost of the new building. The Neo-Georgian building is a good example of the work of local architect Cecil Wood.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Unknown

Strengthening history: Unknown

Level of Damage: September-December 2010: Minimal or no damage.

January-June 2011: Moderate damage

July 2011-January 2012: Severe damage.

NZHPT post-earthquake response: The NZHPT supported retention but the building has suffered severe damage from the 2-15 January 2012 earthquakes.

Current status: Due to be demolished due to severity of damage at time of writing.

St Mary's Convent Chapel (Rose Chapel)

866 Colombo Street
 1910
 Luttrell Brothers Architects
 Registered Category II historic place
 Listed Group 2
 Private ownership (Community Trust)



Significance: The chapel, a remnant of the St Mary's Convent, is representative of the endeavours of an order of Roman Catholic nuns, the Sisters of Mercy, who for more than 75 years ran a teaching establishment on the site. The St Mary's Convent Chapel was the first of six churches designed by the Luttrell brothers for the Catholic church. The chapel is a model example of the application of the precepts of the Ecclesiologists to church architecture, and is designed in Early English 13th Century Gothic. It is constructed of Oamaru stone and Hoon Hay basalt.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: In 1998, strengthening work was undertaken on the building designed by Skews Hey Ussher and Holmes Consulting Group. The works involved:

- Repair of damaged walls and buttresses
- New steel tie rods and buttress ties.
- Grout filling of existing wall cavity.
- New steel ties from rafter to under-purlins.

Level of Damage: September-December 2010: Minimal or no damage.

January-June 2011: Moderate damage.

July 2011-January 2012: Unknown.

NZHPT post-earthquake response: No NZHPT input as yet.

Current status: Secured and made safe.

Cashfields (Southern Star Apartments, former DIC Cashfields Arcade)

154 Cashel Street
1908
Registered Category II historic place
Listed Group 3
Private ownership



Significance: Cashfields was originally built for the Christchurch branch of the Drapery and General Importing Company of New Zealand (D.I.C.). Bendix Hallenstein founded the D.I.C. in Dunedin in 1884, believing that there was room for a less formal type of drapery business. The D.I.C. had a co-operative element and was one of the first to place goods out on display so customers could view them. As with similar stores in Australia and elsewhere, the D.I.C. catered for the growing middle classes, providing them with everything 'from furniture to haberdashery, from bicycles to crockery', at a reasonable price, all available in one building. By 1885 the D.I.C. had expanded to Christchurch and by 1900 it was doing so well that it was able to build a three-storey building on Cashel Street. This building was, however, destroyed in 1908 by a fire, which also destroyed two other stores and the White Hart Hotel. The fire was the largest Christchurch had yet experienced and cost the various insurance companies over £300,000 in claims.

The replacement building following the fire was designed by the England Brothers, a well-known Christchurch architectural firm. The Cashel Street facade of the new D.I.C. building was constructed of red and white stone, a feature now disguised by paint. Inside the appointments included counters of polished walnut, and marble floors in the vestibules. It was described at the time of its opening as 'a wonderfully spacious and thoroughly up-to-date emporium'.

This building was used by the D.I.C. until 1978 when the company merged with Beath's and shifted to Beath's premises at the corner of Cashel and Colombo streets. The building was eventually sold to the developers Paynter and Hamilton, who built a three-level shopping arcade, which they named the Cashfields Centre, as it linked Cashel and Lichfield streets.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: In 2006 the building was strengthened and extended (a new third floor addition) with the NZHPT's support.¹³¹ Historical bracing and ties of walls, floor and roofs was observed following earthquake damage.¹³²

Level of Damage: September-December 2010: Minimal or no damage.

January-June 2011: Moderate damage

July 2011-January 2012: Moderate damage.

NZHPT post-earthquake response: The NZHPT supported removal of the parapet and supported retention of the building in February 2012.

Current status: Building is intact, with some parapet damage – made safe. But future uncertain at time of writing.

¹³¹ Research following the earthquakes, estimates that the building was strengthened to >67%NBS Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

¹³² Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

National Bank (former Cook and Ross Building)

779 Colombo Street 1926
 Helmore and Cotterill architects
 Registered Category II historic place
 Listed Group 3
 Private ownership



Significance: The Victoria Square Branch of the National Bank occupies a site long known as the Cook & Ross Comer after the pharmacists who occupied the site from last century and who built the present building in 1926 to replace an earlier wooden structure. The site, on the corner of Colombo and Victoria streets, is considered more important than the building. It is understood to have housed the first temporary court house for the Canterbury province, but is better known for its very long association with Cook and Ross. They ran the leading pharmacy in the city and built the 1926 building now occupied by the National Bank as Victoria Chambers, using the ground floor for their pharmacy business and leasing the three upper floors for office space. The site use history typifies the attraction of corner sites to banks and to retailers. The National Bank building was built in 1926 and was designed by Helmore and Cotterill.

Construction: Reinforced concrete frame (English-bond brickwork)

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: No earthquake strengthening work to the knowledge of the NZHPT.

Level of Damage: September-December 2010: Unknown.

January-June 2011: Unknown.

July 2011-January 2012: Unknown.

NZHPT post-earthquake response: No NZHPT input as yet.

Current status: The building appears to be intact. Further information is required.

Cashel Chambers (Former Farmers Department Store) Façade only

214-234 Cashel Street
 1882-1919
 T.S. Lambert (1882 part of the building)
 Not registered by NZHPT
 Listed Group 4
 Private ownership



Photo of the former Cashel Chambers prior to fire damage and partial demolition in 2005

Significance: The Manchester-Cashel streets area was associated with farming trade-related businesses for the Canterbury region, especially wool and grain merchants. The largest local firm was the New Zealand Farmer Cooperative which was established by a group of Canterbury farmers at Christchurch's Commercial Hotel on 23 July 1881. The first building on the site was designed by TS Lambert in 1882 with subsequent additions and different buildings connected together extending through to Bedford Row in 1919. Farmers Department Store became an important New Zealand institution and a place for rural clients to shop, rest and socialise while in the city.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): No record of EQP assessment prior to September 2010.

Condition prior to September 2010: Unknown

Strengthening history: Demolition of the Cashel Chambers complex of buildings was proposed in 2004. The proposed demolition involved 15 buildings, with 13 of the buildings listed as Group 4 in the City Plan. The proposed demolition was opposed by the NZHPT and a number of community groups and individuals. The application included an engineering assessment by Dr A. Reay, which included a detailed geotechnical survey which indicated susceptibility of the soils in the area to liquefaction. Consents were granted by the Council and the NZHPT filed an appeal to the Environment Court to secure the façade of the Cashel Chambers, including the Cashel Madras and Bedford Row facades. A fire damaged the building in January 2005 and the NZHPT's appeal was withdrawn. The final result was the retention of the earliest façade which was strengthened and 85% of the site was demolished in 2005.

Level of Damage: September-December 2010: Minimal damage (façade only).
 January-June 2011: Unknown.
 July 2011-January 2012: Unknown.

NZHPT post-earthquake response: None required.

Current status: The bulk of the building was demolished in 2005 and was replaced by the IRD building. The retained historic façade is still surviving.

Canterbury Museum

9 Rolleston Ave
 From 1870 onwards
 B. W. Mountfort and others
 Registered Category I historic place
 Listed Group 1
 Public ownership (Christchurch City Council)



Significance: Canterbury Museum is the oldest purpose-built museum building still in use in New Zealand. It is an excellent example of Mountfort's Gothic Revival architecture and a landmark in the city. Mountfort was one of the foremost architects in Victorian New Zealand.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history:

The Canterbury Museum consists of the original 1870 building and a number of additions constructed in 1872, 1877, 1882, 1958 and 1977. The buildings dating from 1870-1882 are known as the Haastian building associated with the Museum's founding director, Julius Haast. All the Haastian buildings were constructed of unreinforced masonry in the gothic revival style. The conservation plan of 1992 noted that a 1869 earthquake prompted the architect, Mountfort to speculate:

That there might be others [earthquakes] in the future, and to suggest that the incorporation of some iron bolts and ties would be of great advantage to the building and could be done more economically than in any future time. The suggestion was not followed.¹³³

Earthquake strengthening of the Canterbury Museum began with the appointment of Michael Trotter as museum director in 1983. In 1989, Trotter recalled that just two days after he took office as director, a 'large lump of stone broke off from the front the building and fell onto a car parked below. Luckily no-one was hurt – we received a claim for damage to the car – but it did emphasise a fact that some of us had been aware of for some time: the Museum was in dire need of strengthening and maintenance.'¹³⁴ Following this incident, the Works and Planning Department of the

¹³³ Michael Trotter, *Canterbury Museum Conservation Plan*, Canterbury Museum, Christchurch, November 1992, p 3

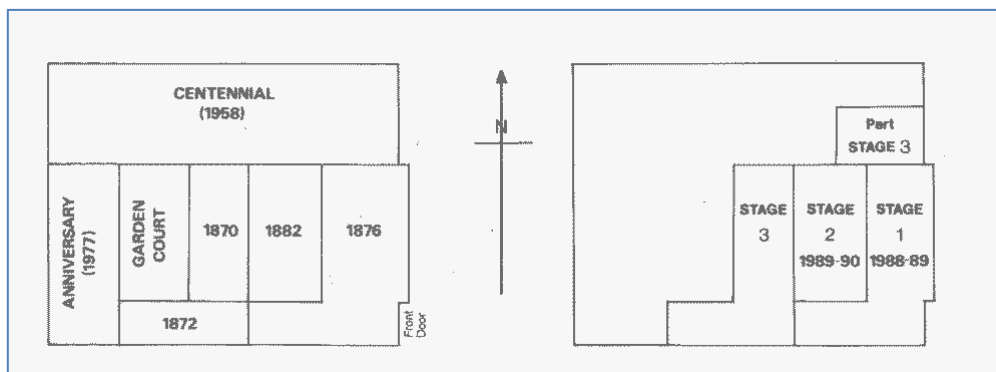
¹³⁴ Michael Trotter, 'Refurbishing Canterbury Museum', *AGMANZ Journal*, Vol 20, 4, 1989

Christchurch City Council undertook a detailed condition report of the building for the Museum Board. This report (dated August 1984) guided repair and strengthening works during the late 1980s.

The condition report found that the Haastian buildings were in urgent need for maintenance and strengthening and one option suggested was the complete demolition of the buildings because of the high cost of strengthening and the modern access, display and storage requirements for the museum.¹³⁵ Demolition, however, was never ‘considered seriously by the Museum authorities.’¹³⁶

Following the condition report of August 1984, Council required the Museum Board to strengthen or demolish the Haastian buildings within a 10 year period under the Municipal Corporations Act 1968. At the time, the Council decreed that if securing work was carried out within the 10 year period, then timeframes for strengthening may be extended by another 10 years – 2004.¹³⁷ The selected strengthening work involved a combination of reinforced concrete against the walls and diaphragm improvement. This option involved ‘replacing ground and first floors with concrete, installing ceiling and roof diaphragms and casting new reinforced concrete walls against, and tied to, the old stone walls.’¹³⁸ At the time, the cost of strengthening was estimated at \$4.2 million.

With the NZHPT’s support, stage 1 strengthening of the 1876 extension began in 1988. This involved the pouring of 150mm thick reinforced concrete against the sides of the inside walls, new reinforced concrete foundations and installing new concrete floors with pryotyenax heating.¹³⁹ The walls were further supported by horizontal steel trusses and plywood diaphragms and complete roof restoration.



Stages of construction (left) and reconstruction (right), Canterbury Museum.¹⁴⁰

Stage 2 strengthening work began in 1989 involving the 1882 extension. Stage 2 strengthening work was progressed with the assistance of an NZHPT grant fund of \$15,000 despite the NZHPT’s concerns about the loss of original timber flooring and the insertion of a new floor within the ceiling of the hall.

Stage 3 strengthening of the originally 1870/1872 buildings was to begin in 1991 and was associated with a proposal to construct a new four-storey block in the Garden Court. Consultation with the NZHPT resulted in the preparation of a draft conservation plan in July 1992 by the museum director, Michael Trotter.¹⁴¹ The conservation plan had a major focus on earthquake strengthening issues and provided an overview of strengthening undertaken on the building since 1988. With

¹³⁵ *ibid*, p 26

¹³⁶ *ibid*

¹³⁷ *ibid*, p 25

¹³⁸ *ibid*, p 26

¹³⁹ Michael Trotter, ‘Refurbishing Canterbury Museum’, *AGMANZ Journal*, Vol 20, 4, 1989

¹⁴⁰ Michael Trotter, ‘Refurbishing Canterbury Museum’, *AGMANZ Journal*, Vol 20, 4, 1989

¹⁴¹ Michael Trotter, *Canterbury Museum Conservation Plan*, Canterbury Museum, Christchurch, November 1992

regard to the 1870/1872 buildings, the conservation plan established a policy to ‘retain the original appearance of the 1870 Wing as close to original as possible’, but to strengthen to full code standards. It was commented that this will require replacement of the wooden ground floor of the 1870/1872 buildings with a new concrete floor. It was commented that:

There is no way this work [earthquake strengthening] can be undertaken without some effect on the historical integrity of the elements concerned – the object must be to effect a compromise that protects the most important features as much as possible...it is not possible to save every desirable feature; preference should be given to the interior of the 1870 Wing and the exterior southern wall of the 1872 Wing.¹⁴²

Following the draft conservation plan, the NZHPT sought advice on the proposed strengthening from Hadley & Robinson Ltd Consulting Engineers of Dunedin in June 1992. Hadley & Robinson questioned the need for both the application of a new concrete skin to the walls and removal of the original timber floors. Instead, Hadley & Robinson suggested the use of new structural steel stiffener columns to support the existing walls and new cross-beams under the existing foundations.¹⁴³

On the basis of the Hadley & Robinson report, the NZHPT refused to support a NZ Lottery Grants Board application for funding assistance to carry out the strengthening work. The NZHPT’s position was that the proposed strengthening work was ‘excessive’ and recommended a lesser strengthening target to preserve heritage fabric. This position influenced a controversial decision by the NZ Lottery Grants Board to refuse a museum funding application of 2.2 million in 1994.

Despite NZHPT’s concerns and loss of NZ Lottery Grant Board funding, the Museum Board went ahead with the strengthening of the 1870/1872 buildings involving 150mm thick concrete facing to the interior of the existing stone walls and a new suspended concrete floor with a new plywood diaphragm at the roof level with new A-frame trusses.¹⁴⁴ This work was completed in June 1995.

Since the earthquakes of September 2010-June 2011, the Museum has been undertaking repair and strengthening works and the Museum had the distinction of being one of the first public buildings to reopen within the Central City area on 2 September 2011.

Level of Damage: September-December 2010: Minimal or no damage.

January-June 2011: Minimal damage.

July 2011-January 2012: Minimal damage.

NZHPT post-earthquake response: The NZHPT supported consent for repair and strengthening works following the 22 February 2011 earthquake.

Current status: Made safe and repaired, open to the public.

¹⁴² *ibid*, p 40

¹⁴³ Hadley & Robinson Consulting Engineers Ltd, ‘Structural Report on the Canterbury Museum Building Christchurch for the Historic Places Trust’, 3 August 1992

¹⁴⁴ Holmes Consulting Group Ltd, ‘Canterbury Museum Stage 3 Alterations, Interim Structural Review’, 10 September 1993

McDougall Art Gallery

9 Rolleston Ave
 From 1932
 Edward Armstrong
 Registered Category I historic place
 Listed Group 1
 Public ownership (Christchurch City Council)



Significance: The McDougall Art Gallery is a significant civic landmark built in the classical style during the Depression, funded by Robert McDougall, the Manager of Aulesbrooks (the largest biscuit company in Australasia), to house a significant art collection that had been donated to the City. It is an important part of the townscape around the Botanic Gardens, in conjunction with the Canterbury Museum.

Construction: Reinforced concrete, stone and brick

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: The McDougall Art Gallery was constructed of reinforced stone, brick and concrete in the classical design in 1932. It appears no strengthening has taken place on the building with the exception of parapet and chimney bracing in September 1995.

Level of Damage: September-December 2010: Minimal or no damage.

January-June 2011: Minimal damage.

July 2011-January 2012: Minimal damage.

NZHPT post-earthquake response: No input by NZHPT as yet.

Current status: Unknown.

Former Canterbury Society of Arts Building (Environment Court)

Corner Durham and Armagh Streets
1890
Mountfort Architect
Registered Category I historic place.
Listed Group 1
Public ownership



Significance: The first art gallery in Canterbury, this notable example of work by Mountfort and renowned local architect, RD Harman, was built for the Canterbury Society of Fine Arts. It served as the centre of development in fine arts between 1890 and 1968 and was closely associated with 'The Group', a circle of artists who developed a uniquely Canterbury style of painting in the 1930s. It has since been renovated to serve the Department of Justice.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: The building was vacated by the Canterbury Society of Fine Arts in 1967 and was purchased by the Justice Department for courtrooms. During the early 1970s, the building was renovated for court purposes with substantial interior alterations. At this time, exterior strapping was installed to the Durham Street façade as a strengthening measure. In 1990, the Justice Department considered demolishing the building as it was considered to be an earthquake risk. However, following an investigation by Malcolm Jones (retired engineer at the time), the building was found to be reasonably sound and secure. During this period, the NZHPT considered the exterior strapping along Durham Street to be architecturally insensitive, but was fulfilling the desired function and could be replaced by more discreet strengthening work in the future. In April 1991, the Justice Department decided not to progress demolition and commissioned reports on the structural integrity of the gallery and the cost of strengthening.¹⁴⁵ Further details of strengthening works undertaken on the building are not known to the NZHPT.

Level of Damage: September-December 2010: Minimal or no damage.

January-June 2011: Minimal damage.

¹⁴⁵ Research following the earthquakes, estimates that the building was strengthened to >67%NBS Pers. comm. Jason Ingram (University of Auckland), Lisa Moon and Michael C. Griffith (University of Adelaide)

July 2011-January 2012: Moderate damage.

NZHPT post-earthquake response: In June 2011, the NZHPT recommended make safe work and weatherproofing. Following further damage on 23 July 2011-January 2012, demolition is currently proposed and the NZHPT has recommended façade retention.

Current status: Secured/made safe, but future is uncertain at time of writing.

Old Government Buildings

(Heritage Hotel) Cathedral Square
 1909-1913
 J.C. Maddison Architect
 Registered Category I historic place
 Listed Group 1
 Private ownership



Significance: One of noted Christchurch architect J.C. Maddison's most impressive works, this Italian High Renaissance palazzo style building opened in 1913. It provided a central location for government services in Christchurch for over 70 years before being purchased by the Christchurch City Council to prevent its demolition in the 1990s. It has since been meticulously restored and is now part of Heritage Hotel.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Not listed as potentially earthquake-prone.

Condition prior to September 2010: Good

Strengthening works: During the mid-1980s, the building was vacated by the government and was proposed for demolition by Government Property Services Ltd on the basis of structural assessment report by the Ministry for Works and Development. Demolition was opposed by the NZHPT who issued a heritage order to save the building. After intensive negotiations, the Christchurch City Council purchased the building in 1992 and prepared a conservation plan. The conservation plan provided explicit guidance for earthquake strengthening with a statement that the 'building shall be strengthened to meet the full NZS4203 (revised draft) code loadings. Methods of strengthening shall as far as possible be non-intrusive. The impact of intrusive strengthening elements shall be minimised.'¹⁴⁶ Following the preparation of the conservation plan, the Council on-sold the building to the Symphony Group in 1995.

The sale of the building was conditional that the Symphony Group strengthens the building with the financial support of the Council who would contribute up to 60% of the cost of strengthening work (up to a max' of \$1,580,000). Restoration and strengthening work was undertaken in 1995. The strengthening work involved:

- Partial demolition of some interior fabric (toilet and vault areas).

¹⁴⁶ Environmental Policy & Planning Unit, Christchurch City Council, *Conservation Plan Government Buildings*, 28-30 Cathedral Square, Christchurch, 1993

- New stiff elements to take load with minimal new skin walls.
- Construction of new concrete shear walls anchored to the building.
- New skin wall elements added to the exterior at each end of the building.

Following the restoration work and the opening of the new apartments and Heritage Hotel, the Symphony Group Ltd published a history of the building, including strengthening works in 1997.¹⁴⁷ Further restoration works were undertaken on the building in 2005 with the financial assistance of the NZHPT.

Level of Damage: September-December 2010: Minimal or no damage.

January-June 2011: Minimal damage.

July 2011-January 2012: Minimal damage.

NZHPT post-earthquake response: The NZHPT is working with owner to repair and consents have been granted by Council (September 2011).

Current status: No major damage. Made safe and repaired. Currently assessed at 67%NBS

¹⁴⁷ Melanie Yonge, *Government Buildings Christchurch, 1909-1996*, Everbest Printing Ltd, 1997

Bridge of Remembrance

Cashel Street
1923
Grummer Architect
Registered Category I historic place
Listed Group 1
Public ownership (Christchurch City Council)



Significance: Built to commemorate Canterbury soldiers of WWI and later wars, the substantial triple-arched concrete bridge is a distinguished memorial by Gummer (architect of the National War Memorial) and features carvings by noted Canterbury carver Frederick Gurnsey representing the British Empire.

Construction: Concrete

EQP assessment prior to September 2010 (CCC, 2009): Unknown

Condition prior to September 2010: Good

Strengthening history: Unknown

Level of Damage: September-December 2010: Minimal or no damage.

January-June 2011: Moderate damage.

July 2011-January 2012: Minimal damage.

NZHPT post-earthquake response: Support securing, methodology to be agreed with Christchurch City Council.

Current status: An engineering assessment is underway and the bridge has been secured at time writing.

St Luke's Vicarage

185 Kilmore St
 1867
 Speechly Architect
 Registered Category I historic place
 Listed Group 1
 Private ownership



Significance: St Luke's Vicarage was designed by the British architect Robert Speechly (1840-84), who had been appointed to supervise the building of Christchurch Cathedral in 1864. The vicarage is a large timber house, with distinctive hoods over the ground floor windows and entrance. It is significant architecturally as one of the best preserved examples of Speechly's domestic work, and as a NZ vicarage inspired by the nineteenth-century Ecclesiological movement. In conjunction with St Luke's Church (now demolished) it forms an important part of the local townscape.

Construction: Timber-framed

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: In 1992, the NZHPT financially supported (\$5,000) the repair of the chimneys and re-roofing.

Level of Damage: September-December 2010: Minimal or no damage.

January-June 2011: Minimal damage.

July 2011-January 2012: Minimal damage.

NZHPT post-earthquake response: No NZHPT input as yet.

Current status: Secure/made safe, chimneys removed, future uncertain at time of writing.

Antigua Boat Sheds

1882

Shaw and Tidd Architects

Registered Category I historic place

Listed Group 2

Private ownership



Significance: A Christchurch institution and quintessentially English component of the city, the sheds are thought to be the only surviving example of 19th century river boat sheds built for commercial boat hire purposes in New Zealand and are still used for their original purpose.

Construction: Timber-framed

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: In 2008 the building was strengthened and restored with the Council's and NZHPT's financial assistance.

Level of Damage: September-December 2010: Minimal or no damage.

January-June 2011: Minimal or no damage.

July 2011-January 2012: Minimal or no damage.

NZHPT post-earthquake response: Not required.

Current status: Building is intact and open for public use.

Nurses' Memorial Chapel

1927

Collins Architect

Registered Category I historic place

Listed Group 2

Private ownership (Community Trust)



Significance: The only war memorial in NZ dedicated solely to women and the first hospital chapel in the country, this building commemorates 3 Christchurch Hospital nurses killed in 1915 when their troopship was torpedoed and 2 who succumbed to the 1918 influenza epidemic. Strong public opposition to its demolition saved this interdenominational Chapel from demolition proposals in the 1970s and 1980s.

Construction: URM – cavity brick walls, brick buttresses, timber-framed roof, slate

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: Strengthening work was proposed in 1989 in association with the campaign to save the building.¹⁴⁸ The strengthening work was designed following a detailed examination of the building, earthquake resistant performance and including an economic assessment of strengthening. The proposed work involved:

- Clean out the cavity between the two layers of brickwork to all masonry walls and fill with a cement based grout that will bond the two layers together to form a homogenous wall...
- Dowel base of masonry walls to concrete slab by drilling diagonally down from the outside, through the cavity and grouting in D16 steel bars at 300mm centres.
- Add timber blocking between rafters, over top bond beam of masonry walls, and dowel fix blocking to bond beam. Fix blocking to timber roof sarking.
- Lift roof edge slates over gable and walls and dowel fix diagonal sarking to top edge of masonry walls.

¹⁴⁸ Morrison Cooper Ltd, 'Nurses Chapel Christchurch Hospital Christchurch, Structural Strengthening Feasibility Report', July 1989

- Arch between nave and Chancel to be tied by fixing a horizontal steel strap to the face of the brickwork above the arch line of the Chancel side, from Vestry pier to Vestry pier.
- Fix gable end roof ornamentation by doweling down into the gable end brickwork.
- Clean out bony areas in the basement concrete work around reinforcing steel and patch with epoxy mortar.
- Apply a water proofing glaze to the exterior surface of all brickwork.¹⁴⁹

Restoration work was undertaken in 1992, including earthquake strengthening works.

Level of Damage: September-December 2010: Minimal or no damage.

January-June 2011: Moderate damage (cracking of brick work, west and east walls, damage to north wall and internal arch).

July 2011-January 2012: Unknown.

NZHPT post-earthquake response: Christchurch City Council is working with engineers on make safe works. The NZHPT supported consent to secure.

Current status: Moderate damage, building secured and made safe.

¹⁴⁹ *ibid*, pp 10-11

Canterbury Club

(incl. Gas lights and hitching post), Corner Worcester and Cambridge Streets.

1873

Strouts Architect

Registered Category II historic place

Listed Group 2 (Gas lights and hitching post are listed Group 4)

Private ownership



Significance: Established in 1872 by the 'newer' gentlemen of the province, professionals and businessmen, whose backgrounds and interests differed from the gentry membership of the established Christchurch Club, (1856), this 1873 Italianate style building still houses the Club.

Construction: Timber-framed on stone foundations

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good

Strengthening history: Major alterations and additions were proposed in 2006. In December 2007, these plans were amended to insert two structural steel frames within the new lowered ceiling space of the main Functions Room 1 space as part of general earthquake strengthening works. The December 'Boxing Day' 2010 earthquake resulted in damage to chimneys. These were proposed for reinstatement in materials and form consistent with the original chimneys in January 2011.

Level of Damage: September-December 2010: Minimal damage (damage limited to chimneys, internal cracking, sinking foundations).

January-June 2011: Moderate damage.

July 2011-January 2012: Minimal damage.

NZHPT post-earthquake response: The NZHPT supported the owner to repair and strengthen the building.

Current status: Repair and strengthening work underway.

St Luke's Chapel (Christchurch City Mission)

275 Hereford Street
1888
R. England Architect
Registered Category II historic place
Listed Group 2
Private ownership



Significance: St Luke's Chapel was originally erected as the funerary chapel for the Heathcote Cemetery. It was relocated to the Jubilee Home in Woolston in 1947 and relocated again to its current location in 1991. The chapel has architectural significance as an early design by Robert England who later formed the partnership, England Bros.

Construction: Timber-framed

EQP assessment prior to September 2010 (CCC, 2009): Not listed as potentially earthquake-prone.

Condition prior to September 2010: Good

Strengthening history: No record of earthquake strengthening to the knowledge of the NZHPT.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Minimal damage.

July 2011-January 2012: Unknown.

NZHPT post-earthquake response: No NZHPT input as yet.

Current status: Secure, future uncertain at time of writing.

Former Majestic Theatre/New Life Centre

122-126 Manchester Street
 c.1930
 Luttrell Brothers Architects
 Not registered by NZHPT
 Listed Group 2
 Private ownership



Significance: The former Majestic Theatre is one of a number of cinemas and theatres in the central city in the first half of the 20th century. The building is an example of the 'atmospheric' style of interior decoration popular in the 1920s and 30s. The Theatre was designed in the Art Deco/ Moderne style, by successful local architects the Luttrell Brothers. The building is four storied with an auditorium and backstage area. It is of technical significance for its method of steel construction which was innovative at the time.

Construction: Reinforced masonry

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Good – under renovation

Strengthening history: The building had been renovated on a number of occasions with a number of interior alterations particularly in 1946 and 1977 following fire damage. In 2009, consents were obtained to return the building to its original use as a theatre and earthquake strengthening work began on the roof, parapet walls and proscenium arch in June 2010. Renovation work was uncompleted at the time of the September earthquake.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Minimal damage.

July 2011-January 2012: Moderate damage.

NZHPT post-earthquake response: No NZHPT input as the building is not registered under the Historic Places Act 1993.

Current status: Future uncertain at time of writing, potential demolition following further damage from the 2-15 January 2012 earthquakes.

Shop / Residence, 40 Cranmer Square

c. 1870

Architect unknown

Not registered by NZHPT

Listed Group 2

Private ownership



Significance: The shop and residence at 40 Cranmer Square was built in the early 1870s by licensed victualler Charles Dann, probably to serve as a private billiard room. In 1883 the building was purchased by grocer Elias Gaudin, and the shop served as Gaudin's business premises. In the late 1880s, the shop was taken over by the Gardiner family, who ran it until the late 1940s. Because of its proximity to the Normal School, the shop served for many years as the pupils' tuckshop. It is one of the oldest retail buildings in the inner city.

Construction: Timber-framed

EQP assessment prior to September 2010 (CCC, 2009): Not listed as potentially earthquake-prone.

Condition prior to September 2010: Good

Strengthening history: Unknown

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Minimal damage.

July 2011-January 2012: Minimal damage.

NZHPT post-earthquake response: No NZHPT input as yet.

Current status: Future uncertain at time of writing.

Dwelling, 2-storey (Christ's College)

4 Armagh Street (Corner Rolleston Ave)
 1867
 Architect unknown
 Not registered by NZHPT
 Listed Group 2
 Private ownership



Significance: The dwelling has historical and social significance for its connection with a number of prominent individuals - particularly Leonard Harper, Samuel Bealey and Thomas Maling and its long association with Christ's College. The dwelling has architectural, aesthetic and craftsmanship significance as a well-preserved and prominently-positioned colonial villa. The dwelling has contextual significance within the western inner-city residential area, with Hagley Park and Christ's College, and as part of the city's precious fund of surviving colonial buildings.

Construction: Timber-framed

EQP assessment prior to September 2010 (CCC, 2009):

Condition prior to September 2010: Good

Strengthening history: Unknown

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Minimal damage.

July 2011-January 2012: Unknown.

NZHPT post-earthquake response: The NZHPT supported consent to repair the building.

Current status: Made safe and repaired.

Fleming and McKellar Houses

138 Park Terrace
 1912 and 1926
 Samuel Hurst Seager and Cecil Wood
 Registered Category II historic place
 Listed Group 3
 Private ownership



Significance: McKellar House was designed by Samuel Hurst Seager in 1912 for A.A. McKellar. An innovative design, the house incorporates the influence of the English Arts and Crafts movement. McKellar House was originally named the Beach House because of a large beech tree on the property. Fleming House is situated next to McKellar House and was built in 1926, designed by Cecil Wood. The house was a retirement home for A.R. Fleming, a Port Levy run-holder and heavily influenced by English domestic architecture. It was constructed with extensive use of brick with a fine Rosemary tiled roof. Fleming and McKellar Houses make a major contribution to the historic residential character of the Park Terrace area.

Construction: URM

EQP assessment prior to September 2010 (CCC, 2009): Not listed as potentially earthquake-prone.

Condition prior to September 2010: Good

Strengthening history: Flemming and McKellar Houses were acquired by the Methodist Church in the 1960s. In 1997, the Church filed an application to demolish the buildings. One of reasons for the application was the cost of upgrade works, including earthquake strengthening. The NZHPT opposed the proposed demolition and the matter was heard by the Environment Court in 2001. The Environment Court decision¹⁵⁰ allowed the demolition stating that safety and economic matters outweighed heritage values.

Despite the Environment Court decision, the buildings were 'saved' by a sale to Park Terrace Apartments and an agreement between the Council and the new owners which allowed the construction of 20 new apartments on the site and financial support for earthquake strengthening and other works. The NZHPT also supported the new apartments and earthquake strengthening works in 2004.

Level of Damage: September-December 2010: Minimal damage.

¹⁵⁰ *New Zealand Historic Places Trust/Pouhere Taonga; Christchurch Central Methodist Mission v Christchurch City Council*, C173/01, 6 NZED 830

January-June 2011: Moderate damage.

July 2011-January 2012: Unknown.

NZHPT post-earthquake response: No NZHPT input as yet.

Current status: Some damage reported, waiting for engineering assessment.

Commercial Building (Rat n' Roach Building, Changs Fruiterers, Chan's Cafe)

47 London Street, Lyttelton
 1880s
 Registered historic area
 Listed Schedule V, Notable Buildings
 Private ownership



Photo: Google maps online

Significance:

No.47 London Street is part of the Lyttelton Township Historic Area and is the main commercial area of Lyttelton. It has a wide variety of commercial and public buildings. London Street, named after the Bishopric of London, was part of the commercial area of Lyttelton which included Norwich Quay and the connecting lower parts of Oxford Street and Canterbury Street. The majority of its original buildings (dating from c1850) were destroyed by fire on 24 October 1870, the worst urban fire to that date in New Zealand. The spread of fire along London Street could not be contained due to a lack of adequate water supply, even though the west end of London Street had a pump which tapped water from a spring discovered when the railway tunnel was constructed. Only a few buildings survived, so most buildings on London Street post-date 1870. Some of these new buildings contain more brickwork due to Lyttelton Borough Council requirements in an effort to prevent such spread of fire in the future. No. 47 London Street dates from 1880-1900 and was formerly Treddenick's shoe/chemist's shop and a former cobbler's workshop was still surviving at the rear of the building dating from a 1918 shoemakers/menders shop.

Construction: Timber-framed

EQP assessment prior to September 2010 (CCC, 2009): Potentially earthquake-prone

Condition prior to September 2010: Unknown

Strengthening history: In 2003 upper level alterations and an addition, incorporating some improved structural strengthening of the building, were undertaken. The NZHPT supported the proposal and consents were approved by Council.

Level of Damage: September-December 2010: Minimal damage.

January-June 2011: Moderate damage (parapet collapse and partial collapse of western masonry wall).

July 2011-January 2012: Minimal damage.

NZHPT post-earthquake response: The NZHPT supported repair and retention of the building based on engineering report.

Current status: Repair work carried out and the building is open and operating.

Appendix 1. New Zealand's Earthquake-Risk Management and Cultural Heritage Legislation and Policy - Overview

There are five main aspects of New Zealand's earthquake-risk management and cultural heritage legislation and policy – environmental management, building regulation, heritage, civil defence and earthquake insurance. At the central government level, these aspects are managed by different government agencies: the Ministry for the Environment, Department of Building and Housing, Ministry for Culture and Heritage and the NZHPT, Ministry for Civil Defence and Emergency Management and the Earthquake Commission.

At the local government level, the Local Government Act 2002 provides the purpose and principles of local government. This purpose and principles includes providing a broad role in promoting social, economic and cultural well-being of their communities, taking a sustainable development approach'.¹⁵¹ Section 11A of the Local Government Act 2002 lists a number of core services to be considered by local authorities in performing its role. These core services include avoidance and mitigation of natural hazards, libraries, museums, reserves, recreational facilities and other community infrastructure. Local authorities also have key roles under the RMA, Building Act 2004 and the Civil Defence and Emergency Management Act 2002.

Resource Management Act 1991 (RMA)

The RMA regulates the use of natural and physical resources to achieve sustainable management. For the purpose of sustainably managing natural and physical resources, the RMA outlines the functions of regional and territorial authorities in relation to environmental management. These functions include the avoidance or mitigation of natural hazards. This function is implemented by provisions in regional policy statements, regional plans and district plans. The natural hazards provisions tend to focus on the identification of hazards risk areas on the planning maps, such as an earthquake fault line, and rules that may restrict the construction of new houses or other activities within hazard areas. There is also an emergency-response provision in the RMA which enables local authorities to undertake immediate preventive and remedial measures in emergency situations.

Historic heritage is also provided for under the RMA. Under section 6(f) of the RMA the protection of historic heritage from inappropriate subdivision, use and development must be recognised and provided for as a matter of national importance. As with natural hazards, regional policy statements, regional plans and district plans contain provisions relating to the protection of historic heritage in the form of heritage schedules, policies and rules.

Local authorities are, therefore, empowered to regulate activities involving heritage places by rules under the RMA. These rules normally manage activities such as alterations and additions, relocation, demolition, subdivision and signage. Earthquake strengthening is often treated as an alteration under the RMA.

While decisions over listed heritage places are delegated to local authorities, the NZHPT manages any damage to pre-1900 archaeological sites as a separate centralised archaeological authority process.

The table below provides a summary of the heritage rules that apply to listed historic buildings, places and objects in the Christchurch City Plan prior to the introduction of the Central City Recovery Plan in 2012.

¹⁵¹ Sections 3 and 14, Local Government Act 2002

Summary of Heritage Rules, Christchurch City Plan (prior to the introduction of the draft Central City Recovery Plan, 2012 and excluding cultural precinct rules)	
Consent status	Rule
Controlled activity	<p><u>1.3.2 Group 3 and 4 Buildings, Places and Objects</u> Alteration¹⁵² of a Group 4 heritage item, or the erection of any additional building(s) on a site containing a Group 3 or Group 4 heritage item. Council discretion is limited to matters concerning the heritage values of a protected item</p>
Discretionary activity	<p><u>1.3.1 Group 1 and 2 Buildings, Places and Objects</u> Alteration or removal of any Group 1-2 heritage item, or the erection of any additional building(s) on a site containing the aforementioned heritage item. Council discretion is limited to matters concerning the heritage values of the protected item.</p> <p><u>1.3.2 Group 3 and 4 Buildings, Places and Objects</u> Demolition of any Group 3-4 heritage item.</p> <p>Any alteration or removal of a Group 3 heritage item,</p> <p>Any removal of a Group 4 heritage item.</p> <p>Council discretion is limited to matters concerning the heritage values of a protected item.</p> <p><u>1.4.1 Assessment Matters – Demolition, Removal, or Alteration of any Protected Buildings, Places or Objects</u> Please see for extensive list of criteria that Council takes into consideration</p>
Non-complying activity	<p><u>1.3.1 Group 1 and 2 Buildings, Places and Objects</u> Demolition of any Group 1-2 heritage item.</p> <p><u>1.3.4 Requirement to Supply Heritage Records</u> In the case of any demolition of a listed building, place or object, the Council requires the supply of heritage records (photographs or plans) described in Clauses 1.3.5 and 1.3.6. The provisions of Clauses 1.3.5 (a) - (g) and 1.3.6 apply to all Group 1 and 2 heritage features; and the provisions of Clause 1.3.5(a) (b) and (c) to Group 3 and 4 features. Work shall not commence until any information required is supplied to the Council</p>

Historic Places Act 1993

The Historic Places Act 1993 promotes for the promotion of the identification, protection, preservation and conservation of the historical and cultural heritage of New Zealand.¹⁵³ The Historic Places Act 1993 outlines the functions of the NZHPT, including the New Zealand Historic Places Trust Board and the Māori Heritage Council. These functions include the archaeological authority process and registration of historic places, historic areas, wāhi tapu and wāhi tapu areas.

¹⁵² Alterations in the Central City Plan was defined as ‘in relation to a protected building, place or object, means any work by way of construction, modification (including the fixing and installation of outdoor advertisements), or partial demolition which may have the effect of altering the heritage fabric of that protected building (both internally or externally), place or object; and maintenance using materials or techniques that are detrimental to the materials or finish of the heritage item; but excludes repainting existing painted surfaces and cleaning or washing with materials or techniques not detrimental to the heritage fabric. External alterations to buildings adjoining an important public open space means any work by way of construction or modification which may have the effect of altering the exterior fabric of the building, but excludes any maintenance, cleaning or repainting.’

¹⁵³ Section 4 Historic Places Act 1993

While registration provides recognition of heritage places, it does not provide statutory protection. Instead, regulatory protection is provided by the scheduling of heritage places since local authorities must have regard to the register when preparing regional and district plans under the RMA.¹⁵⁴

While the Register provides no statutory protection, it has a number of implications including:

- The classification of ‘sensitive land’ in relation to the Overseas Investment Act 2005.
- The provision of Project Information Memorandum or building consent to the NZHPT under the Building Act 2004.
- The inclusion in Land Information Memorandum under the Local Government Official Information and Meetings Act 1987.
- The inclusion of the NZHPT as an affected party under the RMA in relation to consent procedures (at the discretion of the local authority).

A building constructed before 1900 may also be an archaeological site under the Historic Places Act 1993. Under section 2 of the Historic Places Act 1993, an archaeological site is defined as any place in New Zealand that either – was associated with human activity that occurred before 1900; or is the site of the wreck of any vessel where that wreck occurred before 1900; and – is or may be able through investigation by archaeological methods to provide evidence relating to the history of New Zealand. Under section 9(2) of the Historic Places Act 1993, the NZHPT may declare any post-1900 site to be covered by the archaeological site definition in section 2 by notice in the *Gazette*.¹⁵⁵

Section 10 of the Historic Places Act 1993 directs that an authority is required from the New Zealand Historic Places Trust if there is ‘reasonable cause’ to suspect an archaeological site (recorded or unrecorded), may be modified, damaged or destroyed in the course of any activity. An authority is required for such work whether or not the land on which an archaeological site may be present is designated, or a resource or building consent has been granted.

Building Act 2004

All building work is regulated by the Building Act 2004 (the Building Act). As building work, earthquake strengthening will involve three basic categories:

- Modification of global behaviour, usually decreasing deformations (adding stiffness in the form of shear walls and braced frames).
- Modification of local behaviour, usually increasing deformation capacity by enhancing the existing shear or moment strength of an element.
- Connectivity to ensure individual elements do not become detached and fall.¹⁵⁶

Generally, the majority of work associated with earthquake strengthening will constitute an ‘alteration’ under the Building Act. All alterations to existing buildings must comply as is reasonably practicable with the building code. Minor earthquake strengthening work may also be classified as exempt building work under the 1st Schedule of the Building Act. This work, therefore, does not require consent under the Building Act.

¹⁵⁴ Section 74(1)(2)(b)(iia) RMA

¹⁵⁵ In 2004, the NZHPT declared the Napier Prison Wall an archaeological site under section 9(2) of the Historic Places Act 1993.

¹⁵⁶ FEMA, *Designing for Earthquakes, A Manual for Architects*, 2006, FEMA 454, p 8-46

The Building Act also regulates changes to the use of buildings. A change of use may involve a range of conversions, especially the creation of new household units where there were none before.¹⁵⁷ It may also, for example, involve the conversion of a residential building into a public building. In the case of the creation of new household units, the building, in its new use, is required to comply, as nearly as is reasonably practicable, with the building code in all respects.¹⁵⁸ For other changes of use, the building is required to comply, as nearly, as is reasonably practicable, and to the same extent as if it were a new building, with respect to fire safety, sanitary facilities, structural performance and disabled access provisions of the building code.¹⁵⁹

Sections 112, 114 and 115 of the Building Act 2004 means that strengthening proposals involving alterations and change of use potentially triggers other building code requirements in relation to fire safety and accessibility. In order to safeguard historic heritage values, building consent authorities can exercise a degree of discretion and flexibility with regard to what is 'reasonably practicable'.

The Building Act provides special management provisions for certain categories of buildings which are considered to be dangerous, earthquake-prone or insanitary.¹⁶⁰ With regard to earthquake-prone buildings, these buildings are those which will have their 'ultimate capacity exceeded in a moderate earthquake.'¹⁶¹ In simple terms, a building may be considered earthquake-prone if it is assessed to be less than one-third of the current standard for new buildings.¹⁶²

If a territorial authority (local government) considers that a building is dangerous, earthquake-prone or insanitary, the territorial authority can take action to safeguard both life and property. These actions include putting up a hoarding or fence to prevent people approaching the building, attaching a public warning notice, or issuing a written notice to the owners requiring them to reduce or remove the danger or prevent the building from remaining insanitary.¹⁶³ A copy of any such notice must be provided to the NZHPT if the building is a heritage building.¹⁶⁴

Discretion on taking action on earthquake-prone buildings is exercised by territorial authorities under the Building Act. In order to promote a strategic response to managing earthquake-prone, dangerous, and insanitary buildings, section 131 of the Building Act, contains requirements for territorial authorities to adopt policies on such buildings. The policies must state:

- The approach that the territorial authority will take in performing its functions under this Part; and
- The territorial authority's priorities in performing those functions; and
- How the policy will apply to heritage buildings.
- Policies for dangerous, earthquake-prone, and insanitary buildings are subject to public consultation processes with the opportunity for submissions and a public hearing.¹⁶⁵

The earthquake-prone buildings policies with special provisions recognise that heritage buildings should be treated differently from other general buildings on the basis that preservation of heritage

¹⁵⁷ Katharine Wheeler, 'Change of Use', *Build*, August/September 2008, pp 78-79

¹⁵⁸ Section 115, Building Act 2004

¹⁵⁹ *ibid*

¹⁶⁰ See definitions of dangerous, earthquake-prone, and insanitary buildings: sections 121-123 Building Act 2004

¹⁶¹ Section 122(1)(a) Building Act 2004

¹⁶² It is noted that the standard for new buildings includes for ductility which reduces the required design forces. Older buildings do not have much ductility so the forces required to meet current standards are much more than for a new building. This is why the definition refers to the ground shaking, not the response of the building. *Pers Comm* David Hopkins, Department of Building and Housing, Wellington

¹⁶³ Section 124 Building Act 2004

¹⁶⁴ Section 125(2)(f) Building Act 2004

¹⁶⁵ Section 83, Local Government Act 2002.

buildings is in the public interest and that heritage buildings raise special management issues. At a general level, the special provisions promote flexibility when dealing with heritage buildings and promote methods such as management plans, dialogue and other special requirements. Examples of common methods in earthquake-prone policies include:

- Initiation of discussions with the NZHPT.
- Seeking advice from NZHPT and/or heritage professionals.
- Consultation processes with all stakeholders.
- Extended timeframes for engineering assessments and structural upgrade works.
- Public consultation.
- Upgrading work to comply with ICOMOS NZ Charter or other standards.
- Use of waivers and modifications to the building code.
- Financial assistance.
- Risk and recovery management and pre-disaster planning assistance.
- Demolition as the last option (or avoiding demolition).¹⁶⁶

While these provisions do assist in the management of procedures relating to identified earthquake-prone heritage buildings of the Building Act and sometimes indicate financial assistance, they do not generally provide detailed policies or guidance for the strengthening of earthquake-prone heritage buildings.

Civil Defence and Emergency Management

The Civil Defence and Emergency Management Act 2002 (the CDEM Act) is the primary legislation for the management of emergencies in New Zealand. Section 3 of the CDEM Act promotes the sustainable management of hazards; encouraging and enabling risk acceptance by communities; planning and preparation for emergencies, including response and recovery; local authority coordination; integrated national and local civil defence emergency management planning; and coordination across the wide range of agencies and organisations.¹⁶⁷ In relation to sustainable management, the CDEM Act states 'to improve and promote the sustainable management of hazards...in a way that contributes to the social, economic, cultural and environmental well-being and safety of the public and also the protection of property.'¹⁶⁸

The CDEM Act provides a range of powers to civil defence directors during an emergency. These powers include the 'removal or disposing of, or securing or otherwise making safe, dangerous structures and materials wherever they may be.'¹⁶⁹ These powers are supported by section 330 of the RMA which basically mean that in the event of a civil emergency, persons exercising emergency powers under the CDEM Act could demolish or remove severely damaged listed heritage buildings without resource consent in the interests of public safety. Section 59 of the CDEM Act is a general obligation for all government departments and others to undertake civil defence emergency management functions and responsibilities.

The CDEM Act establishes a strategic and policy framework involving the Civil Defence Emergency Management Regulations 2003 and three key plans:

¹⁶⁶ For an overview, see NZHPT, 'Towards Improving National and Local Action on Earthquake-Prone Buildings', NZHPT, 3 March 2009: <http://www.historic.org.nz/en/ProtectingOurHeritage/AdvocatingForHeritage.aspx>;

¹⁶⁷ Section 3, CDEM Act 2002

¹⁶⁸ Section 3(a), CDEM Act 2002

¹⁶⁹ Section 85, CDEM Act 2002

- The National CDEM Strategy.
- The National CDEM Plan (and associated guidelines).
- CDEM Group Plans.

The National CDEM Strategy 2008 promotes an integrated approach to CDEM based on the four R's: reduction, readiness, response and recovery. In this context, the CDEM Strategy sets out five principles, being:

- Individual and community responsibility and self-reliance.
- A transparent and systematic approach to managing the risks from hazards.
- Comprehensive and integrated hazard risk management.
- Addressing the consequences of hazards.
- Making best use of information, expertise and structures.

As part of principle one, the importance of Māori cultural heritage is highlighted which makes reference to the role of Māori as an important community stakeholder, especially for the role of marae in recovery, and the risk to wāhi tapu sites and other sites of significance.¹⁷⁰

While the role of the NZHPT is noted in the National CDEM Plan guidelines, the CDEM group plans do not specifically provide processes or guidance for the management of historic heritage during a state of emergency.

Earthquake Insurance and Funding

As part of the civil defence framework, the role of the Earthquake Commission (EQC) is important with respect to the recovery for domestic or residential properties. The EQC provides nation-wide insurance from natural disasters.¹⁷¹ Prior to September 2010, the EQC had over \$5 Billion (NZD) created by a levy collected on all private household insurance policies. The money is held in cash, global equities and in government bonds. The EQC levy is 5 cents on every \$100 NZD of insurance cover. In the 17 years since the establishment of the Earthquake Commission, the levy would equate to about \$1200 paid by every homeowner who has held an insurance policy since 1993. Of the \$5 Billion, \$2.5 Billion NZD was held in international reinsurance which is activated when the EQC has paid the first \$1.5 Billion in claims following a disaster.

Non-residential, public or commercial buildings (including churches) are not part of the insurance coverage provided by EQC. As a consequence, repair of these buildings is dependent on private sources of finance, private insurance and the quality of that insurance. This means there is often a gap between the amount of money an insurance company will pay for repairs to a building as opposed to what is actually required for full restoration, including structural improvements to NZ Building Code requirements. For many public buildings, such as churches, funding assistance is sourced from community fund raising, including donations and applications to the NZ Lottery Grants Board.

For private commercial buildings, the options are more limited since generally the public does not 'give' to benefit private commercial businesses and these businesses cannot apply to the NZ Lottery Grants Board unless they are a charitable trust or incorporation. However, local authority initiatives, such as the Christchurch City Council's heritage grant fund do provide some limited assistance for

¹⁷⁰ MCDEM, National CDEM Strategy, 2008, p 7

¹⁷¹ Earthquake Commission Act 1993

private owners of heritage buildings with funding for conservation and earthquake strengthening works. Some funding assistance is also available from the NZHPT under the National Heritage Preservation Incentive Fund (NHPIF). The NHPIF is restricted to registered Category I historic places, historic areas, wāhi tapu of national significance under the Historic Places Act 1993.

Summary of NZ's Disaster Management, Environmental and Heritage Regimes

	Disaster Management and Insurance	Environmental and Housing/Construction	Heritage Management
Law	Civil Defence & Emergency Management Act 2002 Earthquake Commission Act 1993	Building Act 2004, Resource Management Act 1991 (RMA)	Historic Places Act 1993, Resource Management Act 1991 (RMA)
Primary Government agencies	Ministry of Civil Defence and Emergency Management (MCDEM) Earthquake Commission (EQC) Local authorities Emergency services	Ministry for the Environment (MFE) Department of Housing & Construction Local authorities	Ministry for Culture and Heritage (MCH) NZ Historic Places Trust (NZHPT) Local authorities
Focus	Civil Defence Emergency readiness and response' Earthquake insurance	Environmental and building regulation	Heritage conservation
Planning	National CDEM Strategy National CDEM Plan CDEM Group Plans	RMA: National Policy Statements (NPS) National Environmental Standards (NES) Regional Policy Statements (RPS) Regional Plans District Plans Earthquake-prone, dangerous and insanitary policy under Building Act 2004	Regional Policy Statements District Plans Conservation Plans
Risk focus	Natural disasters, emergency management Earthquake insurance	Natural hazards (RMA) Building Standards Earthquake-prone, dangerous and insanitary buildings (Building Act 2004)	Development (alterations, etc) Subdivision Earthworks Signage Archaeological sites

To summarise New Zealand's framework, the management of earthquake-prone buildings is primarily managed by local authorities under the Building Act in the context of the environmental planning framework provided by the RMA. Since local authorities are also responsible for natural hazards avoidance and local civil defence, the legislative and regulatory framework for disaster management and cultural heritage has the potential to be well integrated. This framework, however, is very dependent on the capability and resources of local authorities and the cooperation between central and local authorities and associated agencies.

For heritage buildings listed in district plans under the RMA, earthquake strengthening will often require resource consent in addition to compliance with the Building Act. Earthquake strengthening may also trigger the need for an archaeological authority from the NZHPT if the site has evidence of (or the NZHPT has reasonable cause to suspect) pre-1900 human activity.

Also if an earthquake-prone heritage building is listed in a district plan under the RMA, resource consent will be required to demolish. This activity is usually classified as a discretionary or non-complying activity (and in some districts – prohibited).

Funding and incentives for earthquake strengthening are generally limited in New Zealand especially for privately owned heritage buildings.

In terms of post-disaster response, the NZHPT considers that there is a need for greater guidance for historic heritage within the National CDEM Strategy/Plan and the CDEM Group Plans.

Appendix 2. Information Request, Canterbury Earthquakes Royal Commission



Canterbury Earthquakes Royal Commission

Komihana a te Karauna hei Tiroiro i ngā Whare i Horo i ngā Rūwhenua o Waitaha

28 September 2011

Robert McClean
Senior Heritage Policy Analyst
Historic Places Trust
PO Box 2629
WELLINGTON 6140

By email: rmcclean@historic.org.nz

Dear Mr McClean

Heritage buildings in the Christchurch Central Business District

The Royal Commission of Inquiry into Building Failure caused by the Canterbury Earthquakes is currently conducting an inquiry into the failure of a large number of buildings in the Christchurch Central Business District (CBD).

The Commission has asked the Christchurch City Council to provide a full list of buildings (by address) within the CBD which have heritage status.

The inquiry would be assisted by the Historic Places Trust providing the following information (if held) in relation to heritage buildings located within the Christchurch CBD:

1. Details of any seismic retrofitting that may have taken place;
2. Any information regarding the current condition of the building as a result of the Canterbury earthquakes.

The Commission believes that the Trust may be in a position to provide the information particularised above, on the basis of a recent media report that the Trust has assessed 176 buildings for the Canterbury Earthquake Recovery Authority (CERA) (*The Press*, 27 September 2011, page 1).

Would you please provide any relevant documentation or information in your possession, as soon as possible. Either hard copy or electronic format is suitable.

The information and documentation requested is required pursuant to the Royal Commission's powers of investigation set out in section 4C of the Commissions of Inquiry Act 1908.

15 Barry Hogan Place, Addington, Christchurch
PO Box 14053, Christchurch Mail Centre 8544

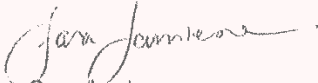
Freephone 0800 337 468

www.royalcommission.govt.nz

2

If you have any queries in relation to this request please contact Sara Jamieson on (03) 741-3033 (sara.jamieson@royalcommission.govt.nz) or David Hutt (03) 741 3006

Yours faithfully



Sara Jamieson
Legal Analyst
Canterbury Earthquakes Royal Commission

2